Brownfield Assessment and Cleanup
Buckner Building
Whittier, Alaska
Hazard ID: 4151

December 2017

Submitted To:
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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ACM	Asbestos-Containing Material
AK	Alaska Method
ADEC	Alaska Department of Environmental Conservation
Alaska Abatement	Alaska Abatement Corporation
ARL	Anchorage Regional Landfill
ASTM	ASTM International
bgs	Below Ground Surface
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
DBAC	Department of Environmental Conservation Brownfield Assessment and Cleanup
Discovery	Discovery Drilling, Inc.
DQOs	Data Quality Objectives
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
GRO	Gasoline Range Organics
LBP	Lead-Based Paint
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
LOQ	Limit of Quantitation
µg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
PACP	Property Assessment and Cleanup Plan
PAH	Polynuclear Aromatic Hydrocarbon
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
PLM	Polarized Light Microscopy

ACRONYMS AND ABBREVIATIONS (Continued)

PPE	Personal Protective Equipment
ppm	Parts Per Million
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
RRO	Residual Range Organics
SGS	SGS North America Inc.
SIM	Selective Ion Method
TCLP	Toxicity Characteristic Leaching Procedure
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WEC	White Environmental Consultants
XRF	X-Ray Fluorescence

BROWNFIELD ASSESSMENT AND CLEANUP
BUCKNER BUILDING
WHITTIER, ALASKA
HAZARD ID: 4151

1.0 INTRODUCTION

This report presents the results of our Department of Environmental Conservation Brownfield Assessment and Cleanup (DBAC) activities conducted at the Buckner Building in Whittier, Alaska. The site is listed on the Alaska Department of Environmental Conservation (ADEC) contaminated sites database as Hazard ID 4151 and File No. 2114.57.003.

The project was conducted under Shannon & Wilson's ADEC Hazardous Substance Spill Prevention and Cleanup Term Contract 18-8036-03. Authorization to proceed with the field activities was received from the ADEC on March 23, 2017 with Notice to Proceed No. 170007855 and Amendments 1 and 2, dated May 31 and August 1, 2017, respectively. Authorization to proceed with the reporting activities was received from the ADEC on September 30, 2017 with Purchase Order 180003844-1.

The project was conducted in general accordance with our June 2017 work plan which was approved by Ms. Lisa Griswold of the ADEC in a letter dated June 13, 2017.

2.0 BACKGROUND

The Buckner Building is located within the northeast ¼ of Section 24, Township 8 North, Range 4 East, Seward Meridian, Alaska, as referenced by the U.S. Geological Society (USGS) Seward D-5 SE quadrangle. A vicinity map is included as Figure 1. The site is located between Blackstone Road and Eshamey Loop, south of Passage Canal. The building comprises seven floors (six aboveground and one basement), has a footprint of approximately 60,000 square feet, and is founded predominately on bedrock. The building was constructed in seven sections (Sections A through G as shown on Figure 2) which are separated by 8-inch "crumple" joints. Debris, including concrete, asphalt, and other building materials, and stockpiled soil is present adjacent to the eastern/southeastern side of the building. Photographs of the Buckner Building are included as Photos 1 through 5 in Appendix A.

In 2015, Shannon & Wilson prepared a Property Assessment and Cleanup Plan (PACP) for the Buckner Building for the ADEC. The PACP included a stakeholder scoping and planning meeting; compiling information to document current and historical uses and activities at the Buckner Building and adjacent parcels; and a hazardous building materials assessment. The PACP identified several potential on-site sources of contamination, including underground

storage tanks (USTs), a former on-site dry cleaner, floor drains, lead-based paint (LBP), and asbestos-containing material (ACM).

3.0 FIELD ACTIVITIES

The field activities consisted of advancing six soil borings; installing one temporary groundwater monitoring well; collecting soil and groundwater samples; and excavation and disposal of asbestos-impacted soil. The project also included the closure of a 2,500-gallon UST located southeast of Section A between Sections B and C (Photos 5 and 6). The results of the UST closure activities are presented under separate cover.

The site characterization activities were conducted by an ADEC-qualified environmental professional, as defined by 18 Alaska Administrative Code (AAC) 75.333. Discovery Drilling, Inc. (Discovery) provided the equipment and personnel to advance the borings and install the temporary monitoring well. SGS North America Inc. (SGS) provided analytical testing of the soil and groundwater samples. Scientific Analytical Institute, Inc., under subcontract to White Environmental Consultants (WEC), conducted testing of soil samples for asbestos. Alaska Abatement Corporation (Alaska Abatement) provided the equipment and personnel to excavate and dispose of asbestos-impacted soil.

Sample locations are summarized in Table 1 and a site plan is included as Figure 2. Field notes taken during the site activities are included in Appendix B. Boring logs are included in Appendix C.

3.1 Surface Soil Sampling

LBP and ACM have been documented within the Buckner Building. There is a concern that these materials have impacted the ground surface adjacent to the building. To evaluate these concerns, visual observations, field screening, and analytical sampling was conducted on July 6, 2017. Prior to collecting field screening and analytical soil samples, the ground surface was visually observed to identify paint chips and/or potential ACMs. Paint chips and building debris were noted on the ground surface adjacent to much of the Buckner Building.

A portable X-Ray Fluorescence (XRF) lead analyzer was used to collect field screening measurements from 42 locations around the outside of the building. The XRF analyzes the soil by emitting x-rays that excite the specified sample and in turn emits secondary x-rays. The energy of the secondary x-rays is unique to each element. The XRF was calibrated as described in the instruction manual prior to the field screening activities. The field screening locations were selected from areas generally distributed evenly around the building as shown on Figure 2. The XRF readings are presented on Table 1. The locations of the field screening samples were adjusted, as appropriate, to avoid locations of visible paint chips.

Ten analytical soil samples were collected and submitted to SGS for analysis. The samples were selected based on the results of the XRF readings and spatially representative locations. To evaluate whether lead has leached into the soil from the paint chips, an attempt was made to exclude visible paint chips and building debris from the soil samples. In addition, samples were collected adjacent to the 2,500-gallon UST (Photo 6); and a 2-inch pipe (Photo 7) and a 6-inch pipe (Photo 8) observed northwest and northeast of Section G, respectively. Our PACP report stated that the origin and purpose of the 2-inch and 6-inch pipes was unknown. Based on our July 6, 2017 site visit, it appears that the 6-inch pipe is associated with a roof drain. The ultimate discharge point of the potential roof drain is unknown.

With the exception of Sample SS23B, the samples were collected from depths of approximately 0.1 to 0.3 foot below ground surface (bgs). Sample SS23B was collected from about 0.5 to 0.7 feet bgs in the location of Sample SS23. The samples were collected using clean stainless-steel spoons. The samples were analyzed for total lead by Environmental Protection Agency (EPA) Method 6020. In addition, the five samples with the highest XRF readings were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) lead by EPA Method 1311/6020. The surface soil sample results are presented in Table 2.

Ten additional surface soil samples were collected from spatially representative locations and submitted to WEC for analysis of asbestos content by ASTM International (ASTM) D7521-13. The analysis includes drying and sieving the sample into three size fractions. Next, the resulting fractions are analyzed by polarized light microscopy (PLM). The approximate asbestos sample locations are shown on Figure 2. The results of the asbestos samples are presented in Appendix D.

3.2 Asbestos-Impacted Soil Cleanup

Chrysotile asbestos was detected in Samples AS3 (1.1 percent) and AS4 (1.2 percent). Asbestos was not detected in the remaining samples. Sample AS3 was collected west of the 2,500-gallon UST which was scheduled for removal. Therefore, prior to removing the UST, asbestos-impacted soil was excavated from this location by Alaska Abatement (Photo 9). Soil was excavated to a depth of approximately 0.1 to 0.2 foot bgs from an approximately 20 square foot area. The excavated soil was placed in 6-mil asbestos disposal bags, double bagged, and transported to the Anchorage Regional Landfill (ARL) for disposal. A total of 340 pounds of asbestos-impacted soil and disposable personal protective equipment (PPE) was disposed at ARL. Alaska Abatement's *Hazard Abatement Close Out Submittal*, including the soil disposal receipt is included in Appendix D.

WEC, under subcontract to Alaska Abatement, conducted air monitoring during cleanup and collected confirmation samples from the limits of the excavation. WEC collected five soil samples from the excavation. The samples were analyzed by Scientific Analytical Institute, Inc.

for asbestos content by ASTM D7521-13. The samples did not contain detectable concentrations of asbestos. The confirmation sample results are included in Appendix D.

3.3 Soil and Groundwater Investigation

The utility locate center and the City of Whittier were contacted to mark buried utilities within the project area and identify potential conflicts prior to advancing the soil borings.

3.3.1 Soil Borings

On July 13, 2017 six soil borings (Borings B1 through B6) were advanced north/northwest of the Buckner Building and adjacent to Blackstone Road in the approximate locations show on Figure 2. The borings were advanced until bedrock or groundwater was encountered. With the exception of Boring B1, groundwater was not encountered in the borings. Groundwater was encountered in Boring B1 at approximately 11.5 feet bgs. Boring B1 was advanced to approximately 1.5 feet below the observed soil/groundwater interface, until bedrock was encountered at 13 feet bgs, to enable the installation of a temporary monitoring well. Bedrock was encountered in the remaining borings at depths ranging from 2.5 (Boring B3) to 10.5 feet bgs (Boring B2).

The borings were advanced by Discovery utilizing a truck-mounted drill rig equipped with 4.25-inch inside diameter hollow-stem augers and split-spoon samplers (Photos 10 and 11). Field screening samples were collected at 2.5-foot intervals until groundwater was encountered or refusal at bedrock. Immediately following retrieval and opening of the split-spoons, the analytical and field screening samples were collected. The analytical sample jars for volatile analyses were collected first, followed by the field screening sample, and finally the non-volatile analytical sample jars. Each soil sample was visually described and "screened" for volatile organic compounds (VOCs) using a photoionization detector (PID) and ADEC-approved headspace screening techniques. The field screening samples were collected in re-sealable plastic bags, warmed to at least 40 degrees Fahrenheit, and tested within 60 minutes of collection. To screen, the sample was agitated for approximately 15 seconds, the seal of the bag was opened slightly, the instrument probe was inserted into the air space above the soil, and the bag held closed around the PID probe. The maximum ionization response as the PID drew vapor from the sample bag was recorded. The PID was calibrated with 100 parts per million (ppm) isobutylene-in-air standard gas.

One analytical soil sample from each soil boring was submitted for analysis. The sample was selected from the interval with the highest PID measurement. The analytical samples were collected by quickly and completely filling laboratory-provided glass jars in decreasing order of volatility. For each volatile sample, at least 25 grams of soil, but no more than what can be completely submerged with 25-milliliters of methanol, was placed into a pre-weighed, 4-ounce

jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates was added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar was completely filled with soil, taking care to exclude gravel and debris. Sample jars were filled using clean dedicated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain-of-custody procedures. Following sampling, the borings not completed as temporary groundwater monitoring wells were backfilled with the drill cuttings and the ground surface was repaired with asphalt patches.

Seven soil samples from the soil borings, including one field duplicate, were submitted to SGS and analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101, diesel range organics (DRO) by AK 102, residual range organics (RRO) by AK 103, VOCs by EPA Method 8260B, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D selective ion method (SIM), Resource Conservation and Recovery Act (RCRA) metals by EPA Method 6020, and polychlorinated biphenyls (PCBs) by EPA Method 8082A. A methanol trip blank was submitted and analyzed for GRO and VOCs by AK 101 and EPA Method 8260B, respectively.

3.3.2 Temporary Monitoring Wells

Temporary Wells TMW1 (Photo 12) and TMW5, consisting of 1-inch diameter, polyvinyl chloride (PVC) pipe, were installed in Borings B1 and B5, respectively. The bottom section of the wells consisted of 5-foot sections of 1-inch diameter, slotted PVC pipe was placed at the soil/bedrock interface. The temporary wells were left undisturbed in the bottom of the boring for approximately 4 hours to allow groundwater to accumulate. Prior to sampling, depth-to-water was measured with an electronic water level indicator. Groundwater did not accumulate in Temporary Well TMW5. A grab groundwater sample was collected from Temporary Well TMW1 using a disposable polyethylene mini-bailer. The analytical sample was collected by transferring water directly from the bailer into the laboratory-supplied containers. The sample jars were filled in decreasing order of volatility. Well TMW1 was not purged or developed prior to sampling, therefore the groundwater sample is considered to be screening level quality for assessing the presence or absence of contaminants of potential concern. Following sampling of Well TMW1, the well screens were removed, the borings were backfilled with the drill cuttings, and the ground surface was repaired with an asphalt patch.

Two analytical groundwater samples, including one duplicate sample, were submitted to SGS and analyzed for GRO by AK 101, DRO by AK 102, RRO by AK 103, VOCs by EPA Method 8260B, PAHs by EPA Method 8270D SIM, and RCRA metals by EPA Method 6020. For quality control purposes, a water trip blank was analyzed for GRO by AK 101 and VOCs by EPA Method 8260B.

4.0 SUBSURFACE CONDITIONS

The following soil and groundwater conditions have been summarized based on the site characterization activities.

4.1 Soil

Based on our observations of soil recovered from the borings, the subsurface primarily consists of sand and gravel with varying silt content, overlying bedrock. Bedrock was encountered at depths ranging from 2.5 to 13 feet bgs. A tar-like material was observed at about 7.5 feet bgs in Borings B4 and B5. Metal debris was also observed at 7.5 feet bgs in Boring B5.

4.2 Groundwater

Groundwater was encountered in Boring B1 during drilling at approximately 11.5 feet bgs. Prior to sampling, groundwater was measured in Well TMW1 at 10.5 bgs. Groundwater was not encountered in the remaining borings.

5.0 DISCUSSION OF RESULTS

The analytical soil and groundwater results were compared to ADEC cleanup levels presented in the October 2017, 18 AAC 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 AAC 75.341, for the "over 40-inch (precipitation) zone," and groundwater cleanup levels are presented in Table C of 18 AAC 75.345. The TCLP lead results were compared to the regulatory levels presented in 40 Code of Federal Regulations (CFR) 261.24. The applicable cleanup and regulatory levels are listed in Tables 2, 3, and 4. The laboratory reports and completed ADEC Laboratory Data Review Checklists are provided in Appendix E.

5.1 Surface Soil Samples

Total lead was detected in each sample with concentrations ranging from 15.2 mg/kg (Sample SS42) to 137,000 mg/kg (Sample SS38). The concentration of lead in Samples SS23 (661 mg/kg) and SS38 (137,000 mg/kg) exceed the ADEC cleanup level of 400 mg/kg. Sample SS23B was collected from about 0.2 to 0.4 foot beneath Sample SS23. Sample SS23B contains 158 mg/kg which is less than the ADEC cleanup level. The presence of buried debris prevented the collection of a deeper sample from the location of Sample SS38.

TCLP lead was detected in each tested sample with concentrations ranging from 0.402 mg/L (Sample SS16) to 964 mg/L (Sample SS38). The concentration of TCLP lead in Sample SS38 exceeds the EPA regulatory level and would require the soil, if removed, be treated/disposed as a hazardous waste based on the toxicity characteristic.

5.2 Soil Boring Samples

An estimated (J-flagged) concentration of DRO (2,230 milligrams per kilogram [mg/kg]) and RRO (29,900 mg/kg) were detected in Sample B4S4 at concentrations greater than the most stringent ADEC Method Two cleanup levels of 230 mg/kg and 8,300 mg/kg, respectively. Naphthalene (maximum of 0.150 mg/kg), benzo(a)anthracene (maximum of 0.450 mg/kg), and benzo[a]pyrene (maximum of 0.530 mg/kg) were detected in Sample B3S1 and B4S4 at concentrations greater than the most stringent ADEC Method Two cleanup levels of 0.038 mg/kg, 0.28 mg/kg, and 0.17 mg/kg, respectively. Arsenic was also detected in each of the samples at concentrations ranging from 6.58 to 33.1 mg/kg which exceed the ADEC Method Two migration to groundwater cleanup level of 0.20 mg/kg. Although, it is likely that these concentrations are due to the presence of naturally occurring arsenic.

GRO, PCBs, and multiple VOCs, PAHs, and RCRA metals were detected in at least one of the soil boring samples at concentrations less than the most stringent ADEC Method Two cleanup levels.

5.3 Groundwater Samples

The duplicate groundwater sample set collected from Temporary Well TMW1 contain a maximum of 12,300 µg/L arsenic, 11,700 µg/L barium, 25.9 µg/L cadmium, 4,180 µg/L lead, and 18.4 µg/L mercury which exceed the ADEC Table C cleanup levels of 0.52 µg/L, 3,800 µg/L, 9.2 µg/L, 15 µg/L, and 0.52 µg/L, respectively. The samples also contain DRO, RRO, benzene, toluene, 1,2-dichloroethane, 2-butanone, chromium, silver, and seven PAH compounds at concentrations less than the applicable ADEC Table C cleanup levels. The remaining tested analytes were not detected in the groundwater samples.

5.4 Quality Assurance/Quality Control

The project laboratory follows on-going quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory controls to address data quality for this project include surrogate spikes, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to determine recovery rates, precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative identifying the problem in the Case Narrative of their Laboratory Report (See Appendix E).

Laboratory-prepared soil and water trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS for each sampling event. The soil and water trip blank samples did not contain detectable concentrations of target

analytes. These results suggest that the project soil and water samples were not cross-contaminated during sampling, transporting, or analysis of the samples.

The laboratory groundwater method blank contained estimated (J-flagged) concentrations of chromium (2.15 µg/L) and mercury (0.124 µg/L). The groundwater samples associated with the method blank detection are not considered affected because the reported sample concentrations are greater than 10 times the report method blank detections.

The laboratory soil method blank contained estimated (J-flagged) concentrations of mercury (0.0208 mg/kg). chloromethane (0.0128 mg/kg), and tetrachloroethane (0.00875 mg/kg). The corresponding samples did not contain detectable concentrations of chloromethane or tetrachloroethane. Samples B4S4, B5S3, B5S13, and B6S3 contained estimated concentrations of mercury. Therefore, these mercury results are flagged "B" and reported as non-detect at the limit of quantitation (LOQ). The non-estimated mercury concentrations in Samples B1S5, B2S2, and B3S1 are within 5 times the method blank detection. These results are flagged "B" and reported as non-detect at the detected results.

The relative percent difference (RPD) between the project sample and associated duplicate results is a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. The ADEC recommends an RPD of less than 30 percent for duplicate groundwater samples. For duplicate groundwater sample set TMW1/TMW11, the naphthalene, arsenic, barium, cadmium, chromium, lead, mercury, and silver RPDs are greater than the ADEC's DQO of 30 percent. Therefore, these results are flagged "E" on Table 4 to indicate that the sample results are estimated due to the RPD failures. It is noted that most of these results are estimated (J-flagged) and/or within a factor of two of each other.

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the data quality objectives. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist for each data package, which is included in Appendix E. In our opinion, no non-conformances that would adversely impact data usability for the objectives of this project were noted.

6.0 CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) was prepared to identify known and potential exposure pathways associated with contamination at the site. The CSM was developed using the ADEC's guidance CSM Scoping Form. The ADEC forms are included in Appendix E, with discussions of the potential exposure pathways provided below. The narrative includes descriptions of the site-specific considerations that increase or decrease the viability of each pathway at this site.

The 2015 PACP identified several potential on-site sources of contamination, including USTs, a former dry cleaner, floor drains, and hazardous building materials. During the 2017 site characterization and UST closure activities conducted by Shannon & Wilson, petroleum- and lead-impacted soil was identified at the site.

6.1 Soil

The direct contact exposure route is considered complete due to the presence of petroleum-and lead-impacted soil between 0 and 15 feet bgs. The direct contact exposure pathway is potentially complete for site visitors, trespassers, and commercial workers, and future residents and construction workers.

6.2 Groundwater

The ingestion of groundwater is considered a potentially complete exposure pathway because contaminated groundwater is expected to be present in the vicinity of the former UST (groundwater samples were not collected during the UST closure activities) and could potentially be used as a future drinking water source.

6.3 Air

Volatile contaminants have the potential to impact receptors through outdoor and indoor air inhalation. The presence of volatile contaminant concentrations in soil within the top 15 feet bgs creates a potentially complete outdoor air exposure pathway for site visitors and trespassers, and future residents, commercial workers, and construction workers. The Buckner Building is currently unsuitable for occupation. Therefore, the indoor air exposure pathway is currently incomplete, with the exception of trespassers and commercial workers who may enter the structure. Although, if new structures were constructed on the site, the indoor air exposure pathway would be potentially complete for future residents, commercial and construction workers, and visitors.

6.4 Surface Water

Floor drains located within the Buckner Building reportedly discharge to Passage Canal, which can be used for recreational, and subsistence activities. Therefore, migration to surface water is considered a potentially complete exposure pathway.

6.5 Other

Floor drains located within the Buckner Building reportedly discharge to Passage Canal. Contaminants entering the floor drain system could discharge to Passage Canal and impact sediment, which can affect surface water through resuspension, runoff, and/or erosion. In turn,

contaminants can then be absorbed by plants and/or animals within the canal's ecosystem. Therefore, sediment and biota are considered potentially complete pathways.

6.6 CSM Summary

Currently complete or potentially complete exposure pathways, including direct contact with soil, groundwater, surface water, inhalation of indoor or outdoor air, sediment, and biota have been identified at the site. It is also recognized that changes in the site use or other site conditions may affect the viability of potential exposure pathways. In particular, the CSM will need to be re-evaluated and revised as necessary if demolition occurs at the site and/or a change in land use occurs.

7.0 SUMMARY

The DBAC field activities consisted of advancing six soil borings; installing one temporary groundwater monitoring well; collecting soil and groundwater samples; and excavation and disposal of asbestos-impacted soil.

Based on the results of our surface soil sampling activities, surface soil impacted with lead and asbestos, likely the result of weathered paint and deteriorating building debris, is present adjacent to the building. In addition, surface soil containing lead at a level which would classifies the soil as a characteristic hazardous waste, if removed, was identified. Based on field screening, analytical sampling, and asbestos-cleanup activities, the lead- and asbestos-impacted soil is located at depths less than 0.5 feet bgs. Based on the decaying condition of the building, there is a potential that additional impacts to the site's surface soil will occur.

Petroleum-impacted soil was documented in soil samples collected from Borings B3 and B4, which were advanced northwest of Section A and D of the building, respectively. Due to shallow bedrock, groundwater sample could not be collected from these locations. The source and extent of soil contamination is currently unknown.

8.0 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives. The findings we have presented within this report are based on the limited sampling and analyses we conducted for this project. As a result, the analyses and sampling performed can only provide you with our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes due to natural forces or human activity can occur on the site. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

Shannon & Wilson has prepared the attachment in Appendix G, "Important Information About Your Geotechnical/Environmental Report," to assist you in understanding the use and limitations of our reports.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore has not, and will not, disclose the results of this study except upon your authorization or as required by law.

We appreciate this opportunity to be of service and your confidence in our firm. If you have questions or comments concerning this report, please call the undersigned at (907) 561-2120.

Sincerely,

SHANNON & WILSON, INC.

Dan P. McMahon
Associate

Matthew S. Hemry, P.E.
Vice President

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs)	XRF Reading (ppm) ^^	Sample Description**
Surface Soil Samples					
SS1	7/6/2017	Southwest of Section A	0.1-0.3	60	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS2	7/6/2017	West of Section A	0.1-0.3	51	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS3	7/6/2017	West of Section A	0.1-0.3	12	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS4	7/6/2017	Northwest of Section A	0.1-0.3	19	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS5	7/6/2017	Northwest of Section A	0.1-0.3	19	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS6	7/6/2017	Northwest of Section A	0.1-0.3	47	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
* SS7	7/6/2017	Northwest of Section C	0.1-0.3	68	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS8	7/6/2017	Northwest of Section C	0.1-0.3	24	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
* SS9	7/6/2017	Northwest of Section D	0.1-0.3	188	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS10	7/6/2017	Northwest of Section E	0.1-0.3	38	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS11	7/6/2017	Northwest of Section F	0.1-0.3	60	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS12	7/6/2017	North of Section G	0.1-0.3	14	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS13	7/6/2017	North of Section G	0.1-0.3	22	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS14	7/6/2017	North of Section G	0.1-0.3	36	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS15	7/6/2017	Northeast of Section G	0.1-0.3	109	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
* SS16	7/6/2017	Northeast of Section G	0.1-0.3	707	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist; trace paint chips
SS17	7/6/2017	East of Section G	0.1-0.3	631	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS18	7/6/2017	Southwest of Section G	0.1-0.3	18	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS19	7/6/2017	West of Section G	0.1-0.3	94	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS20	7/6/2017	Southeast of Section F	0.1-0.3	17	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS21	7/6/2017	Southeast of Section F	0.1-0.3	23	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS22	7/6/2017	East of Section E	0.1-0.3	23	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
* SS23	7/6/2017	Southeast of Section E	0.1-0.3	848	Gray to dark gray, *Poorly Graded Sand with Gravel (SP)* ; moist; trace paint chips
* SS23B	7/6/2017	Southeast of Section E	0.5-0.7	-	Gray to dark gray, *Poorly Graded Sand with Gravel (SP)* ; moist; trace paint chips
SS24	7/6/2017	South of Section E	0.1-0.3	324	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS25	7/6/2017	Southwest of Section E	0.1-0.3	18	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS26	7/6/2017	West of Section E	0.1-0.3	21	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS27	7/6/2017	Southeast of Section D	0.1-0.3	19	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist

Notes:

* = Sample analyzed by the project laboratory (See Table 2)

** = Sample description applies to the portion of the specified sample interval from which the sample was collected

^^ = Field screening instrument was a X-Ray Fluorescence (XRF) analyzer.

\- = not applicable or not measured

bgs = below ground surface

ppm = parts per million

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs)	XRF Reading (ppm) ^^	Sample Description**
Surface Soil Samples (Continued)					
SS28	7/6/2017	East of Section C	0.1-0.3	22	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS29	7/6/2017	Southeast of Section C	0.1-0.3	57	Gray to dark gray, *Poorly Graded Sand with Gravel (SP);* moist
SS30	7/6/2017	South of Section C	0.1-0.3	27	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS31	7/6/2017	Southwest of Section C	0.1-0.3	33	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS32	7/6/2017	West of Section C	0.1-0.3	74	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* SS33	7/6/2017	Northeast of Section A	0.1-0.3	76	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS34	7/6/2017	Northeast of Section B	0.1-0.3	79	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* SS35	7/6/2017	Northeast of Section B	0.1-0.3	81	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS36	7/6/2017	East of Section B	0.1-0.3	58	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS37	7/6/2017	South of Section B	0.1-0.3	56	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* SS38	7/6/2017	Southwest of Section B	0.1-0.3	39,100	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS39	7/6/2017	Southwest of Section B	0.1-0.3	139	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
SS40	7/6/2017	Southwest of Section B	0.1-0.3	70	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* SS41	7/6/2017	Adjacent to pipe northwest of Section G	0.1-0.3	64	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* SS42	7/6/2017	Adjacent to pipe north of Section G	0.1-0.3	20	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
Asbestos Samples					
* AS1	7/6/2017	Southeast of Section F	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS2	7/6/2017	South of Section D	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS3	7/6/2017	West of UST	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS4	7/6/2017	Southwest of Section B	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS5	7/6/2017	Northwest of Section A	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS6	7/6/2017	Northwest of Section A	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS7	7/6/2017	Northwest of Section D	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS8	7/6/2017	West of Section F	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS9	7/6/2017	Adjacent to pipe northwest of Section G	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist
* AS10	7/6/2017	Adjacent to pipe north of Section G	0-0.3	-	Brown to dark brown, *Poorly Graded Gravel with Sand (GP);* moist

Notes:

* = Sample analyzed by the project laboratory (See Table 2)

** = Sample description applies to the portion of the specified sample interval from which the sample was collected

\- = not applicable or not measured

bgs = below ground surface

^^ = Field screening instrument was a X-Ray Fluorescence (XRF) analyzer.

ppm = parts per million

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs)	Headspace (ppm) ^^	Sample Description**
Soil Borings					
Boring B1					
B1S1	7/13/2017	Soil Boring B1, Sample 1	0-2.5	0.3	Medium dense, dark gray to gray, *Poorly Graded Sand with Gravel (SP)*; moist
B1S2	7/13/2017	Soil Boring B1, Sample 2	2.5-4.5	0.5	Medium dense, dark gray to gray, *Poorly Graded Sand with Gravel (SP)*; moist
B1S3	7/13/2017	Soil Boring B1, Sample 3	5-7	0.5	Medium dense, dark gray to gray, *Poorly Graded Sand with Gravel (SP)*; moist
B1S4	7/13/2017	Soil Boring B1, Sample 4	7.5-9.5	0.5	Medium dense, dark gray to gray, *Poorly Graded Sand with Gravel (SP)*; moist
* B1S5	7/13/2017	Soil Boring B1, Sample 5	10-12	0.7	Medium dense, brown, *Poorly Graded Sand with Silt (SP-SM)*; moist to wet
Boring B2					
B2S1	7/13/2017	Soil Boring B2, Sample 1	0-2.5	0.3	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
* B2S2	7/13/2017	Soil Boring B2, Sample 2	2.5-4.5	1.0	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B2S3	7/13/2017	Soil Boring B2, Sample 3	5-7	0.3	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B2S4	7/13/2017	Soil Boring B2, Sample 4	7.5-8	-	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B2S5	7/13/2017	Soil Boring B2, Sample 5	10-10.5	-	Bedrock
Boring B3					
* B3S1	7/13/2017	Soil Boring B3, Sample 1	0-2.5	1.5	Dark gray, *Poorly Graded Sand with Gravel (SP)*; moist; trace organics
B3S2	7/13/2017	Soil Boring B3, Sample 2	2.5	-	Bedrock
Boring B4					
B4S1	7/13/2017	Soil Boring B4, Sample 1	0-2.5	0.6	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B4S2	7/13/2017	Soil Boring B4, Sample 2	2.5-4.5	0.8	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B4S3	7/13/2017	Soil Boring B4, Sample 3	5-7	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
* B4S4	7/13/2017	Soil Boring B4, Sample 4	7.5-9.5	7.5	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist; tar-like material
B4S5	7/13/2017	Soil Boring B4, Sample 5	10	-	Bedrock
Boring B5					
B5S1	7/13/2017	Soil Boring B5, Sample 1	0-2.5	0.2	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B5S2	7/13/2017	Soil Boring B5, Sample 2	2.5-4.5	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
* B5S3	7/13/2017	Soil Boring B5, Sample 3	5-7	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
* B5S13	7/13/2017	Duplicate of Sample B5S3	5-7	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist
B5S4	7/13/2017	Soil Boring B5, Sample 4	7.5-8.3	-	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)*; moist tar-like material, metal debris

Notes:

* = Sample analyzed by the project laboratory (See Table 2)

** = Sample description applies to the portion of the specified sample interval from which the sample was collected

^^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

\- = not applicable or not measured

bgs = below ground surface

ppm = parts per million

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet)^	Headspace (ppm) ^^	Sample Description**
Soil Borings (Continued)					
Boring B6					
B6S1	7/13/2017	Soil Boring B6, Sample 1	0-2.5	0.2	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)* ; moist; trace silt
B6S2	7/13/2017	Soil Boring B6, Sample 2	2.5-4.5	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)* ; moist; trace silt
* B6S3	7/13/2017	Soil Boring B6, Sample 3	5-6.5	0.4	Medium dense, dark gray, *Poorly Graded Sand with Gravel (SP)* ; moist; trace silt
Groundwater Samples					
* TMW1	7/13/2017	Monitoring Well TMW1	10.5	-	Groundwater
* TMW11	7/13/2017	Duplicate of Sample TMW1	10.5	-	Groundwater
Quality Control Samples					
* STB1	7/13/2017	Soil Trip Blank	-	-	Ottawa sand with methanol added in the laboratory
* WTB1	7/13/2017	Water Trip Blank	-	-	Organic-free water provided by the laboratory
* WTB2	7/13/2017	Water Trip Blank	-	-	Organic-free water provided by the laboratory

Notes:

* = Sample analyzed by the project laboratory (See Table 2)

** = Sample description applies to the portion of the specified sample interval from which the sample was collected

^ = Depth of soil samples were measured from below ground surface and depth to groundwater was measured from below top of casing

^^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

ppm = parts per million

\- = not applicable or not measured

TABLE 2
SURFACE SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	ADEC Cleanup Level (mg/kg)**	EPA Regulatory Level (mg/L)***	Sample ID Number^ and Soil Sample Depth in Feet Below Ground Surface (See Table 1 and Figure 2)									
				SS7 0.1-0.3	SS9 0.1-0.3	SS16 0.1-0.3	SS23 0.1-0.3	SS23B 0.5-0.7	SS33 0.1-0.3	SS35 0.1-0.3	SS38 0.1-0.3	SS41 0.1-0.3	SS42 0.1-0.3
Field Screening - ppm	XRF	-	-	68	188	707	848	-	76	81	39,100	64	20
Total Lead - mg/kg	EPA 6020	400	-	**63.4**	**68.9**	**54.4**	**661**	**158**	**67.0**	**25.6**	**137,000**	**16.3**	**15.2**
TCLP Lead - mg/L	EPA 6020 TCLP	-	5.0	-	**0.198**	**0.402**	**1.07**	-	-	**1.87**	**964**	-	-

Notes:

*	= See Appendix E for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75 (October 2017), for the "over 40 inches (precipitation) zone"
***	= TCLP PCE and TCE regulatory levels are presented in 40 Code of Federal Regulations (CFR) 261.24
^	= Sample ID number preceded by "17860-" on the chain of custody form
TCLP	= Toxicity characteristic leaching procedure
XRF	= X-Ray Fluorescence
ppm	= Parts per million
mg/kg	= Milligrams per kilogram
mg/L	= Milligrams per liter
63.4	= Analyte detected
661	= Analyte detected above ADEC cleanup level
-	= Not applicable or sample not tested for this analyte

