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October 14, 2012

ActiveSpace LLC
3150 C Street, Suite 290
Anchorage, AK 99503

Attn: Mr. Miles Schlosberg

RECEIVED
OCT 16 2012
ADEC SPAN - RFA
Contract Management Section

**RE: MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING,
360 EAST 100th AVENUE, ANCHORAGE, ALASKA; ADEC FILE NO.
2100.38.198**

This letter presents the results of Shannon & Wilson's August 2012 monitoring well installation and groundwater sampling at 360 East 100th Avenue, Anchorage, Alaska. The purpose of this project phase is to address Alaska Department of Environmental Conservation (ADEC) concerns regarding potential groundwater impacts related to documented petroleum and tetrachloroethene (PCE) impacted surface soil.

Authorization to proceed with this project was provided by Mr. Miles S. Schlosberg of ActiveSpace LLC on July 20, 2012 in the form of a signed proposal. The work was conducted in material accordance with our July 15, 2012 ADEC-approved work plan addendum.

June

BACKGROUND

During site assessment activities conducted by Shannon & Wilson in 2010 and 2011, petroleum and PCE impacted surface soil was documented at the site, south of a "tent" building in the vicinity of an unpaved track. The sample locations and contaminant concentrations are shown on Figure 1. The results of these assessment activities were summarized in our *Limited Environmental Baseline Study, 360 E. 100th Avenue, Anchorage, Alaska* and *Site Characterization, 360 East 100th Avenue, Anchorage, Alaska* reports dated November 5, 2010 and July 2011, respectively.

To address the PCE and petroleum impacted soil identified on the southwest portion of the property (in the vicinity of former Sample SS3 and Boring B2), Shannon & Wilson prepared a soil removal work plan dated September 16, 2011. On October 28, 2011 representatives of ActiveSpace, the ADEC, and Shannon & Wilson met to discuss the soil removal work plan and ADEC concerns regarding groundwater at the site.

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In a letter dated May 31, 2012, the ADEC requested a groundwater investigation at the site. In a meeting held on June 5, 2012, Mr. Rich Sundet and Ms. Eileen Olson of the ADEC requested the installation of one monitoring well in the vicinity (presumably downgradient) of the elevated concentrations of PCE previously detected in near-surface soil samples. Shannon Wilson prepared a work plan addendum dated June 15, 2012 to install and sample one groundwater monitoring well on the southwest portion of the property. In a letter dated June 28, 2012, the ADEC conditionally approved the work plan addendum. The ADEC required that the well be placed 5 to 10 feet in the presumed downgradient direction of Sample SS3, installation of a 15 foot well screen, and the collection of a soil sample from just above the soil/water interface.

FIELD ACTIVITIES

The field effort consisted of advancing one soil boring (Boring B7), installing one monitoring well (Monitoring Well B7MW), and collecting soil and groundwater samples. The boring/well was advanced/installed in an unpaved track west and presumably downgradient of Sample SS3. Prior to advancing the boring, the local utility locate center was contacted to mark buried utilities within the project area. The location of the boring/monitoring well and the general site features are shown on Figure 1. Project photographs are included in Attachment 1. Boring and well construction logs are provided in Attachment 2.

Soil Boring and Sampling

On August 6, 2012 Boring B7 was advanced by Discovery Drilling (Discovery) of Anchorage, Alaska using a truck-mounted CME-75 drill rig with a 4.25-inch inside diameter hollow-stem auger. A representative from Shannon & Wilson was present during field activities to identify the boring location, log the materials encountered during drilling, and screen and sample soil.

Soil samples were collected with 3-inch outside diameter split spoon samplers driven by a 340-pound hammer. Soil screening samples were collected at 2.5 feet intervals until approximately 19.5 feet below ground surface (bgs). Soil samples were screened for volatile vapors using ADEC-approved headspace sampling techniques and a Thermo Instruments OVM 580B photoionization detector (PID). The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected in re-sealable plastic bags, warmed to a common temperature, and screened within 60 minutes of collection.

The soil conditions encountered in the boring consisted of silty, sandy gravel from the ground surface to approximately 5.6 feet bgs. A potentially confining layer consisting of slightly

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gravelly silt was observed extending from about 5.6 feet bgs to 14 feet bgs. Silty, sandy gravel was observed beneath the silt layer.

Groundwater was not initially observed during drilling to a depth of 19.5 feet bgs. In addition, wet soil, indicative of groundwater, was not observed during the drilling activities. To allow for the potential infiltration of groundwater into the borehole, the augers were pulled back to 5 feet bgs. After approximately 20 minutes, groundwater was measured at 13.3 feet bgs using an electronic water level indicator. The boring was then advanced to a depth of approximately 25 feet bgs to facilitate installation of a groundwater monitoring well. Screening and analytical soil samples were not collected from the interval between 19.5 and 25 feet bgs. Drill cuttings from the boring were contained in a labeled, 55-gallon drum and stored on-site.

Two analytical soil samples (B7-1 and B7-6) were collected from the sample intervals with the two highest PID readings. Sample B7-6 also corresponded to the interval immediately above the observed groundwater depth during drilling. Table 1 presents a description of the soil sample locations, depths, headspace results, and sample classifications.

Monitoring Well Installation and Sampling

The ADEC's June 28, 2012 work plan addendum letter requested the installation of a 15 foot well screen from 5 to 20 feet bgs, based on the assumption that groundwater would not be encountered in the well. As discussed above, groundwater was observed at approximately 13.3 feet bgs. Based on the observed soil conditions, a silt layer, possibly representing a confining layer, was observed from about 5.5 to 13.5 feet bgs. To prevent the contaminated surface soil from possibly impacting the potentially confined groundwater, a 10-foot screen section was used instead of a 15-foot section. The well was placed starting at the bottom of the silt layer, extending from about 13.6 to 23.6 feet bgs.

