Brownfield Assessment and Cleanup
Old BIA School
Chevak, Alaska
ADEC File No. 2409.57.001

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Submitted To:
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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
AST	Aboveground Storage Tank
BIA	Bureau of Indian Affairs
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CSM	Conceptual Site Model
DBAC	DEC Brownfield Assessment and Cleanup
DQOs	Data Quality Objectives
DRO	Diesel Range Organics
EHS-Alaska	EHS-Alaska, Inc.
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GPS	Global Positioning System
GRO	Gasoline Range Organics
HBM	Hazardous Building Material
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
mg/kg	Milligrams Per Kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
PAHs	Polynuclear Aromatic Hydrocarbons
PID	Photoionization Detector
ppm	Parts Per Million
REC	Recognized Environmental Concern
RPD	Relative Percent Difference
SGS	SGS North America Inc.
SIM	Selective Ion Method
YRITWC	Yukon River Inter-Tribal Watershed Council

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OLD BIA SCHOOL
CHEVAK, ALASKA
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1.0 INTRODUCTION

This report presents the results of our Department of Environmental Conservation Brownfield Assessment and Cleanup (DBAC) activities conducted at the Old Bureau of Indian Affairs (BIA) School in Chevak, Alaska. The overall goal of the project is to allow the Yukon River Inter-Tribal Watershed Council (YRITWC) and the City of Chevak to re-use the property for community gatherings. The site is listed on the Alaska Department of Environmental Conservation (ADEC) contaminated database as File No. 2409.57.001.

The former BIA school is part of a larger facility, which is located on approximately 5 acres and includes the former BIA school, several outlying structures, and a fuel tank farm. This DBAC project included investigating potential environmental concerns associated with the approximately 26,500 square foot former school and an approximately 150 square foot storage building located southwest of the school. The school was constructed in the early-1970s and closed in 2003. The school is currently unoccupied and in disrepair. A vicinity map is included as Figure 1. A site plan showing the project site is included as Figure 2.

The project was conducted under Shannon & Wilson's ADEC Substance Spill Prevention and Cleanup Term Contract 18-8036-13. Authorization to proceed with the field activities was received from the ADEC on July 6, 2017 with Notice to Proceed No. 180000005. Authorization to proceed with the reporting activities was received from the ADEC on December 1, 2017 with Purchase Order 180005505-1.

The project was conducted in general accordance with our August 2017 work plan which was approved by Ms. Lisa Griswold of the ADEC in a letter dated August 17, 2017.

2.0 BACKGROUND

In 2014, APC Services, LLC prepared a Phase I Environmental Site Assessment (ESA) for the Old BIA School property, which included the former BIA school building (Building S1), the Village Safety Office Building (Building S2), a boiler house (Building S3), a residence (Building S4), a storage building (Building S6), and a fuel tank farm. With the exception of Building S2, the structures were unoccupied at the time of the Phase I ESA.

Recognized environmental concerns (RECs) associated with the fuel tank farm, a weathered transformer housing at Building S3, and crushed lead batteries adjacent to the northeast side of the former BIA school were identified. Other potential environmental concerns associated with the former BIA school and Building S6 included the following:

- Five crushed batteries were observed adjacent to Building S6. With the exception of the Phase I ESA report conclusions, the report does not reference batteries northeast of the former BIA school. It is unclear whether batteries were located in both locations or the report is in error.
- Oil sheening was observed on standing water adjacent to Building S6.
- A 300-gallon heating oil aboveground storage tank (AST) was located along the north side of the western portion of the former BIA school. A second AST was observed on the northeast side of the former BIA school.
- Solid waste and 55-gallon drums containing oil were documented beneath the former BIA school.
- 55-gallon drums, batteries, and solid waste were observed within Building S6.

In 2015, E3 Environmental, LLC conducted a site investigation to evaluate potential re-use of the former BIA school. Two soil samples were collected adjacent to the northeast side of the former school to evaluate the locations of the crushed batteries observed during the Phase I ESA. The crushed batteries were not located during the site investigation activities. The samples contained a maximum of 30.7 milligram per kilogram (mg/kg) lead which is less than the ADEC Method Two cleanup level of 400 mg/kg.

3.0 FIELD ACTIVITIES

The field activities were conducted on September 5 and 6, 2017 and consisted of a site reconnaissance, advancing hand borings, and collecting soil samples. The DBAC activities were limited to Buildings S1 and S6. The project also included a hazardous building material (HBM) inventory of the Old BIA School, which was conducted by EHS-Alaska, Inc. (EHS-Alaska), under subcontract to Shannon & Wilson. The results of the HBM inventory were documented in EHS-Alaska's *Hazardous Materials Assessment, Old Chevak School Hazmat Survey, Chevak, Alaska* report.

The site characterization activities were conducted by ADEC-qualified environmental professionals, as defined by 18 Alaska Administrative Code (AAC) 75.333. SGS North America Inc. (SGS) provided analytical testing of the soil samples. Prior to conducting the field activities,

the utility locate center and the City of Chevak were contacted to mark buried utilities within the project area and identify potential conflicts.

Soil sample locations, screening results, and soil descriptions are summarized in Table 1. Global position system (GPS) coordinates of the hand boring locations are included in Table 2. However, swing-tie measurements, presented in the field notes included in Appendix A, are considered to be more accurate than the GPS coordinates due to the GPS' reported accuracy of 12 to 30 feet. Photographs of the sampling activities are included in Appendix B.

3.1 Scope Modifications

The following changes to the scope presented in the work plan was implemented due to conditions encountered in the field:

- The work plan stated that soil samples would be collected in the vicinity of the solid waste and drums previously observed beneath Building S1. Due to the number of items located beneath the school, our field staff were unable to access the majority of this area. Therefore, only one surface soil analytical sample was collected from beneath the building.

- According to the work plan, the hand borings would be advanced to about 2 feet below ground surface (bgs). Due to the presence of peat and/or saturated soil, several of the hand borings could not be advanced to 2 feet bgs.

3.2 Site Reconnaissance

Prior to advancing the hand borings, representatives of Shannon & Wilson conducted a reconnaissance of the site in the vicinity of Buildings S1 and S6. Four potential areas of concern were evaluated during our site reconnaissance including:

- Area of Concern 1 - An approximately 300-gallon oval-shaped AST is located on an elevated wooden platform along the northeast wall of Building S1 (Photo 1). The platform is approximately 10 feet tall. Product feed piping extends from the tank, enters the wall of the structure, and is reportedly connected to a boiler located inside Building S1 (Photo 2). A pipe which appears to be a remote fill is present on the southeast end of the tank. Area of Concern 1 is shown on Figure 3.

- Area of Concern 2 - An approximately 250-gallon capsule-shaped AST is located beneath the western portion of Building S1 along the north wall of the building (Photo 3). Plywood is located beneath the tank and miscellaneous items are stored around the tank.

An approximately 2-inch diameter steel pipe connected to the tank extends through a hole in the north wall of the building, and is lying on the ground surface (Photo 4). Reportedly, a second tank was located in this area on an elevated wooden platform. A pipe associated with this potential tank remains on the exterior wall of the structure (Photo 5). Ponded water and creosote piles were observed lying on the ground surface north of the building (Photo 6). Area of Concern 2 is shown on Figure 4.

- Area of Concern 3 - The 2014 Phase I ESA documented an oily sheen on ponded water northwest of Building S6. In addition, crushed batteries were reportedly observed adjacent to Building S6. During our site visit, ponded water, oil staining, or crushed batteries were not documented in this area. Metal and wood debris, and a bull dozer are currently stored in this area (Photo 7). The 2014 Phase I ESA documented 55-gallon drums, batteries, and solid waste within Building S6. During our site visit, Building S6 contained a wooden table, lumber, plywood, and insulation (Photo 8). Area of Concern 3 is shown on Figure 5.

- Area of Concern 4 – Building supplies, miscellaneous equipment, 55-gallon drums, miscellaneous containers, and debris are located beneath the western portion of Building S1. Five-gallon containers labeled “corrosive” (Photo 9) and a 5-gallon container of used anti-freeze (Photo 10) were observed. A 55-gallon, which appears to contain used oil, was also observed (Photo 11).

3.3 Soil Sampling

As part of this project, 27 hand borings were advanced in the vicinity of Area of Concern 1 (Hand Borings HB1 through HB6), Area of Concern 2 (Hand Borings HB7 through 12), and Area of Concern 3 (Hand Borings HB14 through HB28). The hand borings were advanced until groundwater was encountered at depths of about 1 to 2.5 feet bgs. In addition, one surface soil sample (SS13) was collected from the vicinity of the debris located beneath Building S1 (Photo 12). The surface soil sample was collected using a shovel and stainless-steel spoons.

Generally, field screening samples were obtained from the hand borings at a rate of one sample per 1-foot interval starting at 1-foot bgs. Prior to collection of each sample, the hand auger was decontaminated using a soft bristle brush and an alconox (detergent)/water solution followed by a distilled water rinse. Immediately following retrieval of the hand auger, the analytical samples 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 vapors 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 about 15 seconds, the seal of the bag will be opened slightly, the instrument probe will be inserted into the air space above the soil, and the bag held closed around the probe. The maximum ionization response as the PID draws vapor from the sample bag was recorded. The PID was calibrated with 100 parts per million (ppm) isobutylene in air standard gas. The soil cuttings were used to backfill the boreholes.

Twenty-five analytical samples, including three duplicates, were collected based on field screening results. For each volatile sample, at least 25 grams of soil, but no more than what could be completely submerged with 25-milliliters of methanol, were 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 dedicated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain of custody procedures.

4.0 LABORATORY ANALYSIS

A total of 25 soil samples, including three duplicate samples were collected and submitted to SGS for laboratory analysis. The samples were analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101; benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B; and diesel range organics (DRO) by AK 102. In addition, Samples HB1S2, HB11S1, and HB26S2 were analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D selective ion method (SIM).

5.0 SUBSURFACE CONDITIONS

Based on our observations of soil recovered from the hand borings, the subsurface primarily consists of 1 to 2 feet of organic soil/peat overlying silty sand with varying organic content. Groundwater was encountered in each hand boring and ranged from about 1 to 2.5 feet bgs. Petroleum odors were noted in the soil samples recovered from Hand Borings HB1 and HB11.

6.0 DISCUSSION OF RESULTS

The analytical soil results were compared to the most stringent ADEC Method Two cleanup levels listed in Table B1 of 18 AAC 75.341, for the “under 40-inch (precipitation) zone (October 1, 2017). The applicable cleanup and regulatory levels are listed in Tables 3. The laboratory reports and completed ADEC Laboratory Data Review Checklists are provided in Appendix C.

6.1 Soil Samples

DRO were detected in four (Samples HB2S2, HB7S2, HB11S1, and HB26S303) of the 25 soil samples at concentrations exceeding the ADEC Method Two Migration to Groundwater cleanup levels of 250 mg/kg. The highest DRO concentrations were detected in Samples HB2S2 (451 mg/kg) and Sample HB7S2 (estimated 497 mg/kg). In a follow-up email, the SGS project manager indicated that the DRO in these samples appeared consistent with a biogenic source. Varying amounts of organic material was documented in both of these samples.

Sample HB11S1 contained 318 mg/kg DRO, which the laboratory indicated was likely associated with petroleum. In addition, 16 PAH compounds, at concentrations less than the applicable ADEC cleanup levels, were detected in the sample. Sample HB11S101 was a duplicate of HB11S1 and contained 211 mg/kg DRO, which is less than the applicable ADEC cleanup level. This duplicate sample set was collected in the vicinity of creosote coated poles which were lying on the ground surface.

Duplicate sample set HB26S2/HB26303 contained a maximum of 281 mg/kg DRO. The laboratory indicated that the DRO detected in these two samples was likely associated with petroleum. In addition, Sample HB26S2 contained six PAH compounds, including 0.759 mg/kg 1-methylnaphthalene and 7.66 mg/kg naphthalene, which exceed the ADEC cleanup levels of 0.41 mg/kg and 0.038 mg/kg, respectively. This duplicate sample set was collected adjacent to the door of Building S6.

The remaining soil samples did not contain concentrations of the tested analytes in excess of the applicable cleanup levels.

6.2 Quality Assurance/Quality Control

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory quality controls for this project included surrogates, method blanks, laboratory control sample/laboratory control sample duplicates (LCS/LCSD), and matrix spike/matrix spike (MS/MSD) duplicates. If a DQO for one of the controls is not met, the laboratory provides a brief explanation in the case narrative of their report.

External quality controls include field records, two trip blanks, and three field duplicate sample sets. Field logs and records were checked for completeness and accuracy. 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 50 percent for duplicate soil samples. For duplicate sample set HS26S2/HS26303, DRO and xylenes are greater than the ADEC's DQO of 50 percent. Therefore, these results are flagged "E" on Table 3 to indicate that the sample results are estimated due to the RPD failures.

A laboratory-prepared trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS. The soil trip blanks did not contain detectable concentrations of GRO or BTEX. These results suggest that the project soil samples were not cross-contaminated during sampling, shipping, or analysis of the samples.

Two laboratory-prepared soil trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS. The soil trip blank samples did not contain detectable concentrations of target analytes. These results suggest that the project soil samples were not cross-contaminated during sampling, transporting, or analysis of the samples.

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, which is included in Appendix C. In our opinion, no non-conformances that would adversely impact data usability for the objectives of this project were noted.

7.0 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 D, 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.

7.1 Soil

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

7.2 Groundwater

The ingestion of groundwater is considered a potentially complete exposure pathway because petroleum-impacted soil is in contact with groundwater and could potentially be used as a future drinking water source.

7.3 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 Old BIA School is currently unsuitable for occupation and is built on piles. Therefore, the indoor air exposure pathway is currently incomplete. Although, if new non-pile supported structures were constructed on the site, the indoor air exposure pathway could be potentially complete for future residents, commercial and construction workers, and visitors.

7.4 Surface Water

Reportedly, surface water with a visible sheen has been observed at the site. In addition, petroleum-impacted soil is in contact with on-site groundwater and surface water, which may be hydraulically connected to Chevak Lake. Therefore, migration to surface water is considered a potentially complete exposure pathway for the subject site.

7.5 Other

Petroleum-impacted soil is in contact with on-site groundwater and surface water, which may be hydraulically connected to Chevak Lake. If contaminants were to impact Chevak Lake, sediment could be impacted. In turn, contaminants could be absorbed by plants and/or animals within the lake's ecosystem. Therefore, sediment and biota are considered potentially complete pathways.

7.6 CSM Summary

Currently complete or potentially complete exposure pathways, including direct contact with soil, groundwater, surface water, inhalation of 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.

8.0 DATA GAPS

The following is a list of data gaps identified for the site. Resolution of these data gaps may affect the conclusions and recommendations presented in this report and will likely be necessary to prepare a detailed cost estimate for site cleanup.

- Petroleum-impacted soil which is in contact with on-site surface water and groundwater was identified during this project. In addition, the 2014 Phase I ESA noted that oil sheening was observed on standing water adjacent to Building S6. Groundwater and surface water samples have not been collected and analyzed at the site.
- With the exception of Sample SS13, soil samples could not be collected from the ground surface beneath the Old BIA School, due to the presence of debris.
- The horizontal and vertical extent of soil contamination is currently undefined in the vicinity of the creosote coated poles located in Area of Concern 2 and southeast of Building S6.

9.0 SUMMARY

The DBAC field activities included advancing 27 hand borings. Analytical soil samples were collected from 20 of the hand borings. In addition, a surface soil sample was collected from beneath Building S1. Soil samples exceeding the ADEC Method Two cleanup levels for DRO, 1-methylnaphthalene, and naphthalene were documented at the site.

10.0 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 E, “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.

SHANNON & WILSON, INC.

FOR.

Alena Voigt
Environmental Scientist

Dan P. McMahon
Associate

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figures 3 through 5)	Depth (feet bgs)	Headspace (ppm) ^	Sample Description
Area of Concern 1 (See Figure 3)					
HB1S1	9/5/2017	Hand Boring 1, Sample 1	0-1	-	Dark brown to black, *Organic Soil (OL)* ; moist, hydrocarbon odor
* HB1S2	9/5/2017	Hand Boring 1, Sample 2	1-2	3.4	Gray, *Silty Sand (SM)* ; moist, hydrocarbon odor
* HB1S202	9/5/2017	Duplicate of Sample HB1S2	1-2	3.4	Gray, *Silty Sand (SM)* ; moist, hydrocarbon odor
HB1S3	9/5/2017	Hand Boring 1, Sample 3	2-3	-	Gray, *Silty Sand (SM)* ; wet, hydrocarbon odor
HB2S1	9/5/2017	Hand Boring 2, Sample 1	0-1	-	Dark brown to black, *Organic Soil (OL)* ; moist
* HB2S2	9/5/2017	Hand Boring 2, Sample 2	1-2	3.1	Gray, *Silty Sand (SM)* ; moist, trace organics
HB3S1	9/5/2017	Hand Boring 3, Sample 1	0-1	-	Dark brown to black, *Organic Soil (OL)* ; moist
* HB3S2	9/5/2017	Hand Boring 3, Sample 2	1-2	1.3	Gray, *Silty Sand (SM)* ; moist
HB4S1	9/5/2017	Hand Boring 4, Sample 1	0-1	-	Dark brown to black, *Organic Soil (OL)* ; moist
* HB4S2	9/5/2017	Hand Boring 4, Sample 2	1-2	1.5	Gray, *Silty Sand (SM)* ; moist
HB4S3	9/5/2017	Hand Boring 4, Sample 3	2-3	-	Gray, *Silty Sand (SM)* ; moist to wet
HB5S1	9/5/2017	Hand Boring 5, Sample 1	0-1	-	Gray to brown, *Organic Soil (OL)* with *Silty Sand (SM)* ; moist
* HB5S2	9/5/2017	Hand Boring 5, Sample 2	1-2	1.3	Gray, *Silty Sand (SM)* ; moist
HB5S3	9/5/2017	Hand Boring 5, Sample 3	2-3	-	Gray, *Silty Sand (SM)* ; wet
HB6S1	9/5/2017	Hand Boring 6, Sample 1	0-1	-	Gray to brown, intermixed *Organic Soil (OL)* with *Silty Sand (SM)* ; moist
* HB6S2	9/5/2017	Hand Boring 6, Sample 2	1-2	1.2	Gray, *Silty Sand (SM)* ; moist
Area of Concern 2 (See Figure 4)					
HB7S1	9/6/2017	Hand Boring 7, Sample 1	0-1	-	Dark brown to black, *Organic Soil (OL)* ; moist
* HB7S2	9/6/2017	Hand Boring 7, Sample 2	2-2.5	1.3	Dark brown to black, *Organic Soil (OL)* ; moist
HB8S1	9/6/2017	Hand Boring 8, Sample 1	0-1	-	Gray to brown, *Organic Soil (OL)* ; moist
HB8S2	9/6/2017	Hand Boring 8, Sample 2	1-2	-	Gray to brown, *Organic Soil (OL)* ; moist
* HB8S3	9/6/2017	Hand Boring 8, Sample 3	2-2.5	0.4	Brown, *Silty Sand (SM)* ; moist
* HB9S1	9/6/2017	Hand Boring 9, Sample 1	0-1	0.5	Gray to brown, intermixed *Organic Soil (OL)* with *Silty Sand (SM)* ; moist
HB9S2	9/6/2017	Hand Boring 9, Sample 2	1-2	-	Brown, *Organic Soil (OL)* ; moist to wet
* HB10S1	9/6/2017	Hand Boring 10, Sample 1	0-1	1.6	Gray to brown, *Organic Soil (OL) and Silty Sand (SM)* ; moist
* HB10S2	9/6/2017	Hand Boring 10, Sample 2	1-2	2.4	Dark brown to black, Organic Soil (OL); moist
* HB11S1	9/6/2017	Hand Boring 11, Sample 1	0-1	21.0	Gray to brown, *Organic Soil (OL) with Silty Sand (SM)* ; moist, hydrocarbon odor
* HB11S101	9/6/2017	Duplicate of Sample HB11S1	0-1	-	Gray to brown, *Organic Soil (OL) with Silty Sand (SM)* ; moist, hydrocarbon odor
HB12S1	9/6/2017	Hand Boring 12, Sample 1	0-1.5	-	Brown, *Organic Soil (OL)* ; moist
* HB12S2	9/6/2017	Hand Boring 12, Sample 2	1.5-2.5	2.0	Brown, *Silty Sand (SM)* ; moist
* SS13	9/6/2017	Surface Sample 13	0-0.3	0.2	Gray to brown, *Silty Sand (SM)* ; moist, trace organics

Notes:

* = Sample analyzed by the project laboratory (See Table 3)