TABLE 3
SOIL BORING ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs (See Table 1, Figure 2, and Appendix C)							
			B1S5 10-12	B2S2 2.5-4.5	B3S1 0-2.5	B4S4 7.5-9.5	B5S3 5-7	B5S13 ^^ 5-7	B6S3 5-6.5	STB1 -
PID Headspace Reading - ppm	OVM 580B	-	0.7	1.0	1.5	7.5	0.4	0.4	0.4	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	260	<1.30	<0.980	**0.845 J**	**2.59**	<0.905	<0.880	<1.08	<0.955
Diesel Range Organics (DRO) - mg/kg	AK 102	230	**13.6 J**	<10.5	**26.1**	**2,230 J**	<10.4	<10.4	**8.17 J**	-
Residual Range Organics (RRO) - mg/kg	AK 103	8,300	**63.6**	**22.2**	**132**	**29,900**	<10.4	<10.4	**28.8**	-
Volatile Organic Compounds (VOCs)										
Benzene - mg/kg	EPA 8260C	0.022	<0.00650	<0.00490	<0.00437	**0.00951 J**	<0.00451	<0.00439	<0.00540	<0.00477
Toluene - mg/kg	EPA 8260C	6.7	<0.0130	<0.00980	<0.00875	**0.0618**	<0.00905	<0.00880	<0.0108	<0.00955
Ethylbenzene - mg/kg	EPA 8260C	0.13	<0.0130	<0.00980	<0.00875	**0.0258**	<0.00905	<0.00880	<0.0108	<0.00955
Xylenes (total) - mg/kg	EPA 8260C	1.5	<0.0390	<0.0294	<0.0263	**0.151**	<0.0271	<0.0264	<0.0324	<0.0286
1,2,4-Trimethylbenzene - mg/kg	EPA 8260C	0.16	<0.0261	<0.0196	**0.0296 J**	**0.0853**	<0.0181	<0.0176	<0.0216	<0.0191
1,3,5-Trimethylbenzene - mg/kg	EPA 8260C	1.3	<0.0130	<0.00980	**0.0107 J**	**0.0222 J**	<0.00905	<0.00880	<0.0108	<0.00955
4-Isopropyltoluene - mg/kg	EPA 8260C	-	<0.0130	<0.00980	<0.00875	**0.0174 J**	<0.00905	<0.00880	<0.0108	<0.00955
n-Propylbenzene - mg/kg	EPA 8260C	9.1	<0.0130	<0.00980	<0.00875	**0.0115 J**	<0.00905	<0.00880	<0.0108	<0.00955
Naphthalene - mg/kg	EPA 8260C	0.038	<0.0130	<0.00980	**0.0435**	**0.0838**	<0.00905	<0.00880	<0.0108	<0.00955
Other VOC Analytes - mg/kg	EPA 8260C	Various	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) - mg/kg										
Aroclor-1260 - mg/kg	EPA 8082A	1.0	<0.0294	<0.0261	**0.0275 J**	<0.0530 J-	<0.0261	<0.0261	<0.0279	-
Other PCB Analytes - mg/kg	EPA 8082A	1.0	ND	ND	ND	ND J-	ND	ND	ND	-
Polynuclear Aromatic Hydrocarbons (PAHs)										
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	<0.0149	<0.0130	**0.0300**	**0.395**	<0.0131	<0.0130	<0.0140	-
2-Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	<0.0149	<0.0130	**0.0434**	**0.655**	<0.0131	<0.0130	<0.0140	-
Acenaphthene - mg/kg	EPA 8270D SIM	37	<0.0149	<0.0130	**0.262**	**0.0663 J**	<0.0131	<0.0130	<0.0140	-
Acenaphthylene - mg/kg	EPA 8270D SIM	18	<0.0149	<0.0130	<0.0129	<0.107	<0.0131	<0.0130	<0.0140	-
Anthracene - mg/kg	EPA 8270D SIM	390	<0.0149	<0.0130	**0.213**	**0.0814 J**	<0.0131	<0.0130	<0.0140	-
Benzo(a)Anthracene - mg/kg	EPA 8270D SIM	0.28	<0.0149	<0.0130	**0.385**	**0.450**	<0.0131	<0.0130	**0.0102 J**	-
Benzo[a]pyrene - mg/kg	EPA 8270D SIM	0.17	<0.0149	**0.0294**	**0.354**	**0.530**	<0.0131	<0.0130	<0.0140	-
Benzo[b]Fluoranthene - mg/kg	EPA 8270D SIM	1.7	<0.0149	**0.0307**	**0.399**	**0.724**	<0.0131	<0.0130	**0.0109 J**	-
Benzo[g,h,i]perylene - mg/kg	EPA 8270D SIM	1,900	<0.0149	**0.0396**	**0.185**	**0.109 J**	<0.0131	<0.0130	<0.0140	-
Benzo[k]fluoranthene - mg/kg	EPA 8270D SIM	17	<0.0149	**0.00816 J**	**0.166**	<0.107	<0.0131	<0.0130	<0.0140	-
Chrysene - mg/kg	EPA 8270D SIM	82	<0.0149	**0.0116 J**	**0.494**	**1.88**	<0.0131	<0.0130	**0.0136 J**	-
Dibenzo[a,h]anthracene - mg/kg	EPA 8270D SIM	0.17	<0.0149	**0.0103 J**	**0.0604**	**0.0697 J**	<0.0131	<0.0130	<0.0140	-
Fluoranthene - mg/kg	EPA 8270D SIM	590	<0.0149	<0.0130	**0.981**	**0.177 J**	<0.0131	<0.0130	**0.0260 J**	-
Fluorene - mg/kg	EPA 8270D SIM	36	<0.0149	<0.0130	**0.156**	**0.110 J**	<0.0131	<0.0130	<0.0140	-
Indeno[1,2,3-c,d]pyrene - mg/kg	EPA 8270D SIM	1.7	<0.0149	**0.0334**	**0.169**	<0.107	<0.0131	<0.0130	<0.0140	-
Naphthalene - mg/kg	EPA 8270D SIM	0.038	<0.0119	<0.0104	**0.0366**	**0.150 J**	<0.0104	<0.0104	<0.0112	-
Phenanthrene - mg/kg	EPA 8270D SIM	39	<0.0149	<0.0130	**1.09**	**0.624**	<0.0131	<0.0130	**0.0274 J**	-
Pyrene - mg/kg	EPA 8270D SIM	87	<0.0149	<0.0130	**0.941**	**0.724**	<0.0131	<0.0130	**0.0255 J**	-
Resource Conservation and Recovery Act Metals										
Arsenic - mg/kg	EPA 6020A	0.20	**24.2**	**33.1**	**28.7**	**8.35**	**6.58**	**6.84**	**21.0**	-
Barium - mg/kg	EPA 6020A	2,100	**42.8**	**40.7**	**63.4**	**24.1**	**29.1**	**26.5**	**34.6**	-
Cadmium - mg/kg	EPA 6020A	9.1	**0.104 J**	**0.285**	**0.164 J**	**1.86**	<0.0985	**0.0680 J**	**0.114 J**	-
Chromium - mg/kg	EPA 6020A	100,000	**45.9**	**35.5**	**42.0**	**30.8**	**39.5**	**38.4**	**33.2**	-
Lead - mg/kg	EPA 6020A	400	**14.7**	**14.1**	**22.5**	**35.1**	**7.73**	**7.92**	**11.8**	-
Mercury - mg/kg	EPA 6020A	0.36	<0.0502 B	<0.0564 B	<0.0387 B	<0.0405 B	<0.0395 B	<0.0383 B	<0.0408 B	-
Selenium - mg/kg	EPA 6020A	6.9	**0.421 J**	<0.520	<0.483	**0.326 J**	<0.493	<0.478	**0.341 J**	-
Silver - mg/kg	EPA 6020A	11	**0.0737 J**	**0.113 J**	**0.0703 J**	**0.0693 J**	<0.0985	**0.0640 J**	**0.0731 J**	-

Notes:

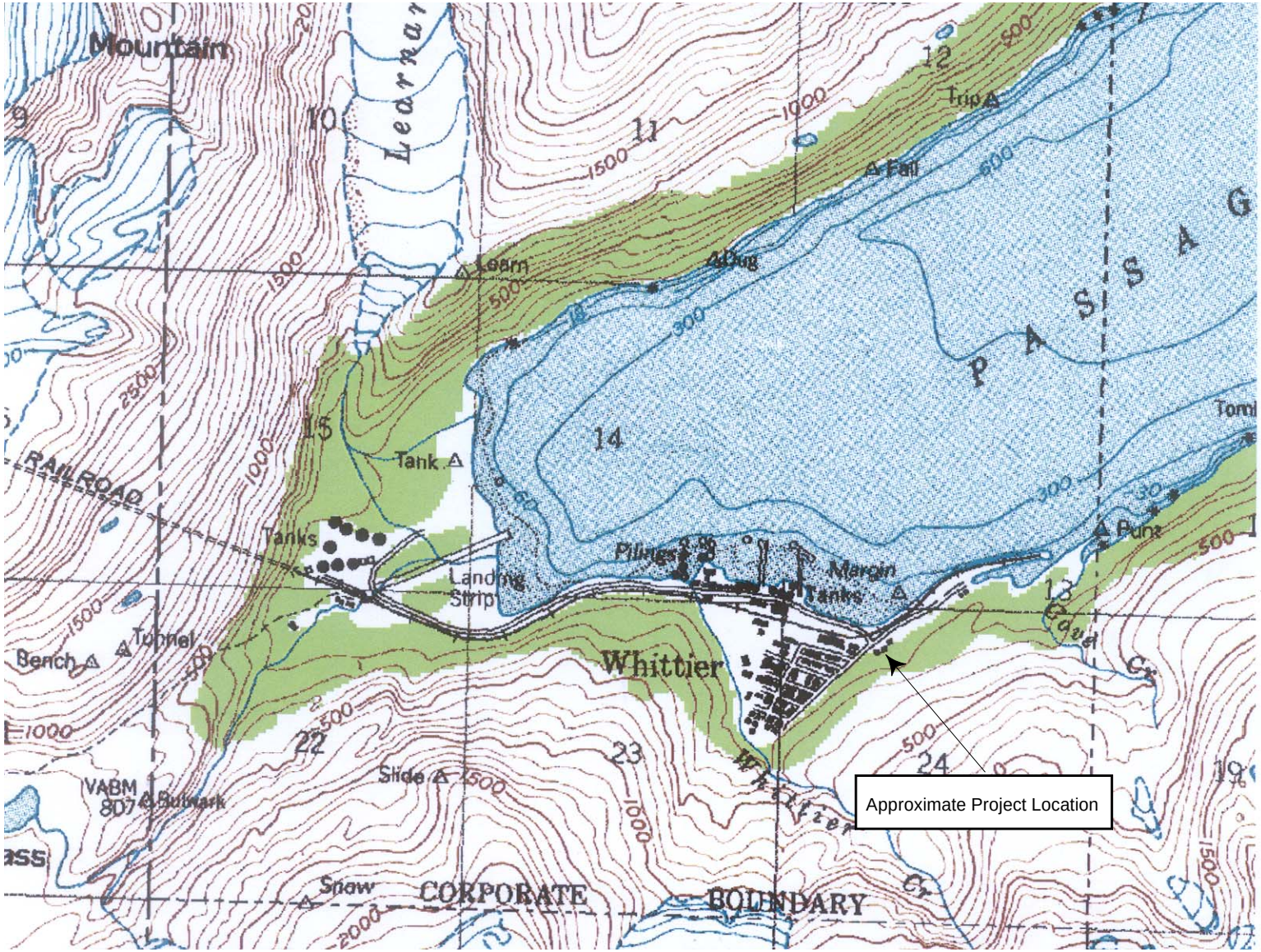
*	= See Appendix E for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75 (October 2017), for the "over 40 inches (precipitation) zone"
^	= Sample ID number preceded by "17860-" on the chain of custody form
^^	= Duplicate of Sample B5S3
mg/kg	= Milligram per kilogram
<1.30	= Analyte not detected; laboratory limit of detection of 1.30 mg/kg
42.8	= Analyte detected
24.2	= Reported concentration exceeds the ADEC cleanup level
-	= Not applicable or sample not tested for this analyte
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
J-	= The reported concentration is biased low due to surrogate failure. See the SGS laboratory report for more details.
B	= Analyte concentration potentially affected by method blank detection. See ADEC Laboratory Data Review Checklist for details.
ppm	= parts per million

TABLE 4
GROUNDWATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (ug/L)**	Sample ID Number^ and Water Depth in Feet bgs (See Table 1, Figure 2, and Appendix C)			
			TMW1 10.5	TMW11 ^^ 10.5	WTB1 Trip Blank	WTB2 Trip Blank
Gasoline Range Organics (GRO) - ug/L	AK 101	2200	<50.0	<50.0	<50.0	-
Diesel Range Organics (DRO) - ug/L	AK 102	1500	**295 J**	**266 J**	-	-
Residual Range Organics (RRO) - ug/L	AK 103	1100	**434 J**	**587**	-	-
Volatile Organic Compounds (VOCs)						
Benzene - ug/L	EPA 8260C	4.6	**0.160 J**	<10.0	-	<0.200
Toluene - ug/L	EPA 8260C	1,100	**0.370 J**	<25.0	-	<0.500
Ethylbenzene - ug/L	EPA 8260C	15	<0.500	<25.0	-	<0.500
Xylenes (total) - ug/L	EPA 8260C	190	<1.50	<75.0	-	<1.50
1,2-Dichloroethane - ug/L	EPA 8260C	1.7	**0.180 J**	<25.0	-	<0.250
2-Butanone - ug/L	EPA 8260C	-	**4.56 J**	<250	-	<5.00
Other VOC Analytes -ug/L	EPA 8260C	ND	ND	ND	-	ND
Polynuclear Aromatic Hydrocarbons (PAHs)						
1-Methylnaphthalene - ug/L	EPA 8270D SIM	11	**0.0227 J**	**0.0184 J**	-	-
2-Methylnaphthalene - ug/L	EPA 8270D SIM	36	**0.0291 J**	**0.0222 J**	-	-
Benzo[a]pyrene - ug/L	EPA 8270D SIM	0.034	**0.0118 J-**	<0.0261 J-	-	-
Fluoranthene - ug/L	EPA 8270D SIM	260	**0.0200 J-**	<0.0261 J-	-	-
Naphthalene - ug/L	EPA 8270D SIM	1.7	**0.0649 J, E**	**0.0380 J, E**	-	-
Phenanthrene - ug/L	EPA 8270D SIM	170	**0.0411 J**	<0.0261	-	-
Pyrene - ug/L	EPA 8270D SIM	120	**0.0194 J-**	<0.0261 J-	-	-
Other PAH Analytes -ug/L	EPA 8270D SIM	-	ND	ND	-	-
Resource Conservation and Recovery Act Metals						
Arsenic - ug/L	EPA 6020A	0.52	**12,300 E**	**6,540 E**	-	-
Barium - ug/L	EPA 6020A	3800	**11,700 E**	**6,880 E**	-	-
Cadmium - ug/L	EPA 6020A	9.2	**25.9 E**	**13.1 J, E**	-	-
Chromium - ug/L	EPA 6020A	22000	**10,800 E**	**5,780 E**	-	-
Lead - ug/L	EPA 6020A	15	**4,180 E**	**2,190 E**	-	-
Mercury - ug/L	EPA 6020A	0.52	**18.4 E**	**6.38 E**	-	-
Selenium - ug/L	EPA 6020A	100	<100	<100	-	-
Silver - ug/L	EPA 6020A	94	**27.2 E**	**14.9 J, E**	-	-

Notes:

*	= See Appendix E for compounds tested, methods, and laboratory reporting limits
**	= Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (October 2017)
^	= Sample ID number preceded by "17860-" on the chain of custody form
^^	= Duplicate of Sample TMW1
ug/L	= Micrograms per liter
<0.0500	= Analyte not detected; laboratory limit of detection of 0.0500 ug/L
587	= Analyte detected
18.4	= Reported concentration exceeds the ADEC cleanup level
-	= Not applicable or sample not tested for this analyte
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
J-	= The reported concentration is biased low due to surrogate failure. See the SGS laboratory report for more details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure.
ND	= Not detected
bgs	= Below ground surface



Elevation in Feet
Contour Interval 100 Feet
Taken from Seward D-5 SE
U.S. Geological Survey Quadrangle

0 0.5 Mile 1.0 Mile
APPROXIMATE SCALE IN FEET

N

Buckner Building
Whittier, Alaska

VICINITY MAP

December 2017 32-1-17860-002

SHANNON & WILSON, INC.
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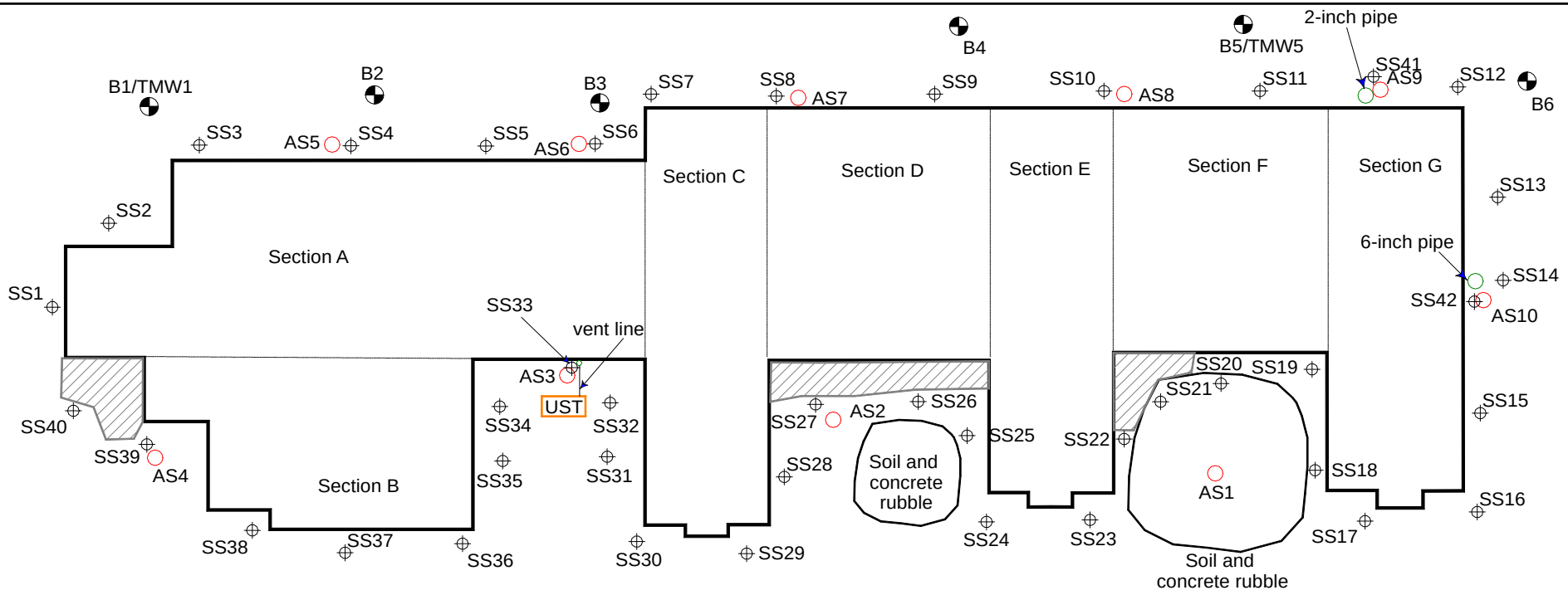
Fig. 1



LEGEND

UST — Approximate location of former 2,500-gallon underground storage tank (UST)

B1/TMW1 — Approximate location of Boring/Temporary Monitoring Well B1/TMW1 advanced/installed by Shannon & Wilson on July 13, 2017

SS1 — Approximate location of Lead Surface Soil Screening Sample SS1 advanced/installed by Shannon & Wilson on July 6, 2017

AS1 — Approximate location of Asbestos Soil Analytical Sample AS1

Vegetation

0 60 120

APPROXIMATE SCALE IN FEET

Buckner Building
Whittier, Alaska

SITE PLAN

December 2017

32-1-17860-002

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Fig. 2

APPENDIX A

SITE PHOTOGRAPHS

Photo 1: Looking northeast at the western side of the Buckner Building. Blackstone Road is to the left. (July 6, 2017)

Photo 2: Looking southeast at the northern end of the Buckner Building. (July 6, 2017)

Buckner Building
Whittier, Alaska

PHOTOS 1 AND 2

December 2017 32-1-17860-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Photo 3: Looking west at the eastern side of the Buckner Building. (July 6, 2017)

Photo 4: Looking west at the eastern side of the Buckner Building. (July 6, 2017)

Photo 5: Looking northwest at the location of the UST, prior to removal. (July 6, 2017)

Photo 6: Looking west at the eastern side of the Buckner Building. (July 6, 2017)

Photo 7: Looking at 2-inch pipe located along the northwest end of Section G. (July 6, 2017)

Photo 8: Looking northwest at the 6-inch pipe on northern end of Section G. (July 6, 2017)

Photo 9: Looking northwest at the asbestos-impacted soil cleanup efforts, southeast of Section A. (August 11, 2017)

Photo 10: Looking south at Boring B3. (July 13, 2017)

Photo 11: Looking west at Boring B6. (July 13, 2017)

Photo 12: Looking southeast at Temporary Well TMW1. (July 13, 2017)

APPENDIX B

FIELD NOTES

FIELD ACTIVITIES DAILY LOG

Date 7/6/17
Sheet 1 of
Project No. 17860

Project Name: BUCKNER BUILDING, WHITTIER, AK
Field activity subject: SURFACE SOIL SAMPLING
Description of daily activities and events:

845 Arrive on site. Call Scott Korbe for site access and utility locates for soil borings.
Scott says he would prefer if borings were not advanced within street. Should be able to drill between building and street. Will contact ADEC prior to drilling.

1000 Begin screening locations with XRF. Paint chips were visible in several locations (See Figure). Several screening locations had to be moved due to debris/vegetation.

The debris between sections B and C has been removed. Debris was piled up closer to the building. Could not locate any fill pipes for the UST. Did see a vent pipe running up the side of the building.

1300 Begin sample collection.
10 Lead - SGS
10 Asbestos - WHITE ENVIRONMENTAL

Collected asbestos samples from areas where building contained lots of windows.

In general, lead samples were collected from the highest XRF readings, but did want spacially representative samples. Avoided paints chips where possible.

Visitors on site: SCOTT KORBE, GCI LOCATORS

Changes from plans/specifications and other special orders and important decisions:

Weather conditions: OVERCAST 60°F

Important telephone calls:

Personnel on site: JAKE TRACY JAKE KESLER
Signature: Date: 7/6/17

(e)

Page 1 of 2

SAMPLE COLLECTION LOG

Project Number: 17680 Location: Buckner Building

Date: 7/6/17

Sampler: JCT & JJK

Sample Number		Location	Sample Time	Depth Interval (ft) top	Depth Interval (ft) bottom	Matrix Type	Sampling Method	Sample Type	XRF ~~PID~~ Reading	Analyses
17860 - SS1	*	See Figure	1340	0.1	0.3	Soil	Grab	ES	60	Lead
SS2			—	0.1	0.3			—	51	—
SS3			—					—	12	—
SS4			—					—	19	—
SS5			—					—	19	—
SS6			—					—	47	—
SS7	*		1350	0.1	0.3			ES	68	Lead
SS8			—					—	24	—
SS9	*		1355	0.1	0.3			ES	188	TCLP
SS10			—					—	38	—
SS11			—					—	60	—
SS12			—					—	14	—
SS13			—					—	22	—
SS14			—					—	36	—
SS15			—					—	109	—
SS16	*		1410	0.1	0.3			ES	707	Paint chips in soil TCLP
SS17			—					—	631	—
SS18			—					—	18	—
SS19			—					—	94	—
SS20			—					—	17	—
SS21			—					—	23	—
SS22			—					—	23	—
SS23	*	Also collected SS23b from 0.5-0.7	1415	0.1	0.3			ES	848	Paint chips in soil TCLP
SS24		See Figure	—					—	324	" " —
SS25			—					—	18	—
SS26			—					—	21	—

Matrix Type		Sampling Method		Sample Type	
AR	Air	B	Bailer/Coliwas	ES	Environmental sample
GW	Groundwater	D	Drill cuttings	ER	Equipment rinsate
PR	Product	G	Grab sampling	FB	Field blank
SB	Subsurf. soil	H	Hand auger	FD	Field duplicate
SE	Sediment	L	Tube liner	FM	Field measurement
SG	Sludge	P	Pump (liquid)	FR	Field replicate
SS	Surface soil	SS	Split spoon	MD	Matrix spike duplicate
SW	Surface water	T	Shelby tube	MS	Matrix spike duplicate
WR	Water	V	Vacuum (gas)	TB	Trip blank
		W	Wipe sampling		

SAMPLE COLLECTION LOG

Project Number: 17860 Location: BICKNELL BUILDING

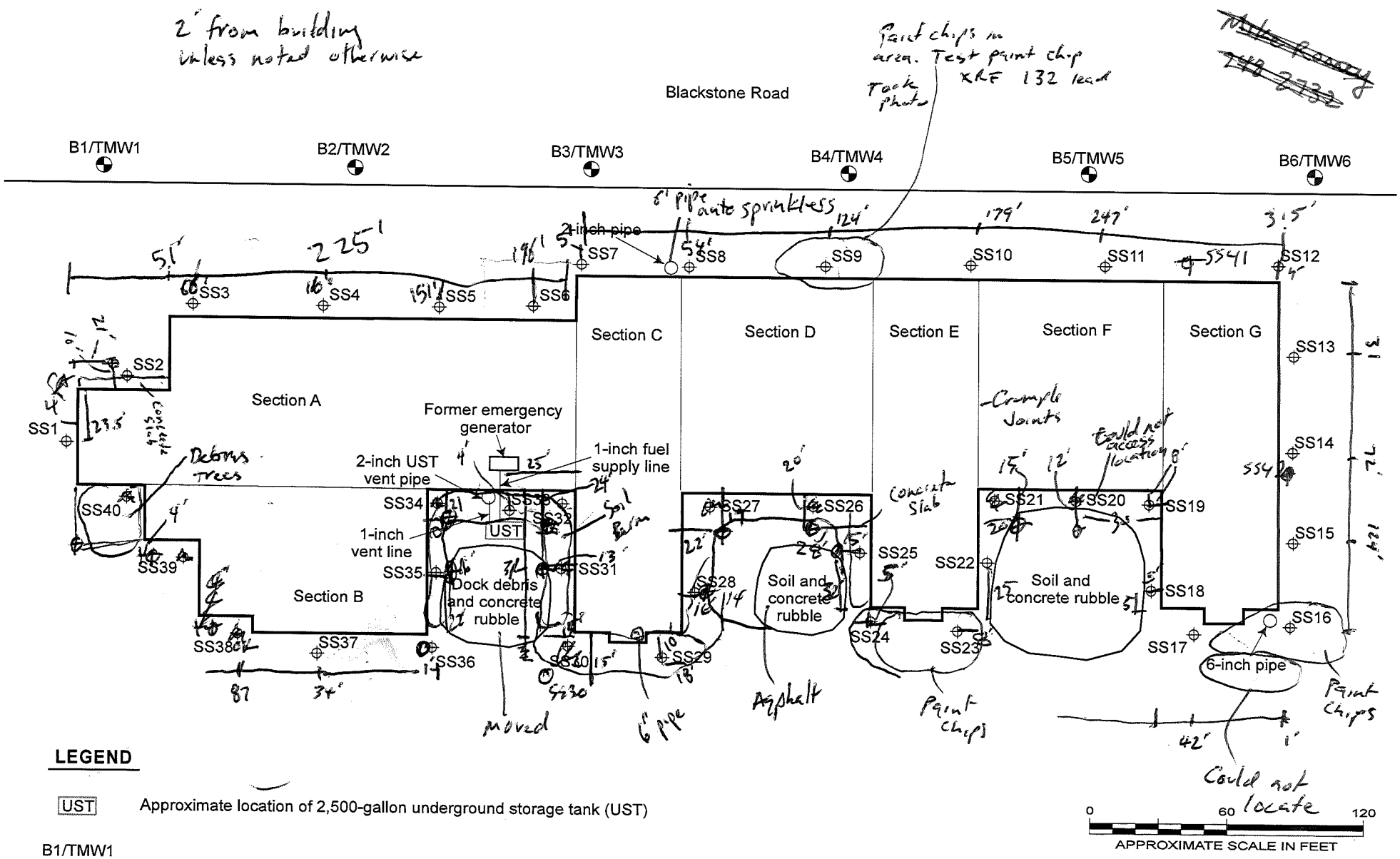
Date: 7/6/17

Sampler: JCT & JJK XRF

Sample Number	Location	Sample Time	Depth Interval (ft) top	Depth Interval (ft) bottom	Matrix Type	Sampling Method	Sample Type	~~PID~~ Reading	Analyses
17860 - SS27	See Figure				SOIL	GRAB	-	19	-
SS28							-	22	-
SS29 *		1430	0.1	0.3			ES	5.7	Lead
SS30							-	27	-
SS31							-	33	-
SS32							-	~~36~~ 74	-
SS33 *		1440	0.1	0.3			ES	76	Lead
SS34							-	79	-
SS35 *		1445	0.1	0.3			ES	81	TCLP
SS36							-	58	-
SS37							-	~~50~~	-
SS38 *		1450	0.1	0.3			ES	39100	TCLP Lead / Lead
SS39							-	139	-
SS40							-	70	-
SS41 *		1400	0.1	0.3			ES	64	Lead
SS42 *		1405					ES	20	Lead
17860 - AS1 *		1425	0	0.3			ES	-	Asbestos in Soil
AS2 *		1435 ~~1455~~						-	
AS3 *		1455						-	
AS4 *		1510						-	
AS5 *		1515						-	
AS6 *		1520						-	
AS7 *		1525						-	
AS8 *		1530						-	
AS9 *		1535						-	
AS10 *		1540						-	

Matrix Type		Sampling Method		Sample Type	
AR	Air	B	Bailer/Coliwas	ES	Environmental sample
GW	Groundwater	D	Drill cuttings	ER	Equipment rinsate
PR	Product	G	Grab sampling	FB	Field blank
SB	Subsurf. soil	H	Hand auger	FD	Field duplicate
SE	Sediment	L	Tube liner	FM	Field measurement
SG	Sludge	P	Pump (liquid)	FR	Field replicate
SS	Surface soil	SS	Split spoon	MD	Matrix spike duplicate
SW	Surface water	T	Shelby tube	MS	Matrix spike duplicate
WR	Water	V	Vacuum (gas)	TB	Trip blank
		W	Wipe sampling		

7/6/17



LEGEND

UST — Approximate location of 2,500-gallon underground storage tank (UST)

B1/TMW1 — Approximate location of proposed Boring/Temporary Monitoring Well B1/TMW1

SS1 — Approximate location of proposed Surface Soil Screening Sample SS1

Buckner Building
Whittier, Alaska

SITE PLAN

June 2017

32-1-17860

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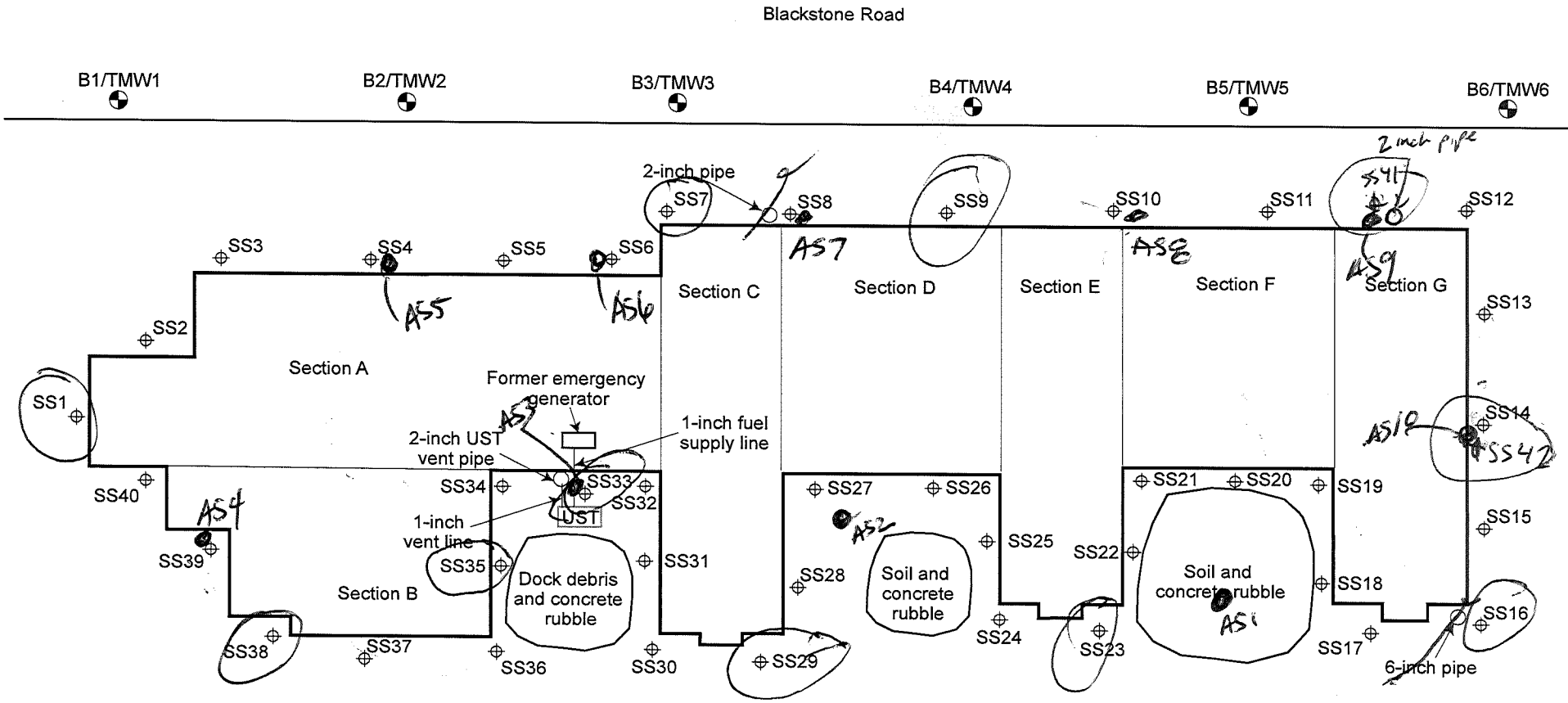
Fig. 2

7/6/17



LEGEND

UST — Approximate location of 2,500-gallon underground storage tank (UST)

B1/TMW1 — Approximate location of proposed Boring/Temporary Monitoring Well B1/TMW1

SS1 — Approximate location of proposed Surface Soil Screening Sample SS1

0 60 120

APPROXIMATE SCALE IN FEET

Buckner Building
Whittier, Alaska

SITE PLAN

June 2017 32-1-17860

SHANNON & WILSON, INC.
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Fig. 2

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: Auto ROD TYPE/DIA.: —
HAMMER WEIGHT: 340 HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B1
JOB NAME: Buckner Building
LOGGED BY: JCT
LOCATION: Whittier, AK ELEV.: —
START DATE: 7/13/17 END DATE:
WEATHER DURING DRILLING: Clear 60°F Windy

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. % G/S/F	FIELD IDENTIFICATION (Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name)
920	S1	0	2 2	—			0.3	G S F	Dark gray to gray Sand with Gravel moist; ~~trace cobbles~~ JCT
7/13	Cuttings	2.5	2 4	4					Shale in sample
930	S2	2.5	9 9	1.2			0.5	G S F	Same
7/13	3SS	4.5	6 4	4					
7/13	S3	5	3 5	1.8			0.5	G S F	Same
940	3SS	7	3 5	4					
7/13	S4	7.5	~~2~~ ~~3~~	0.8			0.5	G S F	Same
950	3SS	9.5	~~7~~ ~~9~~	4					
7/13	S5	10	3 5	1.4			0.7	G S F	Same to 11' then Brown Sand with silt and gravel; moist to wet; ~~trace cobbles~~ JCT
1030	3SS	12	7 11	4		▽ 11.5			
						13		G S F	Drilled down to 13 and hit bedrock.
						Bedrock		G S F	Set well at 13' for grab water sample. Let well sit for 1 hr.
1045	Finished Boring								

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
Lost sampler in hole at 7.5'. Moved over 1' and started new hole.

1000 Hydraulic line blew. Cleanup and fix line. 1030 back up

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
11.5	1030	7/13/17

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: 13
SAMPLES: 5 Attempted / 5 Recovered
DRILL/SAMPLE 1.2 hrs. STANDBY: 0.5 hrs.
SETUP/CLEANUP: 0.2 hrs. WELL INSTALL: 0.1 hrs.
OTHER:

BORING: B1 SHEET 1 OF 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: Auto ROD TYPE/DIA.: —
HAMMER WEIGHT: 340 HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B2
JOB NAME: Buckner Building
LOGGED BY: JET
LOCATION: Whittier, AK ELEV.: —
START DATE: 7/13/17 END DATE: 7/13/17
WEATHER DURING DRILLING: Clear 60°F Windy

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]
1110 / 7/13	S1 / GRAB	0 / 2.5	— —	— Y			0.3	G S F	Dark gray Sand w/ Gravel; moist with Shale rock
1115 / 7/13	S2 / 355	2.5 / 4.5	7 11 / 13 6	1.2 Y			1.0	G S F	Same with layer of light brown sand at 3.5 to 4 moist
1125 / 7/13	S3 / 355	5 / 7	6 14 / 26 7	1 Y			0.3	G S F	Same no light brown sand
1135 / 7/13	S4 / 355	7.5 / 8.0	8 50 refusal	0.5 —			—	G S F	Same Rock in Sample shoe Refusal at 8'
— / 7/13	S5 / 355	10 / 12	50 refusal	— —		Bedrock @ 10' bgs		G S F	
						Drilled down to ~10.5' bgs No water		G S F	
								G S F	

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
Groundwater not encountered.
Drilled down until bedrock. Appeared weathered.

