2265.26.007

Tesoro 2 Go Mart #53
ADEC File #2265.26.007

August/November 2009 Monitoring Events and Rebound Test Report

Final - March 2010

Prepared For

TESORO

Received Report 5-12-10 for Paul Horwath and prepared a summary for his review and oversight. Alyce Hughes

MWH

BUILDING A BETTER WORLD

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
AS	air sparge
GCL	ground water cleanup level
GRO	gasoline range organics
PID	photoionization detector
ppmv	parts per million by volume
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
SVE	soil vapor extraction

1.0 BACKGROUND

The Corrective Action Work Plan for the year 2009 for this site includes two ground water monitoring events and assessing the site for closure. MWH completed the second monitoring event, an additional monitoring event, and a rebound test assessment at Tesoro 2 Go Mart #53 on behalf of Tesoro Refining and Marketing Company. Ground water monitoring is being conducted to determine if contaminants remain in the ground water beneath the site.

This report describes the activities and monitoring results of the monitoring events and rebound test, which were conducted on August 13 and November 3, 2009.

Charles Larson, Engineering Technician III, and Nicole Neuman, Associate Environmental Chemist, both with MWH, completed the work for these activities. All sampling activities were completed in accordance with the Alaska Department of Environmental Conservation (ADEC) *Underground Storage Tanks Procedures Manual – Standard Sampling Procedures* (November 7, 2002).

The August 2009 monitoring event included collecting and analyzing ground water samples from Monitoring Wells MW-1, SVE-1, and SVE-2. The November 2009 monitoring event and rebound test included collecting and analyzing ground water samples from Monitoring Wells MW-1, MW-6, MW-7, SVE-1, and SVE-2, and collecting and analyzing air samples from the soil vapor extraction (SVE) system. The site location, locations of the monitoring wells, and the air sparge (AS)/SVE treatment system layouts are shown on Figures 1, 2, and 3, respectively.

2.0 MONITORING EVENTS

2.1 METHODS

The methods that were used for these monitoring events were specified in the ADEC-approved 2009 Corrective Action Work Plan for this site.

2.2 RESULTS

The results of the August 13 and November 3, 2009, monitoring events at this site are presented below. This includes ground water levels, field parameters, the analytical laboratory results, and a quality assurance (QA)/quality control (QC) review of the laboratory data.

2.2.1 Ground Water Levels

Table 1 presents ground water elevations based on the depths to static water levels measured during the August and November 2009 rebound tests.

Table 1 Ground Water Elevations
Measured on August 13 and November 3, 2009

Monitoring Well Identification	Top of Casing Elevation (feet)[1]	Depth to Water (feet)	Ground Water Elevation (feet)
August 13, 2009			
MW-1	98.31	20.16	78.15
SVE-1	98.57	19.93	78.64
SVE-2	98.60	20.42	78.18
November 3, 2009			
MW-1	98.31	20.65	77.66
MW-6	98.59	20.90	77.69
MW-7	96.05	20.32	75.73
SVE-1	98.57	20.00	78.57
SVE-2	98.60	20.91	77.69

Key:
1 – Based on a vertical control survey of April 16, 2008, using an arbitrary datum.

2.2.2 Field Parameters

The results of field parameter testing of the water samples collected during these monitoring events are presented in Table 2.

Table 2 Field Parameters
Measured on August 13 and November 3, 2009

Monitoring Well Identification	Temp. (°C)	pH	SC (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
August 13, 2009					
MW-1	8.4	9.0	477.9	9.76	-126.5
SVE-1	9.2	8.4	1,554	5.66	-82.0
SVE-2	9.0	8.8	354.1	0.42	-97.9
November 3, 2009					
MW-1	6.2	6.5	651	0.75	35.0
MW-6	6.2	7.9	1,017	0.33	-45.1
MW-7	6.3	8.2	753	2.22	-40.7
SVE-1	7.2	8.0	1,033	0.19	-59.1
SVE-2	7.4	8.0	205.5	0.19	-62.9

Key:
°C – degrees Celsius
µs/cm – microSiemens per centimeter
mg/L – milligrams per liter
mV – millivolt
ORP – oxidation-reduction potential
pH – -log [H^+]
SC – specific conductance at 25°C

Typewritten copies of the sampler's field measurements and notes are included as worksheets in Appendix A. The worksheets also note the instruments and test methods used to analyze each parameter.

2.2.3 Ground Water Analytical Results

All historical monitoring data for this site are tabulated in Appendix B. Laboratory analytical results for the ground water samples collected during the August and November 2009 monitoring events are summarized in Table 3. Copies of the laboratory reports are provided in Appendix C.

Table 3 Ground Water Analytical Results
Samples collected on August 13 and November 3, 2009

Sample Identification	Benzene[1] (mg/L)	Toluene[1] (mg/L)	Ethylbenzene[1] (mg/L)	Xylenes[1] (mg/L)	GRO (mg/L)
August 13, 2009					
MW-1	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)
SVE-1	U (0.0005)	U (0.001)	0.0259	0.103	0.516
SVE-2	0.00169	U (0.001)	0.00182	U (0.003)	U (0.05)
TNS 53 DUP (duplicate of SVE-2)	**0.00528**	U (0.001)	0.00343	0.00315	U (0.05)
Trip Blank	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)
November 3, 2009					
MW-1	0.00067	U (0.001)	U (0.001)	U (0.003)	U (0.05)
MW-6	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)
MW-7	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)
SVE-1	0.0007	0.00108	0.0223	0.0935	0.355
SVE-2	**0.00598**	U (0.001)	0.00376	0.00352	U (0.05)
TNS 53 DUP (duplicate of SVE-1)	0.000720	U (0.001)	0.0206	0.0869	0.337
Trip Blank	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)
GCLs	0.005	1	0.7	10	2.2

Key:
1 – Analyzed by U.S. Environmental Protection Agency Test Method 8260B.
GCLs – Ground water cleanup levels, per Alaska Department of Environmental Conservation 18 Alaska Administrative Code 75.345, Table C.
GRO – Gasoline range organics, analyzed by Alaska Test Method 101.
mg/L – milligrams per liter
U – Undetected above the practical quantitation limits shown in parentheses.
Bold – Indicates concentration exceeds the GCL.

2.2.4 Quality Assurance/Quality Control

TestAmerica Inc. met most laboratory QA/QC criteria during the analysis of ground water samples for the August and November 2009 sampling events. A copy of the laboratory QC data

and the ADEC Laboratory Data Review Checklist are provided in Appendix C with the laboratory report.

August 2009. Sample TNS 53 DUP is a duplicate of Sample SVE-2. The duplicate sample set was collected to determine the precision of the field collection and laboratory analysis for this sampling event. Data presented in Table 4 show that the precision for the duplicate sample set is above the established QA criteria for benzene and ethylbenzene due to the variability associated with low concentration levels. Precision could not be calculated for all other analytes because they were not detected above the practical quantitation limits (PQLs) in one or more of the samples.

Table 4 Laboratory Quality Control Objectives

Quality Control Designation	Tolerance	Results for These Events	
		8/13/2009	11/3/2009
Holding Times			
BTEX/Water/to analyze	14 days	4 to 5 days	3 days
GRO/Water/to analyze	14 days	4 to 5 days	3 days
Field Duplicates -- Precision			
Benzene/Water	± 30%	103%	2.8%
Toluene/Water	± 30%	NC	NC
Ethylbenzene/Water	± 30%	61.3%	7.9%
Xylenes/Water	± 30%	NC	7.3%
GRO/Water	± 30%	NC	5.2%

Key:
% – percent
± – plus or minus
BTEX – benzene, toluene, ethylbenzene, and xylenes
GRO – gasoline range organics
NC – Not calculated because analytes were not detected above the practical quantitation limits.

November 2009. Sample TNS 53 DUP is a duplicate of Sample SVE-1. Data presented in Table 4 show that the precision for the duplicate sample set is within the established QA criteria tolerance for benzene, ethylbenzene, xylenes, and gasoline range organics (GRO). Precision could not be calculated for toluene because the analyte was not detected above the PQL in one or more of the samples.

3.0 REMEDIATION SYSTEMS REBOUND TEST

3.1 METHODS

The SVE and AS system were off upon arrive at the site on both August 13 and November 3, 2009. The AS/SVE blowers had been shut down on May 7, 2009, for the rebound test and were not restarted until after ground water sampling on November 3, 2009. The on-site blower was

used to perform the November 3, 2009, rebound test, and allowed to operate for approximately 24 hours.

Volatile hydrocarbons were semi-quantitatively measured at the SVE system exhaust with a photoionization detector (PID) at the startup and end of the rebound test. An SVE exhaust sample was collected at the beginning and end of the rebound test and submitted to a laboratory for analysis of petroleum hydrocarbons.

3.2 RESULTS

The initial PID reading of 0.0 parts per million by volume (ppmv), and the 24-hour PID reading of 2.6 ppmv (Table 5) indicated minimal amounts of contaminants were being removed from the soil. Laboratory analytical results for the SVE exhaust samples collected during the rebound test on November 3 and 4, 2009, are summarized in Table 5. A copy of the laboratory QC data and the ADEC Laboratory Data Review Checklist are provided in Appendix C with the laboratory report.

Table 5 SVE Exhaust Concentrations
Samples collected on November 3 and November 4, 2009

Sample Identification	Benzene[1] (ppm)	Toluene[1] (ppm)	Ethylbenzene[1] (ppm)	Xylenes[1] (ppm)	GRO (ppm)	PID (ppmv)
TNS 53 10 Air	U (0.243)	U (0.249)	U (0.390)	U (0.580)	U (20.0)	0.0
TNS 53 24 Air	U (0.243)	0.590	U (0.390)	U (0.580)	33.7	2.6
TNS 53 Dup Air (duplicate of TNS 53 24 Air)	U (0.243)	0.680	U (0.390)	0.750	U (20.0)	2.6

Key:
1 – Analyzed by EPA Method 8021B.
EPA – U.S. Environmental Protection Agency
GRO – Gasoline range organics, analyzed by EPA Method 8015C.
PID – photoionization detector
ppm – parts per million
ppmv – parts per million by volume
SVE – soil vapor extraction

Upon start up during the November 2009 site visit, the AS gauge was not working; therefore, the AS system pressure was not able to be measured.

4.0 DISCUSSION OF FINDINGS

4.1 GROUND WATER HYDRAULIC CHARACTERISTICS

The ground water elevations presented in Table 1 were plotted using a polynomial regression. The ground water elevation measurement for Monitoring Well MW-7 was not included in the plot due to a variance in the data that lead to a flow direction opposing that of historical data.

The ground water flow direction for the November 3, 2009, monitoring event was found to be toward the northeast, with a bearing of 61 degrees and at a gradient of approximately 0.04 feet per foot. Historical ground water flow direction is highly variable at this site. The November 2009 results follow the average historical flow direction. A copy of the hydraulic gradient plot is provided in Appendix A.

4.2 GROUND WATER QUALITY

August 2009. Benzene was detected above the ADEC ground water cleanup levels (GCLs) in Monitoring Well SVE-2. Ethylbenzene and xylenes were detected above the PQLs in Monitoring Wells SVE-1 and SVE-2, and GRO was detected above the PQLs in Monitoring Well SVE-1; however, results were below their respective GCLs.

November 2009. Benzene was detected above the GCL in Monitoring Well SVE-2. Benzene was detected above the laboratory PQLs, but below GCLs in Monitoring Wells MW-1 and SVE-1. Toluene and GRO were detected above the PQL, but below the GCL, in Monitoring Well SVE-1. Ethylbenzene and xylenes were also detected above the PQL, but below the GCL, in Monitoring Wells SVE-1 and SVE-2.

From August to November 2009, benzene levels in SVE-2 remained relatively consistent. There was a slight increase in benzene levels in Monitoring Wells MW-1 and SVE-1, as well as toluene in SVE-1, to levels just above their respective PQLs. All other contaminants remained consistent between the two monitoring events.

Graphs of contaminant concentrations and ground water elevations for Monitoring Wells MW-1 and SVE-1 are presented on Figure 4. The other monitoring wells are not graphed due to historically low contaminant concentrations. Overall, the trend of ground water contaminant concentrations at this site for the past several years has been decreasing to levels consistently below the GCLs.

4.3 REMEDIATION SYSTEMS

Was this gauge fixed?

The AS and SVE systems are currently running on a full-time basis. SVE exhaust measurements indicate low amounts of volatile petroleum hydrocarbons are being removed from the vadose soil zone by the remediation systems.

5.0 CONCLUSIONS AND RECOMMENDATIONS

No anomalies were found during the August and November 2009 monitoring events that require additional corrective action or changes to the ADEC-approved year 2009 Corrective Action Work Plan for this site. Due to the minimal presence of contaminants at this site, MWH requests that ADEC grant a Conditional Closure with Institutional Controls at this time.

6.0 LIMITATIONS

MWH conducted these monitoring events in accordance with the Corrective Action Work Plan for this site approved by ADEC, and in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. All sampling activities were completed in accordance with the ADEC *Underground Storage Tanks Procedures Manual – Standard Sampling Procedures* (November 7, 2002). No other warranty, expressed or implied, is made. Data and recommendations made herein were prepared for Tesoro 2 Go Mart #53 and Tesoro Refining and Marketing Company. Information herein is for use at this site in accordance with the purpose of the report described.