Monitoring Well B7MW was constructed from 2-inch diameter schedule 40, polyvinyl chloride (PVC) pipe with threaded connections. The lower 10 feet of the monitoring well was PVC well screen with 0.020-inch slots. A continuous silica sand pack was used to backfill around the well screen to about 1 foot above the screened section. Bentonite chips were used to backfill above the filter pack to about 2 feet bgs. Pea gravel was placed above the bentonite. The monitoring well was completed with a flush mount protective casing embedded in an asphalt patch.

Monitoring well development activities were conducted on August 9, 2012. Prior to development, water depth relative to the top of the well casing was measured with an electronic water level indicator. Groundwater was measured at 8.18 feet bgs, which is above the screened portion of the monitoring well.

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Monitoring Well B7MW was developed using a surge block and a submersible pump with dedicated disposable tubing. Three to five minute periods of surging were alternated with periods of pumping. During well development, water quality parameters, including pH, specific conductance, temperature, and turbidity were measured with Hanna and Hach water quality instruments. Development was considered complete after 3 hours of effort and 27 gallons of groundwater (about 10 well volumes) were removed. The development water generated during the field efforts was contained in a labeled 55-gallon drum and stored on-site.

One groundwater sample was collected from Monitoring Well B7MW on August 10, 2012, using low-flow sampling techniques. Samples were transferred to laboratory-supplied containers in order of volatility, and then placed into chilled coolers for delivery to the project laboratory. Water sampling data are provided in Table 2.

LABORATORY ANALYSES

Two soil samples and one groundwater sample were submitted to SGS North America Inc. (SGS) of Anchorage, Alaska for analysis of diesel range organics (DRO) by Alaska Method (AK) 102, residual range organics (RRO) by AK 103, and volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260B. For quality control purposes one soil and one water trip blank were analyzed for VOCs by EPA Method 8260B. Analytical soil and groundwater results are summarized in Tables 3 and 4, respectively. The laboratory reports and completed ADEC Laboratory Data Review Checklists are provided in Attachment 3.

DISCUSSION OF ANALYTICAL RESULTS

The soil cleanup criteria are based on the most stringent ADEC Method 2 levels listed in Tables B1 and B2 for the "under 40-inch (precipitation) zone", and the groundwater cleanup criteria are based on Table C values (18 AAC 75, October 2011). The applicable cleanup levels for soil and groundwater are listed in Tables 3 and 4, respectively.

Soil Samples

Concentrations of DRO and RRO were detected in each soil sample. The laboratory noted that the DRO and RRO chromatographs are consistent with a lube oil. The highest concentrations, 536 milligrams per kilogram (mg/kg) DRO and 3,390 mg/kg RRO, were detected in Sample B7-1. Sample B7-6 contained an estimated concentration of DRO (7.72 mg/kg) and 57.5 mg/kg RRO. The DRO concentration in Sample B7-1 exceeds the applicable ADEC cleanup level of 250 mg/kg. The detected concentrations of RRO did not exceed the applicable ADEC cleanup

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level of 10,000 mg/kg. The samples did not contain detectable concentrations of VOCs, including PCE.

Groundwater Samples

DRO and RRO were not detected in groundwater Sample B7MW-W1. Estimated concentrations of 1,1,1-trichloroethane (0.000470 milligrams per liter [mg/L]) and chloromethane (0.000320 mg/L) were detected in Sample B7MW-W1 at concentrations less than the applicable ADEC cleanup levels of 0.2 mg/L and 0.066 mg/L, respectively.

As previously noted, the depth to groundwater measured at the time of sampling (8.18 feet bgs) is higher than well screen. Therefore, the groundwater analytical results may not be representative of the groundwater formation at approximately 8 feet bgs. It should be noted that wet soil, indicative of groundwater, was not observed at this interval during drilling. A soil screening sample collected from this interval had a 0 ppm PID measurement, which indicates that potential smear zone soil contamination is not present at this location. It is also possible that groundwater interface is located at approximately 13 feet bgs, but the piezometric surface is approximately 8 feet bgs due to positive pore pressure.

Quality Control

External quality controls included a one soil trip blank and one water trip blank. The trip blanks accompanied the sample jars and bottles, as appropriate, from the laboratory to the site during sampling activities and back again to SGS. The trips blank did not contain detectable concentrations of VOCs, indicating that the samples were not cross contaminated or exposed to contamination during sample handling, storage, or testing.

The project laboratory implements on-going quality assurance/quality control procedures to evaluate conformance to ADEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (see Attachment 3).

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

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Checklist, which is included in Attachment 3. No non-conformances that would adversely affect data usability were noted except the following:

- The Toluene-b8 surrogate recovery for Samples B7-1 and B7-6 were biased low at 76.9 percent and 75.1 percent, respectively. The LCS/LCSD recoveries met the DQO, suggesting that the surrogate recovery issues are associated with the sample matrix and not the laboratory's analytical methodology. The VOC in the corresponding project sample results have been flagged "J-" indicating that the results may be biased low.

CONCLUSIONS

During the August 2012 site characterization activities, DRO in excess of the applicable ADEC cleanup levels was identified in a near surface soil sample (0 to 2 feet bgs). A soil sample collected from about 12.5 to 14.5 feet bgs did not contain DRO in excess of the applicable cleanup level. PCE was not detected in the soil samples. A groundwater sample collected from a monitoring well installed in the westernmost trench did not contain detectable concentrations of DRO, RRO, or PCE. Based on the results of the recent site characterization activities, the documented surface soil contamination does not appear to have impacted the groundwater at this location.