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
—	—	—

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: _____ SAMPLES: _____ Attempted _____ Recovered
DRILL/SAMPLE _____ hrs. STANDBY: _____ hrs.
SETUP/CLEANUP: _____ hrs. WELL INSTALL: _____ hrs.
OTHER: _____

BORING: B2 SHEET 1 OF 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: Auto ROD TYPE/DIA.: —
HAMMER WEIGHT: 340 HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B3
JOB NAME: Buckner Building
LOGGED BY: JCS
LOCATION: Whittier, AK ELEV.:
START DATE: 7/13/17 END DATE: 7/13/17
WEATHER DURING DRILLING: Clear 65° F

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]
1315	S1	0	—	—		Hard drilling through rock	1.5	G	Grass/organics at top, then dark gray Sand with gravel / rock / shale
7/13	Grab	2.5		Y				S	
								F	Very hard drilling
—	S2	2.5	Refusal			Could not pound Sampler		G	Rock / Bedrock?
7/13	355	~~4.5~~						S	
								F	
								G	
								S	
								F	
								G	
								S	
								F	
								G	
								S	
								F	
								G	
								S	
								F	
								G	
								S	
								F	

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):

GROUNDWATER DATA

WATER DEPTH	TIME	DATE

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: 2.5
SAMPLES: 2 Attempted, 1 Recovered
DRILL/SAMPLE ____ hrs. STANDBY: ____ hrs.
SETUP/CLEANUP: ____ hrs. WELL INSTALL: ____ hrs.
OTHER:

BORING: B3 SHEET 1 OF 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: Auto ROD TYPE/DIA.: —
HAMMER WEIGHT: 340 HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B4
JOB NAME: Buckner Building
LOGGED BY: JCT
LOCATION: Whittier, AK ELEV.: —
START DATE: 7/13/17 END DATE: 7/13/17
WEATHER DURING DRILLING: Clear 65°F

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]
1345	S1	0	—	—			0.6	G S F	Dark gray, Sand with gravel; moist with shale
7/13	Grab	2.5		4					
1355	S2	2.5	10 11	1.4			0.8	G S F	Same
7/13	355	4.5	9 8	4					
1405	S3	5	4 4	1			0.4	G S F	Same
7/13	355	7	2 3	4		No ground water			
1415	S4	7.5	5 5	1			7.5	G S F	Same Black tar type material mixed in
7/13	355	9.5	7 4	4					Rock at ~9.5 in shoe
—	S5	10	—			Refusal		G S F	Bedrock
7/13	355								
								G S F	
								G S F	
								G S F	

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
Bedrock at 9.5' bgs
No groundwater encountered

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
NA	—	—

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: 10
SAMPLES: 5 Attempted, 4 Recovered
DRILL/SAMPLE ____ hrs. STANDBY: ____ hrs.
SETUP/CLEANUP: ____ hrs. WELL INSTALL: ____ hrs.
OTHER: ____

BORING: B4 SHEET 1 OF 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: 340 ROD TYPE/DIA.: —
HAMMER WEIGHT: — HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B5
JOB NAME: Buckner Buildings
LOGGED BY: JCT
LOCATION: Whittier, AK ELEV.: —
START DATE: 7/13/17 END DATE:
WEATHER DURING DRILLING: Clear 65°F

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]
1440	S1	0	—	—			0.2	G S F	Dark gray Sand with gravel moist
7/13	Grab	2.5		4					
1450	S2	2.5	17 11	1.4			0.4	G S F	Same
7/13	355	4.5	6 7	4					
1500	S3	5	9 4	1.6			0.4	G S F	Same
7/13	355	7	4 4	4					Duplicate B5S13
1510	S4	7.5	6 50 for 3"				—	G S F	Same with tar like material Also pieces of metal.
7/13	355	8.3	Refusal	N					
			Bedrock			Bedrock at ~8.5		G S F	
								G S F	
								G S F	

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
Did not see water but put well in boring anyway to see if water will accumulate

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
—	—	—

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: 8.3
SAMPLES: 4 Attempted
3 Recovered
DRILL/SAMPLE ____ hrs. STANDBY: ____ hrs.
SETUP/CLEANUP: ____ hrs. WELL INSTALL: ____ hrs.
OTHER:

BORING: B5 SHEET 1 OF 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF BORING

DRILL COMPANY/DRILLER: Discovery / Adam
DRILL RIG EQUIPMENT: CME
DRILLING METHOD: HSA
HAMMER TYPE: Auto ROD TYPE/DIA.: —
HAMMER WEIGHT: 340 HAMMER DROP: —
CASING SIZE/TYPE: — HOLE SIZE: —

JOB NO: 17860-001 BORING NO: B6
JOB NAME: Buckner Building
LOGGED BY: JCT
LOCATION: Whittier, AK ELEV.: —
START DATE: 7/13/17 END DATE: 7/13/17
WEATHER DURING DRILLING: Clear 70°F

SAMPLE DATA

TIME / DATE	SAMP. NO. / TYPE	DEPTH FROM / TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample (Y/N)	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]
1530	S1	0	—	—			0.2	G S F	Dark gray Sand with gravel; moist
7/13	Grab	2.5		Y					
1540	S2	2.5	6 7	0.5'			0.4	G S F	Sand
7/13	355	4.5	7 6	Y					
1550	S3	5	6 15	1			0.4	G S F	Sand to 5.5 then mixed with brown sand with silt moist
7/13	355	6.5	50 for 6"	Y		Bedrock No groundwater			

SUMMARY FIELD LOG OF BORING

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
No temp well

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
NA	—	—

SUMMARY OF TIME AND FOOTAGE

FOOTAGE DRILLED: _____ SAMPLES: _____ Attempted _____ Recovered
DRILL/SAMPLE _____ hrs. STANDBY: _____ hrs.
SETUP/CLEANUP: _____ hrs. WELL INSTALL: _____ hrs.
OTHER: _____

BORING: B6 SHEET 1 OF 1

WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 17868-001 Location: Buckner Building, Whittier, AK Weather: Clear 70°F

Well No.: TMW1

Date: 7/13/17 Time Started: _____ Time Completed: _____

Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: _____ Date of Depth Measurement: _____

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / (Other: Ground surface)

Diameter of Casing: 2" Well Screen Interval: —

Total Depth of Well Below MP: 13 Product Thickness, if noted: —

Depth-to-Water (DTW) Below MP: 10.5

Water Column in Well: 2.5 (Total Depth of Well Below MP - DTW Below MP)

Gallons per foot: _____

Gallons in Well: _____ (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: _____ Time Started: _____ Time Completed: _____

Three Well Volumes: _____ (Gallons in Well x 3)

Gallons Purged: _____ Depth of Pump Placement: _____

Maximum Drawdown: _____ Pump Rate: _____

Well Purged Dry: Yes ☐ No ☐ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)	DTW (Feet)

SAMPLING DATA

Odor: None Color: Gray

Sample Designation: 17860-TMW1 Time / Date: 1630 7/13/17

QC Sample Designation: 17860-TMW11 Time / Date: 1700 7/13/17

QA Sample Designation: — Time / Date: —

Evacuation Method: Dedicated Bladder Pump / Other: Bailer

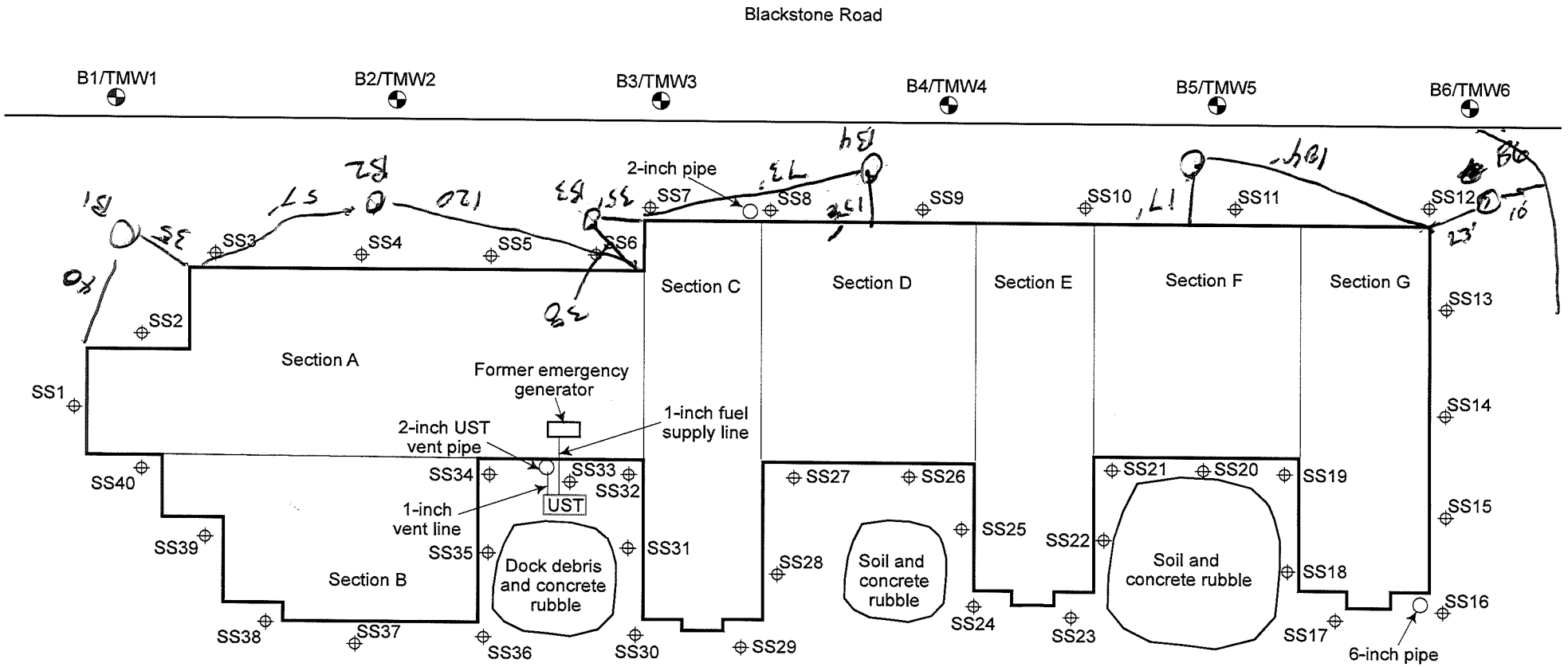
Sampling Method: Dedicated Bladder Pump / Other: Bailer

Remarks: High Sediment

Sampling Personnel: JCT

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23



LEGEND

UST — Approximate location of 2,500-gallon underground storage tank (UST)

B1/TMW1 — Approximate location of proposed Boring/Temporary Monitoring Well B1/TMW1

SS1 — Approximate location of proposed Surface Soil Screening Sample SS1

0 60 120

APPROXIMATE SCALE IN FEET

Buckner Building
Whittier, Alaska

SITE PLAN

June 2017

32-1-17860

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 2

17860-001 BUCKNER BUILDING August 11, 2017

Overcast 55°F

JLT

815 Arrive in whither
mobilize to buckner building.
meet Dave Wolf with White env. and
Alaska Abatement Corp on site.

900 Delineate area to be raked and tested.
AAC begins raking soil and looking for
asbestos containing material. Found some
asbestos cement board.
Placed soil and ACM in plastic bags
for disposal. Approx 2 cy of soil raked.

1100 Dave collected 5 confirmation sail samples
after they were done raking.
Clean up site and left tape up saying
asbestos area.

1200 Off site.

APPENDIX C

BORING LOGS

MATERIAL DESCRIPTION Approx. Elevation:	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance (340 lb. weight, 30" drop) ▲ Blows per foot 0 25 50 75 100
Medium dense, dark gray to gray, *Poorly Graded Sand with Gravel (SP)*; moist			S1 B S2 S3 S4 S5	7/13/2017 7/13/2017	5 10
Medium dense, brown, *Poorly Graded Sand with Silt (SP-SM)*; moist to wet	11.0				
Bottom of Boring Boring Completed 7/13/2017	13.0				

0 10 20 30 40

■ PID Reading (ppm)

LEGEND

* Sample not recovered	Ground Water Level At Time Of Drilling
3" O.D. Split Spoon Sample	Static Water Level
B Auger Cuttings	Solid Casing, Sand Pack
	Solid Casing and Annular Seal
	Slotted Section, Filter Sand
	Solid Casing, Cuttings Backfill

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B1

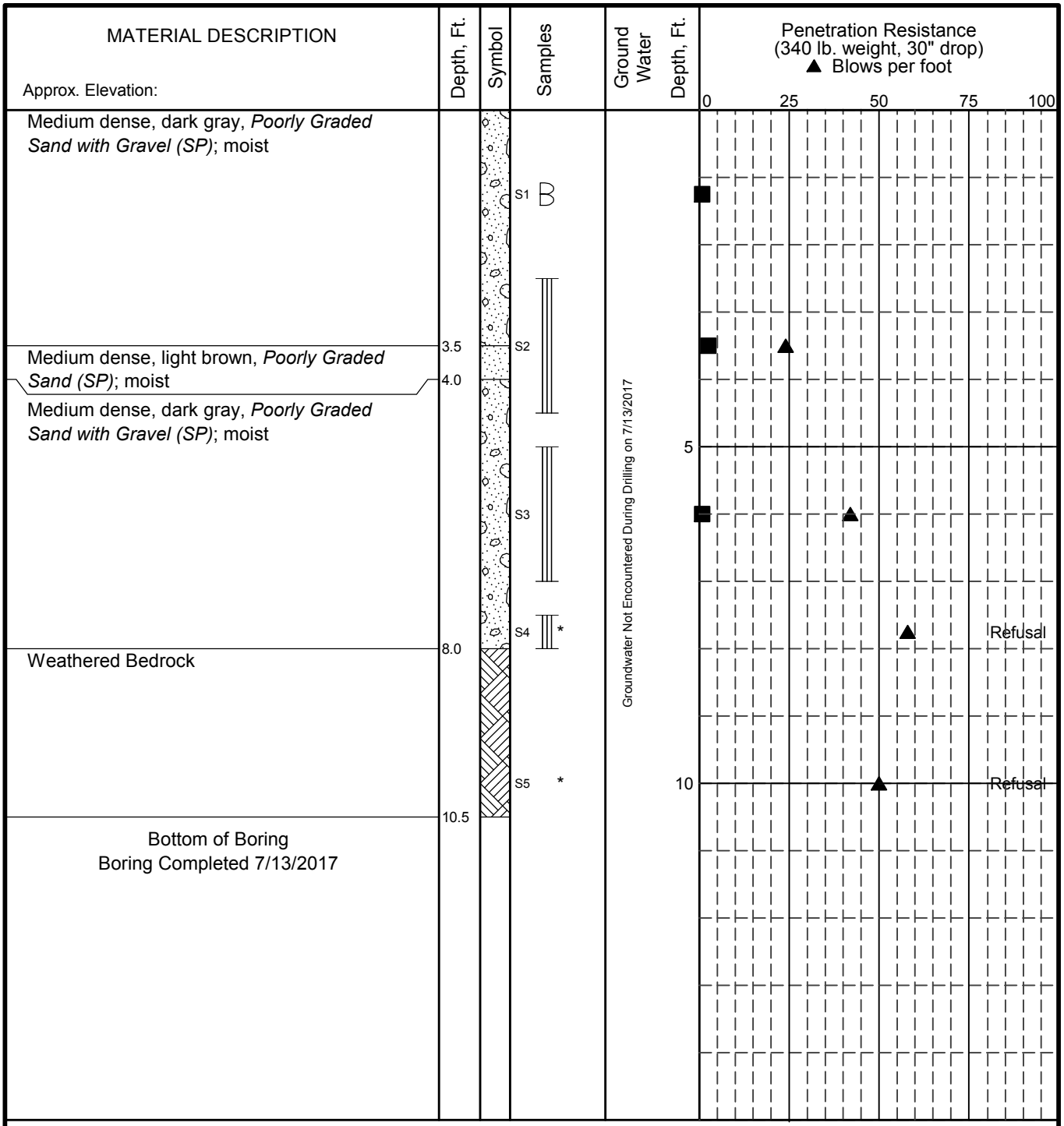
December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-1

ENVIRONMENTAL LOG GINT.GPJ S&W_GEO1.GDT 12/19/17

REV 3 - Approved for Submittal



LEGEND

* Sample not recovered
Ⅲ 3" O.D. Split Spoon Sample
B Auger Cuttings

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B2

December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

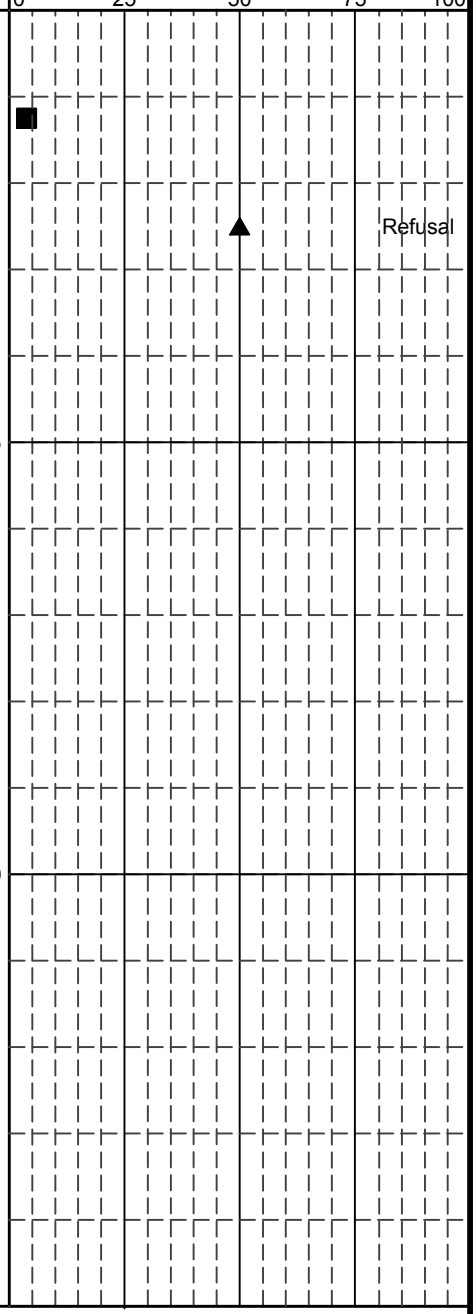
FIG. C-2

ENVIRONMENTAL LOG GINT.GPJ S&W_GEO1.GDT 12/19/17

REV 3 - Approved for Submittal

MATERIAL DESCRIPTION Approx. Elevation:	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.
Dark gray, *Poorly Graded Sand with Gravel (SP)*; moist; trace organics			S1 B	
	2.5		S2 *	
Bottom of Boring Boring Completed 7/13/2017				

Groundwater Not Encountered During Drilling on 7/13/2017



LEGEND

* Sample not recovered
3" O.D. Split Spoon Sample
B Auger Cuttings

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B3

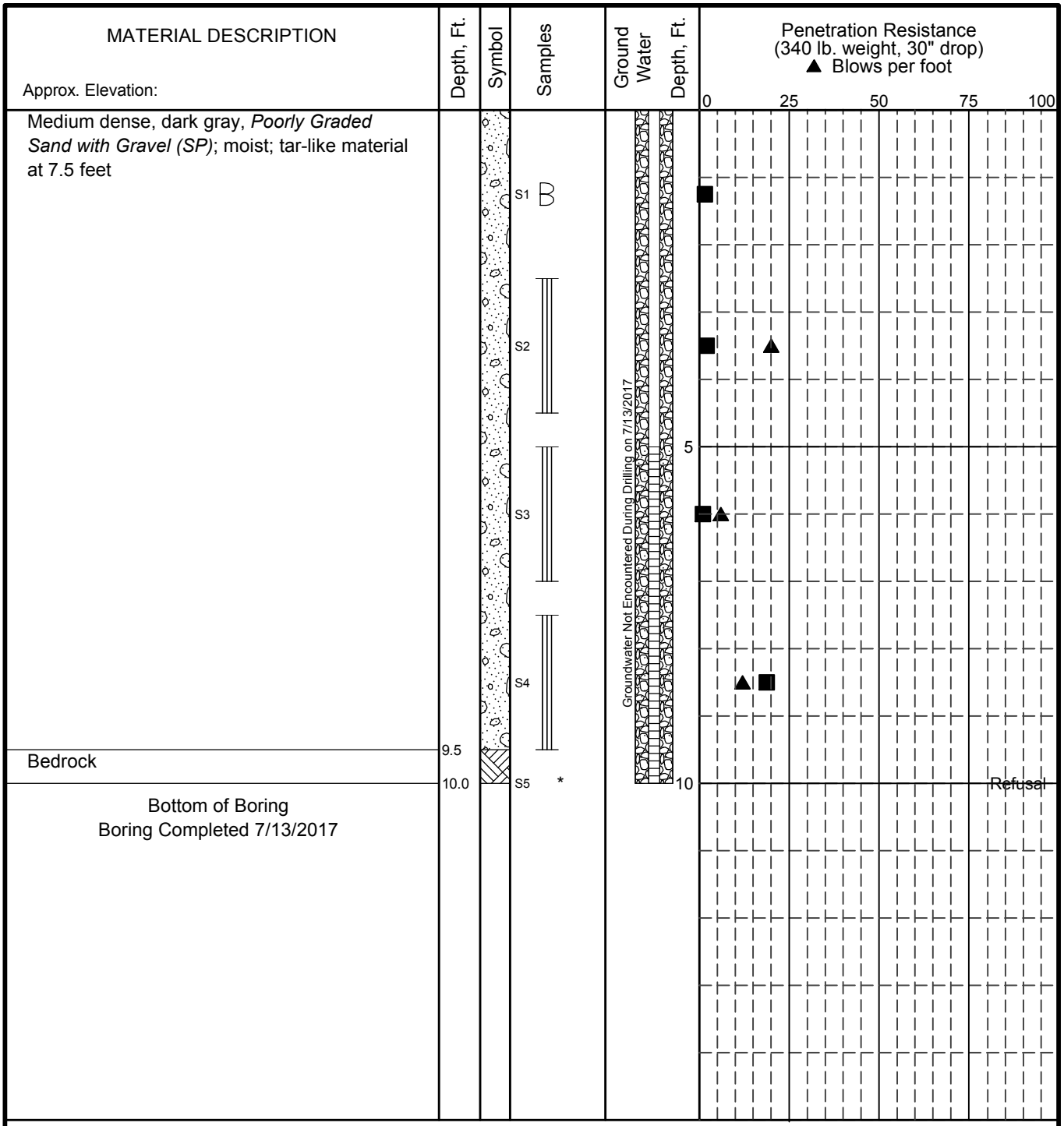
December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-3

ENVIRONMENTAL LOG GINT.GPJ S&W_GEO1.GDT 12/19/17

REV 3 - Approved for Submittal



LEGEND

* Sample not recovered
3" O.D. Split Spoon Sample
B Auger Cuttings

Solid Casing, Sand Pack
Solid Casing and Annular Seal
Slotted Section, Filter Sand
Solid Casing, Cuttings Backfill

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B4

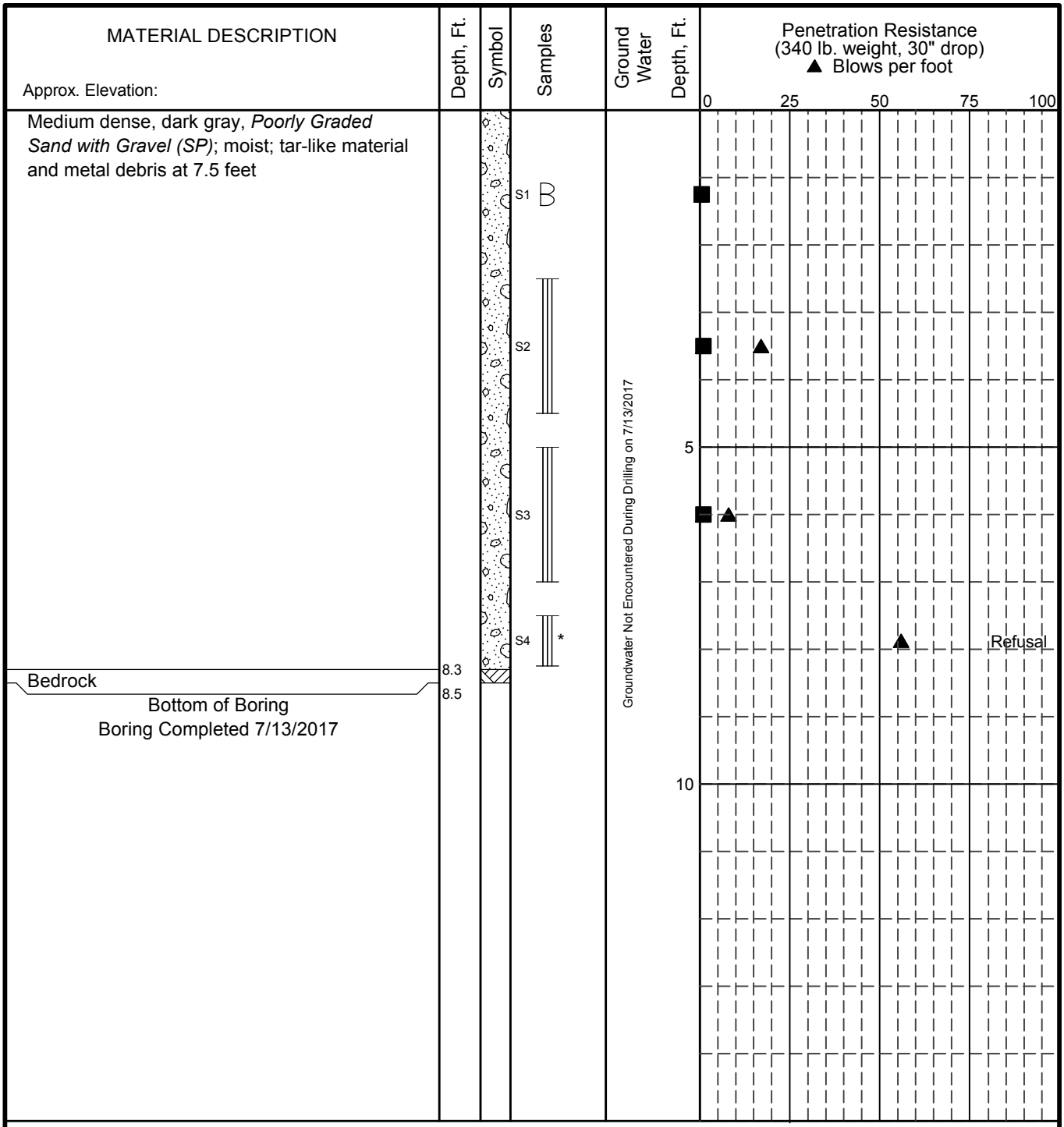
December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-4

ENVIRONMENTAL LOG GINT.GPJ S&W_GEO1.GDT 12/19/17

REV 3 - Approved for Submittal



LEGEND

* Sample not recovered
3" O.D. Split Spoon Sample
B Auger Cuttings

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B5

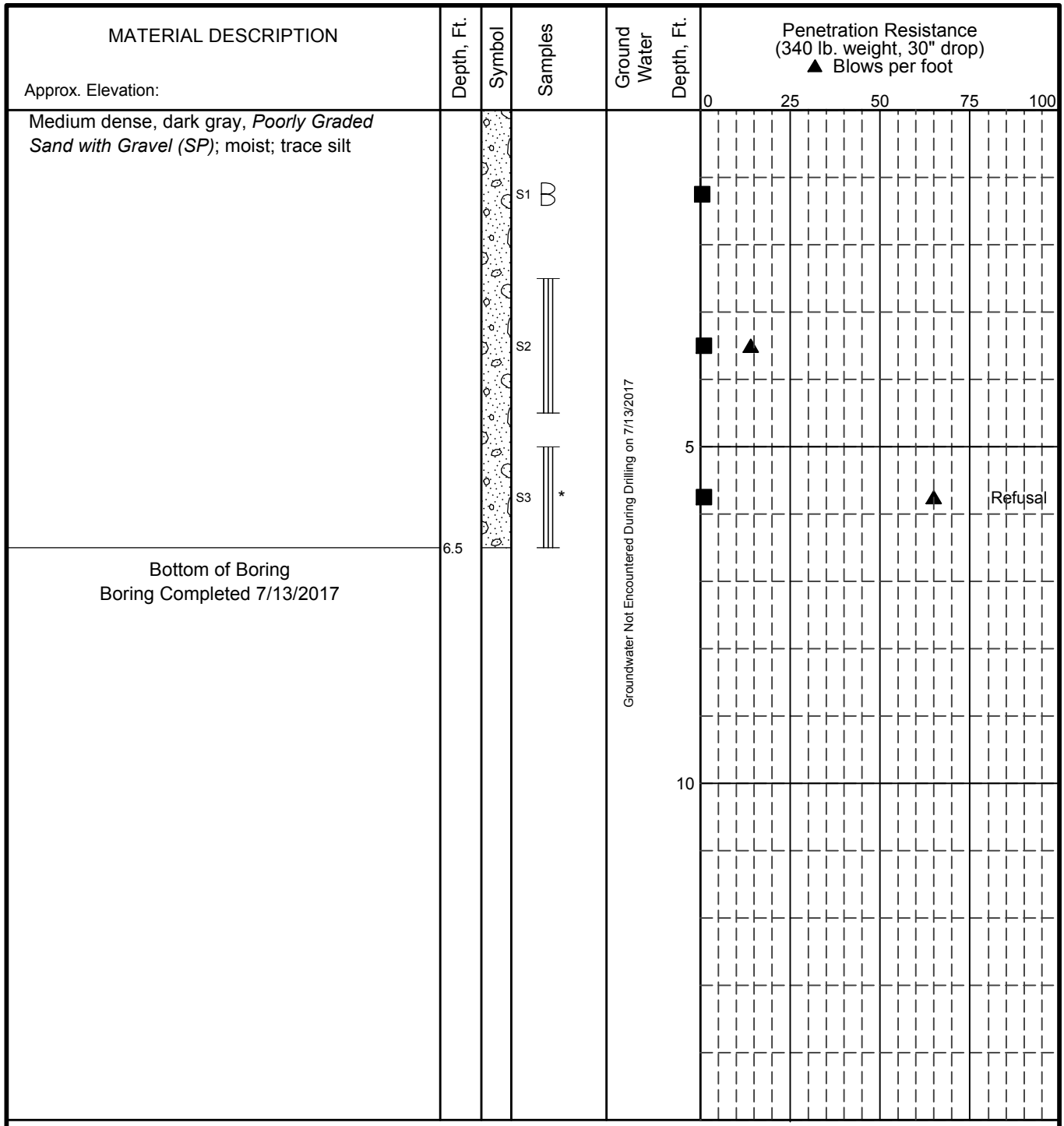
December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-5

ENVIRONMENTAL LOG GINT.GPJ S&W GEO1.GDT 12/19/17

REV 3 - Approved for Submittal



LEGEND

* Sample not recovered
3" O.D. Split Spoon Sample
B Auger Cuttings

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Buckner Building
Whittier, Alaska

LOG OF BORING B6

December 2017 32-1-17860-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-6

ENVIRONMENTAL LOG GINT.GPJ S&W_GEO1.GDT 12/19/17

REV 3 - Approved for Submittal

APPENDIX D

ASBESTOS SAMPLE RESULTS

AND

CLEANUP DOCUMENTATION

Results of Testing by the Standard Test Method for the Determination of Asbestos in Soil

ASTM Standard D7521-13

Client:	White Environmental Consult 383 Industrial Way Ste 300 Anchorage, AK 99508	**Attn:**	Joel Hicklin Matt White	**Lab Order ID:** **Date Requested:** **Date Reported:**	1714524 07/10/2017 07/17/2017
Project:	Shannon & Wilson/Buckner			**Page:**	**1 of 2**

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos Type(s) Observed Water Weight %	Asbestos Quantity Determined
17860-AS1			**None Detected**
1714524DAS_1		*PLM only	
17860-AS2			**None Detected**
1714524DAS_2		*PLM only	
17860-AS3		**Chrysotile**	**1.1%**
1714524DAS_3		*PLM only	
17860-AS4		**Chrysotile**	**1.2%**
1714524DAS_4		*PLM only	
17860-AS5			**None Detected**
1714524DAS_5		*PLM only	
17860-AS6			**None Detected**
1714524DAS_6		*PLM only	
17860-AS7			**None Detected**
1714524DAS_7		*PLM only	

Summary of Procedure

The soil submitted was initially examined in dry bulk by stereomicroscope and Polarized Light Microscopy (PLM). Excessive moisture was driven off in a low temperature oven. If no asbestos was detected in the primary scan, the sample was weighed and sieved into 3 size fractions: coarse (> 2mm), medium (< 2mm, > 109 µm), and fine (< 109 µm). The resultant fractions were weighed then examined by stereomicroscope with suspect fibers and bundles picked out for analysis by PLM. Percentage of the fine fraction was determined by point count if no asbestos was found in the light microscopy analyses. TEM analysis may be performed on the fine fraction at the request of the client.

Bart Huber
Analyst

Lab Director

Results of Testing by the Standard Test Method for the Determination of Asbestos in Soil

ASTM Standard D7521-13

Client:	White Environmental Consult 383 Industrial Way Ste 300 Anchorage, AK 99508	**Attn:**	Joel Hicklin Matt White	**Lab Order ID:** **Date Requested:** **Date Reported:**	1714524 07/10/2017 07/17/2017
Project:	Shannon & Wilson/Buckner			**Page:**	**2 of 2**

Sample ID	Description	Asbestos Type(s) Observed	Asbestos Quantity Determined
Lab Sample ID	*Lab Notes*	Water Weight %	
17860-AS8			**None Detected**
1714524DAS_8		*PLM only	
17860-AS9			**None Detected**
1714524DAS_9		*PLM only	
17860-AS10			**None Detected**
1714524DAS_10		*PLM only	

Summary of Procedure

The soil submitted was initially examined in dry bulk by stereomicroscope and Polarized Light Microscopy (PLM). Excessive moisture was driven off in a low temperature oven. If no asbestos was detected in the primary scan, the sample was weighed and sieved into 3 size fractions: coarse (> 2mm), medium (< 2mm, > 109 µm), and fine (< 109 µm). The resultant fractions were weighed then examined by stereomicroscope with suspect fibers and bundles picked out for analysis by PLM. Percentage of the fine fraction was determined by point count if no asbestos was found in the light microscopy analyses. TEM analysis may be performed on the fine fraction at the request of the client.

Bart Huber
Analyst

Lab Director

Scientific Analytical Institute
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 1711524
Client Code:

Company Contact Information	
Company: WEC, Inc.	Contact: Joel Hicklin
Address: 383 Industrial Way Suite 300	Phone: 907-258-8661
Anchorage, AK 99501	Fax: 907-258-8662
Please send reports to these e-mail addresses:	Email: jhicklin@whitelabsllc.com CC: matt@wecenv.com

Billing/Invoice Information	Turn Around Times	
Company: WEC, Inc.	90 Min. ☐	48 Hours ☐
Contact: Mariam Steele	3 Hours ☐	72 Hours ☐
Email: msteele@whitelabsllc.com	6 Hours ☐	96 Hours ☐
Address: 383 Industrial Way Suite 300	12 Hours ☐	120 Hours ☒
Anchorage, AK 99501	24 Hours ☐	144 Hours ☐

LA-024248

PO Number: AK-0899

Project Name/Number: Shannon & Wilson / Buckner

Asbestos Test Types	
PLM EPA 600/R-93/116	☐
Positive stop ☐	
PLM Point Count	☐
PCM NIOSH 7400	☐
TEM AHERA	☐
TEM Level II	☐
TEM NIOSH 7402	☐
TEM Bulk Qualitative	☐
TEM Bulk Chatfield	☐
TEM Bulk Quantitative	☐
TEM Wipe ASTM D6480-99	☐
TEM Microvac ASTM D5755-02	☐
TEM Water EPA 100.2	☐
Other: ASTM D7521	☒

Sample ID #	Description/Location	Volume/Area	Comments
See Attached	See Attached		
	ASTM D7521-13		
	1,000 pt ct.		

Accepted ☒

Rejected ☐

Total # of Samples 10

Relinquished by	Date/Time	Received by	Date/Time
J Hicklin	7.7.17		7/10 930A

LA- 024248

1714524

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratory WHITE ENVIRONMENTAL
Attn: JOEL

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

3990 Collins Way, Suite 100
Lake Oswego, OR 97035
(503) 223-6147

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

Analysis Parameters/Sample Container Description
(Include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Asbestos in Soil ASTM D7521					Total Number of Containers	Remarks/Matrix
17860 - AS1		1425	7/6/17		X	X					1	Soil
AS2		1435			X	X					1	
AS3		1455			X	X					1	
AS4		1510			X	X					1	
AS5		1515			X	X					1	
AS6		1520			X	X					1	
AS7		1525			X	X					1	
AS8		1530			X	X					1	
AS9		1535			X	X					1	
AS10		1540			X	X					1	

Project Information		Sample Receipt	
Project Number:	17860	Total Number of Containers	
Project Name:	BUCKNER	COC Seals/Intact? Y/N/NA	
Contact:	JCT@shanwil.com	Received Good Cond./Cold	
Ongoing Project?	Yes ☒ No ☐	Delivery Method:	
Sampler:	JCT	(attach shipping bill, if any)	

Instructions	
Requested Turnaround Time:	STANDARD
Special Instructions:	1000 pt. count

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 11:21	Signature: Time: 3PM	Signature: Time:
Printed Name: Jake Tracy Date: 7/7/17	Printed Name: JHicklin Date: 7-7-17	Printed Name: Date:
Company: SGW	Company: WEC	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 11:21	Signature: Time:	Signature: Time:
Printed Name: RBriggs Date: 7/7/17	Printed Name: Date:	Printed Name: Date:
Company: WEC	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 30918

Hazard Abatement Close out Submittal

Buchner Bldg.
Blackstone Road
Whittier, AK

Alaska Abatement Project No. 172380

Prepared by:
Alaska Abatement Corporation
520 West 58TH Avenue, Suite J
Anchorage, AK 99518
(907) 563-0088

Hazard Abatement Closeout Submittal

TABLE OF CONTENTS

1. Notifications
2. Daily Logs
3. Air Monitoring
4. Disposal

Notifications

Alaska Abatement Corporation

520 W. 58th Ave, Suite J
Anchorage, AK 99518

Tel: (907) 563-0088
Fax: (907) 563-0080

August 10, 2017

State Of Alaska
Department of Labor
3301 Eagle Street, Suite 303
Anchorage, Alaska 99510

Alaska Abatement Corporation hereby gives notification and submits the names & certification numbers of the following personnel for the review and approval by the Department of Labor prior to the commencement of work for the project as stated below.

Name of Project: Buchner Bldg. Whittier

Location of Project: Buchner Bldg. Black Stone Rd., Whittier, AK 99693

Start Date: 8/11/17 Completion Date: 8/11/17

Thomas R. Simpson	19990560	10/06/2017
Wille J. Bell, Jr	3047	10/06/2017

APPROVED
DOL ASBESTOS NOTIFICATION
DATE: 8/10/2017
APPROVED BY: Ashley Gonzalez
STATE OF ALASKA – DOL/OSH
MAINTAIN AT WORKSITE

Respectfully,

Robert Curran
Operations Manager
Alaska Abatement Corporation

Alaska Abatement Corporation

520 W. 58th Ave, Suite J
Anchorage, AK 99518

Tel: (907) 563-0088
Fax: (907) 563-0080

August 10, 2017

State Of Alaska
Department of Labor
3301 Eagle Street, Suite 303
Anchorage, Alaska 99510

Alaska Abatement Corporation hereby gives notification and submits the names & certification numbers of the following personnel for the review and approval by the Department of Labor prior to the commencement of work for the project as stated below.