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

\- = Not applicable

bgs = below ground surface

ppm = parts per million

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figures 3 through 5)	Depth (feet bgs)	Headspace (ppm) ^	Sample Description
Area of Concern 3 (See Figure 5)					
HB14S1	9/6/2017	Hand Boring 14, Sample 1	0-1	0.6	Brown, *Organic Soil (OL)* ; moist
HB15S1	9/6/2017	Hand Boring 15, Sample 1	0-1	1.5	Brown, *Organic Soil (OL)* ; moist
HB16S1	9/6/2017	Hand Boring 16, Sample 1	0-1	-	Brown, *Organic Soil (OL)* ; moist
* HB16S2	9/6/2017	Hand Boring 16, Sample 2	1-2	0.8	Gray, *Silty Sand (SM*); moist
HB17S1	9/6/2017	Hand Boring 17, Sample 1	0-2	-	Brown, *Organic Soil (OL)* ; moist to wet
HB18S1	9/6/2017	Hand Boring 18, Sample 1	0-2	-	Brown, *Organic Soil (OL)* ; moist to wet
* HB19S1	9/6/2017	Hand Boring 19, Sample 1	0-2	0.1	Brown, *Organic Soil (OL)* ; moist
HB20S1	9/6/2017	Hand Boring 20, Sample 1	0-1	0.9	Dark Brown, *Organic Soil (OL);* moist
* HB20S2	9/6/2017	Hand Boring 20, Sample 2	1-2	0.1	Gray, *Silty Sand (SM)* ; moist
HB21S1	9/6/2017	Hand Boring 21, Sample 1	0-0.8	-	Brown, *Organic Soil (OL);* moist to wet
HB22S1	9/6/2017	Hand Boring 21, Sample 2	0-0.9	-	Brown, *Organic Soil (OL);* moist to wet
HB23S1	9/6/2017	Hand Boring 23, Sample 1	0-1	0.6	Gray, *Silty Sand (SM*); moist
HB24S1	9/6/2017	Hand Boring 24, Sample 1	0-1	-	Brown, *Organic Soil (OL)* ; moist
* HB24S2	9/6/2017	Hand Boring 24, Sample 2	1-1.5	0.9	Gray, *Silty Sand (SM)* ; moist
HB25S1	9/6/2017	Hand Boring 25, Sample 1	0-0.5	-	Brown, *Silty Sand (SM)* ; moist, trace organics
* HB25S2	9/6/2017	Hand Boring 25, Sample 2	0.5-1.2	0.6	Brown, *Silty Sand (SM)* ; moist, trace organics
HB26S1	9/6/2017	Hand Boring 26, Sample 1	0-1	-	Brown, *Silty Sand (SM)* ; moist, trace organics
* HB26S2	9/6/2017	Hand Boring 26, Sample 2	1-1.5	0.7	Brown, *Silty Sand (SM)* ; moist, trace organics
* HB26S303	9/6/2017	Duplicate of Sample HB26S2	1-1.5	0.7	Brown, *Silty Sand (SM)* ; moist, trace organics
HB27S1	9/6/2017	Hand Boring 27, Sample 1	0-1	-	Gray, *Silty Sand (SM)* ; moist
* HB27S2	9/6/2017	Hand Boring 27, Sample 2	1-1.7	0.3	Gray, *Silty Sand (SM)* ; moist
HB28S1	9/6/2017	Hand Boring 28, Sample 1	0-1	-	Brown, *Organic Soil (OL)* ; moist
* HB28S2	9/6/2017	Hand Boring 28, Sample 2	1-1.5	0.5	Gray, *Silty Sand (SM)* ; moist
Quality Control Samples					
* STB1	9/6/2017	Soil Trip Blank	-	-	Ottawa sand with methanol added in the laboratory
* STB2	9/6/2017	Soil Trip Blank	-	-	Ottawa sand with methanol added in the laboratory

Notes:

* = Sample analyzed by the project laboratory (See Table 3)

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

\- = Not applicable

bgs = below ground surface

ppm = parts per million

TABLE 2 - SUMMARY OF GPS COORDINATES

Hand Boring ID	Latitude*	Longitude*
HB1	61.52858	165.58649
HB2	61.52864	165.58641
HB3	61.52858	165.58653
HB4	61.52865	165.58638
HB5	61.52864	165.58632
HB6	61.52864	165.58636
HB7	61.52861	165.58727
HB8	61.52863	165.58719
HB9	61.52863	165.58728
HB10	61.52862	165.58730
HB11	61.52862	165.58730
HB12	61.52861	165.58733
HB14	61.52841	165.58745
HB15	61.52843	165.58763
HB16	61.52843	165.58751
HB17	61.52841	165.58743
HB18	61.52843	165.58736
HB19	61.52842	165.58737
HB20	61.52842	165.58737
HB21	61.52839	165.58737
HB22	61.52837	165.58740
HB23	61.52838	165.58733
HB24	61.52837	165.58736
HB25	61.52831	165.58727
HB26	61.52831	165.58725
HB27	61.52831	165.58725
HB28	61.52827	165.58714

Notes:

* = Datum is World Geodetic System of 1984 (WGS1984)

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample Location, Sample ID Number^, and Soil Sample Depth in Feet Below Ground Surface (See Table 1 and Figure 3, 4, and 5)															
			Area of Concern 1							Area of Concern 2								
			HB1S2 1-2	HB1S202~ 1-2	HB2S2 1-2	HB3S2 1-2	HB4S2 0-1	HB5S2 1-2	HB6S2 1-2	HB7S2 2-2.5	HB8S3 2-2.5	HB9S1 0-1	HB10S1 0-1	HB10S2 1-2	HB11S1 0-1	HB11S101~ 0-1	HB12S2 1.5-2.5	SS13^^ 0-0.3
PID Headspace Reading - ppm	580B PID	-	3.4	3.4	3.1	1.3	1.5	1.3	1.2	1.3	0.4	0.5	1.6	2.4	21.0	21.0	2.0	0.2
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	**1.58 J**	**1.35 J**	**1.23 J**	<1.56	<1.13	<1.25	<1.12	<6.20 J-	**1.89 J**	**0.795 J**	**0.991 J**	**3.38 J**	**3.90**	**3.15**	<3.21	<1.98
Diesel Range Organics (DRO) - mg/kg	AK 102	250	**125**	**144**	**451**	**79.3**	**10.3 J**	**8.13 J**	<12.1	**497 J+**	**208**	**20.0 J**	**78.4**	**41.0**	**318**	**211**	**13.0 J**	**65.3**
Aromatic Volatile Organics (BTEX)																		
Benzene - mg/kg	EPA 8021B	0.022	<0.00765	<0.00685	<0.00970	<0.00785	<0.00560	<0.00620	<0.00560	<0.0309	<0.0143	<0.00655	<0.00740	<0.0186	<0.00775	<0.00715	<0.0161	<0.00990
Toluene - mg/kg	EPA 8021B	6.7	<0.0153	<0.0137	<0.0194	<0.0157	<0.0113	<0.0124	<0.0112	<0.0620	<0.0284	<0.0131	<0.0148	<0.0370	<0.0156	<0.0144	<0.0321	<0.0198
Ethylbenzene - mg/kg	EPA 8021B	0.13	**0.0363**	**0.0393**	<0.0194	<0.0157	<0.0113	<0.0124	<0.0112	<0.0620	<0.0284	<0.0131	<0.0148	<0.0370	**0.0224 J**	**0.0138 J**	<0.0321	<0.0198
Xylenes - mg/kg	EPA 8021B	1.5	**0.173**	**0.181**	<0.0582	**0.0125 J**	<0.0337	<0.0373	<0.0336	<0.0186	<0.0854	<0.0392	<0.0444	<0.111	**0.227**	**0.179**	**0.0334 J**	<0.0593
Polynuclear Aromatic Hydrocarbons (PAHs)																		
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.347**	-	-	
2- Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.266**	-	-	
Acenaphthene - mg/kg	EPA 8270D SIM	37	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.142**	-	-	
Acenaphthylene - mg/kg	EPA 8270D SIM	18	<0.0810												<0.0152			
Anthracene - mg/kg	EPA 8270D SIM	390	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.132**	-	-	
Benzo(a)anthracene - mg/kg	EPA 8270D SIM	0.28	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.125**	-	-	
Benzo[a]pyrene - mg/kg	EPA 8270D SIM	0.20	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.0548**	-	-	
Benzo[b]fluoranthene - mg/kg	EPA 8270D SIM	2.0	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.104**	-	-	
Benzo[g,h,i]perylene - mg/kg	EPA 8270D SIM	2,300	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.0195 J**	-	-	
Benzo[k]fluoranthene - mg/kg	EPA 8270D SIM	20	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.0304**	-	-	
Chrysene - mg/kg	EPA 8270D SIM	82	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.119**	-	-	
Dibenzo[a,h]anthracene - mg/kg	EPA 8270D SIM	0.20	<0.0810												<0.0152			
Fluoranthene - mg/kg	EPA 8270D SIM	590	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.653**	-	-	
Fluorene - mg/kg	EPA 8270D SIM	36	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.167**	-	-	
Indeno[1,2,3-c,d] pyrene - mg/kg	EPA 8270D SIM	2.0	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.0183**	-	-	
Naphthalene - mg/kg	EPA 8270D SIM	0.038	<0.0645	-	-	-	-	-	-	-	-	-	-	-	**0.433**	-	-	
Phenanthrene - mg/kg	EPA 8270D SIM	39	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.846**	-	-	
Pyrene - mg/kg	EPA 8270D SIM	87	<0.0810	-	-	-	-	-	-	-	-	-	-	-	**0.514**	-	-	

Notes:

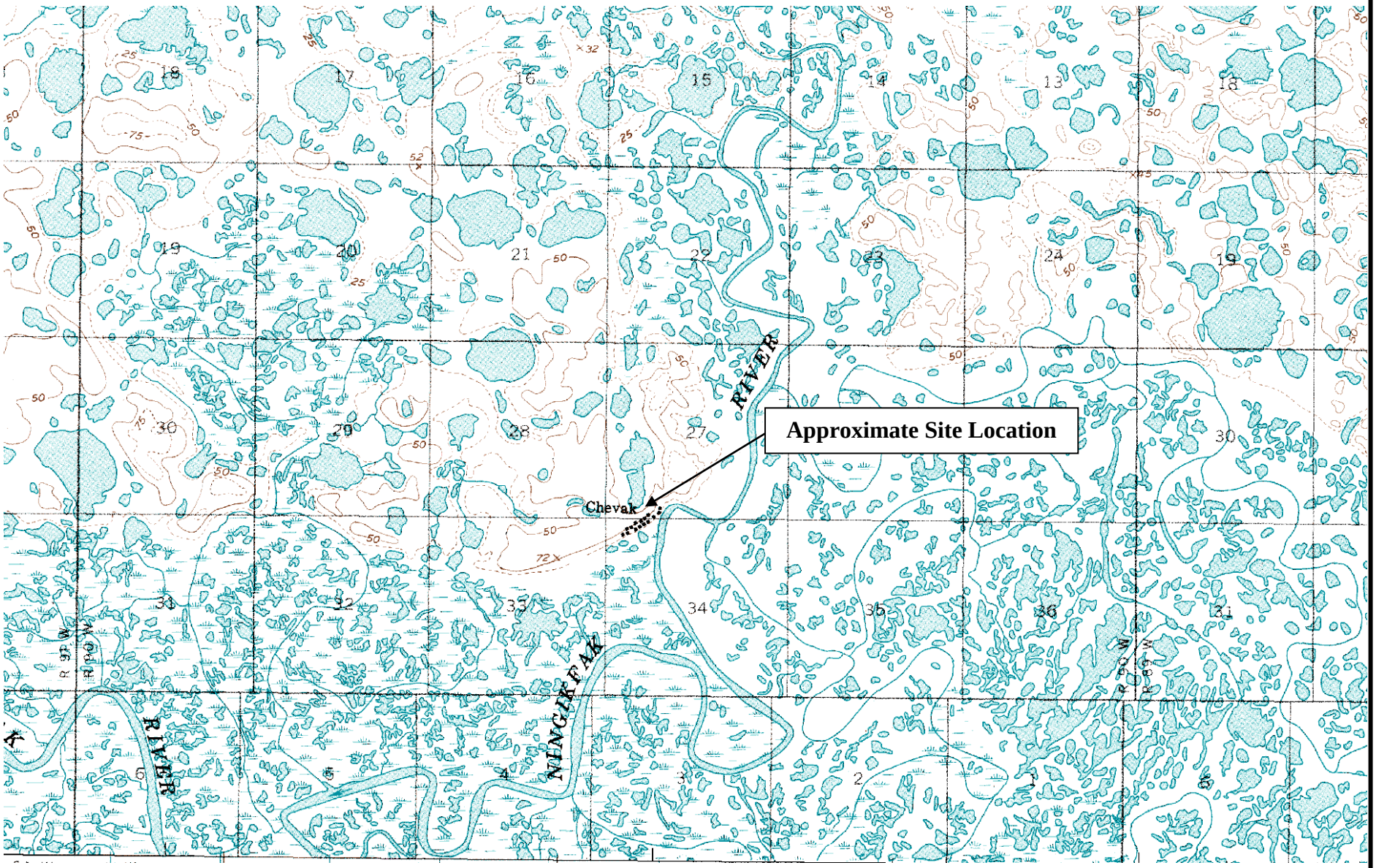
*	= See laboratory results in Appendix C for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method Two standard listed in Table B1 or B2, 18 AAC 75 (October 2017)
^	= Sample ID No. preceded by "20007-" on the chain-of-custody form
^^	= Sample SS13 is listed as Sample SS on chain-of-custody
ppm	= Parts per million
mg/kg	= Milligrams per kilogram
PID	= Photoionization detector
-	= Not tested or not applicable
<0.00765	= Analyte not detected; laboratory limit of detection is 0.00765 mg/kg
1.58	= Analyte detected at a concentration less than the applicable ADEC cleanup levels
451	= bolded and highlighted results exceed the applicable ADEC cleanup level
J	= Analyte detected, but at a concentration less than the limit of quantitation. See the SGS laboratory report for details.
J+	= Analyte result is potentially biased high due to surrogate failure. See the SGS laboratory report for details.
J-	= Analyte result is potentially biased low due to surrogate failure. See the SGS laboratory report for details.
~	= Duplicate of preceding sample

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample Location, Sample ID Number^, and Soil Sample Depth in Feet Below Ground Surface (See Table 1 and Figure 3, 4, and 5)										
			Area of Concern 3									Trip Blanks	
			HB16S2 1-2	HB19S1 0-2	HB20S2 1-2	HB24S2 1-1.5	HB25S2 0.5-1.2	HB26S2 1-1.5	HB26S303~ 1-1.5	HB27S2 1-1.7	HB28S2 1-1.5	STB1 -	STB2 -
PID Headspace Reading - ppm	580B PID	-	0.8	0.1	0.1	0.9	0.6	0.7	0.7	0.3	0.5	-	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	**1.27 J**	**1.95 J**	<1.87	<1.31	<1.80	<1.84	1.49 J	<1.79	<1.58	<1.25	<1.25
Diesel Range Organics (DRO) - mg/kg	AK 102	250	**27.6**	**34.6**	**99.1 J**	**14.2 J**	**65.2 J**	**84.1 J, E**	**281 E**	**93.1 J**	**20.7 J**	-	-
Aromatic Volatile Organics (BTEX)													
Benzene - mg/kg	EPA 8021B	0.022	<0.00805	<0.00700	<0.00935	<0.00655	<0.00900	<0.00920	<0.0111	<0.00895	<0.00790	<0.00625	<0.00630
Toluene - mg/kg	EPA 8021B	6.7	<0.0161	<0.0139	<0.0187	<0.0131	<0.0181	<0.0184	<0.0222	<0.0179	<0.0158	<0.0125	<0.0126
Ethylbenzene - mg/kg	EPA 8021B	0.13	<0.0161	<0.0139	<0.0187	<0.0131	<0.0181	**0.0239 J**	<0.0222	<0.0179	<0.0158	<0.0125	<0.0126
Xylenes - mg/kg	EPA 8021B	1.5	<0.0482	<0.0418	<0.0562	<0.0393	<0.0541	**0.0567 J, E**	**0.0208 J, E**	<0.0537	<0.0474	<0.0376	<0.0377
Polynuclear Aromatic Hydrocarbons (PAHs)													
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41			-	-	-	**0.759**	-	-	-	-	-
2- Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3			-	-	-	**0.793**	-	-	-	-	-
Fluoranthene - mg/kg	EPA 8270D SIM	590			-	-	-	**0.124 J**	-	-	-	-	-
Naphthalene - mg/kg	EPA 8270D SIM	0.038			-	-	-	**7.66**	-	-	-	-	-
Phenanthrene - mg/kg	EPA 8270D SIM	39			-	-	-	**0.132 J**	-	-	-	-	-
Pyrene - mg/kg	EPA 8270D SIM	87			-	-	-	**0.100 J**	-	-	-	-	-
Other PAH analytes - mg/kg	EPA 8270D SIM	Varies			-	-	-	<0.167	-	-	-	-	-

Notes:

*	= See laboratory results for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method Two standard listed in Table B1 or B2, 18 AAC 75 (October 2017)
^	= Sample ID No. preceded by "20007-" on the chain-of-custody form
ppm	= Parts per million
mg/kg	= Milligrams per kilogram
PID	= Photoionization detector
-	= Not tested or not applicable
<1.31	= Analyte not detected; laboratory limit of detection is 1.31 mg/kg
14.2	= Analyte detected at a concentration less than the applicable ADEC cleanup levels
281	= bolded and highlighted results exceed the applicable ADEC cleanup level
J	= Analyte detected, but at a concentration less than the limit of quantitation. See the SGS laboratory report for details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure
~	= Duplicate of preceding sample



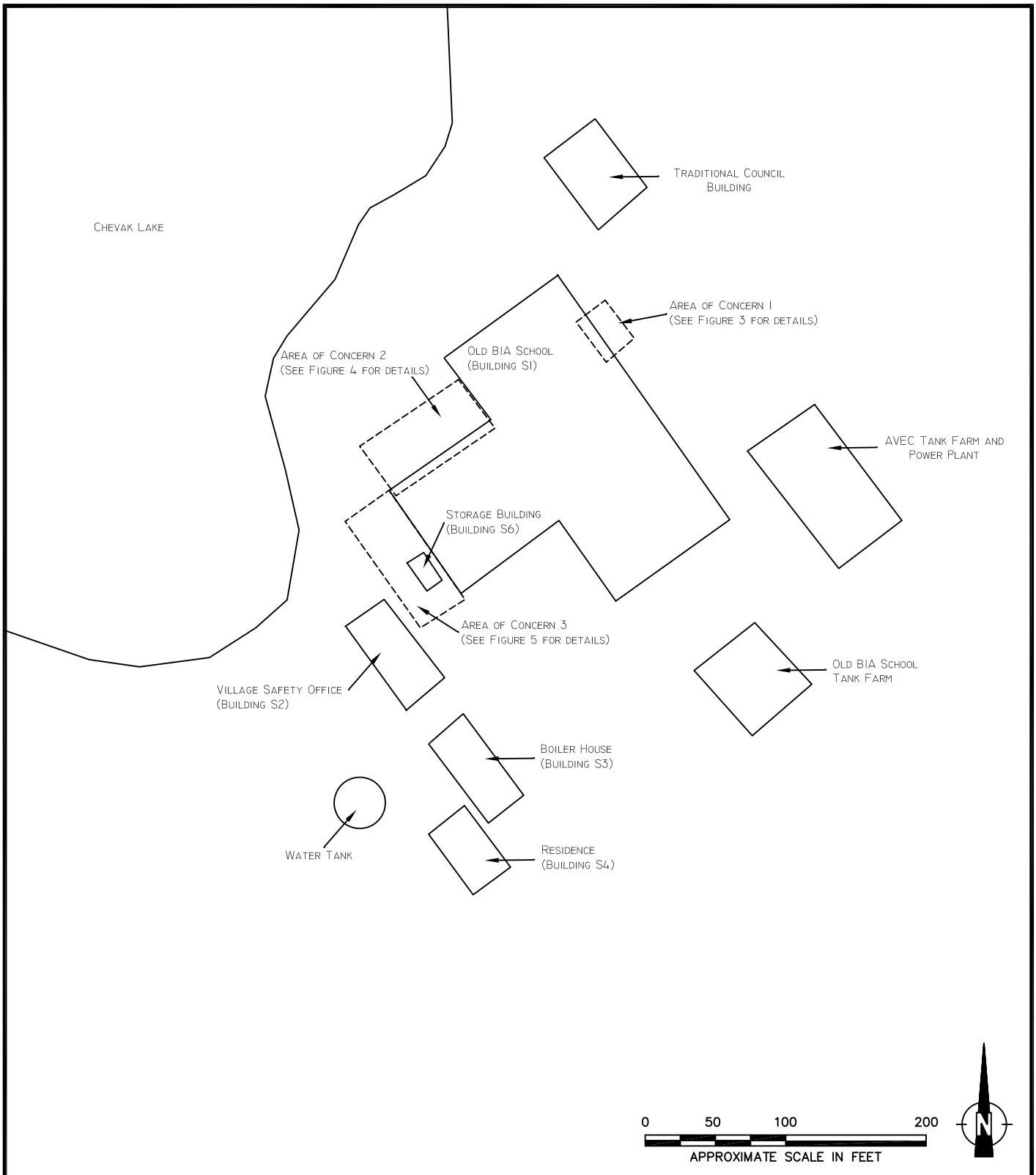
Old BIA School
Chevak, Alaska

VICINITY MAP

January 2018 32-1-20007-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 1



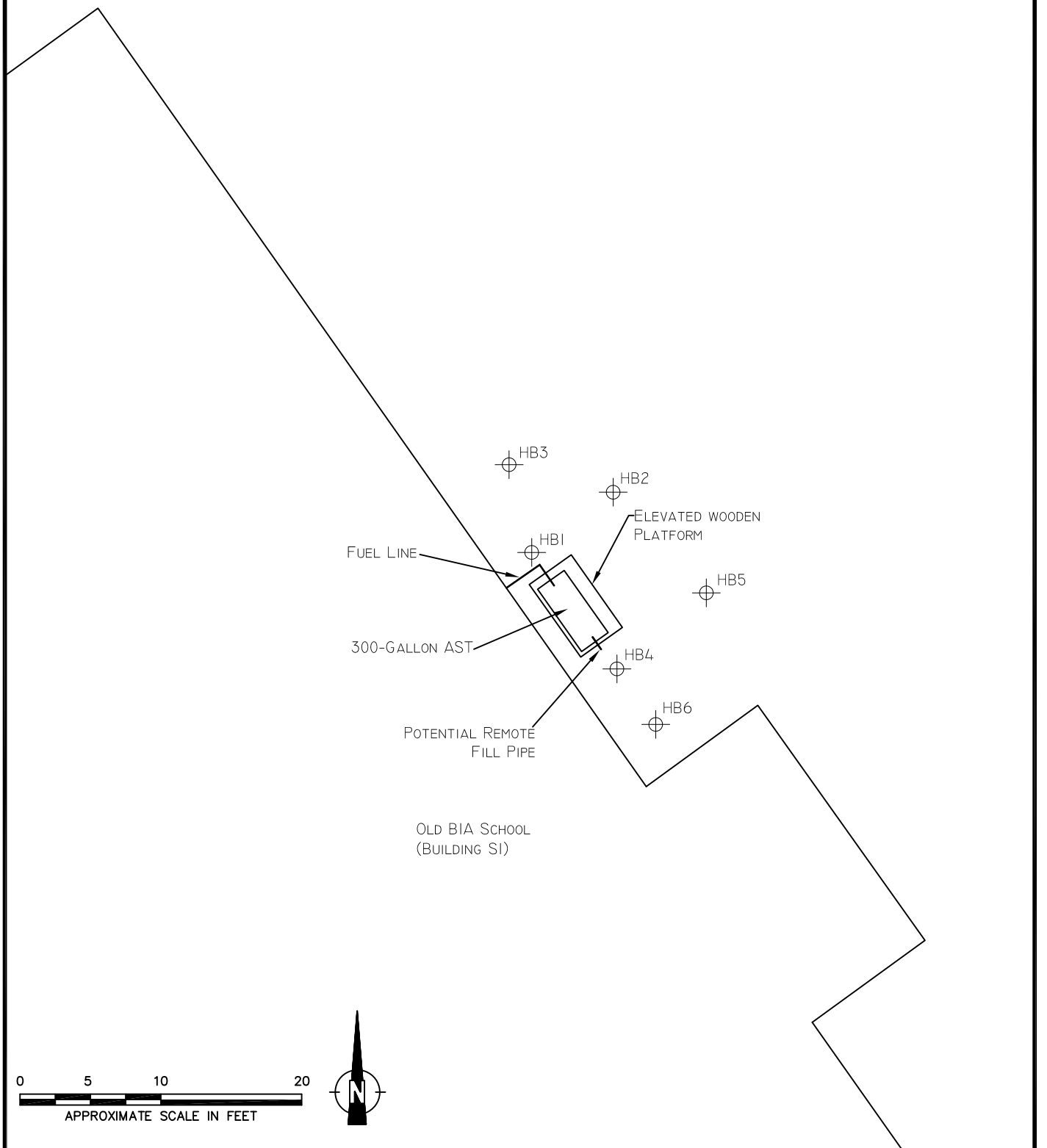
Old BIA School
Chevak, Alaska

SITE PLAN

January 2018 32-1-20007-002

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 2



LEGEND

HB1 — APPROXIMATE LOCATIONS OF HAND BORING HB1 ADVANCED ON SEPTEMBER 5, 2017 BY SHANNON & WILSON, INC.

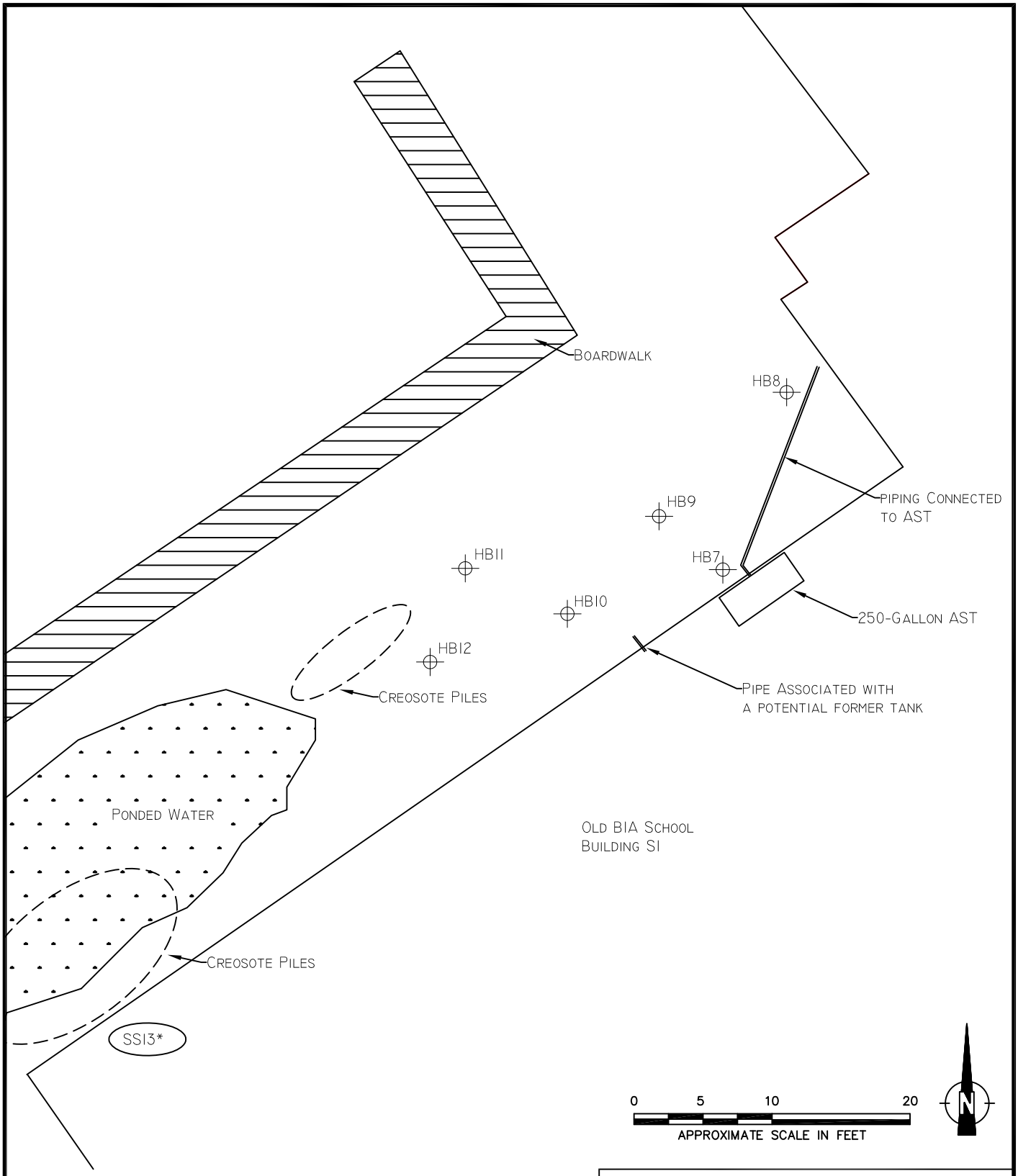
Old BIA School
Chevak, Alaska

DETAILED SITE PLAN
AREA OF CONCERN 1

January 2018 32-1-20007-002

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 3



LEGEND

HB7 — APPROXIMATE LOCATION OF HAND BORING HB7 ADVANCED ON SEPTEMBER 6, 2017 BY SHANNON & WILSON, INC.

SSI3* — APPROXIMATE LOCATION OF SURFACE SOIL SAMPLE SSI3 COLLECTED ON SEPTEMBER 6, 2017 BY SHANNON & WILSON, INC.

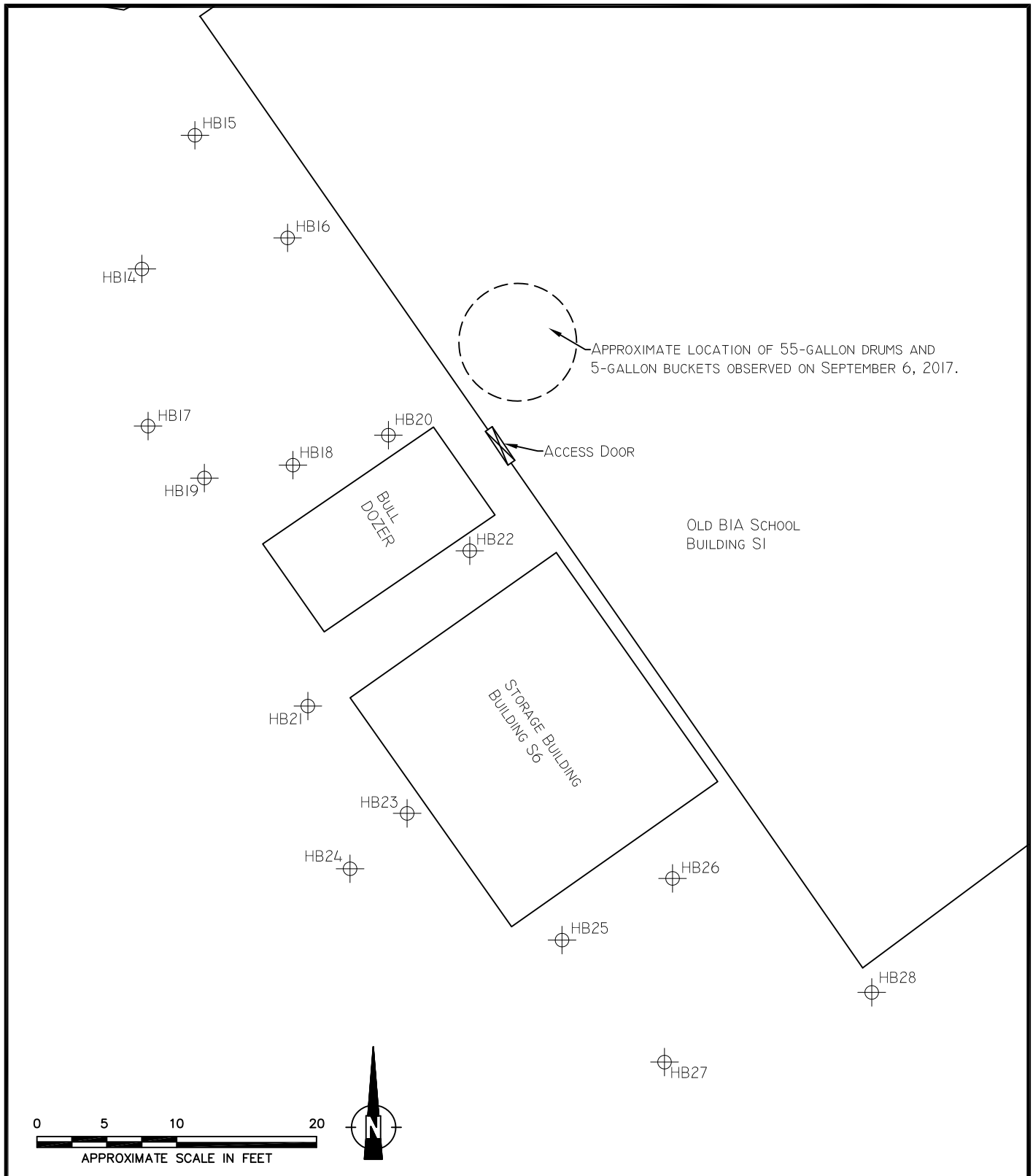
Old BIA School
Chevak, Alaska

DETAILED SITE PLAN
AREA OF CONCERN 2

January 2018 | 32-1-20007-002

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 4



LEGEND

HB7 — Approximate location of Hand Boring HB14 advanced on September 6, 2017 by Shannon & Wilson, Inc.

Old BIA School
Chevak, Alaska

DETAILED SITE PLAN
AREA OF CONCERN 3

January 2018 | 32-1-20007-002

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 5

APPENDIX A

FIELD NOTES

9/5/2017 - 18:00 - Calibrated PID #6
GPS Accuracy ~ 12-30 feet

SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Project Number: 32-1-20007
Date: 9/5/2017
Sampler: TWC, ADV

Location: CHEVAK, AK
Site: OLD BIA SCHOOL
Sheet Number: 1 of 5

Sample Number	GPS Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	NOTES ~~Analyses~~
HB1 S1	WP26		0-1	N	61.52858	—	Dark brown to black, organic soil	
				W	165.58649		(OL); moist; Hydrocarbon odor	
HB1 S2		18:15	1-2			3.4	Gray, Silty Sand (SM); moist;	Duplicate HB1S202
							Hydrocarbon odor	time - 19:00
HB1 S3			2-3			—	Gray, Silty Sand (SM); wet;	
							Hydrocarbon odor	DTW @ 2ft bgs
HB2 S1	WP25		0-1	N	61.52864	—	Dark brown to black, organic	
				W	165.58641		Soil (OL); moist	
HB2 S2		18:35	1-2			3.1	Gray, Silty Sand (SM); moist;	DTW @ 2ft bgs
							trace organics	
HB3 S1	WP27		0-1	N	61.52858	—	Dark brown to black, organic Soil	
				W	165.58653		(OL); moist	
HB3 S2		18:45	1-2			1.3	Gray, Silty Sand (SM); moist	DTW @ 2ft bgs
HB4 S1	WP23		0-1	N	61.52865		Dark brown to black, organic Soil	
				W	165.58638		(OL); moist	
HB4 S2		19:05	1-2			1.5	Gray, Silty Sand (SM); moist	DTW @ 2.5 bgs (ft)
HB4 S3			2-3				Gray, Silty Sand (SM); moist to wet	
HB5 S1	WP24		0-1	N	61.52864	—	Gray to Brown, Intermixed organic	
				W	165.58632		Soil (OL) With Silty Sand (SM);	
							moist	
HB5 S2		19:15	1-2			1.3	Gray, Silty Sand (SM); moist	DTW @ 2.5 ft bgs
HB5 S3			2-3			—	Gray, Silty Sand (SM); wet	
HB6 S1	WP22		0-1	N	61.52864	—	Gray to brown, Intermixed organic	
				W	165.58636		Soil (OL) with Silty Sand (SM);	
							moist	
HB6 S2		19:25	1-2			1.2	Gray, Silty Sand (SM); moist	DTW @ 2 ft bgs

Sample Type

ES	Environmental sample
FD	Field duplicate
FM	Field Screening
TB	Trip blank
*	GPS readings only collected from analytical sample locations

SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Project Number: 32-1-20007
Date: 9/6/2017
Sampler: TWC, ADV
Location: CHEVAK, AK
Site: OLD BIA School
Sheet Number: 2 of 5

Sample Number	GPS Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	NOTES ~~Analyses~~
HB7S1	WP20		0-1	N	61.52861	–	Dark brown to black, organic soil	
				W	165.58727		(OL); moist	
			1-2			–	Same as above	DTW @ 2.5ft bgs
HB7S2		9:42	2-2.5			1.3	Same as above	Water accumulated in hand boring
HB8S1	WP21		0-1	N	61.52863	–	Gray to dark brown, organic soil (OL);	
				W	165.58719		moist	
HB8S2			1-2			–	Same as above	
HB8S3		10:00	2-2.5			0.4	Brown, Silty Sand (SM); moist	DTW @ 2.5ft bgs
HB9S1	WP19	10:15	0-1	N	61.52863	0.5	Gray to brown Intermixed organic	Sample taken from
				W	165.58728		soil (OL) and Silty Sand (SM); moist	Silty Sand @ 0.8 bgs
HB9S2			1-2			–	Brown, organic soil (OL); moist	
							to wet	
			2-3.5			–	Same as above	DTW @ 3ft bgs - Accumulated in hand boring
HB10S1	WP18	10:30	0-1	N	61.52862	1.6	Gray to brown Intermixed organic soil	S1 taken from SM
				W	165.58730		(OL) and Silty Sand (SM); moist	soil @ 0.9ft bgs
HB10S2		10:38	1-2			2.4	Dark brown to black, organic soil	S2 taken @ 1.8ft bgs
							(OL); moist	DTW @ 2.5ft bgs
								Accumulated in hand boring
HB11S1	WP17	10:50	0-1	N	61.52862	21.0	Gray to brown Intermixed organic soil	S1 taken from SM
				W	165.58730		(OL) and Silty Sand (SM); moist;	soil @ 0.6 ft bgs
			1-2				Hydrocarbon odor	
							Dark brown to black organic	DTW @ 1 ft bgs
							soil; Wet	Accumulated in hand
HB11S101		11:45		FD			Duplicate Sample of HB11S1	boring

Sample Type

- ES Environmental sample
- FD Field duplicate
- FM Field Screening
- TB Trip blank
- * GPS readings only collected from analytical sample locations

SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Project Number: 32-1-20007
Date: 9/6/2017
Sampler: TWC, ADV
Location: CHEVAK, AK
Site: OLD BIA School
Sheet Number: 3 of 5

Sample Number	GPS Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	NOTES ~~Analyses~~
HB12S1	WP16		0-1.5	N	61.52861		Brown, organic soil (OL); moist	
				W	165.58733			
HB12S2		11:05	1.5-2.5			2.0	Brown, silty sand (SM); moist	DTW @ 2.5ft bgs Accumulated in hand boring
SS13		12:45	0-0.3			0.2	Gray to brown, silty sand (SM); trace organics, moist	SS = Surface Sample
HB14S1	WP13		0-1	N	61.52841	0.6	Brown, organic soil (OL); moist	Screening taken for PID No Sample DTW @ 1 ft bgs
				W	165.58745			
HB15S1	WP15		0-1	N	61.52843	1.5	Brown, organic soil (OL); moist	Screening taken for PID No Sample DTW @ 1.2 ft bgs
				W	165.58763			
HB16S1	WP14		0-1	N	61.52843		Brown, organic soil (OL); moist	
				W	165.58751			
HB16S2		14:05	1-2			0.8	Gray, silty sand (SM); moist	DTW @ 2 ft bgs
HB17S1	WP12		0-2	N	61.52841		Brown, organic soil (OL); moist to wet	No Sample
				W	165.58743			
HB18S1	WP10		0-2	N	61.52843		Brown, organic soil (OL); moist to wet	No Sample
				W	165.58736			
HB19S1	WP9	14:20	0-2	N	61.52842	0.1	Brown, organic soil (OL); moist	DTW @ 2 ft bgs
				W	165.58737			

Sample Type

ES Environmental sample
FD Field duplicate
FM Field Screening
TB Trip blank
* GPS readings only collected from analytical sample locations

SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Project Number: 32-1-20007
Date: 9/6/2017
Sampler: TWC, ADV
Location: CHEVAK, AK
Site: OLD BIA school
Sheet Number: 4 of 5

Sample Number	Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	NOTES ~~Analyses~~
HB20S1	WP11		0-1	N	61.52842	0.9	Dark brown, Organic soil (OL); moist	Screening taken for PID
				W	165.58737			
HB20S2		14:40	1-2			0.1	Gray, Silty Sand (SM); moist	DTW @ 2.2 ft bgs
								Water Accumulated in hand boring
HB21S1	WP7		0-0.8	N	61.52839	—	Brown, organic soil (OL); moist to wet	organic soil to water 0.8ft bgs
				W	165.58737			
								No Sample
HB22S1	WP8		0-0.9	N	61.52837	—	Brown, organic soil (OL); moist to wet	organic soil to water 0.9ft bgs
				W	165.58740			
								No Sample
HB23S1	WP5		0-1	N	61.52838	0.6	Gray, Silty Sand (SM); moist	DTW @ 1.2 ft bgs
				W	165.58733			Screening taken for PID
								No Sample
HB24S1	WP6		0-1	N	61.52837	—	Brown, organic soil (OL); moist	
				W	165.58736			
HB24S2		15:00	1-1.5			0.9	Gray, Silty Sand (SM); moist	DTW @ 1.5 ft bgs
HB25S1	WP4		0-0.5	N	61.52831	—	Brown, Silty Sand (SM), trace organics; moist	
				W	165.58727			
HB25S2		15:10	0.5-1.2			0.6	Same as above	DTW @ 1.2; water Accumulated in hand boring
HB26S1	WP3		0-1	N	61.52831		Brown, Silty Sand (SM), trace organics; moist	
				W	165.58725			
HB26S2		15:20	1-1.5			0.7	Same as above	DTW @ 1.5 ft bgs
HB26S303		16:00		FD			Duplicate Sample of HB26S2	

Sample Type

ES	Environmental sample
FD	Field duplicate
FM	Field Screening
TB	Trip blank
*	GPS readings only collected from analytical sample locations

SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Project Number: 32-1-20007
Date: 9/6/2017
Sampler: TWC, ADV

Location: CHEVAK, AK
Site: OLD BIA School
Sheet Number: 5 of 5

Sample Number	Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	NOTES ~~Analyses~~
HB27S1	WP2		0-1	N	61.52831		Gray, Silty Sand (SM); moist	
				W	165.58725			
HB27S2		15:30	1-1.7			0.3	Same as above	DTW @ 1.7ft bgs water accumulated in hand boring
HB28S1	WP1		0-1	N	61.52827		Brown, organic soil (OL); moist	
				W	165.58714			
HB28S2		15:40	1-1.5			0.5	Gray, Silty Sand (SM); moist	DTW @ 1.5ft bgs water accumulated in hand boring

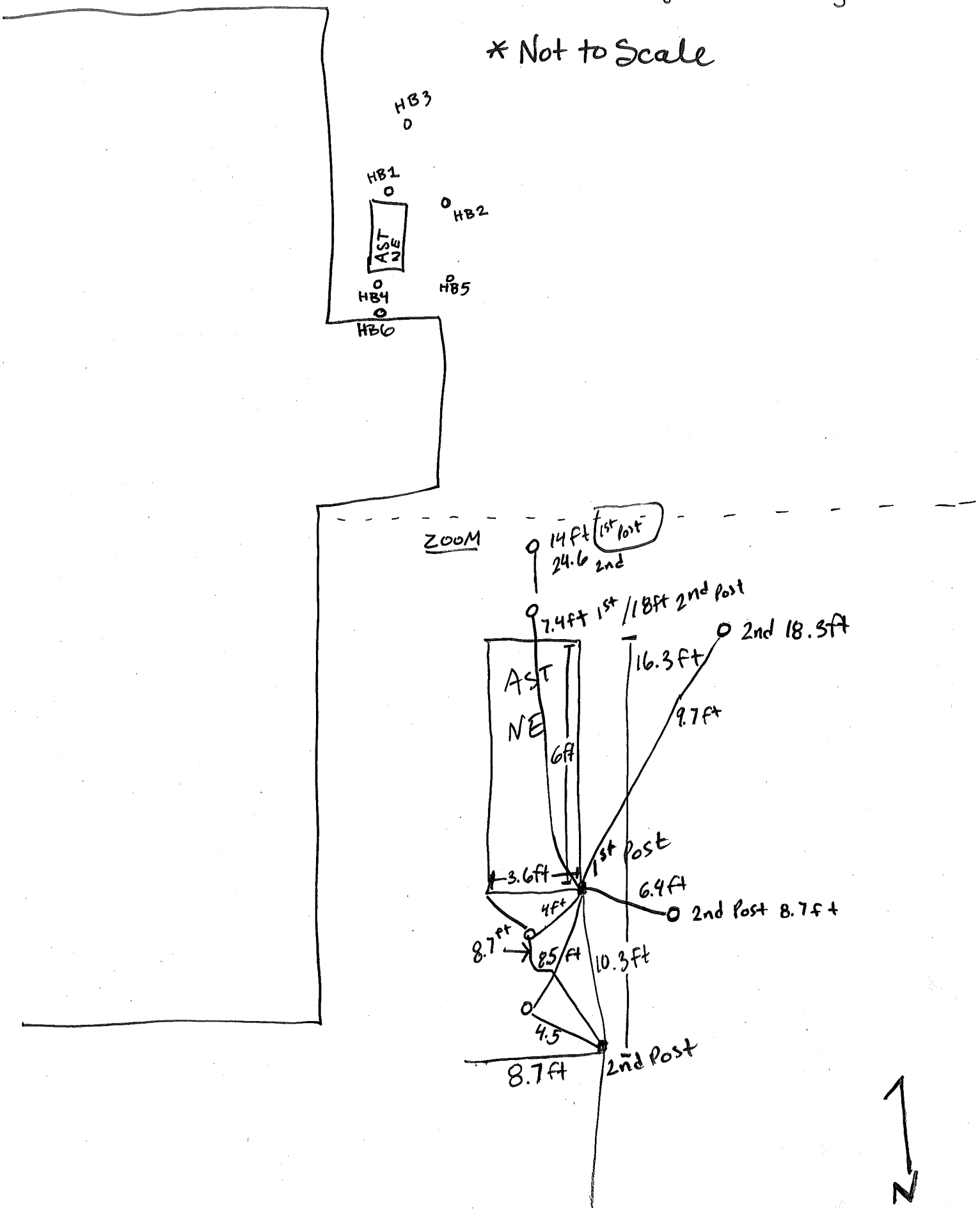
Sample Type

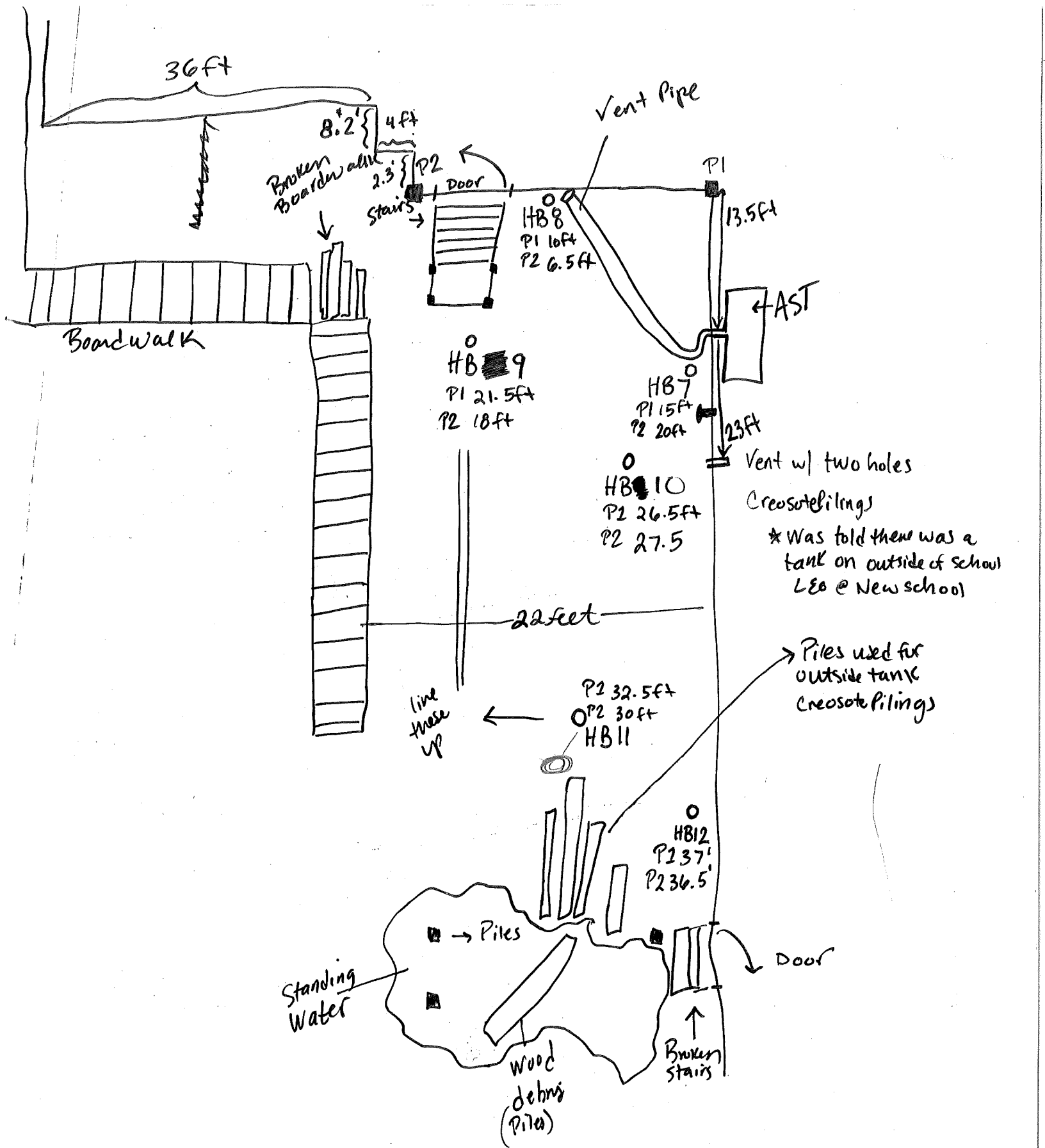
ES	Environmental sample
FD	Field duplicate
FM	Field Screening
TB	Trip blank
*	GPS readings only collected from analytical sample locations

HB1 Sample Locations
to
HB6

* Note → water accumulated in hand borings bf backfilling.

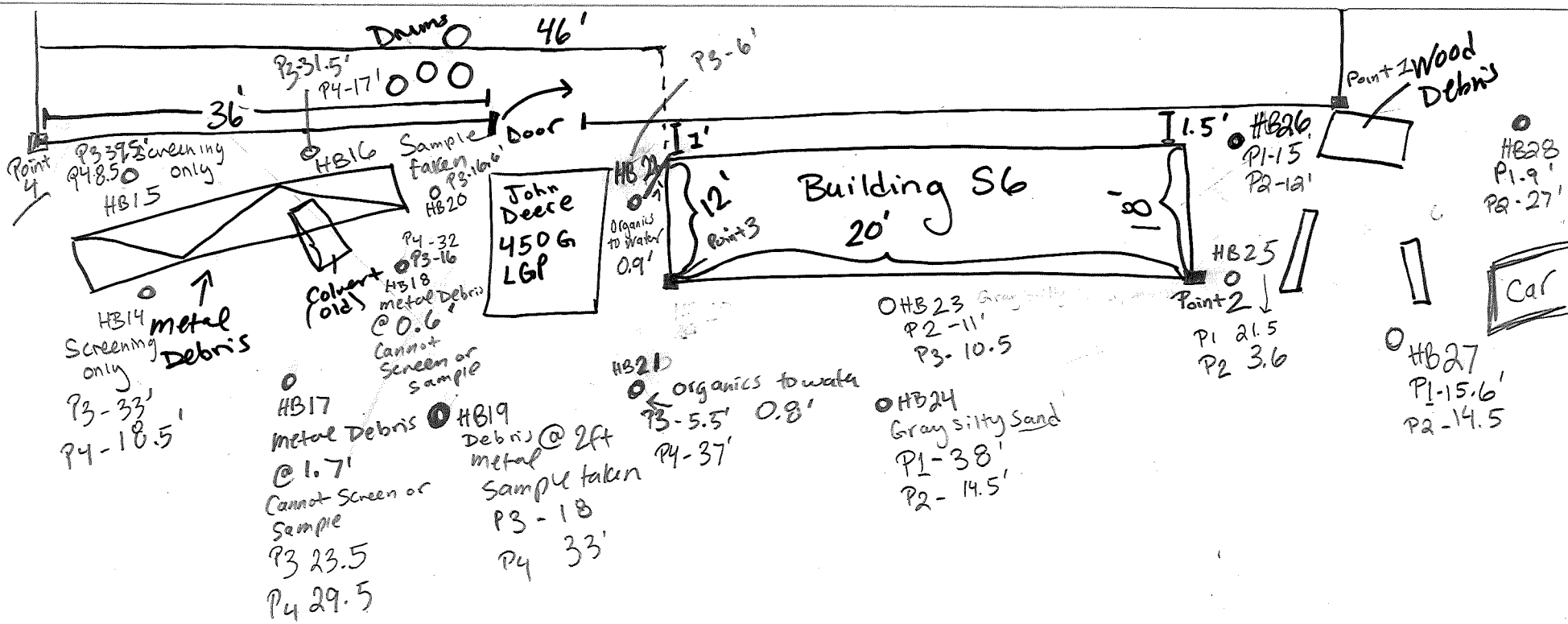
* Not to Scale





*Not to Scale

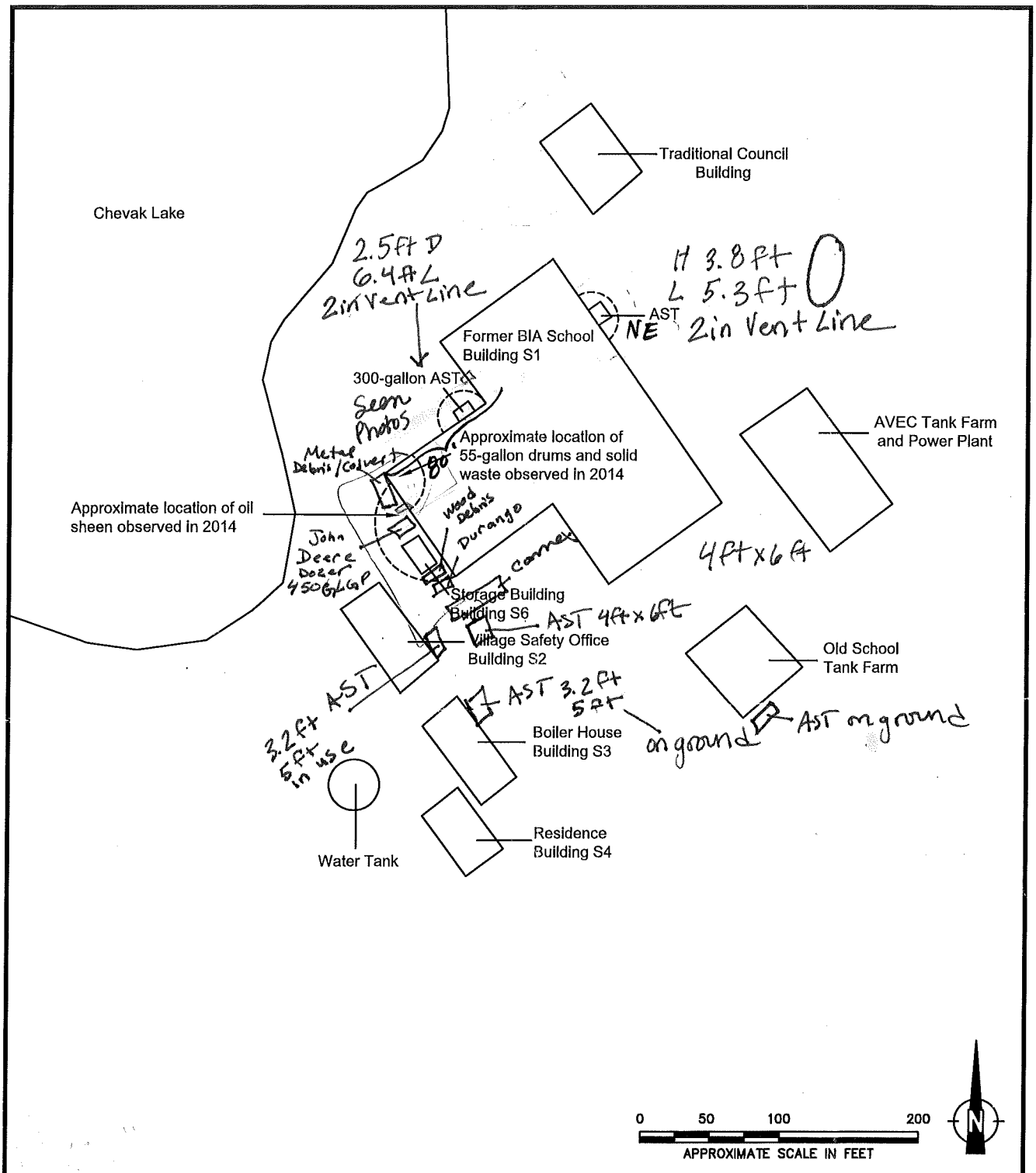
N



*NOT TO SCALE

W
N
S

N



LEGEND

------ Initial Area of Planned Investigation

Old BIA School
Chevak, Alaska

SITE PLAN

August 2017 32-1-20007

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 2

APPENDIX B

SITE PHOTOGRAPHS

Photograph 1: Looking northwest at the AST located along the northeast wall of Building S1. (September 5, 2017)

Photograph 2: Product feed piping. (September 5, 2017)

Photograph 3: Approximately 250-gallon located beneath the western portion of Building S1. (September 5, 2017)

Photograph 4: Piping connected to AST located beneath Building S1. (September 5, 2017)

Photograph 5: Piping associated with a potential former AST located on the northern wall of the western portion of Building S1. (September 5, 2017)

Photograph 6: Product feed piping. (September 5, 2017)

Photograph 7: Looking northeast at Area of Concern 3. Building S6 is in the right side of the photo. (September 6, 2017)

Photograph 8: Looking at the interior of Building S6. (September 5, 2017)

Photograph 9: Containers labeled "corrosive" located beneath the western portion of Building S1. (September 5, 2017)

Photograph 10: 5-gallon bucket with used anti-freeze located beneath the western portion of Building S1. (September 5, 2017)

Photograph 11: Containers labeled “corrosive” located beneath the western portion of Building S1. (September 5, 2017)

Photograph 12: Looking at the location of Surface Sample SS13 which was collected beneath the western portion of Building S1. (September 6, 2017)

APPENDIX C

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 Street Suite 3
Anchorage, AK 99518
(907)433-3246

Report Number: **1176407**

Client Project: **32-1-20007 Old BIA School**

Dear Trevor Crosby,

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: **1176407**
Project Name/Site: **32-1-20007 Old BIA School**
Project Contact: **Trevor Crosby**

Refer to sample receipt form for information on sample condition.

20007-HB7S2 (1176407008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (36.8%) does not meet QC criteria. Sample was analyzed twice and results confirmed.
AK102 - Surrogate recovery for 5a-androstane (159%) does not meet QC criteria due to matrix interference.

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

SGS North America Inc.
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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. 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
20007-HB1S2	1176407001	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB1S202	1176407002	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB2S2	1176407003	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB3S2	1176407004	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB4S2	1176407005	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB5S2	1176407006	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB6S2	1176407007	09/05/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB7S2	1176407008	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB8S3	1176407009	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB9S1	1176407010	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB10S2	1176407011	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-STB1	1176407012	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB10S1	1176407013	09/06/2017	09/08/2017	Soil/Solid (dry weight)

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

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Detectable Results Summary

Client Sample ID: **20007-HB1S2**
Lab Sample ID: 1176407001
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	125	mg/Kg
Ethylbenzene	36.3	ug/Kg
Gasoline Range Organics	1.58J	mg/Kg
o-Xylene	70.8	ug/Kg
P & M -Xylene	102	ug/Kg

Client Sample ID: **20007-HB1S202**
Lab Sample ID: 1176407002
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	144	mg/Kg
Ethylbenzene	39.3	ug/Kg
Gasoline Range Organics	1.35J	mg/Kg
o-Xylene	74.0	ug/Kg
P & M -Xylene	107	ug/Kg

Client Sample ID: **20007-HB2S2**
Lab Sample ID: 1176407003
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	451	mg/Kg
Gasoline Range Organics	1.23J	mg/Kg

Client Sample ID: **20007-HB3S2**
Lab Sample ID: 1176407004
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	79.3	mg/Kg
o-Xylene	12.5J	ug/Kg

Client Sample ID: **20007-HB4S2**
Lab Sample ID: 1176407005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	10.3J	mg/Kg

Client Sample ID: **20007-HB5S2**
Lab Sample ID: 1176407006
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	8.13J	mg/Kg

Client Sample ID: **20007-HB7S2**
Lab Sample ID: 1176407008
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	497	mg/Kg

Client Sample ID: **20007-HB8S3**
Lab Sample ID: 1176407009
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	208	mg/Kg
Gasoline Range Organics	1.89J	mg/Kg

Client Sample ID: **20007-HB9S1**
Lab Sample ID: 1176407010
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	20.0J	mg/Kg
Gasoline Range Organics	0.795J	mg/Kg

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Detectable Results Summary

Client Sample ID: **20007-HB10S2**
Lab Sample ID: 1176407011

Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	41.0	mg/Kg
Gasoline Range Organics	3.38J	mg/Kg

Client Sample ID: **20007-HB10S1**
Lab Sample ID: 1176407013

Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	78.4	mg/Kg
Gasoline Range Organics	0.991J	mg/Kg

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Results of **20007-HB1S2**

Client Sample ID: **20007-HB1S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407001
Lab Project ID: 1176407

Collection Date: 09/05/17 18:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
2-Methylnaphthalene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Acenaphthene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Acenaphthylene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Anthracene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Benzo(a)Anthracene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Benzo[a]pyrene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Benzo[b]Fluoranthene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Benzo[g,h,i]perylene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Benzo[k]fluoranthene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Chrysene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Dibenzo[a,h]anthracene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Fluoranthene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Fluorene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Indeno[1,2,3-c,d] pyrene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Naphthalene	64.5	U	129	38.8	ug/Kg	5		09/15/17 00:07
Phenanthrene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Pyrene	81.0	U	162	48.5	ug/Kg	5		09/15/17 00:07
Surrogates								
2-Methylnaphthalene-d10 (surr)	82		50-150		%	5		09/15/17 00:07
Fluoranthene-d10 (surr)	84.2		50-150		%	5		09/15/17 00:07

Batch Information

Analytical Batch: XMS10400
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/15/17 00:07
Container ID: 1176407001-A

Prep Batch: XXX38387
Prep Method: SW3550C
Prep Date/Time: 09/10/17 12:39
Prep Initial Wt./Vol.: 22.79 g
Prep Extract Vol: 5 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB1S2**

Client Sample ID: **20007-HB1S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407001
Lab Project ID: 1176407

Collection Date: 09/05/17 18:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	125		26.1	8.08	mg/Kg	1		09/13/17 02:48
Surrogates								
5a Androstane (surr)	101		50-150		%	1		09/13/17 02:48

Batch Information

Analytical Batch: XFC13784
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 02:48
Container ID: 1176407001-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.18 g
Prep Extract Vol: 1 mL

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Results of **20007-HB1S2**

Client Sample ID: **20007-HB1S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407001
Lab Project ID: 1176407

Collection Date: 09/05/17 18:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.58	J	3.05	0.916	mg/Kg	1		09/09/17 19:43
Surrogates								
4-Bromofluorobenzene (surr)	117		50-150		%	1		09/09/17 19:43

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 19:43
Container ID: 1176407001-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:15
Prep Initial Wt./Vol.: 109.499 g
Prep Extract Vol: 50.9889 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.65	U	15.3	4.88	ug/Kg	1		09/09/17 19:43
Ethylbenzene	36.3		30.5	9.52	ug/Kg	1		09/09/17 19:43
o-Xylene	70.8		30.5	9.52	ug/Kg	1		09/09/17 19:43
P & M -Xylene	102		61.1	18.3	ug/Kg	1		09/09/17 19:43
Toluene	15.3	U	30.5	9.52	ug/Kg	1		09/09/17 19:43
Surrogates								
1,4-Difluorobenzene (surr)	89.9		72-119		%	1		09/09/17 19:43

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 19:43
Container ID: 1176407001-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:15
Prep Initial Wt./Vol.: 109.499 g
Prep Extract Vol: 50.9889 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB1S202**

Client Sample ID: **20007-HB1S202**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407002
Lab Project ID: 1176407

Collection Date: 09/05/17 19:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):80.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	144		24.8	7.69	mg/Kg	1		09/13/17 02:57
Surrogates								
5a Androstane (surr)	96.2		50-150		%	1		09/13/17 02:57

Batch Information

Analytical Batch: XFC13784
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 02:57
Container ID: 1176407002-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.015 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB1S202**

Client Sample ID: **20007-HB1S202**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407002
Lab Project ID: 1176407

Collection Date: 09/05/17 19:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):80.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.35 J		2.73	0.820	mg/Kg	1		09/09/17 20:02
Surrogates								
4-Bromofluorobenzene (surr)	101		50-150		%	1		09/09/17 20:02

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 20:02
Container ID: 1176407002-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:00
Prep Initial Wt./Vol.: 101.865 g
Prep Extract Vol: 44.8307 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.85 U		13.7	4.37	ug/Kg	1		09/09/17 20:02
Ethylbenzene	39.3		27.3	8.53	ug/Kg	1		09/09/17 20:02
o-Xylene	74.0		27.3	8.53	ug/Kg	1		09/09/17 20:02
P & M -Xylene	107		54.6	16.4	ug/Kg	1		09/09/17 20:02
Toluene	13.7 U		27.3	8.53	ug/Kg	1		09/09/17 20:02
Surrogates								
1,4-Difluorobenzene (surr)	89.8		72-119		%	1		09/09/17 20:02

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 20:02
Container ID: 1176407002-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:00
Prep Initial Wt./Vol.: 101.865 g
Prep Extract Vol: 44.8307 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB2S2**

Client Sample ID: **20007-HB2S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407003
Lab Project ID: 1176407

Collection Date: 09/05/17 18:35
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):73.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	451		134	41.7	mg/Kg	1		09/13/17 03:07
Surrogates								
5a Androstane (surr)	119		50-150		%	1		09/13/17 03:07

Batch Information

Analytical Batch: XFC13784
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 03:07
Container ID: 1176407003-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.323 g
Prep Extract Vol: 5 mL

Results of **20007-HB2S2**

Client Sample ID: **20007-HB2S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407003
Lab Project ID: 1176407

Collection Date: 09/05/17 18:35
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):73.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.23	J	3.87	1.16	mg/Kg	1		09/09/17 20:21
Surrogates								
4-Bromofluorobenzene (surr)	81.7		50-150		%	1		09/09/17 20:21

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 20:21
Container ID: 1176407003-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:35
Prep Initial Wt./Vol.: 81.689 g
Prep Extract Vol: 46.5683 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.70	U	19.4	6.20	ug/Kg	1		09/09/17 20:21
Ethylbenzene	19.4	U	38.7	12.1	ug/Kg	1		09/09/17 20:21
o-Xylene	19.4	U	38.7	12.1	ug/Kg	1		09/09/17 20:21
P & M -Xylene	38.8	U	77.5	23.2	ug/Kg	1		09/09/17 20:21
Toluene	19.4	U	38.7	12.1	ug/Kg	1		09/09/17 20:21
Surrogates								
1,4-Difluorobenzene (surr)	91.5		72-119		%	1		09/09/17 20:21

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 20:21
Container ID: 1176407003-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:35
Prep Initial Wt./Vol.: 81.689 g
Prep Extract Vol: 46.5683 mL

Results of **20007-HB3S2**

Client Sample ID: **20007-HB3S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407004
Lab Project ID: 1176407

Collection Date: 09/05/17 18:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):79.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	79.3		25.1	7.77	mg/Kg	1		09/15/17 21:10
Surrogates								
5a Androstane (surr)	93.2		50-150		%	1		09/15/17 21:10

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:10
Container ID: 1176407004-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.097 g
Prep Extract Vol: 1 mL

Results of **20007-HB3S2**

Client Sample ID: **20007-HB3S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407004
Lab Project ID: 1176407

Collection Date: 09/05/17 18:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):79.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.56	U	3.13	0.940	mg/Kg	1		09/09/17 20:39
Surrogates								
4-Bromofluorobenzene (surr)	89.4		50-150		%	1		09/09/17 20:39

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 20:39
Container ID: 1176407004-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:45
Prep Initial Wt./Vol.: 85.323 g
Prep Extract Vol: 42.502 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.85	U	15.7	5.01	ug/Kg	1		09/09/17 20:39
Ethylbenzene	15.7	U	31.3	9.78	ug/Kg	1		09/09/17 20:39
o-Xylene	12.5	J	31.3	9.78	ug/Kg	1		09/09/17 20:39
P & M -Xylene	31.4	U	62.7	18.8	ug/Kg	1		09/09/17 20:39
Toluene	15.7	U	31.3	9.78	ug/Kg	1		09/09/17 20:39
Surrogates								
1,4-Difluorobenzene (surr)	88		72-119		%	1		09/09/17 20:39

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 20:39
Container ID: 1176407004-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 18:45
Prep Initial Wt./Vol.: 85.323 g
Prep Extract Vol: 42.502 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB4S2**

Client Sample ID: **20007-HB4S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407005
Lab Project ID: 1176407

Collection Date: 09/05/17 19:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.3	J	23.5	7.28	mg/Kg	1		09/15/17 21:20
Surrogates								
5a Androstane (surr)	105		50-150		%	1		09/15/17 21:20

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:20
Container ID: 1176407005-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.193 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB4S2**

Client Sample ID: **20007-HB4S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407005
Lab Project ID: 1176407

Collection Date: 09/05/17 19:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.13	U	2.25	0.674	mg/Kg	1		09/09/17 20:58
Surrogates								
4-Bromofluorobenzene (surr)	104		50-150		%	1		09/09/17 20:58

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 20:58
Container ID: 1176407005-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:05
Prep Initial Wt./Vol.: 109.981 g
Prep Extract Vol: 41.8518 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.60	U	11.2	3.60	ug/Kg	1		09/09/17 20:58
Ethylbenzene	11.3	U	22.5	7.01	ug/Kg	1		09/09/17 20:58
o-Xylene	11.3	U	22.5	7.01	ug/Kg	1		09/09/17 20:58
P & M -Xylene	22.4	U	44.9	13.5	ug/Kg	1		09/09/17 20:58
Toluene	11.3	U	22.5	7.01	ug/Kg	1		09/09/17 20:58
Surrogates								
1,4-Difluorobenzene (surr)	90.2		72-119		%	1		09/09/17 20:58

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 20:58
Container ID: 1176407005-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:05
Prep Initial Wt./Vol.: 109.981 g
Prep Extract Vol: 41.8518 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB5S2**

Client Sample ID: **20007-HB5S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407006
Lab Project ID: 1176407

Collection Date: 09/05/17 19:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.13	J	23.9	7.40	mg/Kg	1		09/15/17 21:29
Surrogates								
5a Androstane (surr)	93.6		50-150		%	1		09/15/17 21:29

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:29
Container ID: 1176407006-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.22 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB5S2**

Client Sample ID: **20007-HB5S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407006
Lab Project ID: 1176407

Collection Date: 09/05/17 19:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25	U	2.49	0.746	mg/Kg	1		09/09/17 21:17
Surrogates								
4-Bromofluorobenzene (surr)	101		50-150		%	1		09/09/17 21:17

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 21:17
Container ID: 1176407006-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:15
Prep Initial Wt./Vol.: 101.93 g
Prep Extract Vol: 42.1767 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.20	U	12.4	3.98	ug/Kg	1		09/09/17 21:17
Ethylbenzene	12.4	U	24.9	7.76	ug/Kg	1		09/09/17 21:17
o-Xylene	12.4	U	24.9	7.76	ug/Kg	1		09/09/17 21:17
P & M -Xylene	24.9	U	49.8	14.9	ug/Kg	1		09/09/17 21:17
Toluene	12.4	U	24.9	7.76	ug/Kg	1		09/09/17 21:17
Surrogates								
1,4-Difluorobenzene (surr)	90.3		72-119		%	1		09/09/17 21:17

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 21:17
Container ID: 1176407006-B

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:15
Prep Initial Wt./Vol.: 101.93 g
Prep Extract Vol: 42.1767 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB6S2**

Client Sample ID: **20007-HB6S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407007
Lab Project ID: 1176407

Collection Date: 09/05/17 19:25
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	12.1	U	24.2	7.49	mg/Kg	1		09/15/17 21:39
Surrogates								
5a Androstane (surr)	88.6		50-150		%	1		09/15/17 21:39

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:39
Container ID: 1176407007-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.265 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB6S2**

Client Sample ID: **20007-HB6S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407007
Lab Project ID: 1176407

Collection Date: 09/05/17 19:25
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.12	U	2.24	0.673	mg/Kg	1		09/10/17 05:23
Surrogates								
4-Bromofluorobenzene (surr)	116		50-150		%	1		09/10/17 05:23

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 05:23
Container ID: 1176407007-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:25
Prep Initial Wt./Vol.: 133.018 g
Prep Extract Vol: 48.9426 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.60	U	11.2	3.59	ug/Kg	1		09/10/17 05:23
Ethylbenzene	11.2	U	22.4	7.00	ug/Kg	1		09/10/17 05:23
o-Xylene	11.2	U	22.4	7.00	ug/Kg	1		09/10/17 05:23
P & M -Xylene	22.4	U	44.9	13.5	ug/Kg	1		09/10/17 05:23
Toluene	11.2	U	22.4	7.00	ug/Kg	1		09/10/17 05:23
Surrogates								
1,4-Difluorobenzene (surr)	89.5		72-119		%	1		09/10/17 05:23

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 05:23
Container ID: 1176407007-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/05/17 19:25
Prep Initial Wt./Vol.: 133.018 g
Prep Extract Vol: 48.9426 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB7S2**

Client Sample ID: **20007-HB7S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407008
Lab Project ID: 1176407

Collection Date: 09/06/17 09:42
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):44.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	497		225	69.7	mg/Kg	1		09/15/17 21:49
Surrogates								
5a Androstane (surr)	159	*	50-150		%	1		09/15/17 21:49

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:49
Container ID: 1176407008-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.009 g
Prep Extract Vol: 5 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB7S2**

Client Sample ID: **20007-HB7S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407008
Lab Project ID: 1176407

Collection Date: 09/06/17 09:42
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):44.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	6.20 U		12.4	3.71	mg/Kg	1		09/12/17 16:04
Surrogates								
4-Bromofluorobenzene (surr)	36.8	*	50-150		%	1		09/12/17 16:04

Batch Information

Analytical Batch: VFC13878
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/12/17 16:04
Container ID: 1176407008-B

Prep Batch: VXX31292
Prep Method: SW5035A
Prep Date/Time: 09/06/17 09:42
Prep Initial Wt./Vol.: 46.126 g
Prep Extract Vol: 50.6307 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	30.9 U		61.8	19.8	ug/Kg	1		09/10/17 05:42
Ethylbenzene	62.0 U		124	38.5	ug/Kg	1		09/10/17 05:42
o-Xylene	62.0 U		124	38.5	ug/Kg	1		09/10/17 05:42
P & M -Xylene	124 U		247	74.1	ug/Kg	1		09/10/17 05:42
Toluene	62.0 U		124	38.5	ug/Kg	1		09/10/17 05:42
Surrogates								
1,4-Difluorobenzene (surr)	87.6		72-119		%	1		09/10/17 05:42

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 05:42
Container ID: 1176407008-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 09:42
Prep Initial Wt./Vol.: 46.126 g
Prep Extract Vol: 50.6307 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB8S3**

Client Sample ID: **20007-HB8S3**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407009
Lab Project ID: 1176407

Collection Date: 09/06/17 10:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):63.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	208		158	49.1	mg/Kg	1		09/15/17 21:58
Surrogates								
5a Androstane (surr)	134		50-150		%	1		09/15/17 21:58

Batch Information

Analytical Batch: XFC13802
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 21:58
Container ID: 1176407009-A

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 09/11/17 16:00
Prep Initial Wt./Vol.: 30.04 g
Prep Extract Vol: 5 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 **20007-HB8S3**

Client Sample ID: **20007-HB8S3**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407009
Lab Project ID: 1176407

Collection Date: 09/06/17 10:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):63.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.89	J	5.69	1.71	mg/Kg	1		09/10/17 06:01
Surrogates								
4-Bromofluorobenzene (surr)	65.1		50-150		%	1		09/10/17 06:01

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 06:01
Container ID: 1176407009-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:00
Prep Initial Wt./Vol.: 71.464 g
Prep Extract Vol: 51.3636 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.3	U	28.5	9.11	ug/Kg	1		09/10/17 06:01
Ethylbenzene	28.4	U	56.9	17.8	ug/Kg	1		09/10/17 06:01
o-Xylene	28.4	U	56.9	17.8	ug/Kg	1		09/10/17 06:01
P & M -Xylene	57.0	U	114	34.2	ug/Kg	1		09/10/17 06:01
Toluene	28.4	U	56.9	17.8	ug/Kg	1		09/10/17 06:01
Surrogates								
1,4-Difluorobenzene (surr)	89.3		72-119		%	1		09/10/17 06:01

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 06:01
Container ID: 1176407009-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:00
Prep Initial Wt./Vol.: 71.464 g
Prep Extract Vol: 51.3636 mL

Results of **20007-HB9S1**

Client Sample ID: **20007-HB9S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407010
Lab Project ID: 1176407

Collection Date: 09/06/17 10:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	20.0	J	23.5	7.27	mg/Kg	1		09/15/17 13:49
Surrogates								
5a Androstane (surr)	92.7		50-150		%	1		09/15/17 13:49

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 13:49
Container ID: 1176407010-A

Prep Batch: XXX38401
Prep Method: SW3550C
Prep Date/Time: 09/12/17 09:49
Prep Initial Wt./Vol.: 30.105 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB9S1**

Client Sample ID: **20007-HB9S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407010
Lab Project ID: 1176407

Collection Date: 09/06/17 10:15
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.795	J	2.61	0.784	mg/Kg	1		09/10/17 06:20
Surrogates								
4-Bromofluorobenzene (surr)	96.2		50-150		%	1		09/10/17 06:20

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 06:20
Container ID: 1176407010-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:15
Prep Initial Wt./Vol.: 85.193 g
Prep Extract Vol: 37.8113 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.55	U	13.1	4.18	ug/Kg	1		09/10/17 06:20
Ethylbenzene	13.1	U	26.1	8.15	ug/Kg	1		09/10/17 06:20
o-Xylene	13.1	U	26.1	8.15	ug/Kg	1		09/10/17 06:20
P & M -Xylene	26.1	U	52.2	15.7	ug/Kg	1		09/10/17 06:20
Toluene	13.1	U	26.1	8.15	ug/Kg	1		09/10/17 06:20
Surrogates								
1,4-Difluorobenzene (surr)	89.2		72-119		%	1		09/10/17 06:20

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 06:20
Container ID: 1176407010-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:15
Prep Initial Wt./Vol.: 85.193 g
Prep Extract Vol: 37.8113 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB10S2**

Client Sample ID: **20007-HB10S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407011
Lab Project ID: 1176407

Collection Date: 09/06/17 10:38
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):58.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	41.0		33.7	10.4	mg/Kg	1		09/13/17 11:55
Surrogates								
5a Androstane (surr)	98.7		50-150		%	1		09/13/17 11:55

Batch Information

Analytical Batch: XFC13789
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/13/17 11:55
Container ID: 1176407011-A

Prep Batch: XXX38401
Prep Method: SW3550C
Prep Date/Time: 09/12/17 09:49
Prep Initial Wt./Vol.: 30.32 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-HB10S2**

Client Sample ID: **20007-HB10S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407011
Lab Project ID: 1176407

Collection Date: 09/06/17 10:38
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):58.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.38 J		7.41	2.22	mg/Kg	1		09/10/17 06:39
Surrogates								
4-Bromofluorobenzene (surr)	84.2		50-150		%	1		09/10/17 06:39

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 06:39
Container ID: 1176407011-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:38
Prep Initial Wt./Vol.: 54.591 g
Prep Extract Vol: 47.5312 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	18.6 U		37.1	11.9	ug/Kg	1		09/10/17 06:39
Ethylbenzene	37.0 U		74.1	23.1	ug/Kg	1		09/10/17 06:39
o-Xylene	37.0 U		74.1	23.1	ug/Kg	1		09/10/17 06:39
P & M -Xylene	74.0 U		148	44.5	ug/Kg	1		09/10/17 06:39
Toluene	37.0 U		74.1	23.1	ug/Kg	1		09/10/17 06:39
Surrogates								
1,4-Difluorobenzene (surr)	88.6		72-119		%	1		09/10/17 06:39

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 06:39
Container ID: 1176407011-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:38
Prep Initial Wt./Vol.: 54.591 g
Prep Extract Vol: 47.5312 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Results of **20007-STB1**

Client Sample ID: **20007-STB1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407012
Lab Project ID: 1176407

Collection Date: 09/06/17 20:10
Received Date: 09/08/17 09:41
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	1.25	U	2.50	0.751	mg/Kg	1		09/09/17 14:43
Surrogates								
4-Bromofluorobenzene (surr)	81.7		50-150		%	1		09/09/17 14:43

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 14:43
Container ID: 1176407012-A

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/06/17 20:10
Prep Initial Wt./Vol.: 49.926 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.25	U	12.5	4.01	ug/Kg	1		09/09/17 14:43
Ethylbenzene	12.5	U	25.0	7.81	ug/Kg	1		09/09/17 14:43
o-Xylene	12.5	U	25.0	7.81	ug/Kg	1		09/09/17 14:43
P & M -Xylene	25.1	U	50.1	15.0	ug/Kg	1		09/09/17 14:43
Toluene	12.5	U	25.0	7.81	ug/Kg	1		09/09/17 14:43
Surrogates								
1,4-Difluorobenzene (surr)	90.7		72-119		%	1		09/09/17 14:43

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 14:43
Container ID: 1176407012-A

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 09/06/17 20:10
Prep Initial Wt./Vol.: 49.926 g
Prep Extract Vol: 25 mL

Results of **20007-HB10S1**

Client Sample ID: **20007-HB10S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407013
Lab Project ID: 1176407

Collection Date: 09/06/17 10:30
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	78.4		24.2	7.51	mg/Kg	1		09/13/17 12:04
Surrogates								
5a Androstane (surr)	97.5		50-150		%	1		09/13/17 12:04

Batch Information

Analytical Batch: XFC13789
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/13/17 12:04
Container ID: 1176407013-A

Prep Batch: XXX38401
Prep Method: SW3550C
Prep Date/Time: 09/12/17 09:49
Prep Initial Wt./Vol.: 30.172 g
Prep Extract Vol: 1 mL

Results of **20007-HB10S1**

Client Sample ID: **20007-HB10S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176407013
Lab Project ID: 1176407

Collection Date: 09/06/17 10:30
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.991	J	2.96	0.889	mg/Kg	1		09/10/17 06:58
Surrogates								
4-Bromofluorobenzene (surr)	90.6		50-150		%	1		09/10/17 06:58

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 06:58
Container ID: 1176407013-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:30
Prep Initial Wt./Vol.: 81.108 g
Prep Extract Vol: 39.493 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.40	U	14.8	4.74	ug/Kg	1		09/10/17 06:58
Ethylbenzene	14.8	U	29.6	9.25	ug/Kg	1		09/10/17 06:58
o-Xylene	14.8	U	29.6	9.25	ug/Kg	1		09/10/17 06:58
P & M -Xylene	29.6	U	59.3	17.8	ug/Kg	1		09/10/17 06:58
Toluene	14.8	U	29.6	9.25	ug/Kg	1		09/10/17 06:58
Surrogates								
1,4-Difluorobenzene (surr)	89.7		72-119		%	1		09/10/17 06:58

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 06:58
Container ID: 1176407013-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:30
Prep Initial Wt./Vol.: 81.108 g
Prep Extract Vol: 39.493 mL

Print Date: 09/18/2017 11:32:09AM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1768041 [SPT/10302]
Blank Lab ID: 1411746

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407001, 1176407002, 1176407003, 1176407004, 1176407005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10302
Analytical Method: SM21 2540G
Instrument:
Analyst: S.D
Analytical Date/Time: 9/10/2017 3:48:00PM

Duplicate Sample Summary

Original Sample ID: 1176437001
Duplicate Sample ID: 1411747
Analysis Date: 09/10/2017 15:48
Matrix: Soil/Solid (dry weight)

QC for Samples:

1176407001, 1176407002, 1176407003, 1176407004, 1176407005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	89.9	89.1	%	0.89	(< 15)

Batch Information

Analytical Batch: SPT10302
Analytical Method: SM21 2540G
Instrument:
Analyst: S.D

Print Date: 09/18/2017 11:32:13AM

Method Blank

Blank ID: MB for HBN 1768141 [SPT/10303]
Blank Lab ID: 1412093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407006, 1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10303
Analytical Method: SM21 2540G
Instrument:
Analyst: NIC
Analytical Date/Time: 9/11/2017 4:18:00PM

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Duplicate Sample Summary

Original Sample ID: 1176419001
Duplicate Sample ID: 1412094
Analysis Date: 09/11/2017 16:18
Matrix: Soil/Solid (dry weight)

QC for Samples:

1176407006, 1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	96.9	96.9	%	0.07	(< 15)

Batch Information

Analytical Batch: SPT10303
Analytical Method: SM21 2540G
Instrument:
Analyst: NIC

Print Date: 09/18/2017 11:32:17AM

Method Blank

Blank ID: MB for HBN 1768034 [VXX/31259]
Blank Lab ID: 1411670

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407012

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	87.6	50-150		%

Batch Information

Analytical Batch: VFC13870
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 1:47:00PM

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176407 [VXX31259]
Blank Spike Lab ID: 1411673
Date Analyzed: 09/09/2017 12:52

Spike Duplicate ID: LCSD for HBN 1176407 [VXX31259]
Spike Duplicate Lab ID: 1411674
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407012

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	12.7	101	12.5	12.3	99	(60-120)	2.50	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	92.8	93	1.25	93.2	93	(50-150)	0.43	

Batch Information

Analytical Batch: **VFC13870**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31259**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 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

Method Blank

Blank ID: MB for HBN 1768034 [VXX/31259]
Blank Lab ID: 1411670

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407012

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	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
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	91.6	72-119		%

Batch Information

Analytical Batch: VFC13870
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 1:47:00PM

Prep Batch: VXX31259
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 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 1176407 [VXX31259]
Blank Spike Lab ID: 1411671
Date Analyzed: 09/09/2017 12:14

Spike Duplicate ID: LCSD for HBN 1176407 [VXX31259]
Spike Duplicate Lab ID: 1411672
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407012

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1230	98	1250	1210	96	(75-125)	1.60	(< 20)
Ethylbenzene	1250	1190	95	1250	1180	94	(75-125)	1.20	(< 20)
o-Xylene	1250	1160	93	1250	1140	91	(75-125)	1.70	(< 20)
P & M -Xylene	2500	2330	93	2500	2300	92	(80-125)	1.20	(< 20)
Toluene	1250	1220	98	1250	1200	96	(70-125)	1.60	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	95.2	95	1250	95.3	95	(72-119)	0.08	

Batch Information

Analytical Batch: **VFC13870**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31259**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1768035 [VXX/31260]
Blank Lab ID: 1411675

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	90.7	50-150		%

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 11:28:00PM

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176407 [VXX31260]
Blank Spike Lab ID: 1411678
Date Analyzed: 09/09/2017 22:32

Spike Duplicate ID: LCSD for HBN 1176407 [VXX31260]
Spike Duplicate Lab ID: 1411679
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

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	12.2	98	12.5	12.8	102	(60-120)	4.70	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	99.5	100	1.25	90.8	91	(50-150)	9.10	

Batch Information

Analytical Batch: **VFC13871**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31260**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 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 1768035 [VXX/31260]
Blank Lab ID: 1411675

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	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
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	91.3	72-119		%

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 11:28:00PM

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 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 1176407 [VXX31260]
Blank Spike Lab ID: 1411676
Date Analyzed: 09/09/2017 21:54

Spike Duplicate ID: LCSD for HBN 1176407 [VXX31260]
Spike Duplicate Lab ID: 1411677
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1230	98	1250	1200	96	(75-125)	2.40	(< 20)
Ethylbenzene	1250	1200	96	1250	1180	94	(75-125)	2.30	(< 20)
o-Xylene	1250	1170	94	1250	1150	92	(75-125)	2.10	(< 20)
P & M -Xylene	2500	2350	94	2500	2300	92	(80-125)	2.40	(< 20)
Toluene	1250	1230	98	1250	1200	96	(70-125)	2.50	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	94.6	95	1250	95.2	95	(72-119)	0.65	

Batch Information

Analytical Batch: **VFC13871**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31260**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1176408005
MS Sample ID: 1411680 MS
MSD Sample ID: 1411681 MSD

Analysis Date: 09/10/2017 1:58
Analysis Date: 09/10/2017 2:17
Analysis Date: 09/10/2017 2:35
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407007, 1176407008, 1176407009, 1176407010, 1176407011, 1176407013

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	8.05U	1107	1025	93	1107	1025	93	75-125	0.09	(< 20)
Ethylbenzene	16.1U	1107	1066	96	1107	1067	96	75-125	0.12	(< 20)
o-Xylene	16.1U	1107	1046	94	1107	1049	95	75-125	0.38	(< 20)
P & M -Xylene	32.1U	2209	2101	95	2209	2113	95	80-125	0.25	(< 20)
Toluene	16.1U	1107	1076	97	1107	1077	97	70-125	0.08	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1107	1025	93	1107	1019	92	72-119	0.56	

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/10/2017 2:17:00AM

Prep Batch: VXX31260
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 67.76g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1768311 [VXX/31292]
Blank Lab ID: 1412869

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	86.9	50-150		%

Batch Information

Analytical Batch: VFC13878
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/12/2017 2:47:00PM

Prep Batch: VXX31292
Prep Method: SW5035A
Prep Date/Time: 9/12/2017 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 1176407 [VXX31292]
Blank Spike Lab ID: 1412872
Date Analyzed: 09/12/2017 13:50

Spike Duplicate ID: LCSD for HBN 1176407 [VXX31292]
Spike Duplicate Lab ID: 1412873
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407008

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	13.5	108	12.5	13.6	109	(60-120)	0.17	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	85.9	86	1.25	88.5	89	(50-150)	3.00	

Batch Information

Analytical Batch: **VFC13878**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX31292**
Prep Method: **SW5035A**
Prep Date/Time: **09/12/2017 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

Method Blank

Blank ID: MB for HBN 1768036 [XXX/38387]
Blank Lab ID: 1411682

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407001

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-Methylnaphthalene-d10 (surr)	85.8	50-150		%
Fluoranthene-d10 (surr)	86.7	50-150		%

Batch Information

Analytical Batch: XMS10400
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/14/2017 4:36:00PM

Prep Batch: XXX38387
Prep Method: SW3550C
Prep Date/Time: 9/10/2017 12:39:07PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176407 [XXX38387]
Blank Spike Lab ID: 1411683
Date Analyzed: 09/14/2017 16:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407001

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	90.0	81	(43-111)
2-Methylnaphthalene	111	84.3	76	(39-114)
Acenaphthene	111	113	101	(44-111)
Acenaphthylene	111	90.4	81	(39-116)
Anthracene	111	93.7	84	(50-114)
Benzo(a)Anthracene	111	93.0	84	(54-122)
Benzo[a]pyrene	111	91.6	83	(50-125)
Benzo[b]Fluoranthene	111	93.7	84	(53-128)
Benzo[g,h,i]perylene	111	94.0	85	(49-127)
Benzo[k]fluoranthene	111	95.5	86	(56-123)
Chrysene	111	97.4	88	(57-118)
Dibenzo[a,h]anthracene	111	91.7	83	(50-129)
Fluoranthene	111	94.6	85	(55-119)
Fluorene	111	92.7	83	(47-114)
Indeno[1,2,3-c,d] pyrene	111	93.6	84	(49-130)
Naphthalene	111	84.4	76	(38-111)
Phenanthrene	111	91.4	82	(49-113)
Pyrene	111	98.7	89	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	82.5	83	(50-150)
Fluoranthene-d10 (surr)	111	85.7	86	(50-150)

Batch Information

Analytical Batch: **XMS10400**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX38387**
Prep Method: **SW3550C**
Prep Date/Time: **09/10/2017 12:39**
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: 1178331003
MS Sample ID: 1411684 MS
MSD Sample ID: 1411685 MSD

QC for Samples: 1176407001

Analysis Date: 09/14/2017 17:58
Analysis Date: 09/14/2017 18:18
Analysis Date: 09/14/2017 18:39
Matrix: Soil/Solid (dry weight)

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	14.3U	128	106	83	126	107	85	43-111	1.10	(< 20)
2-Methylnaphthalene	14.3U	128	99.3	77	126	99.9	79	39-114	0.55	(< 20)
Acenaphthene	14.3U	128	131	102	126	131	103	44-111	0.15	(< 20)
Acenaphthylene	14.3U	128	107	84	126	108	85	39-116	0.40	(< 20)
Anthracene	14.3U	128	114	89	126	112	89	50-114	1.50	(< 20)
Benzo(a)Anthracene	14.3U	128	110	86	126	109	87	54-122	0.95	(< 20)
Benzo[a]pyrene	14.3U	128	109	85	126	108	85	50-125	0.87	(< 20)
Benzo[b]Fluoranthene	14.3U	128	109	85	126	110	87	53-128	1.20	(< 20)
Benzo[g,h,i]perylene	14.3U	128	107	84	126	106	84	49-127	1.50	(< 20)
Benzo[k]fluoranthene	14.3U	128	111	87	126	108	85	56-123	2.70	(< 20)
Chrysene	14.3U	128	113	88	126	111	88	57-118	1.70	(< 20)
Dibenzo[a,h]anthracene	14.3U	128	106	83	126	105	83	50-129	0.72	(< 20)
Fluoranthene	14.3U	128	110	86	126	108	85	55-119	1.80	(< 20)
Fluorene	14.3U	128	109	85	126	111	88	47-114	1.60	(< 20)
Indeno[1,2,3-c,d] pyrene	14.3U	128	108	84	126	107	84	49-130	0.78	(< 20)
Naphthalene	11.4U	128	99.1	77	126	101	80	38-111	1.50	(< 20)
Phenanthrene	14.3U	128	109	85	126	106	84	49-113	2.20	(< 20)
Pyrene	14.3U	128	116	90	126	113	90	55-117	2.20	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		128	112	87	126	109	87	50-150	2.00	
Fluoranthene-d10 (surr)		128	113	88	126	111	88	50-150	1.60	

Batch Information

Analytical Batch: XMS10400
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/14/2017 6:18:00PM

Prep Batch: XXX38387
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/10/2017 12:39:07PM
Prep Initial Wt./Vol.: 22.56g
Prep Extract Vol: 5.00mL

Print Date: 09/18/2017 11:32:38AM

Method Blank

Blank ID: MB for HBN 1768093 [XXX/38395]
Blank Lab ID: 1412000

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407007, 1176407008, 1176407009

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	97.5	60-120		%

Batch Information

Analytical Batch: XFC13784
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: JMG
Analytical Date/Time: 9/13/2017 1:40:00AM

Prep Batch: XXX38395
Prep Method: SW3550C
Prep Date/Time: 9/11/2017 4:00:45PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:32:39AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176407 [XXX38395]
Blank Spike Lab ID: 1412001
Date Analyzed: 09/13/2017 01:49

Spike Duplicate ID: LCSD for HBN 1176407 [XXX38395]
Spike Duplicate Lab ID: 1412002
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407001, 1176407002, 1176407003, 1176407004, 1176407005, 1176407006, 1176407007, 1176407008, 1176407009

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	156	94	167	165	99	(75-125)	5.10	(< 20)
Surrogates									
5a Androstane (surr)	3.33	106	106	3.33	110	110	(60-120)	3.70	

Batch Information

Analytical Batch: **XFC13784**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **JMG**

Prep Batch: **XXX38395**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2017 16:00**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1768147 [XXX/38401]
Blank Lab ID: 1412114

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176407010, 1176407011, 1176407013

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	101	60-120		%

Batch Information

Analytical Batch: XFC13789
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: KMD
Analytical Date/Time: 9/13/2017 11:16:00AM

Prep Batch: XXX38401
Prep Method: SW3550C
Prep Date/Time: 9/12/2017 9:49:16AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176407 [XXX38401]
Blank Spike Lab ID: 1412115
Date Analyzed: 09/13/2017 11:26

Spike Duplicate ID: LCSD for HBN 1176407 [XXX38401]
Spike Duplicate Lab ID: 1412116
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176407010, 1176407011, 1176407013

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	184	110	167	182	109	(75-125)	0.99	(< 20)
Surrogates									
5a Androstane (surr)	3.33	119	119	3.33	117	117	(60-120)	1.70	

Batch Information

Analytical Batch: **XFC13789**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **KMD**

Prep Batch: **XXX38401**
Prep Method: **SW3550C**
Prep Date/Time: **09/12/2017 09:49**
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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1176407

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

Laboratory SGS

Attn: TORI

400 N. 34th Street, Suite 100
Seattle, WA 98103
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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	GRO/AK101	BTEX/8021B	DRO/AK102	PAHs/8270D SIM			Total Number of Containers	Remarks/Matrix
20007-HB1S2	1 A-B	18:15	9/5/17		✓	✓	✓	✓	✓				Soil
-HB1S202	2 A-B	19:00	9/5/17		✓	✓	✓	✓					
HB2S2	3 A-B	18:35	9/5/17		✓	✓	✓	✓					
HB3S2	4 A-B	1845	9/5/17		✓	✓	✓	✓					
HB4S2	5 A-B	1905	9/5/17		✓	✓	✓	✓					
HB5S2	6 A-B	1915	9/5/17		✓	✓	✓	✓					
HB6S2	7 A-B	1925	9/5/17		✓	✓	✓	✓					
HB7S2	8 A-B	942	9/6/17		✓	✓	✓	✓					
HB8S3	9 A-B	1000	9/6/17		✓	✓	✓	✓					
HB9S1	10 A-B	1015	9/6/17		✓	✓	✓	✓					

Project Information		Sample Receipt	
Project Number:	32-1-20007	Total Number of Containers	
Project Name:	OLD BIA School	Chain of Custody Seal Intact? Y/N/NA	
Contact:	DPM, ADV, TWC	Received Good Cond./Cold	
Ongoing Project?	Yes ☒ No ☐	Delivery Method:	
Sampler:	ADV/TWC	(attach shipping bill, if any)	

Instructions	
Requested Turnaround Time:	Standard - 10 day
Special Instructions:	~~Standard~~ ADV Level 2 Data Deliverables

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1015	Signature: Time:	Signature: Time: 0941
Printed Name: Date: 9/7/17	Printed Name: Date:	Printed Name: Date: 9/8/17
Trevor Crosby		Trevor Crosby
Company:	Company:	Company: SW

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time: 0845	Signature: Time: 0941
Printed Name: Date:	Printed Name: Date: 9/8/17	Printed Name: Date: 9/8/17
	Trevor Crosby	Carl Stipe
Company: Hand del.	Company:	Company: SGS

Courier - custody seal intact

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

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F-19-91/UR

1-G D40
CS: IF

No. 35441

1176407

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: TOR1

400 N. 34th Street, Suite 100
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(509) 946-6309

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO/AK101	BTEX/8021B	DRO/AK102	PAHs/8270D SIM			Total Number of Containers	Remarks/Matrix
20007-HB10S2	(11) A-B	1038	9/6/17		✓	✓	✓	✓					Soil
↓ -STB1	(12) A	2010	↓			✓	✓						Trip Blank
20007-HB10S1	(13) AB	1030	9/6/17			✓	✓	✓					added per TWC VLP 9/8/17
				•									
.	.												

Project Information	Sample Receipt
Project Number: 32-1-20007	Total Number of Containers: 11.0
Project Name: OLD BIA SCHOOL - CHEVAK	COC Seals/Intact? Y/N/NA: NF
Contact: DPM, ADV/TWC	Received Good Cond./Cold: 1.6
Ongoing Project? Yes ☑ No ☐	Delivery Method: 040
Sampler: ADV/TWC	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: Standard - 10day
Special Instructions: Level 2 Data Deliverables

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1015	Signature: Time:	Signature: Time: 0941
Printed Name: Trevor Crosby Date: 9/7/17	Printed Name: Date:	Printed Name: Trevor Crosby Date: 9/8/17
Company: SWI	Company:	Company: SWI

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time: 0845	Signature: Time: 0941
Printed Name: Date:	Printed Name: Trevor Crosby Date: 9/8/17	Printed Name: Carl Stipe Date: 9/8/17
Company:	Company: SWI	Company: SGS

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

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F-19-91/UR

No. 35442

e-Sample Receipt Form

SGS Workorder #: **1176407**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1 Front
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 @ 1.6 °C Therm. ID: D40
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		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)?	No	**Sample 13 "20007-HB10S1" jars received and were not written on COC. Run per client request.**
**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?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
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
1176407001-A	No Preservative Required	OK			
1176407001-B	Methanol field pres. 4 C	OK			
1176407002-A	No Preservative Required	OK			
1176407002-B	Methanol field pres. 4 C	OK			
1176407003-A	No Preservative Required	OK			
1176407003-B	Methanol field pres. 4 C	OK			
1176407004-A	No Preservative Required	OK			
1176407004-B	Methanol field pres. 4 C	OK			
1176407005-A	No Preservative Required	OK			
1176407005-B	Methanol field pres. 4 C	OK			
1176407006-A	No Preservative Required	OK			
1176407006-B	Methanol field pres. 4 C	OK			
1176407007-A	No Preservative Required	OK			
1176407007-B	Methanol field pres. 4 C	OK			
1176407008-A	No Preservative Required	OK			
1176407008-B	Methanol field pres. 4 C	OK			
1176407009-A	No Preservative Required	OK			
1176407009-B	Methanol field pres. 4 C	OK			
1176407010-A	No Preservative Required	OK			
1176407010-B	Methanol field pres. 4 C	OK			
1176407011-A	No Preservative Required	OK			
1176407011-B	Methanol field pres. 4 C	OK			
1176407012-A	Methanol field pres. 4 C	OK			
1176407013-A	No Preservative Required	OK			
1176407013-B	Methanol field pres. 4 C	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

CS Report Name: Old BIA School
Chevak, Alaska

Date: January 2018

Laboratory Report Date: September 18, 2017

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Alena Voigt
Title: Environmental Scientist
Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1176407
ADEC File Number: 2409.57.001

(**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.*

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 blank was 1.6° C.*

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)? **Yes / No / NA** (please explain)
Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)? **Yes / No / NA** (please explain)
Comments:

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: *Sample 13 "20007-HB10S1" sample jars were received and not written on the COC. Ran per client's request.*

e. Data quality or usability affected? **Yes / No / NA**
Comments:

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:

- *For sample 20007-HB7S2 the Surrogate recovery for 4-bromofluorobenzene (36.8%) does not meet QC criteria. Sample was analyzed twice and results confirmed.*
- *For sample 20007-HB7S2 the Surrogate recovery for 5a-androstane (159%) does not meet QC criteria due to matrix interference.*

c. Were corrective actions documented? **Yes / No / NA** (please explain)
Comments: *Corrective actions were not noted.*

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

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? **NA** Please explain.
Comments:

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

If so, are the data flags clearly defined? **Yes / No / NA**
Comments:

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

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA** (please explain)
Comments: *Metals/inorganics were not analyzed.*

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%, VOCs 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:

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

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: *For Sample HP7S2 the surrogate recovery for 4-bromofluorobenzene and 5a-androstane do not meet the QC criteria.*

iii. Do the sample results with failed surrogate recoveries have data flags? **Yes / No / NA** (please explain)
Comments: *For Sample HP7S2 the GRO results are considered biased low and flagged "J-" and the DRO results are considered biased high and flagged "J+" on Table 2 of the report.*

iv. If so, are the data flags clearly defined? **Yes / No / NA** (please explain)
Comments: *See above.*

v. Data quality or usability affected? Please explain. **Yes / No / NA**
Comments: See above.

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:

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: *Only one cooler was used to transport the volatile samples and trip blank.*

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

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

v. Data quality or usability affected? Please explain.
Comments:

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA (please explain)
Comments: *The field duplicate set is HB1S2/HB1S202.*

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:

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

f. Decontamination or Equipment Blank (if not applicable)
Yes / No / NA (please explain)

Comments: *An 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 above LOQ, what samples are affected? ***NA***
Comments:

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

Work Order Number: 1176407

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

a. Defined and appropriate? **Yes / No / NA** (please explain)

Comments: L*aboratory-specific qualifiers are defined on page 3 of the laboratory report.*

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks Street Suite 3
Anchorage, AK 99518
(907)433-3246

Report Number: **1176408**

Client Project: **32-1-20007 Old BIA School**

Dear Trevor Crosby,

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
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Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1176408**
Project Name/Site: **32-1-20007 Old BIA School**
Project Contact: **Trevor Crosby**

Refer to sample receipt form for information on sample condition.

1176443005MS (1412038) MS

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

1176443005MSD (1412039) MSD

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

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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1176408002	20007-HB11S1	XMS10396	Benzo[k]fluoranthene	RP
1176443005	LABREFQC	XMS10396	Benzo[k]fluoranthene	BLC

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: 09/18/2017 11:34:38AM

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
20007-SS	1176408001	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB11S1	1176408002	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB11S101	1176408003	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB12S2	1176408004	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB16S2	1176408005	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB19S1	1176408006	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB20S2	1176408007	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB24S2	1176408008	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB25S2	1176408009	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB26S2	1176408010	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB27S2	1176408011	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB28S2	1176408012	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-HB26S303	1176408013	09/06/2017	09/08/2017	Soil/Solid (dry weight)
20007-STB2	1176408014	09/06/2017	09/08/2017	Soil/Solid (dry weight)

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

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Detectable Results Summary

Client Sample ID: **20007-SS**
Lab Sample ID: 1176408001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	65.3	mg/Kg

Client Sample ID: **20007-HB11S1**
Lab Sample ID: 1176408002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	347	ug/Kg
	2-Methylnaphthalene	266	ug/Kg
	Acenaphthene	142	ug/Kg
	Anthracene	132	ug/Kg
	Benzo(a)Anthracene	125	ug/Kg
	Benzo[a]pyrene	54.8	ug/Kg
	Benzo[b]Fluoranthene	104	ug/Kg
	Benzo[g,h,i]perylene	19.5J	ug/Kg
	Benzo[k]fluoranthene	30.4	ug/Kg
	Chrysene	119	ug/Kg
	Fluoranthene	653	ug/Kg
	Fluorene	167	ug/Kg
	Indeno[1,2,3-c,d] pyrene	18.3J	ug/Kg
	Naphthalene	433	ug/Kg
	Phenanthrene	846	ug/Kg
	Pyrene	514	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	318	mg/Kg
Volatile Fuels	Ethylbenzene	22.4J	ug/Kg
	Gasoline Range Organics	3.90	mg/Kg
	o-Xylene	131	ug/Kg
	P & M -Xylene	95.7	ug/Kg

Client Sample ID: **20007-HB11S101**
Lab Sample ID: 1176408003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	211	mg/Kg
Volatile Fuels	Ethylbenzene	13.8J	ug/Kg
	Gasoline Range Organics	3.15	mg/Kg
	o-Xylene	100	ug/Kg
	P & M -Xylene	78.8	ug/Kg

Client Sample ID: **20007-HB12S2**
Lab Sample ID: 1176408004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	13.0J	mg/Kg
Volatile Fuels	o-Xylene	33.4J	ug/Kg

Client Sample ID: **20007-HB16S2**
Lab Sample ID: 1176408005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	27.6	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.27J	mg/Kg

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Detectable Results Summary

Client Sample ID: **20007-HB19S1**
Lab Sample ID: 1176408006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	34.6	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.95J	mg/Kg

Client Sample ID: **20007-HB20S2**
Lab Sample ID: 1176408007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	99.1J	mg/Kg

Client Sample ID: **20007-HB24S2**
Lab Sample ID: 1176408008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	14.2J	mg/Kg

Client Sample ID: **20007-HB25S2**
Lab Sample ID: 1176408009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	65.2J	mg/Kg

Client Sample ID: **20007-HB26S2**
Lab Sample ID: 1176408010

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	759	ug/Kg
	2-Methylnaphthalene	793	ug/Kg
	Fluoranthene	124J	ug/Kg
	Naphthalene	7660	ug/Kg
	Phenanthrene	132J	ug/Kg
	Pyrene	100J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	84.1J	mg/Kg
Volatile Fuels	Ethylbenzene	23.9J	ug/Kg
	o-Xylene	24.3J	ug/Kg
	P & M -Xylene	32.4J	ug/Kg

Client Sample ID: **20007-HB27S2**
Lab Sample ID: 1176408011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	93.1J	mg/Kg

Client Sample ID: **20007-HB28S2**
Lab Sample ID: 1176408012

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	20.7J	mg/Kg

Client Sample ID: **20007-HB26S303**
Lab Sample ID: 1176408013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	281	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.49J	mg/Kg
	o-Xylene	20.8J	ug/Kg

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Results of **20007-SS**

Client Sample ID: **20007-SS**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408001
Lab Project ID: 1176408

Collection Date: 09/06/17 12:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):72.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	65.3		27.5	8.51	mg/Kg	1		09/15/17 15:36
Surrogates								
5a Androstane (surr)	95.5		50-150		%	1		09/15/17 15:36

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 15:36
Container ID: 1176408001-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.157 g
Prep Extract Vol: 1 mL

Results of **20007-SS**

Client Sample ID: **20007-SS**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408001
Lab Project ID: 1176408

Collection Date: 09/06/17 12:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):72.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.98	U	3.95	1.19	mg/Kg	1		09/10/17 00:05
Surrogates								
4-Bromofluorobenzene (surr)	83.4		50-150		%	1		09/10/17 00:05

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 00:05
Container ID: 1176408001-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 12:45
Prep Initial Wt./Vol.: 84.009 g
Prep Extract Vol: 48.1278 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.90	U	19.8	6.32	ug/Kg	1		09/10/17 00:05
Ethylbenzene	19.8	U	39.5	12.3	ug/Kg	1		09/10/17 00:05
o-Xylene	19.8	U	39.5	12.3	ug/Kg	1		09/10/17 00:05
P & M -Xylene	39.5	U	79.1	23.7	ug/Kg	1		09/10/17 00:05
Toluene	19.8	U	39.5	12.3	ug/Kg	1		09/10/17 00:05
Surrogates								
1,4-Difluorobenzene (surr)	87.9		72-119		%	1		09/10/17 00:05

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 00:05
Container ID: 1176408001-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 12:45
Prep Initial Wt./Vol.: 84.009 g
Prep Extract Vol: 48.1278 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB11S1**

Client Sample ID: **20007-HB11S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408002
Lab Project ID: 1176408

Collection Date: 09/06/17 10:50
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	347		30.3	9.10	ug/Kg	1		09/12/17 18:27
2-Methylnaphthalene	266		30.3	9.10	ug/Kg	1		09/12/17 18:27
Acenaphthene	142		30.3	9.10	ug/Kg	1		09/12/17 18:27
Acenaphthylene	15.2	U	30.3	9.10	ug/Kg	1		09/12/17 18:27
Anthracene	132		30.3	9.10	ug/Kg	1		09/12/17 18:27
Benzo(a)Anthracene	125		30.3	9.10	ug/Kg	1		09/12/17 18:27
Benzo[a]pyrene	54.8		30.3	9.10	ug/Kg	1		09/12/17 18:27
Benzo[b]Fluoranthene	104		30.3	9.10	ug/Kg	1		09/12/17 18:27
Benzo[g,h,i]perylene	19.5	J	30.3	9.10	ug/Kg	1		09/12/17 18:27
Benzo[k]fluoranthene	30.4		30.3	9.10	ug/Kg	1		09/12/17 18:27
Chrysene	119		30.3	9.10	ug/Kg	1		09/12/17 18:27
Dibenzo[a,h]anthracene	15.2	U	30.3	9.10	ug/Kg	1		09/12/17 18:27
Fluoranthene	653		30.3	9.10	ug/Kg	1		09/12/17 18:27
Fluorene	167		30.3	9.10	ug/Kg	1		09/12/17 18:27
Indeno[1,2,3-c,d] pyrene	18.3	J	30.3	9.10	ug/Kg	1		09/12/17 18:27
Naphthalene	433		24.3	7.28	ug/Kg	1		09/12/17 18:27
Phenanthrene	846		60.7	18.2	ug/Kg	2		09/14/17 00:41
Pyrene	514		30.3	9.10	ug/Kg	1		09/12/17 18:27
Surrogates								
2-Methylnaphthalene-d10 (surr)	78.4		50-150		%	1		09/12/17 18:27
Fluoranthene-d10 (surr)	80.7		50-150		%	1		09/12/17 18:27

Batch Information

Analytical Batch: XMS10399
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/14/17 00:41
Container ID: 1176408002-A

Prep Batch: XXX38396
Prep Method: SW3550C
Prep Date/Time: 09/11/17 17:30
Prep Initial Wt./Vol.: 22.619 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS10396
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/12/17 18:27
Container ID: 1176408002-A

Prep Batch: XXX38396
Prep Method: SW3550C
Prep Date/Time: 09/11/17 17:30
Prep Initial Wt./Vol.: 22.619 g
Prep Extract Vol: 5 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB11S1**

Client Sample ID: **20007-HB11S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408002
Lab Project ID: 1176408

Collection Date: 09/06/17 10:50
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	318		96.6	30.0	mg/Kg	4		09/15/17 17:22
Surrogates								
5a Androstane (surr)	87.6		50-150		%	4		09/15/17 17:22

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 17:22
Container ID: 1176408002-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.313 g
Prep Extract Vol: 1 mL

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Results of **20007-HB11S1**

Client Sample ID: **20007-HB11S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408002
Lab Project ID: 1176408

Collection Date: 09/06/17 10:50
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.90		3.11	0.932	mg/Kg	1		09/10/17 00:24
Surrogates								
4-Bromofluorobenzene (surr)	68.7		50-150		%	1		09/10/17 00:24

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 00:24
Container ID: 1176408002-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:50
Prep Initial Wt./Vol.: 76.07 g
Prep Extract Vol: 38.7366 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.75 U		15.5	4.97	ug/Kg	1		09/10/17 00:24
Ethylbenzene	22.4 J		31.1	9.69	ug/Kg	1		09/10/17 00:24
o-Xylene	131		31.1	9.69	ug/Kg	1		09/10/17 00:24
P & M -Xylene	95.7		62.1	18.6	ug/Kg	1		09/10/17 00:24
Toluene	15.6 U		31.1	9.69	ug/Kg	1		09/10/17 00:24
Surrogates								
1,4-Difluorobenzene (surr)	88.1		72-119		%	1		09/10/17 00:24

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 00:24
Container ID: 1176408002-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 10:50
Prep Initial Wt./Vol.: 76.07 g
Prep Extract Vol: 38.7366 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB11S101**

Client Sample ID: **20007-HB11S101**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408003
Lab Project ID: 1176408

Collection Date: 09/06/17 11:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	211		24.0	7.44	mg/Kg	1		09/15/17 15:45
Surrogates								
5a Androstane (surr)	90.4		50-150		%	1		09/15/17 15:45

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 15:45
Container ID: 1176408003-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.441 g
Prep Extract Vol: 1 mL

Results of **20007-HB11S101**

Client Sample ID: **20007-HB11S101**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408003
Lab Project ID: 1176408

Collection Date: 09/06/17 11:45
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.15		2.87	0.860	mg/Kg	1		09/10/17 01:21
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		09/10/17 01:21

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 01:21
Container ID: 1176408003-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 11:45
Prep Initial Wt./Vol.: 85.704 g
Prep Extract Vol: 40.3318 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.15 U		14.3	4.58	ug/Kg	1		09/10/17 01:21
Ethylbenzene	13.8 J		28.7	8.94	ug/Kg	1		09/10/17 01:21
o-Xylene	100		28.7	8.94	ug/Kg	1		09/10/17 01:21
P & M -Xylene	78.8		57.3	17.2	ug/Kg	1		09/10/17 01:21
Toluene	14.4 U		28.7	8.94	ug/Kg	1		09/10/17 01:21
Surrogates								
1,4-Difluorobenzene (surr)	89		72-119		%	1		09/10/17 01:21

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 01:21
Container ID: 1176408003-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 11:45
Prep Initial Wt./Vol.: 85.704 g
Prep Extract Vol: 40.3318 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB12S2**

Client Sample ID: **20007-HB12S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408004
Lab Project ID: 1176408

Collection Date: 09/06/17 11:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):62.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	13.0	J	31.8	9.86	mg/Kg	1		09/15/17 15:55
Surrogates								
5a Androstane (surr)	79		50-150		%	1		09/15/17 15:55

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 15:55
Container ID: 1176408004-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.025 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB12S2**

Client Sample ID: **20007-HB12S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408004
Lab Project ID: 1176408

Collection Date: 09/06/17 11:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):62.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.21	U	6.42	1.93	mg/Kg	1		09/10/17 01:39
Surrogates								
4-Bromofluorobenzene (surr)	91.2		50-150		%	1		09/10/17 01:39

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 01:39
Container ID: 1176408004-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 11:05
Prep Initial Wt./Vol.: 57.491 g
Prep Extract Vol: 46.38 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	16.1	U	32.1	10.3	ug/Kg	1		09/10/17 01:39
Ethylbenzene	32.1	U	64.2	20.0	ug/Kg	1		09/10/17 01:39
o-Xylene	33.4	J	64.2	20.0	ug/Kg	1		09/10/17 01:39
P & M -Xylene	64.0	U	128	38.5	ug/Kg	1		09/10/17 01:39
Toluene	32.1	U	64.2	20.0	ug/Kg	1		09/10/17 01:39
Surrogates								
1,4-Difluorobenzene (surr)	88.3		72-119		%	1		09/10/17 01:39

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 01:39
Container ID: 1176408004-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 11:05
Prep Initial Wt./Vol.: 57.491 g
Prep Extract Vol: 46.38 mL

Results of **20007-HB16S2**

Client Sample ID: **20007-HB16S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408005
Lab Project ID: 1176408

Collection Date: 09/06/17 14:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	27.6		23.9	7.40	mg/Kg	1		09/15/17 16:05
Surrogates								
5a Androstane (surr)	89.9		50-150		%	1		09/15/17 16:05

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 16:05
Container ID: 1176408005-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.169 g
Prep Extract Vol: 1 mL

Results of **20007-HB16S2**

Client Sample ID: **20007-HB16S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408005
Lab Project ID: 1176408

Collection Date: 09/06/17 14:05
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.27	J	3.21	0.964	mg/Kg	1		09/10/17 01:58
Surrogates								
4-Bromofluorobenzene (surr)	97.6		50-150		%	1		09/10/17 01:58

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 01:58
Container ID: 1176408005-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:05
Prep Initial Wt./Vol.: 67.763 g
Prep Extract Vol: 36.2958 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	8.05	U	16.1	5.14	ug/Kg	1		09/10/17 01:58
Ethylbenzene	16.1	U	32.1	10.0	ug/Kg	1		09/10/17 01:58
o-Xylene	16.1	U	32.1	10.0	ug/Kg	1		09/10/17 01:58
P & M -Xylene	32.1	U	64.3	19.3	ug/Kg	1		09/10/17 01:58
Toluene	16.1	U	32.1	10.0	ug/Kg	1		09/10/17 01:58
Surrogates								
1,4-Difluorobenzene (surr)	91.4		72-119		%	1		09/10/17 01:58

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 01:58
Container ID: 1176408005-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:05
Prep Initial Wt./Vol.: 67.763 g
Prep Extract Vol: 36.2958 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB19S1**

Client Sample ID: **20007-HB19S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408006
Lab Project ID: 1176408

Collection Date: 09/06/17 14:20
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):81.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	34.6		24.4	7.55	mg/Kg	1		09/15/17 16:14
Surrogates								
5a Androstane (surr)	88.2		50-150		%	1		09/15/17 16:14

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 16:14
Container ID: 1176408006-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.374 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB19S1**

Client Sample ID: **20007-HB19S1**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408006
Lab Project ID: 1176408

Collection Date: 09/06/17 14:20
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):81.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.95 J		2.79	0.838	mg/Kg	1		09/10/17 02:54
Surrogates								
4-Bromofluorobenzene (surr)	96.4		50-150		%	1		09/10/17 02:54

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 02:54
Container ID: 1176408006-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:20
Prep Initial Wt./Vol.: 94.916 g
Prep Extract Vol: 42.9678 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.00 U		14.0	4.47	ug/Kg	1		09/10/17 02:54
Ethylbenzene	13.9 U		27.9	8.71	ug/Kg	1		09/10/17 02:54
o-Xylene	13.9 U		27.9	8.71	ug/Kg	1		09/10/17 02:54
P & M -Xylene	27.9 U		55.8	16.8	ug/Kg	1		09/10/17 02:54
Toluene	13.9 U		27.9	8.71	ug/Kg	1		09/10/17 02:54
Surrogates								
1,4-Difluorobenzene (surr)	88.7		72-119		%	1		09/10/17 02:54

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 02:54
Container ID: 1176408006-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:20
Prep Initial Wt./Vol.: 94.916 g
Prep Extract Vol: 42.9678 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB20S2**

Client Sample ID: **20007-HB20S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408007
Lab Project ID: 1176408

Collection Date: 09/06/17 14:40
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):75.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	99.1	J	106	32.7	mg/Kg	4		09/15/17 17:32
Surrogates								
5a Androstane (surr)	93.6		50-150		%	4		09/15/17 17:32

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 17:32
Container ID: 1176408007-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.154 g
Prep Extract Vol: 1 mL

Results of **20007-HB20S2**

Client Sample ID: **20007-HB20S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408007
Lab Project ID: 1176408

Collection Date: 09/06/17 14:40
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):75.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.87	U	3.74	1.12	mg/Kg	1		09/10/17 03:12
Surrogates								
4-Bromofluorobenzene (surr)	82.3		50-150		%	1		09/10/17 03:12

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 03:12
Container ID: 1176408007-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:40
Prep Initial Wt./Vol.: 78.604 g
Prep Extract Vol: 44.3644 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.35	U	18.7	5.99	ug/Kg	1		09/10/17 03:12
Ethylbenzene	18.7	U	37.4	11.7	ug/Kg	1		09/10/17 03:12
o-Xylene	18.7	U	37.4	11.7	ug/Kg	1		09/10/17 03:12
P & M -Xylene	37.5	U	74.9	22.5	ug/Kg	1		09/10/17 03:12
Toluene	18.7	U	37.4	11.7	ug/Kg	1		09/10/17 03:12
Surrogates								
1,4-Difluorobenzene (surr)	87.9		72-119		%	1		09/10/17 03:12

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 03:12
Container ID: 1176408007-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 14:40
Prep Initial Wt./Vol.: 78.604 g
Prep Extract Vol: 44.3644 mL

Results of **20007-HB24S2**

Client Sample ID: **20007-HB24S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408008
Lab Project ID: 1176408

Collection Date: 09/06/17 15:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	14.2	J	24.1	7.47	mg/Kg	1		09/15/17 16:24
Surrogates								
5a Androstane (surr)	89.5		50-150		%	1		09/15/17 16:24

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 16:24
Container ID: 1176408008-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.221 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB24S2**

Client Sample ID: **20007-HB24S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408008
Lab Project ID: 1176408

Collection Date: 09/06/17 15:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):82.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.31	U	2.62	0.786	mg/Kg	1		09/10/17 03:31
Surrogates								
4-Bromofluorobenzene (surr)	100		50-150		%	1		09/10/17 03:31

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 03:31
Container ID: 1176408008-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:00
Prep Initial Wt./Vol.: 98.013 g
Prep Extract Vol: 42.3077 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.55	U	13.1	4.19	ug/Kg	1		09/10/17 03:31
Ethylbenzene	13.1	U	26.2	8.18	ug/Kg	1		09/10/17 03:31
o-Xylene	13.1	U	26.2	8.18	ug/Kg	1		09/10/17 03:31
P & M -Xylene	26.2	U	52.4	15.7	ug/Kg	1		09/10/17 03:31
Toluene	13.1	U	26.2	8.18	ug/Kg	1		09/10/17 03:31
Surrogates								
1,4-Difluorobenzene (surr)	89.1		72-119		%	1		09/10/17 03:31

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 03:31
Container ID: 1176408008-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:00
Prep Initial Wt./Vol.: 98.013 g
Prep Extract Vol: 42.3077 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB25S2**

Client Sample ID: **20007-HB25S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408009
Lab Project ID: 1176408

Collection Date: 09/06/17 15:10
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):73.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	65.2	J	109	33.7	mg/Kg	4		09/15/17 17:46
Surrogates								
5a Androstane (surr)	94.4		50-150		%	4		09/15/17 17:46

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 17:46
Container ID: 1176408009-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.203 g
Prep Extract Vol: 1 mL

Results of **20007-HB25S2**

Client Sample ID: **20007-HB25S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408009
Lab Project ID: 1176408

Collection Date: 09/06/17 15:10
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):73.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.80	U	3.61	1.08	mg/Kg	1		09/10/17 03:50
Surrogates								
4-Bromofluorobenzene (surr)	79.5		50-150		%	1		09/10/17 03:50

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 03:50
Container ID: 1176408009-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:10
Prep Initial Wt./Vol.: 97.185 g
Prep Extract Vol: 51.2031 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.00	U	18.0	5.77	ug/Kg	1		09/10/17 03:50
Ethylbenzene	18.1	U	36.1	11.3	ug/Kg	1		09/10/17 03:50
o-Xylene	18.1	U	36.1	11.3	ug/Kg	1		09/10/17 03:50
P & M -Xylene	36.0	U	72.1	21.6	ug/Kg	1		09/10/17 03:50
Toluene	18.1	U	36.1	11.3	ug/Kg	1		09/10/17 03:50
Surrogates								
1,4-Difluorobenzene (surr)	89		72-119		%	1		09/10/17 03:50

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 03:50
Container ID: 1176408009-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:10
Prep Initial Wt./Vol.: 97.185 g
Prep Extract Vol: 51.2031 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB26S2**

Client Sample ID: **20007-HB26S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408010
Lab Project ID: 1176408

Collection Date: 09/06/17 15:20
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):74.4
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	759		333	99.9	ug/Kg	10		09/12/17 18:47
2-Methylnaphthalene	793		333	99.9	ug/Kg	10		09/12/17 18:47
Acenaphthene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Acenaphthylene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Anthracene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Benzo(a)Anthracene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Benzo[a]pyrene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Benzo[b]Fluoranthene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Benzo[g,h,i]perylene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Benzo[k]fluoranthene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Chrysene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Dibenzo[a,h]anthracene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Fluoranthene	124	J	333	99.9	ug/Kg	10		09/12/17 18:47
Fluorene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Indeno[1,2,3-c,d] pyrene	167	U	333	99.9	ug/Kg	10		09/12/17 18:47
Naphthalene	7660		533	160	ug/Kg	20		09/14/17 01:02
Phenanthrene	132	J	333	99.9	ug/Kg	10		09/12/17 18:47
Pyrene	100	J	333	99.9	ug/Kg	10		09/12/17 18:47
Surrogates								
2-Methylnaphthalene-d10 (surr)	84.9		50-150		%	10		09/12/17 18:47
Fluoranthene-d10 (surr)	91		50-150		%	10		09/12/17 18:47

Batch Information

Analytical Batch: XMS10399
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/14/17 01:02
Container ID: 1176408010-A

Prep Batch: XXX38396
Prep Method: SW3550C
Prep Date/Time: 09/11/17 17:30
Prep Initial Wt./Vol.: 22.695 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS10396
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/12/17 18:47
Container ID: 1176408010-A

Prep Batch: XXX38396
Prep Method: SW3550C
Prep Date/Time: 09/11/17 17:30
Prep Initial Wt./Vol.: 22.695 g
Prep Extract Vol: 5 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB26S2**

Client Sample ID: **20007-HB26S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408010
Lab Project ID: 1176408

Collection Date: 09/06/17 15:20
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):74.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	84.1	J	106	32.9	mg/Kg	4		09/15/17 17:56
Surrogates								
5a Androstane (surr)	93.9		50-150		%	4		09/15/17 17:56

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 17:56
Container ID: 1176408010-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.417 g
Prep Extract Vol: 1 mL

Results of **20007-HB26S2**

Client Sample ID: **20007-HB26S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408010
Lab Project ID: 1176408

Collection Date: 09/06/17 15:20
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):74.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.84	U	3.68	1.10	mg/Kg	1		09/10/17 04:08
Surrogates								
4-Bromofluorobenzene (surr)	60.9		50-150		%	1		09/10/17 04:08

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 04:08
Container ID: 1176408010-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:20
Prep Initial Wt./Vol.: 85.502 g
Prep Extract Vol: 46.8537 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.20	U	18.4	5.89	ug/Kg	1		09/10/17 04:08
Ethylbenzene	23.9	J	36.8	11.5	ug/Kg	1		09/10/17 04:08
o-Xylene	24.3	J	36.8	11.5	ug/Kg	1		09/10/17 04:08
P & M -Xylene	32.4	J	73.6	22.1	ug/Kg	1		09/10/17 04:08
Toluene	18.4	U	36.8	11.5	ug/Kg	1		09/10/17 04:08
Surrogates								
1,4-Difluorobenzene (surr)	87.8		72-119		%	1		09/10/17 04:08

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 04:08
Container ID: 1176408010-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:20
Prep Initial Wt./Vol.: 85.502 g
Prep Extract Vol: 46.8537 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB27S2**

Client Sample ID: **20007-HB27S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408011
Lab Project ID: 1176408

Collection Date: 09/06/17 15:30
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):77.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	93.1	J	103	31.9	mg/Kg	4		09/15/17 18:05
Surrogates								
5a Androstane (surr)	77.1		50-150		%	4		09/15/17 18:05

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 18:05
Container ID: 1176408011-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.054 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB27S2**

Client Sample ID: **20007-HB27S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408011
Lab Project ID: 1176408

Collection Date: 09/06/17 15:30
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):77.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.79	U	3.58	1.07	mg/Kg	1		09/10/17 04:27
Surrogates								
4-Bromofluorobenzene (surr)	86.8		50-150		%	1		09/10/17 04:27

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 04:27
Container ID: 1176408011-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:30
Prep Initial Wt./Vol.: 75.13 g
Prep Extract Vol: 41.7959 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	8.95	U	17.9	5.73	ug/Kg	1		09/10/17 04:27
Ethylbenzene	17.9	U	35.8	11.2	ug/Kg	1		09/10/17 04:27
o-Xylene	17.9	U	35.8	11.2	ug/Kg	1		09/10/17 04:27
P & M -Xylene	35.8	U	71.6	21.5	ug/Kg	1		09/10/17 04:27
Toluene	17.9	U	35.8	11.2	ug/Kg	1		09/10/17 04:27
Surrogates								
1,4-Difluorobenzene (surr)	89.8		72-119		%	1		09/10/17 04:27

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 04:27
Container ID: 1176408011-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:30
Prep Initial Wt./Vol.: 75.13 g
Prep Extract Vol: 41.7959 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB28S2**

Client Sample ID: **20007-HB28S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408012
Lab Project ID: 1176408

Collection Date: 09/06/17 15:40
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	20.7	J	25.4	7.89	mg/Kg	1		09/15/17 16:34
Surrogates								
5a Androstane (surr)	88.1		50-150		%	1		09/15/17 16:34

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 16:34
Container ID: 1176408012-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.202 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB28S2**

Client Sample ID: **20007-HB28S2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408012
Lab Project ID: 1176408

Collection Date: 09/06/17 15:40
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.58	U	3.15	0.946	mg/Kg	1		09/10/17 04:46
Surrogates								
4-Bromofluorobenzene (surr)	94.8		50-150		%	1		09/10/17 04:46

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 04:46
Container ID: 1176408012-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:40
Prep Initial Wt./Vol.: 91.406 g
Prep Extract Vol: 45.0289 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.90	U	15.8	5.05	ug/Kg	1		09/10/17 04:46
Ethylbenzene	15.8	U	31.5	9.84	ug/Kg	1		09/10/17 04:46
o-Xylene	15.8	U	31.5	9.84	ug/Kg	1		09/10/17 04:46
P & M -Xylene	31.6	U	63.1	18.9	ug/Kg	1		09/10/17 04:46
Toluene	15.8	U	31.5	9.84	ug/Kg	1		09/10/17 04:46
Surrogates								
1,4-Difluorobenzene (surr)	88.8		72-119		%	1		09/10/17 04:46

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 04:46
Container ID: 1176408012-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 15:40
Prep Initial Wt./Vol.: 91.406 g
Prep Extract Vol: 45.0289 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-HB26S303**

Client Sample ID: **20007-HB26S303**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408013
Lab Project ID: 1176408

Collection Date: 09/06/17 16:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):78.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	281		25.3	7.84	mg/Kg	1		09/15/17 16:44
Surrogates								
5a Androstane (surr)	109		50-150		%	1		09/15/17 16:44

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/15/17 16:44
Container ID: 1176408013-A

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 09/11/17 19:11
Prep Initial Wt./Vol.: 30.316 g
Prep Extract Vol: 1 mL

Results of **20007-HB26S303**

Client Sample ID: **20007-HB26S303**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408013
Lab Project ID: 1176408

Collection Date: 09/06/17 16:00
Received Date: 09/08/17 09:41
Matrix: Soil/Solid (dry weight)
Solids (%):78.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.49	J	4.44	1.33	mg/Kg	1		09/10/17 05:05
Surrogates								
4-Bromofluorobenzene (surr)	57.8		50-150		%	1		09/10/17 05:05

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/17 05:05
Container ID: 1176408013-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 16:00
Prep Initial Wt./Vol.: 52.399 g
Prep Extract Vol: 36.3843 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	11.1	U	22.2	7.10	ug/Kg	1		09/10/17 05:05
Ethylbenzene	22.2	U	44.4	13.8	ug/Kg	1		09/10/17 05:05
o-Xylene	20.8	J	44.4	13.8	ug/Kg	1		09/10/17 05:05
P & M -Xylene	44.4	U	88.7	26.6	ug/Kg	1		09/10/17 05:05
Toluene	22.2	U	44.4	13.8	ug/Kg	1		09/10/17 05:05
Surrogates								
1,4-Difluorobenzene (surr)	84.6		72-119		%	1		09/10/17 05:05

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/10/17 05:05
Container ID: 1176408013-B

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 16:00
Prep Initial Wt./Vol.: 52.399 g
Prep Extract Vol: 36.3843 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Results of **20007-STB2**

Client Sample ID: **20007-STB2**
Client Project ID: **32-1-20007 Old BIA School**
Lab Sample ID: 1176408014
Lab Project ID: 1176408

Collection Date: 09/06/17 20:20
Received Date: 09/08/17 09:41
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	1.25	U	2.51	0.753	mg/Kg	1		09/09/17 23:47
Surrogates								
4-Bromofluorobenzene (surr)	85.1		50-150		%	1		09/09/17 23:47

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/17 23:47
Container ID: 1176408014-A

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 20:20
Prep Initial Wt./Vol.: 49.795 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.30	U	12.6	4.02	ug/Kg	1		09/09/17 23:47
Ethylbenzene	12.6	U	25.1	7.83	ug/Kg	1		09/09/17 23:47
o-Xylene	12.6	U	25.1	7.83	ug/Kg	1		09/09/17 23:47
P & M -Xylene	25.1	U	50.2	15.1	ug/Kg	1		09/09/17 23:47
Toluene	12.6	U	25.1	7.83	ug/Kg	1		09/09/17 23:47
Surrogates								
1,4-Difluorobenzene (surr)	93.6		72-119		%	1		09/09/17 23:47

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/09/17 23:47
Container ID: 1176408014-A

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 09/06/17 20:20
Prep Initial Wt./Vol.: 49.795 g
Prep Extract Vol: 25 mL

Print Date: 09/18/2017 11:34:43AM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1768141 [SPT/10303]
Blank Lab ID: 1412093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10303
Analytical Method: SM21 2540G
Instrument:
Analyst: NIC
Analytical Date/Time: 9/11/2017 4:18:00PM

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

Duplicate Sample Summary

Original Sample ID: 1176419001
Duplicate Sample ID: 1412094

Analysis Date: 09/11/2017 16:18
Matrix: Soil/Solid (dry weight)

QC for Samples:

1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	96.9	96.9	%	0.07	(< 15)

Batch Information

Analytical Batch: SPT10303
Analytical Method: SM21 2540G
Instrument:
Analyst: NIC

Print Date: 09/18/2017 11:34:47AM

Method Blank

Blank ID: MB for HBN 1768035 [VXX/31260]
Blank Lab ID: 1411675

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013, 1176408014

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	90.7	50-150		%

Batch Information

Analytical Batch: VFC13871
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 11:28:00PM

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176408 [VXX31260]
Blank Spike Lab ID: 1411678
Date Analyzed: 09/09/2017 22:32

Spike Duplicate ID: LCSD for HBN 1176408 [VXX31260]
Spike Duplicate Lab ID: 1411679
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013, 1176408014

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	12.2	98	12.5	12.8	102	(60-120)	4.70	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	99.5	100	1.25	90.8	91	(50-150)	9.10	

Batch Information

Analytical Batch: **VFC13871**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31260**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 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

Method Blank

Blank ID: MB for HBN 1768035 [VXX/31260]
Blank Lab ID: 1411675

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013, 1176408014

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	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
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	91.3	72-119		%

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2017 11:28:00PM

Prep Batch: VXX31260
Prep Method: SW5035A
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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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 1176408 [VXX31260]
Blank Spike Lab ID: 1411676
Date Analyzed: 09/09/2017 21:54

Spike Duplicate ID: LCSD for HBN 1176408 [VXX31260]
Spike Duplicate Lab ID: 1411677
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013, 1176408014

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1230	98	1250	1200	96	(75-125)	2.40	(< 20)
Ethylbenzene	1250	1200	96	1250	1180	94	(75-125)	2.30	(< 20)
o-Xylene	1250	1170	94	1250	1150	92	(75-125)	2.10	(< 20)
P & M -Xylene	2500	2350	94	2500	2300	92	(80-125)	2.40	(< 20)
Toluene	1250	1230	98	1250	1200	96	(70-125)	2.50	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	94.6	95	1250	95.2	95	(72-119)	0.65	

Batch Information

Analytical Batch: **VFC13871**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31260**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2017 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1176408005
MS Sample ID: 1411680 MS
MSD Sample ID: 1411681 MSD

Analysis Date: 09/10/2017 1:58
Analysis Date: 09/10/2017 2:17
Analysis Date: 09/10/2017 2:35
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013, 1176408014

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	8.05U	1107	1025	93	1107	1025	93	75-125	0.09	(< 20)
Ethylbenzene	16.1U	1107	1066	96	1107	1067	96	75-125	0.12	(< 20)
o-Xylene	16.1U	1107	1046	94	1107	1049	95	75-125	0.38	(< 20)
P & M -Xylene	32.1U	2209	2101	95	2209	2113	95	80-125	0.25	(< 20)
Toluene	16.1U	1107	1076	97	1107	1077	97	70-125	0.08	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1107	1025	93	1107	1019	92	72-119	0.56	

Batch Information

Analytical Batch: VFC13871
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/10/2017 2:17:00AM

Prep Batch: VXX31260
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/9/2017 8:00:00AM
Prep Initial Wt./Vol.: 67.76g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1768099 [XXX/38396]
Blank Lab ID: 1412036

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176408002, 1176408010

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-Methylnaphthalene-d10 (surr)	81.3	50-150		%
Fluoranthene-d10 (surr)	84.8	50-150		%

Batch Information

Analytical Batch: XMS10396
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 9/12/2017 2:01:00PM

Prep Batch: XXX38396
Prep Method: SW3550C
Prep Date/Time: 9/11/2017 5:30:42PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176408 [XXX38396]
Blank Spike Lab ID: 1412037
Date Analyzed: 09/12/2017 14:21

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408002, 1176408010

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	88.7	80	(43-111)
2-Methylnaphthalene	111	82.3	74	(39-114)
Acenaphthene	111	106	95	(44-111)
Acenaphthylene	111	91.5	82	(39-116)
Anthracene	111	103	93	(50-114)
Benzo(a)Anthracene	111	92.2	83	(54-122)
Benzo[a]pyrene	111	91.0	82	(50-125)
Benzo[b]Fluoranthene	111	93.8	84	(53-128)
Benzo[g,h,i]perylene	111	87.1	78	(49-127)
Benzo[k]fluoranthene	111	91.1	82	(56-123)
Chrysene	111	92.6	83	(57-118)
Dibenzo[a,h]anthracene	111	82.7	74	(50-129)
Fluoranthene	111	91.6	83	(55-119)
Fluorene	111	94.3	85	(47-114)
Indeno[1,2,3-c,d] pyrene	111	87.8	79	(49-130)
Naphthalene	111	86.9	78	(38-111)
Phenanthrene	111	96.7	87	(49-113)
Pyrene	111	94.2	85	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	80.7	81	(50-150)
Fluoranthene-d10 (surr)	111	81.3	81	(50-150)

Batch Information

Analytical Batch: **XMS10396**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX38396**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2017 17:30**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 09/18/2017 11:35:00AM

Matrix Spike Summary

Original Sample ID: 1176443005
MS Sample ID: 1412038 MS
MSD Sample ID: 1412039 MSD

Analysis Date: 09/12/2017 17:05
Analysis Date: 09/12/2017 17:25
Analysis Date: 09/12/2017 17:46
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408002, 1176408010

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	400	127	424	19	*	126	438	30	*	43-111	3.10	(< 20)
2-Methylnaphthalene	532	127	485	-38	*	126	527	-4	*	39-114	8.30	(< 20)
Acenaphthene	155	127	251	77		126	241	68		44-111	4.40	(< 20)
Acenaphthylene	71.0U	127	133J	105		126	128J	101		39-116	3.70	(< 20)
Anthracene	55.9J	127	147	73		126	136J	64		50-114	8.00	(< 20)
Benzo(a)Anthracene	99.9J	127	157	45	*	126	157	45	*	54-122	0.07	(< 20)
Benzo[a]pyrene	87.8J	127	157	55		126	160	57		50-125	1.80	(< 20)
Benzo[b]Fluoranthene	117J	127	167	40	*	126	167	40	*	53-128	0.34	(< 20)
Benzo[g,h,i]perylene	67.0J	127	153	68		126	162	76		49-127	5.70	(< 20)
Benzo[k]fluoranthene	71.0U	127	128J	101		126	133J	105		56-123	3.90	(< 20)
Chrysene	96.0J	127	151	43	*	126	151	44	*	57-118	0.22	(< 20)
Dibenzo[a,h]anthracene	71.0U	127	120J	95		126	115J	92		50-129	3.20	(< 20)
Fluoranthene	223	127	182	-33	*	126	176	-37	*	55-119	2.90	(< 20)
Fluorene	157	127	234	61		126	233	61		47-114	0.44	(< 20)
Indeno[1,2,3-c,d] pyrene	54.0J	127	145	72		126	150	76		49-130	2.90	(< 20)
Naphthalene	257	127	258	2	*	126	274	14	*	38-111	5.70	(< 20)
Phenanthrene	294	127	272	-17	*	126	259	-27	*	49-113	4.80	(< 20)
Pyrene	175	127	174	-1	*	126	167	-7	*	55-117	3.90	(< 20)
Surrogates												
2-Methylnaphthalene-d10 (surr)		127	127	100		126	119	94		50-150	6.30	
Fluoranthene-d10 (surr)		127	117	92		126	109	86		50-150	6.80	

Batch Information

Analytical Batch: XMS10396
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 9/12/2017 5:25:00PM

Prep Batch: XXX38396
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/11/2017 5:30:42PM
Prep Initial Wt./Vol.: 22.62g
Prep Extract Vol: 5.00mL

Print Date: 09/18/2017 11:35:01AM

Method Blank

Blank ID: MB for HBN 1768106 [XXX/38397]
Blank Lab ID: 1412080

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	83.3	60-120		%

Batch Information

Analytical Batch: XFC13798
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 9/15/2017 2:38:00PM

Prep Batch: XXX38397
Prep Method: SW3550C
Prep Date/Time: 9/11/2017 7:11:00PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 09/18/2017 11:35:02AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176408 [XXX38397]
Blank Spike Lab ID: 1412081
Date Analyzed: 09/15/2017 14:47

Spike Duplicate ID: LCSD for HBN 1176408 [XXX38397]
Spike Duplicate Lab ID: 1412082
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176408001, 1176408002, 1176408003, 1176408004, 1176408005, 1176408006, 1176408007, 1176408008, 1176408009, 1176408010, 1176408011, 1176408012, 1176408013

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	162	97	(75-125)	5.20	(< 20)
Surrogates									
5a Androstane (surr)	3.33	102	102	3.33	108	108	(60-120)	5.80	

Batch Information

Analytical Batch: **XFC13798**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **JMG**

Prep Batch: **XXX38397**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2017 19:11**
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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1176408

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Page 1 of 2
Laboratory SGS
Attn: TORI

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	GRO/AK101	BTEX/8021B	DRO/AK102	PAHs/8270D SIM			Total Number of Containers	Remarks/Matrix
20007-SS	①A-B	12:45	9/6/17		✓	✓	✓	✓				2	Soil
-HB11S1	②A-B	10:50	↓		✓	✓	✓	✓	✓			↓	↓
-HB11S1D1	③A-B	11:45	↓		✓	✓	✓	✓				↓	↓
-HB12S2	④A-B	11:05	↓		✓	✓	✓	✓				↓	↓
-HB16S2	⑤A-B	14:05	↓		✓	✓	✓	✓				↓	↓
-HB19S1	⑥A-B	14:20	↓		✓	✓	✓	✓				↓	↓
-HB20S2	⑦A-B	14:40	↓		✓	✓	✓	✓				↓	↓
-HB24S2	⑧A-B	15:00	↓		✓	✓	✓	✓				↓	↓
-HB25S2	⑨A-B	15:10	↓		✓	✓	✓	✓				↓	↓
-HB26S2	⑩A-B	15:20	↓		✓	✓	✓	✓	✓			↓	↓

Project Information	Sample Receipt
Project Number: 32-1-20007	Total Number of Containers
Project Name: Old BIA School - Chevak	COC Seals/Intact? Y/N/NA
Contact: DPM, ADV, TWC	Received Good Cond./Cold
Ongoing Project? Yes ☑ No ☐	Delivery Method:
Sampler: ADV/TWC	(attach shipping bill, if any)

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1015	Signature: Time:	Signature: [signature] Time: 0941
Printed Name: Trevor Crosby Date: 9/7/17	Printed Name: Date:	Printed Name: Trevor Crosby Date: 9/8/17
Company: SWI	Company: custody seal intact: TWC	Company: SW

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: [signature] Time: 0845	Signature: [signature] Time: 0941
Printed Name: RAVN CARGO Date:	Printed Name: Trevor Crosby Date: 9/7/17 9/8/17 TWC	Printed Name: Carl Stipe Date: 9/8/17
Company:	Company: SW	Company: SGS

Instructions

Requested Turnaround Time: 10 Day Standard

Special Instructions: level 2 Data Deliverables

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

0.3D 40
CS:1F

No. 35436

1176408

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Laboratory SGS Page 2 of 2
Attn: TORI

400 N. 34th Street, Suite 100
Seattle, WA 98103
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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	GRO/AK101	BTEX/8021B	DRO/AK102	PAHs/8270D SIM			Total Number of Containers	Remarks/Matrix
20007-HB2752	(11) A-B	15:30	9/6/17		✓	✓	✓	✓				2	Soil
-HB28S2	(12) A-B	15:40	↓		✓	✓	✓	✓				↓	↓
-HB26S303	(13) A-B	16:00			✓	✓	✓	✓					
-STB2	(19) A	20:20	↓			✓	✓					1	Trip Blank

Project Information		Sample Receipt	
Project Number:	38-1-20007	Total Number of Containers	
Project Name:	Old BIA School CHEVAK	COC Seals/Intact? Y/N/NA	
Contact:	DPM, ADV	Received Good Cond./Cold	
Ongoing Project?	Yes ☑ No ☐	Delivery Method:	
Sampler:	ADV, TWC	(attach shipping bill, if any)	

Instructions	
Requested Turnaround Time:	10 Day Standard
Special Instructions:	Level 2 Data Deliverables

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1015	Signature: Time:	Signature: Time: 0941
Printed Name: Trevor Crosby Date: 9/7/17	Printed Name: Custody Seal intact Date:	Printed Name: Trevor Crosby Date: 9/8/17
Company:	Company:	Company: SW

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time: 0845	Signature: Time: 0941
Printed Name: Date:	Printed Name: Trevor Crosby Date: 9/8/17	Printed Name: Edward Stipe Date: 9/8/17
Company:	Company: SW	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. 35437

e-Sample Receipt Form

SGS Workorder #: **1176408**

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	Yes	1-F
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 @ 0.3 °C Therm. ID: D40
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		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)?	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?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
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
1176408001-A	No Preservative Required	OK			
1176408001-B	Methanol field pres. 4 C	OK			
1176408002-A	No Preservative Required	OK			
1176408002-B	Methanol field pres. 4 C	OK			
1176408003-A	No Preservative Required	OK			
1176408003-B	Methanol field pres. 4 C	OK			
1176408004-A	No Preservative Required	OK			
1176408004-B	Methanol field pres. 4 C	OK			
1176408005-A	No Preservative Required	OK			
1176408005-B	Methanol field pres. 4 C	OK			
1176408006-A	No Preservative Required	OK			
1176408006-B	Methanol field pres. 4 C	OK			
1176408007-A	No Preservative Required	OK			
1176408007-B	Methanol field pres. 4 C	OK			
1176408008-A	No Preservative Required	OK			
1176408008-B	Methanol field pres. 4 C	OK			
1176408009-A	No Preservative Required	OK			
1176408009-B	Methanol field pres. 4 C	OK			
1176408010-A	No Preservative Required	OK			
1176408010-B	Methanol field pres. 4 C	OK			
1176408011-A	No Preservative Required	OK			
1176408011-B	Methanol field pres. 4 C	OK			
1176408012-A	No Preservative Required	OK			
1176408012-B	Methanol field pres. 4 C	OK			
1176408013-A	No Preservative Required	OK			
1176408013-B	Methanol field pres. 4 C	OK			
1176408014-A	Methanol field pres. 4 C	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

CS Report Name: Old BIA School
Chevak, Alaska

Date: January 2018

Laboratory Report Date: September 18, 2017

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Alena Voigt
Title: Environmental Scientist
Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1176408
ADEC File Number: 2409.57.001

(**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.*

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 blank was 0.3° C.*

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)? **Yes / No / NA** (please explain)
Comments:

c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)? **Yes / No / NA** (please explain)
Comments:

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: *No discrepancies were noted.*

e. Data quality or usability affected? **Yes / No / NA**
Comments:

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:

- *PAH MS/MSD recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.*

c. Were corrective actions documented? **Yes / No / NA** (please explain)
Comments: *Corrective actions were not noted.*

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *With the exception of referring to the LCS for accuracy requirements, the case narrative does not comment on 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:

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? **NA** Please explain.
Comments:

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

If so, are the data flags clearly defined? **Yes / No / NA**
Comments:

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

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA** (please explain)
Comments: *Metals/inorganics were not analyzed.*

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%, VOCs 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: *Sample HB11S2 and HB26S2.*

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

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

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?
Yes / No / NA (please explain)

Comments:

iv. If so, are the data flags clearly defined? **Yes / No / NA** (please explain)

Comments:

v. Data quality or usability affected? Please explain. **Yes / No / 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:

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: *Only one cooler was used to transport the volatile samples and trip blank.*

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

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

v. Data quality or usability affected? Please explain.
Comments:

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA (please explain)

Comments: *The field duplicate set is HB26S2/HB26S303.*

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 DRO and xylenes RPDs are greater than 50%.*

iv. Data quality or usability affected? Please explain. **NA**
Comments: *The affected results are flagged "E" to indicate that the sample results are estimated due to the RPD failure.*

f. Decontamination or Equipment Blank (if not applicable)
Yes / No / NA (please explain)

Comments: *An 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 above LOQ, what samples are affected? ***NA***
Comments:

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

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

a. Defined and appropriate? **Yes / No / NA** (please explain)

Comments: L*aboratory-specific qualifiers are defined on page 4 of the laboratory report.*

APPENDIX D

ADEC CONCEPTUAL SITE MODEL

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Old BIA School
2409.57.001

Completed By: Shannon & Wilson, Inc.
Date Completed: January 2018

***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.*

(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.*

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Current & Future Receptors: Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ Surface Soil (0-2 ft bgs)	☑ Direct release to surface soil → check soil	☑ soil	☑ Incidental Soil Ingestion	F	F	C/F	F			
	☑ Migration to subsurface → check soil		☑ Dermal Absorption of Contaminants from Soil	F	F	C/F	F			
	☑ Migration to groundwater → check groundwater		☐ Inhalation of Fugitive Dust							
	☑ 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	☑ groundwater	☑ Ingestion of Groundwater	F	F	F	F			
	☑ Migration to groundwater → check groundwater		☐ Dermal Absorption of Contaminants in Groundwater							
	☑ Volatilization → check air		☐ Inhalation of Volatile Compounds in Tap Water							
	☑ Uptake by plants or animals → check biota									
	☐ Other (list):									
☑ Ground-water	☑ Direct release to groundwater → check groundwater	☑ air	☑ Inhalation of Outdoor Air	F	F	C/F	F			
	☑ Volatilization → check air		☑ Inhalation of Indoor Air	F	F	F	F			
	☑ Flow to surface water body → check surface water		☐ Inhalation of Fugitive Dust							
	☑ Flow to sediment → check sediment									
	☑ Uptake by plants or animals → check biota									
	☐ Other (list):									
☑ Surface Water	☑ Direct release to surface water → check surface water	☑ surface water	☑ Ingestion of Surface Water			C/F				
	☐ Volatilization → check air		☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Sedimentation → check sediment		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment → check sediment	☑ sediment	☐ Direct Contact with Sediment			C/F				
	☐ Resuspension, runoff, or erosion → check surface water									
	☐ Uptake by plants or animals → check biota	☑ biota	☐ Ingestion of Wild or Farmed Foods			C/F				
	☐ Other (list):									

Revised, 10/01/2010

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Old BIA School

File Number: 2409.57.001

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: Batteries, miscellaneous debris

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

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

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:

Naphthalene exceeding ADEC Method Two migration to groundwater cleanup levels has been documented at the site.

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 groundwater 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:

Impacted soil is in contact with groundwater.

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: Complete

Comments:

There is a potential that if impacted surface water or groundwater is present at the site it could migrate to Chevak Lake.

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:

PAHs where are listed on Appendix C have been documented at the site.

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:

PAHs listed on Appendix D have been documented 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:

The Old BIA School is built on piles. Therefore, inhalation of indoor air is currently incomplete.

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 E

IMPORTANT INFORMATION ABOUT

YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

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