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June 26, 2013

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ADEC SPAR - RFA
Contract Management Section

Mr. Paul Horwath
Alaska Department of Environmental Conservation
43335 K-Beach Road, Suite 11
Soldotna, Alaska 99669

**RE: MAY 2013 GROUNDWATER SAMPLING, TRAILSIDE GENERAL STORE,
HOMER, ALASKA; ADEC HAZARD ID 25046**

This letter report presents the results of our May 2013 groundwater sampling efforts at the Trailside General Store, 345 West Sterling Highway, Homer, Alaska. A vicinity map of the area is included as Figure 1. A site plan showing the monitoring well locations is included as Figure 2. The objective of the groundwater sampling effort was to document the site's current groundwater contaminant concentrations.

Notice to Proceed No. 18-4002-12-045C was received from Dennis Harwood, Contract Manager for the Alaska Department of Environmental Conservation (ADEC), on March 26, 2013. Work for this project was conducted under Shannon & Wilson's ADEC Hazardous Substance Spill Prevention and Cleanup Term Contract 18-4002-12. The work was conducted in material accordance with our February 13, 2013 proposal.

FIELD ACTIVITIES

The field activities were conducted on May 21, 2013 by an ADEC-qualified person. The field activities included monitoring well maintenance; collecting water samples from a 1,000-gallon underground storage tank (UST); and measuring the depth-to-water, purging, and sampling five groundwater monitoring wells. Selected photographs taken during the field activities are provided in Attachment 1. Field notes are provided in Attachment 2.

Monitoring Well Maintenance

The well casings for Monitoring Wells MW-4, MW-7, and MW-12 were observed during the June 2012 sampling event to have frost jacked. On May 21, 2013, the casings of Wells MW-4, MW-7, and MW-12 were cut down by 0.20 foot, 0.21 foot, and 0.18 foot, respectively, to allow for clearance between the well plugs and the flush monument covers. Photos of the repaired

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Mr. Paul Horwath
Alaska Department of Environmental Conservation
June 26, 2013
Page 2 of 5

wells are provided in Photos 1 through 3. The monitoring wells were not surveyed for elevation after well maintenance activities (not in work scope).

UST Contained Water Sampling

Two water samples, including a field duplicate, were collected from the western standpipe of the underground storage tank (UST) on May 21, 2013. Sheen was not observed on the water from the UST. The samples were collected using a dedicated bailer, and were collected prior to using the UST for purge water disposal. The UST standpipes are shown in Photo 4.

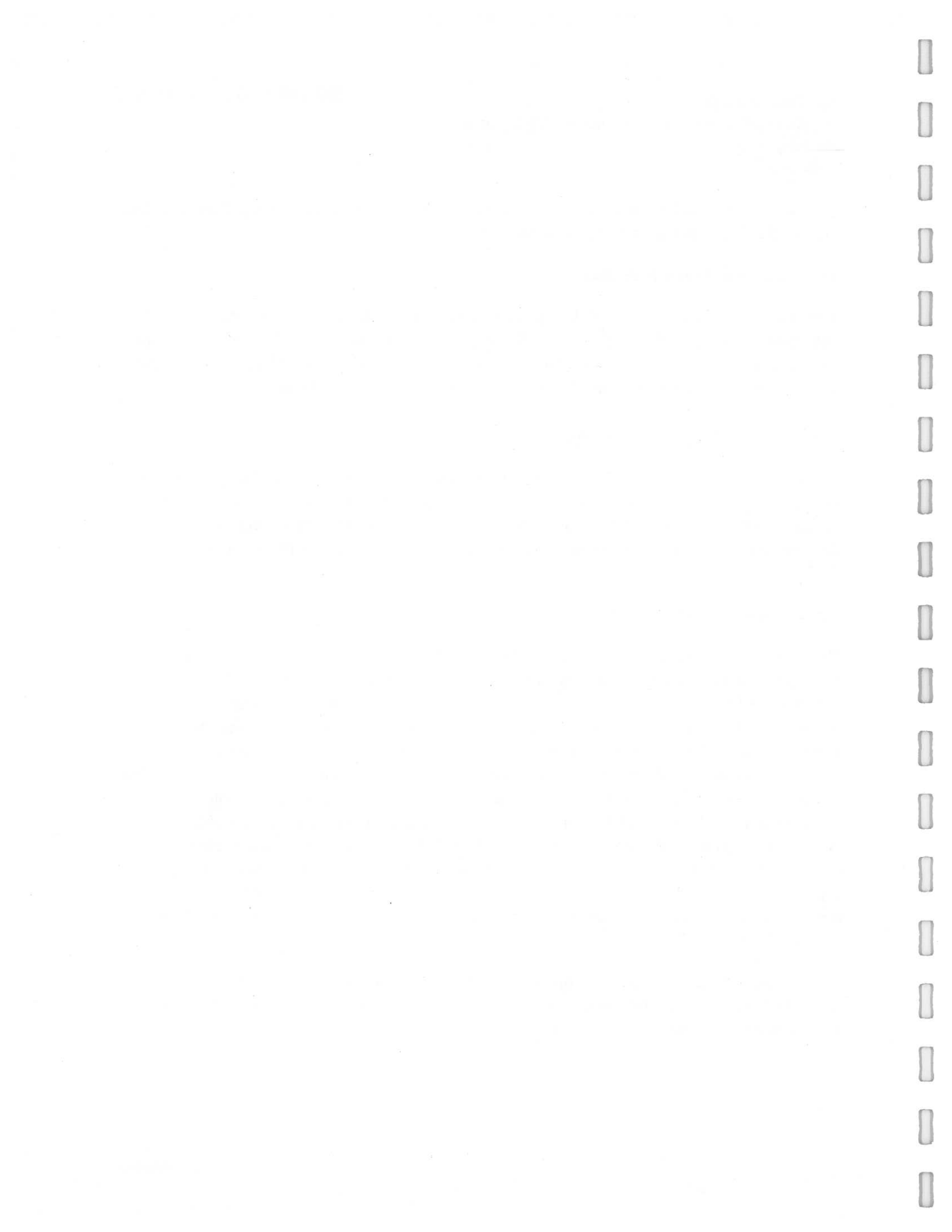
Groundwater Depth Measurements

Depth to groundwater was measured in the five site monitoring wells on May 21, 2013 using an electronic water-level indicator. Measurements were taken with respect to the top of the well casings and depths were determined to an accuracy of 0.01 foot. The water-level indicator was decontaminated prior to insertion into each well. Depth to water measurements are provided in Table 1.

Groundwater Sampling

Groundwater sampling was conducted on May 21, 2013. The wells were purged and sampled in order from least contaminated to most contaminated (in order from Wells MW-1, MW-12, MW-3, MW-7, to MW-4), based on previous sample results, to limit potential for cross-contamination. Purging was conducted using dedicated, disposable bailers and was considered complete when at least three well volumes were removed from each well. Water quality parameters, including pH, specific conductance, and temperature, were measured with a YSI-556 instrument after each well volume purged. The water quality readings and purge volumes are provided in Table 1. Wells MW-7 and MW-4 recovered to greater than 80 percent of their pre-purge volume prior to sample collection. Wells MW-1, MW-3, and MW-12 recovered to less than 80 percent of their pre-purge volume following at least four hours of recovery time. ADEC approval was obtained to sample these wells before they recovered to 80 percent of the pre-purged volume. To minimize sediment disturbance during sample recovery, the bailers were lowered slowly into the wells.

The labeled sample containers were quickly sealed with no headspace and placed in a chilled cooler for transport to the laboratory. A water trip blank accompanied the samples to and from the laboratory for quality control purposes.



LABORATORY ANALYSES

Seven project water samples, including one field duplicate, plus one trip blank were submitted to SGS North America Inc. (SGS), of Anchorage, Alaska using chain-of-custody procedures and tested on a standard ten working-day turnaround time. The water samples, including the trip blank, were analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101 and benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B.

INVESTIGATION DERIVED WASTE

No hydrocarbon odors or visible sheen were noted in the purge water from the monitoring wells. The purge water was poured into the buried UST after samples were collected from the buried UST, per the ADEC-approved proposal. Disposable sampling equipment such as gloves and used bailers were disposed in the on-site dumpster.

DISCUSSION OF ANALYTICAL RESULTS

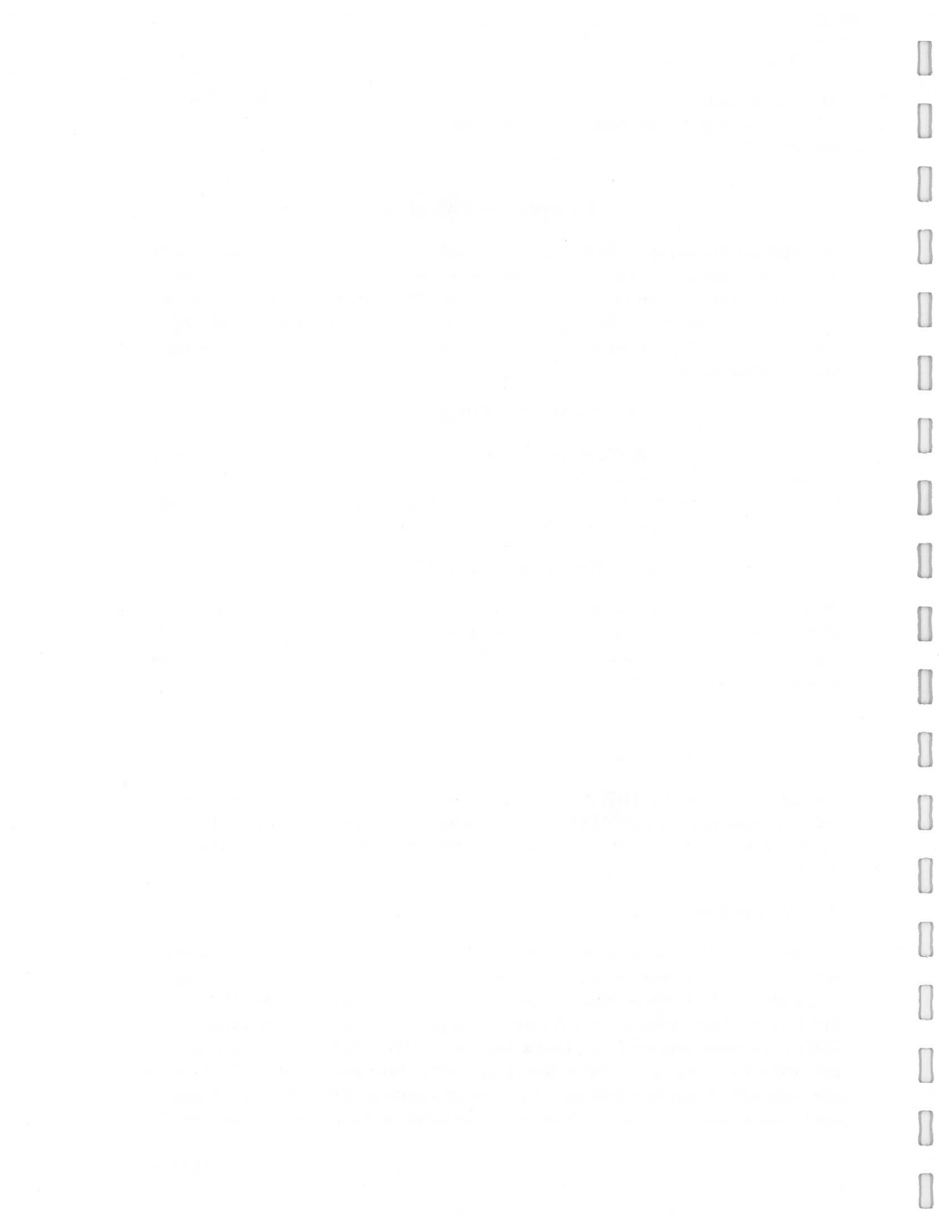
The reported contaminant concentrations in the groundwater samples were compared to the groundwater cleanup levels listed in Table C of 18 Alaska Administrative Code (AAC) 75.345 (April 2012). Groundwater analytical results and cleanup levels are provided in Table 2. The laboratory report and the ADEC Laboratory Data Review Checklist are provided in Attachment 3.