Name of Project: Buchner Bldg. Whittier

Location of Project: Buchner Bldg. Black Stone Rd., Whittier, AK 99693

Start Date: 8/11/17 Completion Date: 8/11/17

Please add the following to our list of approved workers:

Jovester W. Howard	19990056	04/10/2018

Respectfully,

Robert Curran
Operations Manager
Alaska Abatement Corporation

APPROVED
DOL ASBESTOS NOTIFICATION
DATE: 8/10/2017
APPROVED BY: Ashley Gonzalez
STATE OF ALASKA – DOL/OSH
MAINTAIN AT WORKSITE

Daily Logs

ALASKA ABATEMENT CORPORATION

DAILY PROJECT COVER SHEET

Date:	8-11-17	Competent Person	Mr. Willie J. Bell Jr.
Project No.:	172380	Project Name:	Buchner Bldg. Whittier
Work Area:	Outside	Shift Hours:	7:00 to 4:00

Description of work performed: Today start at 7:00 at the shop crew went to Whittier And setup work and start remove and package 1" of vegetation.

Air Technician:	Mr. David Wolf	Company:	WEC
ACM waste stored on site?	NO	Location:	AAC poly lined Box van CAB
# of loads removed from site?	1	Type of ACM:	PPE, Poly, vegetation,

Disposal Manifest filled out by: Mr. Willie J. Bell JR.

Transporter: _____

{THE FOLLOWING *MUST* BE ATTACHED TO THIS FORM IF APPLICABLE}

1)	Sign-In Sheets	☐	6)	Daily T & M	☐
2)	Daily Project Log	☐	7)	Weekly T & M	☐
3)	Safety Meeting Sheets	☐	8)	Disposal Manifests	☐
4)	Accident Reports	☐	9)	Air Field Data Sheets & Results	☐
5)	Containment Entry Log	☐	10)	_____	☐

This form can be used as a legal document.

ALASKA ABATEMENT CORPORATION

PROJECT DAILY SIGN-IN LOG

PROJECT NAME:	AAC PROJECT #:
Buchner Bldg Whittier	172380
SUPERINTENDANT:	DATE:
Mr. Willie J. Bell Jr.	8-11-17

NAME (PRINT)	CERT #	RESP TYPE	TASK	TIME IN	TIME OUT	SIGNATURE
Willie J. Bell Jr. SSN:	30 47	N 7700	Supervisor	7:00	4:00	Willie J. Bell Jr.
Jovester Howard SSN: 426966596	1997 0056	1/2	Foreman	7:00	3:00	
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						
SSN:						

DAILY PROJECT LOG

Date: 8-11-17 Project Number: 172380

Project Name: Buchner Bldg. Whittier

Visitors: NONE

Air Monitoring Performed By: Mr. David Wolf

Air Monitoring Comments: All pumps calibrated at start and stop time.

PPE General: Tyvek, N-7700 with HEPA filter, hard hat, leather Gloves, steel toes boots,

Project Changes, Directives & Instructions: Crew instructed to work safely And follow proper work practices.

Daily Exposure Assessment *(Based on previous days air monitoring)* Based on past similar work And using same work practices and trained workers, should not exceed PEL for PPE

Date: 8-11-17 Project #: 172380

First Daily Work Area Inspection No visible safety violations

Second Daily Work Area Inspection: Crew cleanup work area.

Progress Hindrances & Delays: NONE

Date: 8-11-17 Project # 172380

Work Activities Performed this Date:

Today start at 7:00 at the shop and get AAC box van and went to Whittier and start Setup work area using Asbestos ribbon at 9:00 crew in PPE and start remove dirt And vegetation and CAB crew putting dirt and CAB and vegetation into D-bags and Crew water each bags and double bags putting GEN label in each bags and load all D-bags into AAC poly lined box van. Mr. David Wolf did a visual inspection of the Area and he said that it look good crew leave up the Asbestos ribbon crew return To the shop and crew start unload AAC box van and Mr. Bell did paper work end of Day.

NOTE

No accident report today

Field Personnel		S/T	O/T
Mr. Willie J. Bell Jr.	Tyvek, & N-7700 /w HEPA filter, steel toe boots, gloves, leather or cotton gloves, safety glasses	8	1
Mr. Jovester Howard	Tyvek, & N-7700 /w HEPA filter, steel toe boots, gloves, leather or cotton gloves, safety glasses	8	

Mr. Willie J. Bell Jr. 8-11-17

Supervisor/Competent Person's Signature Date

Air Monitoring

WHITE ENVIRONMENTAL CONSULTANTS INC.
363 INDUSTRIAL WAY SUITE 300 ANCHORAGE, AK 99501 (907) 258-8661

PCM Air Sample

WL Project #: LA-024951
Client Project #: 486-17

Report #: 633294
Report By: R. Briggs
Report Date: 08/14/2017

Client: Alaska Abatement Corporation
520 West 58th Ave. Ste. J
Anchorage, AK 99518

TAT: 24 Hour **Sample Count:** 6
Project Name/Location: WEC: Buckner Bldg. Whittier

Collected By: D. Wolf
Collection Date: 08/11/2017
Analysis By: G. Caudill
Analysis Date: 08/14/2017
Received By: R. Briggs
Received Date: 08/14/2017

Client ID	WL ID #	Sample Type	Vol (l)	Fibers/Fields	Fiber Density (F/mm2)	LOD (F/cc)	F/cc
486-01	AA17-8581	Excursion	32	<0.055	<7	0.084	<LOD
Location: Willie Bell Jr.: Rake Up Surface Soil							
486-02	AA17-8582	Personal	67.2	<0.055	<7	0.04	<LOD
Location: Willie Bell Jr.: Rake Up Surface Soil							
486-03	AA17-8583	ENV	189	<0.055	<7	0.014	<LOD
Location: At Barrier Ribbon N. Side Center							
486-04	AA17-8584	ENV	186.9	<0.055	<7	0.014	<LOD
Location: At Barrier Ribbon S. Side Center							
486-05	AA17-8585	Field Blank	NV	<0.055	<7	N/A	N/A
Location: Field Blank							
486-06	AA17-8586	Field Blank	NV	<0.055	<7	N/A	N/A
Location: Field Blank							

PCM Air Sample TWA Report

Worker	Sample Date	Cert	SSN	PPE	TWA
Willie Bell	08/11/2017	20090400		APR-HF	0.006
				Boots	
				Glasses	
				Gloves	
				Hard Hat	
				Tyvek	

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PCM Air Sample

WL Project #: LA-024951

Client Project #: 486-17

Report #: 633294
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Grant Caudill, Lab Analyst — 08/14/2017 (Date)

Joel Hicklin, Laboratory Technical Manager — 08/14/2017 (Date)

The method of analysis used is NIOSH Method 7400, Issue 2-Revision 4, Counting Rules A. Collection Area is 385 mm2. The limit of detection (LOD) is calculated according to NIOSH 7400 guidelines which is 5.5 fibers per 100 fields (approximately 7 f/mm2) and is dependent on sampling volume. Samples with concentrations below this calculated LOD are reported as "<LOD". Our Walton Beckett Graticule area is 0.00785 mm2, and is verified by stage micrometer quarterly. "Overload" means sample particulate, dust or encapsulant exceeds the maximum loading allowable by the method counting rules. "VOID" implies either damage to the cassette observed in the lab, or substandard field conditions as determined by the Environmental/Industrial Hygienist Technician. TWA's are calculated on the basis of a 480 minute workday, and assumes a singular job site for the worker. An assessment of batch contamination is not made if field blanks are not included originating from the work site. Results are corrected by average blank count if blanks are provided with the sample set. Intra-Laboratory Sr values for 2015 are as follows: Category A (5-20 fibers/field) = 0.17, Category B (20.5-50 fibers/field) = 0.14, and Category C (50.5-100 fibers/field) = 0.17. Unless otherwise stated, samples are received in acceptable condition. Results relate only to the items tested.

WHITE ENVIRONMENTAL CONSULTANTS INC.
383 Industrial Way, Anchorage, Alaska 99501
Phone (907) 258-8661 Fax (907) 258-8662

PROJECT NAME Buckner Bldg "Whittier" PROJECT NO. 486-17
LOCATION Whittier, AK DATE 8-21-2017
CLIENT AHC SHEET NO. 1 OF 2
CLIENT PROJECT# —

LA- 024951

FIELD DATA SHEET – ASBESTOS AIR MONIT

ANALYSIS REQUESTED (circle)	TURNAROUND REQUESTED	NUMBER OF SAMPLES	ROTOMETER IDENTIFICATION
(PCM) TEM	24HR	6	LV01-01
COLLECTED BY (signature)	**COLLECTION DATE**	**SELECTED LABORATORY**	**ANALYST SIGNATURE**
David Wolf	8-11-2017	WEC.	8.14.17
RELINQUISHED BY	**DATE/ TIME**	**SAMPLES RECEIVED BY**	**DATE/ TIME**
David Wolf	8-14-2017	PBriggs	8/14/17 8:00 am

Lab ID#	Sample ID#	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	486-01	Willie Bell Jr	3047	9:11	1.6		
	Sample Type: EXC	Task: rake up surface soil		STOP TIME 9:31	FLOW (l/min) 1.6	VOLUME (L)	
	Pump ID# 710	SSN # and PPE: APR-HF, Tyvek, Boots, Gloves, Glasses, Hard Hat		TOTAL TIME	AVG. FLOW 1.6		
	Sample ID# 486-02	Location/ Name of Worker: Willie Bell Jr	Cert # 3047	START TIME 9:31	FLOW (l/min) 2.1	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type: PER	Task: rake up surface soil		STOP TIME 10:33	FLOW (l/min) 2.1	VOLUME (L)	
	Pump ID# 710	SSN # and PPE: APR-HF, Tyvek, Boots, Gloves, Glasses, Hard Hat		TOTAL TIME	AVG. FLOW 2.1		
	Sample ID# 486-03	Location/ Name of Worker: at barrier ribbon N. side	Cert #	START TIME 9:05	FLOW (l/min) 2.1	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type: ENV	Task: center		STOP TIME 10:35	FLOW (l/min) 2.1	VOLUME (L)	
	Pump ID# 420	SSN # and PPE		TOTAL TIME	AVG. FLOW 2.1		
	Sample ID# 486-04	Location/ Name of Worker: at barrier ribbon S. side center	Cert #	START TIME 9:07	FLOW (l/min) 2.1	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type: ENV	Task		STOP TIME 10:36	FLOW (l/min) 2.1	VOLUME (L)	
	Pump ID# 2320	SSN # and PPE		TOTAL TIME	AVG. FLOW 2.1		
	Sample ID# 486-05	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type: FB	Task: N/A		STOP TIME	FLOW (l/min)	VOLUME (L) —	
	Pump ID# —	SSN # and PPE		TOTAL TIME	AVG. FLOW		
	Sample ID# 486-06	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type: FB	Task: N/A		STOP TIME	FLOW (l/min)	VOLUME (L) —	
	Pump ID# —	SSN # and PPE		TOTAL TIME	AVG. FLOW		
	Sample ID#	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type	Task		STOP TIME	FLOW (l/min)	VOLUME (L)	
	Pump ID#	SSN # and PPE		TOTAL TIME	AVG. FLOW		
	Sample ID#	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type	Task		STOP TIME	FLOW (l/min)	VOLUME (L)	
	Pump ID#	SSN # and PPE		TOTAL TIME	AVG. FLOW		
	Sample ID#	Location/ Name of Worker	Cert #	START TIME	FLOW (l/min)	FIBERS/FIELDS	RESULTS Fibers/cc
	Sample Type	Task		STOP TIME	FLOW (l/min)	VOLUME (L)	
	Pump ID#	SSN # and PPE		TOTAL TIME	AVG. FLOW		

WHITE ENVIRONMENTAL CONSULTANTS INC.
383 Industrial Way, Anchorage, Alaska 99501
Phone (907) 258-8661 Fax (907) 258-8662

PROJECT NAME Buckner Bldg "Whittier" | PROJECT NO. 486-17
LOCATION Whittier, Ak | DATE 8-11-2017
CLIENT AAC | SHEET NO. 2 OF 2
CLIENT PROJECT#

FIELD LOG

WORK IN PROGRESS

2 person raking the top surface of dirt and placing into 6 mil danger bags. Danger bags double bagged and loaded into box truck for proper disposal

MATERIALS REMOVED	QUANTITY REMOVED
Dirt	Approx 25 Danger bags

GENERAL CONTRACTOR: Shannon & Wilson
ABATEMENT CONTRACTOR: AAC
COMPETENT PERSON: Willie Bell Jr.
CREW SIZE: 2
NO. / TYPE OF PUMPS ON SITE: 6 HV
MISC. EQUIPMENT ON SITE: Rotameter
TIME ON SITE: 7:00 | TIME OFF SITE: 12:00
TIME ON SITE: | TIME OFF SITE:
IH / TECH (WEC): David Wolf

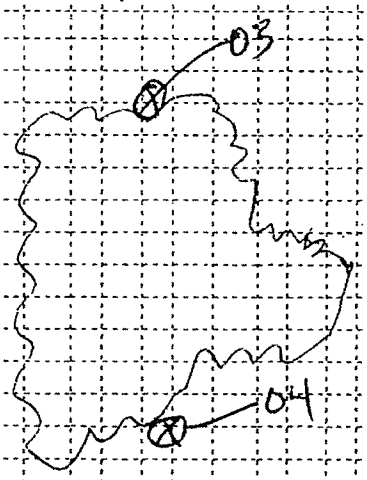
GENERAL COMMENTS

Arrived on site at 9:00 A.M. Mobilized equipment to work area, Inspected equipment and no defects noted. Pre calibrated and calibration post check of all pumps. Performed visual inspection and it appeared to be clean. Collected soil samples after work complete.

SIGNATURE: David Wolf
TOTAL PCM: 6 | LEAD AIR/ WIPE:
TOTAL TEM: | TOTAL TCLP:
SUPERINTENDENT: Willie Bell JR
SIGNATURE:
OVERTIME:
RUSH:

WORK LOCATION

*Map not to Scale



Key
- Regulated work area
- Sample site locations

Disposal

MUNICIPALITY OF ANCHORAGE, SOLID WASTE SERVICES
ASBESTOS WASTE SHIPMENT RECORD

GENERATOR

1. Work Site Name & Mailing Address: Buchner Bldg. Whittier, Black Stone Rd. - Whittier, AK, 0 | Owner's Name: ADEC | Owner's Phone: 907-465-5066

2. Operator's Name & Address: Alaska Abatement Corporation, 520 W. 58th Avenue Suite J, Anchorage Alaska 99518 | Operator's Phone: 907-563-0088

3. Waste Disposal Site: ANCHORAGE REGIONAL LANDFILL, 15500 EAST EAGLE RIVER LOOP ROAD, EAGLE RIVER, ALASKA TELE 907-428-0864 FAX 907-428-1697 | SWS Authorization: AS17142 EXPIRES 09/28/17 | SWS Contact Phone: 907-343-6274

4. Name & Address of Responsible Agency: ASBESTOS PROGRAM, USEPA, 222 West 7th Ave., Anchorage, AK, 99513 1-907-271-5083

5. Description of Materials:	6. Containers No.	6. Containers Type	7. Total Quantity (Cubic Yards)
PPE, Poly, Asbestos Contaminated Soil	18	Bags	

8. Special Handling Instructions & Additional Information:

"Asbestos 9, NA 2212 pg III RQ"

9. Operator's Certification:

I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME & ARE CLASSIFIED, PACKED, MARKED, AND LABELED AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR TRANSPORT BY HIGHWAY ACCORDING TO APPLICABLE INTERNATIONAL & GOVERNMENTAL REGULATIONS.

Printed/Typed Name & Title	Signature	Date
Willie J. Bell Jr Supervisor	Willie J. Bell Jr.	8-11-17

TRANSPORTER

10. Transporter 1 (Acknowledgment of Receipt of Materials): Alaska Abatement Corporation

Printed/Typed Name & Title	Signature	Date
Teresa Jensen / Driver	Teresa Jensen	8-23-17

Address & Telephone: 520 W. 58th Ave ste J, Anchorage, AK 99518 (907) 563-0088

11. Transporter 2 (Acknowledgment of Receipt of Materials)

Printed/Typed Name & Title	Signature	Date

Address & Telephone:

DISPOSAL SITE

12. Discrepancies Noted:

13. Waste Disposal Site Owner or Operator:

I certify that I have received the asbestos materials noted in Section 5 except as noted in Section 12, Discrepancies.

Arrival Time: 1050 Departure Time: 1055 Total Time: 5

Printed/Typed Names & Title	Signature	Date	SWS Weight Invoice #
Sean Mckibben		8/23/17	

ARL
1111 E 56th Ave
Anchorage, AK 99518

Ticket: 436050
Date: 8/23/2017
Time: 10:44:55 - 10:59:48

			Scale
Gross:	10880 LB	In	Scale ARL I
Tare:	10540 LB	Out	Scale ARL (
Net:	340 LB		

Truck: AAC
Customer: 1054498501002/ALASKA ABAT
Carrier: 06/REGULAR CHARGE CU

172380

Grid: ASB/Asbestos
Comment:

PO: AS17142

Origin	Materials & Services	Quantity	Unit	Rate/Unit	Amount
NA/Not Applicable	ARHAND/ARL HANDLING C	1.00	EACH	$70.00/EA	$70.00
NA/Not Applicable	LOAD T AR/DISPOSAL CH/	0.17	Ton	$56.50/TON	$15.00
NA/Not Applicable	RECY RS AR/Community recy(	1.00	EACH	$1.00/EA	$1.00

Total Amount: $86.00

Driver: _____

Deputy Weighmaster: _____
DAC

APPENDIX E

RESULTS OF ANALYTICAL TESTING BY SGS NORTH AMERICA INC.

AND

ADEC LABORATORY DATA REVIEW CHECKLISTS

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St. Suite 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1174149**

Client Project: **17860 Buckner**

Dear Jacob Tracy,

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

If there are any questions about the report or services performed during this project, please call 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 Date
Project Manager
Victoria.Pennick@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: **Shannon & Wilson, Inc.**
SGS Project: **1174149**
Project Name/Site: **17860 Buckner**
Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

*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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Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
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. 200 West Potter Drive, Anchorage, AK 99518
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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
17860-SS7	1174149001	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS9	1174149002	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS16	1174149003	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS23	1174149004	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS23B	1174149005	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS33	1174149006	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS35	1174149007	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS38	1174149008	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS41	1174149009	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS42	1174149010	07/06/2017	07/07/2017	Soil/Solid (dry weight)
17860-SS9	1174149011	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS16	1174149012	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS23	1174149013	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS35	1174149014	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS38	1174149015	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS1	1174149016	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)
17860-SS29	1174149017	07/06/2017	07/07/2017	Solid/Soil (Wet Weight)

Method	Method Description
SW6020A TCLP	Metals by ICP-MS
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G

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Detectable Results Summary

Client Sample ID: **17860-SS7**			
Lab Sample ID: 1174149001	Parameter	Result	Units
Metals by ICP/MS	Lead	63.4	mg/Kg
Client Sample ID: **17860-SS9**			
Lab Sample ID: 1174149002	Parameter	Result	Units
Metals by ICP/MS	Lead	68.9	mg/Kg
Client Sample ID: **17860-SS16**			
Lab Sample ID: 1174149003	Parameter	Result	Units
Metals by ICP/MS	Lead	54.4	mg/Kg
Client Sample ID: **17860-SS23**			
Lab Sample ID: 1174149004	Parameter	Result	Units
Metals by ICP/MS	Lead	661	mg/Kg
Client Sample ID: **17860-SS23B**			
Lab Sample ID: 1174149005	Parameter	Result	Units
Metals by ICP/MS	Lead	158	mg/Kg
Client Sample ID: **17860-SS33**			
Lab Sample ID: 1174149006	Parameter	Result	Units
Metals by ICP/MS	Lead	67.0	mg/Kg
Client Sample ID: **17860-SS35**			
Lab Sample ID: 1174149007	Parameter	Result	Units
Metals by ICP/MS	Lead	25.6	mg/Kg
Client Sample ID: **17860-SS38**			
Lab Sample ID: 1174149008	Parameter	Result	Units
Metals by ICP/MS	Lead	137000	mg/Kg
Client Sample ID: **17860-SS41**			
Lab Sample ID: 1174149009	Parameter	Result	Units
Metals by ICP/MS	Lead	16.3	mg/Kg
Client Sample ID: **17860-SS42**			
Lab Sample ID: 1174149010	Parameter	Result	Units
Metals by ICP/MS	Lead	15.2	mg/Kg
Client Sample ID: **17860-SS9**			
Lab Sample ID: 1174149011	Parameter	Result	Units
TCLP Constituents Metals	Lead	0.198	mg/L
Client Sample ID: **17860-SS16**			
Lab Sample ID: 1174149012	Parameter	Result	Units
TCLP Constituents Metals	Lead	0.402	mg/L
Client Sample ID: **17860-SS23**			
Lab Sample ID: 1174149013	Parameter	Result	Units
TCLP Constituents Metals	Lead	1.07	mg/L

SGS North America Inc.
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Detectable Results Summary

Client Sample ID: **17860-SS35**
Lab Sample ID: 1174149014
TCLP Constituents Metals

Parameter	Result	Units
Lead	1.87	mg/L

Client Sample ID: **17860-SS38**
Lab Sample ID: 1174149015
TCLP Constituents Metals

Parameter	Result	Units
Lead	964	mg/L

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Results of **17860-SS7**

Client Sample ID: **17860-SS7**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149001
Lab Project ID: 1174149

Collection Date: 07/06/17 13:50
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):92.9
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	63.4		1.01	0.314	mg/Kg	50		07/24/17 14:29

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 14:29
Container ID: 1174149001-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.064 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS9**

Client Sample ID: **17860-SS9**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149002
Lab Project ID: 1174149

Collection Date: 07/06/17 13:55
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	68.9		1.07	0.331	mg/Kg	50		07/24/17 17:39

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 17:39
Container ID: 1174149002-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.046 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS16**

Client Sample ID: **17860-SS16**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149003
Lab Project ID: 1174149

Collection Date: 07/06/17 14:10
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	54.4		0.987	0.306	mg/Kg	50		07/24/17 17:43

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 17:43
Container ID: 1174149003-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.069 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS23**

Client Sample ID: **17860-SS23**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149004
Lab Project ID: 1174149

Collection Date: 07/06/17 14:15
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):73.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	661		2.58	0.799	mg/Kg	50		07/24/17 17:48

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 17:48
Container ID: 1174149004-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 0.529 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS23B**

Client Sample ID: **17860-SS23B**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149005
Lab Project ID: 1174149

Collection Date: 07/06/17 14:20
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	158		1.02	0.317	mg/Kg	50		07/25/17 14:23

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 14:23
Container ID: 1174149005-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.072 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS33**

Client Sample ID: **17860-SS33**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149006
Lab Project ID: 1174149

Collection Date: 07/06/17 14:40
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):82.6
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	67.0		1.11	0.345	mg/Kg	50		07/25/17 14:28

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 14:28
Container ID: 1174149006-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.088 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS35**

Client Sample ID: **17860-SS35**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149007
Lab Project ID: 1174149

Collection Date: 07/06/17 14:45
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	25.6		0.968	0.300	mg/Kg	50		07/25/17 14:34

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 14:34
Container ID: 1174149007-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.09 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS38**

Client Sample ID: **17860-SS38**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149008
Lab Project ID: 1174149

Collection Date: 07/06/17 14:50
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	137000		123	38.1	mg/Kg	5000		07/25/17 15:01

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 15:01
Container ID: 1174149008-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.003 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS41**

Client Sample ID: **17860-SS41**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149009
Lab Project ID: 1174149

Collection Date: 07/06/17 14:00
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	16.3		1.07	0.331	mg/Kg	50		07/25/17 14:43

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 14:43
Container ID: 1174149009-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.003 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS42**

Client Sample ID: **17860-SS42**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149010
Lab Project ID: 1174149

Collection Date: 07/06/17 14:05
Received Date: 07/07/17 10:42
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	15.2		1.10	0.342	mg/Kg	50		07/25/17 14:47

Batch Information

Analytical Batch: MMS9870
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/25/17 14:47
Container ID: 1174149010-A

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 07/14/17 07:23
Prep Initial Wt./Vol.: 1.007 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS9**

Client Sample ID: **17860-SS9**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149011
Lab Project ID: 1174149

Collection Date: 07/06/17 13:55
Received Date: 07/07/17 10:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	0.198		0.0500	0.0155	mg/L	25	(<5)	07/13/17 12:56

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Analyst: VDL
Analytical Date/Time: 07/13/17 12:56
Container ID: 1174149011-A

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 07/12/17 07:50
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS16**

Client Sample ID: **17860-SS16**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149012
Lab Project ID: 1174149

Collection Date: 07/06/17 14:10
Received Date: 07/07/17 10:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	0.402		0.0500	0.0155	mg/L	25	(<5)	07/13/17 14:01

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Analyst: VDL
Analytical Date/Time: 07/13/17 14:01
Container ID: 1174149012-A

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 07/12/17 07:50
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS23**

Client Sample ID: **17860-SS23**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149013
Lab Project ID: 1174149

Collection Date: 07/06/17 14:15
Received Date: 07/07/17 10:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	1.07		0.0500	0.0155	mg/L	25	(<5)	07/13/17 14:06

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Analyst: VDL
Analytical Date/Time: 07/13/17 14:06
Container ID: 1174149013-A

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 07/12/17 07:50
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS35**

Client Sample ID: **17860-SS35**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149014
Lab Project ID: 1174149

Collection Date: 07/06/17 14:45
Received Date: 07/07/17 10:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	1.87		0.0500	0.0155	mg/L	25	(<5)	07/13/17 14:21

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Analyst: VDL
Analytical Date/Time: 07/13/17 14:21
Container ID: 1174149014-A

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 07/12/17 07:50
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Results of **17860-SS38**

Client Sample ID: **17860-SS38**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174149015
Lab Project ID: 1174149

Collection Date: 07/06/17 14:50
Received Date: 07/07/17 10:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	964	*	0.400	0.124	mg/L	200	(<5)	07/14/17 21:50

Batch Information

Analytical Batch: MMS9856
Analytical Method: SW6020A TCLP
Analyst: VDL
Analytical Date/Time: 07/14/17 21:50
Container ID: 1174149015-A

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 07/12/17 07:50
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 07/26/2017 4:35:41PM

J flagging is activated

Method Blank

Blank ID: LB1 for HBN 1763325 [TCLP/8935
Blank Lab ID: 1397390

Matrix: Solid/Soil (Wet Weight)

QC for Samples:
1174149011, 1174149012, 1174149013, 1174149014, 1174149015

Results by **SW6020A TCLP**

Parameter	Results	LOQ/CL	DL	Units
Lead	0.0250U	0.0500	0.0155	mg/L

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/13/2017 12:43:09PM

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 7/12/2017 7:50:00AM
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1763352 [MXT/5529]
Blank Lab ID: 1397498

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174149011, 1174149012, 1174149013, 1174149014, 1174149015

Results by **SW6020A TCLP**

Parameter	Results	LOQ/CL	DL	Units
Lead	0.00250U	0.00500	0.00155	mg/L

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/13/2017 12:47:38PM

Prep Batch: MXT5529
Prep Method: SW3010A
Prep Date/Time: 7/12/2017 7:50:00AM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174149 [MXT5529]
Blank Spike Lab ID: 1396751
Date Analyzed: 07/13/2017 12:52

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174149011, 1174149012, 1174149013, 1174149014, 1174149015

Results by **SW6020A TCLP**

Blank Spike (mg/L)

Parameter	Spike	Result	Rec (%)	CL
Lead	1	1.00	100	(88-115)

Batch Information

Analytical Batch: **MMS9854**
Analytical Method: **SW6020A TCLP**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXT5529**
Prep Method: **SW3010A**
Prep Date/Time: **07/12/2017 07:50**
Spike Init Wt./Vol.: 1 mg/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1397500
MS Sample ID: 1397502 MS
MSD Sample ID: 1397503 MSD

Analysis Date: 07/13/2017 12:56
Analysis Date: 07/13/2017 13:01
Analysis Date: 07/13/2017 13:05
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1174149011, 1174149012, 1174149013, 1174149014, 1174149015

Results by **SW6020A TCLP**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Lead	0.198	10.0	10.3	101	10.0	10.7	105	88-115	3.74	(< 20)

Batch Information

Analytical Batch: MMS9854
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer NexIon P5
Analyst: VDL
Analytical Date/Time: 7/13/2017 1:01:08PM

Prep Batch: MXT5529
Prep Method: Waters Digest for Metals by ICP-MS(TCLP)
Prep Date/Time: 7/12/2017 7:50:00AM
Prep Initial Wt./Vol.: 2.50mL
Prep Extract Vol: 25.00mL

Print Date: 07/26/2017 4:35:48PM

Method Blank

Blank ID: MB for HBN 1763460 [MXX/30823]
Blank Lab ID: 1397939

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174149001, 1174149002, 1174149003, 1174149004, 1174149005, 1174149006, 1174149007, 1174149008, 1174149009, 1174149010

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Lead	0.100U	0.200	0.0620	mg/Kg

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/24/2017 2:20:08PM

Prep Batch: MXX30823
Prep Method: SW3050B
Prep Date/Time: 7/14/2017 7:23:13AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174149 [MXX30823]
Blank Spike Lab ID: 1397940
Date Analyzed: 07/24/2017 14:24

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174149001, 1174149002, 1174149003, 1174149004, 1174149005, 1174149006, 1174149007, 1174149008, 1174149009, 1174149010

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Lead	50	49.4	99	(84-118)

Batch Information

Analytical Batch: **MMS9869**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXX30823**
Prep Method: **SW3050B**
Prep Date/Time: **07/14/2017 07:23**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1397941
MS Sample ID: 1397942 MS
MSD Sample ID: 1397943 MSD

Analysis Date: 07/24/2017 14:29
Analysis Date: 07/24/2017 14:33
Analysis Date: 07/24/2017 14:38
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1174149001, 1174149002, 1174149003, 1174149004, 1174149005, 1174149006, 1174149007, 1174149008, 1174149009, 1174149010

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Lead	58.9	48.7	115	115	47.9	112	110	84-118	3.06	(< 20)

Batch Information

Analytical Batch: MMS9869
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/24/2017 2:33:39PM

Prep Batch: MXX30823
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 7/14/2017 7:23:13AM
Prep Initial Wt./Vol.: 1.03g
Prep Extract Vol: 50.00mL

Print Date: 07/26/2017 4:35:52PM

Method Blank

Blank ID: MB for HBN 1763152 [SPT/10210]
Blank Lab ID: 1396735

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174149001, 1174149002, 1174149003, 1174149004, 1174149005, 1174149006, 1174149007, 1174149008, 1174149009, 1174149010

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10210
Analytical Method: SM21 2540G
Instrument:
Analyst: S.D
Analytical Date/Time: 7/9/2017 4:17:00PM

Duplicate Sample Summary

Original Sample ID: 1174006002
Duplicate Sample ID: 1396738
QC for Samples:

Analysis Date: 07/09/2017 16:17
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	79.0	79.3	%	0.37	(< 15)

Batch Information

Analytical Batch: SPT10210
Analytical Method: SM21 2540G
Instrument:
Analyst: S.D

Print Date: 07/26/2017 4:35:54PM

Duplicate Sample Summary

Original Sample ID: 1174055001
Duplicate Sample ID: 1396739

Analysis Date: 07/09/2017 16:17
Matrix: Soil/Solid (dry weight)

QC for Samples:

1174149001, 1174149002, 1174149003, 1174149004, 1174149005, 1174149006, 1174149007, 1174149008, 1174149009, 1174149010

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	84.6	84.7	%	0.14	(< 15)

Batch Information

Analytical Batch: SPT10210
Analytical Method: SM21 2540G
Instrument:
Analyst: S.D

Print Date: 07/26/2017 4:35:54PM

1174149

CHAIN-OF-CUSTODY RECORD

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Laboratory SGS Page 1 of ____
Attn: TORI

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	TOTAL LEAD EPA 6020	TCLP LEAD				Total Number of Containers	Remarks/Matrix
17860 - SS1	(16) A	1340	7/6/17		X	HOLD					1	SOIL
SS7	(1) A	1350			X	X					1	
SS9	(2) A (11) A	1355			X	X	X				1	
SS16	(3) A (12) A	1410			X	X	X				1	
SS23	(4) A (13) A	1415			X	X	X				1	
SS23B	(5) A	1420			X	X					1	
SS29	(17) A	1430			X	HOLD					1	
SS33	(6) A	1440			X	X					1	
SS35	(7) A (14) A	1445			X	X	X				1	
SS38	(8) A (15) A	1450			X	X	X				1	

Project Information	Sample Receipt
Project Number: 17860	Total Number of Containers
Project Name: BUCKNER	COC Seals/Intact? Y/N/(NA)
Contact: JCT	Received Good Cond./Cold: N/A
Ongoing Project? Yes ☒ No ☐	Delivery Method: Hand Delivered (attach shipping bill, if any)
Sampler: JCT	

Instructions
Requested Turnaround Time: STANDARD
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1042	Signature: Time:	Signature: Time:
Printed Name: JAKE TRACY Date: 7/7/17	Printed Name: Date:	Printed Name: Date:
Company: SGW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 10:42
Printed Name: Date:	Printed Name: Date:	Printed Name: Nicholas Wells Date: 7/7/17
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 30919

1174149

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
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Laboratory SGS
Attn: TORI

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	TOTAL LEAD EPA 6020	TCLP LEAD					Total Number of Containers	Remarks/Matrix
17860-SS41	(9)A	1400	7/6/17		X	X						1	SOIL
↓ SS42	(10)A	1405	↓		X	X						1	↓

Project Information		Sample Receipt	
Project Number: 17860		Total Number of Containers	
Project Name: BUCKNER		COC Seals/Intact? Y/N/NA	
Contact: JCT		Received Good Cond./Cold	
Ongoing Project? Yes ☒ No ☐		Delivery Method:	
Sampler: JCT		(attach shipping bill, if any)	

Instructions
Requested Turnaround Time: STANDARD
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1047	Signature: Time:	Signature: Time:
Printed Name: JAKE TRACY Date: 7/7/17	Printed Name: Date:	Printed Name: Date:
Company: SGS	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 10:42
Printed Name: Date:	Printed Name: Date:	Printed Name: Nicholas Wells Date: 7/7/17
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 30917

SGS 1174149

SGS North America Inc.
200 W. Potter Drive, Anchorage, AK 99518
phone (907) 562-2343, fax (907) 561-5301

Characterization of TCLP Samples for LIMS Login

Date Characterized: 7/7/17 **Analyst:** NCW

Sample Container ID:	Matrix	%	Is sufficient volume/mass available?	Notes:
(11)A (12)A (13)A (14)A (15)A	Xylene miscible (Top layer * = matrix 3 **)		(Yes) / No	If multiple jars were received, were they consistent? Yes / No / (NA)
	Water miscible (Middle layer = matrix 6)			If biphasic, was there **only** one layer with sufficient sample ***? Yes / No / (NA)
	(Solid) (Bottom layer = matrix 7 or 2 if % solids required)	100%		Sample description/other observations: Soil
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA
	Water miscible (Middle layer = matrix 6)			If biphasic, was there **only** one layer with sufficient sample ***? Yes / No / NA
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			Sample description/other observations:
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA
	Water miscible (Middle layer = matrix 6)			If biphasic, was there **only** one layer with sufficient sample ***? Yes / No / NA
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			Sample description/other observations:
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA
	Water miscible (Middle layer = matrix 6)			If biphasic, was there **only** one layer with sufficient sample ***? Yes / No / NA
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			Sample description/other observations:
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA
	Water miscible (Middle layer = matrix 6)			If biphasic, was there **only** one layer with sufficient sample ***? Yes / No / NA
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			Sample description/other observations:

Remember: **** = Chlorinated oils will be heavier than water and present as the bottom later.***
***** = Oils must be filterable to be logged in as matrix 3. Nonfilterable oils must be logged in as matrix 7.***
****** = Refer to F078 'Characterization of TCLP Samples for LIMS' to determine if there's sufficent volume/mass.***

e-Sample Receipt Form

SGS Workorder #: **1174149**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	n/a	ABSENT
COC accompanied samples?	yes	
yes **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	no	Ambient
If <0°C, were sample containers ice free?	n/a	
If samples 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".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	yes	
	n/a	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	n/a	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	n/a	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1174149001-A	No Preservative Required	OK			
1174149002-A	No Preservative Required	OK			
1174149003-A	No Preservative Required	OK			
1174149004-A	No Preservative Required	OK			
1174149005-A	No Preservative Required	OK			
1174149006-A	No Preservative Required	OK			
1174149007-A	No Preservative Required	OK			
1174149008-A	No Preservative Required	OK			
1174149009-A	No Preservative Required	OK			
1174149010-A	No Preservative Required	OK			
1174149011-A	No Preservative Required	OK			
1174149012-A	No Preservative Required	OK			
1174149013-A	No Preservative Required	OK			
1174149014-A	No Preservative Required	OK			
1174149015-A	No Preservative Required	OK			
1174149016-A	No Preservative Required	OK			
1174149017-A	No Preservative Required	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Dan McMahon
Title: Associate
Date: December 2017

CS Report Name: Brownfield Assessment and Cleanup, Buckner Building, Whittier, Alaska
Laboratory Report Date: July 26, 2017

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc.
Laboratory Report Number: 1174149

ADEC File Number: 2114.57.003
ADEC RecKey Number: *NA*
(**NOTE**: ***NA*** = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

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 another 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 (0° - 6° C)?
Yes / No / NA (please explain)
Comments: *The laboratory did not document a cooler temperature. The sample receipt form lists "Ambient" for temperature.*

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:

d. If there were any discrepancies, were they documented? – For example, incorrect sample containers/preservation, sample temperature outside acceptance range, insufficient or missing samples, etc.? **Yes / No / NA** (please explain)
Comments: *The laboratory noted that chilling of the samples is not required.*

e. Data quality or usability affected? Please explain. **NA**
Comments: *Although, no cooler temperature was noted, the samples were analyzed for lead and TCLP lead, which should not be impacted by temperature.*

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:

c. Were corrective actions documented? **Yes / No / NA** (please explain)
Comments:

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *The case narrative does not discuss the effect on the data quality/usability.*

5. Sample 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: *Per method, TCLP lead is reported on a wet weight basis.*

d. Are the reported LOQs 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? Please explain.
Comments: *No discrepancies noted.*

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 LOQ? **Yes / No / NA** (please explain)
Comments:

iii. If above LOQ, what samples are affected? ***NA***
Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA (please explain)
Comments:

Data quality or usability affected? Please explain.
Comments:

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: *Organics were not analyzed.*

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA** (please explain)
Comments:

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 (RPDs) 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? ***NA***
Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined? **Yes / No / NA** (please explain)
Comments:

Data quality or usability affected? Please explain. ***NA***
Comments: *Data quality/usability is unaffected.*

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:

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:

Data quality or usability affected? ***NA***
Comments:

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.)

i. One trip blank reported per matrix, analysis and cooler? (If not, enter explanation below.) **Yes / No / NA** (please explain)
Comments: *Samples were not analyzed for volatiles.*

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? **(**If not, a comment stating why must be entered below.) **Yes / No / NA** (please explain)
Comments:

iii. All results less than LOQ? **Yes / No / NA** (please explain)
Comments:

iv. If above LOQ, what samples are affected? ***NA***
Comments**:**

v. Data quality or usability affected? Please explain. ***NA***
Comments: *Data quality/usability is unaffected by the trip blanks.*

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No NA (please explain)
Comments: *A field duplicate was not included in our ADEC-approved work plan.*

ii. Submitted blind to the lab? **Yes / No / NA** (please explain)
Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) **Yes / No / NA** (please explain)
Comments: *The RPD for DRO in the groundwater sample set (MW3B/MW13B) are less than the ADEC's DQO of 30 percent at 12.2 percent.*

iv. Data quality or usability affected? (Use the comment section to explain why or why not.)
Comments:

f. Decontamination or Equipment Blank (if applicable)
Yes / No / NA (please explain)
Comments: *Decontamination/equipment blanks were not included in our ADEC-approved work plan.*

i. All results less than PQL? **Yes / No / NA** (please explain)
Comments:

ii. If above PQL, what samples are affected? ***NA***
Comments:

iii. Data quality or usability affected? Please explain. ***NA***
Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)

a. Defined and appropriate? **Yes / No / NA** (please explain)
Comments: *Laboratory specific data flags/qualifiers are defined on Page 3 of the laboratory report.*

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St. Suite 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1174477**

Client Project: **17860 Buckner**

Dear Jacob Tracy,

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

If there are any questions about the report or services performed during this project, please call 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 Date
Project Manager
Victoria.Pennick@sgs.com

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Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1174477**
Project Name/Site: **17860 Buckner**
Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

17860-B4S4 (1174477004) PS

8082A - Surrogate recovery for decachlorobiphenyl (30%) does not meet QC criteria due to sample dilution (10mL final volume (FV)).
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (20X/10mL FV).

17860-TMW1 (1174477009) PS

6020A - The metals LOQ for selenium was elevated due to matrix interference.
8270D SIM - PAH surrogate recovery for terphenyl-d14 (15.3%) does not meet QC criteria. Sample was re-extracted within hold-time with terphenyl-d14 (12.7%) still not meeting QC criteria. Results were comparable; the second set of data is reported..

17860-TMW11 (1174477010) PS

6020A - The metals LOQs for cadmium and selenium were elevated due to matrix interference.
8270D SIM - PAH surrogate recovery for terphenyl-d14 (29.4%) does not meet DOD recovery limits but is within in-house control limits (29.014%)

LCS for HBN 1763779 [VXX/30880 (1398503) LCS

8260C - LCS recovery for 2-Butanone (MEK) (152%) does not meet QC criteria. This analyte was not detected above LOQ in associated samples.

LCS for HBN 1764025 [VXX/30908 (1399345) LCS

8260C - LCS recovery for dichlorodifluoromethane (156%) does not meet QC criteria. This analyte is not detected in associated samples.

1173386016MS (1398204) MS

8082A - PCB Aroclor 1260 MS recovery (-56%) does not meet QC criteria due to non-homogenous sample. Refer to the LCS for accuracy requirements.

1174494001(1398421MS) (1398422) MS

6020A - Metals MS recovery for silver (84%) does not meet QC criteria. The post digestion spike is successful.

1174397002MS (1398504) MS

8260C - MS recoveries for trichlorofluoromethane (147%), and 1,2,3-trichlorobenzene (65%) do not meet QC criteria. Refer to LCS for accuracy.

1174511001MS (1398508) MS

8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

1174477002(1399310MS) (1399311) MS

6020A - Metals MS recovery for barium (79%) does not meet QC criteria. The post digestion spike was successful.

1173386016MSD (1398205) MSD

8082A - PCB Aroclor 1260 MS recovery (-26%) does not meet QC criteria due to non-homogenous sample. Refer to the LCS for accuracy requirements.

1174397002MSD (1398505) MSD

8260C - MSD RPDs for trichlorofluoromethane (21.3) and 1,2,3-trichlorobenzene (22.1) do not meet QC criteria. These analytes were not detected above LOQ in parent sample.

1174511001MSD (1398509) MSD

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Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1174477**
Project Name/Site: **17860 Buckner**
Project Contact: **Jacob Tracy**

8270D SIM - PAH MSD recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.
8270D SIM - PAH MS/MSD RPDs for several analytes do not meet QC criteria. Results for these analytes are considered estimated in the parent sample.
8270D SIM - PAH surrogate recoveries for terphenyl-d14 (142% MS/159% MSD) do not meet QC criteria due to sample dilution (20X).

1174477002 (1399310MSD) (1399312) MSD

6020A - Metals MSD recovery for barium (79%) does not meet QC criteria. The post digestion spike was successful.

*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
8270D SIM (PAH)				
1174477002	17860-B2S2	XMS10234	Benzo[k]fluoranthene	RP
1174477002	17860-B2S2	XMS10234	Chrysene	RP
1174477003	17860-B3S1	XMS10234	Benzo[b]Fluoranthene	RP
1174477003	17860-B3S1	XMS10234	Benzo[k]fluoranthene	RP
1174511001	LABREFQC	XMS10237	Benzo[k]fluoranthene	RP
1398508	1174511001MS	XMS10237	Benzo[k]fluoranthene	RP
1398509	1174511001MSD	XMS10237	Anthracene	BLC
1398509	1174511001MSD	XMS10237	Benzo[k]fluoranthene	RP
8270D SIM LV (PAH)				
1174477009	17860-TMW1	XMS10248	Naphthalene	BLC
1174477010	17860-TMW11	XMS10237	1-Methylnaphthalene	BLC
1174477010	17860-TMW11	XMS10237	2-Methylnaphthalene	BLC
SW8260C				
1174477004	17860-B4S4	VMS16946	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: 07/26/2017 3:26:32PM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
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
17860-B1S5	1174477001	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B2S2	1174477002	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B3S1	1174477003	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B4S4	1174477004	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B5S3	1174477005	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B5S13	1174477006	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-B6S3	1174477007	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-STB1	1174477008	07/13/2017	07/14/2017	Soil/Solid (dry weight)
17860-TMW1	1174477009	07/13/2017	07/14/2017	Water (Surface, Eff., Ground)
17860-TMW11	1174477010	07/13/2017	07/14/2017	Water (Surface, Eff., Ground)
17860-WTB1	1174477011	07/13/2017	07/14/2017	Water (Surface, Eff., Ground)
17860-WTB2	1174477012	07/13/2017	07/14/2017	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (S)
AK101	Gasoline Range Organics (W)
SW6020A	Metals by ICP-MS
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260C	VOC 8260 (S) Field Extracted
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **17860-B1S5**
Lab Sample ID: 1174477001

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	24.2	mg/Kg
	Barium	42.8	mg/Kg
	Cadmium	0.104J	mg/Kg
	Chromium	45.9	mg/Kg
	Lead	14.7	mg/Kg
	Mercury	0.0502	mg/Kg
	Selenium	0.421J	mg/Kg
	Silver	0.0737J	mg/Kg
Semivolatile Organic Fuels	Diesel Range Organics	13.6J	mg/Kg
	Residual Range Organics	63.6	mg/Kg

Client Sample ID: **17860-B2S2**
Lab Sample ID: 1174477002

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	33.1	mg/Kg
	Barium	40.7	mg/Kg
	Cadmium	0.285	mg/Kg
	Chromium	35.5	mg/Kg
	Lead	14.1	mg/Kg
	Mercury	0.0564	mg/Kg
	Silver	0.113J	mg/Kg
Polynuclear Aromatics GC/MS	Benzo[a]pyrene	29.4	ug/Kg
	Benzo[b]Fluoranthene	30.7	ug/Kg
	Benzo[g,h,i]perylene	39.6	ug/Kg
	Benzo[k]fluoranthene	8.16J	ug/Kg
	Chrysene	11.6J	ug/Kg
	Dibenzo[a,h]anthracene	10.3J	ug/Kg
	Indeno[1,2,3-c,d] pyrene	33.4	ug/Kg
Semivolatile Organic Fuels	Residual Range Organics	22.2	mg/Kg

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Detectable Results Summary

Client Sample ID: **17860-B3S1**
Lab Sample ID: 1174477003

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	28.7	mg/Kg
	Barium	63.4	mg/Kg
	Cadmium	0.164J	mg/Kg
	Chromium	42.0	mg/Kg
	Lead	22.5	mg/Kg
	Mercury	0.0387	mg/Kg
	Silver	0.0703J	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	27.5J	ug/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	30.0	ug/Kg
	2-Methylnaphthalene	43.4	ug/Kg
	Acenaphthene	262	ug/Kg
	Anthracene	213	ug/Kg
	Benzo(a)Anthracene	385	ug/Kg
	Benzo[a]pyrene	354	ug/Kg
	Benzo[b]Fluoranthene	399	ug/Kg
	Benzo[g,h,i]perylene	185	ug/Kg
	Benzo[k]fluoranthene	166	ug/Kg
	Chrysene	494	ug/Kg
	Dibenzo[a,h]anthracene	60.4	ug/Kg
	Fluoranthene	981	ug/Kg
	Fluorene	156	ug/Kg
	Indeno[1,2,3-c,d] pyrene	169	ug/Kg
	Naphthalene	36.6	ug/Kg
	Phenanthrene	1090	ug/Kg
	Pyrene	941	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	26.1	mg/Kg
	Residual Range Organics	132	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.845J	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	29.6J	ug/Kg
	1,3,5-Trimethylbenzene	10.7J	ug/Kg
	Naphthalene	43.5	ug/Kg

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Detectable Results Summary

Client Sample ID: **17860-B4S4**
Lab Sample ID: 1174477004

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	8.35	mg/Kg
	Barium	24.1	mg/Kg
	Cadmium	1.86	mg/Kg
	Chromium	30.8	mg/Kg
	Lead	35.1	mg/Kg
	Mercury	0.0242J	mg/Kg
	Selenium	0.326J	mg/Kg
	Silver	0.0693J	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	395	ug/Kg
	2-Methylnaphthalene	655	ug/Kg
	Acenaphthene	66.3J	ug/Kg
	Anthracene	81.4J	ug/Kg
	Benzo(a)Anthracene	450	ug/Kg
	Benzo[a]pyrene	530	ug/Kg
	Benzo[b]Fluoranthene	724	ug/Kg
	Benzo[g,h,i]perylene	109J	ug/Kg
	Chrysene	1880	ug/Kg
	Dibenzo[a,h]anthracene	69.7J	ug/Kg
	Fluoranthene	177J	ug/Kg
	Fluorene	110J	ug/Kg
	Naphthalene	150J	ug/Kg
	Phenanthrene	624	ug/Kg
	Pyrene	724	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	2230J	mg/Kg
	Residual Range Organics	29900	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.59	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	85.3	ug/Kg
	1,3,5-Trimethylbenzene	22.2J	ug/Kg
	4-Isopropyltoluene	17.4J	ug/Kg
	Benzene	9.51J	ug/Kg
	Ethylbenzene	25.8	ug/Kg
	Naphthalene	83.8	ug/Kg
	n-Propylbenzene	11.5J	ug/Kg
	o-Xylene	43.7	ug/Kg
	P & M -Xylene	107	ug/Kg
	Toluene	61.8	ug/Kg
	Xylenes (total)	151	ug/Kg

Client Sample ID: **17860-B5S3**
Lab Sample ID: 1174477005

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	6.58	mg/Kg
	Barium	29.1	mg/Kg
	Chromium	39.5	mg/Kg
	Lead	7.73	mg/Kg
	Mercury	0.0235J	mg/Kg

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Detectable Results Summary

Client Sample ID: **17860-B5S13**
Lab Sample ID: 1174477006

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	6.84	mg/Kg
	Barium	26.5	mg/Kg
	Cadmium	0.0680J	mg/Kg
	Chromium	38.4	mg/Kg
	Lead	7.92	mg/Kg
	Mercury	0.0316J	mg/Kg
	Silver	0.0640J	mg/Kg

Client Sample ID: **17860-B6S3**
Lab Sample ID: 1174477007

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	21.0	mg/Kg
	Barium	34.6	mg/Kg
	Cadmium	0.114J	mg/Kg
	Chromium	33.2	mg/Kg
	Lead	11.8	mg/Kg
	Mercury	0.0241J	mg/Kg
	Selenium	0.341J	mg/Kg
	Silver	0.0731J	mg/Kg
Polynuclear Aromatics GC/MS	Benzo(a)Anthracene	10.2J	ug/Kg
	Benzo[b]Fluoranthene	10.9J	ug/Kg
	Chrysene	13.6J	ug/Kg
	Fluoranthene	26.0J	ug/Kg
	Phenanthrene	27.4J	ug/Kg
	Pyrene	25.5J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	8.17J	mg/Kg
	Residual Range Organics	28.8	mg/Kg

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Detectable Results Summary

Client Sample ID: **17860-TMW1**
Lab Sample ID: 1174477009

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	12300	ug/L
	Barium	11700	ug/L
	Cadmium	25.9	ug/L
	Chromium	10800	ug/L
	Lead	4180	ug/L
	Mercury	18.4	ug/L
	Silver	27.2	ug/L
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0227J	ug/L
	2-Methylnaphthalene	0.0291J	ug/L
	Benzo[a]pyrene	0.0118J	ug/L
	Fluoranthene	0.0200J	ug/L
	Naphthalene	0.0649J	ug/L
	Phenanthrene	0.0411J	ug/L
	Pyrene	0.0194J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.295J	mg/L
	Residual Range Organics	0.434J	mg/L
Volatile GC/MS	1,2-Dichloroethane	0.180J	ug/L
	2-Butanone (MEK)	4.56J	ug/L
	Benzene	0.160J	ug/L
	Toluene	0.370J	ug/L

Client Sample ID: **17860-TMW11**
Lab Sample ID: 1174477010

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	6540	ug/L
	Barium	6880	ug/L
	Cadmium	13.1J	ug/L
	Chromium	5780	ug/L
	Lead	2190	ug/L
	Mercury	6.38	ug/L
	Silver	14.9J	ug/L
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0184J	ug/L
	2-Methylnaphthalene	0.0222J	ug/L
	Naphthalene	0.0380J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.266J	mg/L
	Residual Range Organics	0.587	mg/L

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Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	24.2		1.17	0.362	mg/Kg	10		07/24/17 18:37
Barium	42.8		0.350	0.110	mg/Kg	10		07/22/17 15:03
Cadmium	0.104	J	0.234	0.0724	mg/Kg	10		07/22/17 15:03
Chromium	45.9		0.467	0.152	mg/Kg	10		07/22/17 15:03
Lead	14.7		0.234	0.0724	mg/Kg	10		07/22/17 15:03
Mercury	0.0502		0.0467	0.0140	mg/Kg	10		07/22/17 15:03
Selenium	0.421	J	1.17	0.362	mg/Kg	10		07/24/17 18:37
Silver	0.0737	J	0.234	0.0724	mg/Kg	10		07/22/17 15:03

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:03
Container ID: 1174477001-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.025 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 18:37
Container ID: 1174477001-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.025 g
Prep Extract Vol: 50 mL

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Aroclor-1221	118	U	235	72.9	ug/Kg	1		07/15/17 19:24
Aroclor-1232	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Aroclor-1242	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Aroclor-1248	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Aroclor-1254	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Aroclor-1260	29.4	U	58.8	17.6	ug/Kg	1		07/15/17 19:24
Surrogates								
Decachlorobiphenyl (surr)	100		60-125		%	1		07/15/17 19:24

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 19:24
Container ID: 1174477001-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.905 g
Prep Extract Vol: 5 mL

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
2-Methylnaphthalene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Acenaphthene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Acenaphthylene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Anthracene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Benzo(a)Anthracene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Benzo[a]pyrene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Benzo[b]Fluoranthene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Benzo[g,h,i]perylene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Benzo[k]fluoranthene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Chrysene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Dibenzo[a,h]anthracene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Fluoranthene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Fluorene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Indeno[1,2,3-c,d] pyrene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Naphthalene	11.9	U	23.9	7.18	ug/Kg	1		07/19/17 12:50
Phenanthrene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Pyrene	14.9	U	29.9	8.97	ug/Kg	1		07/19/17 12:50
Surrogates								
2-Fluorobiphenyl (surr)	93.5		46-115		%	1		07/19/17 12:50
Terphenyl-d14 (surr)	92.7		58-133		%	1		07/19/17 12:50

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 12:50
Container ID: 1174477001-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.518 g
Prep Extract Vol: 5 mL

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	13.6	J	23.7	7.36	mg/Kg	1		07/18/17 01:05
Surrogates								
5a Androstane (surr)	87.3		50-150		%	1		07/18/17 01:05

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 01:05
Container ID: 1174477001-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.26 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	63.6		23.7	7.36	mg/Kg	1		07/18/17 01:05
Surrogates								
n-Triacontane-d62 (surr)	87.9		50-150		%	1		07/18/17 01:05

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 01:05
Container ID: 1174477001-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.26 g
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.30	U	2.60	0.781	mg/Kg	1		07/18/17 23:28
Surrogates								
4-Bromofluorobenzene (surr)	82.2		50-150		%	1		07/18/17 23:28

Batch Information

Analytical Batch: VFC13753
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 23:28
Container ID: 1174477001-B

Prep Batch: VXX30893
Prep Method: SW5035A
Prep Date/Time: 07/13/17 10:30
Prep Initial Wt./Vol.: 92.509 g
Prep Extract Vol: 40.2413 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.4	U	20.8	6.46	ug/Kg	1		07/19/17 01:25
1,1,1-Trichloroethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,1,2,2-Tetrachloroethane	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
1,1,2-Trichloroethane	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
1,1-Dichloroethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,1-Dichloroethene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,1-Dichloropropene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,2,3-Trichlorobenzene	26.1	U	52.1	15.6	ug/Kg	1		07/19/17 01:25
1,2,3-Trichloropropane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,2,4-Trichlorobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,2,4-Trimethylbenzene	26.1	U	52.1	15.6	ug/Kg	1		07/19/17 01:25
1,2-Dibromo-3-chloropropane	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
1,2-Dibromoethane	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
1,2-Dichlorobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,2-Dichloroethane	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
1,2-Dichloropropane	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
1,3,5-Trimethylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,3-Dichlorobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
1,3-Dichloropropane	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
1,4-Dichlorobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
2,2-Dichloropropane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
2-Butanone (MEK)	130	U	260	81.2	ug/Kg	1		07/19/17 01:25
2-Chlorotoluene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
2-Hexanone	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
4-Chlorotoluene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
4-Isopropyltoluene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
4-Methyl-2-pentanone (MIBK)	130	U	260	81.2	ug/Kg	1		07/19/17 01:25
Benzene	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
Bromobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Bromochloromethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Bromodichloromethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Bromoform	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Bromomethane	104	U	208	64.6	ug/Kg	1		07/19/17 01:25
Carbon disulfide	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
Carbon tetrachloride	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
Chlorobenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Chloroethane	104	U	208	64.6	ug/Kg	1		07/19/17 01:25

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Chloromethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
cis-1,2-Dichloroethene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
cis-1,3-Dichloropropene	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
Dibromochloromethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Dibromomethane	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Dichlorodifluoromethane	26.1	U	52.1	15.6	ug/Kg	1		07/19/17 01:25
Ethylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Freon-113	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
Hexachlorobutadiene	10.4	U	20.8	6.46	ug/Kg	1		07/19/17 01:25
Isopropylbenzene (Cumene)	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Methylene chloride	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
Methyl-t-butyl ether	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
Naphthalene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
n-Butylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
n-Propylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
o-Xylene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
P & M -Xylene	26.1	U	52.1	15.6	ug/Kg	1		07/19/17 01:25
sec-Butylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Styrene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
tert-Butylbenzene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
Tetrachloroethene	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
Toluene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
trans-1,2-Dichloroethene	13.0	U	26.0	8.12	ug/Kg	1		07/19/17 01:25
trans-1,3-Dichloropropene	6.50	U	13.0	4.06	ug/Kg	1		07/19/17 01:25
Trichloroethene	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
Trichlorofluoromethane	26.1	U	52.1	15.6	ug/Kg	1		07/19/17 01:25
Vinyl acetate	52.0	U	104	32.3	ug/Kg	1		07/19/17 01:25
Vinyl chloride	5.20	U	10.4	3.23	ug/Kg	1		07/19/17 01:25
Xylenes (total)	39.0	U	78.1	23.7	ug/Kg	1		07/19/17 01:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		07/19/17 01:25
4-Bromofluorobenzene (surr)	114		55-151		%	1		07/19/17 01:25
Toluene-d8 (surr)	98.6		85-116		%	1		07/19/17 01:25

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J flagging is activated

Results of **17860-B1S5**

Client Sample ID: **17860-B1S5**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477001
Lab Project ID: 1174477

Collection Date: 07/13/17 10:30
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 01:25
Container ID: 1174477001-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 10:30
Prep Initial Wt./Vol.: 92.509 g
Prep Extract Vol: 40.2413 mL

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	33.1		5.20	1.61	mg/Kg	50		07/24/17 19:18
Barium	40.7		0.312	0.0978	mg/Kg	10		07/22/17 14:05
Cadmium	0.285		0.208	0.0645	mg/Kg	10		07/22/17 14:05
Chromium	35.5		0.416	0.135	mg/Kg	10		07/22/17 14:05
Lead	14.1		0.208	0.0645	mg/Kg	10		07/22/17 14:05
Mercury	0.0564		0.0416	0.0125	mg/Kg	10		07/22/17 14:05
Selenium	0.520	U	1.04	0.323	mg/Kg	10		07/24/17 18:56
Silver	0.113	J	0.208	0.0645	mg/Kg	10		07/22/17 14:05

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 14:05
Container ID: 1174477002-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.017 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 18:56
Container ID: 1174477002-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.017 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 19:18
Container ID: 1174477002-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.017 g
Prep Extract Vol: 50 mL

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Aroclor-1221	105	U	209	64.9	ug/Kg	1		07/15/17 19:38
Aroclor-1232	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Aroclor-1242	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Aroclor-1248	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Aroclor-1254	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Aroclor-1260	26.1	U	52.3	15.7	ug/Kg	1		07/15/17 19:38
Surrogates								
Decachlorobiphenyl (surr)	99		60-125		%	1		07/15/17 19:38

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 19:38
Container ID: 1174477002-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.748 g
Prep Extract Vol: 5 mL

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
2-Methylnaphthalene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Acenaphthene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Acenaphthylene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Anthracene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Benzo(a)Anthracene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Benzo[a]pyrene	29.4		26.0	7.80	ug/Kg	1		07/19/17 13:11
Benzo[b]Fluoranthene	30.7		26.0	7.80	ug/Kg	1		07/19/17 13:11
Benzo[g,h,i]perylene	39.6		26.0	7.80	ug/Kg	1		07/19/17 13:11
Benzo[k]fluoranthene	8.16	J	26.0	7.80	ug/Kg	1		07/19/17 13:11
Chrysene	11.6	J	26.0	7.80	ug/Kg	1		07/19/17 13:11
Dibenzo[a,h]anthracene	10.3	J	26.0	7.80	ug/Kg	1		07/19/17 13:11
Fluoranthene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Fluorene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Indeno[1,2,3-c,d] pyrene	33.4		26.0	7.80	ug/Kg	1		07/19/17 13:11
Naphthalene	10.4	U	20.8	6.24	ug/Kg	1		07/19/17 13:11
Phenanthrene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Pyrene	13.0	U	26.0	7.80	ug/Kg	1		07/19/17 13:11
Surrogates								
2-Fluorobiphenyl (surr)	92.5		46-115		%	1		07/19/17 13:11
Terphenyl-d14 (surr)	95.1		58-133		%	1		07/19/17 13:11

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 13:11
Container ID: 1174477002-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.889 g
Prep Extract Vol: 5 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.5	U	21.0	6.50	mg/Kg	1		07/18/17 01:26
Surrogates								
5a Androstane (surr)	88.6		50-150		%	1		07/18/17 01:26

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 01:26
Container ID: 1174477002-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.279 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	22.2		21.0	6.50	mg/Kg	1		07/18/17 01:26
Surrogates								
n-Triacontane-d62 (surr)	89.7		50-150		%	1		07/18/17 01:26

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 01:26
Container ID: 1174477002-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.279 g
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.980	U	1.96	0.588	mg/Kg	1		07/18/17 03:26
Surrogates								
4-Bromofluorobenzene (surr)	77.2		50-150		%	1		07/18/17 03:26

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 03:26
Container ID: 1174477002-B

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 11:15
Prep Initial Wt./Vol.: 79.248 g
Prep Extract Vol: 29.3669 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.85	U	15.7	4.86	ug/Kg	1		07/19/17 01:41
1,1,1-Trichloroethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,1,2,2-Tetrachloroethane	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
1,1,2-Trichloroethane	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
1,1-Dichloroethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,1-Dichloroethene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,1-Dichloropropene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,2,3-Trichlorobenzene	19.6	U	39.2	11.8	ug/Kg	1		07/19/17 01:41
1,2,3-Trichloropropane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,2,4-Trichlorobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,2,4-Trimethylbenzene	19.6	U	39.2	11.8	ug/Kg	1		07/19/17 01:41
1,2-Dibromo-3-chloropropane	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
1,2-Dibromoethane	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
1,2-Dichlorobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,2-Dichloroethane	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
1,2-Dichloropropane	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
1,3,5-Trimethylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,3-Dichlorobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
1,3-Dichloropropane	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
1,4-Dichlorobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
2,2-Dichloropropane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
2-Butanone (MEK)	98.0	U	196	61.2	ug/Kg	1		07/19/17 01:41
2-Chlorotoluene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
2-Hexanone	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
4-Chlorotoluene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
4-Isopropyltoluene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
4-Methyl-2-pentanone (MIBK)	98.0	U	196	61.2	ug/Kg	1		07/19/17 01:41
Benzene	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
Bromobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Bromochloromethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Bromodichloromethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Bromoform	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Bromomethane	78.5	U	157	48.6	ug/Kg	1		07/19/17 01:41
Carbon disulfide	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
Carbon tetrachloride	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
Chlorobenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Chloroethane	78.5	U	157	48.6	ug/Kg	1		07/19/17 01:41

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Chloromethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
cis-1,2-Dichloroethene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
cis-1,3-Dichloropropene	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
Dibromochloromethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Dibromomethane	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Dichlorodifluoromethane	19.6	U	39.2	11.8	ug/Kg	1		07/19/17 01:41
Ethylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Freon-113	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
Hexachlorobutadiene	7.85	U	15.7	4.86	ug/Kg	1		07/19/17 01:41
Isopropylbenzene (Cumene)	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Methylene chloride	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
Methyl-t-butyl ether	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
Naphthalene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
n-Butylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
n-Propylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
o-Xylene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
P & M -Xylene	19.6	U	39.2	11.8	ug/Kg	1		07/19/17 01:41
sec-Butylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Styrene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
tert-Butylbenzene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
Tetrachloroethene	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
Toluene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
trans-1,2-Dichloroethene	9.80	U	19.6	6.12	ug/Kg	1		07/19/17 01:41
trans-1,3-Dichloropropene	4.90	U	9.80	3.06	ug/Kg	1		07/19/17 01:41
Trichloroethene	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
Trichlorofluoromethane	19.6	U	39.2	11.8	ug/Kg	1		07/19/17 01:41
Vinyl acetate	39.2	U	78.4	24.3	ug/Kg	1		07/19/17 01:41
Vinyl chloride	3.92	U	7.84	2.43	ug/Kg	1		07/19/17 01:41
Xylenes (total)	29.4	U	58.8	17.9	ug/Kg	1		07/19/17 01:41
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		07/19/17 01:41
4-Bromofluorobenzene (surr)	122		55-151		%	1		07/19/17 01:41
Toluene-d8 (surr)	99		85-116		%	1		07/19/17 01:41

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B2S2**

Client Sample ID: **17860-B2S2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477002
Lab Project ID: 1174477

Collection Date: 07/13/17 11:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 01:41
Container ID: 1174477002-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 11:15
Prep Initial Wt./Vol.: 79.248 g
Prep Extract Vol: 29.3669 mL

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	28.7		4.83	1.50	mg/Kg	50		07/24/17 19:49
Barium	63.4		0.290	0.0908	mg/Kg	10		07/22/17 15:08
Cadmium	0.164	J	0.193	0.0599	mg/Kg	10		07/22/17 15:08
Chromium	42.0		0.386	0.126	mg/Kg	10		07/22/17 15:08
Lead	22.5		0.193	0.0599	mg/Kg	10		07/22/17 15:08
Mercury	0.0387		0.0386	0.0116	mg/Kg	10		07/22/17 15:08
Selenium	0.483	U	0.966	0.300	mg/Kg	10		07/24/17 18:42
Silver	0.0703	J	0.193	0.0599	mg/Kg	10		07/22/17 15:08

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:08
Container ID: 1174477003-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.074 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 18:42
Container ID: 1174477003-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.074 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 19:49
Container ID: 1174477003-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.074 g
Prep Extract Vol: 50 mL

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	25.8	U	51.6	15.5	ug/Kg	1		07/15/17 19:53
Aroclor-1221	103	U	206	63.9	ug/Kg	1		07/15/17 19:53
Aroclor-1232	25.8	U	51.6	15.5	ug/Kg	1		07/15/17 19:53
Aroclor-1242	25.8	U	51.6	15.5	ug/Kg	1		07/15/17 19:53
Aroclor-1248	25.8	U	51.6	15.5	ug/Kg	1		07/15/17 19:53
Aroclor-1254	25.8	U	51.6	15.5	ug/Kg	1		07/15/17 19:53
Aroclor-1260	27.5	J	51.6	15.5	ug/Kg	1		07/15/17 19:53
Surrogates								
Decachlorobiphenyl (surr)	93		60-125		%	1		07/15/17 19:53

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 19:53
Container ID: 1174477003-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.641 g
Prep Extract Vol: 5 mL

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	30.0		25.7	7.71	ug/Kg	1		07/19/17 13:32
2-Methylnaphthalene	43.4		25.7	7.71	ug/Kg	1		07/19/17 13:32
Acenaphthene	262		25.7	7.71	ug/Kg	1		07/19/17 13:32
Acenaphthylene	12.9	U	25.7	7.71	ug/Kg	1		07/19/17 13:32
Anthracene	213		25.7	7.71	ug/Kg	1		07/19/17 13:32
Benzo(a)Anthracene	385		25.7	7.71	ug/Kg	1		07/19/17 13:32
Benzo[a]pyrene	354		25.7	7.71	ug/Kg	1		07/19/17 13:32
Benzo[b]Fluoranthene	399		25.7	7.71	ug/Kg	1		07/19/17 13:32
Benzo[g,h,i]perylene	185		25.7	7.71	ug/Kg	1		07/19/17 13:32
Benzo[k]fluoranthene	166		25.7	7.71	ug/Kg	1		07/19/17 13:32
Chrysene	494		25.7	7.71	ug/Kg	1		07/19/17 13:32
Dibenzo[a,h]anthracene	60.4		25.7	7.71	ug/Kg	1		07/19/17 13:32
Fluoranthene	981		103	30.8	ug/Kg	4		07/20/17 15:32
Fluorene	156		25.7	7.71	ug/Kg	1		07/19/17 13:32
Indeno[1,2,3-c,d] pyrene	169		25.7	7.71	ug/Kg	1		07/19/17 13:32
Naphthalene	36.6		20.6	6.17	ug/Kg	1		07/19/17 13:32
Phenanthrene	1090		103	30.8	ug/Kg	4		07/20/17 15:32
Pyrene	941		103	30.8	ug/Kg	4		07/20/17 15:32
Surrogates								
2-Fluorobiphenyl (surr)	92.1		46-115		%	1		07/19/17 13:32
Terphenyl-d14 (surr)	96.1		58-133		%	1		07/19/17 13:32

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 13:32
Container ID: 1174477003-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.721 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS10237
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/20/17 15:32
Container ID: 1174477003-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.721 g
Prep Extract Vol: 5 mL

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.1		20.5	6.36	mg/Kg	1		07/18/17 01:47
Surrogates								
5a Androstane (surr)	85.2		50-150		%	1		07/18/17 01:47

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 01:47
Container ID: 1174477003-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.35 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	132		20.5	6.36	mg/Kg	1		07/18/17 01:47
Surrogates								
n-Triacontane-d62 (surr)	82.8		50-150		%	1		07/18/17 01:47

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 01:47
Container ID: 1174477003-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.35 g
Prep Extract Vol: 1 mL

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.845	J	1.75	0.525	mg/Kg	1		07/18/17 23:46
Surrogates								
4-Bromofluorobenzene (surr)	94.8		50-150		%	1		07/18/17 23:46

Batch Information

Analytical Batch: VFC13753
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 23:46
Container ID: 1174477003-B

Prep Batch: VXX30893
Prep Method: SW5035A
Prep Date/Time: 07/13/17 13:15
Prep Initial Wt./Vol.: 83.135 g
Prep Extract Vol: 28.0186 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.00	U	14.0	4.34	ug/Kg	1		07/19/17 01:57
1,1,1-Trichloroethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,1,2,2-Tetrachloroethane	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
1,1,2-Trichloroethane	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
1,1-Dichloroethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,1-Dichloroethene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,1-Dichloropropene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,2,3-Trichlorobenzene	17.5	U	35.0	10.5	ug/Kg	1		07/19/17 01:57
1,2,3-Trichloropropane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,2,4-Trichlorobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,2,4-Trimethylbenzene	29.6	J	35.0	10.5	ug/Kg	1		07/19/17 01:57
1,2-Dibromo-3-chloropropane	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
1,2-Dibromoethane	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
1,2-Dichlorobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,2-Dichloroethane	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
1,2-Dichloropropane	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
1,3,5-Trimethylbenzene	10.7	J	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,3-Dichlorobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
1,3-Dichloropropane	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
1,4-Dichlorobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
2,2-Dichloropropane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
2-Butanone (MEK)	87.5	U	175	54.6	ug/Kg	1		07/19/17 01:57
2-Chlorotoluene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
2-Hexanone	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
4-Chlorotoluene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
4-Isopropyltoluene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
4-Methyl-2-pentanone (MIBK)	87.5	U	175	54.6	ug/Kg	1		07/19/17 01:57
Benzene	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
Bromobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Bromochloromethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Bromodichloromethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Bromoform	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Bromomethane	70.0	U	140	43.4	ug/Kg	1		07/19/17 01:57
Carbon disulfide	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
Carbon tetrachloride	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
Chlorobenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Chloroethane	70.0	U	140	43.4	ug/Kg	1		07/19/17 01:57