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 research, sampling, and analyses that we conducted. They should not be construed as definite conclusions regarding the project site's soil and groundwater quality. It is possible that our subsurface tests missed higher levels of contaminants, although our intention was to sample areas likely to be impacted and in accordance with our ADEC-approved work plan. As a result, the sampling and analyses performed can only provide you with our professional judgment as to the environmental characteristics of this site, and in no way guarantees 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 in site conditions can occur over time, due to natural forces or human activity. 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 document in

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Attachment 6, Important Information About Your Geotechnical/Environmental Report, to assist you and others 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 unless authorized by you or required by law.

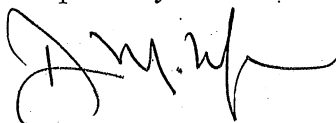
Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) that are signed or sealed by Shannon & Wilson with a wet, blue ink signature. Files provided in electronic media format are furnished solely for the convenience of the client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and hard copies, or you question the authenticity of the report, please contact the undersigned.

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

Sincerely,

SHANNON & WILSON, INC.

Prepared by:



Dan P. McMahon
Sr. Principal Environmental Scientist

Approved by:



Mathew S. Hemry, P.E.
Vice President

Enc: Tables 1 through 4
Figure 1
Attachments 1 through 4

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 1)	Depth (feet bgs)	Headspace (ppm) ^	Sample Classification** (see Attachment 2)
Soil Samples					
Boring B7					
* B7-S1	8/6/2012	Boring B7, Sample S1	0-1.6	2.6	Dense, brown to gray, silty, sandy GRAVEL, scattered cobbles; dry
B7-S2	8/6/2012	Boring B7, Sample S2	2.5-4	0.0	Medium dense, brown, silty, sandy GRAVEL, scattered cobbles and organics; moist
B7-S3	8/6/2012	Boring B7, Sample S3	5-6.2	0.0	Loose, brown, silty, sandy GRAVEL to slightly gravelly SILT; moist
B7-S4	8/6/2012	Boring B7, Sample S4	7.5-9.5	0.0	Medium dense, brown, slightly gravelly SILT; moist
B7-S5	8/6/2012	Boring B7, Sample S5	10-12	1.3	Loose, brown, slightly gravelly SILT; moist
* B7-S6	8/6/2012	Boring B7, Sample S6	12.5-14.5	1.3	Very dense, brown, lightly gravelly SILT to silty, sandy GRAVEL; moist
B7-S7	8/6/2012	Boring B7, Sample S7	15-17	0.0	Medium dense, brown, silty, sandy GRAVEL; moist
B7-S8	8/6/2012	Boring B7, Sample S8	17.5-19.5	0.0	Medium dense, brown, silty, sandy GRAVEL; moist
Water Samples					
* B7MW-W1	8/10/2012	Monitoring Well B7MW	8.18	-	Groundwater
Quality Control Samples					
* STB	8/6/2012	Soil Trip Blank	-	-	Ottawa sand with methanol added in the laboratory
* WTB	8/10/2012	Water Trip Blank	-	-	Organic-free water blank prepared by laboratory

Notes:

* = Sample analyzed by the project laboratory (See Tables 3 and 4)

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

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

- = Measurement not recorded or not applicable

bgs = Below ground surface

ppm = parts per million

TABLE 2
WELL SAMPLING LOG

	Monitoring Well Number
	B7MW
Water Level Measurement Data	
Date Water Level Measured	8/9/12
Time Water Level Measured	13:08
Measured Depth to Water (ft below TOC)	8.18
Development Data	
Date Sampled	8/10/12
Time Sampled	16:33
Well Screen (ft below MP)	13.6 to 23.6
Measured Depth to Water (ft below MP)	8.18
Total Depth of Well (ft below MP)	23.59
Water Column in Well (ft)	15.41
Gallons per Foot	0.16
Water Column Volume (gallons)	2.47
Total Volume Pumped/Bailed (gallons)	27
Purging/Sampling Method	Submersible pump
Diameter of Well Casing	2-inch
Water Quality Data	
Temperature (°C)	10.39
pH (Standard Units)	7.45
Specific Conductivity (µS/cm)	852
Turbidity (NTU)	>1,000
Remarks	

Notes:

Water quality parameters were measured with Hanna and Hach Instruments

°C = Degrees Celsius

ft = Feet

MP = Measuring Point

µS/cm = Microsiemens per Centimeter

TOC = Top of Casing

NTU = Nephelometric Turbidity Unit

TABLE 3
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs (See Table 1 and Attachment 2)		
			Boring B7		Quality Control
			B7-1 0-1.6	B7-6 12.5-14.5	STB -
PID Headspace Reading - ppm	580B PID	-	2.6	1.3	-
Diesel Range Organics (DRO) - mg/kg	AK 102	250	536	7.72 J	-
Residual Range Organics (RRO) - mg/kg	AK 103	10,000	3,390	57.5	-
Volatile Organic Compounds (VOCs)					
Tetrachloroethene - mg/kg	EPA8260B	0.024	<0.00848 J-	<0.00644 J-	<0.00788
Other VOCs - mg/kg	EPA8260B	Various	ND J-	ND J-	ND

Notes:

* See Attachment 3 for compounds tested, methods, and laboratory reporting limits

** Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75, for the "under 40 inches (precipitation) zone"

^ = Sample ID number preceded by "17399-5" on the chain of custody form

mg/kg = Milligram per kilogram

536 = Reported concentration exceeds the regulated cleanup level

ND = Individual analytes not detected

- = Not applicable or sample not tested for this analyte

J = concentration is estimated at a value less than the laboratory's reporting limit

J- = Select analytes may be biased low due to low surrogate Toluene-8b recovery

TABLE 4
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/L)**	Sample ID Number^ and Water Depth in Feet (See Tables 1 and 2 and Figure 1)	
			Monitoring Well	Quality Control
			B7MW-W1 8.18	WTB -
Diesel Range Organics (DRO) - mg/L	AK 102	1.5	<0.360	-
Residual Range Organics (RRO) - mg/L	AK 103	1.1	<0.300	-
Volatile Organic Compounds (VOCs)				
1,1,1-Trichloroethane - mg/L	EPA8260B	0.2	0.000470 J	<0.000620
Chloromethane - mg/L	EPA8260B	0.066	0.000320 J	<0.000620
Other VOCs	EPA8260B	-	ND	ND

Notes:

* See Attachment 3 for compounds tested, methods, and laboratory reporting limits

** Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (October 2011)

^ = Sample ID number preceded by "17399-05" on the chain of custody form

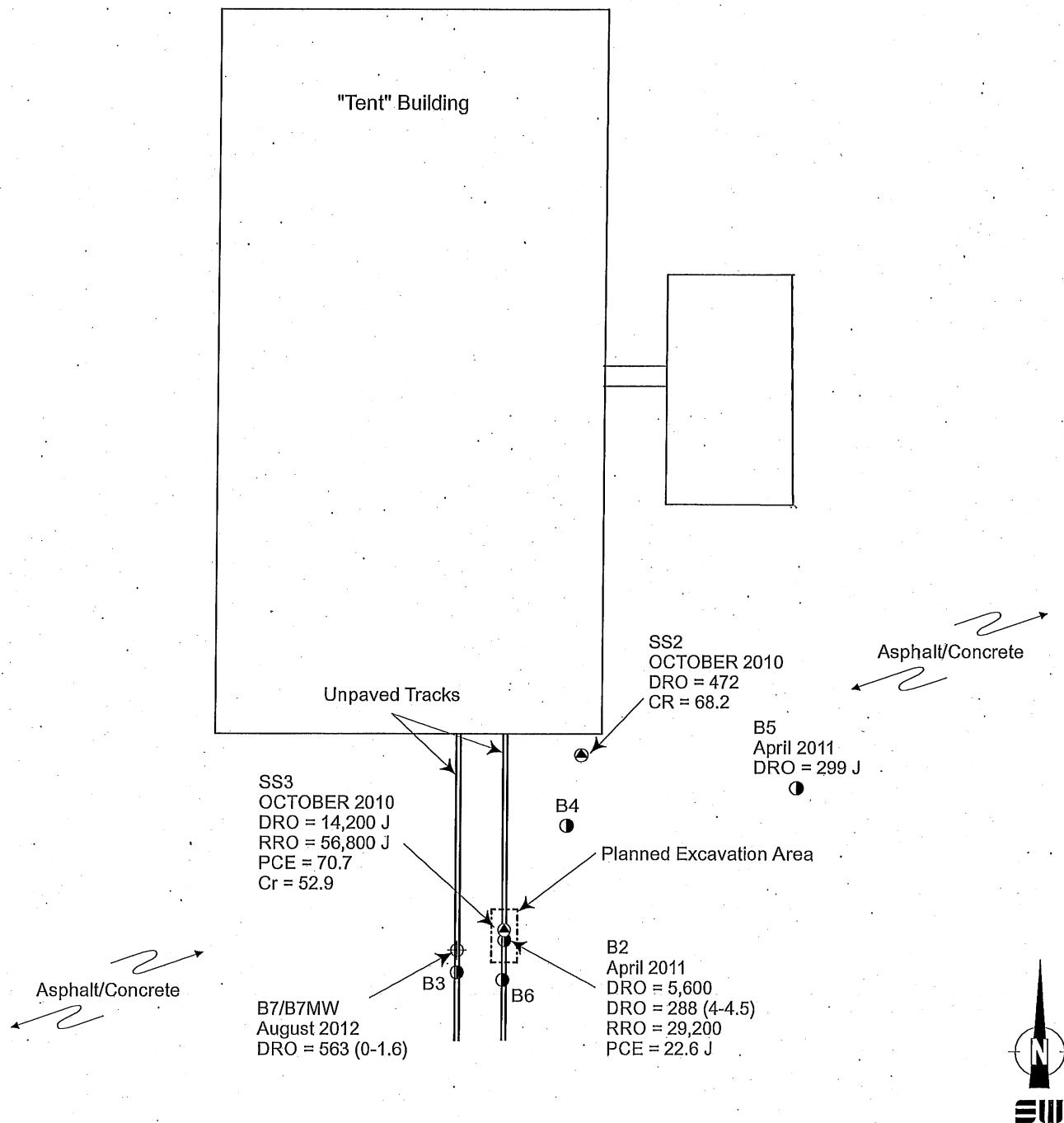
mg/L = Milligrams per liter

<0.360 = Analyte not detected; laboratory limit of detection of 0.360

ND = Individual analytes not detected

- = Not applicable or sample not tested for this analyte

J = concentration is estimated at a value less than the laboratory's reporting limit



LEGEND

- ⊕ Approximate location of Boring/Monitoring Well B7/B7MW installed on August 6, 2012
- ⊙ SS3 = Approximate location of Surface Soil Sample SS3 collected in 2010.
- B2 = Approximate location of Soil Probe B2 advanced in 2011

Soil analytical results reported in milligrams per kilogram (mg/kg) and depths are in feet. Surface soil samples were collected from 0 to 0.5 feet unless otherwise noted. Note: only results that exceed ADEC Method 2 cleanup levels and typical background concentrations (25-25 mg/kg chromium) are shown.

J = estimated concentration

PCE = Tetrachloroethene

RRO = Residual Range Organics

DRO = Diesel Range Organics

360 East 100th Avenue
Anchorage, Alaska

SITE PLAN

October 2012

32-1-17399-005

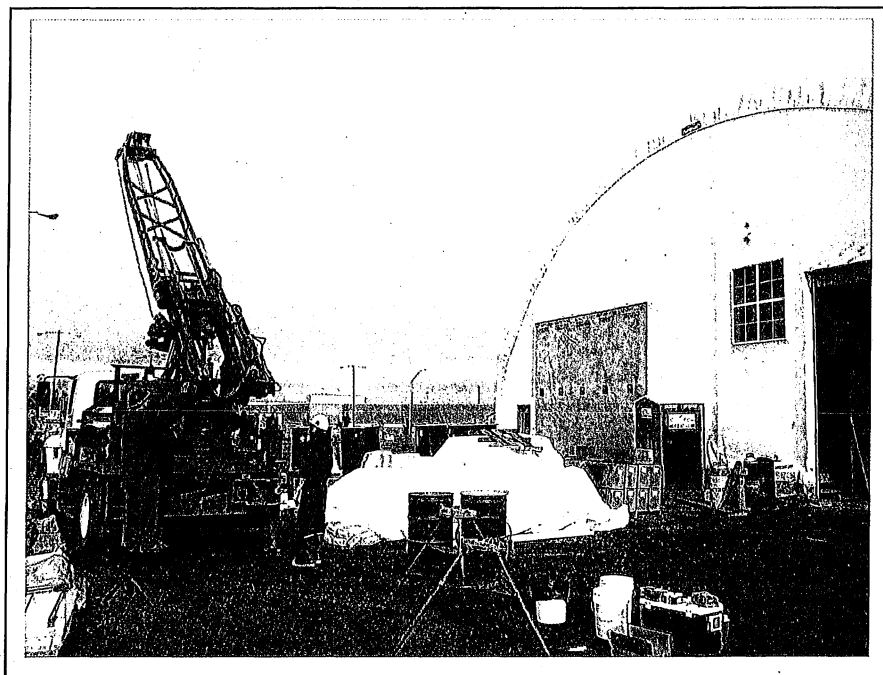


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Fig. 1

ATTACHMENT 1

SITE PHOTOGRAPHS



Photograph 1: Looking northwest at Boring B7/B7MW, located south of the Tent Building. (August 2012)



Photograph 2: Boring B7 was completed as Monitoring Well B7MW. (August 2012)

360 East 100th Avenue
Anchorage, Alaska

PHOTOGRAPHS 1 and 2

October 2012

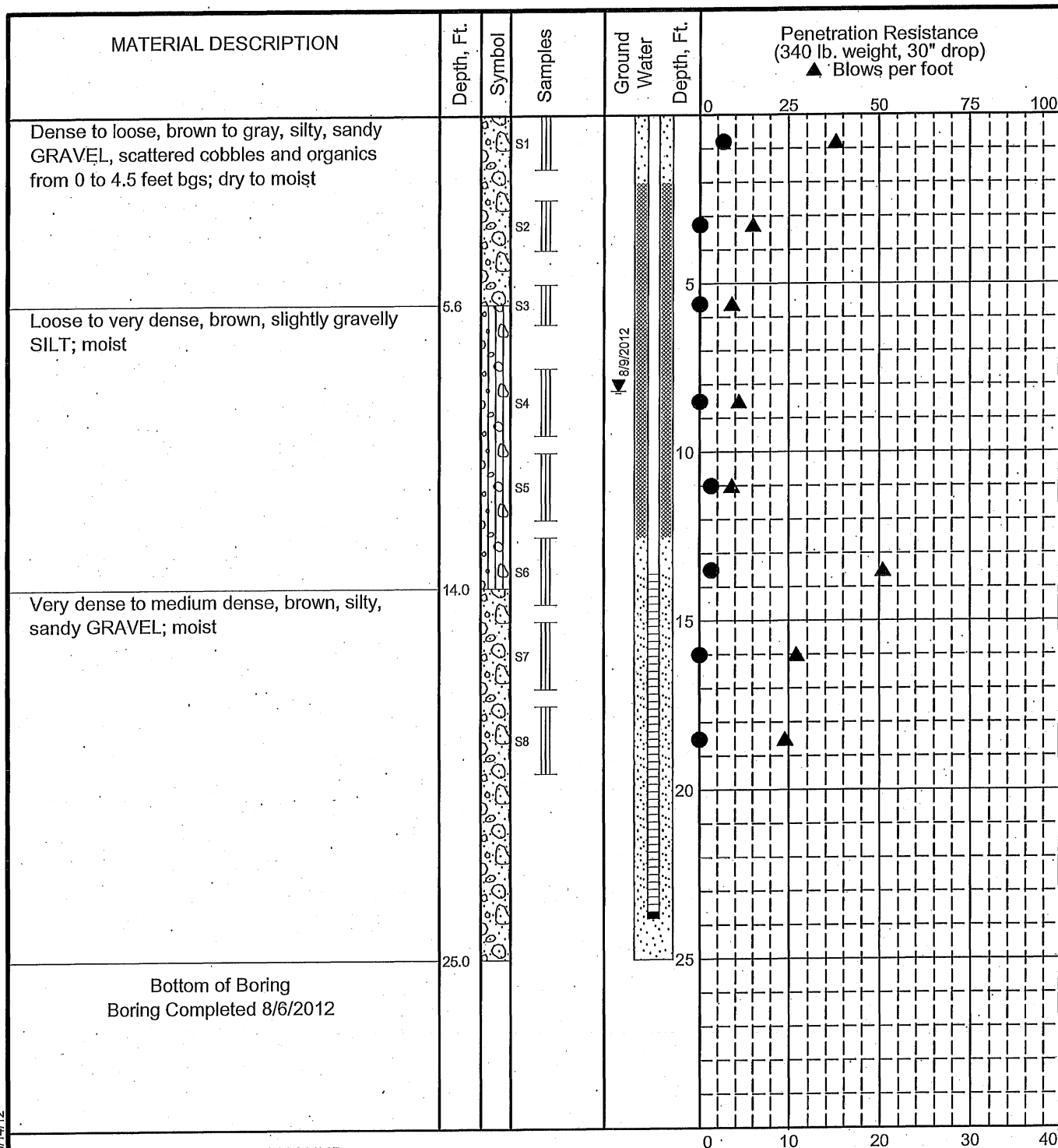
32-1-17399-005



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ATTACHMENT 2

BORING AND WELL COMPLETION LOGS



LEGEND

- * Sample not recovered
- III 3" O.D. Split Spoon Sample
- ▼ Static Water Level
- Solid Casing, Sand Pack
- Solid Casing and Annular Seal
- Slotted Section, Filter Sand
- Solid Casing, Cuttings Backfill

NOTES

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

360 East 100th Avenue
Anchorage, Alaska

LOG OF BORING B7

October 2012

32-1-17399-005

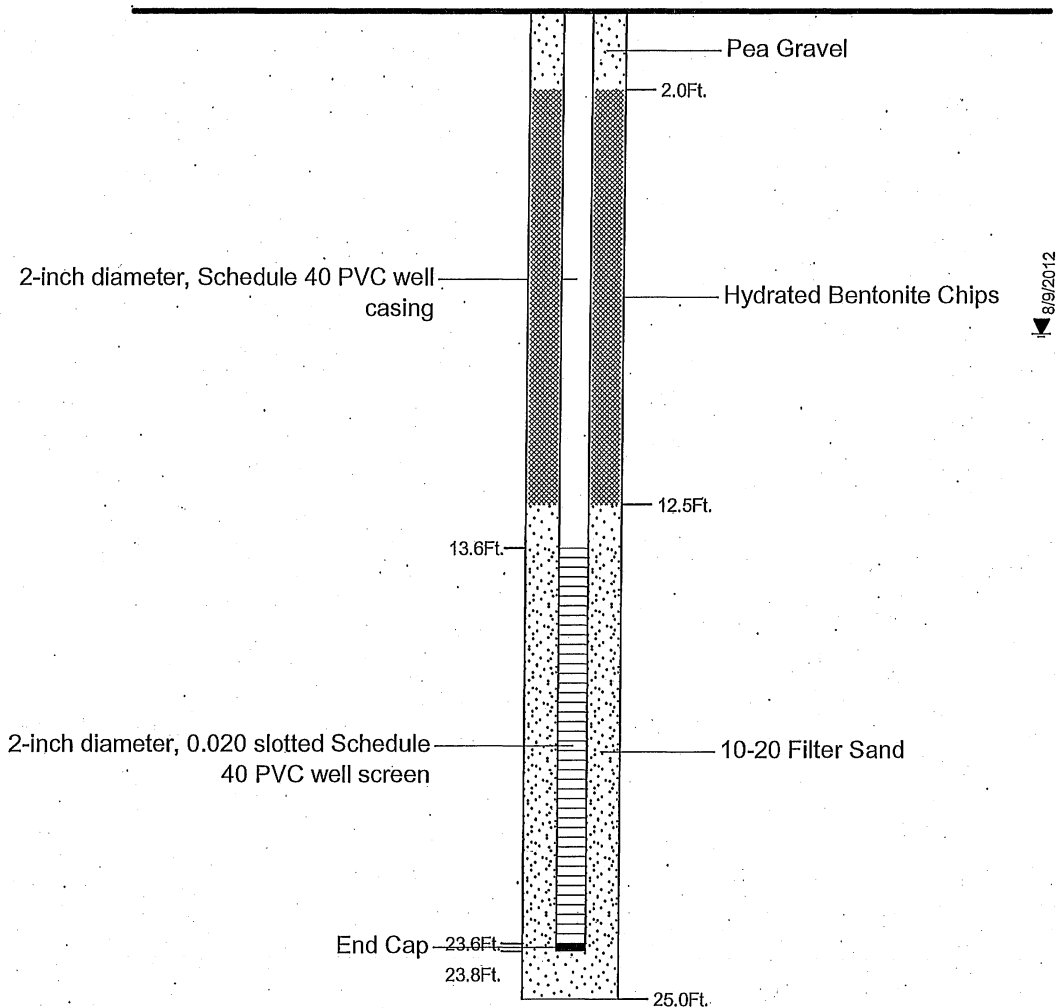


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FIG. 2-1

Casing Description

Backfill Description



LEGEND

- ▽ Groundwater Level ATD
- ▼ Static Groundwater Level

NOTE: All joints use threaded connections.

360 East 100th Avenue
Anchorage, Alaska

**MONITORING WELL B7MW
CONSTRUCTION DETAIL**

October 2012

32-1-17399-005

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Fig. 2-2

ATTACHMENT 3

RESULTS OF ANALYTICAL TESTING BY

SGS NORTH AMERICA INC. OF ANCHORAGE, ALASKA

AND

ADEC LABORATORY DATA REVIEW CHECKLIST



SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project: 32-1-17399-5 360 E. 100th
Client: Shannon & Wilson, Inc.
SGS Work Order: 1123479

Released by:

Stephen C. Ede

Alaska Division Technical Director

Stephen Ede
2012.08.17
10:39:20
-08'00'

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms



Laboratory Analytical Report

Client: **Shannon & Wilson, Inc.**
5430 Fairbanks St., Ste. 3
Anchorage, AK 99518

Attn: **Jake Gano**
T: (907) 561-2120 F:
jrg@shanwil.com

Project: **32-1-17399-5 360 E. 100th**
Workorder No.: **1123479**

Certification:

This data package is in compliance with the terms and conditions of the contract, both technically and for completeness, unless otherwise noted on the sample data sheet(s) and/or case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory. If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Steve Crupi
steven.crupi@sgs.com
Project Manager

Contents (Bookmarked in PDF):

- Cover Page
- Glossary
- Sample Summary Forms
- Case Narrative
- Sample Results Forms
- Batch Summary Forms (by method)
- Quality Control Summary Forms (by method)
- Chain of Custody/Sample Receipt Forms
- Attachments (if applicable)



SAMPLE SUMMARY

Print Date: 8/17/2012 10:38 am

Client Name: Shannon & Wilson, Inc.
Project Name: 32-1-17399-5 360 E. 100th
Workorder No.: 1123479

Analytical Methods

Method Description

Diesel/Residual Range Organics

Diesel/Residual Range Organics

Percent Solids SM2540G

VOC 8260 (S) Field Extracted

Analytical Method

AK102

AK103

SM21 2540G

SW8260B

Sample ID Cross Reference

Lab Sample ID

1123479001

1123479002

1123479003

Client Sample ID

32-1-17399-5-B7-1

32-1-17399-5-B7-6

32-1-17399-5-STB



Shannon & Wilson, Inc.

Print Date: 8/17/2012 10:38 am

Client Sample ID: 32-1-17399-5-B7-1
SGS Ref. #: 1123479001
Project ID: 32-1-17399-5 360 E. 100th
Matrix: Soil/Solid (dry weight)
Percent Solids: 93.1

Collection Date/Time: 08/06/12 09:50

Receipt Date/Time: 08/06/12 13:34

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	536	128	39.8	mg/Kg	4	XFC10519	XXX27641	
Residual Range Organics	3390	128	39.8	mg/Kg	4	XFC10519	XXX27641	
5a Androstane <sur>	117	50-150		%	4	XFC10519	XXX27641	
n-Triacontane-d62 <sur>	71.2	50-150		%	4	XFC10519	XXX27641	

Batch Information

Analytical Batch: XFC10519
Analytical Method: AK102
Analysis Date/Time: 08/11/12 17:42
Dilution Factor: 4

Prep Batch: XXX27641
Prep Method: SW3550C
Prep Date/Time: 08/08/12 18:30

Initial Prep Wt./Vol.: 30.153 g
Prep Extract Vol.: 1.5 mL
Container ID: 1123479001-A
Analyst: MEM

Analytical Batch: XFC10519
Analytical Method: AK103
Analysis Date/Time: 08/11/12 17:42
Dilution Factor: 4

Prep Batch: XXX27641
Prep Method: SW3550C
Prep Date/Time: 08/08/12 18:30

Initial Prep Wt./Vol.: 30.153 g
Prep Extract Vol.: 1.5 mL
Container ID: 1123479001-A
Analyst: MEM



Shannon & Wilson, Inc.

Print Date: 8/17/2012 10:38 am

Client Sample ID: 32-1-17399-5-B7-1

SGS Ref. #: 1123479001

Project ID: 32-1-17399-5 360 E. 100th

Matrix: Soil/Solid (dry weight)

Percent Solids: 93.1

Collection Date/Time: 08/06/12 09:50

Receipt Date/Time: 08/06/12 13:34

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Chloroethane	135 U	218	67.4	ug/Kg	1	VMS13033	VXX23872	
Chloroform	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Chloromethane	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
cis-1,2-Dichloroethene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
cis-1,3-Dichloropropene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Dibromochloromethane	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Dibromomethane	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Dichlorodifluoromethane	32.6 U	54.4	16.3	ug/Kg	1	VMS13033	VXX23872	
Ethylbenzene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Hexachlorobutadiene	32.6 U	54.4	16.3	ug/Kg	1	VMS13033	VXX23872	
Isopropylbenzene (Cumene)	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Methylene chloride	67.4 U	109	33.7	ug/Kg	1	VMS13033	VXX23872	
Methyl-t-butyl ether	67.4 U	109	33.7	ug/Kg	1	VMS13033	VXX23872	
Naphthalene	32.6 U	54.4	16.3	ug/Kg	1	VMS13033	VXX23872	
n-Butylbenzene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
n-Propylbenzene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
o-Xylene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
P & M -Xylene	32.6 U	54.4	16.3	ug/Kg	1	VMS13033	VXX23872	
sec-Butylbenzene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Styrene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
tert-Butylbenzene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Tetrachloroethene	8.48 U	13.6	4.24	ug/Kg	1	VMS13033	VXX23872	
Toluene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
trans-1,2-Dichloroethene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
trans-1,3-Dichloropropene	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Trichloroethene	8.48 U	13.6	4.24	ug/Kg	1	VMS13033	VXX23872	
Trichlorofluoromethane	32.6 U	54.4	16.3	ug/Kg	1	VMS13033	VXX23872	
Vinyl chloride	17.0 U	27.2	8.48	ug/Kg	1	VMS13033	VXX23872	
Xylenes (total)	67.4 U	109	33.7	ug/Kg	1	VMS13033	VXX23872	
1,2-Dichloroethane-D4 <sur>	89	79-118		%	1	VMS13033	VXX23872	
4-Bromofluorobenzene <sur>	93.5	67-138		%	1	VMS13033	VXX23872	
Toluene-d8 <sur>	76.9	* 85-115		%	1	VMS13033	VXX23872	



Shannon & Wilson, Inc.

Print Date: 8/17/2012 10:38 am

Client Sample ID: 32-1-17399-5-B7-1

SGS Ref. #: 1123479001

Project ID: 32-1-17399-5 360 E. 100th

Matrix: Soil/Solid (dry weight)

Percent Solids: 93.1

Collection Date/Time: 08/06/12 09:50

Receipt Date/Time: 08/06/12 13:34

Solids

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	93.1			%	1	SPT8743		

Batch Information

Analytical Batch: SPT8743

Analytical Method: SM21 2540G

Analysis Date/Time: 08/08/12 18:22

Dilution Factor: 1

Initial Prep.Wt./Vol.: 1 mL

Container ID:1123479001-A

Analyst: CNP



Shannon & Wilson, Inc.

Print Date: 8/17/2012 10:38 am

Client Sample ID: 32-1-17399-5-B7-6

SGS Ref. #: 1123479002

Project ID: 32-1-17399-5 360 E. 100th

Matrix: Soil/Solid (dry weight)

Percent Solids: 94.1

Collection Date/Time: 08/06/12 10:45

Receipt Date/Time: 08/06/12 13:34

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
1,1,1,2-Tetrachloroethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		
1,1,1-Trichloroethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,1,2,2-Tetrachloroethane	24.8 U	41.2	12.4	ug/Kg	1	VMS13029	VXX23861	
1,1,2-Trichloroethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		
1,1-Dichloroethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,1-Dichloroethene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,1-Dichloropropene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,2,3-Trichlorobenzene	24.8 U	41.2	12.4	ug/Kg	1	VMS13029	VXX23861	
1,2,3-Trichloropropane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,2,4-Trichlorobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,2,4-Trimethylbenzene	24.8 U	41.2	12.4	ug/Kg	1	VMS13029	VXX23861	
1,2-Dibromo-3-chloropropane	51.2 U	82.5	25.6	ug/Kg	1	VMS13029	VXX23861	
1,2-Dibromoethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		
1,2-Dichlorobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,2-Dichloroethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,2-Dichloropropane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,3,5-Trimethylbenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,3-Dichlorobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
1,3-Dichloropropane	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		
1,4-Dichlorobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
2,2-Dichloropropane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
2-Butanone (MEK)	129 U	206	64.3	ug/Kg	1	VMS13029	VXX23861	
2-Chlorotoluene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
2-Hexanone	129 U	206	64.3	ug/Kg	1	VMS13036		
4-Chlorotoluene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
4-Isopropyltoluene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
4-Methyl-2-pentanone (MIBK)	129 U	206	64.3	ug/Kg	1	VMS13029	VXX23861	
Benzene	6.44 U	10.3	3.22	ug/Kg	1	VMS13029	VXX23861	
Bromobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
Bromochloromethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
Bromodichloromethane	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
Bromoform	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		
Bromomethane	102 U	165	51.1	ug/Kg	1	VMS13029	VXX23861	
Carbon disulfide	51.2 U	82.5	25.6	ug/Kg	1	VMS13029	VXX23861	
Carbon tetrachloride	12.9 U	20.6	6.43	ug/Kg	1	VMS13029	VXX23861	
Chlorobenzene	12.9 U	20.6	6.43	ug/Kg	1	VMS13036		

INCIDENTAL DAMAGE MAY OCCUR DURING SAMPLING ACTIVITIES.

Incidental damage to a facility may occur during sampling activities. Asbestos and lead-based paint sampling often require destructive sampling of pipe insulation, floor tile, walls, doors, ceiling tile, roofing, and other building materials. Shannon & Wilson does not provide for paint repair. Limited repair of asbestos sample locations are provided. However, Shannon & Wilson neither warrants repairs made by our field personnel, nor are we held liable for injuries or damages as a result of those repairs. If you desire a specific form of repair, such as those provided by a licensed roofing contractor, you need to request the specific repair at the time of the proposal. The owner is responsible for repair methods that are not specified in the proposal.

READ RESPONSIBILITY CLAUSES CAREFULLY.

Environmental site assessments/evaluations are less exact than other design disciplines because they are based extensively on judgment and opinion, and there may not have been any (or very limited) investigation of actual subsurface conditions. Wholly unwarranted claims have been lodged against consultants. To limit this exposure, 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 responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses may appear in this report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

Consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed, or conditions at the site have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of the final assessment/evaluation.

An assessment/evaluation of a site helps reduce your risk, but does not eliminate it. Even the most rigorous professional assessment may fail to identify all existing conditions.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, HEALTH, PROPERTY, AND WELFARE OF THE PUBLIC.

If our environmental site assessment/evaluation discloses the existence of conditions that may endanger the safety, health, property, or welfare of the public, we may be obligated under rules of professional conduct, statutory law, or common law to notify you and others of these conditions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland