

January 19, 2009

Mr. Ok Y. Kim
c/o Soloman Kim
10900 N.E. Fourth Street, Suite 1150
Bellevue, WA 98004

2100.26.109
ADEC File No.

RECEIVED

JAN 22 2009

DEPT. OF ENVIRONMENTAL
CONSERVATION

Attn: Mr. Kim

Fax: (425) 637-8666

RE: SPRING 2008 GROUNDWATER SAMPLING AND REMEDIATION SYSTEM MONITORING, FORMER OCEANVIEW TEXACO, 12751 OLD SEWARD HIGHWAY, ANCHORAGE, ALASKA

This letter report presents the results of Shannon & Wilson's Spring 2008 groundwater sampling and remediation system monitoring conducted at the former Oceanview Texaco facility located at 12751 Old Seward Highway in Anchorage, Alaska. The project purpose was to evaluate groundwater quality, and to evaluate the effectiveness of the Vapor Extraction System (VES).

Authorization to proceed with the sampling and monitoring activities was received from Mr. Soloman Kim on July 31, 2007. This work was performed in general accordance with our Alaska Department of Environmental Conservation (ADEC)-approved work plan dated March 3, 2008.

SITE BACKGROUND

The former Oceanview Texaco facility is currently operated as Reed's Auto Service. A vicinity map is provided as Figure 1.

The former underground storage tank (UST) system at the former Oceanview Texaco consisted of two dispensing islands and three USTs: two 6,000-gallon gasoline USTs and one 10,000-gallon gasoline UST. Shannon & Wilson performed a limited UST site assessment in June 1993. The results of the site assessment did not identify soil or groundwater contamination.

The UST system was decommissioned in August 1993. Three USTs, two dispensing islands, and impacted soil that was encountered around the tanks and piping were removed during excavation activities. Approximately 230 cubic yards of soil exceeding ADEC cleanup levels were stockpiled at the site in a long-term storage cell. The UST closure site assessment

also identified soil exceeding ADEC-cleanup levels at the excavation limits. The limits of the former UST excavation are shown in Figure 2.

A new UST system was installed in 1993. One compartmentalized UST with a total capacity of approximately 19,800 gallons was installed in approximately the same location as the former USTs. Dispensing islands and fuel supply piping were also installed in approximately the same locations as the former system.

A release investigation was conducted by Shannon & Wilson in 2001 to evaluate the extent and magnitude of soil and groundwater contamination. Eight soil borings were advanced to collect soil samples. Five borings were completed as monitoring wells, designated as Monitoring Wells MW-1 through MW-5. Three borings were completed as multi-level soil vapor monitoring points (SVPs), designated SVP-1 through SVP-3, and were used during feasibility testing. The locations of the monitoring wells and soil vapor monitoring points are shown in Figure 2.

The release investigation indicated that impacted soil remained in the vicinity of the former USTs, and that impacted groundwater appeared to be limited to the vicinity of the former USTs (Monitoring Well MW-2). Based on the results of this work, a corrective action plan was developed in the spring of 2002 to address site remediation. The corrective action plan included sampling and segregation of the long-term soil stockpile, vapor extraction at the former UST excavation location, and periodic groundwater monitoring. One vapor extraction well, designated VEW1, was installed in September 2002. The vapor extraction system (VES) was started in December 2002.

Benzene concentrations exceeding the ADEC 18 Alaska Administrative Code (AAC) 75.341 Method 2 cleanup level of 0.02 milligrams per kilogram (mg/kg) were identified in the soil samples collected from the boreholes for the Wells MW-2, MW-4, SVP-2, and SVP-3. Toluene, ethylbenzene, and xylene concentrations exceeding ADEC cleanup levels were also reported in soil samples collected from SVP-2. In the boring advanced for SVP-2, concentrations of contaminants ranged from 0.150 mg/kg benzene at 15 to 17 feet below the ground surface (bgs) to 1.12 mg/kg benzene, 28.5 mg/kg toluene, 13.0 mg/kg ethylbenzene, and 82.8 mg/kg xylenes at 20 to 22 feet bgs. In the boring advanced for Monitoring Well MW-2, soil samples from 2.5 to 4.5 feet bgs contained 0.0238 mg/kg benzene, and soil samples from 20 to 22 feet bgs contained 0.0517 mg/kg benzene. Soil samples from 20 to 22 feet bgs in the SVP-3

boring contained 0.782 mg/kg benzene. Soil samples from 17.5 to 19.5 feet bgs in the Monitoring Well MW-4 boring contained 0.0241 mg/kg benzene.

Monitoring Wells MW-1, MW-2 and MW-3 were first sampled in June 2001, and Monitoring Wells MW-4 and MW-5 were first sampled in January 2002. During groundwater monitoring from June 2001 to May 2004, groundwater samples containing concentrations of gasoline range organics (GRO), benzene, and toluene exceeding ADEC 18 AAC 75.345 Table C cleanup levels were found in Wells MW-1, MW-2, and MW-4. Target analytes have not been detected in Monitoring Wells MW-3 and MW-5.

2008 FIELD ACTIVITIES

Groundwater Sampling

Groundwater samples were collected from Monitoring Wells MW-1 through MW-5 on April 24, 2008. Sampling was initiated by using an electronic water level indicator to measure the depth to the water table in each well. A down-hole YSI instrument was used to measure dissolved oxygen in the wells. Prior to sample collection, disposable bailers were used to purge the wells of a minimum of three well volumes, except for Well MW-1, which purged dry. During the purging process, temperature, specific conductance, pH, and dissolved oxygen were measured using YSI water quality instruments to evaluate when the well was producing groundwater representative of the surrounding aquifer. Purge water from the monitoring wells was contained in one 55-gallon drum and stored on site pending receipt of analytical results. Samples were collected using disposable bailers. Water level measurements and water quality parameters for the Spring 2008 sampling event are presented in Table 1.

Based on water level measurements, the groundwater beneath the site appears to flow towards the east-southeast at a gradient of approximately 0.2 percent. The April 2008 groundwater levels measured in the wells were at historical high elevations, relative to the data collected in the previous seven sampling events (Table 3). Historically, groundwater flow direction at the site has been variable, with the flow to the west in January and May 2003, to the north-northwest in November 2003, and to the east-northeast in May 2004.

Remediation System Evaluation

The operating parameters of the remediation system were checked on April 21 and 24, 2008. The VES was running upon arrival on April 21. The timer on the VES was not functioning, although the VES was running continuously. The vacuum reading at the moisture separator on April 21 and 24 was approximately 53 inches of water. Based on the documentation for the Ametek EN404 regenerative blower, this vacuum reading indicates a flow rate of zero. No suction was noted when the well cap was removed from the vapor extraction well with the blower running. A Thermo Instruments OVM 580B photoionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene standard gas was used to measure the volatile organics in the discharge vapor of the exhaust stack. The PID measurement result on April 24 was 1.1 ppm, although flow out the VES exhaust was not discernable. Based on the high vacuum reading, a blockage, possibly ice, was suspected in the piping or tubing. Therefore, the remediation system was shut down on April 24.

During a follow-up visit on May 16, 2008, the remediation system was temporarily restarted for further evaluation. The vacuum reading at the moisture separator was 31.5 inches of water, indicating vapor flow of about 65 cubic feet per minute based on the manufacturer's blower performance curve. A PID measurement of the discharge vapor was taken, with a result of 0.0 ppm. An analytical vapor sample, designated VEW1, was collected from the exhaust stack using a summa canister. The analytical and field samples of the system exhaust were collected with the dilution valve closed.

LABORATORY ANALYSES

Groundwater

The groundwater samples were submitted to SGS Environmental Services (SGS) of Anchorage, Alaska using chain-of-custody procedures. Six groundwater sample, including one duplicate, were analyzed for gasoline range organics (GRO) by Alaska Method 101 (AK101) and aromatic volatile organics (BTEX) by Environmental Protection Agency (EPA) Method 8021B.

A trip blank was analyzed for GRO and BTEX to evaluate potential cross-contamination of volatile constituents. The groundwater analytical results are summarized in Table 2 and a copy of the laboratory report is included in Attachment 1.

Vapor Sample

The vapor sample collected from the VES exhaust stack was submitted to SGS using chain-of-custody procedures. The vapor sample was analyzed for GRO by EPA Method 8015B and BTEX by EPA Method 8021B. The current and historical vapor analytical results are summarized in Table 4, and a copy of the current laboratory report is included in Attachment 1.

DISCUSSION OF ANALYTICAL RESULTS

Groundwater

The groundwater sample collected from Well MW-2 contained GRO, benzene, toluene, and ethylbenzene concentrations exceeding the applicable ADEC cleanup levels. The primary and duplicate samples collected from Well MW-4 also contained benzene concentrations that exceed the benzene cleanup level. GRO and BTEX constituents were not detected in samples collected from Wells MW-1, MW-3, and MW-5.

As seen in the historical data (Table 3), short term decreasing concentration trends are observed in Wells MW-1 and MW-4. In contrast, a short term increasing concentration trend is observed in Well MW-2. Target analytes in Well MW-2 have displayed alternating periods of lower and higher concentrations, with the concentrations varying by more than one order of magnitude.

The historical high groundwater elevations may be one reason for the higher concentrations of target analytes in Well MW-2 and lower concentrations in other wells. Dissolved contaminant concentrations are sometimes observed to increase during periods of high groundwater, as groundwater comes in contact with impacted soil that was previously above the water table. This suggests that some residual soil contamination remains in the soil in the zone of water table fluctuation (smear zone). The variable groundwater flow direction at the site may also be shifting the contaminant plume in different directions. The shift to an easterly groundwater flow may explain the drop in contaminant concentrations in previously downgradient Well MW-4.

Based on elevated benzene concentrations, the purge water generated during our sampling efforts was transported and disposed by Emerald Alaska of Anchorage, Alaska on July 25, 2008.

Vapor

Sample VEW1 contained 1.09 ppm xylenes and an estimated 0.720 ppm toluene, both within the range of historical results. The remaining BTEX constituents and GRO were not detected in the sample.

A cumulative summary of the vapor analytical results is included as Table 4. The historical data indicate that the remediation system was most effective within about the first half year after installation in September 2002. Data collection was sporadic after the first year of operation; however, the limited sampling has demonstrated decreasing concentration trends in the last four sampling events since August 2003. The historical data suggest that the remediation system is not producing cost-effective hydrocarbon vapor removal.

QUALITY ASSURANCE SUMMARY

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQO). Internal laboratory controls to assess data quality generally include method blanks, surrogate samples, and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to determine 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 analysis report. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist, which are included in Attachment 1. No quality control failures that would affect the validity of the results were identified in the laboratory report for the groundwater samples.

The method blank result for toluene vapor was within three times the reported result for toluene in Sample VES1. Therefore, the toluene result for Sample VES1 is considered an estimate.

External quality controls include field records, field duplicate samples, and trip blanks. Data review was performed to assess the field records and analytical test results. Field logs and records were checked for completeness, accuracy, and adherence to field procedures established in ADEC's guidance documents. No discrepancies were identified in the field records that would impact the validity of the data.

A field duplicate sample, designated "MW-6", was collected from Monitoring Well MW-4. The relative percent differences for GRO and benzene in the duplicate set were 3.2 percent and 2.3 percent, respectively, meeting the DQO of 30 percent. GRO or BTEX were not detected in the trip blank, suggesting that cross-contamination did not occur during transport or handling of the project samples.

CONCLUSIONS AND RECOMMENDATIONS

Analytical groundwater samples were collected from five monitoring wells, and one vapor sample was collected from the VES during the Spring 2008 monitoring event. The groundwater sample from Well MW-2 contained concentrations of target analytes at historically high levels, which may be at least partially attributable to elevated groundwater levels or shifts in groundwater flow direction. The changing flow characteristic may also explain concentration changes in Wells MW-4 and MW-1. Results from Wells MW-3 and MW-5 continue to be non-detect.

Based on the current and historical analytical results, we recommend that Monitoring Wells MW-1, MW-2, and MW-4 continue to be monitored on an annual basis. We recommend re-surveying the well elevations to confirm groundwater elevations and groundwater flow direction results.

Hydrocarbon vapors in the exhaust stack of the VES have generally decreased over the most recent monitoring periods, and the VES no longer appears to provide cost-effective remediation. We recommend continued discontinuing operation of the on-site VES system.

CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives in the sampling of this site. The findings presented within this report are based on the limited research, sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's groundwater quality. 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 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 groundwater sampling. 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 information in Attachment 2, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

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 with your permission or as required by law.

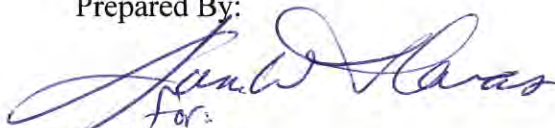
Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) that are signed or sealed by Shannon & Wilson with a wet, blue ink signature. Files provided in electronic media format are furnished solely for the convenience of the client. Any conclusion 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 the hard copies, or you question the authenticity of the report please contact the undersigned.

We appreciate the opportunity to be of service. Please call Matt Henry, P.E. or the undersigned at (907) 561-2120 if you have questions regarding the contents of this report.

Sincerely,

SHANNON & WILSON, INC.

Prepared By:



For:
Andrew Lee
Environmental Scientist

Reviewed By:



Nicholas E. Protos
Sr. Environmental Engineer

Encl: Tables 1 through 4; Figures 1 and 2; Attachments 1 and 2.

TABLE 1 - WATER SAMPLING LOG

WATER LEVEL MEASUREMENT DATA

Well Number	MW-1	MW-2	MW-3	MW-4	MW-5
Date Water Level Measured	4/24/2008	4/24/2008	4/24/2008	4/24/2008	4/24/2008
Time Water Level Measured	9:55	10:08	10:15	10:30	10:39
Measuring Point Elevation*, Feet	100.50	100.26	100.02	99.27	98.02
Depth to Water Below MP, Feet	21.84	21.60	21.22	20.52	19.20
Water Level Elevation, Feet	78.66	78.66	78.80	78.75	78.82

SAMPLING/PURGING DATA

Well Number	MW-1	MW-2	MW-3	MW-4	MW-5
Date Sampled	4/24/2008	4/24/2008	4/24/2008	4/24/2008	4/24/2008
Time Sampled	11:40	12:15	12:50	13:25	14:10
Depth to Water Below MP, Feet	21.84	21.60	21.22	20.52	19.20
Total Depth of Well Below MP, Feet	24.13	24.44	24.61	28.34	29.64
Water Column in Well, Feet	2.29	2.84	3.39	7.82	10.44
Gallons per Foot	0.16	0.16	0.16	0.16	0.16
Gallons in Well	0.37	0.45	0.54	1.25	1.67
Total Gallons Purged/Bailed	1	1.5	2	4	5.5
Purging Method	Disposable Bailer	Disposable Bailer	Disposable Bailer	Disposable Bailer	Disposable Bailer
Sampling Method	Disposable Bailer	Disposable Bailer	Disposable Bailer	Disposable Bailer	Disposable Bailer
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch	2-inch
Remarks	Purged Dry				

WATER QUALITY DATA

Well Number	MW-1	MW-2	MW-3	MW-4	MW-5
Temperature, C	7.3	5.5	6.1	6.9	6.5
Specific Conductance, $\mu\text{S}/\text{cm}$	189	776	644	903	659
pH, Standard Units	6.62	7.05	6.69	6.77	6.64
Dissolved Oxygen, mg/L	4.01	0.92	6.80	1.18	4.55

Water quality parameters measured with YSI instruments.

Sampling Personnel: Andrew Lee

KEY DESCRIPTION

C	Degrees Celsius
MP	Measuring Point
$\mu\text{S}/\text{cm}$	Microsiemens per centimeter
mg/L	Milligrams per liter
*	Measuring point relative to temporary benchmark with assumed elevation of 100.00 feet Survey was conducted by Shannon & Wilson on January 17, 2002

TABLE 2 - SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level**	Sample ID Number^ and Water Depth in Feet (See Table 1, Figure 2, and Attachment 1*)						QC
			MW-1	MW-2	MW-3	MW-4	MW-6~	MW-5	
Gasoline Range Organics (GRO) - mg/L	AK 101	1.3	<0.100	40.6	<0.100	0.350	0.339	<0.100	<0.100
Aromatic Volatile Organics (BTEX)									
Benzene - mg/L	EPA 8021B	0.005	<0.000500	4.02	<0.000500	0.177	0.173	<0.000500	<0.000500
Toluene - mg/L	EPA 8021B	1.0	< 0.00200	9.96	<0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200
Ethylbenzene - mg/L	EPA 8021B	0.7	< 0.00200	2.06	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200
Xylenes - mg/L	EPA 8021B	10.0	< 0.00200	4.71	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200

KEY DESCRIPTION

- ^ Sample ID Number preceded by "16476-" on the chain-of-custody form
- * See Attachment 1 for compounds tested, methods, and laboratory reporting limits
- ** Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (July 2008)
- ~ Quality control duplicate of the preceding sample
- QC Quality Control
- Not applicable
- mg/L Milligrams per liter
- <0.100 Analyte not detected; laboratory reporting limit of 0.100 mg/L
- 40.6 Reported concentration exceeds the regulated cleanup level

TABLE 3 - CUMMULATIVE GROUNDWATER ANALYTICAL RESULTS

Monitoring Well Number	Date	Water Depth in Feet	GRO 1.3* mg/L	Benzene 0.005* mg/L	Toluene 1.0* mg/L	Ethylbenzene 0.7* mg/L	Xylenes 10.0* mg/L
MW-1	6/28/01	23.01	<0.0900	<0.000500	<0.00100	<0.00100	<0.00200
	1/31/03	22.61	0.392	0.0763	0.00211	<0.00200	<0.00200
	5/15/03	22.86	-	0.209	0.00394	<0.00200	<0.00200
	8/7/03	23.20	-	0.0527	0.0376	<0.00200	0.01169
	11/5/03	22.70	-	0.112	0.141	0.00444	0.0308
	5/16/04	22.43	0.143	0.0233	0.0151	<0.00200	0.00209
	4/24/08	21.84	<0.100	<0.000500	<0.00200	<0.00200	<0.00200
MW-2	6/28/01~	22.74	0.518	0.105	0.0399	<0.00100	0.0103
	1/18/02	24.05	0.403	0.168	<0.00200	0.00433	0.00236
	1/31/03~	22.38	28.8	6.12	4.08	0.412	2.121
	5/15/03~	22.64	-	4.86	4.58	0.499	3.29
	8/7/03~	22.92	-	0.206	0.00484	0.0117	0.0373
	11/4/03~	22.41	-	0.071	<0.00200	0.00506	0.0115
	5/16/04~	22.11	0.386	0.163	<0.00200	<0.00200	0.00203
4/24/08	21.60	40.6	4.02	9.96	2.06	4.71	
MW-3	6/28/01	22.60	<0.0900	<0.000500	<0.00100	<0.00100	<0.00200
	1/18/02	24.17	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	1/31/03	22.44	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	5/15/03	22.65	-	<0.000500	<0.00200	<0.00200	<0.00200
	8/7/03	23.01	-	<0.000500	<0.00200	<0.00200	<0.00200
	11/4/03	22.72	-	<0.000500	<0.00200	<0.00200	<0.00200
	5/16/04	21.79	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	4/24/08	21.22	<0.100	<0.000500	<0.00200	<0.00200	<0.00200
MW-4	6/28/01	-	-	-	-	-	-
	1/18/02~	23.37	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	1/31/03	21.71	7.57	2.76	0.261	<0.020	0.1255
	5/15/03	21.89	-	3.06	0.0178	0.00330	0.0269
	8/7/03	22.15	-	3.77	<0.200	<0.200	<0.200
	11/4/03	21.48	-	7.16	<0.200	<0.200	<0.200
	5/16/04	21.00	20.9	9.16	0.00229	0.0425	0.03979
	4/24/08~	20.52	0.350	0.177	<0.00200	<0.00200	<0.00200
MW-5	6/28/01	-	-	-	-	-	-
	1/18/02	22.41	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	1/31/03	20.70	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	5/15/03	20.87	-	<0.000500	<0.00200	<0.00200	<0.00200
	8/7/03	21.15	-	<0.000500	<0.00200	<0.00200	<0.00200
	11/4/03	20.18	-	<0.000500	<0.00200	<0.00200	<0.00200
	5/16/04	19.71	<0.0900	<0.000500	<0.00200	<0.00200	<0.00200
	4/24/08	19.20	<0.100	<0.000500	<0.00200	<0.00200	<0.00200

KEY DESCRIPTION

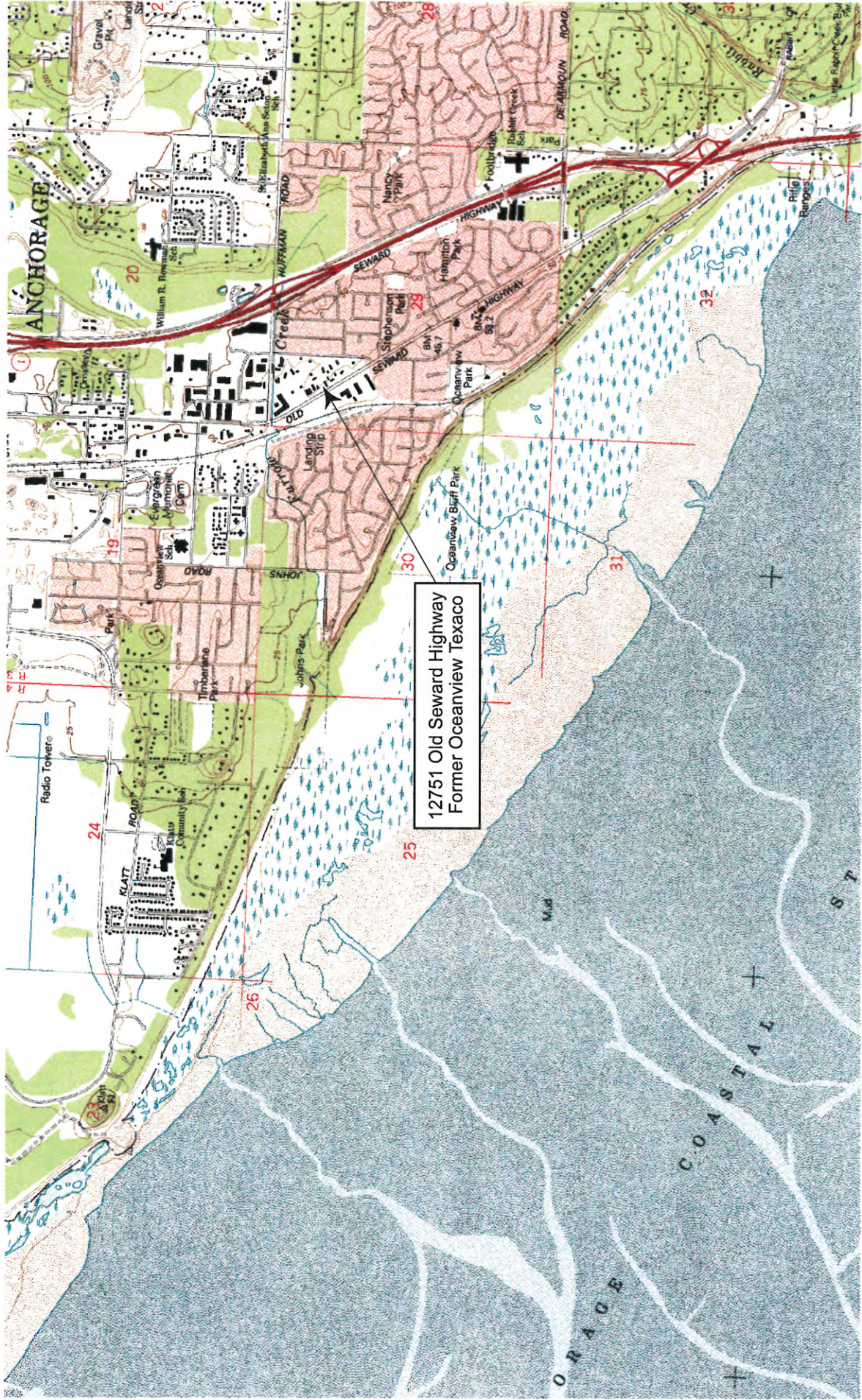
GRO	Gasoline Range Organics
*	Groundwater cleanup levels as listed in 18 AAC 75.345 Table C (July 2008)
mg/L	Milligrams per liter
<0.0900	Analyte not detected; laboratory reporting limit of 0.0900 mg/L
0.392	Analyte detected
0.0763	Reported concentration exceeds cleanup level
-	Not analyzed
~	Higher of analytical duplicate set results

TABLE 4 - CUMMULATIVE VAPOR ANALYTICAL RESULTS

Parameter Tested	Method*	Sample Identification^ and Date									
		VS1 12/3/2002	VS2 12/10/2002	VES2 1/31/2003	VS4 3/24/2003	VSS 8/7/2003	VS 11/4/2003	VES1 2/26/2004	VEW1 5/16/2008		
PID reading - ppm	OVM 580B	211	266	-	47	50	110	25	0.0		
Gasoline Range Organics (GRO) - ppm	EPA 8015M/8015B	630	389	189	999	<20.0	67.6	<20.0	<20.0		
Aromatic Volatile Organics (BTEX)											
Benzene - ppm	EPA 8021B	43.9	32.8	11.0	57.7	<0.780	10.6	<0.780	<0.780		
Toluene - ppm	EPA 8021B	38.8	33.3	11.4	55.0	0.830	10.1	<0.660	0.720 J		
Ethylbenzene - ppm	EPA 8021B	1.12	1.06	<0.580	2.69	<0.580	0.640	<0.580	<0.580		
Xylenes - ppm	EPA 8021B	7.70	6.73	2.21	18.55	0.580	3.56	<0.580	1.09		

KEY DESCRIPTION

- ^ Sample Identification preceded by "32-1-16476" or "16476-27-" on the chain-of-custody form
- All vapor samples collected from the exhaust stack of the vapor extraction system
- * See Attachment 1 for compounds tested, methods, and laboratory reporting limits for the 5/16/2008 sampling event
- J Estimated result
- ppm Parts per million
- No reading taken
- <20.0 Analyte not detected; laboratory reporting limit of 20.0 ppm



12751 Old Seward Highway
Former Oceanview Texaco

Source:
Anchorage A-8 SW, Alaska
U.S. Geological Survey Quadrangle



12751 Old Seward Highway
Anchorage, Alaska

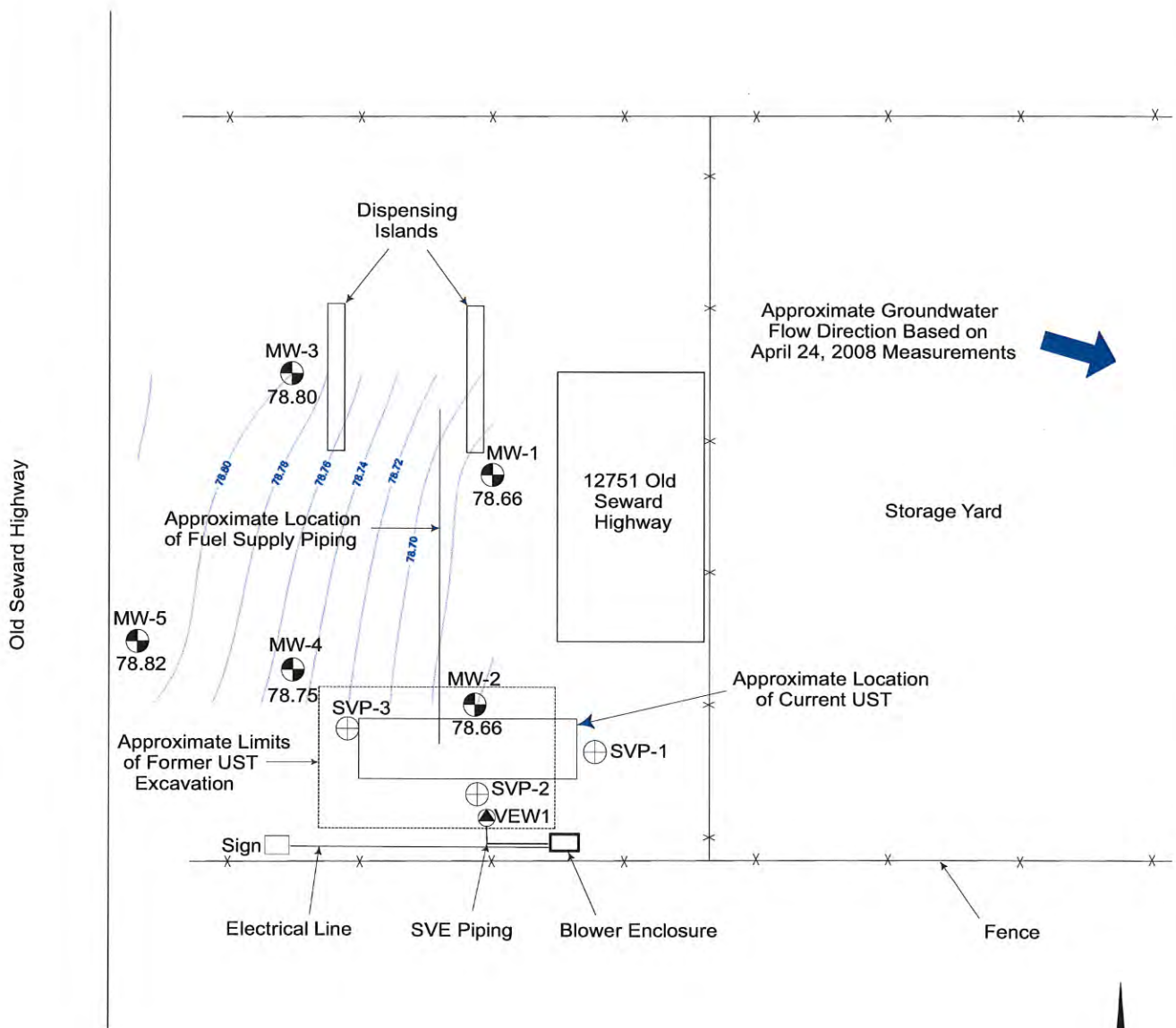
VICINITY MAP

January 2009

32-1-16476-027

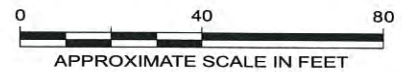
SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 1



LEGEND

- MW-3 Approximate Location of Monitoring Well MW-3
- 78.80 Approximate Groundwater Elevation in Feet Relative to Temporary Benchmark, Measured on April 24, 2008
- SVP-1 Approximate Location of Soil Vapor Monitoring Point SVP-1
- VEW1 Approximate Location of Vapor Extraction Well VEW1
- Estimated Location of Equipotential Line of Potentiometric Groundwater Surface, Elevation of 78.74 Feet Relative to Temporary Benchmark, Measured on April 24, 2008



12751 Old Seward Highway Anchorage, Alaska	
SITE PLAN	
January 2009	32-1-16476-027
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	
Fig. 2	

ATTACHMENT 1

RESULTS OF ANALYTICAL TESTING BY

SGS ENVIRONMENTAL OF ANCHORAGE, ALASKA

AND

ADEC LABORATORY DATA REVIEW CHECKLIST



**SGS Environmental Services
Alaska Division
Level II Laboratory Data Report**

Project: 32-1-16476-27 12751 Old Seward
Client: Shannon & Wilson Inc.
SGS Work Order: 1081668

Released by:

Barbara A.

Barbara A Hager

Barbara Hager
Alaska Division Project Manager

SGS

Hager

2008.04.30

14:53:42 -08'00'

Contents:

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

Note:

Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



Case Narrative

Client SHANNOT Shannon & Wilson Inc.
Workorder 1081668 32-1-16476-27 12751 Old Seward

Printed Date/Time 4/30/2008 14:27

Sample ID Client Sample ID

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



Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: <http://www.us.sgs.com>

Andrew Lee
Shannon & Wilson Inc.
5430 Fairbanks Street
Suite 3
Anchorage, AK 99518

Work Order: 1081668
32-1-16476-27 12751 Old Seward
Client: Shannon & Wilson Inc.
Report Date: April 30, 2008

Barbara A. Hager
Barbara Hager
Alaska Division Project Manager

Released by:
SGS Barbara A. Hager
2008.04.30 14:54:04
-08'00'

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001992 for NELAP (RCRA methods: 1020A, 1311, 6000/7000, 9040B/9045C, 9056A, 9060A, 9065, 8015C, 8021B, 8081B/8082A, 8260B, 8270D).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- PQL Practical Quantitation Limit (reporting limit).
- U Indicates the analyte was analyzed for but not detected.
- F Indicates value that is greater than or equal to the MDL.
- J The quantitation is an estimation.
- ND Indicates the analyte is not detected.
- B Indicates the analyte is found in a blank associated with the sample.
- * The analyte has exceeded allowable regulatory or control limits.
- GT Greater Than
- D The analyte concentration is the result of a dilution.
- LT Less Than
- ! Surrogate out of control limits.
- Q QC parameter out of acceptance range.
- M A matrix effect was present.
- JL The analyte was positively identified, but the quantitation is a low estimation.
- E The analyte result is above the calibrated range.
- R Rejected

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.



SGS Ref.# 1081668001
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW1
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time
Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 11:40
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	ND	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	ND	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	96		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	98.7		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668002
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW2
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time
Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 12:15
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	40.6	10.0	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	4020	50.0	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	9960	200	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	2060	200	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	1510	200	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	3200	200	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	99.7		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	101		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668003
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW3
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 12:50
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	ND	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	ND	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	97.8		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	98		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668004
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW4
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 13:25
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	0.350	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	177	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	101		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	103		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668005
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW5
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time
Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 14:10
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	ND	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	ND	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	98.5		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	98.1		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668006
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-MW6
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 13:35
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	0.339	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	173	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	98.9		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	103		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 1081668007
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID Trip Blank
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time
Printed Date/Time 04/30/2008 14:27
Collected Date/Time 04/24/2008 11:40
Received Date/Time 04/24/2008 16:20
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	ND	0.100	mg/L	AK101	A		04/28/08	04/28/08	HM
Benzene	ND	0.500	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Toluene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
Ethylbenzene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
o-Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
P & M -Xylene	ND	2.00	ug/L	SW8021B	A		04/28/08	04/28/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	97.1		%	AK101	A	50-150	04/28/08	04/28/08	HM
1,4-Difluorobenzene <surr>	97.5		%	SW8021B	A	80-120	04/28/08	04/28/08	HM



SGS Ref.# 825205 Method Blank
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 04/30/2008 14:27
Prep Batch VXX18034
Method SW5030B
Date 04/28/2008

QC results affect the following production samples:

1081668001, 1081668002, 1081668003, 1081668004, 1081668005, 1081668006, 1081668007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
-----------	---------	-------------------------	-----	-------	---------------

Volatile Fuels Department

Gasoline Range Organics ND 0.100 0.0100 mg/L 04/28/08

Surrogates

4-Bromofluorobenzene <surr> 95.6 50-150 % 04/28/08

Batch VFC8915

Method AK101

Instrument HP 5890 Series II PID+FID VCA

Benzene ND 0.500 0.150 ug/L 04/28/08

Toluene ND 2.00 0.620 ug/L 04/28/08

Ethylbenzene ND 2.00 0.620 ug/L 04/28/08

o-Xylene ND 2.00 0.620 ug/L 04/28/08

P & M -Xylene ND 2.00 0.620 ug/L 04/28/08

Surrogates

1,4-Difluorobenzene <surr> 97 80-120 % 04/28/08

Batch VFC8915

Method SW8021B

Instrument HP 5890 Series II PID+FID VCA



SGS Ref.# 825206 Lab Control Sample
825207 Lab Control Sample Duplicate
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 04/30/2008 14:27
Prep Batch VXX18034
Method SW5030B
Date 04/28/2008

QC results affect the following production samples:

1081668001, 1081668002, 1081668003, 1081668004, 1081668005, 1081668006, 1081668007

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Fuels Department</u>							
Benzene	LCS 97.7	98	(80-120)			100 ug/L	04/28/2008
	LCSD 97.1	97		1	(< 20)	100 ug/L	04/28/2008
Toluene	LCS 92.1	92	(80-120)			100 ug/L	04/28/2008
	LCSD 91.2	91		1	(< 20)	100 ug/L	04/28/2008
Ethylbenzene	LCS 91.3	91	(87-125)			100 ug/L	04/28/2008
	LCSD 90.2	90		1	(< 20)	100 ug/L	04/28/2008
o-Xylene	LCS 89.8	90	(85-120)			100 ug/L	04/28/2008
	LCSD 90.5	91		1	(< 20)	100 ug/L	04/28/2008
P & M -Xylene	LCS 181	91	(87-125)			200 ug/L	04/28/2008
	LCSD 179	90		1	(< 20)	200 ug/L	04/28/2008
<u>Surrogates</u>							
1,4-Difluorobenzene <surr>	LCS	102	(80-120)				04/28/2008
	LCSD	102		0			04/28/2008

Batch VFC8915
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA



SGS Ref.# 825208 Lab Control Sample
825209 Lab Control Sample Duplicate
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 04/30/2008 14:27
Prep Batch VXX18034
Method SW5030B
Date 04/28/2008

QC results affect the following production samples:

1081668001, 1081668002, 1081668003, 1081668004, 1081668005, 1081668006, 1081668007

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department							
Gasoline Range Organics	LCS 0.184	92	(60-120)			0.200 mg/L	04/28/2008
	LCSD 0.196	98		6	(< 20)	0.200 mg/L	04/28/2008
Surrogates							
4-Bromofluorobenzene <surr>	LCS	94	(50-150)				04/28/2008
	LCSD	101		7			04/28/2008

Batch VFC8915
Method AK101
Instrument HP 5890 Series II PID+FID VCA

1081668



Page 1 of 1
 Laboratory SGS
 Attn: Barbara Hager

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
 Geotechnical and Environmental Consultants
 400 N. 34th Street, Suite 100
 Seattle, WA 98103
 (206) 632-8020
 2355 Hill Road
 Fairbanks, AK 99709
 (907) 479-0600
 2255 S.W. Canyon Road
 Portland, OR 97201-2498
 (503) 223-6147

303 Wellisian Way
 Richland, WA 99352
 (509) 946-6309

5430 Fairbanks Street, Suite 3
 Anchorage, AK 99518
 (907) 561-2120
 1200 17th Street, Suite 1024
 Denver, Co 80202
 (303) 825-3800

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Total Number of Containers	Remarks/Matrix
16476-MW1	① A-C	11:40	4/29/08	X	X	3	ground water
- MW2	②	12:15		X	X	3	
- MW3	③	12:50		X	X	3	
- MW4	④	13:25		X	X	3	
- MW5	⑤	14:10		X	X	3	
- MW6	⑥	13:35		X	X	3	
↓							
Trip blank	⑦ ↓	-	-			1 box	trip blank

Project Information	Sample Receipt	Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Project Number: 32-1-16476-27	Total Number of Containers	Signature: <u>Andrew Lee</u>	Signature: _____	Signature: _____
Project Name: 12751 Old Street	COC Seals/Intact? Y/N/NA	Printed Name: <u>Andrew Lee</u>	Printed Name: _____	Printed Name: _____
Contact: <u>Andrew Lee & Nick Piro</u>	Received Good Cond./Cold	Date: <u>4/29/08</u>	Date: _____	Date: _____
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method:	Company: <u>Shannon & Wilson</u>	Company: _____	Company: _____
Sampler: <u>Andrew Lee</u>	(attach shipping bill, if any)	Signature: _____	Signature: _____	Signature: _____
Instructions		Time: _____	Time: _____	Time: <u>1620</u>
Requested Turnaround Time: <u>Standard</u>		Printed Name: _____	Printed Name: _____	Printed Name: <u>MES DOUGHY</u>
Special Instructions: <u>Level II</u>		Company: _____	Company: _____	Company: <u>SGS AACH</u>

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

69d 70 = 5.5
 C = 6.2

No. 28837



SAMPLE RECEIPT FORM

SGS WO#:

Yes No NA
 Are samples RUSH, priority or w/in 72 hrs of hold time?
 If yes, have you done e-mail ALERT notification?
 Are samples within 24 hrs. of hold time or due date?
 If yes, have you also spoken with supervisor?
 Archiving bottles (if req'd): Are they properly marked?
 Are there any problems? PM Notified? _____
 Were samples preserved correctly and pH verified?

TAT (circle one): Standard -or- Rush
 Received Date: 4-24-08
 Received Time: 1620
 Is date/time conversion necessary? NO
 # of hours to AK Local Time: _____
 Thermometer ID: 69d

Cooler ID	Temp Blank	Cooler Temp
<u>1</u>	<u>5.5</u> °C	<u>62</u> °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply) Client
 Alert Courier / UPS / FedEx / USPS / DHL /
 AA Goldstreak / NAC / ERA / PenAir / Carlisle /
 Lynden / SGS / Other: _____

Airbill # _____

Additional Sample Remarks: (✓if applicable)
 Extra Sample Volume?
 Limited Sample Volume?
 MeOH field preserved for volatiles?
 Field-filtered for dissolved _____
 Lab-filtered for dissolved _____
 Ref Lab required? _____
 Foreign Soil? _____

This section must be filled out for DoD projects (USACE, Navy, AFCEE)

Yes	No		Samples/Analyses Affected:
_____	_____	Is received temperature $-4 \pm 2^{\circ}\text{C}$?	_____
_____	_____	Exceptions: _____	_____
_____	_____	If temperature(s) $< 0^{\circ}\text{C}$, were containers ice-free? N/A	_____
_____	_____	Notify PM immediately of any ice in samples.	_____
_____	_____	Was there an airbill? (Note # above in the right hand column)	_____
_____	_____	Was cooler sealed with custody seals?	_____
_____	_____	# / where: _____	_____
_____	_____	Were seal(s) intact upon arrival?	_____
_____	_____	Was there a COC with cooler?	_____
_____	_____	Was COC sealed in plastic bag & taped inside lid of cooler?	_____
_____	_____	Was the COC filled out properly?	_____
_____	_____	Did the COC indicate USACE / Navy / AFCEE project?	_____
_____	_____	Did the COC and samples correspond?	_____
_____	_____	Were all sample packed to prevent breakage?	_____
_____	_____	Packing material: _____	_____
_____	_____	Were all samples unbroken and clearly labeled?	_____
_____	_____	Were all samples sealed in separate plastic bags?	_____
_____	_____	Were all VOCs free of headspace and/or MeOH preserved?	_____
_____	_____	Were correct container / sample sizes submitted?	_____
_____	_____	Is sample condition good?	_____
_____	_____	Was copy of CoC, SRF, and custody seals given to PM to fax?	_____

This section must be filled if problems are found.

Yes No
 _____ Was client notified of problems?

Individual contacted: _____
 Via: Phone / Fax / Email (circle one)
 Date/Time: _____
 Reason for contact: _____

Change Order Required? _____
 SGS Contact: _____

Notes: _____

Completed by (sign): James Dougherty (print): JAMES DOUGHTY
 Login proof (check one): waived _____ required _____ performed by: _____

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No. E X E M P T		Manifest Document No 0 7 9 8 6	2 Page 1 of 1
3 Generator's Name and Mailing Address REED'S AUTO SERVICE 12751 OLD SEWARD HIGHWAY ANCHORAGE, AK 99515					
4 Generator's Phone ((907) 561-2120)					
5 Transporter 1 Company Name EMERALD SERVICES, INC.		6 US EPA ID Number W A D O 5 8 3 6 4 6 4 7		A. State Transporter's ID	
7 Transporter 2 Company Name		8 US EPA ID Number		B. Transporter 1 Phone (206) 832-3000	
9 Designated Facility Name and Site Address EMERALD ALASKA, INC. 2020 VIKING DRIVE ANCHORAGE, AK 99501		10 US EPA ID Number A K R 0 0 0 0 0 4 1 8 4		C. State Transporter's ID	
				D. Transporter 2 Phone	
				E. State Facility's ID	
				F. Facility's Phone (907) 258-1558	
11 WASTE DESCRIPTION			12. Containers		13. Total Quantity
			No	Type	14. Unit Wt/Vol.
IM X a. UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (BENZENE), 9, PG-III, ERG#171			1	DM	15 G
b.					
c.					
d.					
G. Additional Descriptions for Materials Listed Above a) AK08100 WATER CONTAMINATED WITH BENZENE			H. Handling Codes for Wastes Listed Above a) H135		
15 Special Handling Instructions and Additional Information Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.					
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.					
Printed/Typed Name Roxanne Pedersen/Emerald Alaska, Inc. c/o Shannon & Wilson, INC.				Signature <i>Roxanne Pedersen</i>	
17 Transporter 1 Acknowledgement of Receipt of Materials				Date 07 25 08	
Printed/Typed Name CHRISTOPHER J. CAMPO				Signature <i>Christopher J. Campo</i>	
18 Transporter 2 Acknowledgement of Receipt of Materials				Date 07 25 08	
Printed/Typed Name				Signature	
19 Discrepancy Indication Space					
20. Facility Owner or Operator, Certification of receipt of the waste materials covered by this manifest, except as noted in item 19				Date	
Printed/Typed Name MOISES ARAGONA				Signature <i>Moises Aragona</i>	
				Date 7 31 08	

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY



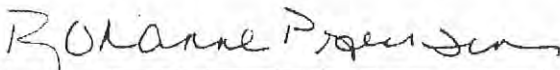
CERTIFICATE OF DISPOSAL / RECYCLE

GENERATOR: Reed's Auto Service
12751 Old Seward Highway
Anchorage, AK 99515

Shannon & Wilson, Inc.
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

EPA ID NUMBER: Exempt Generator
MANIFEST/DOCUMENT NUMBER: 07986
DATE OF DISPOSAL/RECYCLE: July 31, 2008

<u>LINE / DESCRIPTION</u>	<u>CONTAINERS</u>	<u>QUANTITY</u>
1a UN3082, Environmentally Hazardous Substances, Liquid, N.O.S. (Benzene), 9, PGIII (Benzene Contaminated Water for Treatment/Discharge)	1 DM	15 Gallons


Roxanne Pedersen, Client Services

August 8, 2008

Your Local Partner for Recycling and Environmental Services.

Laboratory Data Review Checklist

Completed by:

Title:

Date:

CS Report Name:

Report Date:

Consultant Firm:

Laboratory Name:

Laboratory Report Number:

ADEC File Number:

ADEC RecKey Number:

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No 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 Comments:

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No Comments:

b. Correct analyses requested?

Yes No

Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No

Comments:

Cooler temperature was 6.2 degrees C.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No

Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No

Comments:

Laboratory noted that there were no problems.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No

Comments:

NA

e. Data quality or usability affected? Explain.

Comments:

No, temperature blank was 5.5 degrees C, samples were still in process of cooling when delivered.

4. Case Narrative

a. Present and understandable?

Yes No

Comments:

b. Discrepancies, errors or QC failures identified by the lab?

Yes No

Comments:

c. Were all corrective actions documented?

Yes No

Comments:

NA

d. What is the effect on data quality/usability according to the case narrative?

Comments:

NA

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No

Comments:

b. All applicable holding times met?

Yes No

Comments:

c. All soils reported on a dry weight basis?

Yes No

Comments:

NA

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No

Comments:

e. Data quality or usability affected? Explain.

Comments:

NA

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No

Comments:

ii. All method blank results less than PQL?

Yes No Comments:

iii. If above PQL, what samples are affected?

Comments:

NA

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No Comments:

NA

v. Data quality or usability affected? Explain.

Comments:

NA

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes No Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No Comments:

NA

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 Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

NA

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

NA

vii. Data quality or usability affected? Explain.

Comments:

NA

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No

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

Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

NA

iv. Data quality or usability affected? Explain.

Comments:

NA

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and cooler?

Yes No

Comments:

ii. All results less than PQL?

Yes No

Comments:

iii. If above PQL, what samples are affected?

Comments:

NA

iv. Data quality or usability affected? Explain.

Comments:

NA

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No

Comments:

ii. Submitted blind to lab?

Yes No

Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No

Comments:

iv. Data quality or usability affected? Explain.

Comments:

NA

f. Decontamination or Equipment Blank (if applicable)

Yes No Not Applicable

i. All results less than PQL?

Yes No Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? Explain.

Comments:

NA

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

a. Defined and appropriate?

Yes No Comments:



**SGS Environmental Services
Alaska Division
Level II Laboratory Data Report**

Project: 32-1-16476-27 12751 Old Seward
Client: Shannon & Wilson Inc.
SGS Work Order: 1082164

Released by:

Barbara A Hager

Barbara Hager
Alaska Division Project Manager



Barbara A. Hager

2008.06.05 11:38:07 -08

Contents:

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

Note:

Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



Case Narrative

Client SHANNOT Shannon & Wilson Inc.
Workorder 1082164 32-1-16476-27 12751Old Seward

Printed Date/Time 6/4/2008 16:28

Sample ID Client Sample ID

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



Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: <http://www.us.sgs.com>

Andrew Lee
Shannon & Wilson Inc.
5430 Fairbanks Street
Suite 3
Anchorage, AK 99518

Work Order: 1082164
32-1-16476-27 12751 Old Seward
Client: Shannon & Wilson Inc.
Report Date: June 04, 2008

Released by: *Barbara A. Hager*
SGS Barbara A. Hager
2008.06.05
11:38:20 -08'00'

Barbara A. Hager
Barbara Hager
Alaska Division Project Manager

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001992 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 9065, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

PQL	Practical Quantitation Limit (reporting limit).
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected.
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
GT	Greater Than
D	The analyte concentration is the result of a dilution.
LT	Less Than
!	Surrogate out of control limits.
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
JL	The analyte was positively identified, but the quantitation is a low estimation.
E	The analyte result is above the calibrated range.
R	Rejected

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.



SGS Ref.# 1082164001
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Client Sample ID 16476-27-VEW1
Matrix Gas & Air

All Dates/Times are Alaska Standard Time

Printed Date/Time 06/04/2008 16:28
Collected Date/Time 05/16/2008 16:53
Received Date/Time 05/20/2008 14:50
Technical Director Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<u>Volatile Fuels Department</u>									
Gasoline Range Organics	ND	20.0	ppm	SW8015B	A		06/04/08	06/04/08	HM
Benzene	ND	0.780	ppm	SW8021B	A		06/04/08	06/04/08	HM
Toluene	0.720	0.660	ppm	SW8021B	A		06/04/08	06/04/08	HM
Ethylbenzene	ND	0.580	ppm	SW8021B	A		06/04/08	06/04/08	HM
o-Xylene	ND	0.580	ppm	SW8021B	A		06/04/08	06/04/08	HM
P & M -Xylene	1.09	0.580	ppm	SW8021B	A		06/04/08	06/04/08	HM
<u>Surrogates</u>									
4-Bromofluorobenzene <surr>	83.1		%	SW8015B	A	50-150	06/04/08	06/04/08	HM
1,4-Difluorobenzene <surr>	98.8		%	SW8021B	A	60-120	06/04/08	06/04/08	HM



SGS Ref.# 832427 Method Blank
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Matrix Gas & Air

Printed Date/Time 06/04/2008 16:28
Prep Batch VXX18208
Method SW5030B
Date 06/04/2008

QC results affect the following production samples:

1082164001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	20.0	20.0	ppm	06/04/08
Surrogates					
4-Bromofluorobenzene <surr>	80.6	50-150		%	06/04/08
Batch	VFC8991				
Method	SW8015B				
Instrument	HP 5890 Series II PID+HECD VBA				
Benzene	ND	0.780	0.243	ppm	06/04/08
Toluene	0.310 J	0.660	0.249	ppm	06/04/08
Ethylbenzene	ND	0.580	0.390	ppm	06/04/08
o-Xylene	ND	0.580	0.411	ppm	06/04/08
P & M -Xylene	ND	0.580	0.580	ppm	06/04/08
Surrogates					
1,4-Difluorobenzene <surr>	98.2	50-150		%	06/04/08
Batch	VFC8991				
Method	SW8021B				
Instrument	HP 5890 Series II PID+HECD VBA				



SGS Ref.# 832429 Duplicate
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Original 1082164001
Matrix Gas & Air

Printed Date/Time 06/04/2008 16:28
Prep Batch VXX18208
Method SW5030B
Date 6/4/2008 9:00:00AM

QC results affect the following production samples:
1082164001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
-----------	-----------------	-----------	-------	-----	------------	---------------

Volatile Fuels Department

Gasoline Range Organics	ND	ND	ppm	0	(< 50)	06/04/2008
-------------------------	----	----	-----	---	---------	------------

Surrogates

4-Bromofluorobenzene <surr>	83.1	0.0363	%	14		06/04/2008
-----------------------------	------	--------	---	----	--	------------

Batch VFC8991
Method SW8015B
Instrument HP 5890 Series II PID+HECD VBA

Benzene	ND	ND	ppm	0	(< 50)	06/04/2008
---------	----	----	-----	---	---------	------------

Toluene	0.720	0.720	ppm	0	(< 50)	06/04/2008
---------	-------	-------	-----	---	---------	------------

Ethylbenzene	ND	ND	ppm	0	(< 50)	06/04/2008
--------------	----	----	-----	---	---------	------------

o-Xylene	ND	0.560	ppm	0	(< 50)	06/04/2008
----------	----	-------	-----	---	---------	------------

P & M -Xylene	1.09	1.38	ppm	24	(< 50)	06/04/2008
---------------	------	------	-----	----	---------	------------

Surrogates

1,4-Difluorobenzene <surr>	98.8	0.0495	%	0		06/04/2008
----------------------------	------	--------	---	---	--	------------

Batch VFC8991
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 832428 Lab Control Sample
Client Name Shannon & Wilson Inc.
Project Name/# 32-1-16476-27 12751 Old Seward
Matrix Gas & Air

Printed Date/Time 06/04/2008 16:28
Prep Batch VXX18208
Method SW5030B
Date 06/04/2008

QC results affect the following production samples:
1082164001

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Surrogates							
1,4-Difluorobenzene <surrogate>	LCS	107	(60-120)				06/04/2008

Batch VFC8991
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA

Volatile Fuels Department

Benzene	LCS	104	104	(70-130)		100 ppmv	06/04/2008
Toluene	LCS	101	101	(70-130)		100 ppmv	06/04/2008
Ethylbenzene	LCS	104	104	(70-130)		100 ppmv	06/04/2008
o-Xylene	LCS	102	102	(70-130)		100 ppmv	06/04/2008
P & M -Xylene	LCS	206	103	(70-130)		200 ppmv	06/04/2008

Batch VFC8991
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA



SAMPLE RECEIPT FORM

SGS WO#:

- Yes No NA Are samples RUSH, priority or w/in 72 hrs of hold time?
- If yes, have you done e-mail ALERT notification?
- Are samples within 24 hrs. of hold time or due date?
- If yes, have you also spoken with supervisor?
- Archiving bottles (if req'd): Are they properly marked?
- Are there any problems? PM Notified? _____
- Were samples preserved correctly and pH verified?

TAT (circle one): Standard or- Rush

Received Date: 5-20-08

Received Time: 1450

Is date/time conversion necessary? NO

of hours to AK Local Time: _____

Thermometer ID: AMB/PAT

Cooler ID	Temp Blank	Cooler Temp
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C
_____	_____ °C	_____ °C

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply): Client

- Alert Courier / UPS / FedEx / USPS / DHL /
- AA Goldstreak / NAC / ERA / PenAir / Carlisle /
- Lynden / SGS / Other: _____

Airbill # _____

Additional Sample Remarks: (✓if applicable)

- Extra Sample Volume? _____
- Limited Sample Volume? _____
- MeOH field preserved for volatiles? _____
- Field-filtered for dissolved _____
- Lab-filtered for dissolved _____
- Ref Lab required? _____
- Foreign Soil? _____

This section must be filled out for DoD projects (USACE, Navy, AFCEE)

- | Yes | No | | Samples/Analyses Affected: |
|-------|-------|--|----------------------------|
| _____ | _____ | Is received temperature 4 ± 2°C? | _____ |
| _____ | _____ | Exceptions: _____ | _____ |
| _____ | _____ | If temperature(s) < 0 °C, were containers ice-free? N/A | _____ |
| _____ | _____ | <small>Notify PM immediately of any ice in samples.</small> | _____ |
| _____ | _____ | Was there an airbill? <small>(Note # above in the right hand column)</small> | _____ |
| _____ | _____ | Was cooler sealed with custody seals? | _____ |
| _____ | _____ | # / where: _____ | _____ |
| _____ | _____ | Were seal(s) intact upon arrival? | _____ |
| _____ | _____ | Was there a COC with cooler? | _____ |
| _____ | _____ | Was COC sealed in plastic bag & taped inside lid of cooler? | _____ |
| _____ | _____ | Was the COC filled out properly? | _____ |
| _____ | _____ | Did the COC indicate USACE / Navy / AFCEE project? | _____ |
| _____ | _____ | Did the COC and samples correspond? | _____ |
| _____ | _____ | Were all sample packed to prevent breakage? | _____ |
| _____ | _____ | Packing material: _____ | _____ |
| _____ | _____ | Were all samples unbroken and clearly labeled? | _____ |
| _____ | _____ | Were all samples sealed in separate plastic bags? | _____ |
| _____ | _____ | Were all VOCs free of headspace and/or MeOH preserved? | _____ |
| _____ | _____ | Were correct container / sample sizes submitted? | _____ |
| _____ | _____ | Is sample condition good? | _____ |
| _____ | _____ | Was copy of CoC, SRF, and custody seals given to PM to fax? | _____ |

This section must be filled if problems are found.

Yes No _____ Was client notified of problems?

Individual contacted: _____

Via: Phone / Fax / Email (circle one)

Date/Time: _____

Reason for contact: _____

Change Order Required? _____

SGS Contact: _____

Notes: _____

Completed by (sign): [Signature] (print): JAMES DOUGHERTY

Login proof (check one): waived _____ required _____ performed by: _____

Laboratory Data Review Checklist

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No

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

Comments:

NA

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

Yes No

Comments:

b. Correct analyses requested?

Yes No

Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?

Yes No

Comments:

NA

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No

Comments:

NA

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No

Comments:

NA

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No Comments:

NA

e. Data quality or usability affected? Explain.

Comments:

NA

4. Case Narrative

a. Present and understandable?

Yes No Comments:

No notes in case narrative

b. Discrepancies, errors or QC failures identified by the lab?

Yes No Comments:

c. Were all corrective actions documented?

Yes No Comments:

NA

d. What is the effect on data quality/usability according to the case narrative?

Comments:

NA

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No Comments:

b. All applicable holding times met?

Yes No Comments:

c. All soils reported on a dry weight basis?

Yes No Comments:

NA

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No Comments:

NA

e. Data quality or usability affected? Explain.

Comments:

NA

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No Comments:

ii. All method blank results less than PQL?

Yes No Comments:

iii. If above PQL, what samples are affected?

Comments:

NA

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No Comments:

v. Data quality or usability affected? Explain.

Comments:

NA

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes No Comments:

LCS, but no LCSD. However, sample duplicate was reported.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No Comments:

NA

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 Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

NA

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No Comments:

NA

vii. Data quality or usability affected? Explain.

Comments:

No, Sample duplicate result meets laboratory RPD.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No 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 Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No Comments:

NA

iv. Data quality or usability affected? Explain.

Comments:

NA

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and cooler?

Yes No Comments:

NA

ii. All results less than PQL?

Yes No Comments:

NA

iii. If above PQL, what samples are affected?

Comments:

NA

iv. Data quality or usability affected? Explain.

Comments:

NA

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No Comments:

ii. Submitted blind to lab?

Yes No

Comments:

NA

iii. Precision – All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No

Comments:

NA

iv. Data quality or usability affected? Explain.

Comments:

NA

f. Decontamination or Equipment Blank (if applicable)

Yes No Not Applicable

i. All results less than PQL?

Yes No

Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? Explain.

Comments:

NA

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

a. Defined and appropriate?

Yes No

Comments:

NA

Completed by:

Andrew Lee

Title:

Environmental Scientist

Date:

July 18, 2008

CS Report Name:

Spring 2008 Groundwater Sampling and Remediation System Monitoring, Former Oceanview Texaco, 12751 Old Seward Highway, Anchorage, Alaska

Report Date:

January 16, 2009

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS Environmental Services

Laboratory Report Number:

1082164

ADEC File Number:

2100.26.109

ADEC RecKey Number:

1993210030901

ATTACHMENT 2

**“IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT”**



Date: January 2009
To: Mr. Ok Y. Kim
Re: Spring 2008 Groundwater Sampling and
Remediation System Monitoring, Former
Oceanview Texaco, 12751 Old Seward
Highway, Anchorage, Alaska

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