Print Date: 07/26/2017 3:26:37PM

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Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Chloromethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
cis-1,2-Dichloroethene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
cis-1,3-Dichloropropene	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
Dibromochloromethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Dibromomethane	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Dichlorodifluoromethane	17.5	U	35.0	10.5	ug/Kg	1		07/19/17 01:57
Ethylbenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Freon-113	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
Hexachlorobutadiene	7.00	U	14.0	4.34	ug/Kg	1		07/19/17 01:57
Isopropylbenzene (Cumene)	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Methylene chloride	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
Methyl-t-butyl ether	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
Naphthalene	43.5		17.5	5.46	ug/Kg	1		07/19/17 01:57
n-Butylbenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
n-Propylbenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
o-Xylene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
P & M -Xylene	17.5	U	35.0	10.5	ug/Kg	1		07/19/17 01:57
sec-Butylbenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Styrene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
tert-Butylbenzene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
Tetrachloroethene	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
Toluene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
trans-1,2-Dichloroethene	8.75	U	17.5	5.46	ug/Kg	1		07/19/17 01:57
trans-1,3-Dichloropropene	4.37	U	8.74	2.73	ug/Kg	1		07/19/17 01:57
Trichloroethene	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
Trichlorofluoromethane	17.5	U	35.0	10.5	ug/Kg	1		07/19/17 01:57
Vinyl acetate	35.0	U	69.9	21.7	ug/Kg	1		07/19/17 01:57
Vinyl chloride	3.50	U	6.99	2.17	ug/Kg	1		07/19/17 01:57
Xylenes (total)	26.3	U	52.5	15.9	ug/Kg	1		07/19/17 01:57
Surrogates								
1,2-Dichloroethane-D4 (surr)	117		71-136		%	1		07/19/17 01:57
4-Bromofluorobenzene (surr)	139		55-151		%	1		07/19/17 01:57
Toluene-d8 (surr)	96.7		85-116		%	1		07/19/17 01:57

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B3S1**

Client Sample ID: **17860-B3S1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477003
Lab Project ID: 1174477

Collection Date: 07/13/17 13:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 01:57
Container ID: 1174477003-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 13:15
Prep Initial Wt./Vol.: 83.135 g
Prep Extract Vol: 28.0186 mL

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	8.35		1.01	0.314	mg/Kg	10		07/24/17 19:54
Barium	24.1		0.304	0.0951	mg/Kg	10		07/22/17 15:12
Cadmium	1.86		0.202	0.0627	mg/Kg	10		07/22/17 15:12
Chromium	30.8		0.405	0.132	mg/Kg	10		07/22/17 15:12
Lead	35.1		0.202	0.0627	mg/Kg	10		07/22/17 15:12
Mercury	0.0242	J	0.0405	0.0121	mg/Kg	10		07/22/17 15:12
Selenium	0.326	J	1.01	0.314	mg/Kg	10		07/24/17 19:54
Silver	0.0693	J	0.202	0.0627	mg/Kg	10		07/22/17 15:12

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:12
Container ID: 1174477004-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.066 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 19:54
Container ID: 1174477004-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.066 g
Prep Extract Vol: 50 mL

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Aroclor-1221	212 U		423	131	ug/Kg	1		07/15/17 20:08
Aroclor-1232	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Aroclor-1242	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Aroclor-1248	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Aroclor-1254	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Aroclor-1260	53.0 U		106	31.7	ug/Kg	1		07/15/17 20:08
Surrogates								
Decachlorobiphenyl (surr)	30	*	60-125		%	1		07/15/17 20:08

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 20:08
Container ID: 1174477004-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.931 g
Prep Extract Vol: 10 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	395		214	64.3	ug/Kg	4		07/19/17 13:52
2-Methylnaphthalene	655		214	64.3	ug/Kg	4		07/19/17 13:52
Acenaphthene	66.3	J	214	64.3	ug/Kg	4		07/19/17 13:52
Acenaphthylene	107	U	214	64.3	ug/Kg	4		07/19/17 13:52
Anthracene	81.4	J	214	64.3	ug/Kg	4		07/19/17 13:52
Benzo(a)Anthracene	450		214	64.3	ug/Kg	4		07/19/17 13:52
Benzo[a]pyrene	530		214	64.3	ug/Kg	4		07/19/17 13:52
Benzo[b]Fluoranthene	724		214	64.3	ug/Kg	4		07/19/17 13:52
Benzo[g,h,i]perylene	109	J	214	64.3	ug/Kg	4		07/19/17 13:52
Benzo[k]fluoranthene	107	U	214	64.3	ug/Kg	4		07/19/17 13:52
Chrysene	1880		214	64.3	ug/Kg	4		07/19/17 13:52
Dibenzo[a,h]anthracene	69.7	J	214	64.3	ug/Kg	4		07/19/17 13:52
Fluoranthene	177	J	214	64.3	ug/Kg	4		07/19/17 13:52
Fluorene	110	J	214	64.3	ug/Kg	4		07/19/17 13:52
Indeno[1,2,3-c,d] pyrene	107	U	214	64.3	ug/Kg	4		07/19/17 13:52
Naphthalene	150	J	172	51.5	ug/Kg	4		07/19/17 13:52
Phenanthrene	624		214	64.3	ug/Kg	4		07/19/17 13:52
Pyrene	724		214	64.3	ug/Kg	4		07/19/17 13:52
Surrogates								
2-Fluorobiphenyl (surr)	91.6		46-115		%	4		07/19/17 13:52
Terphenyl-d14 (surr)	126		58-133		%	4		07/19/17 13:52

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 13:52
Container ID: 1174477004-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.631 g
Prep Extract Vol: 10 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2230	J	4280	1330	mg/Kg	20		07/18/17 18:40
Surrogates								
5a Androstane (surr)	0	*	50-150		%	20		07/18/17 18:40

Batch Information

Analytical Batch: XFC13568
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 07/18/17 18:40
Container ID: 1174477004-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	29900		4280	1330	mg/Kg	20		07/18/17 18:40
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	20		07/18/17 18:40

Batch Information

Analytical Batch: XFC13568
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 07/18/17 18:40
Container ID: 1174477004-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 10 mL

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.59		2.26	0.679	mg/Kg	1		07/18/17 03:44
Surrogates								
4-Bromofluorobenzene (surr)	54.9		50-150		%	1		07/18/17 03:44

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 03:44
Container ID: 1174477004-B

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 14:15
Prep Initial Wt./Vol.: 72.05 g
Prep Extract Vol: 30.2435 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.05	U	18.1	5.61	ug/Kg	1		07/19/17 02:13
1,1,1-Trichloroethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,1,2,2-Tetrachloroethane	5.65	U	11.3	3.53	ug/Kg	1		07/19/17 02:13
1,1,2-Trichloroethane	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
1,1-Dichloroethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,1-Dichloroethene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,1-Dichloropropene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,2,3-Trichlorobenzene	22.6	U	45.3	13.6	ug/Kg	1		07/19/17 02:13
1,2,3-Trichloropropane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,2,4-Trichlorobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,2,4-Trimethylbenzene	85.3		45.3	13.6	ug/Kg	1		07/19/17 02:13
1,2-Dibromo-3-chloropropane	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
1,2-Dibromoethane	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
1,2-Dichlorobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,2-Dichloroethane	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
1,2-Dichloropropane	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
1,3,5-Trimethylbenzene	22.2	J	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,3-Dichlorobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
1,3-Dichloropropane	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
1,4-Dichlorobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
2,2-Dichloropropane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
2-Butanone (MEK)	113	U	226	70.6	ug/Kg	1		07/19/17 02:13
2-Chlorotoluene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
2-Hexanone	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
4-Chlorotoluene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
4-Isopropyltoluene	17.4	J	22.6	7.06	ug/Kg	1		07/19/17 02:13
4-Methyl-2-pentanone (MIBK)	113	U	226	70.6	ug/Kg	1		07/19/17 02:13
Benzene	9.51	J	11.3	3.53	ug/Kg	1		07/19/17 02:13
Bromobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Bromochloromethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Bromodichloromethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Bromoform	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Bromomethane	90.5	U	181	56.1	ug/Kg	1		07/19/17 02:13
Carbon disulfide	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
Carbon tetrachloride	5.65	U	11.3	3.53	ug/Kg	1		07/19/17 02:13
Chlorobenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Chloroethane	90.5	U	181	56.1	ug/Kg	1		07/19/17 02:13

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Chloromethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
cis-1,2-Dichloroethene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
cis-1,3-Dichloropropene	5.65	U	11.3	3.53	ug/Kg	1		07/19/17 02:13
Dibromochloromethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Dibromomethane	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Dichlorodifluoromethane	22.6	U	45.3	13.6	ug/Kg	1		07/19/17 02:13
Ethylbenzene	25.8		22.6	7.06	ug/Kg	1		07/19/17 02:13
Freon-113	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
Hexachlorobutadiene	9.05	U	18.1	5.61	ug/Kg	1		07/19/17 02:13
Isopropylbenzene (Cumene)	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Methylene chloride	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
Methyl-t-butyl ether	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
Naphthalene	83.8		22.6	7.06	ug/Kg	1		07/19/17 02:13
n-Butylbenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
n-Propylbenzene	11.5	J	22.6	7.06	ug/Kg	1		07/19/17 02:13
o-Xylene	43.7		22.6	7.06	ug/Kg	1		07/19/17 02:13
P & M -Xylene	107		45.3	13.6	ug/Kg	1		07/19/17 02:13
sec-Butylbenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Styrene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
tert-Butylbenzene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
Tetrachloroethene	5.65	U	11.3	3.53	ug/Kg	1		07/19/17 02:13
Toluene	61.8		22.6	7.06	ug/Kg	1		07/19/17 02:13
trans-1,2-Dichloroethene	11.3	U	22.6	7.06	ug/Kg	1		07/19/17 02:13
trans-1,3-Dichloropropene	5.65	U	11.3	3.53	ug/Kg	1		07/19/17 02:13
Trichloroethene	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
Trichlorofluoromethane	22.6	U	45.3	13.6	ug/Kg	1		07/19/17 02:13
Vinyl acetate	45.3	U	90.5	28.1	ug/Kg	1		07/19/17 02:13
Vinyl chloride	4.53	U	9.05	2.81	ug/Kg	1		07/19/17 02:13
Xylenes (total)	151		67.9	20.6	ug/Kg	1		07/19/17 02:13
Surrogates								
1,2-Dichloroethane-D4 (surr)	120		71-136		%	1		07/19/17 02:13
4-Bromofluorobenzene (surr)	84.6		55-151		%	1		07/19/17 02:13
Toluene-d8 (surr)	98.8		85-116		%	1		07/19/17 02:13

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B4S4**

Client Sample ID: **17860-B4S4**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477004
Lab Project ID: 1174477

Collection Date: 07/13/17 14:15
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 02:13
Container ID: 1174477004-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 14:15
Prep Initial Wt./Vol.: 72.05 g
Prep Extract Vol: 30.2435 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	6.58		0.987	0.306	mg/Kg	10		07/24/17 19:58
Barium	29.1		0.296	0.0927	mg/Kg	10		07/22/17 15:17
Cadmium	0.0985	U	0.197	0.0612	mg/Kg	10		07/22/17 15:17
Chromium	39.5		0.395	0.128	mg/Kg	10		07/22/17 15:17
Lead	7.73		0.197	0.0612	mg/Kg	10		07/22/17 15:17
Mercury	0.0235	J	0.0395	0.0118	mg/Kg	10		07/22/17 15:17
Selenium	0.493	U	0.987	0.306	mg/Kg	10		07/24/17 19:58
Silver	0.0985	U	0.197	0.0612	mg/Kg	10		07/22/17 15:17

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:17
Container ID: 1174477005-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.061 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 19:58
Container ID: 1174477005-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.061 g
Prep Extract Vol: 50 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Aroclor-1221	105	U	209	64.7	ug/Kg	1		07/15/17 20:22
Aroclor-1232	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Aroclor-1242	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Aroclor-1248	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Aroclor-1254	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Aroclor-1260	26.1	U	52.2	15.7	ug/Kg	1		07/15/17 20:22
Surrogates								
Decachlorobiphenyl (surr)	97		60-125		%	1		07/15/17 20:22

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 20:22
Container ID: 1174477005-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.557 g
Prep Extract Vol: 5 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
2-Methylnaphthalene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Acenaphthene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Acenaphthylene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Anthracene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Benzo(a)Anthracene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Benzo[a]pyrene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Benzo[b]Fluoranthene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Benzo[g,h,i]perylene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Benzo[k]fluoranthene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Chrysene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Dibenzo[a,h]anthracene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Fluoranthene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Fluorene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Indeno[1,2,3-c,d] pyrene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Naphthalene	10.4	U	20.9	6.27	ug/Kg	1		07/19/17 14:13
Phenanthrene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Pyrene	13.1	U	26.1	7.83	ug/Kg	1		07/19/17 14:13
Surrogates								
2-Fluorobiphenyl (surr)	94.5		46-115		%	1		07/19/17 14:13
Terphenyl-d14 (surr)	97.9		58-133		%	1		07/19/17 14:13

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 14:13
Container ID: 1174477005-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.546 g
Prep Extract Vol: 5 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.4	U	20.8	6.45	mg/Kg	1		07/18/17 02:07
Surrogates								
5a Androstane (surr)	78.9		50-150		%	1		07/18/17 02:07

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 02:07
Container ID: 1174477005-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.179 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	10.4	U	20.8	6.45	mg/Kg	1		07/18/17 02:07
Surrogates								
n-Triacontane-d62 (surr)	90.2		50-150		%	1		07/18/17 02:07

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 02:07
Container ID: 1174477005-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.179 g
Prep Extract Vol: 1 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.905	U	1.81	0.542	mg/Kg	1		07/18/17 04:03
Surrogates								
4-Bromofluorobenzene (surr)	62.1		50-150		%	1		07/18/17 04:03

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 04:03
Container ID: 1174477005-B

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:00
Prep Initial Wt./Vol.: 83.208 g
Prep Extract Vol: 28.7153 mL

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.20	U	14.4	4.48	ug/Kg	1		07/19/17 02:29
1,1,1-Trichloroethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,1,2,2-Tetrachloroethane	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
1,1,2-Trichloroethane	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
1,1-Dichloroethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,1-Dichloroethene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,1-Dichloropropene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,2,3-Trichlorobenzene	18.1	U	36.1	10.8	ug/Kg	1		07/19/17 02:29
1,2,3-Trichloropropane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,2,4-Trichlorobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,2,4-Trimethylbenzene	18.1	U	36.1	10.8	ug/Kg	1		07/19/17 02:29
1,2-Dibromo-3-chloropropane	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
1,2-Dibromoethane	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
1,2-Dichlorobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,2-Dichloroethane	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
1,2-Dichloropropane	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
1,3,5-Trimethylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,3-Dichlorobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
1,3-Dichloropropane	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
1,4-Dichlorobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
2,2-Dichloropropane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
2-Butanone (MEK)	90.5	U	181	56.4	ug/Kg	1		07/19/17 02:29
2-Chlorotoluene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
2-Hexanone	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
4-Chlorotoluene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
4-Isopropyltoluene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
4-Methyl-2-pentanone (MIBK)	90.5	U	181	56.4	ug/Kg	1		07/19/17 02:29
Benzene	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
Bromobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Bromochloromethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Bromodichloromethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Bromoform	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Bromomethane	72.0	U	144	44.8	ug/Kg	1		07/19/17 02:29
Carbon disulfide	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
Carbon tetrachloride	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
Chlorobenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Chloroethane	72.0	U	144	44.8	ug/Kg	1		07/19/17 02:29

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Chloromethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
cis-1,2-Dichloroethene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
cis-1,3-Dichloropropene	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
Dibromochloromethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Dibromomethane	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Dichlorodifluoromethane	18.1	U	36.1	10.8	ug/Kg	1		07/19/17 02:29
Ethylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Freon-113	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
Hexachlorobutadiene	7.20	U	14.4	4.48	ug/Kg	1		07/19/17 02:29
Isopropylbenzene (Cumene)	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Methylene chloride	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
Methyl-t-butyl ether	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
Naphthalene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
n-Butylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
n-Propylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
o-Xylene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
P & M -Xylene	18.1	U	36.1	10.8	ug/Kg	1		07/19/17 02:29
sec-Butylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Styrene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
tert-Butylbenzene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
Tetrachloroethene	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
Toluene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
trans-1,2-Dichloroethene	9.05	U	18.1	5.64	ug/Kg	1		07/19/17 02:29
trans-1,3-Dichloropropene	4.51	U	9.03	2.82	ug/Kg	1		07/19/17 02:29
Trichloroethene	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
Trichlorofluoromethane	18.1	U	36.1	10.8	ug/Kg	1		07/19/17 02:29
Vinyl acetate	36.1	U	72.2	22.4	ug/Kg	1		07/19/17 02:29
Vinyl chloride	3.61	U	7.22	2.24	ug/Kg	1		07/19/17 02:29
Xylenes (total)	27.1	U	54.2	16.5	ug/Kg	1		07/19/17 02:29
Surrogates								
1,2-Dichloroethane-D4 (surr)	117		71-136		%	1		07/19/17 02:29
4-Bromofluorobenzene (surr)	102		55-151		%	1		07/19/17 02:29
Toluene-d8 (surr)	98.6		85-116		%	1		07/19/17 02:29

Results of **17860-B5S3**

Client Sample ID: **17860-B5S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477005
Lab Project ID: 1174477

Collection Date: 07/13/17 15:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 02:29
Container ID: 1174477005-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:00
Prep Initial Wt./Vol.: 83.208 g
Prep Extract Vol: 28.7153 mL

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	6.84		0.957	0.297	mg/Kg	10		07/24/17 20:03
Barium	26.5		0.287	0.0900	mg/Kg	10		07/22/17 15:21
Cadmium	0.0680	J	0.191	0.0594	mg/Kg	10		07/22/17 15:21
Chromium	38.4		0.383	0.124	mg/Kg	10		07/22/17 15:21
Lead	7.92		0.191	0.0594	mg/Kg	10		07/22/17 15:21
Mercury	0.0316	J	0.0383	0.0115	mg/Kg	10		07/22/17 15:21
Selenium	0.478	U	0.957	0.297	mg/Kg	10		07/24/17 20:03
Silver	0.0640	J	0.191	0.0594	mg/Kg	10		07/22/17 15:21

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:21
Container ID: 1174477006-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.091 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 20:03
Container ID: 1174477006-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.091 g
Prep Extract Vol: 50 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Aroclor-1221	104	U	208	64.6	ug/Kg	1		07/15/17 20:37
Aroclor-1232	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Aroclor-1242	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Aroclor-1248	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Aroclor-1254	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Aroclor-1260	26.1	U	52.1	15.6	ug/Kg	1		07/15/17 20:37
Surrogates								
Decachlorobiphenyl (surr)	106		60-125		%	1		07/15/17 20:37

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 20:37
Container ID: 1174477006-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.555 g
Prep Extract Vol: 5 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
2-Methylnaphthalene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Acenaphthene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Acenaphthylene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Anthracene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Benzo(a)Anthracene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Benzo[a]pyrene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Benzo[b]Fluoranthene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Benzo[g,h,i]perylene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Benzo[k]fluoranthene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Chrysene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Dibenzo[a,h]anthracene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Fluoranthene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Fluorene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Indeno[1,2,3-c,d] pyrene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Naphthalene	10.4	U	20.8	6.25	ug/Kg	1		07/19/17 14:33
Phenanthrene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Pyrene	13.0	U	26.0	7.81	ug/Kg	1		07/19/17 14:33
Surrogates								
2-Fluorobiphenyl (surr)	91.8		46-115		%	1		07/19/17 14:33
Terphenyl-d14 (surr)	97.4		58-133		%	1		07/19/17 14:33

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 14:33
Container ID: 1174477006-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.555 g
Prep Extract Vol: 5 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.4 U		20.7	6.43	mg/Kg	1		07/18/17 02:28
Surrogates								
5a Androstane (surr)	87		50-150		%	1		07/18/17 02:28

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 02:28
Container ID: 1174477006-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.205 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	10.4 U		20.7	6.43	mg/Kg	1		07/18/17 02:28
Surrogates								
n-Triacontane-d62 (surr)	90.1		50-150		%	1		07/18/17 02:28

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 02:28
Container ID: 1174477006-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.205 g
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.880	U	1.76	0.528	mg/Kg	1		07/18/17 04:21
Surrogates								
4-Bromofluorobenzene (surr)	57.7		50-150		%	1		07/18/17 04:21

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 04:21
Container ID: 1174477006-B

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:20
Prep Initial Wt./Vol.: 84.962 g
Prep Extract Vol: 28.6159 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.05	U	14.1	4.36	ug/Kg	1		07/19/17 02:45
1,1,1-Trichloroethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,1,2,2-Tetrachloroethane	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
1,1,2-Trichloroethane	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
1,1-Dichloroethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,1-Dichloroethene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,1-Dichloropropene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,2,3-Trichlorobenzene	17.6	U	35.2	10.6	ug/Kg	1		07/19/17 02:45
1,2,3-Trichloropropane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,2,4-Trichlorobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,2,4-Trimethylbenzene	17.6	U	35.2	10.6	ug/Kg	1		07/19/17 02:45
1,2-Dibromo-3-chloropropane	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
1,2-Dibromoethane	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
1,2-Dichlorobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,2-Dichloroethane	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
1,2-Dichloropropane	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
1,3,5-Trimethylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,3-Dichlorobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
1,3-Dichloropropane	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
1,4-Dichlorobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
2,2-Dichloropropane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
2-Butanone (MEK)	88.0	U	176	54.9	ug/Kg	1		07/19/17 02:45
2-Chlorotoluene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
2-Hexanone	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
4-Chlorotoluene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
4-Isopropyltoluene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
4-Methyl-2-pentanone (MIBK)	88.0	U	176	54.9	ug/Kg	1		07/19/17 02:45
Benzene	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
Bromobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Bromochloromethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Bromodichloromethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Bromoform	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Bromomethane	70.5	U	141	43.6	ug/Kg	1		07/19/17 02:45
Carbon disulfide	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
Carbon tetrachloride	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
Chlorobenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Chloroethane	70.5	U	141	43.6	ug/Kg	1		07/19/17 02:45

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J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Chloromethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
cis-1,2-Dichloroethene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
cis-1,3-Dichloropropene	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
Dibromochloromethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Dibromomethane	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Dichlorodifluoromethane	17.6	U	35.2	10.6	ug/Kg	1		07/19/17 02:45
Ethylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Freon-113	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
Hexachlorobutadiene	7.05	U	14.1	4.36	ug/Kg	1		07/19/17 02:45
Isopropylbenzene (Cumene)	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Methylene chloride	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
Methyl-t-butyl ether	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
Naphthalene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
n-Butylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
n-Propylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
o-Xylene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
P & M -Xylene	17.6	U	35.2	10.6	ug/Kg	1		07/19/17 02:45
sec-Butylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Styrene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
tert-Butylbenzene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
Tetrachloroethene	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
Toluene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
trans-1,2-Dichloroethene	8.80	U	17.6	5.49	ug/Kg	1		07/19/17 02:45
trans-1,3-Dichloropropene	4.39	U	8.79	2.74	ug/Kg	1		07/19/17 02:45
Trichloroethene	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
Trichlorofluoromethane	17.6	U	35.2	10.6	ug/Kg	1		07/19/17 02:45
Vinyl acetate	35.2	U	70.4	21.8	ug/Kg	1		07/19/17 02:45
Vinyl chloride	3.52	U	7.04	2.18	ug/Kg	1		07/19/17 02:45
Xylenes (total)	26.4	U	52.8	16.0	ug/Kg	1		07/19/17 02:45
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		71-136		%	1		07/19/17 02:45
4-Bromofluorobenzene (surr)	101		55-151		%	1		07/19/17 02:45
Toluene-d8 (surr)	97.2		85-116		%	1		07/19/17 02:45

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J flagging is activated

Results of **17860-B5S13**

Client Sample ID: **17860-B5S13**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477006
Lab Project ID: 1174477

Collection Date: 07/13/17 15:20
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 02:45
Container ID: 1174477006-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:20
Prep Initial Wt./Vol.: 84.962 g
Prep Extract Vol: 28.6159 mL

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	21.0		1.02	0.316	mg/Kg	10		07/24/17 20:07
Barium	34.6		0.306	0.0958	mg/Kg	10		07/22/17 15:26
Cadmium	0.114	J	0.204	0.0632	mg/Kg	10		07/22/17 15:26
Chromium	33.2		0.408	0.132	mg/Kg	10		07/22/17 15:26
Lead	11.8		0.204	0.0632	mg/Kg	10		07/22/17 15:26
Mercury	0.0241	J	0.0408	0.0122	mg/Kg	10		07/22/17 15:26
Selenium	0.341	J	1.02	0.316	mg/Kg	10		07/24/17 20:07
Silver	0.0731	J	0.204	0.0632	mg/Kg	10		07/22/17 15:26

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/22/17 15:26
Container ID: 1174477007-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.102 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/24/17 20:07
Container ID: 1174477007-A

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 07/21/17 07:00
Prep Initial Wt./Vol.: 1.102 g
Prep Extract Vol: 50 mL

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Aroclor-1221	112	U	224	69.3	ug/Kg	1		07/15/17 20:51
Aroclor-1232	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Aroclor-1242	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Aroclor-1248	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Aroclor-1254	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Aroclor-1260	27.9	U	55.9	16.8	ug/Kg	1		07/15/17 20:51
Surrogates								
Decachlorobiphenyl (surr)	99		60-125		%	1		07/15/17 20:51

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 07/15/17 20:51
Container ID: 1174477007-A

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 07/14/17 17:03
Prep Initial Wt./Vol.: 22.591 g
Prep Extract Vol: 5 mL

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
2-Methylnaphthalene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Acenaphthene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Acenaphthylene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Anthracene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Benzo(a)Anthracene	10.2	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Benzo[a]pyrene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Benzo[b]Fluoranthene	10.9	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Benzo[g,h,i]perylene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Benzo[k]fluoranthene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Chrysene	13.6	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Dibenzo[a,h]anthracene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Fluoranthene	26.0	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Fluorene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Indeno[1,2,3-c,d] pyrene	14.0	U	28.0	8.40	ug/Kg	1		07/19/17 14:54
Naphthalene	11.2	U	22.4	6.72	ug/Kg	1		07/19/17 14:54
Phenanthrene	27.4	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Pyrene	25.5	J	28.0	8.40	ug/Kg	1		07/19/17 14:54
Surrogates								
2-Fluorobiphenyl (surr)	89.5		46-115		%	1		07/19/17 14:54
Terphenyl-d14 (surr)	96.9		58-133		%	1		07/19/17 14:54

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 07/19/17 14:54
Container ID: 1174477007-A

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 07/17/17 12:49
Prep Initial Wt./Vol.: 22.567 g
Prep Extract Vol: 5 mL

Print Date: 07/26/2017 3:26:37PM

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Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.17	J	22.4	6.93	mg/Kg	1		07/18/17 02:49
Surrogates								
5a Androstane (surr)	86.3		50-150		%	1		07/18/17 02:49

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 07/18/17 02:49
Container ID: 1174477007-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.125 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	28.8		22.4	6.93	mg/Kg	1		07/18/17 02:49
Surrogates								
n-Triacontane-d62 (surr)	88.7		50-150		%	1		07/18/17 02:49

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 07/18/17 02:49
Container ID: 1174477007-A

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 07/14/17 18:07
Prep Initial Wt./Vol.: 30.125 g
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.08	U	2.16	0.648	mg/Kg	1		07/18/17 04:40
Surrogates								
4-Bromofluorobenzene (surr)	69.1		50-150		%	1		07/18/17 04:40

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 04:40
Container ID: 1174477007-B

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:50
Prep Initial Wt./Vol.: 90.766 g
Prep Extract Vol: 34.9332 mL

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.65	U	17.3	5.36	ug/Kg	1		07/19/17 03:01
1,1,1-Trichloroethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,1,2,2-Tetrachloroethane	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
1,1,2-Trichloroethane	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
1,1-Dichloroethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,1-Dichloroethene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,1-Dichloropropene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,2,3-Trichlorobenzene	21.6	U	43.2	13.0	ug/Kg	1		07/19/17 03:01
1,2,3-Trichloropropane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,2,4-Trichlorobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,2,4-Trimethylbenzene	21.6	U	43.2	13.0	ug/Kg	1		07/19/17 03:01
1,2-Dibromo-3-chloropropane	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
1,2-Dibromoethane	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
1,2-Dichlorobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,2-Dichloroethane	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
1,2-Dichloropropane	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
1,3,5-Trimethylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,3-Dichlorobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
1,3-Dichloropropane	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
1,4-Dichlorobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
2,2-Dichloropropane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
2-Butanone (MEK)	108	U	216	67.4	ug/Kg	1		07/19/17 03:01
2-Chlorotoluene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
2-Hexanone	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
4-Chlorotoluene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
4-Isopropyltoluene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
4-Methyl-2-pentanone (MIBK)	108	U	216	67.4	ug/Kg	1		07/19/17 03:01
Benzene	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
Bromobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Bromochloromethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Bromodichloromethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Bromoform	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Bromomethane	86.5	U	173	53.6	ug/Kg	1		07/19/17 03:01
Carbon disulfide	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
Carbon tetrachloride	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
Chlorobenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Chloroethane	86.5	U	173	53.6	ug/Kg	1		07/19/17 03:01

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Chloromethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
cis-1,2-Dichloroethene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
cis-1,3-Dichloropropene	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
Dibromochloromethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Dibromomethane	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Dichlorodifluoromethane	21.6	U	43.2	13.0	ug/Kg	1		07/19/17 03:01
Ethylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Freon-113	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
Hexachlorobutadiene	8.65	U	17.3	5.36	ug/Kg	1		07/19/17 03:01
Isopropylbenzene (Cumene)	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Methylene chloride	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
Methyl-t-butyl ether	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
Naphthalene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
n-Butylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
n-Propylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
o-Xylene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
P & M -Xylene	21.6	U	43.2	13.0	ug/Kg	1		07/19/17 03:01
sec-Butylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Styrene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
tert-Butylbenzene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
Tetrachloroethene	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
Toluene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
trans-1,2-Dichloroethene	10.8	U	21.6	6.74	ug/Kg	1		07/19/17 03:01
trans-1,3-Dichloropropene	5.40	U	10.8	3.37	ug/Kg	1		07/19/17 03:01
Trichloroethene	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
Trichlorofluoromethane	21.6	U	43.2	13.0	ug/Kg	1		07/19/17 03:01
Vinyl acetate	43.2	U	86.4	26.8	ug/Kg	1		07/19/17 03:01
Vinyl chloride	4.32	U	8.64	2.68	ug/Kg	1		07/19/17 03:01
Xylenes (total)	32.4	U	64.8	19.7	ug/Kg	1		07/19/17 03:01
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		71-136		%	1		07/19/17 03:01
4-Bromofluorobenzene (surr)	107		55-151		%	1		07/19/17 03:01
Toluene-d8 (surr)	97.5		85-116		%	1		07/19/17 03:01

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-B6S3**

Client Sample ID: **17860-B6S3**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477007
Lab Project ID: 1174477

Collection Date: 07/13/17 15:50
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/19/17 03:01
Container ID: 1174477007-B

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 15:50
Prep Initial Wt./Vol.: 90.766 g
Prep Extract Vol: 34.9332 mL

Results of **17860-STB1**

Client Sample ID: **17860-STB1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477008
Lab Project ID: 1174477

Collection Date: 07/13/17 08:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.955	U	1.91	0.572	mg/Kg	1		07/18/17 01:52
Surrogates								
4-Bromofluorobenzene (surr)	83.9		50-150		%	1		07/18/17 01:52

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 01:52
Container ID: 1174477008-A

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 07/13/17 08:00
Prep Initial Wt./Vol.: 65.506 g
Prep Extract Vol: 25 mL

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Results of **17860-STB1**

Client Sample ID: **17860-STB1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477008
Lab Project ID: 1174477

Collection Date: 07/13/17 08:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.65	U	15.3	4.73	ug/Kg	1		07/18/17 23:48
1,1,1-Trichloroethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,1,2,2-Tetrachloroethane	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
1,1,2-Trichloroethane	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
1,1-Dichloroethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,1-Dichloroethene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,1-Dichloropropene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,2,3-Trichlorobenzene	19.1	U	38.2	11.4	ug/Kg	1		07/18/17 23:48
1,2,3-Trichloropropane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,2,4-Trichlorobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,2,4-Trimethylbenzene	19.1	U	38.2	11.4	ug/Kg	1		07/18/17 23:48
1,2-Dibromo-3-chloropropane	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
1,2-Dibromoethane	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
1,2-Dichlorobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,2-Dichloroethane	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
1,2-Dichloropropane	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
1,3,5-Trimethylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,3-Dichlorobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
1,3-Dichloropropane	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
1,4-Dichlorobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
2,2-Dichloropropane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
2-Butanone (MEK)	95.5	U	191	59.5	ug/Kg	1		07/18/17 23:48
2-Chlorotoluene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
2-Hexanone	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
4-Chlorotoluene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
4-Isopropyltoluene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
4-Methyl-2-pentanone (MIBK)	95.5	U	191	59.5	ug/Kg	1		07/18/17 23:48
Benzene	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
Bromobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Bromochloromethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Bromodichloromethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Bromoform	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Bromomethane	76.5	U	153	47.3	ug/Kg	1		07/18/17 23:48
Carbon disulfide	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
Carbon tetrachloride	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
Chlorobenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Chloroethane	76.5	U	153	47.3	ug/Kg	1		07/18/17 23:48

Results of **17860-STB1**

Client Sample ID: **17860-STB1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477008
Lab Project ID: 1174477

Collection Date: 07/13/17 08:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Chloromethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
cis-1,2-Dichloroethene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
cis-1,3-Dichloropropene	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
Dibromochloromethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Dibromomethane	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Dichlorodifluoromethane	19.1	U	38.2	11.4	ug/Kg	1		07/18/17 23:48
Ethylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Freon-113	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
Hexachlorobutadiene	7.65	U	15.3	4.73	ug/Kg	1		07/18/17 23:48
Isopropylbenzene (Cumene)	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Methylene chloride	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
Methyl-t-butyl ether	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
Naphthalene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
n-Butylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
n-Propylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
o-Xylene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
P & M -Xylene	19.1	U	38.2	11.4	ug/Kg	1		07/18/17 23:48
sec-Butylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Styrene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
tert-Butylbenzene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
Tetrachloroethene	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
Toluene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
trans-1,2-Dichloroethene	9.55	U	19.1	5.95	ug/Kg	1		07/18/17 23:48
trans-1,3-Dichloropropene	4.77	U	9.54	2.98	ug/Kg	1		07/18/17 23:48
Trichloroethene	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
Trichlorofluoromethane	19.1	U	38.2	11.4	ug/Kg	1		07/18/17 23:48
Vinyl acetate	38.1	U	76.3	23.7	ug/Kg	1		07/18/17 23:48
Vinyl chloride	3.81	U	7.63	2.37	ug/Kg	1		07/18/17 23:48
Xylenes (total)	28.6	U	57.2	17.4	ug/Kg	1		07/18/17 23:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/18/17 23:48
4-Bromofluorobenzene (surr)	130		55-151		%	1		07/18/17 23:48
Toluene-d8 (surr)	97.3		85-116		%	1		07/18/17 23:48

Results of **17860-STB1**

Client Sample ID: **17860-STB1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477008
Lab Project ID: 1174477

Collection Date: 07/13/17 08:00
Received Date: 07/14/17 11:04
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/18/17 23:48
Container ID: 1174477008-A

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 07/13/17 08:00
Prep Initial Wt./Vol.: 65.506 g
Prep Extract Vol: 25 mL

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	12300		250	75.0	ug/L	25		07/19/17 21:33
Barium	11700		30.0	9.40	ug/L	5		07/19/17 21:29
Cadmium	25.9		20.0	6.20	ug/L	5		07/19/17 21:29
Chromium	10800		40.0	13.0	ug/L	5		07/19/17 21:29
Lead	4180		10.0	3.10	ug/L	5		07/19/17 21:29
Mercury	18.4		2.00	0.620	ug/L	5		07/19/17 21:29
Selenium	100	U	200	62.0	ug/L	5		07/19/17 21:29
Silver	27.2		20.0	6.20	ug/L	5		07/20/17 04:49

Batch Information

Analytical Batch: MMS9862
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/20/17 04:49
Container ID: 1174477009-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS9861
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/19/17 21:29
Container ID: 1174477009-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS9861
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/19/17 21:33
Container ID: 1174477009-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0227	J	0.0472	0.0142	ug/L	1		07/25/17 16:44
2-Methylnaphthalene	0.0291	J	0.0472	0.0142	ug/L	1		07/25/17 16:44
Acenaphthene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Benzo(a)Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Benzo[a]pyrene	0.0118	J	0.0189	0.00585	ug/L	1		07/25/17 16:44
Benzo[b]Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Benzo[g,h,i]perylene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Chrysene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		07/25/17 16:44
Fluoranthene	0.0200	J	0.0472	0.0142	ug/L	1		07/25/17 16:44
Fluorene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Indeno[1,2,3-c,d] pyrene	0.0236	U	0.0472	0.0142	ug/L	1		07/25/17 16:44
Naphthalene	0.0649	J	0.0943	0.0292	ug/L	1		07/25/17 16:44
Phenanthrene	0.0411	J	0.0472	0.0142	ug/L	1		07/25/17 16:44
Pyrene	0.0194	J	0.0472	0.0142	ug/L	1		07/25/17 16:44
Surrogates								
2-Fluorobiphenyl (surr)	68.8		53-106		%	1		07/25/17 16:44
Terphenyl-d14 (surr)	12.7	*	58-132		%	1		07/25/17 16:44

Batch Information

Analytical Batch: XMS10248
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 07/25/17 16:44
Container ID: 1174477009-J

Prep Batch: XXX37911
Prep Method: SW3520C
Prep Date/Time: 07/12/17 08:28
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.295	J	0.652	0.196	mg/L	1		07/18/17 22:08
Surrogates								
5a Androstane (surr)	88.5		50-150		%	1		07/18/17 22:08

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 07/18/17 22:08
Container ID: 1174477009-G

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 07/17/17 09:04
Prep Initial Wt./Vol.: 230 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.434	J	0.543	0.163	mg/L	1		07/18/17 22:08
Surrogates								
n-Triacontane-d62 (surr)	93.6		50-150		%	1		07/18/17 22:08

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 07/18/17 22:08
Container ID: 1174477009-G

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 07/17/17 09:04
Prep Initial Wt./Vol.: 230 mL
Prep Extract Vol: 1 mL

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/18/17 15:22
Surrogates								
4-Bromofluorobenzene (surr)	88.2		50-150		%	1		07/18/17 15:22

Batch Information

Analytical Batch: VFC13752
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 15:22
Container ID: 1174477009-A

Prep Batch: VXX30889
Prep Method: SW5030B
Prep Date/Time: 07/18/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/19/17 17:08
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/19/17 17:08
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/19/17 17:08
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,2-Dichloroethane	0.180	J	0.500	0.150	ug/L	1		07/19/17 17:08
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
2-Butanone (MEK)	4.56	J	10.0	3.10	ug/L	1		07/19/17 17:08
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/19/17 17:08
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/19/17 17:08
Benzene	0.160	J	0.400	0.120	ug/L	1		07/19/17 17:08
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/19/17 17:08
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/19/17 17:08
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/19/17 17:08
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 17:08

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J flagging is activated

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/19/17 17:08
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/19/17 17:08
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/19/17 17:08
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/19/17 17:08
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/19/17 17:08
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/19/17 17:08
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Styrene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Toluene	0.370 J		1.00	0.310	ug/L	1		07/19/17 17:08
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/19/17 17:08
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/19/17 17:08
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/19/17 17:08
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/19/17 17:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.7		81-118		%	1		07/19/17 17:08
4-Bromofluorobenzene (surr)	103		85-114		%	1		07/19/17 17:08
Toluene-d8 (surr)	106		89-112		%	1		07/19/17 17:08

Results of **17860-TMW1**

Client Sample ID: **17860-TMW1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477009
Lab Project ID: 1174477

Collection Date: 07/13/17 16:30
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16956
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/19/17 17:08
Container ID: 1174477009-D

Prep Batch: VXX30908
Prep Method: SW5030B
Prep Date/Time: 07/19/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	6540		250	75.0	ug/L	25		07/19/17 21:42
Barium	6880		30.0	9.40	ug/L	5		07/19/17 21:37
Cadmium	13.1	J	20.0	6.20	ug/L	5		07/19/17 21:37
Chromium	5780		40.0	13.0	ug/L	5		07/19/17 21:37
Lead	2190		10.0	3.10	ug/L	5		07/19/17 21:37
Mercury	6.38		2.00	0.620	ug/L	5		07/19/17 21:37
Selenium	100	U	200	62.0	ug/L	5		07/19/17 21:37
Silver	14.9	J	20.0	6.20	ug/L	5		07/20/17 04:53

Batch Information

Analytical Batch: MMS9862
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/20/17 04:53
Container ID: 1174477010-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS9861
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/19/17 21:37
Container ID: 1174477010-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS9861
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/19/17 21:42
Container ID: 1174477010-K

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 07/17/17 09:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0184	J	0.0521	0.0156	ug/L	1		07/20/17 21:01
2-Methylnaphthalene	0.0222	J	0.0521	0.0156	ug/L	1		07/20/17 21:01
Acenaphthene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Acenaphthylene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Benzo(a)Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Benzo[a]pyrene	0.0104	U	0.0208	0.00646	ug/L	1		07/20/17 21:01
Benzo[b]Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Benzo[g,h,i]perylene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Benzo[k]fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Chrysene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Dibenzo[a,h]anthracene	0.0104	U	0.0208	0.00646	ug/L	1		07/20/17 21:01
Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Fluorene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Indeno[1,2,3-c,d] pyrene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Naphthalene	0.0380	J	0.104	0.0323	ug/L	1		07/20/17 21:01
Phenanthrene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Pyrene	0.0261	U	0.0521	0.0156	ug/L	1		07/20/17 21:01
Surrogates								
2-Fluorobiphenyl (surr)	66.4		53-106		%	1		07/20/17 21:01
Terphenyl-d14 (surr)	29.4	*	58-132		%	1		07/20/17 21:01

Batch Information

Analytical Batch: XMS10237
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 07/20/17 21:01
Container ID: 1174477010-J

Prep Batch: XXX37911
Prep Method: SW3520C
Prep Date/Time: 07/12/17 08:28
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.266	J	0.638	0.191	mg/L	1		07/18/17 22:17
Surrogates								
5a Androstane (surr)	78.6		50-150		%	1		07/18/17 22:17

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 07/18/17 22:17
Container ID: 1174477010-G

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 07/17/17 09:04
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.587		0.532	0.160	mg/L	1		07/18/17 22:17
Surrogates								
n-Triacontane-d62 (surr)	82.2		50-150		%	1		07/18/17 22:17

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 07/18/17 22:17
Container ID: 1174477010-G

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 07/17/17 09:04
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/18/17 15:41
Surrogates								
4-Bromofluorobenzene (surr)	89.9		50-150		%	1		07/18/17 15:41

Batch Information

Analytical Batch: VFC13752
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 15:41
Container ID: 1174477010-A

Prep Batch: VXX30889
Prep Method: SW5030B
Prep Date/Time: 07/18/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
1,1,1-Trichloroethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,1,2,2-Tetrachloroethane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
1,1,2-Trichloroethane	10.0	U	20.0	6.00	ug/L	50		07/19/17 18:00
1,1-Dichloroethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,1-Dichloroethene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,1-Dichloropropene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2,3-Trichlorobenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2,3-Trichloropropane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2,4-Trichlorobenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2,4-Trimethylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2-Dibromo-3-chloropropane	250	U	500	155	ug/L	50		07/19/17 18:00
1,2-Dibromoethane	1.88	U	3.75	0.900	ug/L	50		07/19/17 18:00
1,2-Dichlorobenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,2-Dichloroethane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
1,2-Dichloropropane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,3,5-Trimethylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,3-Dichlorobenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
1,3-Dichloropropane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
1,4-Dichlorobenzene	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
2,2-Dichloropropane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
2-Butanone (MEK)	250	U	500	155	ug/L	50		07/19/17 18:00
2-Chlorotoluene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
2-Hexanone	250	U	500	155	ug/L	50		07/19/17 18:00
4-Chlorotoluene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
4-Isopropyltoluene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
4-Methyl-2-pentanone (MIBK)	250	U	500	155	ug/L	50		07/19/17 18:00
Benzene	10.0	U	20.0	6.00	ug/L	50		07/19/17 18:00
Bromobenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Bromochloromethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Bromodichloromethane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
Bromoform	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Bromomethane	125	U	250	75.0	ug/L	50		07/19/17 18:00
Carbon disulfide	250	U	500	155	ug/L	50		07/19/17 18:00
Carbon tetrachloride	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Chlorobenzene	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
Chloroethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00

Print Date: 07/26/2017 3:26:37PM

J flagging is activated

Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Chloromethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
cis-1,2-Dichloroethene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
cis-1,3-Dichloropropene	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
Dibromochloromethane	12.5	U	25.0	7.50	ug/L	50		07/19/17 18:00
Dibromomethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Dichlorodifluoromethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Ethylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Freon-113	250	U	500	155	ug/L	50		07/19/17 18:00
Hexachlorobutadiene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Isopropylbenzene (Cumene)	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Methylene chloride	125	U	250	50.0	ug/L	50		07/19/17 18:00
Methyl-t-butyl ether	250	U	500	155	ug/L	50		07/19/17 18:00
Naphthalene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
n-Butylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
n-Propylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
o-Xylene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
P & M -Xylene	50.0	U	100	31.0	ug/L	50		07/19/17 18:00
sec-Butylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Styrene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
tert-Butylbenzene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Tetrachloroethene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Toluene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
trans-1,2-Dichloroethene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
trans-1,3-Dichloropropene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Trichloroethene	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Trichlorofluoromethane	25.0	U	50.0	15.5	ug/L	50		07/19/17 18:00
Vinyl acetate	250	U	500	155	ug/L	50		07/19/17 18:00
Vinyl chloride	3.75	U	7.50	2.50	ug/L	50		07/19/17 18:00
Xylenes (total)	75.0	U	150	50.0	ug/L	50		07/19/17 18:00
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.9		81-118		%	50		07/19/17 18:00
4-Bromofluorobenzene (surr)	103		85-114		%	50		07/19/17 18:00
Toluene-d8 (surr)	107		89-112		%	50		07/19/17 18:00

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Results of **17860-TMW11**

Client Sample ID: **17860-TMW11**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477010
Lab Project ID: 1174477

Collection Date: 07/13/17 17:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16956
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/19/17 18:00
Container ID: 1174477010-D

Prep Batch: VXX30908
Prep Method: SW5030B
Prep Date/Time: 07/19/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17860-WTB1**

Client Sample ID: **17860-WTB1**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477011
Lab Project ID: 1174477

Collection Date: 07/13/17 09:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/18/17 13:08
Surrogates								
4-Bromofluorobenzene (surr)	89		50-150		%	1		07/18/17 13:08

Batch Information

Analytical Batch: VFC13752
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/18/17 13:08
Container ID: 1174477011-A

Prep Batch: VXX30889
Prep Method: SW5030B
Prep Date/Time: 07/18/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **17860-WTB2**

Client Sample ID: **17860-WTB2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477012
Lab Project ID: 1174477

Collection Date: 07/13/17 10:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/19/17 13:36
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/19/17 13:36
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
Benzene	0.200	U	0.400	0.120	ug/L	1		07/19/17 13:36
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/19/17 13:36
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36

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Results of **17860-WTB2**

Client Sample ID: **17860-WTB2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477012
Lab Project ID: 1174477

Collection Date: 07/13/17 10:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/19/17 13:36
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		07/19/17 13:36
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/19/17 13:36
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Styrene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Toluene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/19/17 13:36
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/19/17 13:36
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/19/17 13:36
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/19/17 13:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.3		81-118		%	1		07/19/17 13:36
4-Bromofluorobenzene (surr)	104		85-114		%	1		07/19/17 13:36
Toluene-d8 (surr)	106		89-112		%	1		07/19/17 13:36

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Results of **17860-WTB2**

Client Sample ID: **17860-WTB2**
Client Project ID: **17860 Buckner**
Lab Sample ID: 1174477012
Lab Project ID: 1174477

Collection Date: 07/13/17 10:00
Received Date: 07/14/17 11:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16956
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/19/17 13:36
Container ID: 1174477012-A

Prep Batch: VXX30908
Prep Method: SW5030B
Prep Date/Time: 07/19/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1763762 [MXX/30829]
Blank Lab ID: 1398419

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	2.50U	5.00	1.50	ug/L
Barium	1.50U	3.00	0.940	ug/L
Cadmium	1.00U	2.00	0.620	ug/L
Chromium	2.15J	4.00	1.30	ug/L
Lead	0.500U	1.00	0.310	ug/L
Mercury	0.124J	0.200	0.0620	ug/L
Selenium	10.0U	20.0	6.20	ug/L
Silver	1.00U	2.00	0.620	ug/L

Batch Information

Analytical Batch: MMS9861
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/19/2017 6:09:59PM

Prep Batch: MXX30829
Prep Method: SW3010A
Prep Date/Time: 7/17/2017 9:30:29AM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [MXX30829]
Blank Spike Lab ID: 1398420
Date Analyzed: 07/19/2017 18:14

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

Results by **SW6020A**

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	1000	1050	105	(84-116)
Barium	1000	983	98	(86-114)
Cadmium	100	98.8	99	(87-115)
Chromium	400	410	102	(85-116)
Lead	1000	986	99	(88-115)
Mercury	10	10.4	104	(70-124)
Selenium	1000	1100	110	(80-120)
Silver	100	90.2	90	(85-116)

Batch Information

Analytical Batch: **MMS9861**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **ACF**

Prep Batch: **MXX30829**
Prep Method: **SW3010A**
Prep Date/Time: **07/17/2017 09:30**
Spike Init Wt./Vol.: 1000 ug/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1398421
MS Sample ID: 1398422 MS
MSD Sample ID: 1398423 MSD

Analysis Date: 07/19/2017 18:18
Analysis Date: 07/19/2017 18:23
Analysis Date: 07/19/2017 18:27
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

Results by **SW6020A**

		Matrix Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	4.25J	1000	1080	107		1000	1070	107	84-116	0.58	(< 20)
Barium	45.5	1000	1040	99		1000	1040	100	86-114	0.42	(< 20)
Cadmium	1.00U	100	96.1	96		100	96.9	97	87-115	0.83	(< 20)
Chromium	4.00	400	415	103		400	413	102	85-116	0.39	(< 20)
Lead	0.436J	1000	1000	100		1000	1000	100	88-115	0.14	(< 20)
Mercury	0.125J	10.0	10.8	107		10.0	10.6	104	70-124	2.73	(< 20)
Selenium	10.0U	1000	1120	112		1000	1130	113	80-120	0.77	(< 20)
Silver	1.00U	100	84.3	84	*	100	86.1	86	85-116	2.08	(< 20)

Batch Information

Analytical Batch: MMS9861
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/19/2017 6:23:25PM

Prep Batch: MXX30829
Prep Method: 3010 H20 Digest for Metals ICP-MS
Prep Date/Time: 7/17/2017 9:30:29AM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 07/26/2017 3:26:47PM

Bench Spike Summary

Original Sample ID: 1398421
MS Sample ID: 1398424 BND
MSD Sample ID:

Analysis Date: 07/19/2017 18:18
Analysis Date: 07/19/2017 18:32
Analysis Date:
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

Results by **SW6020A**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Silver	1.00U	25.0	23.1	93				80-120		

Batch Information

Analytical Batch: MMS9861
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/19/2017 6:32:23PM

Prep Batch: MXX30829
Prep Method: 3010 H20 Digest for Metals ICP-MS
Prep Date/Time: 7/17/2017 9:30:29AM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 07/26/2017 3:26:47PM

Method Blank

Blank ID: MB for HBN 1764013 [MXX/30839]
Blank Lab ID: 1399308

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.200U	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0208J	0.0400	0.0120	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/22/2017 1:56:16PM

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 7/21/2017 7:00:47AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/24/2017 6:28:59PM

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 7/21/2017 7:00:47AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Duplicate Sample Summary

Original Sample ID: 1399310
Duplicate Sample ID: 1399314

Analysis Date: 07/22/2017 14:09
Matrix: Solid/Soil (Wet Weight)

QC for Samples:

1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW6020A**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Lead	13.4	13.1	mg/Kg	2.40	(< 20)
Silver	0.107J	0.0936J	mg/Kg	13.40	(< 20)
Barium	38.4	41.6	mg/Kg	7.86	(< 20)
Cadmium	0.269	0.298	mg/Kg	10.20	(< 20)
Chromium	33.6	35.4	mg/Kg	5.22	(< 20)

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Instrument: Perkin Elmer NexIon P5
Analyst: ACF

Prep Batch: MXX30839
Prep Method: SW3050B
Prep Date/Time: 7/21/2017 7:00:47AM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [MXX30839]
Blank Spike Lab ID: 1399309
Date Analyzed: 07/22/2017 14:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Barium	50	48.3	97	(86-116)
Cadmium	5	4.90	98	(84-116)
Chromium	20	19.0	95	(83-119)
Lead	50	46.5	93	(84-118)
Mercury	0.5	0.502	100	(74-126)
Silver	5	4.63	93	(83-118)
Arsenic	50	50.7	101	(82-118)
Selenium	50	49.8	100	(80-119)

Batch Information

Analytical Batch: **MMS9867**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **ACF**

Prep Batch: **MXX30839**
Prep Method: **SW3050B**
Prep Date/Time: **07/21/2017 07:00**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

Analytical Batch: **MMS9869**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXX30839**
Prep Method: **SW3050B**
Prep Date/Time: **07/21/2017 07:00**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1399310
MS Sample ID: 1399311 MS
MSD Sample ID: 1399312 MSD

Analysis Date: 07/22/2017 14:05
Analysis Date: 07/22/2017 14:14
Analysis Date: 07/22/2017 14:18
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	38.4	48.4	76.5	79 *	46.3	75.2	79 *	86-116	1.71	(< 20)
Cadmium	0.269	4.84	4.92	96	4.63	4.71	96	84-116	4.32	(< 20)
Chromium	33.6	19.3	53.7	104	18.5	52.8	104	83-119	1.51	(< 20)
Lead	13.4	48.4	56.8	90	46.3	53.5	87	84-118	6.12	(< 20)
Mercury	0.0533	0.484	.512	95	0.463	0.507	98	74-126	1.02	(< 20)
Silver	0.107J	4.84	4.58	93	4.63	4.34	91	83-118	5.41	(< 20)
Arsenic	31.3	48.4	78.8	98	46.3	73.9	92	82-118	6.32	(< 20)
Selenium	0.491U	48.4	44	91	46.3	44.0	95	80-119	0.09	(< 20)

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/22/2017 2:14:14PM

Prep Batch: MXX30839
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 7/21/2017 7:00:47AM
Prep Initial Wt./Vol.: 1.03g
Prep Extract Vol: 50.00mL

Analytical Batch: MMS9869
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/24/2017 7:22:57PM

Prep Batch: MXX30839
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 7/21/2017 7:00:47AM
Prep Initial Wt./Vol.: 1.03g
Prep Extract Vol: 50.00mL

Print Date: 07/26/2017 3:26:52PM

Bench Spike Summary

Original Sample ID: 1399310
MS Sample ID: 1399313 BND
MSD Sample ID:

Analysis Date: 07/22/2017 14:05
Analysis Date: 07/22/2017 14:23
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	38.4	232	272	101				80-120		

Batch Information

Analytical Batch: MMS9867
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/22/2017 2:23:14PM

Prep Batch: MXX30839
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 7/21/2017 7:00:47AM
Prep Initial Wt./Vol.: 1.08g
Prep Extract Vol: 50.00mL

Print Date: 07/26/2017 3:26:52PM

Method Blank

Blank ID: MB for HBN 1763564 [SPT/10225]
Blank Lab ID: 1398238

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10225
Analytical Method: SM21 2540G
Instrument:
Analyst: ZCB
Analytical Date/Time: 7/14/2017 4:32:00PM

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Duplicate Sample Summary

Original Sample ID: 1174299001
Duplicate Sample ID: 1398239
QC for Samples:

Analysis Date: 07/14/2017 16:32
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	93.9	94.4	%	0.57	(< 15)

Batch Information

Analytical Batch: SPT10225
Analytical Method: SM21 2540G
Instrument:
Analyst: ZCB

Print Date: 07/26/2017 3:26:55PM

Duplicate Sample Summary

Original Sample ID: 1174396011
Duplicate Sample ID: 1398240
Analysis Date: 07/14/2017 16:32
Matrix: Soil/Solid (dry weight)

QC for Samples:

1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	95.9	95.8	%	0.03	(< 15)

Batch Information

Analytical Batch: SPT10225
Analytical Method: SM21 2540G
Instrument:
Analyst: ZCB

Print Date: 07/26/2017 3:26:55PM

Duplicate Sample Summary

Original Sample ID: 1174491008
Duplicate Sample ID: 1398241
Analysis Date: 07/14/2017 16:32
Matrix: Soil/Solid (dry weight)

QC for Samples:

1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	84.3	83.7	%	0.63	(< 15)

Batch Information

Analytical Batch: SPT10225
Analytical Method: SM21 2540G
Instrument:
Analyst: ZCB

Print Date: 07/26/2017 3:26:55PM

Method Blank

Blank ID: MB for HBN 1763779 [VXX/30880]
Blank Lab ID: 1398502

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

Method Blank

Blank ID: MB for HBN 1763779 [VXX/30880]
Blank Lab ID: 1398502

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.8J	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	8.75J	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	92.3	55-151		%
Toluene-d8 (surr)	96.3	85-116		%

Method Blank

Blank ID: MB for HBN 1763779 [VXX/30880]
Blank Lab ID: 1398502

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: NRO
Analytical Date/Time: 7/18/2017 7:11:00PM

Prep Batch: VXX30880
Prep Method: SW5035A
Prep Date/Time: 7/18/2017 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30880]
Blank Spike Lab ID: 1398503
Date Analyzed: 07/18/2017 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
1,1,1,2-Tetrachloroethane	750	773	103		(78-125)
1,1,1-Trichloroethane	750	802	107		(73-130)
1,1,2,2-Tetrachloroethane	750	805	107		(70-124)
1,1,2-Trichloroethane	750	814	109		(78-121)
1,1-Dichloroethane	750	804	107		(76-125)
1,1-Dichloroethene	750	840	112		(70-131)
1,1-Dichloropropene	750	851	114		(76-125)
1,2,3-Trichlorobenzene	750	667	89		(66-130)
1,2,3-Trichloropropane	750	779	104		(73-125)
1,2,4-Trichlorobenzene	750	710	95		(67-129)
1,2,4-Trimethylbenzene	750	790	105		(75-123)
1,2-Dibromo-3-chloropropane	750	797	106		(61-132)
1,2-Dibromoethane	750	812	108		(78-122)
1,2-Dichlorobenzene	750	774	103		(78-121)
1,2-Dichloroethane	750	801	107		(73-128)
1,2-Dichloropropane	750	823	110		(76-123)
1,3,5-Trimethylbenzene	750	788	105		(73-124)
1,3-Dichlorobenzene	750	757	101		(77-121)
1,3-Dichloropropane	750	829	111		(77-121)
1,4-Dichlorobenzene	750	765	102		(75-120)
2,2-Dichloropropane	750	808	108		(67-133)
2-Butanone (MEK)	2250	3410	152	*	(51-148)
2-Chlorotoluene	750	810	108		(75-122)
2-Hexanone	2250	3240	144		(53-145)
4-Chlorotoluene	750	795	106		(72-124)
4-Isopropyltoluene	750	777	104		(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2880	128		(65-135)
Benzene	750	801	107		(77-121)
Bromobenzene	750	789	105		(78-121)
Bromochloromethane	750	762	102		(78-125)
Bromodichloromethane	750	795	106		(75-127)
Bromoform	750	773	103		(67-132)
Bromomethane	750	666	89		(53-143)
Carbon disulfide	1130	1210	107		(63-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30880]
Blank Spike Lab ID: 1398503
Date Analyzed: 07/18/2017 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	794	106	(70-135)
Chlorobenzene	750	781	104	(79-120)
Chloroethane	750	894	119	(59-139)
Chloroform	750	760	101	(78-123)
Chloromethane	750	961	128	(50-136)
cis-1,2-Dichloroethene	750	765	102	(77-123)
cis-1,3-Dichloropropene	750	789	105	(74-126)
Dibromochloromethane	750	812	108	(74-126)
Dibromomethane	750	781	104	(78-125)
Dichlorodifluoromethane	750	927	124	(29-149)
Ethylbenzene	750	791	105	(76-122)
Freon-113	1130	1210	107	(66-136)
Hexachlorobutadiene	750	697	93	(61-135)
Isopropylbenzene (Cumene)	750	806	107	(68-134)
Methylene chloride	750	795	106	(70-128)
Methyl-t-butyl ether	1130	1120	100	(73-125)
Naphthalene	750	703	94	(62-129)
n-Butylbenzene	750	788	105	(70-128)
n-Propylbenzene	750	824	110	(73-125)
o-Xylene	750	796	106	(77-123)
P & M -Xylene	1500	1580	105	(77-124)
sec-Butylbenzene	750	774	103	(73-126)
Styrene	750	799	107	(76-124)
tert-Butylbenzene	750	791	106	(73-125)
Tetrachloroethene	750	811	108	(73-128)
Toluene	750	779	104	(77-121)
trans-1,2-Dichloroethene	750	789	105	(74-125)
trans-1,3-Dichloropropene	750	807	108	(71-130)
Trichloroethene	750	825	110	(77-123)
Trichlorofluoromethane	750	973	130	(62-140)
Vinyl acetate	750	895	119	(50-151)
Vinyl chloride	750	844	112	(56-135)
Xylenes (total)	2250	2380	106	(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30880]
Blank Spike Lab ID: 1398503
Date Analyzed: 07/18/2017 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

	Blank Spike (%)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	99.9	100	(71-136)
4-Bromofluorobenzene (surr)	750	93.4	93	(55-151)
Toluene-d8 (surr)	750	100	100	(85-116)

Batch Information

Analytical Batch: **VMS16946**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **NRO**

Prep Batch: **VXX30880**
Prep Method: **SW5035A**
Prep Date/Time: **07/18/2017 06:00**
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: 1174397002
MS Sample ID: 1398504 MS
MSD Sample ID: 1398505 MSD

Analysis Date: 07/19/2017 0:36
Analysis Date: 07/18/2017 20:35
Analysis Date: 07/18/2017 20:51
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

		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	13.8U	910	813	89		910	858	94	78-125	5.40	(< 20)
1,1,1-Trichloroethane	17.2U	910	841	92		910	842	93	73-130	0.22	(< 20)
1,1,2,2-Tetrachloroethane	8.60U	910	898	99		910	908	100	70-124	1.00	(< 20)
1,1,2-Trichloroethane	6.85U	910	865	95		910	892	98	78-121	3.10	(< 20)
1,1-Dichloroethane	17.2U	910	864	95		910	866	95	76-125	0.14	(< 20)
1,1-Dichloroethene	17.2U	910	921	101		910	878	97	70-131	4.80	(< 20)
1,1-Dichloropropene	17.2U	910	874	96		910	889	98	76-125	1.80	(< 20)
1,2,3-Trichlorobenzene	34.4U	910	589	65	*	910	735	81	66-130	22.10	* (< 20)
1,2,3-Trichloropropane	17.2U	910	879	97		910	901	99	73-125	2.40	(< 20)
1,2,4-Trichlorobenzene	17.2U	910	659	73		910	772	85	67-129	15.70	(< 20)
1,2,4-Trimethylbenzene	34.4U	910	841	92		910	858	94	75-123	2.10	(< 20)
1,2-Dibromo-3-chloropropane	68.5U	910	815	90		910	885	97	61-132	8.20	(< 20)
1,2-Dibromoethane	6.85U	910	868	96		910	902	99	78-122	3.70	(< 20)
1,2-Dichlorobenzene	17.2U	910	830	91		910	845	93	78-121	1.80	(< 20)
1,2-Dichloroethane	6.85U	910	880	97		910	876	96	73-128	0.52	(< 20)
1,2-Dichloropropane	6.85U	910	881	97		910	895	98	76-123	1.50	(< 20)
1,3,5-Trimethylbenzene	17.2U	910	866	95		910	863	95	73-124	0.39	(< 20)
1,3-Dichlorobenzene	17.2U	910	828	91		910	828	91	77-121	0.04	(< 20)
1,3-Dichloropropane	6.85U	910	877	96		910	920	101	77-121	4.90	(< 20)
1,4-Dichlorobenzene	17.2U	910	828	91		910	841	93	75-120	1.60	(< 20)
2,2-Dichloropropane	17.2U	910	839	92		910	831	91	67-133	0.91	(< 20)
2-Butanone (MEK)	172U	2724	3438	126		2724	3665	134	51-148	6.60	(< 20)
2-Chlorotoluene	17.2U	910	877	96		910	880	97	75-122	0.41	(< 20)
2-Hexanone	68.5U	2724	3459	127		2724	3665	134	53-145	5.80	(< 20)
4-Chlorotoluene	17.2U	910	862	95		910	864	95	72-124	0.21	(< 20)
4-Isopropyltoluene	17.2U	910	829	91		910	825	91	73-127	0.44	(< 20)
4-Methyl-2-pentanone (MIBK)	172U	2724	3070	112		2724	3243	119	65-135	5.40	(< 20)
Benzene	8.60U	910	845	93		910	863	95	77-121	2.00	(< 20)
Bromobenzene	17.2U	910	866	95		910	866	95	78-121	0.04	(< 20)
Bromochloromethane	17.2U	910	850	93		910	844	93	78-125	0.72	(< 20)
Bromodichloromethane	17.2U	910	875	96		910	865	95	75-127	1.10	(< 20)
Bromoform	17.2U	910	827	91		910	861	95	67-132	4.00	(< 20)
Bromomethane	138U	910	810	89		910	742	82	53-143	8.70	(< 20)
Carbon disulfide	68.5U	1362	1319	97		1362	1265	93	63-132	4.30	(< 20)
Carbon tetrachloride	8.60U	910	846	93		910	828	91	70-135	2.10	(< 20)
Chlorobenzene	17.2U	910	814	90		910	859	95	79-120	5.40	(< 20)
Chloroethane	138U	910	987	108		910	889	98	59-139	10.50	(< 20)

Print Date: 07/26/2017 3:27:00PM

Matrix Spike Summary

Original Sample ID: 1174397002
MS Sample ID: 1398504 MS
MSD Sample ID: 1398505 MSD

Analysis Date: 07/19/2017 0:36
Analysis Date: 07/18/2017 20:35
Analysis Date: 07/18/2017 20:51
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	17.2U	910	824	91	910	826	91	78-123	0.18	(< 20)
Chloromethane	17.2U	910	803	88	910	762	84	50-136	5.30	(< 20)
cis-1,2-Dichloroethene	17.2U	910	830	91	910	825	91	77-123	0.59	(< 20)
cis-1,3-Dichloropropene	8.60U	910	846	93	910	846	93	74-126	0.04	(< 20)
Dibromochloromethane	17.2U	910	870	96	910	891	98	74-126	2.30	(< 20)
Dibromomethane	17.2U	910	861	95	910	856	94	78-125	0.49	(< 20)
Dichlorodifluoromethane	34.4U	910	516	57	910	489	54	29-149	5.40	(< 20)
Ethylbenzene	17.2U	910	838	92	910	856	94	76-122	2.20	(< 20)
Freon-113	68.5U	1362	1276	93	1362	1222	90	66-136	4.30	(< 20)
Hexachlorobutadiene	13.8U	910	659	73	910	721	79	61-135	8.80	(< 20)
Isopropylbenzene (Cumene)	17.2U	910	836	92	910	849	93	68-134	1.50	(< 20)
Methylene chloride	43.0J	910	909	95	910	890	93	70-128	2.20	(< 20)
Methyl-t-butyl ether	68.5U	1362	1211	89	1362	1222	89	73-125	0.50	(< 20)
Naphthalene	17.2U	910	657	72	910	789	87	62-129	18.20	(< 20)
n-Butylbenzene	17.2U	910	824	91	910	823	91	70-128	0.11	(< 20)
n-Propylbenzene	17.2U	910	886	97	910	880	97	73-125	0.72	(< 20)
o-Xylene	17.2U	910	830	91	910	857	94	77-123	3.20	(< 20)
P & M -Xylene	34.4U	1816	1686	92	1816	1730	95	77-124	2.80	(< 20)
sec-Butylbenzene	17.2U	910	837	92	910	839	92	73-126	0.33	(< 20)
Styrene	17.2U	910	830	91	910	866	95	76-124	4.10	(< 20)
tert-Butylbenzene	17.2U	910	845	93	910	839	92	73-125	0.83	(< 20)
Tetrachloroethene	8.60U	910	821	90	910	872	96	73-128	6.20	(< 20)
Toluene	17.2U	910	802	88	910	857	94	77-121	6.70	(< 20)
trans-1,2-Dichloroethene	17.2U	910	840	92	910	836	92	74-125	0.54	(< 20)
trans-1,3-Dichloropropene	8.60U	910	849	93	910	884	97	71-130	4.10	(< 20)
Trichloroethene	6.85U	910	854	94	910	879	97	77-123	2.90	(< 20)
Trichlorofluoromethane	34.4U	910	1341	147 *	910	1080	119	62-140	21.30	* (< 20)
Vinyl acetate	68.5U	910	944	104	910	964	106	50-151	2.20	(< 20)
Vinyl chloride	6.85U	910	792	87	910	757	83	56-135	4.60	(< 20)
Xylenes (total)	51.5U	2724	2508	92	2724	2584	95	78-124	2.90	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		910	926	102	910	914	100	71-136	1.40	
4-Bromofluorobenzene (surr)		1514	1622	107	1514	1600	106	55-151	0.92	
Toluene-d8 (surr)		910	878	97	910	925	102	85-116	5.30	

Print Date: 07/26/2017 3:27:00PM

Matrix Spike Summary

Original Sample ID: 1174397002
MS Sample ID: 1398504 MS
MSD Sample ID: 1398505 MSD

Analysis Date:
Analysis Date: 07/18/2017 20:35
Analysis Date: 07/18/2017 20:51
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **SW8260C**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS16946
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: NRO
Analytical Date/Time: 7/18/2017 8:35:00PM

Prep Batch: VXX30880
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/18/2017 6:00:00AM
Prep Initial Wt./Vol.: 44.56g
Prep Extract Vol: 25.00mL

Print Date: 07/26/2017 3:27:00PM

Method Blank

Blank ID: MB for HBN 1763874 [VXX/30886]
Blank Lab ID: 1398642

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477002, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	100	50-150		%

Batch Information

Analytical Batch: VFC13750
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/18/2017 12:00:00AM

Prep Batch: VXX30886
Prep Method: SW5035A
Prep Date/Time: 7/17/2017 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 1174477 [VXX30886]
Blank Spike Lab ID: 1398645
Date Analyzed: 07/17/2017 23:04

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30886]
Spike Duplicate Lab ID: 1398646
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477002, 1174477004, 1174477005, 1174477006, 1174477007, 1174477008

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	12.5	11.9	95	12.5	12.1	97	(60-120)	2.20	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	101	101	1.25	101	101	(50-150)	0.24	

Batch Information

Analytical Batch: **VFC13750**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX30886**
Prep Method: **SW5035A**
Prep Date/Time: **07/17/2017 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1763924 [VXX/30889]
Blank Lab ID: 1398919

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010, 1174477011

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	90.9	50-150		%

Batch Information

Analytical Batch: VFC13752
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/18/2017 10:55:00AM

Prep Batch: VXX30889
Prep Method: SW5030B
Prep Date/Time: 7/18/2017 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 1174477 [VXX30889]
Blank Spike Lab ID: 1398922
Date Analyzed: 07/18/2017 11:52

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30889]
Spike Duplicate Lab ID: 1398923
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010, 1174477011

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	0.998	100	1.00	0.992	99	(60-120)	0.63	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	97.6	98	0.0500	92.6	93	(50-150)	5.20	

Batch Information

Analytical Batch: **VFC13752**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX30889**
Prep Method: **SW5030B**
Prep Date/Time: **07/18/2017 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 1763935 [VXX/30893]
Blank Lab ID: 1398957

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	104	50-150		%

Batch Information

Analytical Batch: VFC13753
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/18/2017 11:09:00PM

Prep Batch: VXX30893
Prep Method: SW5035A
Prep Date/Time: 7/18/2017 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 1174477 [VXX30893]
Blank Spike Lab ID: 1398960
Date Analyzed: 07/18/2017 22:13

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30893]
Spike Duplicate Lab ID: 1398961
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477003

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	12.5	12.1	97	12.5	12.4	99	(60-120)	1.90	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	106	106	1.25	107	107	(50-150)	0.26	

Batch Information

Analytical Batch: **VFC13753**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX30893**
Prep Method: **SW5035A**
Prep Date/Time: **07/18/2017 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1764025 [VXX/30908]
Blank Lab ID: 1399344

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010, 1174477012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1764025 [VXX/30908]
Blank Lab ID: 1399344

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010, 1174477012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	98.1	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	106	89-112		%

Method Blank

Blank ID: MB for HBN 1764025 [VXX/30908]
Blank Lab ID: 1399344

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010, 1174477012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS16956
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 7/19/2017 10:36:00AM

Prep Batch: VXX30908
Prep Method: SW5030B
Prep Date/Time: 7/19/2017 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30908]
Blank Spike Lab ID: 1399345
Date Analyzed: 07/19/2017 11:02

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30908]
Spike Duplicate Lab ID: 1399346
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010, 1174477012