Report prepared by:

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3/10/2010
Date

Report reviewed by:

Michael A. Zidek, PMP
Project Manager

3/10/10
Date

FIGURES

Job No. 1005584.010101 File: Tesoro\TGMart053\MonEvent\August-November 2009\finalMg01.cdr

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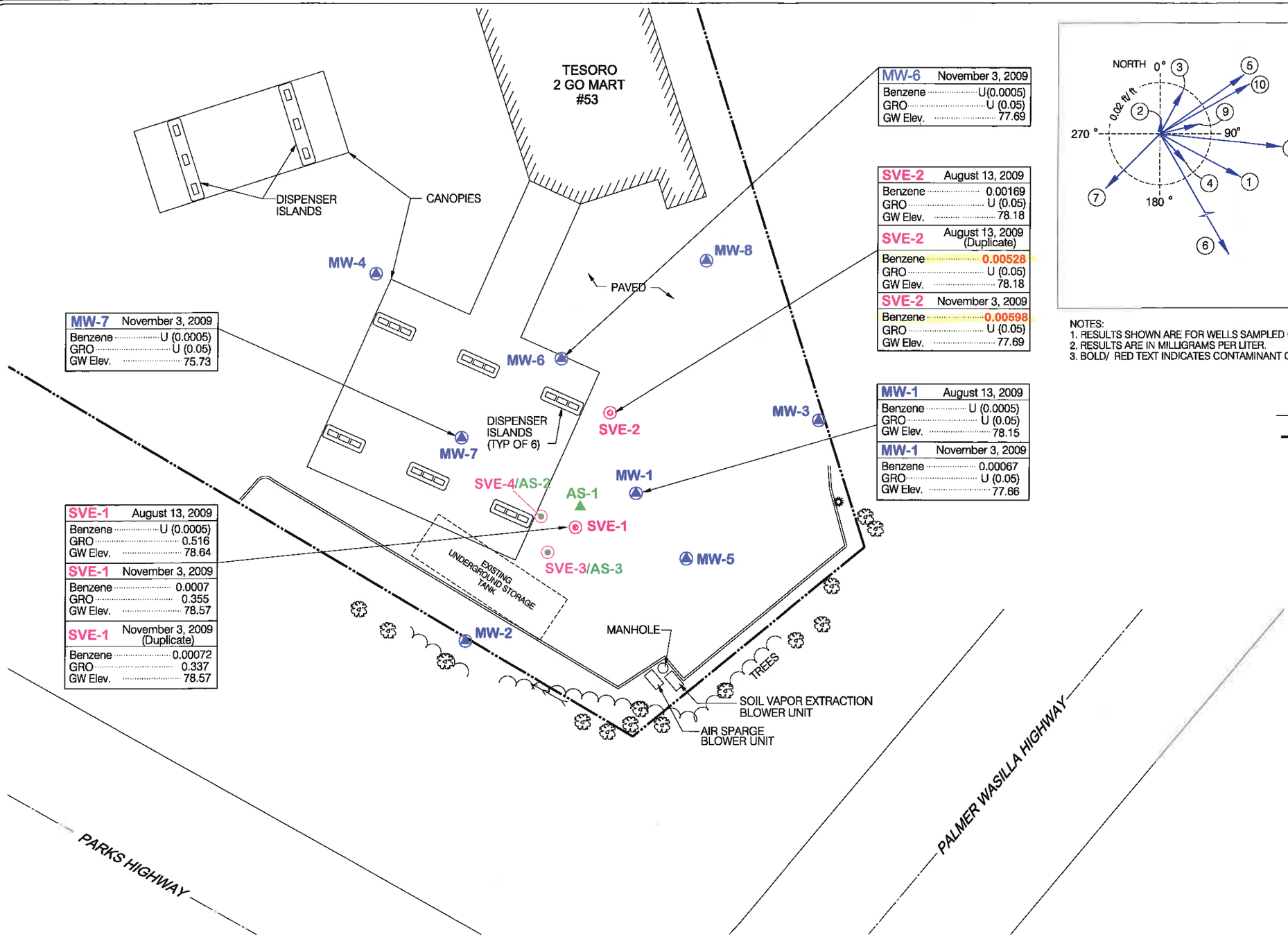
Anchorage, Alaska

FIGURE 1

TESORO COMPANY - 2 GO MART #53
AUGUST/NOVEMBER 2009 MONITORING EVENT AND REBOUND REPORT

LOCATION AND VICINITY MAP



MW-6	November 3, 2009
Benzene	U(0.0005)
GRO	U (0.05)
GW Elev.	77.69

SVE-2	August 13, 2009
Benzene	0.00169
GRO	U (0.05)
GW Elev.	78.18

SVE-2	August 13, 2009 (Duplicate)
Benzene	**0.00528**
GRO	U (0.05)
GW Elev.	78.18

SVE-2	November 3, 2009
Benzene	**0.00598**
GRO	U (0.05)
GW Elev.	77.69

MW-7	November 3, 2009
Benzene	U (0.0005)
GRO	U (0.05)
GW Elev.	75.73

MW-1	August 13, 2009
Benzene	U (0.0005)
GRO	U (0.05)
GW Elev.	78.15

MW-1	November 3, 2009
Benzene	0.00067
GRO	U (0.05)
GW Elev.	77.66

SVE-1	August 13, 2009
Benzene	U (0.0005)
GRO	0.516
GW Elev.	78.64

SVE-1	November 3, 2009
Benzene	0.0007
GRO	0.355
GW Elev.	78.57

SVE-1	November 3, 2009 (Duplicate)
Benzene	0.00072
GRO	0.337
GW Elev.	78.57

GROUND WATER FLOW SUMMARY

	DATE	BEARING	GRADIENT (ft/ft)
1	APRIL 25, 2005	118°	0.036
2	OCT. 7, 2005	4°	0.006
3	MAY 12, 2006	28°	0.019
4	OCT. 26, 2006	138°	0.0154
5	APRIL 25, 2007	55°	0.04
6	OCT. 31, 2007	150°	0.1
7	APRIL 16, 2008	225°	0.03
8	OCT. 22, 2008	96°	0.048
9	APRIL 8, 2009	76°	0.016
10	NOV. 3, 2009	61°	0.04

NOTES:
1. RESULTS SHOWN ARE FOR WELLS SAMPLED ON AUGUST 13, 2009 AND NOVEMBER 3, 2009.
2. RESULTS ARE IN MILLIGRAMS PER LITER.
3. BOLD/ RED TEXT INDICATES CONTAMINANT CONCENTRATIONS ABOVE CLEANUP LEVELS FOR THIS SITE.

LEGEND:

- PROPERTY LINE
- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- AIR SPARGE WELL
- GRO — GASOLINE RANGE ORGANICS
- GW Elev. — GROUND WATER ELEVATION IN FEET
- U — UNDETECTED ABOVE PRACTICAL QUANTITATION LIMITS SHOWN IN PARENTHESES

NORTH

APPROXIMATE SCALE IN FEET
0 10 20 30

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FIGURE 2
TESORO COMPANY - 2 GO MART #53
AUGUST/NOVEMBER 2009 MONITORING EVENT AND REBOUND REPORT
SITE PLAN WITH GROUNDWATER ANALYTICAL RESULTS

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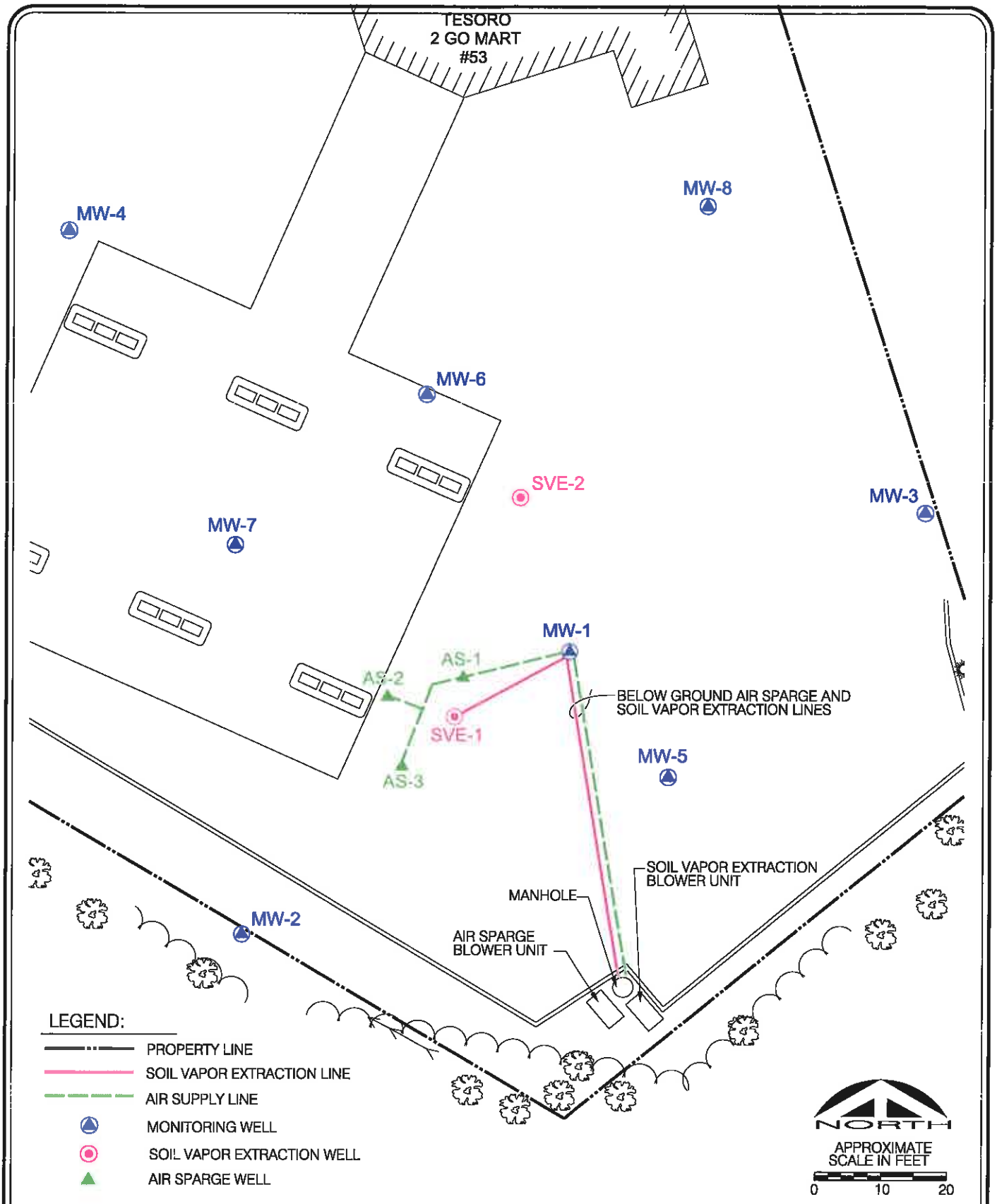

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JOB No. 1008104.010102

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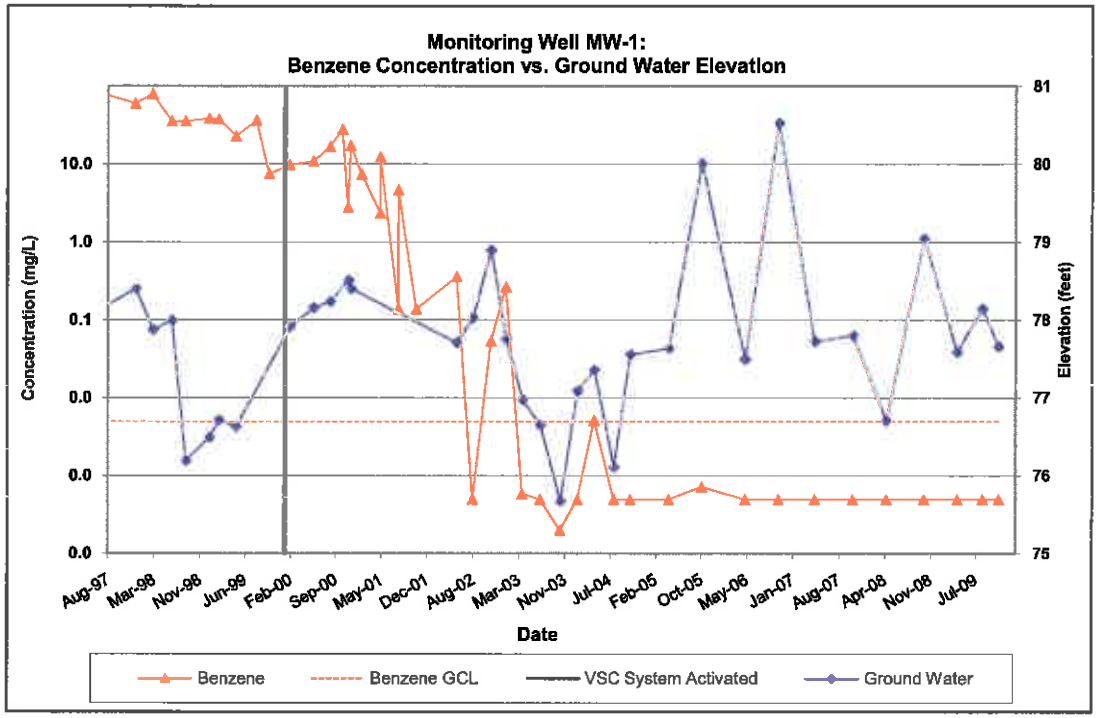
Anchorage, Alaska

FIGURE 3

TESORO COMPANY - 2 GO MART #53
AUGUST/NOVEMBER 2009 MONITORING EVENT AND REBOUND REPORT

REMEDIATION SYSTEM LAYOUT

Figure 4
Graphs of Contaminant Concentrations and Ground Water Elevations



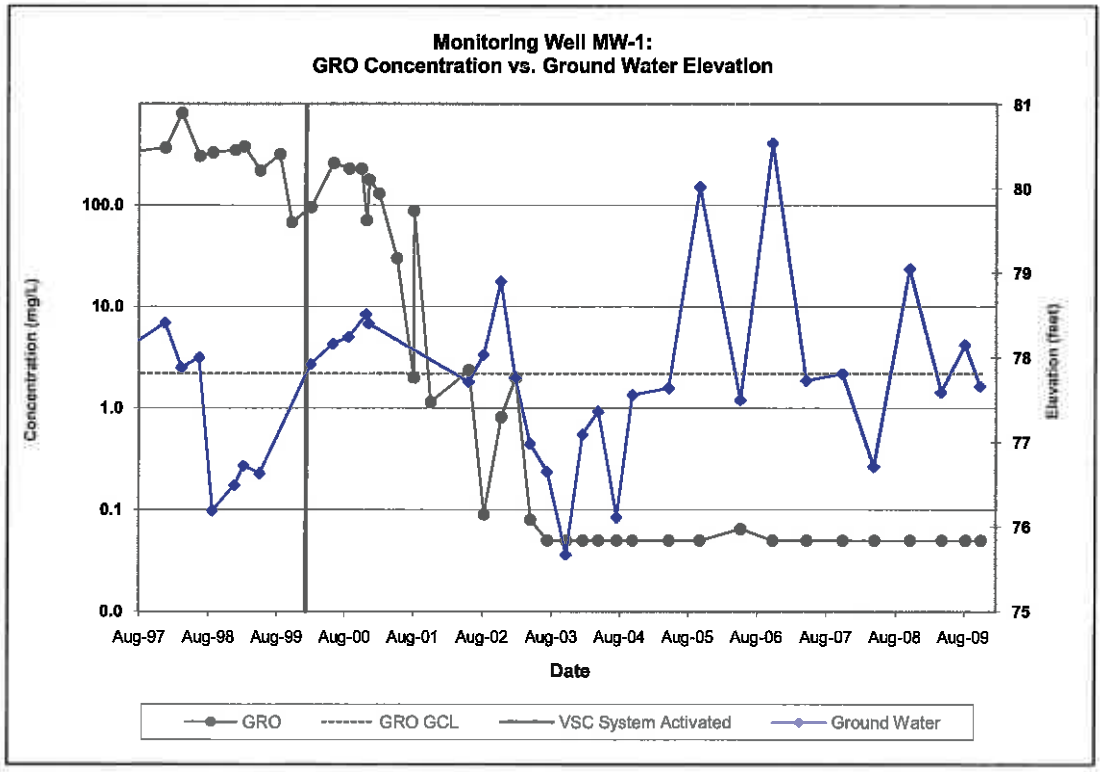
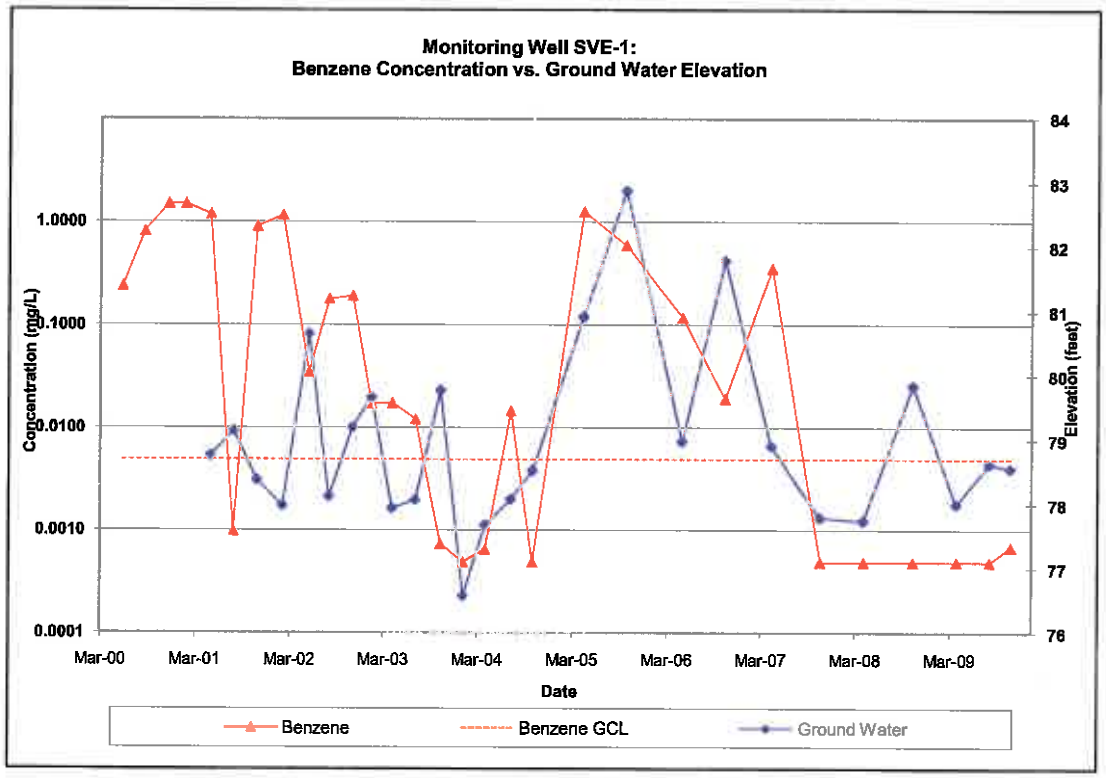
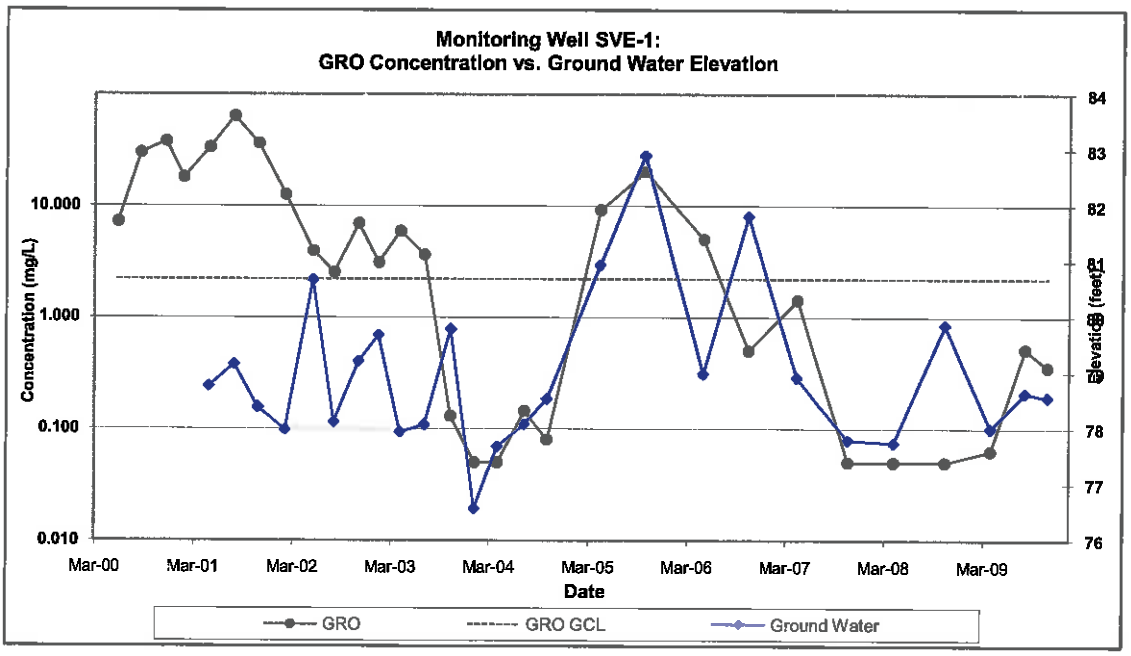


Figure 4
Graphs of Contaminant Concentrations and Ground Water Elevations





APPENDIX A

Field Measurements, Notes, and Hydraulic Gradient Plot

MWH

Appendix A
Field Measurements and Notes

Project: Tesoro 2 Go Mart #53
Project number: 1006033.010102
Date: 8/13/2009
Samplers: Larson, Neuman

Well I.D.	Volume Purged (gallons)	Sheen/ Odor	Temp. (°C)	pH	Conductivity (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Top of Casing[1]	Depth to GW	GW Elevation
MW-1	4.0	N/N	8.4	9.0	477.9	9.76	-126.5	98.31	20.16	78.15
SVE-1	3.0	N/Y	9.2	8.4	1554	5.66	-82.0	98.57	19.93	78.64
SVE-2	0.54	N/N	9.0	8.8	354.1	0.42	-97.9	98.6	20.42	78.18

1 - Elevation survey completed on 4/16/08

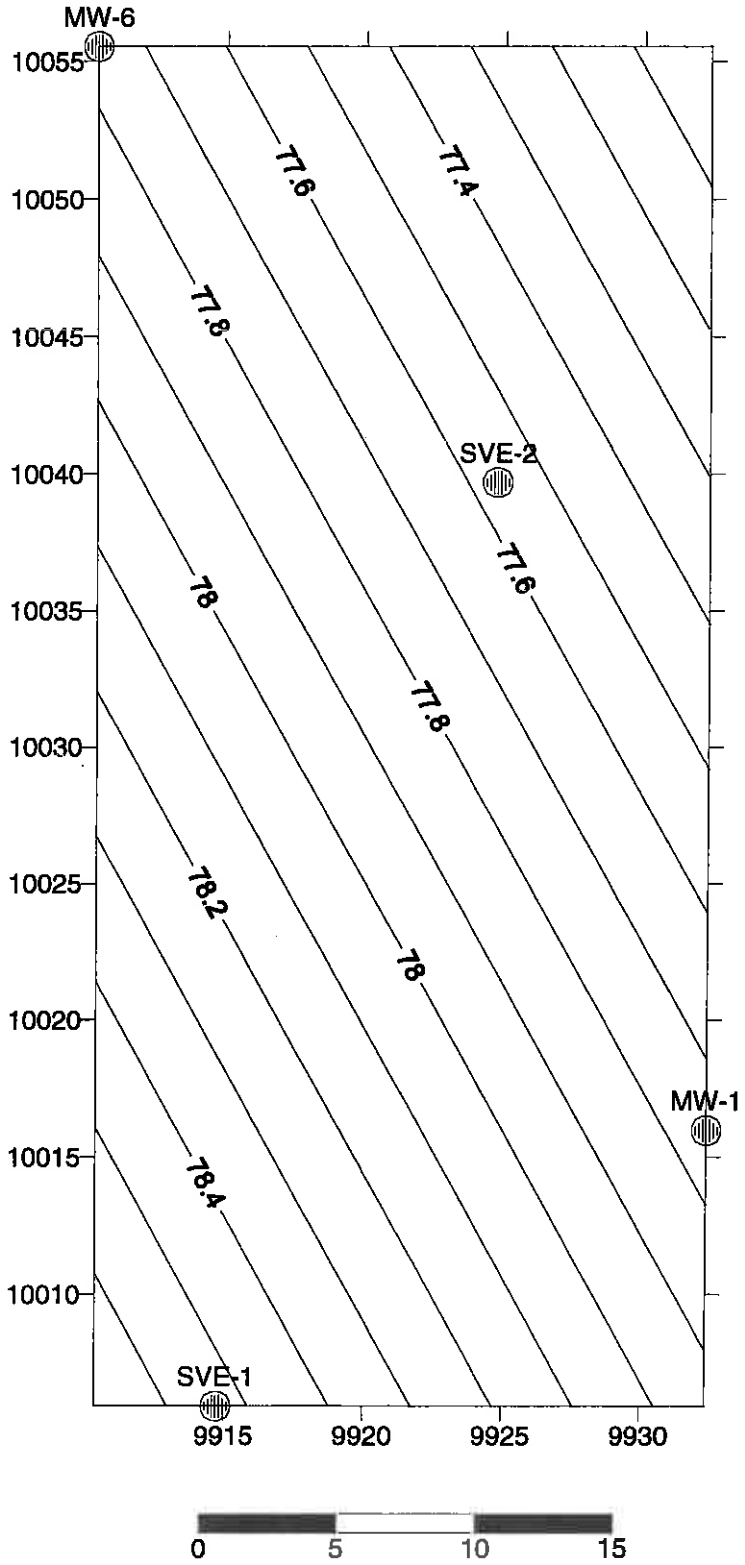
NOTES:

		Well Diam.	Sample Time
MW-1	clear	2"	1500
SVE-1	dark gray, slight septic odor	2"	1540
SVE-2	clear	1.25"	1230
TNS 53 Dup	SVE-2	1.25"	1300

Instruments / methods used for above measurements:		Model
Static water level	SolinistHeron	101
Conductivity	YSI	30
Temperature	YSI	550
Dissolved Oxygen	YSI	95
pH	Beckman	255
ORP	Beckman	255

Lab Analytical Methods	
All	BTEX (8260B)
	GRO (AK101)

T2G # 53 Polynomial Regression
November 2009



APPENDIX B

Tables of Historical Monitoring Data

MWH

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-2

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.13
21-Mar-97	U	U	U	U	U	NT	78.17
23-Dec-97	NT	NT	NT	NT	NT	NT	NM
20-Mar-98	NT	NT	NT	NT	NT	NT	NM
23-Jun-98	NT	NT	NT	NT	NT	NT	NM
06-Aug-98	U	U	U	1.2	U	0.00023	NM
01-Sep-98	U	U	U	U	U	NT	77.83
29-Dec-98	U	U	U	U	U	NT	77.15
15-Feb-99	NT	NT	NT	NT	NT	NT	77.26
12-May-99	U	U	U	U	U	U	77.35
24-Aug-99	U	U	U	U	U	NT	78.98
28-Oct-99	U	U	U	U	U	NT	79.96
09-Feb-00	NT	NT	NT	NT	NT	NT	NM
08-Jun-00	NT	NT	NT	NT	NT	NT	78.37
31-Aug-00	U	U	U	U	U	NT	79.10
01-Dec-00	NT	NT	NT	NT	NT	NT	NM
05-Feb-01	NT	NT	NT	NT	NT	NT	77.76
11-May-01	NT	NT	NT	NT	NT	NT	78.55
10-Aug-01	U	U	U	U	U	NT	78.79
07-Nov-01	NT	NT	NT	NT	NT	NT	77.79
15-Feb-02	NT	NT	NT	NT	NT	NT	77.32
28-May-02	NT	NT	NT	NT	NT	NT	77.89
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	80.13
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	NT	NT	NT	NT	NT	NT	NM
17-Jul-03	NT	NT	NT	NT	NT	NT	76.81
24-Oct-03	NT	NT	NT	NT	NT	NT	78.05
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	77.96
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	0.00117	0.0012	U (0.0005)	U (0.0015)	U (0.05)	NT	79.38
26-Oct-05	NT	NT	NT	NT	NT	NT	NM
11-May-06	NT	NT	NT	NT	NT	NT	NM
26-Oct-06	NT	NT	NT	NT	NT	NT	80.93
25-Apr-07	NT	NT	NT	NT	NT	NT	NM
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	NT	NT	NT	NT	NT	NT	NM
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	NT	NT	NT	NT	NT	NT	NM
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-3

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.41
21-Mar-97	NT	NT	NT	NT	NT	NT	NM
20-Jun-97	NT	NT	NT	NT	NT	NT	NM
23-Dec-97	NT	NT	NT	NT	NT	NT	NM
20-Mar-98	NT	NT	NT	NT	NT	NT	NM
23-Jun-98	NT	NT	NT	NT	NT	NT	NM
01-Sep-98	NT	NT	NT	NT	NT	NT	NM
29-Dec-98	NT	NT	NT	NT	NT	NT	NM
15-Feb-99	NT	NT	NT	NT	NT	NT	NM
12-May-99	NT	NT	NT	NT	NT	NT	NM
24-Aug-99	U	U	U	U	U	NT	NM
28-Oct-99	U	U	U	U	U	NT	NM
09-Feb-00	NT	NT	NT	NT	NT	NT	78.08
08-Jun-00	NT	NT	NT	NT	NT	NT	78.19
31-Aug-00	0.0024	U	U	U	U	NT	78.28
01-Dec-00	NT	NT	NT	NT	NT	NT	78.15
05-Feb-01	NT	NT	NT	NT	NT	NT	NM
11-May-01	U	U	U	U	U	U	78.13
10-Aug-01	U	U	U	U	U	U	78.33
07-Nov-01	NT	NT	NT	NT	NT	NT	77.68
15-Feb-02	NT	NT	NT	NT	NT	NT	77.26
28-May-02	NT	NT	NT	NT	NT	NT	77.71
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.06
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	77.98
18-Apr-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	NT	77.46
17-Jul-03	NT	NT	NT	NT	NT	NT	NM
24-Oct-03	NT	NT	NT	NT	NT	NT	NM
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	NM
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
26-Oct-05	NT	NT	NT	NT	NT	NT	NM
11-May-06	NT	NT	NT	NT	NT	NT	NM
26-Oct-06	NT	NT	NT	NT	NT	NT	NM
25-Apr-07	NT	NT	NT	NT	NT	NT	NM
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	NT	NT	NT	NT	NT	NT	NM
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	NT	NT	NT	NT	NT	NT	NM
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	**NA**

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-4

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.34
21-Mar-97	NT	NT	NT	NT	NT	NT	NM
20-Jun-97	NT	NT	NT	NT	NT	NT	NM
23-Dec-97	NT	NT	NT	NT	NT	NT	NM
20-Mar-98	0.096	0.093	0.11	0.096	0.094	NT	76.01
23-Jun-98	U	0.001	U	U	U	NT	76.39
01-Sep-98	U	U	U	U	U	NT	76.53
29-Dec-98	U	U	U	U	U	NT	76.13
15-Feb-99	NT	NT	NT	NT	NT	NT	76.28
12-May-99	U	U	U	U	U	U	76.07
24-Aug-99	U	U	U	U	U	NT	77.32
28-Oct-99	[illegible]	0.22	0.0082	0.022	0.76	NT	79.32
09-Feb-00	NT	NT	NT	NT	NT	NT	NM
08-Jun-00	U	U	U	U	U	NT	78.17
31-Aug-00	U	U	U	U	U	NT	78.39
01-Dec-00	U	U	U	U	U	NT	78.13
05-Feb-01	U	U	U	U	U	NT	NM
11-May-01	NT	NT	NT	NT	NT	NT	78.10
10-Aug-01	U	0.003	U	U	U	NT	78.26
07-Nov-01	NT	NT	NT	NT	NT	NT	NM
15-Feb-02	NT	NT	NT	NT	NT	NT	NM
28-May-02	NT	NT	NT	NT	NT	NT	NM
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.24
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	NT	NT	NT	NT	NT	NT	NM
17-Jul-03	NT	NT	NT	NT	NT	NT	NM
24-Oct-03	NT	NT	NT	NT	NT	NT	NM
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	NM
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
26-Oct-05	NT	NT	NT	NT	NT	NT	NM
11-May-06	NT	NT	NT	NT	NT	NT	NM
26-Oct-06	NT	NT	NT	NT	NT	NT	NM
25-Apr-07	NT	NT	NT	NT	NT	NT	NM
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	NT	NT	NT	NT	NT	NT	NM
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	NT	NT	NT	NT	NT	NT	NM
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-5

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.33
21-Mar-97	U	U	U	U	U	NT	78.02
20-Jun-97	U	U	U	U	U	NT	NM
23-Dec-97	U	U	U	U	U	NT	77.55
20-Mar-98	U	U	U	U	U	NT	78.45
23-Jun-98	U	U	U	U	U	NT	77.12
01-Sep-98	U	U	U	U	U	NT	77.46
29-Dec-98	U	U	U	U	U	NT	77.13
15-Feb-99	NT	NT	NT	NT	NT	NT	77.27
12-May-99	U	U	U	U	U	U	77.09
24-Aug-99	U	U	U	U	U	NT	78.31
28-Oct-99	U	U	U	U	U	NT	79.25
09-Feb-00	NT	NT	NT	NT	NT	NT	78.04
08-Jun-00	NT	NT	NT	NT	NT	NT	NM
31-Aug-00	U	U	U	U	U	NT	79.89
01-Dec-00	NT	NT	NT	NT	NT	NT	NM
05-Feb-01	NT	NT	NT	NT	NT	NT	79.35
11-May-01	NT	NT	NT	NT	NT	NT	78.11
10-Aug-01	U	0.002	U	U	U	NT	78.30
07-Nov-01	NT	NT	NT	NT	NT	NT	77.68
15-Feb-02	NT	NT	NT	NT	NT	NT	NM
28-May-02	NT	NT	NT	NT	NT	NT	77.71
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.05
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	NT	77.48
17-Jul-03	NT	NT	NT	NT	NT	NT	77.46
24-Oct-03	NT	NT	NT	NT	NT	NT	77.34
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	77.63
21-Jul-04	NT	NT	NT	NT	NT	NT	77.19
13-Oct-04	NT	NT	NT	NT	NT	NT	78.86
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	78.41
26-Oct-05	NT	NT	NT	NT	NT	NT	NM
11-May-06	NT	NT	NT	NT	NT	NT	NM
26-Oct-06	NT	NT	NT	NT	NT	NT	80.84
25-Apr-07	NT	NT	NT	NT	NT	NT	NM
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	NT	NT	NT	NT	NT	NT	NM
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	NT	NT	NT	NT	NT	NT	NM
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-6

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.36
21-Mar-97	U	U	U	U	U	NT	77.96
20-Jun-97	U	U	U	U	U	NT	NM
23-Dec-97	U	U	U	U	U	NT	77.54
20-Mar-98	U	U	U	U	U	NT	76.96
23-Jun-98	U	U	U	U	U	NT	77.17
01-Sep-98	U	U	U	U	U	NT	77.46
29-Dec-98	U	U	U	U	U	NT	76.12
15-Feb-99	U	U	U	U	U	NT	77.25
12-May-99	U	U	U	U	U	U	77.09
24-Aug-99	U	U	U	U	U	NT	78.34
28-Oct-99	U	U	U	U	U	NT	NM
09-Feb-00	NT	NT	NT	NT	NT	NT	NM
08-Jun-00	NT	NT	NT	NT	NT	NT	NM
31-Aug-00	U	U	U	U	U	NT	78.27
01-Dec-00	NT	NT	NT	NT	NT	NT	NM
05-Feb-01	NT	NT	NT	NT	NT	NT	NM
11-May-01	NT	NT	NT	NT	NT	NT	78.12
10-Aug-01	U	0.001	U	U	U	NT	78.28
07-Nov-01	NT	NT	NT	NT	NT	NT	NM
15-Feb-02	NT	NT	NT	NT	NT	NT	NM
28-May-02	NT	NT	NT	NT	NT	NT	NM
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.12
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	NT	77.48
17-Jul-03	NT	NT	NT	NT	NT	NT	NM
24-Oct-03	NT	NT	NT	NT	NT	NT	NM
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	NM
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
26-Oct-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	80.09
11-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	77.88
26-Oct-06	NT	NT	NT	NT	NT	NT	NM
25-Apr-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	78.34
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	79.06
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	U (0.0005)	0.0019	0.0007	0.0018	0.054	NT	77.81
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	NT	77.69
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-7

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
01-Sep-95	NT	NT	NT	NT	NT	NT	NM
02-Apr-96	NT	NT	NT	NT	NT	NT	NM
30-Apr-96	NT	NT	NT	NT	NT	NT	NM
03-Jul-96	NT	NT	NT	NT	NT	NT	NM
02-Aug-96	NT	NT	NT	NT	NT	NT	NM
19-Nov-96	U	U	U	U	U	NT	77.37
21-Mar-97	NT	NT	NT	NT	NT	NT	NM
20-Jun-97	NT	NT	NT	NT	NT	NT	NM
23-Dec-97	U	U	U	U	U	NT	76.35
20-Mar-98	U	U	U	U	U	NT	75.68
23-Jun-98	U	U	U	U	U	NT	76.06
01-Sep-98	U	U	U	U	U	NT	77.56
29-Dec-98	U	U	U	U	U	NT	77.12
15-Feb-99	U	U	U	U	U	NT	77.23
12-May-99	U	U	U	U	U	U	77.08
24-Aug-99	U	U	U	U	U	NT	78.39
28-Oct-99	U	U	U	U	U	NT	79.38
09-Feb-00	NT	NT	NT	NT	NT	NT	NM
08-Jun-00	NT	NT	NT	NT	NT	NT	NM
31-Aug-00	U	U	U	U	U	NT	78.48
01-Dec-00	NT	NT	NT	NT	NT	NT	NM
05-Feb-01	NT	NT	NT	NT	NT	NT	NM
11-May-01	NT	NT	NT	NT	NT	NT	78.15
10-Aug-01	U	U	U	U	U	NT	78.32
07-Nov-01	NT	NT	NT	NT	NT	NT	77.70
15-Feb-02	NT	NT	NT	NT	NT	NT	NM
28-May-02	NT	NT	NT	NT	NT	NT	NM
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.37
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	NT	NT	NT	NT	NT	NT	NM
17-Jul-03	NT	NT	NT	NT	NT	NT	NM
24-Oct-03	NT	NT	NT	NT	NT	NT	NM
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	NM
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
26-Oct-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	80.11
11-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	77.92
26-Oct-06	NT	NT	NT	NT	NT	NT	NM
25-Apr-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	78.39
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	75.81
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	75.86
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	NT	75.73
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well MW-8

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
10-Aug-01	U	U	U	U	U	NT	NM
07-Nov-01	NT	NT	NT	NT	NT	NT	77.69
15-Feb-02	U	U	U	U	U	NT	77.29
28-May-02	0.0005	U	U	U	U	NT	77.73
15-Aug-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.090)	NT	78.06
14-Nov-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	NT	79.14
28-Jan-03	NT	NT	NT	NT	NT	NT	78.00
18-Apr-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	NT	77.48
17-Jul-03	NT	NT	NT	NT	NT	NT	77.44
24-Oct-03	NT	NT	NT	NT	NT	NT	77.72
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	NT	NT	NT	NT	NT	NT	NM
21-Jul-04	NT	NT	NT	NT	NT	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
26-Oct-05	NT	NT	NT	NT	NT	NT	NM
11-May-06	NT	NT	NT	NT	NT	NT	NM
26-Oct-06	NT	NT	NT	NT	NT	NT	NM
25-Apr-07	NT	NT	NT	NT	NT	NT	NM
31-Oct-07	NT	NT	NT	NT	NT	NT	NM
16-Apr-08	NT	NT	NT	NT	NT	NT	NM
22-Oct-08	NT	NT	NT	NT	NT	NT	NM
08-Apr-09	NT	NT	NT	NT	NT	NT	NM
13-Aug-09	NT	NT	NT	NT	NT	NT	NM
03-Nov-09	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Appendix B
Tables of Historical Monitoring Data

Monitoring Well SVE-1 (GW Samples)

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
09-Feb-00	[illegible]	0.170	U	0.510	2.3	NT	NM
08-Jun-00	[illegible]	0.61	0.16	1.8	7.4	NT	NM
31-Aug-00	[illegible]	2.90	[illegible]	6.60	30.0	NT	NM
01-Dec-00	1.800	0.47	2.900	11.00	38.0	NT	NM
05-Feb-01	1.500	0.62	1.400	3.60	18.0	NT	NM
11-May-01	1.19	3.80	1.290	12.13	33.5	NT	78.77
10-Aug-01	U	U	2.100	16.20	64.0	NT	79.16
07-Nov-01	0.906	1.25	2.030	12.30	38.2	NT	78.39
15-Feb-02	1.160	0.03	1.510	2.53	12.6	NT	77.99
28-May-02	0.036	0.51	0.073	0.94	3.9	NT	80.67
15-Aug-02	0.179	0.11	0.221	0.48	2.5	NT	78.13
14-Nov-02	0.192	0.0219	0.491	1.882	6.92	NT	79.21
28-Jan-03	0.0173	0.314	U (0.04)	0.886	3.09	NT	79.68
18-Apr-03	0.0176	0.406	0.0482	1.46	5.91	NT	77.95
17-Jul-03	0.0123	0.354	0.06	1.23	3.69	NT	78.08
24-Oct-03	0.000753	0.011	0.00125	0.0367	0.13	NT	79.79
20-Jan-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	NT	76.58
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
13-Apr-04	0.000666	U (0.0005)	0.000677	0.00151	U (0.05)	NT	77.69
21-Jul-04	0.0141	0.0147	0.00147	0.0316	0.145	NT	78.09
13-Oct-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	NT	78.54
13-Oct-04	NT	NT	NT	NT	NT	NT	78.54
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Apr-05	1.26	1.56	0.063	0.405	9.2	NT	80.94
07-Oct-05	0.594	4.66	0.246	1.85	20.2	NT	82.90
11-May-06	0.119	0.459	U (0.05)	0.244	U (5)	NT	78.99
26-Oct-06	0.0183	0.00542	U (0.005)	U (0.015)	U (0.5)	NT	81.81
25-Apr-07	0.354	0.123	U (0.0005)	0.0142	1.42	NT	78.92
31-Oct-07	U (0.0005)	U (0.0005)	U (0.0005)	0.00204	U (0.05)	NT	78.44
16-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.015)	U (0.05)	NT	77.75
22-Oct-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.015)	U (0.05)	NT	79.86
08-Apr-09	U (0.0005)	U (0.0005)	0.00557	0.0194	0.0632	NT	78.01
13-Aug-09	U (0.0005)	U (0.001)	0.0259	0.103	0.516	NT	78.64
03-Nov-09	0.0007	0.00108	0.0223	0.0935	0.355	NT	78.57
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	**NA**

SVE-Rebound test started 5-7-09

Appendix B
Tables of Historical Monitoring Data

Monitoring Well SVE-2 (GW Samples)

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
31-Aug-00	[illegible]	0.051	0.022	0.340	1.2	NT	NM
01-Dec-00	NT	NT	NT	NT	NT	NT	NM
05-Feb-01	NT	NT	NT	NT	NT	NT	NM
11-May-01	[illegible]	0.810	0.565	6.080	[illegible]	NT	78.11
10-Aug-01	[illegible]	0.031	0.025	0.610	1.7	NT	78.29
07-Nov-01	NT	NT	NT	NT	NT	NT	77.69
15-Feb-02	NT	NT	NT	NT	NT	NT	NM
28-May-02	NT	NT	NT	NT	NT	NT	NM
15-Aug-02	NT	NT	NT	NT	NT	NT	NM
14-Nov-02	NT	NT	NT	NT	NT	NT	NM
28-Jan-03	NT	NT	NT	NT	NT	NT	NM
18-Apr-03	NT	NT	NT	NT	NT	NT	NM
17-Jul-03	NT	NT	NT	NT	NT	NT	DRY
24-Oct-03	NT	NT	NT	NT	NT	NT	NM
04-Dec-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	NT	NM
20-Jan-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	NT	NT	NT	NT	NT	NT	NM
26-Feb-04	0.00162	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	NT	NM
13-Apr-04	[illegible]	0.00414	0.017	0.00691	0.219	NT	NM
21-Jul-04	[illegible]	0.0114	0.00426	0.0102	0.101	NT	NM
13-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	NT	NT	NT	NT	NT	NT	NM
25-Oct-04	0.00188	0.00251	U (0.0005)	0.00354	U (0.05)	NT	NM
25-Apr-05	NT	NT	NT	NT	NT	NT	NM
07-Oct-05	U (0.0005)	0.000976	U (0.0005)	U (0.0015)	U (0.05)	1.47	NM
11-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	NM
26-Oct-06	U (0.0005)	0.000506	U (0.0005)	U (0.0015)	U (0.05)	NT	81.46
25-Apr-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	78.08
31-Oct-07	0.000587	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	80.66
16-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	NT	79.37
22-Oct-08	0.00156	0.00109	U (0.0005)	U (0.0015)	U (0.05)	NT	79.54
08-Apr-09	[illegible]	0.00106	0.00657	0.00689	0.0626	NT	77.84
13-Aug-09	0.00528	U (0.001)	0.00343	0.00315	U (0.05)	NT	78.18
03-Nov-09	0.00599	U (0.001)	0.00376	0.00352	U (0.05)	NT	77.69
GCLs	**0.005**	**1**	**0.7**	**10**	**2.2**	**1.5**	NA

Rebound test started 5-7-09

Key:
DRO - diesel range organics
GCL - ground water cleanup levels
GRO - gasoline range organics
GW - ground water
mg/L - milligrams per liter
NA - not applicable
NM - not measured
NS - not sampled
U - Undetected above practical quantitation limits.

Bold, shade indicates concentration exceeds the GCL.

APPENDIX C

Laboratory Analytical Reports

MWH

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANCHORAGE, AK 2000 W INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

August 21, 2009

Mike Zidek
Montgomery Watson Harza
1835 South Bragaw Suite 350
Anchorage, AK/USA 99508

RE: TNS 53

Enclosed are the results of analyses for samples received by the laboratory on 08/14/09 10:50. The following list is a summary of the Work Orders contained in this report, generated on 08/21/09 16:01.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
ASH0062	TNS 53	1006033

RECEIVED
AUG 21 2009
MWH, Anchorage

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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ANCHORAGE, AK 2000 W. INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	08/21/09 16:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Trip Blank	ASH0062-01	Water	08/13/09 09:00	08/14/09 10:50
SVE-2	ASH0062-02	Water	08/13/09 12:30	08/14/09 10:50
TNS53Dup.	ASH0062-03	Water	08/13/09 13:00	08/14/09 10:50
MW-1	ASH0062-04	Water	08/13/09 15:00	08/14/09 10:50
SVE-1	ASH0062-05	Water	08/13/09 15:40	08/14/09 10:50

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Johanna L Dreher, Client Services Manager

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CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	08/21/09 16:01

Selected Volatile Organic Compounds per EPA Method 8260B

TestAmerica Anchorage

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
ASH0062-01 (Trip Blank)		**Water**				**Sampled: 08/13/09 09:00**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9080057	08/17/09 14:37	08/17/09 18:25	kc	
Benzene	"	ND	----	0.500	"	"	"	"	"	kc	
Toluene	"	ND	----	1.00	"	"	"	"	"	kc	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	kc	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	kc	
Surrogate(s): 4-BFB			*112%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*82.6%*		*81 - 124 %*	"				"	
Toluene-d8			*90.8%*		*83 - 115 %*	"				"	
ASH0062-02 (SVE-2)		**Water**				**Sampled: 08/13/09 12:30**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9080057	08/17/09 14:37	08/18/09 08:07	kc	
Benzene	"	**1.69**	----	0.500	"	"	"	"	"	kc	
Toluene	"	ND	----	1.00	"	"	"	"	"	kc	
Ethylbenzene	"	**1.82**	----	1.00	"	"	"	"	"	kc	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	kc	
Surrogate(s): 4-BFB			*109%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*73.3%*		*81 - 124 %*	"				"	*Z6*
Toluene-d8			*92.7%*		*83 - 115 %*	"				"	
ASH0062-03 (TNS53Dup.)		**Water**				**Sampled: 08/13/09 13:00**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9080057	08/17/09 14:37	08/18/09 10:05	kc	
Benzene	"	**5.28**	----	0.500	"	"	"	"	"	kc	
Toluene	"	ND	----	1.00	"	"	"	"	"	kc	
Ethylbenzene	"	**3.43**	----	1.00	"	"	"	"	"	kc	
Xylenes (total)	"	**3.15**	----	3.00	"	"	"	"	"	kc	
Surrogate(s): 4-BFB			*109%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*72.9%*		*81 - 124 %*	"				"	*Z6*
Toluene-d8			*92.0%*		*83 - 115 %*	"				"	
ASH0062-04 (MW-1)		**Water**				**Sampled: 08/13/09 15:00**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9080057	08/17/09 14:37	08/18/09 11:03	kc	
Benzene	"	ND	----	0.500	"	"	"	"	"	kc	
Toluene	"	ND	----	1.00	"	"	"	"	"	kc	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	kc	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	kc	
Surrogate(s): 4-BFB			*115%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*74.2%*		*81 - 124 %*	"				"	*Z6*

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANCHORAGE, AK 2000 W. INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza 1835 South Bragaw Suite 350 Anchorage, AK/USA 99508	Project Name: TNS 53 Project Number: 1006033 Project Manager: Mike Zidek	Report Created: 08/21/09 16:01

Selected Volatile Organic Compounds per EPA Method 8260B

TestAmerica Anchorage

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
ASH0062-04 (MW-1)			**Water**			**Sampled: 08/13/09 15:00**					
Toluene-d8			*94.0%*		*83 - 115 %*	*1x*			*08/18/09 11:03*		
ASH0062-05 (SVE-1)			**Water**			**Sampled: 08/13/09 15:40**					
Gasoline Range Organics	EPA 8260B	**516**	-----	50.0	ug/l	1x	9080057	08/17/09 14:37	08/18/09 11:32	kc	
Benzene	"	ND	-----	0.500	"	"	"	"	"	kc	
Toluene	"	ND	-----	1.00	"	"	"	"	"	kc	
Ethylbenzene	"	**25.9**	-----	1.00	"	"	"	"	"	kc	
Xylenes (total)	"	**103**	-----	3.00	"	"	"	"	"	kc	
Surrogate(s): *4-BFB*			*109%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*74.1%*		*81 - 124 %*	"				"	Z6
Toluene-d8			*93.5%*		*83 - 115 %*	"				"	

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Johanna L Dreher, Client Services Manager

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ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	08/21/09 16:01

Selected Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Anchorage

QC Batch: 9080057 **Water Preparation Method: EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9080057-BLK1)								Extracted: 08/17/09 14:37						
Gasoline Range Organics	EPA 8260B	ND	—	50.0	ug/l	1x	—	—	—	—	—	—	08/17/09 17:55	
Benzene	"	ND	—	0.500	"	"	—	—	—	—	—	—	"	
Toluene	"	ND	—	1.00	"	"	—	—	—	—	—	—	"	
Ethylbenzene	"	ND	—	1.00	"	"	—	—	—	—	—	—	"	
Xylenes (total)	"	ND	—	3.00	"	"	—	—	—	—	—	—	"	
Surrogate(s): 4-BFB		*Recovery: 106%*		*Limits: 85-115%*		"							*08/17/09 17:55*	
Dibromofluoromethane		*84.4%*		*81-124%*		"							"	
Toluene-d8		*91.4%*		*83-115%*		"							"	
LCS (9080057-BS1)								Extracted: 08/17/09 14:37						
Benzene	EPA 8260B	19.2	—	0.500	ug/l	1x	—	20.0	96.0%	(67-125)	—	—	08/17/09 16:56	
Toluene	"	19.2	—	1.00	"	"	—	"	96.0%	(80-120)	—	—	"	
Ethylbenzene	"	22.7	—	1.00	"	"	—	"	114%	"	—	—	"	
Xylenes (total)	"	69.1	—	3.00	"	"	—	60.0	115%	"	—	—	"	
Surrogate(s): 4-BFB		*Recovery: 103%*		*Limits: 85-115%*		"							*08/17/09 16:56*	
Dibromofluoromethane		*88.2%*		*81-124%*		"							"	
Toluene-d8		*97.0%*		*83-115%*		"							"	
LCS (9080057-BS2)								Extracted: 08/17/09 14:37						
Gasoline Range Organics	EPA 8260B	508	—	50.0	ug/l	1x	—	550	92.4%	(60-120)	—	—	08/17/09 17:26	
Surrogate(s): 4-BFB		*Recovery: 106%*		*Limits: 85-115%*		"							*08/17/09 17:26*	
Dibromofluoromethane		*79.6%*		*81-124%*		"							"	Z6
Toluene-d8		*96.1%*		*83-115%*		"							"	
LCS Dup (9080057-BSD1)								Extracted: 08/17/09 14:37						
Benzene	EPA 8260B	17.8	—	0.500	ug/l	1x	—	20.0	89.2%	(67-125)	7.24%	(20)	08/18/09 05:41	
Toluene	"	18.4	—	1.00	"	"	—	"	92.0%	(80-120)	4.20%	"	"	
Ethylbenzene	"	21.5	—	1.00	"	"	—	"	108%	"	5.56%	"	"	
Xylenes (total)	"	65.4	—	3.00	"	"	—	60.0	109%	"	5.50%	"	"	
Surrogate(s): 4-BFB		*Recovery: 104%*		*Limits: 85-115%*		"							*08/18/09 05:41*	
Dibromofluoromethane		*76.8%*		*81-124%*		"							"	Z6
Toluene-d8		*95.8%*		*83-115%*		"							"	

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	08/21/09 16:01

Selected Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Anchorage

QC Batch: 9080057 **Water Preparation Method: EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS Dup (9080057-BSD2)								Extracted: 08/17/09 14:37						
Gasoline Range Organics	EPA 8260B	498	—	50.0	ug/l	1x	--	550	90.6%	(60-120)	2.01%	(20)	08/18/09 06:10	
Surrogate(s): 4-BFB		*Recovery: 105%*		*Limits: 85-115%*		"							*08/18/09 06:10*	
Dibromofluoromethane		*72.6%*		*81-124%*		"							"	Z0
Toluene-d8		*95.8%*		*83-115%*		"							"	
Duplicate (9080057-DUP1)				QC Source: ASH0062-03				Extracted: 08/17/09 14:37						
Gasoline Range Organics	EPA 8260B	ND	—	50.0	ug/l	1x	ND	--	--	--	11.4%	(12)	08/18/09 10:34	
Surrogate(s): 4-BFB		*Recovery: 113%*		*Limits: 85-115%*		"							*08/18/09 10:34*	
Dibromofluoromethane		*74.6%*		*81-124%*		"							"	Z6
Toluene-d8		*92.6%*		*83-115%*		"							"	
Matrix Spike (9080057-MS1)				QC Source: ASH0062-02				Extracted: 08/17/09 14:37						
Benzene	EPA 8260B	20.3	—	0.500	ug/l	1x	1.69	20.0	93.2%	(65-138)	--	--	08/18/09 08:37	
Toluene	"	19.4	—	1.00	"	"	ND	"	96.8%	(80-120)	--	--	"	
Ethylbenzene	"	24.5	—	1.00	"	"	1.82	"	114%	(76-130)	--	--	"	
Xylenes (total)	"	68.3	—	3.00	"	"	1.88	60.0	111%	(65-140)	--	--	"	
Surrogate(s): 4-BFB		*Recovery: 105%*		*Limits: 85-115%*		"							*08/18/09 08:37*	
Dibromofluoromethane		*71.7%*		*81-124%*		"							"	Z
Toluene-d8		*93.4%*		*83-115%*		"							"	
Matrix Spike Dup (9080057-MSD1)				QC Source: ASH0062-02				Extracted: 08/17/09 14:37						
Benzene	EPA 8260B	20.4	—	0.500	ug/l	1x	1.69	20.0	93.6%	(65-138)	0.393%	(20)	08/18/09 09:06	
Toluene	"	19.2	—	1.00	"	"	ND	"	95.8%	(80-120)	0.935%	"	"	
Ethylbenzene	"	24.1	—	1.00	"	"	1.82	"	111%	(76-130)	1.89%	"	"	
Xylenes (total)	"	67.5	—	3.00	"	"	1.88	60.0	109%	(65-140)	1.22%	"	"	
Surrogate(s): 4-BFB		*Recovery: 107%*		*Limits: 85-115%*		"							*08/18/09 09:06*	
Dibromofluoromethane		*73.6%*		*81-124%*		"							"	Z
Toluene-d8		*91.4%*		*83-115%*		"							"	

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Johanna L Dreher, Client Services Manager

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ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	**TNS 53**	
1835 South Bragaw Suite 350	Project Number:	1006033	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	08/21/09 16:01

Notes and Definitions

Report Specific Notes:

Z6 - Surrogate recovery was below acceptance limits.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA - Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210 ☒

CHAIN OF CUSTODY REPORT

Work Order #: ASH0062

CLIENT: TESORO

REPORT TO: MIKE ZIDEK
ADDRESS: 1835 S. BRAGAW ST. STE 350
ANCH, AK 99508
PHONE: (907) 248-8883 FAX: (907) 248-8884

INVOICE TO: ANNE WILKINSON @ TESORO

P.O. NUMBER: 1006033-010102

PROJECT NAME: TNS53

PROJECT NUMBER: 1006033

SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (STD.) | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: ~~X~~ (STD.) | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE: HCL

REQUESTED ANALYSES: AKDRO 8021B

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	AKDRO 8021B	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	TRIP BLANK	8/13/09 0900	X	W	3		01
2	SVE-2	8/13/09 1230	X	W	3		02
3	TNS53DUP.	8/13/09 1300	X	W	3		03
4	MW-1	8/13/09 1500	X	W	3		04
5	SVE-1	8/13/09 1540	X	W	3		05
6							
7							
8							
9							
10							

RELEASED BY: [signature]	DATE: 8/13/09	RECEIVED BY: [signature]	DATE: 8/14/09
PRINT NAME: CAL LANSOR	FIRM: HWH	PRINT NAME: Kelsey Herbrandt	FIRM: TA ANC
	TIME: 1030		TIME: 10:50
RELEASED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME:	FIRM:	PRINT NAME:	FIRM:
	TIME:		TIME:

ADDITIONAL REMARKS: REPORT XYLENES AS TOTAL XYLENES IN EDD REPORT

TEMP: 3.5C

TAL-1000(0408)

Cooler 2

Test America Anchorage Cooler Receipt Form

(Army Corps. Compliant)

WORK ORDER # A9H0062 **CLIENT:** Tesoro **PROJECT:** TNS 53

Date /Time Cooler Arrived 8 / 14 / 09 10 : 50 Cooler signed for by: Kelsey Gerbrandt (Print name)

Preliminary Examination Phase:

Date cooler opened: ☑ same as date received *or* ___/___/___

Cooler opened by (print) Kelsey Gerbrandt (sign) [signature]

1. Delivered by ☐ ALASKA AIRLINES ☐ Fed-Ex ☐ UPS ☐ NAC ☐ LYNDEN ☑ CLIENT ☐ Other: ___

   Shipment Tracking # if applicable ___ (include copy of shipping papers in file)

2. Number of Custody Seals 2 Signed by Cal Larson Date 8 / 14 / 09

   Were custody seals unbroken and intact on arrival? ☑ Yes ☐ No

3. Were custody papers sealed in a plastic bag? ☑ Yes ☐ No

4. Were custody papers filled out properly (ink, signed, etc.)? ☑ Yes ☐ No

5. Did you sign the custody papers in the appropriate place? ☑ Yes ☐ No

6. Was ice used? ☑ Yes ☐ No Type of ice: ☐ blue ice ☑ gel ice ☐ real ice ☐ dry ice Condition of Ice: soft

   Temperature by Digi-Thermo Probe 3.5 °C Thermometer # Rec 5
   Acceptance Criteria: 0 - 6°C

7. Packing in Cooler: ☑ bubble wrap ☐ styrofoam ☐ cardboard ☑ Other: ___

8. Did samples arrive in plastic bags? ☐ Yes ☑ No

9. Did all bottles arrive unbroken, and with labels in good condition? ☑ Yes ☐ No

10. Are all bottle labels complete (ID, date, time, etc.) ☑ Yes ☐ No

11. Do bottle labels and Chain of Custody agree? ☑ Yes ☐ No

12. Are the containers and preservatives correct for the tests indicated? ☑ Yes ☐ No

13. Conoco Phillips, Alyeska, BP H2O samples only: pH < 2? ☐ Yes ☐ No ☑ N/A

14. Is there adequate volume for the tests requested? ☑ Yes ☐ No

15. Were VOA vials free of bubbles? ☐ N/A ☑ Yes ☐ No

    If "NO" which containers contained "head space" or bubbles? ___

Log-in Phase:

Date of sample log-in 8 / 14 / 09

Samples logged in by (print) Kelsey Gerbrandt (sign) [signature]

1. Was project identifiable from custody papers? ☑ Yes ☐ No
2. Do Turn Around Times and Due Dates agree? ☑ Yes ☐ No
3. Was the Project Manager notified of status? ☑ Yes ☐ No
4. Was the Lab notified of status? ☑ Yes ☐ No
5. Was the COC scanned and copied? ☑ Yes ☐ No

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462782

Custody Seal 8/14/09

DATE

SIGNATURE

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462781

Custody Seal 8/14/09

DATE

SIGNATURE

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A5H0062

Laboratory Data Review Checklist

Completed by:	Nicole Neuman
Title:	Associate Environmental Chemist
Date:	September 04, 2009
CS Report Name:	August/November 2009 Monitoring Events and Rebound Test Report
Report Date:	August 21, 2009
Consultant Firm:	MWH
Laboratory Name:	Test America, Inc
Laboratory Report Number:	ASH0062
ADEC File Number:	2265.26.007
ADEC RecKey Number:	

1. Laboratory

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

   ☒ Yes ☐ No Comments:

   All samples were received and analyzed by Test America, Inc in Anchorage.

   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:

   N/A

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° ± 2° C)?

☒ Yes ☐ No Comments:

Sample cooler was received at 3.5 degrees Celsius.

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:

Samples were received in good condition, with zero headspace present in the VOC vials.

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:

N/A

e. Data quality or usability affected? Explain.

Comments:

N/A

4. Case Narrative

a. Present and understandable?

☐ Yes ☐ No Comments:

N/A

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

☐ Yes ☐ No Comments:

N/A

c. Were all corrective actions documented?

☐ Yes ☐ No Comments:

N/A

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

Comments:

N/A

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:

N/A

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:

N/A

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:

N/A

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

☐ Yes ☐ No Comments:

N/A

v. Data quality or usability affected? Explain.

Comments:

N/A

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 Comments:

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

☐ Yes ☐ No Comments:

N/A

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. 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 Comments:

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

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☒ Yes ☐ No Comments:

N/A

vii. Data quality or usability affected? Explain.
Comments:

N/A

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:

Dibromofluoromethane surrogate failed low for samples MW-1, SVE-1, SVE-2 and TNS 53 Dup. The same surrogate also failed low for laboratory QC LCS, LCSD, Lab Dup, MS, and MSD.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?
☒ Yes ☐ No Comments:

iv. Data quality or usability affected? Explain.
Comments:

A surrogate failing low indicates sample results may have a low bias. Laboratory QC still met all other QC requirements.

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:

N/A

iv. Data quality or usability affected? Explain.

Comments:

N/A

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:

RPD for benzene was 103%, RPD for ethylbenzene was 61%. All other RPDs could not be calculated because one or more analytes were not-detected above their respective PQLs.

iv. Data quality or usability affected? Explain.

Comments:

Data quality may be affected.

f. Decontamination or Equipment Blank (if applicable)

☐ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☐ Yes ☐ No Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? Explain.

Comments:

N/A

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

a. Defined and appropriate?

☐ Yes ☐ No Comments:

N/A

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ANCHORAGE, AK 2000 W INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

November 12, 2009

Mike Zidek
Montgomery Watson Harza
1835 South Bragaw Suite 350
Anchorage, AK/USA 99508

RE: TNS 53

Enclosed are the results of analyses for samples received by the laboratory on 11/05/09 10:25. The following list is a summary of the Work Orders contained in this report, generated on 11/12/09 12:48.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
ASK0010	TNS 53	1006033.010102

RECEIVED
NOV 12 2009
MWH, Anchorage

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033.010102	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	11/12/09 12:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SVE-2	ASK0010-01	Water	11/03/09 13:45	11/05/09 10:25
MW-1	ASK0010-02	Water	11/03/09 14:40	11/05/09 10:25
SVE-1	ASK0010-03	Water	11/03/09 15:20	11/05/09 10:25
TNS 53 Dup.	ASK0010-04	Water	11/03/09 12:00	11/05/09 10:25
MW-7	ASK0010-05	Water	11/03/09 16:00	11/05/09 10:25
MW-6	ASK0010-06	Water	11/03/09 16:45	11/05/09 10:25
Trip Blank	ASK0010-07	Water	11/03/09 09:00	11/05/09 10:25

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Montgomery Watson Harza	Project Name:	TNS 53	
1835 South Bragaw Suite 350	Project Number:	1006033.010102	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	11/12/09 12:48

Selected Volatile Organic Compounds per EPA Method 8260B

TestAmerica Anchorage

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
ASK0010-01 (SVE-2)			**Water**			**Sampled: 11/03/09 13:45**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 16:42	KC	
Benzene	"	**5.98**	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	**3.76**	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	**3.52**	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*101%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*108%*		*65 - 125 %*	"				"	
Toluene-d8			*90.7%*		*78 - 115 %*	"				"	
ASK0010-02 (MW-1)			**Water**			**Sampled: 11/03/09 14:40**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 17:11	KC	
Benzene	"	**0.670**	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*103%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*110%*		*65 - 125 %*	"				"	
Toluene-d8			*88.5%*		*78 - 115 %*	"				"	
ASK0010-03 (SVE-1)			**Water**			**Sampled: 11/03/09 15:20**					
Gasoline Range Organics	EPA 8260B	**355**	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 17:41	KC	
Benzene	"	**0.700**	----	0.500	"	"	"	"	"	KC	
Toluene	"	**1.08**	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	**22.3**	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	**93.5**	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*98.0%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*111%*		*65 - 125 %*	"				"	
Toluene-d8			*91.2%*		*78 - 115 %*	"				"	
ASK0010-04 (TNS 53 Dup.)			**Water**			**Sampled: 11/03/09 12:00**					
Gasoline Range Organics	EPA 8260B	**337**	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 18:10	KC	
Benzene	"	**0.720**	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	**20.6**	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	**86.9**	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*98.5%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*109%*		*65 - 125 %*	"				"	

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Johanna Dreher

Johanna L Dreher, Client Services Manager

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CS Approval Number: UST-067

Montgomery Watson Harza 1835 South Bragaw Suite 350 Anchorage, AK/USA 99508	Project Name: **TNS 53** Project Number: 1006033.010102 Project Manager: Mike Zidek	Report Created: 11/12/09 12:48

Selected Volatile Organic Compounds per EPA Method 8260B

TestAmerica Anchorage

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
ASK0010-04 (TNS 53 Dup.)			**Water**			**Sampled: 11/03/09 12:00**					
Toluene-d8			*91.3%*		*78 - 115 %*	*1x*			*11/06/09 18:10*		
ASK0010-05 (MW-7)			**Water**			**Sampled: 11/03/09 16:00**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 18:39	KC	
Benzene	"	ND	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*104%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*110%*		*65 - 125 %*	"				"	
Toluene-d8			*91.2%*		*78 - 115 %*	"				"	
ASK0010-06 (MW-6)			**Water**			**Sampled: 11/03/09 16:45**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 19:09	KC	
Benzene	"	ND	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*102%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*109%*		*65 - 125 %*	"				"	
Toluene-d8			*90.7%*		*78 - 115 %*	"				"	
ASK0010-07 (Trip Blank)			**Water**			**Sampled: 11/03/09 09:00**					
Gasoline Range Organics	EPA 8260B	ND	----	50.0	ug/l	1x	9110011	11/06/09 09:24	11/06/09 15:36	KC	
Benzene	"	ND	----	0.500	"	"	"	"	"	KC	
Toluene	"	ND	----	1.00	"	"	"	"	"	KC	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	KC	
Xylenes (total)	"	ND	----	3.00	"	"	"	"	"	KC	
Surrogate(s): 4-BFB			*103%*		*85 - 115 %*	"				"	
Dibromofluoromethane			*107%*		*65 - 125 %*	"				"	
Toluene-d8			*91.2%*		*78 - 115 %*	"				"	

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Montgomery Watson Harza	Project Name:	**TNS 53**	
1835 South Bragaw Suite 350	Project Number:	1006033.010102	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	11/12/09 12:48

Selected Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Anchorage

QC Batch: 9110011 **Water Preparation Method: EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9110011-BLK1)								Extracted: 11/06/09 09:24						
Gasoline Range Organics	EPA 8260B	ND	—	50.0	ug/l	1x	—	—	—	—	—	—	11/06/09 15:06	
Benzene	"	ND	—	0.500	"	"	—	—	—	—	—	—	"	
Toluene	"	ND	—	1.00	"	"	—	—	—	—	—	—	"	
Ethylbenzene	"	ND	—	1.00	"	"	—	—	—	—	—	—	"	
Xylenes (total)	"	ND	—	3.00	"	"	—	—	—	—	—	—	"	
Surrogate(s): 4-BFB		*Recovery: 102%*		*Limits: 85-115%*		"							*11/06/09 15:06*	
Dibromofluoromethane		*106%*		*65-125%*		"							"	
Toluene-d8		*91.7%*		*78-115%*		"							"	
LCS (9110011-BS1)								Extracted: 11/06/09 09:24						
Benzene	EPA 8260B	20.7	—	0.500	ug/l	1x	—	20.0	103%	(67-125)	—	—	11/06/09 12:40	
Toluene	"	19.1	—	1.00	"	"	—	"	95.3%	(80-120)	—	—	"	
Ethylbenzene	"	20.2	—	1.00	"	"	—	"	101%	"	—	—	"	
Xylenes (total)	"	60.0	—	3.00	"	"	—	60.0	99.9%	"	—	—	"	
Surrogate(s): 4-BFB		*Recovery: 97.2%*		*Limits: 85-115%*		"							*11/06/09 12:40*	
Dibromofluoromethane		*108%*		*65-125%*		"							"	
Toluene-d8		*92.9%*		*78-115%*		"							"	
LCS (9110011-BS2)								Extracted: 11/06/09 09:24						
Gasoline Range Organics	EPA 8260B	658	—	50.0	ug/l	1x	—	550	120%	(60-120)	—	—	11/06/09 14:37	
Surrogate(s): 4-BFB		*Recovery: 99.1%*		*Limits: 85-115%*		"							*11/06/09 14:37*	
Dibromofluoromethane		*109%*		*65-125%*		"							"	
Toluene-d8		*90.3%*		*78-115%*		"							"	
LCS Dup (9110011-BSD1)								Extracted: 11/06/09 09:24						
Benzene	EPA 8260B	20.2	—	0.500	ug/l	1x	—	20.0	101%	(67-125)	2.30%	(20)	11/06/09 13:10	
Toluene	"	18.5	—	1.00	"	"	—	"	92.3%	(80-120)	3.20%	"	"	
Ethylbenzene	"	19.8	—	1.00	"	"	—	"	98.8%	"	2.15%	"	"	
Xylenes (total)	"	58.3	—	3.00	"	"	—	60.0	97.2%	"	2.76%	"	"	
Surrogate(s): 4-BFB		*Recovery: 98.0%*		*Limits: 85-115%*		"							*11/06/09 13:10*	
Dibromofluoromethane		*110%*		*65-125%*		"							"	
Toluene-d8		*91.6%*		*78-115%*		"							"	

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANCHORAGE, AK 2000 W. INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza 1835 South Bragaw Suite 350 Anchorage, AK/USA 99508	Project Name: **TNS 53** Project Number: 1006033.010102 Project Manager: Mike Zidek	Report Created: 11/12/09 12:48

Selected Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica Anchorage

QC Batch: 9110011 **Water Preparation Method: EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS Dup (9110011-BSD2)								Extracted: 11/06/09 09:24						
Gasoline Range Organics	EPA 8260B	646	---	50.0	ug/l	1x	--	550	117%	(60-120)	1.87%	(20)	11/07/09 00:31	
Surrogate(s): 4-BFB		*Recovery: 98.7%*		*Limits: 85-115%*		"							*11/07/09 00:31*	
Dibromofluoromethane		*106%*		*65-125%*		"							"	
Toluene-d8		*90.4%*		*78-115%*		"							"	
Duplicate (9110011-DUP1)				QC Source: ASK0011-03				Extracted: 11/06/09 09:24						
Gasoline Range Organics	EPA 8260B	3710	---	50.0	ug/l	1x	4130	--	--	--	10.9%	(12)	11/06/09 23:03	
Surrogate(s): 4-BFB		*Recovery: 97.5%*		*Limits: 85-115%*		"							*11/06/09 23:03*	
Dibromofluoromethane		*106%*		*65-125%*		"							"	
Toluene-d8		*96.3%*		*78-115%*		"							"	
Matrix Spike (9110011-MS1)				QC Source: ASK0010-03				Extracted: 11/06/09 09:24						
Benzene	EPA 8260B	21.1	---	0.500	ug/l	1x	0.700	20.0	102%	(65-138)	--	--	11/07/09 04:24	
Toluene	"	20.2	---	1.00	"	"	1.08	"	95.8%	(80-120)	--	--	"	
Ethylbenzene	"	41.2	---	1.00	"	"	22.3	"	94.1%	(76-130)	--	--	"	
Xylenes (total)	"	145	---	3.00	"	"	93.5	60.0	85.6%	(65-140)	--	--	"	
Surrogate(s): 4-BFB		*Recovery: 97.9%*		*Limits: 85-115%*		"							*11/07/09 04:24*	
Dibromofluoromethane		*108%*		*65-125%*		"							"	
Toluene-d8		*91.6%*		*78-115%*		"							"	
Matrix Spike Dup (9110011-MSD1)				QC Source: ASK0010-03				Extracted: 11/06/09 09:24						
Benzene	EPA 8260B	21.9	---	0.500	ug/l	1x	0.700	20.0	106%	(65-138)	3.53%	(20)	11/07/09 04:54	
Toluene	"	20.9	---	1.00	"	"	1.08	"	99.3%	(80-120)	3.45%	"	"	
Ethylbenzene	"	43.7	---	1.00	"	"	22.3	"	107%	(76-130)	6.08%	"	"	
Xylenes (total)	"	154	---	3.00	"	"	93.5	60.0	101%	(65-140)	6.05%	"	"	
Surrogate(s): 4-BFB		*Recovery: 97.9%*		*Limits: 85-115%*		"							*11/07/09 04:54*	
Dibromofluoromethane		*109%*		*65-125%*		"							"	
Toluene-d8		*91.0%*		*78-115%*		"							"	

TestAmerica Anchorage

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johanna Dreher

Johanna L Dreher, Client Services Manager

ANCHORAGE, AK 2000 W. INTERNATIONAL AIRPORT ROAD, SUITE A-10
ANCHORAGE, AK 99502-1119
ph: (907) 563.9200 fax: (907) 563.9210
CS Approval Number: UST-067

Montgomery Watson Harza	Project Name:	**TNS 53**	
1835 South Bragaw Suite 350	Project Number:	1006033.010102	Report Created:
Anchorage, AK/USA 99508	Project Manager:	Mike Zidek	11/12/09 12:48

Notes and Definitions

Report Specific Notes:

None

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
Electronic Signature	-	Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Anchorage

Johanna Dreher

Johanna L Dreher, Client Services Manager

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THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: ASK0010

CLIENT: TESORO

REPORT TO: MIKE ZIDEK
ADDRESS: 1835 S. BRAGAW ST. ANCH, AK 99508
PHONE (907) 248-8883 FAX: (907) 248-8884

INVOICE TO: ANNE WILKINSON @ TESORO

P.O. NUMBER: 1006033

PROJECT NAME: TNS-53
PROJECT NUMBER: 1006033.010102
SAMPLED BY: LARSON / NEUMAN

TURNAROUND REQUEST (In Business Days *)
Organic & Inorganic Analyses: 10 (STD.) | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 (STD.) | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE: HCL

REQUESTED ANALYSES: AK101 / 8021B

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	AK101 / 8021B	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	SVE-2	11/3/09 1345	X	W	3		01
2	MW-1	11/3/09 1440	X	W	3		02
3	SVE-1	11/3/09 1520	X	W	3		03
4	TNS 53 DUP.	11/3/09 1200	X	W	3		04
5	MW-7	11/3/09 1600	X	W	3		05
6	MW-6	11/3/09 1645	X	W	3		06
7	TRIP BLANK	11/3/09 0900	X	W	3		07
8							
9							
10							

RELEASED BY: [signature] PRINT NAME: CAL LARSON FIRM: MWH DATE: 11/5/09 TIME: 1000
RECEIVED BY: [signature] PRINT NAME: DAVID SUMMERVILLE FIRM: TA-ANC DATE: 11/5/09 TIME: 1025
RELEASED BY: PRINT NAME: FIRM: DATE: TIME:
RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:

TEMP: 2.3°C PAGE OF

TAL-1000(0408)

Test America Anchorage Cooler Receipt Form

(Army Corps. Compliant)

WORK ORDER # ASX0010 CLIENT: MWH PROJECT: TNS-53

Date /Time Cooler Arrived 11 / 5 / 09 10 : 25 Cooler signed for by: David Summerville (Print name)

Preliminary Examination Phase:

Date cooler opened: ☑ same as date received or ___/___/___

Cooler opened by (print) David Summerville (sign) [signature]

1. Delivered by ☐ ALASKA AIRLINES ☐ Fed-Ex ☐ UPS ☐ NAC ☐ LYNDEN ☑ CLIENT ☐ Other: ___

Shipment Tracking # if applicable ✓ (include copy of shipping papers in file)

2. Number of Custody Seals 2 Signed by Cal Larson Date 11 / 5 / 09

Were custody seals unbroken and intact on arrival? ☑ Yes ☐ No

3. Were custody papers sealed in a plastic bag? ☑ Yes ☐ No

4. Were custody papers filled out properly (ink, signed, etc.)? ☑ Yes ☐ No

5. Did you sign the custody papers in the appropriate place? ☑ Yes ☐ No

6. Was ice used? ☑ Yes ☐ No Type of ice: ☐ blue ice ☑ gel ice ☐ real ice ☐ dry ice Condition of Ice: melting

Temperature by Digi-Thermo Probe 2.3 °C Thermometer # Rec 5

Acceptance Criteria: 0 - 6°C

7. Packing in Cooler: ☐ bubble wrap ☑ styrofoam ☐ cardboard ☑ Other: ___

8. Did samples arrive in plastic bags? ☐ Yes ☑ No

9. Did all bottles arrive unbroken, and with labels in good condition? ☒ Yes ☐ No

10. Are all bottle labels complete (ID, date, time, etc.) ☒ Yes ☐ No

11. Do bottle labels and Chain of Custody agree? ☒ Yes ☐ No

12. Are the containers and preservatives correct for the tests indicated? ☒ Yes ☐ No

13. Conoco Phillips, Alyeska, BP H2O samples only: pH < 2? ☐ Yes ☐ No ☒ N/A

14. Is there adequate volume for the tests requested? ☒ Yes ☐ No

15. Were VOA vials free of bubbles? ☐ N/A ☐ Yes ☒ No

If "NO" which containers contained "head space" or bubbles? 7C

Log-in Phase:

Date of sample log-in 11 / 5 / 09

Samples logged in by (print) Kelsey Gerbrandt (sign) [signature]

1. Was project identifiable from custody papers? ☑ Yes ☐ No
2. Do Turn Around Times and Due Dates agree? ☑ Yes ☐ No
3. Was the Project Manager notified of status? ☑ Yes ☐ No
4. Was the Lab notified of status? ☑ Yes ☐ No
5. Was the COC scanned and copied? ☑ Yes ☐ No

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
46C996

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46C995

ASK0010

Custody Seal 11/5/09
DATE
SIGNATURE

Custody Seal 11/5/09
DATE
SIGNATURE

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THE LEADER IN ENVIRONMENTAL TESTING
46C996

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THE LEADER IN ENVIRONMENTAL TESTING
46C995

Laboratory Data Review Checklist

Completed by:	Nicole Neuman
Title:	Associate Environmental Chemist
Date:	December 21, 2009
CS Report Name:	August/November 2009 Monitoring Events and Rebound Test Report
Report Date:	November 12, 2009
Consultant Firm:	MWH
Laboratory Name:	Test America, Inc.
Laboratory Report Number:	ASK0010
ADEC File Number:	2265.26.007
ADEC RecKey Number:	

1. Laboratory

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

   ☒ Yes ☐ No Comments:

   All asmples were both received and analyzed by Test America in Anchorage.

   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:

   N/A

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° ± 2° C)?

☒ Yes ☐ No Comments:

Sample cooler was received at 2.3 degrees Celsius.

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:

Samples were received in good condition. Only Trip Blank vial C contained headspace.

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:

N/A

e. Data quality or usability affected? Explain.

Comments:

N/A

4. Case Narrative

a. Present and understandable?

☐ Yes ☐ No Comments:

N/A

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

☐ Yes ☐ No Comments:

N/A

c. Were all corrective actions documented?

☐ Yes ☐ No Comments:

N/A

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

Comments:

N/A

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:

N/A

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:

N/A

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:

N/A

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

☒ Yes ☐ No Comments:

N/A

v. Data quality or usability affected? Explain.

Comments:

N/A

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 Comments:

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

☐ Yes ☐ No Comments:

N/A

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. 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 Comments:

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

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☐ Yes ☐ No Comments:

N/A

vii. Data quality or usability affected? Explain.
Comments:

N/A

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:

N/A

   iv. Data quality or usability affected? Explain.
   Comments:

N/A

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:

N/A

iv. Data quality or usability affected? Explain.

Comments:

N/A

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:

N/A

f. Decontamination or Equipment Blank (if applicable)

☐ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☐ Yes ☐ No Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? Explain.

Comments:

N/A

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

a. Defined and appropriate?

☐ Yes ☐ No Comments:

N/A

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

Project:	TNS-53
Client:	MWH Americas, Inc.
SGS Work Order:	1096096

Released by:

Jason Kottsick
2009.11.12
17:00:31
-09'00'

Alaska Division Project Manager

Contents:

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.

SGS

CASE NARRATIVE

Print Date: 11/12/2009

Client Name: MWH Americas, Inc.
Project Name: TNS-53
Workorder No.: 1096096

Sample Comments

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

Lab Sample ID	Sample Type	Client Sample ID

There were no analytical anomalies associated with the data reported herein.

SGS North America Inc. | Alaska Division 200 West Potter Drive Anchorage Alaska 99518
t (907) 562 2343 f (907) 561 5301 www.us.sgs.com

Laboratory Analytical Report

Client: **MWH Americas, Inc.**
1835 S Bragaw St, Suite 350
Anchorage, AK 99512

Attn: **Michael Zidek**
T: F:(907)248-8884

Project: **TNS-53**

Workorder No.: **1096096**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Forest Taylor

Forest.Taylor@sgs.com

Project Manager

SGS North America Inc. | Alaska Division 200 West Potter Drive Anchorage Alaska 99518
t (907) 562.2343 f (907) 561.5301 www.us.sgs.com
Member of SGS Group

SGS

Print Date: 11/12/2009

Enclosed are the analytical results associated with this 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), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 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 assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm)

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

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control 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.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified
All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. | Alaska Division 200 West Potter Drive Anchorage Alaska 99518
t (907) 562.2343 f (907) 561.5301 www.us.sgs.com
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SGS

SAMPLE SUMMARY

Print Date: 11/12/2009 4:58 pm

Client Name: MWH Americas, Inc.
Project Name: TNS-53
Workorder No.: 1096096

Analytical Methods

Method Description	Analytical Method
8015M/8021 Combo (AIR)	SW8015C
8015M/8021 Combo (AIR)	SW8021B

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1096096001	TNS-53-10-Air
1096096002	TNS-53-Dup-Air
1096096003	TNS-53-24-Air

SGS North America Inc. | Alaska Division 200 West Potter Drive Anchorage Alaska 99518
t (907) 562 2343 f (907) 561 5301 www.us.sgs.com

Detectable Results Summary

Print Date: 11/12/2009 4:58 pm

Client Sample ID: **TNS-53-Dup-Air**
SGS Ref. #: 1096096002
Volatile Fuels Department

Parameter	Result	Units
Toluene	0.680	ppm
P & M -Xylene	0.750	ppm

Client Sample ID: **TNS-53-24-Air**
SGS Ref. #: 1096096003
Volatile Fuels Department

Parameter	Result	Units
Gasoline Range Organics	33.7	ppm
Toluene	0.590 J	ppm

SGS

MWH Americas, Inc.

Print Date: 11/12/2009 4:58 pm

Client Sample ID: **TNS-53-10-Air**
SGS Ref. #: 1096096001
Project ID: TNS-53
Matrix: Gas & Air

Collection Date/Time: 11/03/09 17:05
Receipt Date/Time: 11/05/09 10:10

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	ND	20.0	20.0	ppm	1	VFC9759	VXX20253	
Benzene	ND	0.780	0.243	ppm	1	VFC9759	VXX20253	
Toluene	ND	0.660	0.249	ppm	1	VFC9759	VXX20253	
Ethylbenzene	ND	0.580	0.390	ppm	1	VFC9759	VXX20253	
o-Xylene	ND	0.580	0.411	ppm	1	VFC9759	VXX20253	
P & M -Xylene	ND	0.580	0.580	ppm	1	VFC9759	VXX20253	
4-Bromofluorobenzene <surr>	107	50-150		%	1	VFC9759	VXX20253	
1,4-Difluorobenzene <surr>	93.4	60-120		%	1	VFC9759	VXX20253	

Batch Information

Analytical Batch: VFC9759
Analytical Method: SW8015C
Analysis Date/Time: 11/11/09 14:17
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096001-A
Analyst: HM

Analytical Batch: VFC9759
Analytical Method: SW8021B
Analysis Date/Time: 11/11/09 14:17
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096001-A
Analyst: HM

SGS

MWH Americas, Inc.

Print Date: 11/12/2009 4:58 pm

Client Sample ID: **TNS-53-Dup-Air**
SGS Ref. #: 1096096002
Project ID: TNS-53
Matrix: Gas & Air

Collection Date/Time: 11/04/09 15:00
Receipt Date/Time: 11/05/09 10:10

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	ND	20.0	20.0	ppm	1	VFC9759	VXX20253	
Benzene	ND	0.780	0.243	ppm	1	VFC9759	VXX20253	
Toluene	0.680	0.660	0.249	ppm	1	VFC9759	VXX20253	
Ethylbenzene	ND	0.580	0.390	ppm	1	VFC9759	VXX20253	
o-Xylene	ND	0.580	0.411	ppm	1	VFC9759	VXX20253	
P & M -Xylene	0.750	0.580	0.580	ppm	1	VFC9759	VXX20253	
4-Bromofluorobenzene <surr>	113	50-150		%	1	VFC9759	VXX20253	
1,4-Difluorobenzene <surr>	92.8	60-120		%	1	VFC9759	VXX20253	

Batch Information

Analytical Batch: VFC9759
Analytical Method: SW8015C
Analysis Date/Time: 11/11/09 15:54
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096002-A
Analyst: HM

Analytical Batch: VFC9759
Analytical Method: SW8021B
Analysis Date/Time: 11/11/09 15:54
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096002-A
Analyst: HM

Client Sample ID: **TNS-53-24-Air**
SGS Ref. #: 1096096003
Project ID: TNS-53
Matrix: Gas & Air

Collection Date/Time: 11/04/09 17:05
Receipt Date/Time: 11/05/09 10:10

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	33.7	20.0	20.0	ppm	1	VFC9759	VXX20253	
Benzene	ND	0.780	0.243	ppm	1	VFC9759	VXX20253	
Toluene	0.590 J	0.660	0.249	ppm	1	VFC9759	VXX20253	
Ethylbenzene	ND	0.580	0.390	ppm	1	VFC9759	VXX20253	
o-Xylene	ND	0.580	0.411	ppm	1	VFC9759	VXX20253	
P & M -Xylene	ND	0.580	0.580	ppm	1	VFC9759	VXX20253	
4-Bromofluorobenzene <surr>	111	50-150		%	1	VFC9759	VXX20253	
1,4-Difluorobenzene <surr>	93.6	60-120		%	1	VFC9759	VXX20253	

Batch Information

Analytical Batch: VFC9759
Analytical Method: SW8015C
Analysis Date/Time: 11/11/09 14:56
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096003-A
Analyst: HM

Analytical Batch: VFC9759
Analytical Method: SW8021B
Analysis Date/Time: 11/11/09 14:56
Dilution Factor: 1

Prep Batch: VXX20253
Prep Method: SW5030B
Prep Date/Time: 11/11/09 12:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096096003-A
Analyst: HM

SGS Ref.#	938473	Method Blank	**Printed Date/Time**	11/12/2009	16:58
Client Name	MWH Americas, Inc.		**Prep** **Batch**	VXX20253	
Project Name/#	TNS-53		**Method**	SW5030B	
Matrix	Gas & Air		**Date**	11/11/2009	

QC results affect the following production samples:

1096096001, 1096096002, 1096096003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	20.0	20.0	ppm	11/11/09
Surrogates					
4-Bromofluorobenzene <surr>	111	50-150		%	11/11/09
Batch VFC9759					
Method SW8015C					
Instrument HP 5890 Series II PID+FID VCA					
Benzene	ND	0.780	0.243	ppm	11/11/09
Toluene	ND	0.660	0.249	ppm	11/11/09
Ethylbenzene	ND	0.580	0.390	ppm	11/11/09
o-Xylene	ND	0.580	0.411	ppm	11/11/09
P & M -Xylene	ND	0.580	0.580	ppm	11/11/09
Surrogates					
1,4-Difluorobenzene <surr>	93.5	50-150		%	11/11/09
Batch VFC9759					
Method SW8021B					
Instrument HP 5890 Series II PID+FID VCA					

SGS Ref.#	938475	Duplicate	**Printed Date/Time**		11/12/2009 16:58
Client Name	MWH Americas, Inc.		**Prep**	**Batch**	VXX20253
Project Name/#	TNS-53			**Method**	SW5030B
Original	1095780024			**Date**	11/11/2009 12:00:00PI
Matrix	Gas & Air				

QC results affect the following production samples:

1096096001, 1096096002, 1096096003

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Volatile Fuels Department						
Gasoline Range Organics	210	222	ppm	5	(< 50)	11/11/2009
Surrogates						
4-Bromofluorobenzene <surr>	115	0.0561	%	2		11/11/2009
Batch VFC9759						
Method SW8015C						
Instrument HP 5890 Series II PID+FID VCA						
Benzene	10.1	11.3	ppm	11	(< 50)	11/11/2009
Toluene	33.7	36.4	ppm	8	(< 50)	11/11/2009
Ethylbenzene	3.90	4.00	ppm	3	(< 50)	11/11/2009
o-Xylene	6.68	6.69	ppm	0	(< 50)	11/11/2009
P & M -Xylene	18.5	18.9	ppm	2	(< 50)	11/11/2009
Surrogates						
1,4-Difluorobenzene <surr>	95.4	0.0476	%	0		11/11/2009
Batch VFC9759						
Method SW8021B						
Instrument HP 5890 Series II PID+FID VCA						

SGS

SGS Ref.#	938474	Lab Control Sample	**Printed Date/Time**	11/12/2009	16:58
			Prep **Batch**	VXX20253	
			Method	SW5030B	
Client Name	MWH Americas, Inc.		**Date**	11/11/2009	
Project Name/#	TNS-53				
Matrix	Gas & Air				

QC results affect the following production samples:
1096096001, 1096096002, 1096096003

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Surrogates								
1,4-Difluorobenzene <surr>	LCS		101	(60-120)				11/11/2009

Batch VFC9759
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA

Volatile Fuels Department

Benzene	LCS	97.9	98	(70-130)			100 ppmv	11/11/2009
Toluene	LCS	101	101	(70-130)			100 ppmv	11/11/2009
Ethylbenzene	LCS	103	103	(70-130)			100 ppmv	11/11/2009
o-Xylene	LCS	99.1	99	(70-130)			100 ppmv	11/11/2009
P & M -Xylene	LCS	200	100	(70-130)			200 ppmv	11/11/2009

Batch VFC9759
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA

SGS

SGS Ref.#	938476 Lab Control Sample	**Printed Date/Time**		11/12/2009	16:58
		Prep	**Batch**	VXX20253	
Client Name	MWH Americas, Inc.		**Method**	SW5030B	
Project Name/#	TNS-53		**Date**	11/11/2009	
Matrix	Gas & Air				

QC results affect the following production samples:

1096096001, 1096096002, 1096096003

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Surrogates								
4-Bromofluorobenzene <surr>	LCS		108	(50-150)				11/11/2009

Batch VFC9759
Method SW8015C
Instrument HP 5890 Series II PID+FID VCA

Volatile Fuels Department

Gasoline Range Organics	LCS	198	99	(70-130)			200 ppmv	11/11/2009

Batch VFC9759
Method SW8015C
Instrument HP 5890 Series II PID+FID VCA

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1096096

land
York

SGS Reference #:

page 1 of 1

(1)

CLIENT: TESORO / CO MWH

CONTACT: MIKE ZIDEK PHONE NO: 266-1126

PROJECT: TNS-53 SITE/PWSID#:

REPORTS TO: MIKE ZIDEK EMAIL: MICHAEL.A.ZIDEK@US.MWH-GLOBAL.COM

INVOICE TO: AS ABOVE QUOTE #:

P.O. #: 1006033.010102

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Analysis Required (3) TP-3									REMARKS/ LOC ID
(1) A	TNS-53-1D-AIR	11-3-09	1705	AIR	1	G		X									
(2)	TNS-53-DUP.-AIR	11/4/09	1500	AIR	1	G		X									
(3)	TNS-53-2A-AIR	11/4/09	1705	AIR	1	G		X									

RUSH

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
CAL LARSON	11-5-09	10:00	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	11/5/09	1010	Received For Laboratory By:

(4)

DOD Project? YES NO

Cooler ID

Cooler Temp °C

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

Temperature Blank °C: AMB or Ambient ☐

Therm #

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

1096096

SGS

SAMPLE RECEIPT FORM

SGS WO#: 950

RUSH

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: Are lids marked w/ red "X"?
		✓	Were samples collected with proper preservative?
	✓		**Any problems (ID, cond'n, HT, etc)? Explain:**
		✓	If this is for PWS, provide **PWSID:**_____
		✓	Payment received: $_____ by Check or Credit Card
	✓		Will courier charges apply?
	✓		Data package required? (Level: 1 / 2 / 3 / 4)
			Notes:
	✓		Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): Standard -or- Rush

Received Date: 11-5-09

Received Time: 1010

Cooler ID	Temperature	Measured w/ (Therm #)
1	AMB °C	
	°C	
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

Client / Alert Courier / Lynden / SGS
UPS / FedEx / USPS / DHL / Carlile
AkAir Goldstreak / NAC / ERA / PenAir
Other: _____

Additional Sample Remarks: (√ *if applicable*)

_____ Extra Sample Volume?
_____ Limited Sample Volume?
_____ Multi-Incremental Samples?
_____ Lab-filtered for dissolved_____
_____ Ref Lab required for_____
_____ Foreign Soil?

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

Yes	No	
		Is received temperature ≤6°C?
		Were containers ice-free? *Note: If immediately after ice melt, check cooler temperature to be non-compliant and see if all ice has melted for multiple days in a row.*
		Was there an error? *If yes, see project manager.*
		Was chain received with signature and date? Were they correct?
		Was chain received with sampler name? Were they correct?
		Was there a COC in a cooler?
		Was COC sealed in plastic bag & taped inside lid of cooler?
		Was the COC filled out properly? Did labels correspond?
		Did the COC indicate USACE, Navy, AFCEE project?
		Samples were packed to prevent breakage with sealed ziplocs. Bubble wrap / vermiculite / other (specify)
		Were all samples sealed in a ziploc bag?
		Were all VOCs free of headspace and/or MeOH preserved?
		Were correct containers / sample sizes submitted?
		Was the PM notified of arrival, so they can send Sample Receipt Acknowledgement to client?

Cooler ID: ___ Cooler Temp #: ___ Cooler ID: ___ Cooler Temp #: ___
Cooler ID: ___ Cooler Temp #: ___ Cooler ID: ___ Cooler Temp #: ___

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): [illegible]

Individual contacted: Nicole [illegible]

Via: Phone / Fax / E-mail (circle one)

Date/Time: [illegible]

Reason for contact: COC [illegible]

[illegible]

Charge Order Required? Yes / No

Notes: ANALYSIS IS TPH-G (AK101) (BOTS) AND BTEX (8021B). TAT 11/12/09

DUE: 11/12/09

Completed by (sign): [signature] **(print):** JAMES DOUGHTY

Login proof: **Self-check completed** [initials] **Peer-reviewer's initials** [initials]

1096096

SGS

SAMPLE RECEIPT FORM - Bottle Tracking SGS WO#

						Container Volume							Container Type							Preservative								
#	Container ID	Matrix	Test	QC	TB	1L	500mL	250mL or 8oz	125mL or 4oz	60mL	40mL	Other:	AG	CG	HDPE	Nalgene	Coli	Septa	Other:	None	HCl	HNO3	H2SO4	NaOH	Ascorbic Acid	NH_4Cl	Other:	*Notes
1,2	A	4	TO-3				2												L	L								
3	A	4	TO3			1													L	L								
Bottle Totals						1	2																					

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106

AEROSOL CANISTERS

Completed by: [signature] Date: 11-5-09

F042r02 Revised 9/8/2009

SGS

SGS Environmental Services Inc.
200 W. Potter Dr., Anchorage, AK 99518 — P: 907-562-2343, F: 907-561-5301
3180 Peger Rd., Fairbanks, AK 99701 — P: 907-474-8656, F: 907-474-9685
255 Sand Island Rd. Unit1B, Honolulu, HI 96819 — P: 808-224-6217, F: 808-845-2287

Sample Kit Request

1096096

Client Name: M[illegible]H
Ordered By: N[illegible]E
Phone/Fax:
Project Name:

Deliver To:
ATTN:

Client pickup on: 11/2/09 1520
Deliver to client:
Shipment Method:
Date to ship by:
Notes:

Airbill to PM? ☐ Yes ☒ N/A

Kit prepared by: [illegible] Date: 11/2/09
Kit checked by: [illegible] Date: 11/2/09
Kit shipped by: Date:

Estimated date for samples returning to the lab:

Reminders:
☐ DOD project (A[illegible] Navy, USACE)? ☐ Methanol jars for each tared 4 oz amber? ☐ Total # Containers includes bottles for % Solids ☐ Foreign Soils?

* Ask the client abo[illegible] QOs, regulatory requirements, problem matrices (e.g., saltwater, surfactants, estimated contaminants, etc.)

Notes:

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	4	802[illegible]		AIR CYLINDER		—		7 D		3

☐ Total # Containers includes extra [illegible] for QC
☒ Temperature Blank: 125 mL /500 [illegible] (circle one)
☐ VOA Trip Blank (circle matrix): [illegible]
ID:

☐ Chlorinated DW: Ascorbic Acid [illegible] ☐ yes ☐ no
☐ Blue Ice ☒ SGS [illegible]
☒ Labels ☒ Custody [illegible]
☒ Bubble Wrap ☒ Cooler [illegible]
Other:

Other Notes/Reminders:

Sampling Instructions:
1. Do not rinse container before filling and be aware of any acid preservative in container.
2. Fill container to top, but do not overfill (except volatiles which should be headspace free).
3. Label the container with your sample/site ID, as well as the date & time of collection.
4. Fill in the Chain of Custody.
5. Add frozen gel packs or ice to your cooler & pack to prevent breakage.

If you have any questions concerning this sample kit, please contact your Project Manager for assistance. *Thank you.*

Laboratory Data Review Checklist

Completed by: Nicole Neuman

Title: Associate Environmental Chemist

Date: December 22, 2009

CS Report Name: August/November 2009 Monitoring Events and Rebound Test Report

Report Date: November 12, 2009

Consultant Firm: MWH

Laboratory Name: SGS

Laboratory Report Number: 1096096

ADEC File Number: 2265.26.007

ADEC RecKey Number:

1. Laboratory

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

   ☒ Yes ☐ No Comments:

   All samples were received and analyzed by SGS in Anchorage.

   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:

   N/A

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:

Analysis was correct to AK101/8021B, and is documented on the sample receipt form.

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

☐ Yes ☐ No Comments:

N/A

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

☐ Yes ☐ No Comments:

N/A

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

☒ Yes ☐ No Comments:

Samples were received without any 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:

N/A

e. Data quality or usability affected? Explain.

Comments:

N/A

4. Case Narrative

a. Present and understandable?

☐ Yes ☐ No Comments:

N/A

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

☐ Yes ☐ No Comments:

N/A

c. Were all corrective actions documented?

☐ Yes ☐ No Comments:

N/A

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

Comments:

N/A

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:

N/A

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

☐ Yes ☐ No Comments:

N/A

e. Data quality or usability affected? Explain.

Comments:

N/A

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:

N/A

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

☐ Yes ☐ No Comments:

N/A

v. Data quality or usability affected? Explain.

Comments:

N/A

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 Comments:

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

☐ Yes ☐ No Comments:

N/A

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. 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 Comments:

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

Comments:

N/A

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

☐ Yes ☐ No Comments:

N/A

vii. Data quality or usability affected? Explain.

Comments:

N/A

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:

N/A

iv. Data quality or usability affected? Explain.

Comments:

N/A

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?

N/A

☐ Yes ☐ No Comments:

ii. All results less than PQL?

☐ Yes ☐ No Comments:

N/A

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Data quality or usability affected? Explain.

Comments:

N/A

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:

RPD could not be calculated because one or more of each analyte was not detected.

iv. Data quality or usability affected? Explain.

Comments:

N/A

f. Decontamination or Equipment Blank (if applicable)

☐ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☐ Yes ☐ No Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? Explain.

Comments:

N/A

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

a. Defined and appropriate?

☐ Yes ☐ No Comments:

N/A