UST Contained Water Results

Concentrations of GRO and BTEX constituents in the duplicate water samples (Samples UST-1 and UST-2) were less than the ADEC Table C cleanup levels. Ethylbenzene and xylenes were reported in the UST samples at concentrations less than the laboratory limit of quantitation (LOQ). Benzene was not detected.

Groundwater Results

Detectable BTEX was measured in samples from two of the five wells sampled (Wells MW-4 and MW-7). Benzene was reported at a concentration of 0.00548 milligrams per liter (mg/L) in the sample from Well MW-4, which is greater than the ADEC cleanup level of 0.005 mg/L. The ADEC cleanup levels were not exceeded for other target analytes or in other monitoring wells. BTEX constituents were not detected in the samples from Wells MW-1, MW-3, and MW-12, and GRO was not detected in samples from all five wells. Note that the water columns in Wells MW-1 and MW-4 were measured above the screened interval prior to purging, which may suggest water samples for these wells are not representative of the water table "smear zone".



QUALITY ASSURANCE SUMMARY

The project laboratory implements on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQO). Internal laboratory controls to assess data quality for this project included method blanks, surrogates, and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to determine precision and accuracy. If a DQO was not met, the project laboratory provides a report specific note identifying the problem in the Case Narrative section of their Laboratory Analysis Report (See Attachment 3).

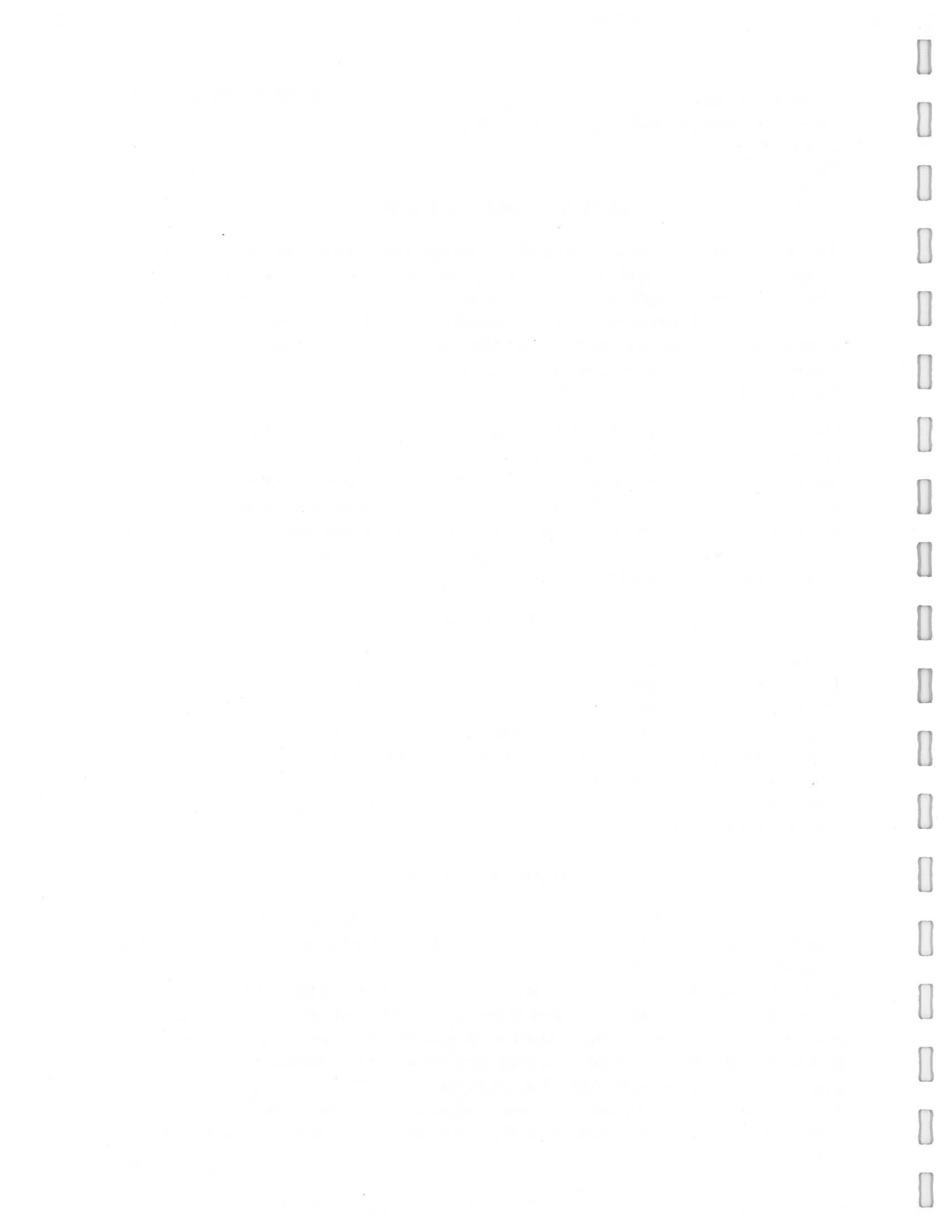
Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist (LDRC), which is included in Attachment 3. Quality control discrepancies and the impact to data quality/usability are described in the further detail in the LDRC, and are reflected in data flags on Table 2. In our opinion, no non-conformances that would adversely impact data usability for the objectives of this project were noted. Based on this quality assurance summary, we find the project data to be complete and useable to support the sampling activities conducted at the site.

CONCLUSIONS

The benzene concentration in the May 21, 2013 sample from Well MW-4 exceeds the ADEC Table C cleanup level. GRO and BTEX constituent concentrations in the remaining monitoring well and UST samples were either not detected, or were reported at concentrations less than the ADEC cleanup levels. The concentration of benzene in Well MW-4 is similar (relative percent difference of 11 percent) to the concentration measured in June 2012, but the concentration was less than the ADEC cleanup level in June 2012. Benzene concentrations in the UST water samples have decreased from those measured in June 2012, which were greater than ADEC Table C cleanup levels.

CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives. The findings we have presented within this report are based on the limited sampling and analyses that we conducted. They should not be construed as definite conclusions regarding the project site's groundwater conditions. It is possible that our subsurface tests missed higher levels of target constituents, although our intention was to sample in accordance with our ADEC-approved proposal. 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. 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



Mr. Paul Horwath
Alaska Department of Environmental Conservation
June 26, 2013
Page 5 of 5

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 Attachment 4, 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 specifically requested and authorized by you, 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 hard copies, or you question the authenticity of the report, please contact the undersigned.

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

SHANNON & WILSON, INC.



Andrew Lee
Environmental Scientist



Shayla Marshall
Senior Environmental Scientist

ASL:SIM/msh

- Enc: Table 1 – Water Sampling Log
Table 2 – Summary of Water Analytical Results
Figure 1 – Vicinity Map
Figure 2 – Site Plan
Attachment 1 – Site Photographs
Attachment 2 – Field Notes
Attachment 3 – Results of Analytical Testing by SGS North America Inc. and ADEC
Laboratory Data Review Checklist
Attachment 4 – Important Information About Your Geotechnical/Environmental Report

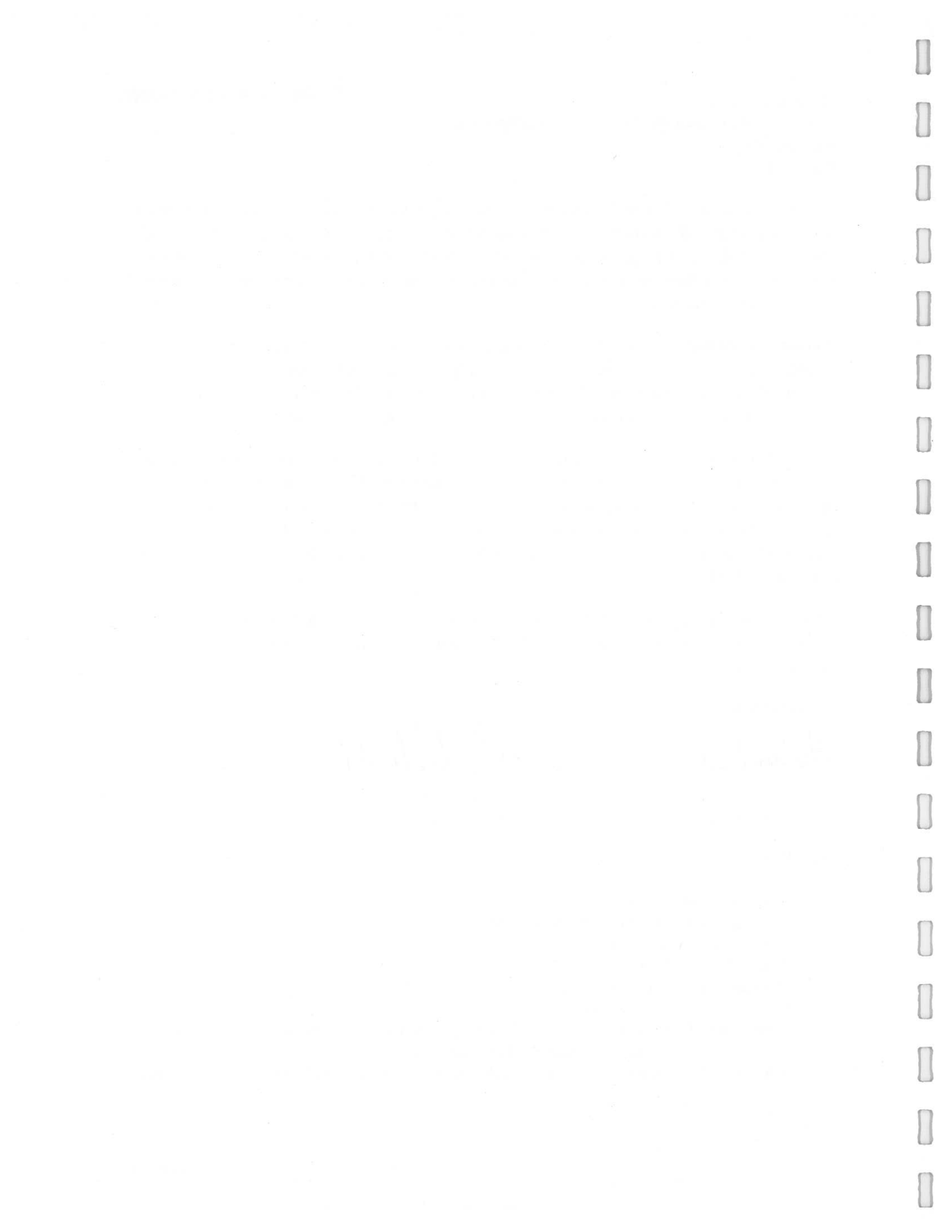


TABLE 1
WATER SAMPLING LOG

	Monitoring Well Number						UST
	MW-1	MW-3	MW-4	MW-7	MW-12	UST-1	
Water Level Measurements							
Date Water Level Measured	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	
Time Water Level Measured	10:53	11:21	11:46	11:30	11:09	-	
Depth to Water Below MP, ft	1.90	4.26	1.41	2.75	2.72	-	
Purging/Sampling Data							
Date Sampled	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	
Time Sampled	17:35	18:00	18:25	18:15	17:47	12:08	
Depth to Water Below MP, ft	1.90	4.26	1.41	2.75	2.72	-	
Total Depth of Well Below MP, ft	11.95	11.81	11.60	11.66	9.17	-	
Water Column in Well, ft	10.05	7.55	10.19	8.91	6.45	-	
Gallons per foot	0.16	0.16	0.16	0.16	0.16	-	
Gallons in Well	1.61	1.21	1.63	1.43	1.03	-	
Total Gallons Purged	5	3.75	5	4.5	3.25	-	
Purging Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	
Sampling Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch	2-inch	2-inch	
Water Quality Data							
Temperature, °C	5.70	7.18	2.96	6.33	4.97	4.93	
Specific Conductance, µmhos/cm	215	196	538	583	83	377	
pH, standard units	5.50	6.06	5.84	5.71	6.13	5.28	
Remarks							

Notes:

Water quality parameters were measured with a YSI-556 water quality meter

- MP = Measuring Point
- ft = Feet
- °C = Degrees Celsius
- µmhos/cm = Micromhos per centimeter
- = Not applicable
- UST = Underground Storage Tank

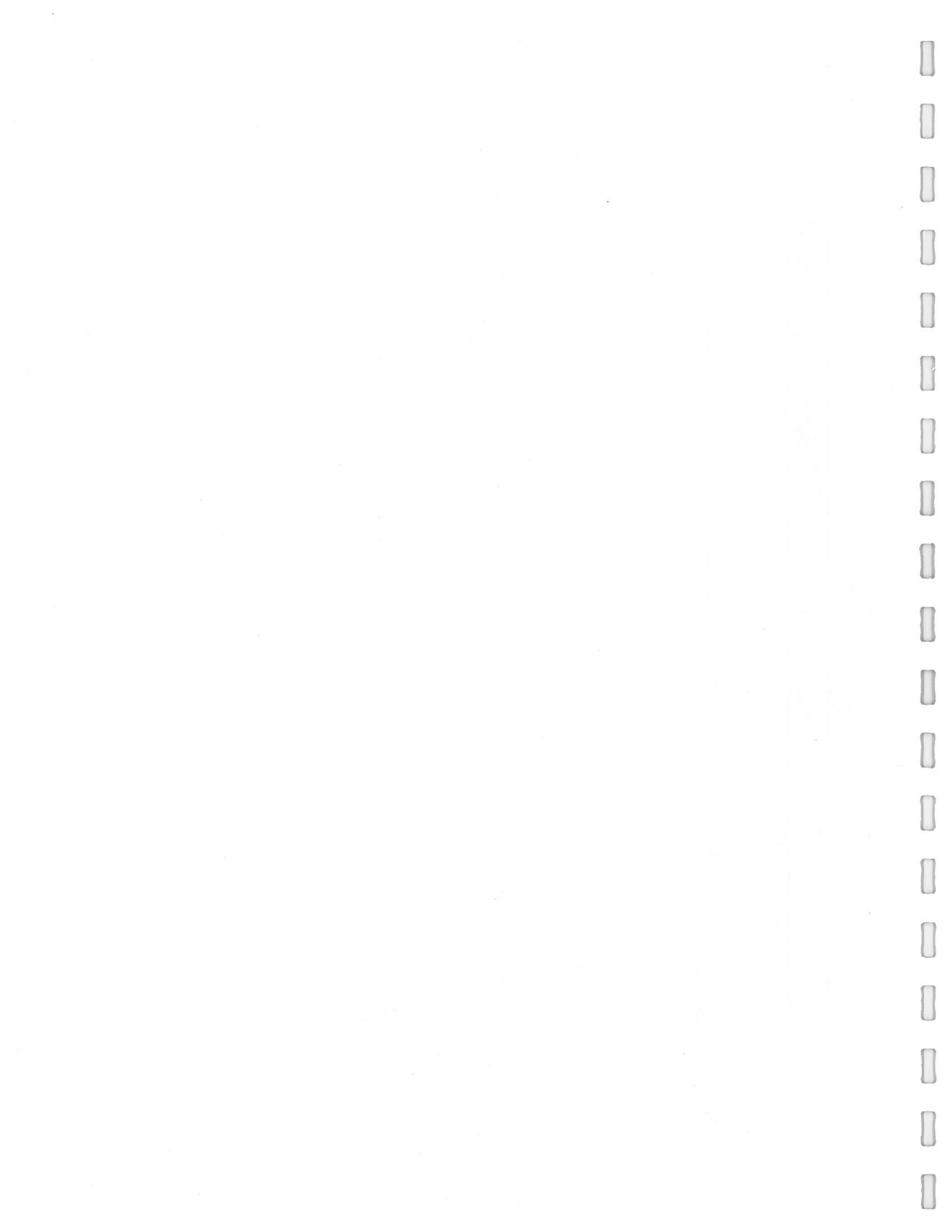


TABLE 2
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level**	Sample ID Number and Water Depth in Feet (See Figure 2 and Attachment 3)							QC		
			Monitoring Wells									
			MW-1	MW-3	MW-4	MW-7	MW-12	UST-1	UST-2~			
Gasoline Range Organics (GRO) - mg/L	AK101	2.2	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B	<0.100 B
Aromatic Volatile Organics (BTEX)												
Benzene - mg/L	EPA 8021B	0.005	<0.000300	<0.000300	0.00548	0.000350 J	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300
Toluene - mg/L	EPA 8021B	1.0	<0.000620	<0.000620	<0.000620	0.00179	<0.000620	<0.000620	<0.000620	<0.000620	<0.000620	<0.000620
Ethylbenzene - mg/L	EPA 8021B	0.7	<0.000620	<0.000620	<0.000620	<0.000620	<0.000620	<0.000620	0.000360 J	0.000430 J	<0.000620	<0.000620
Xylenes (total) - mg/L	EPA 8021B	10	<0.00300 B	<0.00186	0.00112 J	<0.00300 B	<0.00300 B	<0.00300 B	0.00171 J	0.000890 J	<0.00300 B	<0.00300 B

Notes:

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

** Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (April 2012)

~ = Duplicate of Sample UST-1

<0.000300 = Analyte not detected; laboratory limit of detection (LOD) of 0.000300 mg/L

0.00179 = Detected analytes are bolded

B = Reported concentration was within five times the concentration measured in the method blank; analyte is considered not detected at the limit of quantitation (LOQ)

J = Concentration is an estimate less than the LOQ

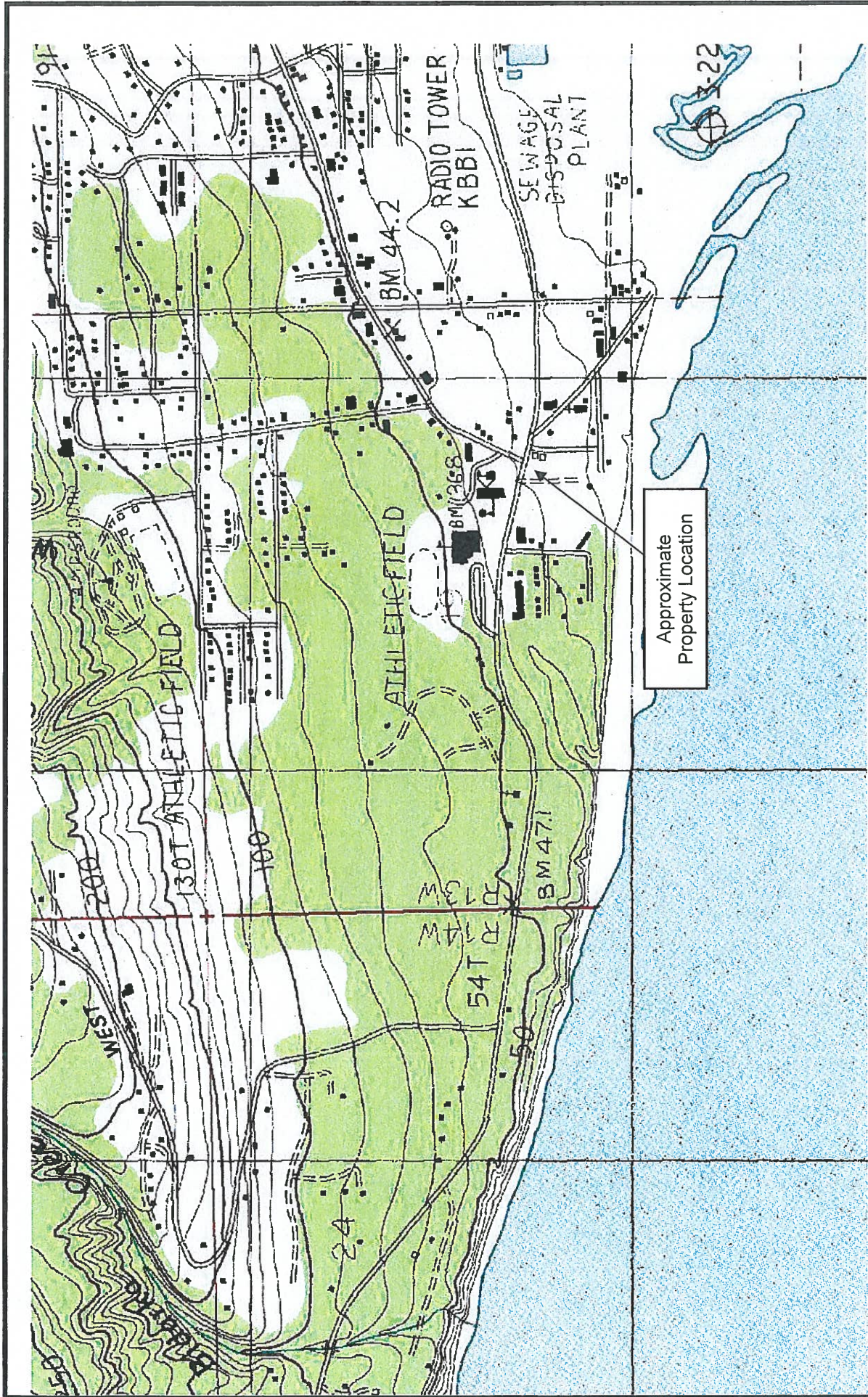
UST = Underground Storage Tank

QC = Quality control

- = Not applicable

0.00548 = Reported concentration is greater than the cleanup level





Approximate Scale in Miles

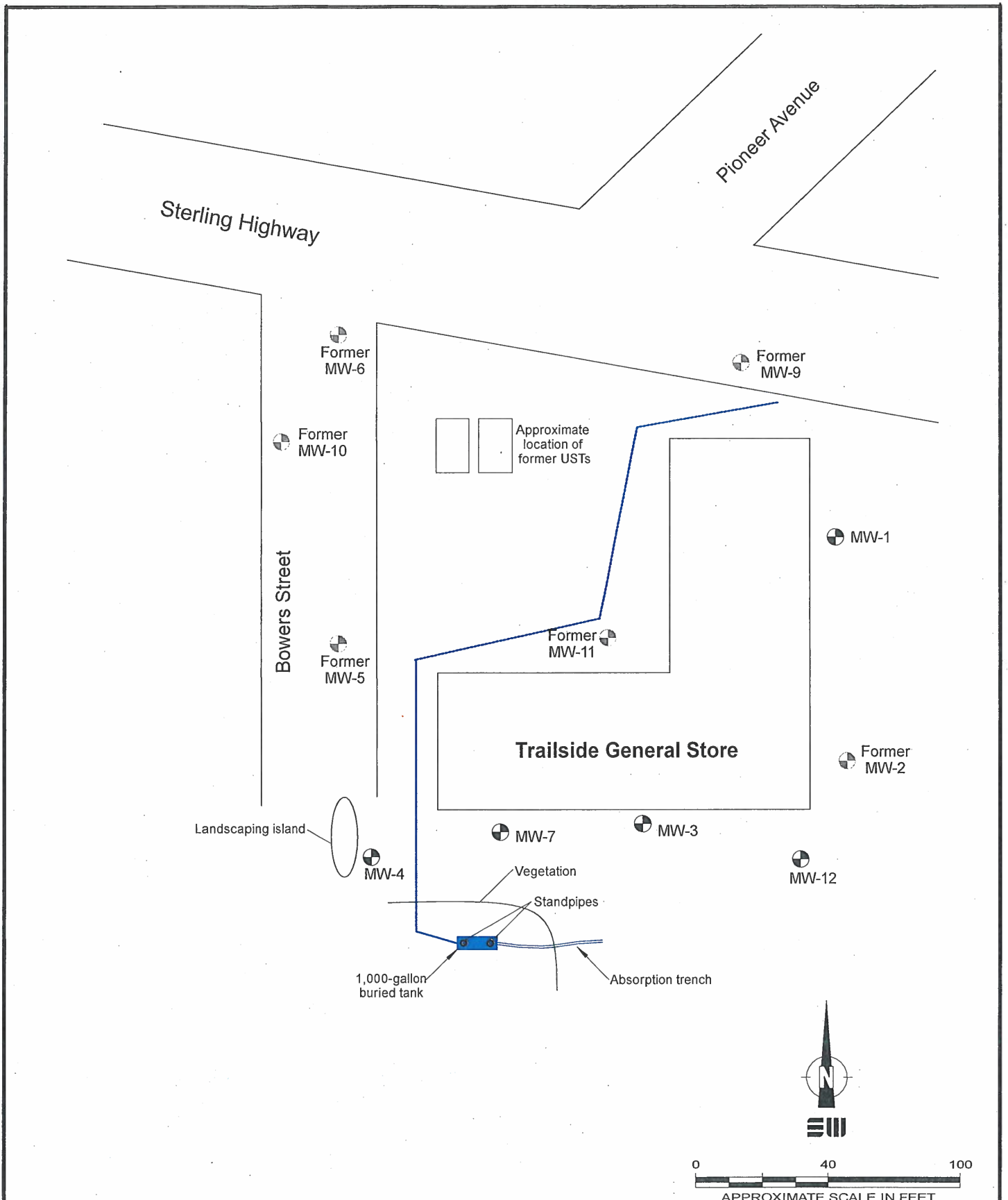
Elevation in Meters
 Contour Interval 5 Meters
 From U.S. Geological Survey
 Seldovia (C-5) NE Quadrangle

Trailside General Store
 Homer, Alaska





VICINITY MAP

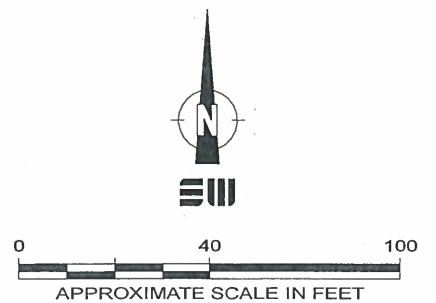
June 2013 32-1-17499-002






LEGEND

- 
 Approximate location and number of Monitoring Well MW-1
- 
 Approximate location and number of Former Monitoring Well MW-2
- 
 Perforated diversion drain pipe
- 
 Solid diversion drain pipe



Trailside General Store Homer, Alaska	
SITE PLAN	
June 2013	32-1-17499-002
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	
Fig. 2	



ATTACHMENT 1
SITE PHOTOGRAPHS





Photo 1: A view of Monitoring Well MW-4 after the well casing was cut down to allow clearance for the well plug (May 21, 2013).



Photo 2: A view of Monitoring Well MW-7 after the well casing was cut down to allow clearance for the well plug (May 21, 2013).

Trailside General Store
Homer, Alaska

PHOTOS 1 AND 2

June 2013

32-1-17499-002



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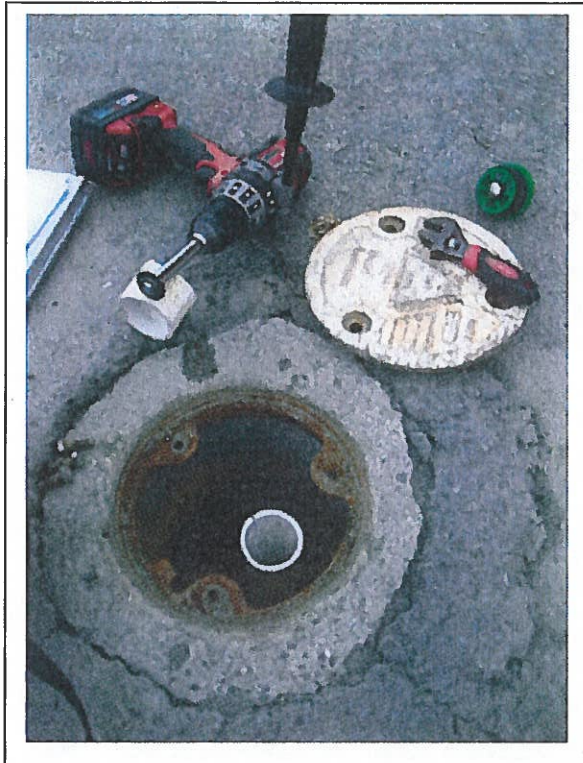


Photo 3: A view of Monitoring Well MW-12 after the well casing was cut down to allow clearance for the well plug (May 21, 2013).



Photo4: Looking northeast, a view of the two standpipes for the buried UST. Samples were collected from the western standpipe on the left side in the photo. After the UST was sampled, purge water from the monitoring wells was poured into the UST (May 21, 2013).

Trailside General Store
Homer, Alaska

PHOTOS 3 AND 4

June 2013

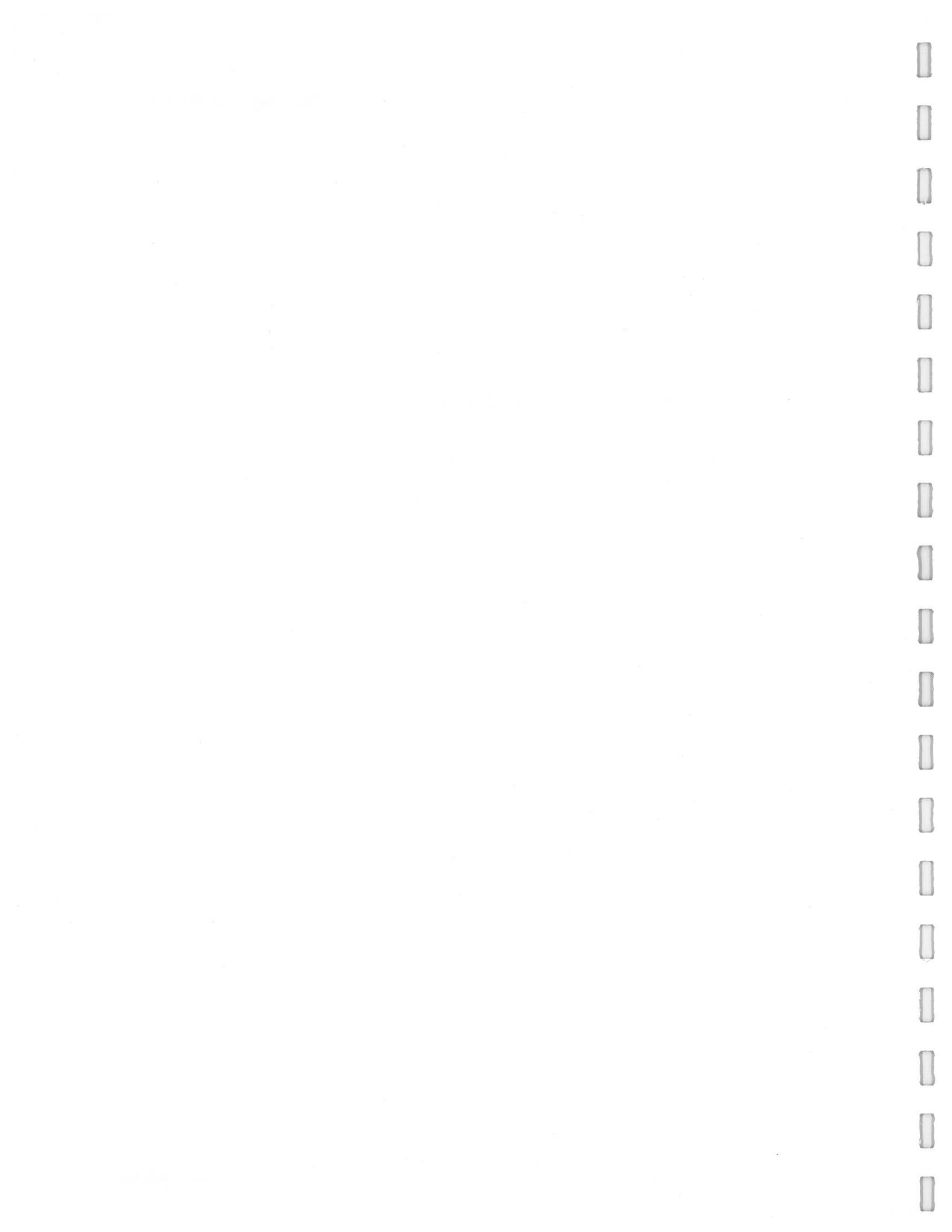
32-1-17499-002

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ATTACHMENT 2

FIELD NOTES



Y1903

32-1-17499-

Homer former Trailside Store

May 21, 2013

9:00 Drive to Homer from Soldotna

10:30 On site: cloudy about 40°F

calibrate YSI-556 #1

- water levels & well PVC casing shortening

- cut down ^{casing} for wells MW-12, MW-7, & MW-4

- Sample UST including field duplicates

- purge wells using dedicated bailers

- put purge water in UST.

14:30 Break while waiting for wells to recover to 80%

16:00 measure water levels -

MW-1 is @ 70% recovery

MW-12 & MW-3 are approx 50%

- Try to call Paul Hornath / DEC but can't reach him.

-- Call Haydar / SGW - he will try to reach Paul by cell phone.

16:25 dinner break.

16:52 Haydar calls back and says Hornath approves collecting sample before 8:00 but take a dinner break first -

17:30 Sample wells

18:50 off site

Andrew Lee

Rite in the Rain



GROUNDWATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 32-1-17499
Page 1 of 1

Owner/Location Homer Former Trainside Store

Well No.: UST Random No.: _____ Date: 5/21/13

Weather: Cloudy 40s F Time Started: 12:00 Time Completed: 12:26

MEASUREMENT DATA

Measuring Point (MP): N/A NA

Height of MP Above or Below Land Surface: _____

MP Elevation: _____ Water Level Elevation: _____

Total Depth of Well Below MP: _____

Time of Depth Measurement: _____ DTW Below MP: _____

Water Column in Well: _____

Diameter of Casing: _____ Gallons per ft: _____ Gallons in Well: _____

Gallons to be Pumped/Bailed: _____

Development Information: _____

FIELD PARAMETERS

Time: _____ Odor: none Color: clear

Volume: ORP:	pH:	Sp. Cond.	Temp:	DO:	Turbidity:
_____	<u>5.28</u>	<u>MS</u> <u>0.377</u>	<u>°C</u> <u>4.93</u>	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Evacuation Method: NA Collected from western standpipe

Sampling Method: bailer Sample Time: 12:08

Sample ID, Analysis, Preservatives: 17499-UST-1, GR0/BTEX, HCl

Remarks: Duplicate 17499-UST-2 @ 12:15

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



GROUNDWATER SAMPLING LOG

Jhannon & Wilson, Inc.

Job No: 32-1-17499-

Page 1 of 1

Owner/Location: Homer former Truistide Store

Well No.: MW-1 Random No.: _____ Date: 5/21/13

Weather: cloudy, 40°F Time Started: 12:26 Time Completed: 17:39

MEASUREMENT DATA

Measuring Point (MP): TOC

Height of MP Above or Below Land Surface: -0.62'

MP Elevation: NA Water Level Elevation: 5

Total Depth of Well Below MP: 11.95

Time of Depth Measurement: 10:53 DTW Below MP: 1.90 803 = 3.91'

Water Column in Well: 10.05

Diameter of Casing: 2" Gallons per ft: 0.16 Gallons in Well: 1.61

Gallons to be Pumped/Bailed: 5

Development Information: _____

FIELD PARAMETERS

Time: _____ Odor: none Color: clear to yellowish - slight color at time of sampling

Volume: ORP:	pH:	Sp. Cond.	Temp:	DO:	Turbidity:
<u>1.75 gal</u>	<u>5.56</u>	<u>ns</u>	<u>5.79</u>		
<u>3.5</u>	<u>5.48</u>	<u>0.219</u>	<u>5.65</u>		
<u>5</u>	<u>5.50</u>	<u>0.215</u>	<u>5.70</u>		

Evacuation Method: bauler

Sampling Method: bauler Sample Time: 17:35

Sample ID, Analysis, Preservatives: 17499-MW-1 GOO/BTEX HCl

Remarks: Recovered to 4.15', a bit less than 803. OK to sample per ADEC

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



GROUNDWATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 32-1-17499

Page 1 of 1

Owner/Location Former Honor Trailside Store

Well No.: MW-3 Random No.: _____ Date: 5/21/13

Weather: cloudy, 40s F Time Started: 1300 Time Completed: 18:05

MEASUREMENT DATA

Measuring Point (MP): TOE

Height of MP Above or Below Land Surface: -0.22

MP Elevation: NA Water Level Elevation: _____

Total Depth of Well Below MP: 11.81

Time of Depth Measurement: 11:21 DTW Below MP: 4.26

Water Column in Well: 7.55

Diameter of Casing: 2" Gallons per ft: 0.16 Gallons in Well: 1.21

Gallons to be Pumped/Bailed: 3.75

80% = 5.77

Development Information: _____

FIELD PARAMETERS

Time: _____ Odor: none Color: brown - light yellow at time of sample collect

Volume: ORP:	pH:	Sp. Cond: mS	Temp: °C	DO:	Turbidity:
<u>1.25 gal</u>	<u>5.95</u>	<u>0.203</u>	<u>7.54</u>	_____	_____
<u>2.5</u>	<u>5.94</u>	<u>0.200</u>	<u>7.11</u>	_____	_____
<u>3.75</u>	<u>6.06</u>	<u>0.196</u>	<u>7.18</u>	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Evacuation Method: bauler

Sampling Method: bauler Sample Time: 18:00

Sample ID, Analysis, Preservatives: 17499-MW-3, GRO/BTEX, HCl

Remarks: Recovered to 8.22' which is < 80%, OK to sample per ADEC.

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



GROUNDWATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 32-1-17499

Page 1 of 1

Owner/Location Former Home Trainside Store

Well No.: MW-4 Random No.: _____ Date: 5/21/13

Weather: cloudy, 40s F Time Started: 13:31 Time Completed: 18:32

MEASUREMENT DATA

Measuring Point (MP): TOC

Height of MP Above or Below Land Surface: -0.33'

MP Elevation: NA Water Level Elevation: _____

Total Depth of Well Below MP: 11.60

Time of Depth Measurement: 11:46 DTW Below MP: 1.41

Water Column in Well: 10.19

Diameter of Casing: 2" Gallons per ft: 0.16 Gallons in Well: 1.63

Gallons to be Pumped/Bailed: 5

80% = 3.45

Development Information: _____

FIELD PARAMETERS

Time: _____ Odor: sulfur Color: clear to light gray

Volume: ORP:	pH:	Sp. Cond.:	ms	Temp:	DO:	Turbidity:
<u>1.75 gal</u>	<u>6.16</u>	<u>0.396</u>	<u>2.90</u>			
<u>3.5</u>	<u>6.00</u>	<u>0.427</u>	<u>2.86</u>			
<u>5</u>	<u>5.84</u>	<u>0.538</u>	<u>2.96</u>			

Evacuation Method: bailer

Sampling Method: bailer Sample Time: 18:25

Sample ID, Analysis, Preservatives: 17499-MW-4, GR0/BTEX, HCl

Remarks: cut well down 0.20' before measurements Recovered to 1.65' - almost 100%

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



GROUNDWATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 32-1-17499

Page 1 of 1

Owner/Location Former Home Trailside Street

Well No.: MW-7 Random No.: _____ Date: 5/21/13

Weather: cloudy 40s°F Time Started: 13:15 Time Completed: 18:19

MEASUREMENT DATA

Measuring Point (MP): TOK

Height of MP Above or Below Land Surface: -0.31'

MP Elevation: NA Water Level Elevation: _____

Total Depth of Well Below MP: 11.66

Time of Depth Measurement: 11:30 DTW Below MP: 2.75' 80% = 4.53

Water Column in Well: 8.91

Diameter of Casing: 2" Gallons per ft: 0.16 Gallons in Well: 1.43

Gallons to be Pumped/Bailed: 4.5

Development Information: _____

FIELD PARAMETERS

Time: _____ Odor: yes - sulfur? Color: clear wobbly

Volume: ORP:	pH:	Sp. Cond. mS	Temp: °C	DO:	Turbidity:
<u>1.5 gal</u>	<u>5.70</u>	<u>0.563</u>	<u>7.33</u>	_____	_____
<u>3</u>	<u>5.91</u>	<u>0.530</u>	<u>6.40</u>	_____	_____
<u>4.5</u>	<u>5.71</u>	<u>0.583</u>	<u>6.33</u>	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Evacuation Method: bailed

Sampling Method: bailed Sample Time: 18:15

Sample ID, Analysis, Preservatives: 17499-MW-7

Remarks: cut well casing down by 0.21' before measurements, recovered to 3.07' 780%

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



GROUNDWATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 32-1-17499
Page 1 of 1

Owner/Location Homer Farmer Trailside Shore

Well No.: MW-12 Random No.: _____ Date: 5/21/13
Weather: cloudy 40s F Time Started: 17:47 Time Completed: 17:53

MEASUREMENT DATA

Measuring Point (MP): TDC

Height of MP Above or Below Land Surface: -0.30

MP Elevation: NA Water Level Elevation: _____

Total Depth of Well Below MP: 11.63 ^{ASL} 9.17

Time of Depth Measurement: 11:09 DTW Below MP: 2.72' 80% = 4.01

Water Column in Well: 6.45

Diameter of Casing: 2" Gallons per ft: 0.16 Gallons in Well: 1.03

Gallons to be Pumped/Bailed: 3.25

Development Information:

FIELD PARAMETERS

Time:	Odor:	Color:	Temperature:	DO:	Turbidity:
	<u>none</u>	<u>light brown</u> ^{ASL}			<u>light brown at time of sample collection</u>
Volume: ORP:	pH:	Sp. Cond.	Temp:		
<u>1 gal</u>	<u>7.00</u>	<u>0.093</u>	<u>5.90</u>		
<u>2</u>	<u>6.53</u>	<u>0.093</u>	<u>5.24</u>		
<u>3.25</u>	<u>6.13</u>	<u>0.083</u>	<u>4.97</u>		

Evacuation Method: builer

Sampling Method: builer Sample Time: 17:47

Sample ID, Analysis, Preservatives: 17499-MW-12, GRO/BTEX, HCl

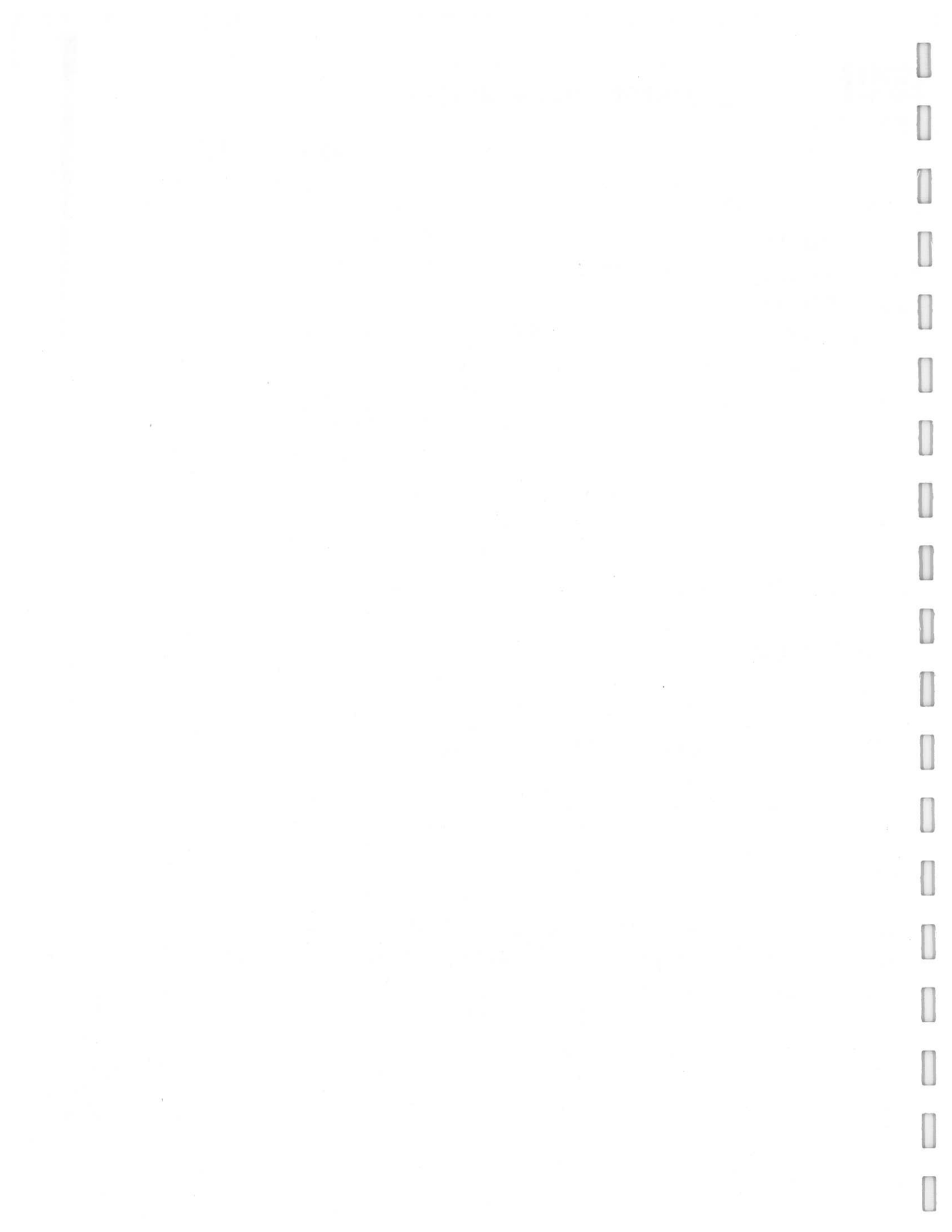
Remarks: cut well casing down by 0.18' before measurements Recovered to 5.82', less than 80%

Sampling Personnel: Andrew Lee

WELL CASING VOLUMES

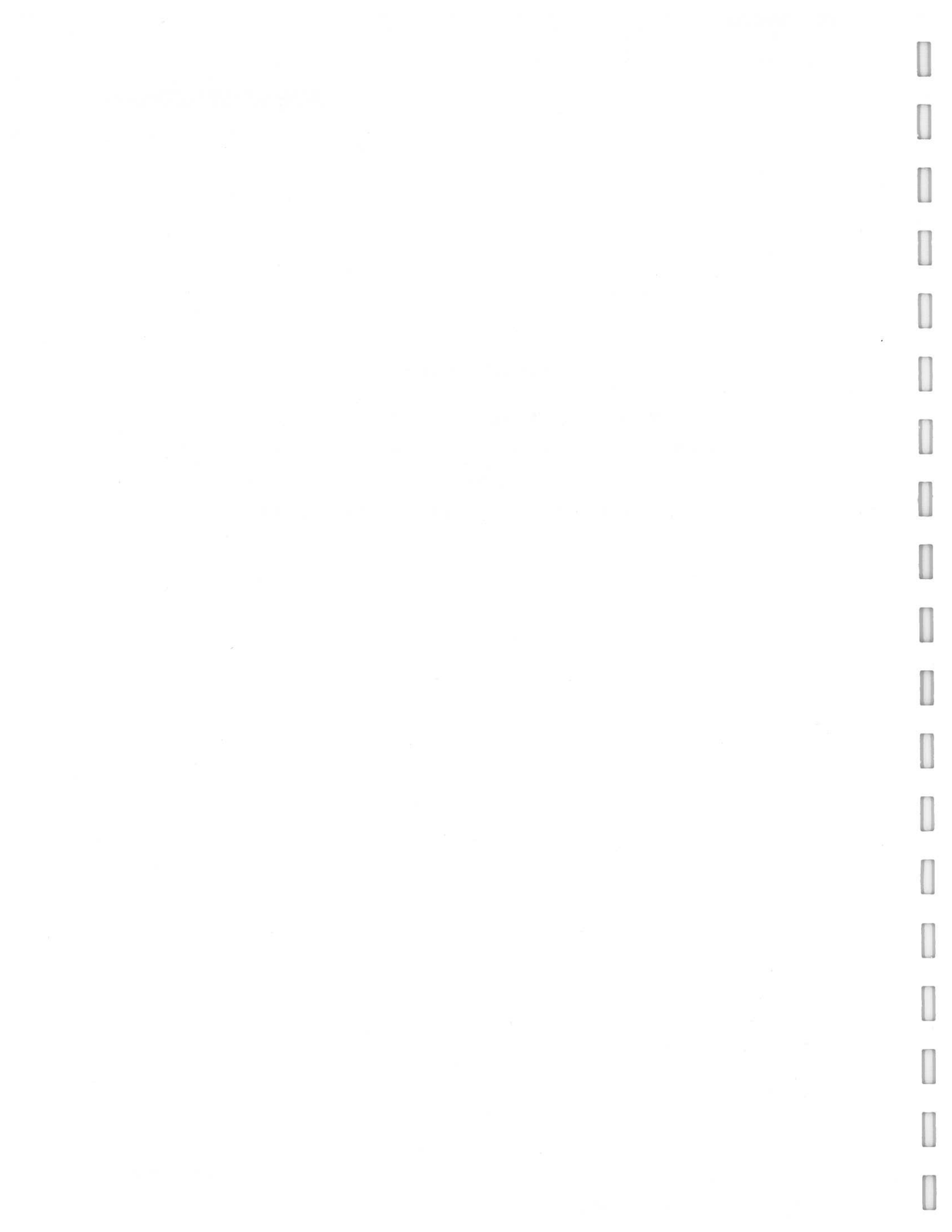
GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

OK to sample per Paul Hornally/AUEC



ATTACHMENT 3

RESULTS OF ANALYTICAL TESTING BY
SGS NORTH AMERICA INC. OF ANCHORAGE, ALASKA
AND
ADEC LABORATORY DATA REVIEW CHECKLIST



Laboratory Report of Analysis

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

Report Number: 1131974

Client Project: 32-1-17499 Homer Trailside

Dear Andrew Lee,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Steve at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.



Alaska Division Technical Director

Stephen Ede

2013.05.28

16:11:33 -08'00'

Steve Crupi
Project Manager
steven.crupi@sgs.com

Date

Print Date: 05/24/2013 4:37:01PM

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

Member of SGS Group

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1131974**
Project Name/Site: **32-1-17499 Homer Trailside**
Project Contact: **Andrew Lee**

Refer to sample receipt form for information on sample condition.

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

Print Date: 05/24/2013 4:37:09PM

SGS North America Inc.

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

Member of SGS Group

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RL	Reporting Limit
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Print Date: 05/24/2013 4:37:18PM

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
17499-UST-1	1131974001	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-UST-2	1131974002	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-MW-1	1131974003	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-MW-3	1131974004	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-MW-4	1131974005	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-MW-7	1131974006	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-MW-12	1131974007	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)
17499-TB	1131974008	05/21/2013	05/22/2013	Water (Surface, Eff., Ground)

Method

AK101
SW8021B

Method Description

AK101/8021 Combo.
AK101/8021 Combo.

Print Date: 05/24/2013 4:37:25PM

Detectable Results Summary

Client Sample ID: 17499-UST-1

Lab Sample ID: 1131974001

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Ethylbenzene	0.360J	ug/L
Gasoline Range Organics	0.0390J	mg/L
o-Xylene	0.870J	ug/L
P & M -Xylene	0.840J	ug/L

Client Sample ID: 17499-UST-2

Lab Sample ID: 1131974002

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Ethylbenzene	0.430J	ug/L
Gasoline Range Organics	0.0430J	mg/L
o-Xylene	0.940J	ug/L
P & M -Xylene	0.890J	ug/L

Client Sample ID: 17499-MW-1

Lab Sample ID: 1131974003

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.0331J	mg/L
o-Xylene	0.440J	ug/L

Client Sample ID: 17499-MW-3

Lab Sample ID: 1131974004

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.0382J	mg/L

Client Sample ID: 17499-MW-4

Lab Sample ID: 1131974005

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Benzene	5.48	ug/L
Gasoline Range Organics	0.0632J	mg/L
P & M -Xylene	1.12J	ug/L

Client Sample ID: 17499-MW-7

Lab Sample ID: 1131974006

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Benzene	0.350J	ug/L
Gasoline Range Organics	0.0512J	mg/L
o-Xylene	0.580J	ug/L
Toluene	1.79	ug/L

Client Sample ID: 17499-MW-12

Lab Sample ID: 1131974007

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.0540J	mg/L
o-Xylene	0.460J	ug/L

Client Sample ID: 17499-TB

Lab Sample ID: 1131974008

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.0322J	mg/L
o-Xylene	0.370J	ug/L

Print Date: 05/24/2013 4:37:33PM

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



Results of 17499-UST-1

Client Sample ID: **17499-UST-1**
Client Project ID: **32-1-17499 Homer Trailside**
Lab Sample ID: 1131974001
Lab Project ID: 1131974

Collection Date: 05/21/13 12:08
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.0390	J	0.100	0.0310	mg/L	1	05/24/13 03:39
Surrogates							
4-Bromofluorobenzene	93.6		50-150		%	1	05/24/13 03:39

Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 03:39
Container ID: 1131974001-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 03:39
Ethylbenzene	0.360	J	1.00	0.310	ug/L	1	05/24/13 03:39
o-Xylene	0.870	J	1.00	0.310	ug/L	1	05/24/13 03:39
P & M -Xylene	0.840	J	2.00	0.620	ug/L	1	05/24/13 03:39
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 03:39
Surrogates							
1,4-Difluorobenzene	89.4		77-115		%	1	05/24/13 03:39

Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 03:39
Container ID: 1131974001-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-UST-2

Client Sample ID: 17499-UST-2
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974002
Lab Project ID: 1131974

Collection Date: 05/21/13 12:15
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.0430	J	0.100	0.0310	mg/L	1	05/24/13 03:58

Surrogates

4-Bromofluorobenzene	94.9		50-150		%	1	05/24/13 03:58
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Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 03:58
Container ID: 1131974002-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 03:58
Ethylbenzene	0.430	J	1.00	0.310	ug/L	1	05/24/13 03:58
o-Xylene	0.940	J	1.00	0.310	ug/L	1	05/24/13 03:58
P & M -Xylene	0.890	J	2.00	0.620	ug/L	1	05/24/13 03:58
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 03:58

Surrogates

1,4-Difluorobenzene	92.2		77-115		%	1	05/24/13 03:58
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Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 03:58
Container ID: 1131974002-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-MW-1

Client Sample ID: 17499-MW-1
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974003
Lab Project ID: 1131974

Collection Date: 05/21/13 17:35
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0331	J	0.100	0.0310	mg/L	1	05/24/13 04:16
Surrogates							
4-Bromofluorobenzene	95.8		50-150		%	1	05/24/13 04:16

Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 04:16
Container ID: 1131974003-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 04:16
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:16
o-Xylene	0.440	J	1.00	0.310	ug/L	1	05/24/13 04:16
P & M -Xylene	1.24	U	2.00	0.620	ug/L	1	05/24/13 04:16
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:16
Surrogates							
1,4-Difluorobenzene	91.1		77-115		%	1	05/24/13 04:16

Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 04:16
Container ID: 1131974003-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-MW-3

Client Sample ID: 17499-MW-3
 Client Project ID: 32-1-17499 Homer Trailside
 Lab Sample ID: 1131974004
 Lab Project ID: 1131974

Collection Date: 05/21/13 18:00
 Received Date: 05/22/13 16:42
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.0382	J	0.100	0.0310	mg/L	1	05/24/13 04:35

Surrogates

4-Bromofluorobenzene	91.9		50-150		%	1	05/24/13 04:35
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Batch Information

Analytical Batch: VFC11437
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 05/24/13 04:35
 Container ID: 1131974004-A

Prep Batch: VXX24742
 Prep Method: SW5030B
 Prep Date/Time: 05/23/13 08:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 04:35
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:35
o-Xylene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:35
P & M -Xylene	1.24	U	2.00	0.620	ug/L	1	05/24/13 04:35
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:35

Surrogates

1,4-Difluorobenzene	91.5		77-115		%	1	05/24/13 04:35
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Batch Information

Analytical Batch: VFC11437
 Analytical Method: SW8021B
 Analyst: ST
 Analytical Date/Time: 05/24/13 04:35
 Container ID: 1131974004-A

Prep Batch: VXX24742
 Prep Method: SW5030B
 Prep Date/Time: 05/23/13 08:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-MW-4

Client Sample ID: 17499-MW-4
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974005
Lab Project ID: 1131974

Collection Date: 05/21/13 18:25
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.0632	J	0.100	0.0310	mg/L	1	05/24/13 04:53
Surrogates							
4-Bromofluorobenzene	94.6		50-150		%	1	05/24/13 04:53

Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 04:53
Container ID: 1131974005-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	5.48		0.500	0.150	ug/L	1	05/24/13 04:53
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:53
o-Xylene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:53
P & M -Xylene	1.12	J	2.00	0.620	ug/L	1	05/24/13 04:53
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 04:53
Surrogates							
1,4-Difluorobenzene	92.7		77-115		%	1	05/24/13 04:53

Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 04:53
Container ID: 1131974005-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-MW-7

Client Sample ID: 17499-MW-7
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974006
Lab Project ID: 1131974

Collection Date: 05/21/13 18:15
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0512	J	0.100	0.0310	mg/L	1	05/24/13 05:11

Surrogates

4-Bromofluorobenzene	92.8		50-150		%	1	05/24/13 05:11
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Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 05:11
Container ID: 1131974006-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Benzene	0.350	J	0.500	0.150	ug/L	1	05/24/13 05:11
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 05:11
o-Xylene	0.580	J	1.00	0.310	ug/L	1	05/24/13 05:11
P & M -Xylene	1.24	U	2.00	0.620	ug/L	1	05/24/13 05:11
Toluene	1.79		1.00	0.310	ug/L	1	05/24/13 05:11

Surrogates

1,4-Difluorobenzene	91.4		77-115		%	1	05/24/13 05:11
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Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 05:11
Container ID: 1131974006-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-MW-12

Client Sample ID: 17499-MW-12
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974007
Lab Project ID: 1131974

Collection Date: 05/21/13 17:47
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0540	J	0.100	0.0310	mg/L	1	05/24/13 05:30
Surrogates							
4-Bromofluorobenzene	96.7		50-150		%	1	05/24/13 05:30

Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 05:30
Container ID: 1131974007-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 05:30
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 05:30
o-Xylene	0.460	J	1:00	0.310	ug/L	1	05/24/13 05:30
P & M -Xylene	1.24	U	2.00	0.620	ug/L	1	05/24/13 05:30
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 05:30
Surrogates							
1,4-Difluorobenzene	92.4		77-115		%	1	05/24/13 05:30

Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 05:30
Container ID: 1131974007-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM



Results of 17499-TB

Client Sample ID: 17499-TB
Client Project ID: 32-1-17499 Homer Trailside
Lab Sample ID: 1131974008
Lab Project ID: 1131974

Collection Date: 05/21/13 08:00
Received Date: 05/22/13 16:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Gasoline Range Organics	0.0322	J	0.100	0.0310	mg/L	1	05/24/13 03:21

Surrogates

4-Bromofluorobenzene	93.6		50-150		%	1	05/24/13 03:21
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Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/24/13 03:21
Container ID: 1131974008-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Benzene	0.300	U	0.500	0.150	ug/L	1	05/24/13 03:21
Ethylbenzene	0.620	U	1.00	0.310	ug/L	1	05/24/13 03:21
o-Xylene	0.370	J	1.00	0.310	ug/L	1	05/24/13 03:21
P & M -Xylene	1.24	U	2.00	0.620	ug/L	1	05/24/13 03:21
Toluene	0.620	U	1.00	0.310	ug/L	1	05/24/13 03:21

Surrogates

1,4-Difluorobenzene	89.9		77-115		%	1	05/24/13 03:21
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Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 05/24/13 03:21
Container ID: 1131974008-A

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 05/23/13 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:41PM

Method Blank

Blank ID: MB for HBN 1450380 [VXX/24742]
Blank Lab ID: 1149731

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1131974001, 1131974002, 1131974003, 1131974004, 1131974005, 1131974006, 1131974007, 1131974008

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0573J	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene	94.4	50-150		%

Batch Information

Analytical Batch: VFC11437
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 5/23/2013 7:19:00PM

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 5/23/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:48PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131974 [VXX24742]
 Blank Spike Lab ID: 1149734
 Date Analyzed: 05/24/2013 01:48

Spike Duplicate ID: LCSD for HBN 1131974 [VXX24742]
 Spike Duplicate Lab ID: 1149735
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131974001, 1131974002, 1131974003, 1131974004, 1131974005, 1131974006, 1131974007, 1131974008

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate ()			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	0.898	90	1.00	0.877	88	(60-120)	2.30	(< 20)
Surrogates									
4-Bromofluorobenzene		97.4	97	0.0500	97		(50-150)	0.45	

Batch Information

Analytical Batch: VFC11437
 Analytical Method: AK101
 Instrument: Agilent 7890A PID/FID
 Analyst: ST

Prep Batch: VXX24742
 Prep Method: SW5030B
 Prep Date/Time: 05/23/2013 08:00
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 05/24/2013 4:37:59PM



Method Blank

Blank ID: MB for HBN 1450380 [VXX/24742]
Blank Lab ID: 1149731

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1131974001, 1131974002, 1131974003, 1131974004, 1131974005, 1131974006, 1131974007, 1131974008

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.300U	0.500	0.150	ug/L
Ethylbenzene	0.620U	1.00	0.310	ug/L
o-Xylene	0.390J	1.00	0.310	ug/L
P & M -Xylene	1.24U	2.00	0.620	ug/L
Toluene	0.620U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene	92.6	77-115		%

Batch Information

Analytical Batch: VFC11437
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 5/23/2013 7:19:00PM

Prep Batch: VXX24742
Prep Method: SW5030B
Prep Date/Time: 5/23/2013 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/24/2013 4:38:11PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1131974 [VXX24742]
 Blank Spike Lab ID: 1149732
 Date Analyzed: 05/24/2013 01:30

Spike Duplicate ID: LCSD for HBN 1131974 [VXX24742]
 Spike Duplicate Lab ID: 1149733
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1131974001, 1131974002, 1131974003, 1131974004, 1131974005, 1131974006, 1131974007, 1131974008

Results by SW8021B

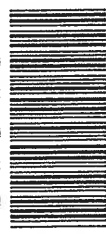
Parameter	Blank Spike (ug/L)			Spike Duplicate ()			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	100	98.0	98	100	104	104	(80-120)	6.20	(< 20)
Ethylbenzene	100	105	105	100	107	107	(75-125)	1.80	(< 20)
o-Xylene	100	101	101	100	103	103	(80-120)	2.10	(< 20)
P & M -Xylene	200	205	103	200	212	106	(75-130)	3.00	(< 20)
Toluene	100	107	107	100	108	108	(75-120)	0.62	(< 20)
Surrogates									
1,4-Difluorobenzene		91.9	92	50	96.4		(77-115)	4.80	

Batch Information

Analytical Batch: VFC11437
 Analytical Method: SW8021B
 Instrument: Agilent 7890A PID/FID
 Analyst: ST

Prep Batch: VXX24742
 Prep Method: SW5030B
 Prep Date/Time: 05/23/2013 08:00
 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

1131974



Page 1 of 1

Laboratory SGS
Attn: Steve Capi

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

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

355 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	GRL/STX (Y/N)	Total Number of Containers		Remarks/Matrix
							1	2	
17499-UST-1	① A-C	12:08	5/21/13	X	X	X	3	3	water
17499-UST-2	② A-C	12:15		X	X	X	3	3	
17499-MW-1	③ A-C	17:35		X	X	X	3	3	
17499-MW-3	④ A-C	18:00		X	X	X	3	3	
17499-MW-4	⑤ A-C	18:25		X	X	X	3	3	
17499-MW-7	⑥ A-C	18:15		X	X	X	3	3	
17499-MW-12	⑦ A-C	17:47		X	X	X	3	3	
17499-TB	⑧ A-C	8:00		X	X	X	1 box	1 box	water trip blank

Project Information	Sample Receipt	Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Project Number: 37-1-17499	Total Number of Containers	Signature: <u>Andrew Lee</u>	Signature: _____	Signature: _____
Project Name: <u>Homar Trails</u>	COC Seals/Intact? <u>Y/N/NA</u>	Printed Name: <u>Andrew Lee</u>	Printed Name: _____	Printed Name: _____
Contact: <u>Andrew Lee / Harold Taylor</u>	Received Good Cond. <u>COY</u>	Date: <u>5/22/13</u>	Date: _____	Date: _____
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method: <u>in person in single cooler</u>	Company: <u>Shannon & Wilson</u>	Company: _____	Company: _____
Sampler: <u>Andrew Lee</u>	(attach shipping bill, if any)	Received By: _____	Received By: _____	Received By: _____
Instructions		Signature: _____	Signature: _____	Signature: _____
Requested Turnaround Time: <u>Standard</u>		Printed Name: _____	Printed Name: _____	Printed Name: _____
Special Instructions: <u>ADBC Level II deliveries</u>		Company: _____	Company: _____	Company: _____

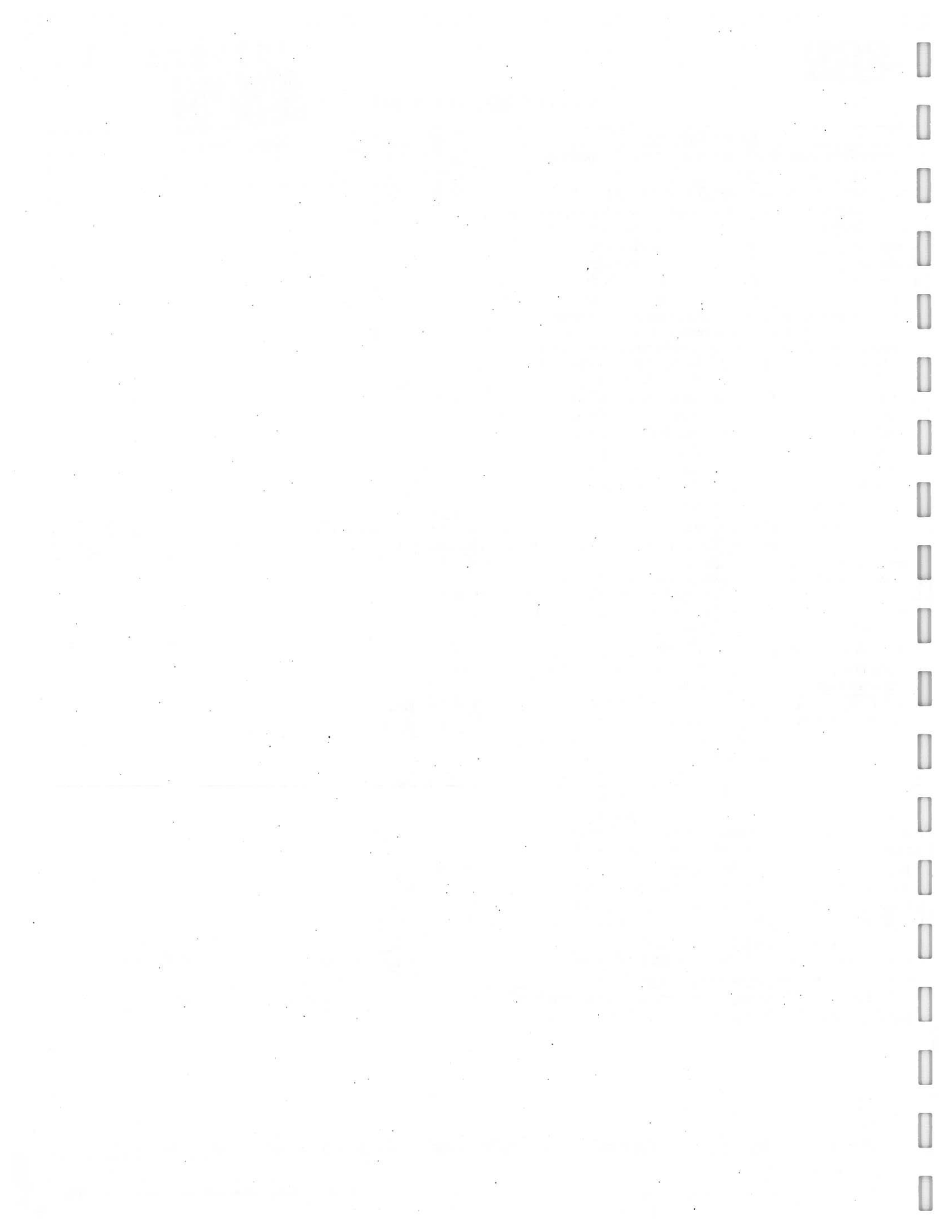
Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File



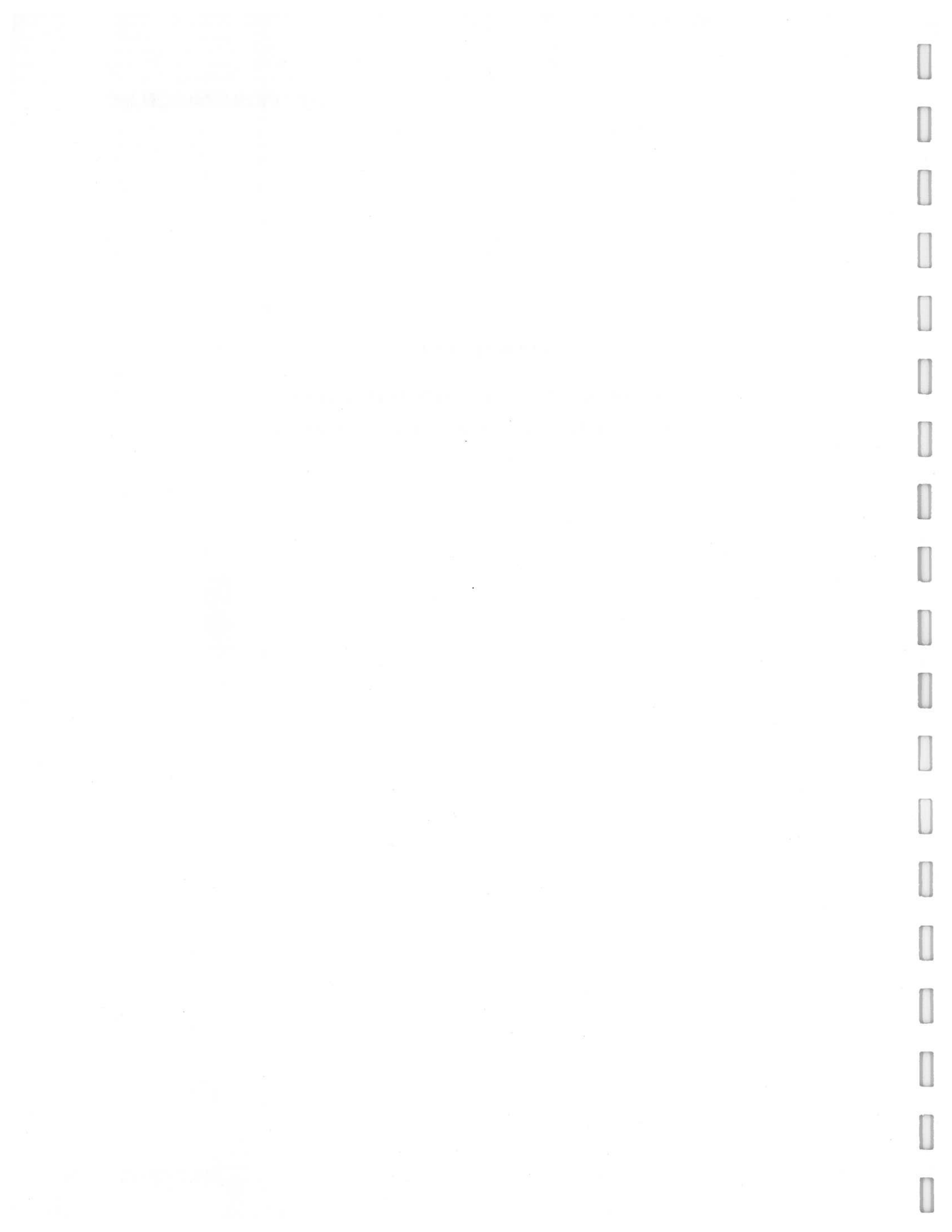
SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments:
Were custody seals intact? Note # & location, if applicable.	Yes No <u>N/A</u>	
COC accompanied samples?	<u>Yes</u> No N/A	
Temperature blank compliant* (i.e., 0-6°C after CF)? * Note: Exemption permitted for chilled samples collected less than 8 hours ago.	<u>Yes</u> No N/A	
Cooler ID: <u>S&W1</u> @ <u>3.1</u> w/ Therm.ID: <u>11</u>		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Note: If non-compliant, use form FS-0029 to document affected samples/analyses. If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "COOLER TEMP" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled."		
If temperature(s) <0°C, were all sample containers ice free?	Yes No <u>N/A</u>	
Delivery method (specify all that apply): <u>Client</u>	Note ABN/tracking #	
USPS Alert Courier C&D Delivery AK Air		
Lynden Carlile ERA PenAir	See Attached or N/A	
FedEx UPS NAC Other:		
→ For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	Yes No <u>N/A</u>	
→ For samples received with payment, note amount (\$) and cash / check / CC (circle one) or note:		<u>N/A</u>
→ For samples received in FBKS, ANCH staff will verify all criteria are reviewed.		SRF Initiated by: <u>JMC</u> <u>N/A</u>
Were samples received within hold time? Note: Refer to form F-083 "Sample Guide" for hold time information.	<u>Yes</u> No N/A	
Do samples match COC* (i.e., sample IDs, dates/times collected)? Note: Exemption permitted if times differ <1hr; in that case, use times on COC.	<u>Yes</u> No N/A	
Were analyses requested unambiguous?	<u>Yes</u> No N/A	
Were samples in good condition (no leaks/cracks/breakage)?	<u>Yes</u> No N/A	
Packing material used (specify all that apply): (Bubble Wrap Separate plastic bags Vermiculite Other: _____)		
Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)?	<u>Yes</u> No N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes No <u>N/A</u>	
Were proper containers (type/mass/volume/preservative*) used? Note: Exemption permitted for waters to be analyzed for metals.	<u>Yes</u> No N/A	
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<u>Yes</u> No N/A	
For special handling (e.g., "MP" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No <u>N/A</u>	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was pH verified and compliant?	Yes No <u>N/A</u>	
If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No <u>N/A</u>	
For RUSH/SHORT Hold Time, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No <u>N/A</u>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP, were containers / paperwork flagged accordingly?	Yes No <u>N/A</u>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No <u>N/A</u>	SRF Completed by: <u>JMC</u> N/A
Was PEER REVIEW of sample numbering/labeling completed?	Yes No N/A	Peer Reviewed by: N/A
Additional notes (if applicable):		

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



ATTACHMENT 4
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT



LABORATORY DATA REVIEW CHECKLIST

Completed by: Andrew Lee
Title: Environmental Scientist
Date: June 19, 2013

CS Report Name: Re: May 2013 Groundwater Sampling, Trailside General Store, Homer, Alaska; ADEC Hazard ID 25046

Laboratory Report Date: May 28, 2013

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1131974

ADEC File Number: 2314.26.028

ADEC Hazard ID Number: 25046

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

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses? Yes / No / NA (please explain)

Comments:

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved? Yes / No NA (please explain)

Comments:

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)? Yes / No / NA (please explain)

Comments:

- b. Correct analyses requested? Yes / No / NA (please explain)

Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)? Yes / No / NA (please explain)

Comments: *The cooler temperature was 3.1° C.*

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

Comments:

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

Comments: *The laboratory noted that the samples were in good condition.*

- d. If there were any discrepancies, were they documented? – For example, incorrect sample containers/preservation, sample temperature outside acceptance range, insufficient or missing samples, etc.? Yes / No NA (please explain)

Comments: *There were no discrepancies.*

- e. Data quality or usability affected? Please explain. NA

Comments:

4. Case Narrative

- a. Present and understandable? Yes / No / NA (please explain)

Comments: *The case narrative section referred to the sample receipt form for sample condition.*

- b. Discrepancies, errors or QC failures identified by the lab? Yes No / NA (please explain)

Comments: *There were no QC failures identified by the lab.*

- c. Were corrective actions documented? Yes / No NA (please explain)

Comments:

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

Comments:

5. Sample Results

- a. Correct analyses performed/reported as requested on COC? Yes / No / NA (please explain)

Comments:

- b. All applicable holding times met? Yes / No / NA (please explain)

Comments:

- c. All soils reported on a dry weight basis? Yes / No NA (please explain)

Comments:

- d. Are the reported LOQs less than the Cleanup Level or the minimum required detection

level for the project? Yes / No / NA (please explain)

Comments:

e. Data quality or usability affected? Please explain. NA

Comments:

6. QC Samples

a. Method Blank

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

Yes / No / NA (please explain)

Comments:

ii. All method blank results less than LOQ? Yes / No / NA (please explain)

Comments: *GRO and o-xylene were detected in the method blanks at concentrations less than LOQ, but at similar concentrations to the project samples.*

iii. If above LOQ, what samples are affected?

Comments: *Each project sample was affected by at least one of the method blank detections.*

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

Yes No / NA (please explain)

Comments:

v. Data quality or usability affected? Please explain.

Comments: *GRO and o-xylene are considered not detected in the project samples if the reported concentrations are within five times the method blank concentrations. The affected results are flagged with a "B" in Table 2 of the project report.*

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

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

(LCS/LCSD required per AK methods, LCS required per SW846) Yes / No / NA (please explain)

Comments:

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

Comments:

iii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes / No / NA (please explain)

Comments:

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes** / No / NA (please explain)
Comments:

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

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

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

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses, field, QC, and laboratory samples? **Yes** / No / NA (please explain)
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes** / No / NA (please explain)
Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined? Yes / No / **NA** (please explain)
Comments:

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

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? (If not, enter explanation below.) **Yes** / No / NA (please explain)
Comments:

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

Comments:

- iii. All results less than LOQ? Yes / No / NA (please explain)
Comments: *However, GRO and o-xylene were detected at concentrations similar to the concentrations in the project samples. The GRO and o-xylene detections are related to the method blank detections for GRO and o-xylene.*
- iv. If above LOQ, what samples are affected?
Comments: *Each project sample is affected by a detection in the trip blank.*
- v. Data quality or usability affected? Please explain. NA
Comments: *The project sample results within five times the trip blank or method blank concentrations are considered not detected. The affected results are flagged with a "B" in Table 2 of the project report.*

e. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples?
 Yes / No / NA (please explain)
Comments: *Sample UST-2 was the field duplicate of Sample UST-1.*
- ii. Submitted blind to the lab? Yes / No / NA (please explain)
Comments:
- iii. Precision – All relative percent differences (RPDs) less than specified DQOs? (Recommended: 30% for water, 50% for soil) Yes No / NA (please explain)
Comments: *The RPD for xylenes was 63 percent.*
- iv. Data quality or usability affected? Please explain. NA
Comments: *The results were within a factor of two and are considered usable. The affected results were all less than the cleanup level and do not affect conclusions about the site.*

f. Decontamination or Equipment Blank

- Yes No / NA (please explain)
Comments: *Decontamination blanks were not a part of the ADEC-approved scope and dedicated disposable bailers were used to collect the samples.*
- i. All results less than LOQ? Yes / No NA (please explain)
Comments:
 - ii. If above LOQ, what samples are affected? NA
Comments:
 - iii. Data quality or usability affected? Please explain.
Comments: *The data quality is not affected. Disposable sampling equipment was*

Work Order Number: 1131974

used, and the samples were collected in order from least contaminated to most contaminated based on historical sample results.

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

- a. Defined and appropriate? Yes / No / NA (please explain)
Comments: *A key is provided on page 3 of the laboratory report.*



Date: June 2013
To: Alaska Department of Environmental
Conservation
Re: Trailside General Store, Homer, 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