Results by **SW8260C**

	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	33.2	111	30	32.9	110	(78-124)	1.00	(< 20)
1,1,1-Trichloroethane	30	30.2	101	30	29.2	97	(74-131)	3.60	(< 20)
1,1,2,2-Tetrachloroethane	30	29.9	100	30	29.4	98	(71-121)	1.70	(< 20)
1,1,2-Trichloroethane	30	30.3	101	30	30.1	100	(80-119)	0.63	(< 20)
1,1-Dichloroethane	30	30.3	101	30	29.8	99	(77-125)	1.90	(< 20)
1,1-Dichloroethene	30	33.2	111	30	31.0	103	(71-131)	7.00	(< 20)
1,1-Dichloropropene	30	31.2	104	30	29.6	99	(79-125)	5.30	(< 20)
1,2,3-Trichlorobenzene	30	30.2	101	30	29.1	97	(69-129)	3.80	(< 20)
1,2,3-Trichloropropane	30	30.3	101	30	29.2	98	(73-122)	3.50	(< 20)
1,2,4-Trichlorobenzene	30	31.2	104	30	30.1	100	(69-130)	3.70	(< 20)
1,2,4-Trimethylbenzene	30	32.1	107	30	31.8	106	(79-124)	0.75	(< 20)
1,2-Dibromo-3-chloropropane	30	29.2	97	30	27.6	92	(62-128)	5.50	(< 20)
1,2-Dibromoethane	30	30.8	103	30	30.5	102	(77-121)	1.10	(< 20)
1,2-Dichlorobenzene	30	30.8	103	30	30.5	102	(80-119)	0.95	(< 20)
1,2-Dichloroethane	30	28.5	95	30	28.1	94	(73-128)	1.30	(< 20)
1,2-Dichloropropane	30	30.5	102	30	29.6	99	(78-122)	3.20	(< 20)
1,3,5-Trimethylbenzene	30	31.0	103	30	30.9	103	(75-124)	0.39	(< 20)
1,3-Dichlorobenzene	30	31.4	105	30	31.3	104	(80-119)	0.06	(< 20)
1,3-Dichloropropane	30	30.0	100	30	30.2	101	(80-119)	0.63	(< 20)
1,4-Dichlorobenzene	30	31.0	103	30	31.6	105	(79-118)	1.60	(< 20)
2,2-Dichloropropane	30	29.8	99	30	28.7	96	(60-139)	3.70	(< 20)
2-Butanone (MEK)	90	91.8	102	90	84.7	94	(56-143)	8.00	(< 20)
2-Chlorotoluene	30	30.8	103	30	30.6	102	(79-122)	0.65	(< 20)
2-Hexanone	90	92.0	102	90	86.6	96	(57-139)	6.10	(< 20)
4-Chlorotoluene	30	31.1	104	30	30.6	102	(78-122)	1.60	(< 20)
4-Isopropyltoluene	30	32.8	109	30	31.7	106	(77-127)	3.60	(< 20)
4-Methyl-2-pentanone (MIBK)	90	90.1	100	90	85.9	96	(67-130)	4.70	(< 20)
Benzene	30	31.0	103	30	29.8	100	(79-120)	3.90	(< 20)
Bromobenzene	30	29.4	98	30	29.3	98	(80-120)	0.37	(< 20)
Bromochloromethane	30	31.5	105	30	30.6	102	(78-123)	2.70	(< 20)
Bromodichloromethane	30	30.2	101	30	29.7	99	(79-125)	1.80	(< 20)
Bromoform	30	31.8	106	30	31.5	105	(66-130)	0.89	(< 20)
Bromomethane	30	39.9	133	30	39.3	131	(53-141)	1.40	(< 20)
Carbon disulfide	45	49.9	111	45	46.4	103	(64-133)	7.30	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30908]
Blank Spike Lab ID: 1399345
Date Analyzed: 07/19/2017 11:02

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30908]
Spike Duplicate Lab ID: 1399346
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010, 1174477012

Results by **SW8260C**

	Blank Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.9	103		30	29.2	98	(72-136)	5.50	(< 20)
Chlorobenzene	30	30.1	100		30	29.3	98	(82-118)	2.80	(< 20)
Chloroethane	30	36.4	121		30	35.0	117	(60-138)	3.90	(< 20)
Chloroform	30	29.2	97		30	28.3	94	(79-124)	2.90	(< 20)
Chloromethane	30	31.4	105		30	34.6	115	(50-139)	9.80	(< 20)
cis-1,2-Dichloroethene	30	30.9	103		30	30.0	100	(78-123)	3.20	(< 20)
cis-1,3-Dichloropropene	30	31.2	104		30	30.3	101	(75-124)	2.90	(< 20)
Dibromochloromethane	30	30.7	102		30	30.7	102	(74-126)	0.07	(< 20)
Dibromomethane	30	29.9	100		30	29.3	98	(79-123)	1.90	(< 20)
Dichlorodifluoromethane	30	46.8	156	*	30	45.4	151	(32-152)	3.10	(< 20)
Ethylbenzene	30	32.2	107		30	30.8	103	(79-121)	4.70	(< 20)
Freon-113	45	51.2	114		45	48.1	107	(70-136)	6.30	(< 20)
Hexachlorobutadiene	30	32.9	110		30	30.5	102	(66-134)	7.40	(< 20)
Isopropylbenzene (Cumene)	30	31.6	105		30	30.2	101	(72-131)	4.60	(< 20)
Methylene chloride	30	30.5	102		30	30.3	101	(74-124)	0.56	(< 20)
Methyl-t-butyl ether	45	44.6	99		45	44.8	100	(71-124)	0.31	(< 20)
Naphthalene	30	30.8	103		30	29.1	97	(61-128)	5.90	(< 20)
n-Butylbenzene	30	33.0	110		30	32.0	107	(75-128)	3.10	(< 20)
n-Propylbenzene	30	31.9	106		30	31.0	103	(76-126)	2.70	(< 20)
o-Xylene	30	31.4	105		30	30.5	102	(78-122)	2.90	(< 20)
P & M -Xylene	60	67.0	112		60	65.1	108	(80-121)	2.90	(< 20)
sec-Butylbenzene	30	32.9	110		30	32.2	107	(77-126)	2.10	(< 20)
Styrene	30	31.6	105		30	30.9	103	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	31.6	105		30	31.2	104	(78-124)	1.10	(< 20)
Tetrachloroethene	30	31.9	106		30	31.1	104	(74-129)	2.40	(< 20)
Toluene	30	29.2	97		30	28.5	95	(80-121)	2.50	(< 20)
trans-1,2-Dichloroethene	30	31.0	103		30	29.6	99	(75-124)	4.50	(< 20)
trans-1,3-Dichloropropene	30	31.1	104		30	30.4	101	(73-127)	2.30	(< 20)
Trichloroethene	30	31.0	103		30	29.6	99	(79-123)	4.60	(< 20)
Trichlorofluoromethane	30	33.9	113		30	32.2	107	(65-141)	5.30	(< 20)
Vinyl acetate	30	30.8	103		30	30.3	101	(54-146)	1.70	(< 20)
Vinyl chloride	30	36.8	123		30	35.9	120	(58-137)	2.50	(< 20)
Xylenes (total)	90	98.4	109		90	95.6	106	(79-121)	2.90	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [VXX30908]
Blank Spike Lab ID: 1399345
Date Analyzed: 07/19/2017 11:02

Spike Duplicate ID: LCSD for HBN 1174477 [VXX30908]
Spike Duplicate Lab ID: 1399346
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010, 1174477012

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97	97	30	96.8	97	(81-118)	0.24	
4-Bromofluorobenzene (surr)	30	93.4	93	30	94.6	95	(85-114)	1.20	
Toluene-d8 (surr)	30	99.3	99	30	102	102	(89-112)	3.00	

Batch Information

Analytical Batch: **VMS16956**
Analytical Method: **SW8260C**
Instrument: **VSA Agilent GC/MS 7890B/5977A**
Analyst: **FDR**

Prep Batch: **VXX30908**
Prep Method: **SW5030B**
Prep Date/Time: **07/19/2017 06:00**
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 1763513 [XXX/37879]
Blank Lab ID: 1398202

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	15.0	ug/Kg
Aroclor-1221	100U	200	62.0	ug/Kg
Aroclor-1232	25.0U	50.0	15.0	ug/Kg
Aroclor-1242	25.0U	50.0	15.0	ug/Kg
Aroclor-1248	25.0U	50.0	15.0	ug/Kg
Aroclor-1254	25.0U	50.0	15.0	ug/Kg
Aroclor-1260	25.0U	50.0	15.0	ug/Kg
Surrogates				
Decachlorobiphenyl (surr)	115	60-125		%

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV L R
Analyst: BMZ
Analytical Date/Time: 7/15/2017 4:00:00PM

Prep Batch: XXX37879
Prep Method: SW3550C
Prep Date/Time: 7/14/2017 5:03:08PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37879]
Blank Spike Lab ID: 1398203
Date Analyzed: 07/15/2017 16:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	180	81	(47-134)
Aroclor-1260	222	213	96	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	117	117	(60-125)

Batch Information

Analytical Batch: **XGC9819**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV L R**
Analyst: **BMZ**

Prep Batch: **XXX37879**
Prep Method: **SW3550C**
Prep Date/Time: **07/14/2017 17:03**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1173386016
MS Sample ID: 1398204 MS
MSD Sample ID: 1398205 MSD

Analysis Date: 07/15/2017 17:57
Analysis Date: 07/15/2017 18:11
Analysis Date: 07/15/2017 18:40
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **SW8082A**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Aroclor-1016	41.9U	377	382	101		374	396	106		47-134	3.69	(< 30)
Aroclor-1260	1370	377	1155	-56	*	374	1270	-26	*	53-140	9.38	(< 30)
Surrogates												
Decachlorobiphenyl (surr)		377	355	94		374	358	96		60-125	0.96	

Batch Information

Analytical Batch: XGC9819
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV L R
Analyst: BMZ
Analytical Date/Time: 7/15/2017 6:11:00PM

Prep Batch: XXX37879
Prep Method: Sonication Extraction Soil SW8080 PCB
Prep Date/Time: 7/14/2017 5:03:08PM
Prep Initial Wt./Vol.: 22.59g
Prep Extract Vol: 5.00mL

Print Date: 07/26/2017 3:27:19PM

Method Blank

Blank ID: MB for HBN 1763518 [XXX/37880]
Blank Lab ID: 1398215

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	84.7	60-120		%

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: JMG
Analytical Date/Time: 7/17/2017 11:42:00PM

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 7/14/2017 6:07:14PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37880]
Blank Spike Lab ID: 1398216
Date Analyzed: 07/18/2017 00:03

Spike Duplicate ID: LCSD for HBN 1174477 [XXX37880]
Spike Duplicate Lab ID: 1398217
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

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	153	92	167	148	89	(75-125)	3.60	(< 20)
Surrogates									
5a Androstane (surr)	3.33	87.7	88	3.33	85.6	86	(60-120)	2.40	

Batch Information

Analytical Batch: **XFC13560**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E F**
Analyst: **JMG**

Prep Batch: **XXX37880**
Prep Method: **SW3550C**
Prep Date/Time: **07/14/2017 18:07**
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 1763518 [XXX/37880]
Blank Lab ID: 1398215

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	94.3	60-120		%

Batch Information

Analytical Batch: XFC13560
Analytical Method: AK103
Instrument: HP 7890A FID SV E F
Analyst: JMG
Analytical Date/Time: 7/17/2017 11:42:00PM

Prep Batch: XXX37880
Prep Method: SW3550C
Prep Date/Time: 7/14/2017 6:07:14PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37880]
Blank Spike Lab ID: 1398216
Date Analyzed: 07/18/2017 00:03

Spike Duplicate ID: LCSD for HBN 1174477 [XXX37880]
Spike Duplicate Lab ID: 1398217
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

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	151	91	167	147	89	(60-120)	2.40	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	83.4	83	3.33	82.5	83	(60-120)	1.10	

Batch Information

Analytical Batch: **XFC13560**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E F**
Analyst: **JMG**

Prep Batch: **XXX37880**
Prep Method: **SW3550C**
Prep Date/Time: **07/14/2017 18:07**
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 1763760 [XXX/37894]
Blank Lab ID: 1398413

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.0750U	0.150	0.0450	mg/L
Surrogates				
5a Androstane (surr)	92.9	60-120		%

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: KMD
Analytical Date/Time: 7/18/2017 6:43:00PM

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 7/17/2017 9:04:52AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37894]
Blank Spike Lab ID: 1398414
Date Analyzed: 07/18/2017 18:53

Spike Duplicate ID: LCSD for HBN 1174477 [XXX37894]
Spike Duplicate Lab ID: 1398415
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

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	4.71	94	5	4.50	90	(75-125)	4.50	(< 20)
Surrogates									
5a Androstane (surr)	0.1	104	104	0.1	102	102	(60-120)	2.60	

Batch Information

Analytical Batch: **XFC13564**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **KMD**

Prep Batch: **XXX37894**
Prep Method: **SW3520C**
Prep Date/Time: **07/17/2017 09:04**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1763760 [XXX/37894]
Blank Lab ID: 1398413

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.0625U	0.125	0.0375	mg/L
Surrogates				
n-Triacontane-d62 (surr)	99.9	60-120		%

Batch Information

Analytical Batch: XFC13564
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: KMD
Analytical Date/Time: 7/18/2017 6:43:00PM

Prep Batch: XXX37894
Prep Method: SW3520C
Prep Date/Time: 7/17/2017 9:04:52AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37894]
Blank Spike Lab ID: 1398414
Date Analyzed: 07/18/2017 18:53

Spike Duplicate ID: LCSD for HBN 1174477 [XXX37894]
Spike Duplicate Lab ID: 1398415
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

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	4.84	97	5	4.64	93	(60-120)	4.30	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.1	93.6	94	0.1	95.7	96	(60-120)	2.20	

Batch Information

Analytical Batch: **XFC13564**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **KMD**

Prep Batch: **XXX37894**
Prep Method: **SW3520C**
Prep Date/Time: **07/17/2017 09:04**
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 1763780 [XXX/37899]
Blank Lab ID: 1398506

Matrix: Soil/Solid (dry weight)

QC for Samples:
1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
2-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
Acenaphthene	12.5U	25.0	7.50	ug/Kg
Acenaphthylene	12.5U	25.0	7.50	ug/Kg
Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo[a]pyrene	12.5U	25.0	7.50	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	7.50	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	7.50	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	7.50	ug/Kg
Chrysene	12.5U	25.0	7.50	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	7.50	ug/Kg
Fluoranthene	12.5U	25.0	7.50	ug/Kg
Fluorene	12.5U	25.0	7.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	7.50	ug/Kg
Naphthalene	10.0U	20.0	6.00	ug/Kg
Phenanthrene	12.5U	25.0	7.50	ug/Kg
Pyrene	12.5U	25.0	7.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	93.8	46-115		%
Terphenyl-d14 (surr)	95.9	58-133		%

Batch Information

Analytical Batch: XMS10234
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 7/19/2017 11:49:00AM

Prep Batch: XXX37899
Prep Method: SW3550C
Prep Date/Time: 7/17/2017 12:49:08PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37899]
Blank Spike Lab ID: 1398507
Date Analyzed: 07/19/2017 12:09

Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	95.6	86	(43-111)
2-Methylnaphthalene	111	88.1	79	(39-114)
Acenaphthene	111	118	106	(44-111)
Acenaphthylene	111	95.9	86	(39-116)
Anthracene	111	97.7	88	(50-114)
Benzo(a)Anthracene	111	93.9	85	(54-122)
Benzo[a]pyrene	111	92.7	84	(50-125)
Benzo[b]Fluoranthene	111	95.2	86	(53-128)
Benzo[g,h,i]perylene	111	100	90	(49-127)
Benzo[k]fluoranthene	111	95.6	86	(56-123)
Chrysene	111	99.8	90	(57-118)
Dibenzo[a,h]anthracene	111	101	91	(50-129)
Fluoranthene	111	93.8	85	(55-119)
Fluorene	111	96.7	87	(47-114)
Indeno[1,2,3-c,d] pyrene	111	100	90	(49-130)
Naphthalene	111	91.4	82	(38-111)
Phenanthrene	111	96.8	87	(49-113)
Pyrene	111	98.3	89	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	111	94.9	95	(46-115)
Terphenyl-d14 (surr)	111	94	94	(58-133)

Batch Information

Analytical Batch: **XMS10234**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX37899**
Prep Method: **SW3550C**
Prep Date/Time: **07/17/2017 12:49**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1174511001
MS Sample ID: 1398508 MS
MSD Sample ID: 1398509 MSD

Analysis Date: 07/20/2017 14:30
Analysis Date: 07/20/2017 14:51
Analysis Date: 07/20/2017 15:11
Matrix: Soil/Solid (dry weight)

QC for Samples: 1174477001, 1174477002, 1174477003, 1174477004, 1174477005, 1174477006, 1174477007

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

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	1030U	115	515U	0	*	115	515U	0	*	43-111	0.00	(< 20)
2-Methylnaphthalene	1030U	115	515U	0	*	115	515U	0	*	39-114	0.00	(< 20)
Acenaphthene	1030U	115	505J	437	*	115	515U	0	*	44-111	0.00	(< 20)
Acenaphthylene	1030U	115	515U	0	*	115	515U	0	*	39-116	0.00	(< 20)
Anthracene	1030U	115	861J	746	*	115	464J	403	*	50-114	60.10	* (< 20)
Benzo(a)Anthracene	1120	115	1745	539	*	115	1181	54	*	54-122	38.30	* (< 20)
Benzo[a]pyrene	1030U	115	1202	1040	*	115	604J	525	*	50-125	66.00	* (< 20)
Benzo[b]Fluoranthene	1210	115	1944	634	*	115	1223	17	*	53-128	44.90	* (< 20)
Benzo[g,h,i]perylene	1030U	115	982J	851	*	115	597J	519	*	49-127	48.80	* (< 20)
Benzo[k]fluoranthene	1030U	115	811J	702	*	115	487J	424	*	56-123	49.80	* (< 20)
Chrysene	1870	115	2382	447	*	115	1818	-42	*	57-118	26.80	* (< 20)
Dibenzo[a,h]anthracene	1030U	115	515U	0	*	115	515U	0	*	50-129	0.00	(< 20)
Fluoranthene	7550	115	8119	484	*	115	6771	-684	*	55-119	18.10	(< 20)
Fluorene	1030U	115	472J	409	*	115	515U	0	*	47-114	0.00	(< 20)
Indeno[1,2,3-c,d] pyrene	1030U	115	764J	662	*	115	426J	371	*	49-130	56.70	* (< 20)
Naphthalene	827U	115	414U	0	*	115	414U	0	*	38-111	0.00	(< 20)
Phenanthrene	1030U	115	1714	1480	*	115	507J	440	*	49-113	109.00	* (< 20)
Pyrene	5550	115	5998	385	*	115	5005	-473	*	55-117	18.00	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		115	124	108		115	122	106		46-115	2.00	
Terphenyl-d14 (surr)		115	163	142	*	115	183	159	*	58-133	11.00	

Batch Information

Analytical Batch: XMS10237
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 7/20/2017 2:51:00PM

Prep Batch: XXX37899
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 7/17/2017 12:49:08PM
Prep Initial Wt./Vol.: 22.63g
Prep Extract Vol: 10.00mL

Print Date: 07/26/2017 3:27:38PM

Method Blank

Blank ID: MB for HBN 1763917 [XXX/37911]
Blank Lab ID: 1398889

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1174477009, 1174477010

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl (surr)	78.9	53-106		%
Terphenyl-d14 (surr)	84.8	58-132		%

Batch Information

Analytical Batch: XMS10237
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 7/20/2017 5:35:00PM

Prep Batch: XXX37911
Prep Method: SW3520C
Prep Date/Time: 7/12/2017 8:28:56AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1174477 [XXX37911]
Blank Spike Lab ID: 1398890
Date Analyzed: 07/20/2017 17:56

Spike Duplicate ID: LCSD for HBN 1174477 [XXX37911]
Spike Duplicate Lab ID: 1398891
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1174477009, 1174477010

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.49	75	2	1.23	62	(41-115)	19.30	(< 20)
2-Methylnaphthalene	2	1.38	69	2	1.13	56	(39-114)	20.40 *	(< 20)
Acenaphthene	2	1.80	90	2	1.49	75	(48-114)	18.60	(< 20)
Acenaphthylene	2	1.47	74	2	1.23	62	(35-121)	18.00	(< 20)
Anthracene	2	1.51	76	2	1.29	64	(53-119)	15.80	(< 20)
Benzo(a)Anthracene	2	1.46	73	2	1.29	65	(59-120)	12.40	(< 20)
Benzo[a]pyrene	2	1.44	72	2	1.25	62	(53-120)	14.30	(< 20)
Benzo[b]Fluoranthene	2	1.51	75	2	1.35	67	(53-126)	11.10	(< 20)
Benzo[g,h,i]perylene	2	1.43	72	2	1.19	59	(44-128)	18.70	(< 20)
Benzo[k]fluoranthene	2	1.53	77	2	1.34	67	(54-125)	13.80	(< 20)
Chrysene	2	1.55	78	2	1.36	68	(57-120)	13.40	(< 20)
Dibenzo[a,h]anthracene	2	1.38	69	2	1.17	58	(44-131)	16.70	(< 20)
Fluoranthene	2	1.43	71	2	1.25	63	(58-120)	13.40	(< 20)
Fluorene	2	1.46	73	2	1.26	63	(50-118)	14.90	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.47	73	2	1.24	62	(48-130)	17.00	(< 20)
Naphthalene	2	1.40	70	2	1.17	59	(43-114)	17.90	(< 20)
Phenanthrene	2	1.46	73	2	1.25	63	(53-115)	15.60	(< 20)
Pyrene	2	1.49	74	2	1.30	65	(53-121)	13.20	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	2	80.1	80	2	68.4	68	(53-106)	15.70	
Terphenyl-d14 (surr)	2	84.2	84	2	75	75	(58-132)	11.50	

Batch Information

Analytical Batch: **XMS10237**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX37911**
Prep Method: **SW3520C**
Prep Date/Time: **07/12/2017 08:28**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

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1174477

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

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Page 1 of 2

Laboratory: GS

Attn: TbR

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO / VOCs + MTBE / EPA 8260C	DRO / RRO / NWTPH-Dx	PAHs EPA 8270D SIM	PCBs EPA 8082A	Metals EPA 6020B		Total Number of Containers	Remarks/Matrix
17860-B1S5	(1) A-B	1030	7/13/17		X	X	X	X	X	X		2	Soil
B2S2	(2) A-B	1115			X	X	X	X	X	X		2	
B3S1	(3) A-B	1315			X	X	X	X	X	X		2	
B4S4	(4) A-B	1415			X	X	X	X	X	X		2	
B5S3	(5) A-B	1500			X	X	X	X	X	X		2	
B5S13	(6) A-B	1520			X	X	X	X	X	X		2	
B6S3	(7) A-B	1550			X	X	X	X	X	X		2	
~~TMW1~~		~~1630~~			~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~11~~	~~Groundwater~~ JT
~~TMW11~~		~~1700~~			~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~11~~	~~JT~~
STB1	(8) A	800				X						1	Trip Blank

Project Information		Sample Receipt	
Project Number:	17860	Total Number of Containers	
Project Name:	Buckner	COC Seals/Intact? Y/N/NA	
Contact:	JCT	Received Good Cond./Cold	
Ongoing Project?	Yes ☒ No ☐	Delivery Method:	
Sampler:	JCT	(attach shipping bill, if any)	

Instructions
Requested Turnaround Time: Standard
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1102	Signature: Time:	Signature: Time:
Printed Name: Jake Travis Date: 7/14/17	Printed Name: Date:	Printed Name: Date:
Company: STW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 11:04
Printed Name: Date:	Printed Name: Date:	Printed Name: Carl Stiger Date: 7/14/17
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

3.1
D36 HD

140-001683

No. 30913

1174477

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

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Page 2 of 2

Laboratory SGS

Attn: TORI

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO +DRO	VOC	EPA 8260C	DRO / RRO AK102 / 103	PAHs	EPA 8270D	RCRA Metals EPA 6020A	Total Number of Containers	Remarks/Matrix
17860-WTB1	(11) A-C	900	7/13/17			X							1	Trip Blank
WTB2	(12) A-C	1000	↓				X						1	↓
TMW1	(9) A-K	1630			X	X	X	X	X	X	X		11	Groundwater
TMW11	(10) A-K	1700	↓			X	X	X	X	X	X		11	↓

Project Information		Sample Receipt	
Project Number: 17860		Total Number of Containers	
Project Name: Buckner		COC Seals/Intact? Y/N/NA	
Contact: JCT		Received Good Cond./Cold	
Ongoing Project? Yes ☒ No ☐		Delivery Method:	
Sampler: JCT		(attach shipping bill, if any)	

Instructions

Requested Turnaround Time: Standard

Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1102	Signature: Time:	Signature: Time:
Printed Name: Jake Tracy Date: 7/14/17	Printed Name: Date:	Printed Name: Date:
Company: S+W	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 11:04
Printed Name: Date:	Printed Name: Date:	Printed Name: Carl Stipe Date: 7/14/17
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

3.9
D25
HD

No. 30914

e-Sample Receipt Form

SGS Workorder #: **1174477**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent
COC accompanied samples?	Yes	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 3.1 °C Therm. ID: D36
	Yes	Cooler ID: 2 @ 3.9 °C Therm. ID: D25
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
If samples 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".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? **Note: If times differ <1hr, record details & login per COC.	Yes	
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	Yes	
	N/A	***Exemption permitted for metals (e.g.200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	No	**Samples 9,10 H, K unpreserved 2mL of HCl LW09-0463-12-18 added 2mL of HNO3 LW09-0463-09-12 added respectively, pH verified.**
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	**All soils were in cooler with soil TB, all waters were in cooler with water TB.**
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Dan McMahon
Title: Associate
Date: December 2017

CS Report Name: Brownfield Assessment and Cleanup, Buckner Building, Whittier, Alaska

Laboratory Report Date: July 26, 2017

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc.
Laboratory Report Number: 1174477

ADEC File Number: 2114.57.003
ADEC File Number: NA

(**NOTE**: ***NA*** = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

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
Comments: *The samples were not transferred to another "network" laboratory or sub-contracted to an alternate 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 (0° to 6° C)?
Yes / No / NA (Please explain.)
Comments: *The temperature blanks had temperatures of 3.1° C and 3.9° C.*

b. Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes / No / NA (Please explain.)**
Comments: *The laboratory noted that Samples TMW1 and TMW11 were received outside the acceptable pH for the analysis requested.*

c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes / No / NA (Please explain.)**
Comments:

d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? **Yes / No / NA (Please explain.)**
Comments: *The laboratory added HCl and HNO_3 to Samples TMW1 and TMW11.*

e. Data quality or usability affected? **Yes / No (Please Explain.)**
Comments*: The laboratory noted the Samples TMW1 and TMW11 were received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt therefore, it is our opinion that the data quality is unaffected.*

4. Case Narrative

a. Present and understandable? **Yes / No / NA (Please explain.)**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA (Please explain.)**
Comments: *The case narrative notes that:*

- *Sample B4S4: Method 8082A, the surrogate recovery for decachlorobiphenyl (30%) does not meet QC criteria due to sample dilution (10 mL final volume [FV]).*
- *Sample B4S4: Method AL 101/102, Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (20X/10mL FV).*
- *Sample TMW1: EPA 6020A, the metals LOQ for selenium was elevated due to matrix interference. EPA 8270D SIM, PAH surrogate recovery for terphenyl-d14 (15.3%) does not meet QC criteria. Sample was re-extracted within hold-time with terphenyl-d14 (12.7%)still not meeting QC criteria. Results were comparable; the second set of data is reported.*
- *Sample TMW11: EPA 6020A, the metals LOQ for cadmium and selenium were elevated due to matrix interference. EPA 8270D SIM, PAH surrogate recovery for terphenyl-d14 (29.4%) does not meet DOD recovery limits but is within in-house control limits.*
- *For Method EPA 8260C (soil), LCS recovery for 2-Butanone (MEK) (152%) does not meet QC criteria. This analyte was not detected above the LOQ in associated samples.*

- *For Method EPA 8260C (water), LCS recovery for dichlorodifluoromethane (156%) does not meet QC criteria. This analytes was not detected in associated samples.*
- *For Method 8082A (soil), PCB Aroclor 1260 MS/MSD recoveries (-56% and -26%) do not meet QC criteria due to non-homogenous samples. Refer to the LCS for accuracy.*
- *For Method 6020A (water), MS recovery for silver (84%) does not meet QC criteria. The post digestion spike was successful.*
- *For Method EPA 8260C (soil), MS recoveries for trichlorofluoromethane (147%) and 1,2,3-trichlorobenzene (65%) do not meet QC criteria. Refer to the LCS for accuracy.*
- *For Method EPA 8270D SIM (Soil), PAH MS recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.*
- *For Method 6020A (soil), Metals MS recovery for barium (79%) does not meet QC criteria. The post digestion spike was successful.*
- *For Method 8260C (soil), MSD RPDs for trichlorofluoromethane (21.3) and 1,2,3-trichlorobenzene (22.1) do not meet QC criteria. These analytes were not detected above LOQ in parent sample.*
- *For Method EPA 8270D SIM (soil), MS/MSD RPDs for several analytes do not meet QC criteria. The result for this analyte is consisted estimated in the parent sample. PAH MSD recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements. PAH surrogate recoveries for terphenyl-d14 (142% MS/159% MSD) do not meet QC criteria due to sample dilution (20X).*
- *For Method EPA 6020A (soil), MSD recovery for barium (79%) does not meet QC criteria. The post digestion spike was successful.*

c. Were corrective actions documented? **Yes / No / NA (Please explain.)**
Comments: *See above.*

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *See above.*

5. Sample Results

a. Correct analyses performed/reported as requested on COC? **Yes / No / NA (Please explain.)**
Comments:

b. All applicable holding times met? **Yes / No / NA (Please explain.)**
Comments:

c. All soils reported on a dry-weight basis? **Yes / No / NA (Please explain.)**
Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA (Please explain.)**
Comments: *The LOQs for several VOCs are greater than these their respective ADEC Method Two soil and/or groundwater cleanup levels.*

e. Data quality or usability affected? **(Please explain.)**
Comments: *There is a potential that concentrations of these VOCs are present at concentrations less than the LOQs but greater than their respective ADEC Method Two soil cleanup levels.*

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 LOQ? **Yes / No / NA (Please explain.)**
Comments: *Although less than the LOQ, estimated (J-flagged) concentrations of chromium (2.15 ug/L) and mercury (0.124 ug/L) were detected in the water method blank. Although less than the LOQs, estimated (J-flagged) concentrations of mercury (0.0208 J mg/kg), chloromethane (0.0128 J mg/kg), tetrachloroethene (0.00875 J mg/kg) were detected in the soil method blanks.*

iii. If above LOQ, what samples are affected?
Comments: *Samples TMW1 and TMW11 are associated with the method blank containing J-flagged concentrations of chromium and mercury. Each of the soil samples are associated with the method blanks containing J-flagged concentrations of mercury, chloromethane, and tetrachloroethane.*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA (please explain)
Comments: *The groundwater samples associated with the chromium and mercury method blank detections are not considered affected because the reported sample concentrations are greater than 10x the reported method blank concentration. Chloromethane and tetrachloroethane were not detected in the project soil samples.*

Samples B4S4, B5S3, B5S13, and B6S3 contained estimated (J-flagged) concentrations of mercury. Therefore, the results are flagged "B" and reported as non-detect at the limit of quantitation (LOQ). The concentrations of mercury in Samples B1S5, B2S2, and B3S1 are within 5 times the method blank detection. Therefore, the results are flagged "B" and reported as non-detect at the detected result.

v. Data quality or usability affected? **(Please explain.)**
Comments: *The soil sample mercury results may be biased high.*

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:

iii. Accuracy – All percent recoveries (%R) reported *and w*ithin method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA (Please explain.)**
Comments: *The LCS recoveries for 2-butanone and dichlorodifluoromethane do not meet QC criteria. These analytes were not detected or were not detected above the LOQ in the associated samples.*

iv. Precision – All relative percent differences (RPDs) 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? ***NA***
Comments:

vi. Do the affected samples(s) have data flags? **Yes / No / NA**
Comments:

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *See above.*

vii. Data quality or usability affected? Explain. ***NA***
Comments*: Data quality/usability are unaffected; see above.*

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses, field, QC, and laboratory samples? **Yes / No / NA (Please explain.)**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA (Please explain.)**
Comments:

- *In Samples B4S4, AK 102/103, the surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4x).*
- *In Sample B4S4, EPA 8082A, the surrogate recovery for decachlorobiphenyl (30%) does not meet QC criteria, and the results are considered biased low.*
- *In Samples TMW1 and TMW11, EPA 8270D, the surrogate recovery for terphenyl-d14 (12.7% and 29.4%) does not meet QC criteria and the results of the PAH analytes associated with is surrogates are considered biased low.*

iii. Do the sample results with failed surrogate recoveries have data flags? **(Yes) / No / NA (Please explain.)**
Comments: *Concentrations of analytes associated with the PCB and PAH surrogate failures are considered biased low and flagged "J-" on Tables 2 and 3 of the report. The DRO and RRO results associated with the 0% percent surrogate recoveries do not require flagging because the failure is due to sample dilution.*

If so, are the data flags clearly defined? **(Yes) / No / NA**
Comments: *See above.*

iv. Data quality or usability affected? Explain.
Comments: *Potentially affected samples are potentially biased low. See above.*

d. Trip Blank - Volatile analyses only (GRO, BTEX, VOCs, etc.)

i. One trip blank reported per matrix, analysis and cooler? **(Yes) / No / NA (Please explain.)**
Comments: *One soil trip blank (STB1) and two groundwater trip blanks (WTB1 and WTB2) were submitted with the samples.*

ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes / (No) / NA (Please explain if NA or no.)**
Comments: *Although, the laboratory noted that "All soils were in cooler with soil TB, all waters were in cooler with water TB".*

iii. All results less than LOQ? **(Yes) / No / NA (Please explain.)**
Comments:

iv. If above LOQ, what samples are affected? **(NA)**
Comments**:**

v. Data quality or usability affected? Explain.
Comments: *Data quality/usability are unaffected; see above.*

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA (Please explain.)
Comments:

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA (Please explain.)**
Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) **Yes / No / NA (Please explain.)**
Comments: *The naphthalene, arsenic, barium, cadmium, chromium, lead, mercury, and silver groundwater RPDs are greater than 30% for groundwater duplicate samples TMW1/TMW11.*

iv. Data quality or usability affected? Explain. ***NA***
Comments: *The affected results are flagged "E" to indicate that the sample results are estimated due to the RPD failures.*

f. Decontamination or Equipment Blank (if not applicable, a comment stating why must be entered below)
Yes / No / NA (Please explain.)
Comments: *A decontamination or equipment blank was not included in our ADEC-approved work plan.*

i. All results less than LOQ? **Yes / No / NA (Please explain.)**
Comments:

ii. If results are above LOQ, what samples are affected? ***NA***
Comments:

iii. Data quality or usability affected? Explain. ***NA***
Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)

a. Are they defined and appropriate? **Yes / No / NA**
Comments: *Laboratory-specific flags are defined on Page 5 of the SGS report.*

APPENDIX F

ADEC CONCEPTUAL SITE MODEL

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Buckner Building
2114.57.003

Completed By: Shannon & Wilson, Inc.
Date Completed: December 11, 2017

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

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

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

Media / Transport Mechanisms

Surface Soil (0-2 ft bgs) ☑
- Direct release to surface soil — *check soil*
- ☑ *Migration to subsurface* — *check soil*
- ☐ *Migration 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*
- ☑ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

Ground-water ☑
- Direct release to groundwater — *check groundwater*
- ☑ *Volatilization* — *check air*
- ☑ *Flow to surface water body* — *check surface water*
- ☑ *Flow to sediment* — *check sediment*
- ☑ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

Surface Water ☑
- Direct release to surface water — *check surface water*
- ☐ *Volatilization* — *check air*
- ☐ *Sedimentation* — *check sediment*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

Sediment ☐
- Direct release to sediment — *check sediment*
- ☐ *Resuspension, runoff, or erosion* — *check surface water*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

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

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

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

Exposure Media / Exposure Pathway/Route / Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	F	C/F	C/F	F			
	☑ Dermal Absorption of Contaminants from Soil	F	C/F	C/F	F			
	☑ Inhalation of Fugitive Dust	F	C/F	C/F	F			
☑ groundwater	☑ Ingestion of Groundwater	F	F	F	F			
	☑ Dermal Absorption of Contaminants in Groundwater	F	F	F	F			
	☑ Inhalation of Volatile Compounds in Tap Water	F	F	F	F			
☑ air	☑ Inhalation of Outdoor Air	F	C/F	C/F	F			
	☑ Inhalation of Indoor Air	F	C/F	C/F	F			
	☑ Inhalation of Fugitive Dust	F	C/F	C/F	F			
☑ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ sediment	☑ Direct Contact with Sediment			C/F				
☑ biota	☑ Ingestion of Wild or Farmed Foods					C/F	C/F	

Revised, 10/01/2010

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Buckner Building

File Number: 2114.57.003

Completed by: Shannon & Wilson, Inc.

Introduction

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

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

1. General Information:

Sources *(check potential sources at the site)*

- ☒ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☒ Other: Floor drains, shooting range, hazardous building materials.

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

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☒ Other: Hazardous building materials impacting soil adjacent to building.

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

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☒ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

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

- ☒ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

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

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

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

Comments:

b) Ingestion -

1. Ingestion of Groundwater

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

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

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

Comments:

2. Ingestion of Surface Water

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

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

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

Comments:

Floor drains inside the structure reportedly drain to Passage Canal. It is unlikely that Passage Canal would be utilized as a drinking water source because it consists of salt water.

3. Ingestion of Wild and Farmed Foods

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

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

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

Comments:

Floor drains inside the structure reportedly drain to Passage Canal.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

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

Comments:

Contamination associated with a leaking UST is present at the site.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

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

Comments:

Contamination associated with a leaking UST is present at the site.

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

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

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

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

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

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

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

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

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

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

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

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

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

Comments:

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

APPENDIX G

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Report 32-1-17860-002

Date: December 2017
To: ADEC

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland