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### AGWMR

# 08/10/2009

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### E.C. HILL "A, B and C" TANK BATTERY ANNUAL GROUNDWATER SAMPLING REPORT

### LOCATED IN LEA COUNTY, NEW MEXICO

Prepared for:

### GLENN SPRINGS HOLDINGS (A wholly owned subsidiary of Occidental Petroleum)

Prepared by:

**Tetra Tech** 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 Fax (432) 682-3946

Tetra Tech Project No. 115-6401746 AUGUST 10, 2009

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TETRA TECH

August 10, 2009

Mr. Glenn von Gonten New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau 1220 S. St. Francis Drive Santa Fe, New Mexico 87504

Re: March 2008 to June 2009 Annual Groundwater Sampling Report for the OXY USA, Inc., E.C. Hill "A, B and C" Tank Battery, Located in Section 27, Township 23 South, Range 37 East, Lea County, New Mexico.

### Mr. Von Gonten:

This report details the results of the quarterly sampling events performed at the OXY USA, Inc. (OXY) E. C. Hill A,B, and C Tank Battery (Site) for March 2008 to June 2009. The site is located approximately 11 miles south of Eunice, Lea County, New Mexico. The facility was acquired by OXY USA, Inc in March 2008. The site location is shown on Figure 1.

### FACILITY BACKGROUND

This facility is an old tank battery, which has had numerous spills from previous operators. Prior to OXY USA, Inc. (OXY), the facility was operated by Plains Exploration and Production, Pogo Producing Company, Chevron and Mid-Continent. During Pogo's operation of this facility, several documented spills occurred over older spills at the facility. The majority of the spills occurred around production equipment and active underground lines. Pogo had proposed deferring all major cleanup activities on the inaccessible areas of the tank battery until the tank battery was abandoned.

In November 2003, Pogo decided to shut down all production to the tank battery and removed all tanks, vessels, equipment and lines in order to make the former tank battery location accessible to perform further assessment. Once the facility was dismantled, the impacted soils were excavated in the areas of the tanks, vessels and lines. In February 2004, fifteen test trenches to a depth of 5 feet below ground surface were excavated throughout the former tank battery

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location to delineate impacted soils. The trenches were found to be impacted with elevated levels of TPH/BTEX/Chlorides. Based on the results of the trenching, it was decided that soil borings would be required to complete delineation at the site.

Between May and August 2005, thirteen boreholes were installed throughout the former tank battery area. The soil results indicated the site was impacted to groundwater with elevated levels of TPH, BTEX, and chlorides. It was evident from the boreholes and excavations performed at the site that there was very little lateral migration of hydrocarbons in subsurface soils and the impact was defined. In order to prevent leaching of the surrounding soils to the groundwater, a 40-mil thick plastic liner (CAP) was installed in the excavation measuring 100' by 180'. The liner was installed to a depth of 3.5 feet below surface grade with the impacted excavated soils placed beneath the liner to prevent leaching. Once placed in the ground, the liner was backfilled and the excavation brought up to grade with clean soils.

Between September 2004 and July 2006, Pogo installed five monitor wells (MW-1 through MW-5) to assess the groundwater impacts to the site. MW-1 was installed immediately south of the excavation, while MW-2 and MW-3 were installed north of the excavation. Monitor wells MW-4 and MW-5 were installed to the east and southeast of the excavation. Phase separated hydrocarbons were measured in monitor well MW-1, while dissolved phase hydrocarbons in amounts less than the New Mexico Water Quality Control Commission (WQCC) standards were detected in monitor wells MW-3, MW-4, and MW-5. The monitor well locations are shown on Figure 2.

On January 19, 2007, Pogo submitted the "Soil Vapor Extraction Test Pilot Workplan," to the NMOCD for approval. The report details plans for installation of a soil vapor extraction system which includes installation of pilot study test wells for recovery of hydrocarbons at the site. As of this report, the approval is pending with the NMOCD.

### Gauging and Monitor Well Sampling

On March 23, June 26, September 22, and December 4, 2008, and March 12, and June 22, 2009 Highlander/Tetra Tech, Inc. were onsite to gauge and sample all monitor wells. During these sampling events, Phase Separated Hydrocarbons (PSH) were measured in monitor wells MW-1 and MW-3, which were subsequently not sampled. PSH first appeared in MW-3 in March 2008. The PSH thickness in MW-1 ranged from 2.42 feet to 3.24 feet throughout the sampling period, while the thickness in MW-3 ranged from 2.51 feet to 3.09 feet. PSH thickness maps for the quarterly gauging events are included as Figures 9 through 14. Utilizing the water level elevation calculations, groundwater gradient maps were generated for the quarterly sampling events. The hydraulic gradient

2

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indicates a southeasterly direction. Groundwater gradient maps for the sampling events are included as Figures 3 through 8. Gauging data is summarized in Table 1.

During the guarterly sampling events, each of the wells without PSH was purged utilizing a submersible pump and sampled for BTEX and chlorides. The samples were properly preserved and submitted under proper chain-of-custody control to Trace Analysis Inc. of Lubbock, Texas, ALS Laboratory Group, or Accutest of Houston, Texas for analysis of BTEX by EPA Method SW8021B and chlorides by EPA Method 300.0. Analytical results indicate that BTEX was detected at or below detection limits for all monitor wells with the exception of MW-5 which had a concentration of 0.0018 mg/L of benzene on March 28, 2008. The BTEX concentrations were below the New Mexico Water Quality Control Commission (NMWQCC) standards. Chlorides for the sampling period ranged from 78.0 mg/L in monitor well MW-2 to 1,080 mg/L in monitor well MW-4 and remained relatively stable as compared to previous years sampling events. Chlorides have historically ranged from 31.7 mg/L to 606 mg/L at this site. The March 2008 sample results for monitor well MW-4 was 510 mg/L, which peaked to 1,080 mg/L in June and declined to 717 mg/L in June 2009. The analyses are shown in Table 2. The hydrocarbon concentration maps for the quarterly sampling events are shown as Figures 15 through 20, while chloride concentration maps are shown as Figures 21 through 26. Copies of the laboratory analyses are enclosed in Appendix A.

### **Fingerprint Analysis**

From the installation in June 2005 until December 2007, no measureable PSH had ever been reported in monitor well MW-3. However, in March 2008, PSH was reported in MW-3 with a measured thickness of 2.51 feet. On April 1, 2008, a sample of the PSH was collected and submitted for a fingerprint analysis to Trace Analysis of Lubbock, Texas. The results indicate the sample is fresh crude. No significant aging was evident as shown by the significant number and concentration of light end peaks from C6 to C20. The finger print analysis results are enclosed in Appendix A.

### CONCLUSIONS

1. Phase separated hydrocarbons (PSH) were measured throughout the reporting period in monitor wells MW-1 and MW-3. The PSH thickness in MW-1 ranged from 2.42 feet to 3.24 feet throughout the sampling period, while the thickness in MW-3 ranged from 2.51 feet to 3.09 feet.

2. PSH was measured for the first time in monitor well MW-3 in March of

3



2008. A fingerprint analysis of the PSH indicated it was fresh crude, with no significant aging event, as shown by the significant number and concentration of light end peaks from C6 to C20.

- 3. The hydraulic gradient indicates a southeasterly direction, which is consistent with previous year's gradients.
- 4. The monitor wells were gauged and sampled on March 28, June 26, September 22, 2006, and December 4, 2008, and March 12, and June 22, 2009. The samples were preserved and delivered to Trace Analysis, Inc. of Lubbock, Texas, ALS Laboratory Group and Accutest of Houston, Texas under proper chain-of-custody control. The samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by method SW8021B and chlorides by method 300.0, within their specified holding times.
- 5. Analytical results indicate that BTEX was detected at or below detection limits for all monitor wells with the exception of MW-5 which had a concentration of 0.0018 mg/L of benzene on March 28, 2008. The BTEX concentrations were below the NMWQCC standards.
- 6. Chlorides for the sampling period ranged from 78.0 mg/L in monitor well MW-2 to 1,080 mg/L in monitor well MW-4 and remained relatively stable as compared to previous years sampling events. Chlorides have historically ranged from 31.7 mg/L to 606 mg/L. The March 2008 sample results for monitor well MW-4 was 510 mg/L, which peaked to 1,080 mg/L in June and declined to 717 mg/L in June 2009.
- 7. A remedial action plan dated January 19, 2007 is pending with the NMOCD for installation of a groundwater remediation system.

### RECOMMENDATIONS

- 1. Quarterly groundwater monitoring and gauging will be continued throughout the year.
- 2. PSH Recovery will be initiated in monitor wells MW-1 and MW-3.
- 3. Additional investigation of the recent product in monitor well MW-3 and request suspension of SVE proposal review pending results of further investigation.

4

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If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted, Tetra Tech, Inc.

Jeffrey Kindley, P.G. Senior Environmental Geologist

5

CC:

Rick Passmore – Glenn Spring Holdings



FIGURES































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MONITOR WELL LOCATIONS DICAVATED AREA PSH THICKNESS IN FEET



PSH THICKNESS MAP GAUGED ON 9/22/08

TETRA TECH, INC. MIDLAND, TEXAS















ENCAVATED AREA PSH = PHASE SEPARATED HYDROCARBON BTEX CONCENTRATIONS IN mg/L





EXCAVATED AREA PSH = PHASE SEPARATED HYDROCARBON BTEX CONCENTRATIONS IN mg/L





EXCAVATED AREA PSH = PHASE SEPARATED HYDROCARBON BTEX CONCENTRATIONS IN mg/L







PSH - PHASE SEPARATED HYDROCARBON

BTEX CONCENTRATIONS IN mg/L



FILE: H:\OXY\1746\ HILL\_A-8 SITE MAP

TETRA TECH, INC. MIDLAND, TEXAS













EXCAVATED AREA N.S. = NOT SAMPLED CHLORIDE CONCENTRATIONS IN mg/L







### TABLES

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### Table 1 OXY USA, Inc. E.C. Hill A, B & C Tank Battery Summary of Groundwater Elevations and PSH Thickness Lea County, New Mexico

Well/	Date	Well	Product	Water level	PSH	Top of Casing	Groundwater
Borehole	Gauged	Total	(ft)	(ft)	Thickness	Elevation,	Elevation
ID .		Depth (ft)	( <b>100</b> )	( <b>TOC</b> )	(ft)	feet AMSL	(ft)
MW-1	09/17/04	115	-	88.46	-	3274.52	3186.06
	06/17/05	115	86.01	86.04	0.03	3274.52	3188.48
ł	11/14/05	115	85.82	85.94	0.12	3274.52	3188.49
	03/22/06	_ 115	85.89	87.14	1.25	3274.52	3188.32
]	09/22/06	<u></u> 115	85.63	88.26	2.63	3274.52	3188.23
	03/16/07	115	85.65	88.70	3.05	3274.52	3188.11
	06/06/07	115	85.52	88.51	2.99	. 3274.52	3188.25
	09/28/07	115	85.60	88.62	3.02	3274.52	3188.17
	12/18/07	115	NM	NM	NM	NM	NM
	03/28/08	115	85.70	88.94	3.24	3274.52	3188.01
1	06/26/08	115	85.59	88.66	3.07	3274.52	3188.16
	09/22/08	115	85.78	88.20	2.42	3274.52	3188.14
	12/04/08	115	86.01	88.80	2.79	3274.52	3187.81
	03/12/09	115	85.68	88.60	2.92	3274.52	3188.11
	06/22/09	115	85.65	88.63	2.98	3274.52	3188.13
MW-2	06/17/05	102	-	86.04	-	3274.99	3188.95
	11/14/05	102	-	85.9	-	3274.99	3189.09
	03/22/06	102		86.08	-	3274.99	3188.91
ĺ	09/22/06	102	NM	NM	NM	3274.99	NM
	03/16/07	102	-	86.23	-	3274.99	3188.76
	06/06/07	102	-	86.10	-	3274.99	3188.89
	09/28/07	102	-	86.22	-	3274.99	3188.77
	12/18/07	102	-	86.20	-	3274.99	3188.79
	03/28/08	102	-	86.26	-	3274.99	3188.73
ļ	06/26/08	102	-	86.16	- '	3274.99	3188.83
	09/22/08	102	-	86.23	-	3274.99	3188.76
]	12/04/08	102 👝	-	86.60	-	3274.99	3188.39
1	03/12/09	102	-	86.25	-	3274.99	3188.74
	06/22/09	102	-	86.25	-	3274.99	3188.74
MW-3	06/17/05	101	-	88.01	-	3276.48	3188.45
	11/14/05	101	-	87.96		3276.48	3188.50
	03/22/06	101		87.99	<u>-</u>	3276.48	3188.49
	09/22/06	101	-	88.02	-	3276.48	3188.46
	03/16/07	101	- 1	88.08	-	3276.48	3188.40
1	06/06/07	101	- 1	88.00	-	3276.48	3188.48
	09/28/07	101	- 1	88.10	-	3276.48	3188.38
1	12/18/07	101	-	88.08	-	3276.48	3188.40
	03/28/08	101	87.76	90.27	2.51	3276.48	3188.09
	06/26/08	101	87.60	90.51	2.91	3276.48	3188.15
	09/22/08	101	87.66	90.63	2.97	3276.48	3188.08
# Table 1

### OXY USA, Inc. E.C. Hill A, B & C Tank Battery Summary of Groundwater Elevations and PSH Thickness Lea County, New Mexico

Well/	Date	Well	Product	Water level	PSH	Top of Casing	Groundwater
Borehole	Gauged	Total	, (ft)	(ft)	Thickness	Elevation,	Elevation
ID .	-	Depth (ft)	(TOC)	(TOC)	<b>(ft)</b>	feet AMSL	(ft)
MW-3	12/04/08	101	87.94	90.98	3.04	3276.48	3187.78
	03/12/09	101	87.63	90.67	3.04	3276.48	3188.09
	06/22/09	101	87.60	90.69	3.09	3276.48	3188.11
MW-4	09/22/06	100		87.22	-	3275.22	3188.00
	03/16/07	100	-	87.29	· _	3275.22	3187.93
	06/06/07	100	- '	87.20	-	3275.22	3188.02
	09/28/07	100	-	87.31	-	3275.22	3187.91
	12/18/07	<sup>′</sup> 100	-	87.29	-	3275.22	3187.93
·	03/28/08	100	-	87.33	· -	3275.22	3187.89
	06/26/08	100	-	87.26	-	3275.22	3187.96
Į	09/22/08	100	-	87.32	-	3275.22	3187.90
ł	12/04/08	100	-	87.50	-	3275.22	3187.72
	03/12/09	100	-	87.34	-	3275.22	3187.88
	06/22/09	100	-	87.32	_	3275.22	3187.90
MW-5	09/22/06	. 100	-	87.04	-	3275.04	3188.00
	03/16/07	100	-	87.11	-	3275.04	3187.93
	06/06/07	100	-	87.02	· -	3275.04	3188.02
	09/28/07	100	- '	87.10	-	3275.04	3187.94
ł	12/18/07	100		87.09	-	3275.04	3187.95
	03/28/08	100	-	87.14	-	3275.04	3187.90
	06/26/08	100	-	87.08	-	3275.04	3187.96
1	09/22/08	100	-	87.13	-	3275.04	3187.91
	12/04/08	100		87.50		3275.04	3187.54
	03/12/09	100	-	87.17	-	3275.04	3187.87
	06/22/09	100	-	87.12	-	3275.04	3187.92

(TOC) Top of casing (-) No data

( MW-1) Groundwater elevation corrected using 0.75 specific gravity

# Table 2OXY USA, Inc.E.C. Hill A, B & C Tank BatterySummary of Analysis of Groundwater SamplesLea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl- benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mg/l)
MW-1	09/17/04	-	0.0385	0.0146	0.00694	0.0341	0.09414	195
	10/12/04	-	0.111	0.0197	0.0166	0.0699	0.2172	133
	06/24/05	0.03	-	-	-	-	-	-
	11/14/05	0.12	0.495	0.0809	0.137	0.253	0.9659	178
	03/22/06	1.25	-	-	-	-	-	-
	09/22/06	2.63	-	-	-	-		-
	03/16/07	3.05	-	-	-	-	-	-
	06/06/07	2.99	-	-	-	-	-	-
	09/28/07	3.02	-	-	- '	- -	-	
	12/18/07	NM	- `	-	• -	-	-	-
	03/28/08	3.24	-	-	-	-	-	-
	06/26/08	3.07	-	-	-	-		-
	09/22/08	2.42	· -	_	-	-	-	-
	12/04/08	2.79	-	-	-	· · · · ·	-	-
	03/12/09	2.92	- ·	-	-	-	-	-
	06/22/09	2.98		-	-	<u> </u>	_	-
MW-2	06/24/05	-	<0.001	<0.001	<0.001	<0.001	<0.001	102
	11/14/05	-	<0.001	<0.001	<0.001	<0.001	<0.001	61.9
	03/22/06		<0.001	<0.001	<0.001	<0.001	<0.001	63.0
	09/22/06	NM	NM	NM	NM	NM	NM	NM
	03/16/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	74.0
	06/06/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	71.8
	09/28/07	<b>-</b> .	<0.001	<0.001	<0.001	<0.001	<0.001	47.6
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	<200
· ·	03/28/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	83.3
	06/26/08		<0.001	<0.001	<0.001	<0.001	<0.001	85.0
[	09/22/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	.78.0
	12/04/08	-	<0.0005	<0.0005	<0.0005	<0.001	<0.001	94.5
	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	87.2

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# Table 2OXY USA, Inc.E.C. Hill A, B & C Tank BatterySummary of Analysis of Groundwater SamplesLea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl- benzene (mg/l)	Xylene (mg/l)	Total BTEX (mg/l)	Chloride (mĝ/l)
MW-3	06/22/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	89.2
	06/24/05	-	0.00166	0.0026	0.00143	0.0137		420
	11/14/05	-	0.0037	<0.001	0.00132	0.006		310
1	03/22/06	-	0.0028	<0.001.	0.00397	0.0047		285
	09/22/06	-	0.00232	<0.001	<0.001	<0.001	0.00232	330
	03/16/07	<del>.</del>	<0.001	<0.001	<0.001	<0.001	<0.001	297
	06/06/07	-	0.00114	<0.001	<0.001	<0.001	0.00114	302
	× 09/28/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	279
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	<200
	03/28/08	2.51	-	-	-	-	-	-
	06/26/08	2.91	· -	-	<b>-</b> .	-	-	- '
	09/22/08	2.97	-	-	-	-	-	-
1	12/04/08	3.04	-	-	-	-	-	-
	03/12/09	3.04	-	-	-	-	-	-
·	06/22/09	3.09		-				
MW-4	09/22/06	-	<0.001	<0.001	<0.001	<0.001	<0.001	606
	03/16/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	462
	06/06/07	-	<0.001	<0.001	<0.001	<0.001	<0.001	480
	09/28/07	-	<0.001	<sup>,</sup> <0.001	<0.001	<0.001	<0.001	638
	12/18/07	-	<0.001	<0.001	<0.001	<0.001	<0,001	238
	03/28/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	510
	06/26/08		<0.001	<0.001	<0.001	<0.001	<0.001	1,080
1	09/22/08	-	<0.001	<0.001.	<0.001	<0.001	<0.001	. 932
	12/04/08	-	0.00068	<0.0005	<0.0005	<0.001	<0.001	761
1	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	383
	06/22/09	- `	0.00051	<0.001	<0.001	< 0.003	<0.003	717
MW-5	09/22/06	-	<0.001	<0.001	<0.001	<0.001	<0.001	95.7
	03/16/07	-	0.00375	<0.001	<0.001	<0.001	0.00375	102
	06/06/07	· _	0.00277	<0.001	<0.001	<0.001	0.00277	126

#### Table 2 OXY USA, Inc. E.C. Hill A, B & C Tank Battery Summary of Analysis of Groundwater Samples Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	-Benzene (mg/l)	.Toluene 	Ethyl- benzene (mg/l)	Xylene (mĝ/l)	Total BTEX (mg/l)	Chloride (mg/l)
MW-5	09/28/07	-	0.0132	<0.001	<0.001	<0.001	0.0132	31.7
	12/18/07	· -	0.0290	<0.001	<0.001	0.0024	0.0314	<200
	03/28/08	-	0.0018	<0.001	· <0.001	<0.001	0.0018	85.4
	06/26/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	132
	09/22/08	-	<0.001	<0.001	<0.001	<0.001	<0.001	90.9
	12/04/08	-	<0.0005	<0.0005	<0.0005	<0.001	<0.001	124
	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	90.5
. Dup	03/12/09	-	<0.001	<0.001	<0.001	<0.003	<0.003	82.7
	06/22/09		<0.001	<0.001	<0.001	<0.003	<0.003	82.6
Dup	06/22/09	-	<0.001	<0.001	< 0.001	<0.003	<0.003	92.2

(-) Not Analyzed NM - Not measured

# APPENDIX A LABORATORY ANALYTICAL

6701 Aberdeen Avenue, Suite 3 200 East Suiset Road, Suite 5 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Ft. Worth.

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 143
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 301
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## Analytical and Quality Control Report

Ike Tavarez . Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: April 4, 2008

Work Order: 8032828

Project Location:Lea County, NMProject Name:OXY/E.C. Hill TBProject Number:1746

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
155066	MW-2	water	2008-03-28	10:30	2008-03-28
155067	MW-3 (PSH)	soil	2008-03-28	12:00	2008-03-28
155068	MW-4	water	2008-03-28	11:00	2008-03-28
155069	MW-5	water	2008-03-28	11:45	2008-03-28

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 6 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

#### Standard Flags

**B** - The sample contains less than ten times the concentration found in the method blank.

Sample: 155066 - MW-2

# **Analytical Report**

Analysis: QC Batch: Prep Batch:	BTEX 47097 40483		Analytical Me Date Analyzed Sample Prepa	thod: l: ration:	S 8021B 2008-04-03 2008-04-02		Prep Meth Analyzed I Prepared I	od: S 5030B By: DC By: DC
			ы					
Parameter	Flan		Regult		Unite		Dilution	BI
Renzene	1 lag				mg/I		1	0.00100
Toluone					mg/L		1	0.00100
Fthulbongono	,				mg/L		1	0.00100
Yulono					mg/L		1 .	0.00100
Aylene			<u> </u>		mg/L		1	0.00100
		•				Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)	0	0:107	mg/L	1	0.100	107	77.8 - 121.1
4-Bromofluor	obenzene (4-BFB)		0.0764	mg/L	1	0.100	76	40.1 - 136
	<u>(1212)</u>							10.1 100
0 1 1								
Sample: 15	5066 - MW-2							
Analysis:	Chloride (Titration)		Analyt	ical Met	hod: SM 450	0-Cl B	Prep M	Aethod: N/A
QC Batch:	46973		Date A	nalvzed	2008-03	-31	Analyz	zed By: AR
Prep Batch:	40403		Sample	e Predar	ation: 2008-03	-31	Prepa	red By: AR
				· P ····				
			RL					
Parameter	Flag		Result		Units		Dilution	RL
Chloride			83.3		mg/L		1	2.00
					· · ·			
			,					
Sample: 15	5068 - MW-4				•			
bumpie. 10								
Analysis:	BTEX		Analytical Me	ethod:	S 8021B		Prep Metl	hod: S 5030B
QC Batch:	47097		Date Analyze	d:	2008-04-03		Analyzed	By: DC
Prep Batch:	40483		Sample Prepa	aration:	2008-04-02		Prepared	By: DC
			RL				<b>-</b>	_
Parameter	Flag		Result	t	Units		Dilution	RL
Benzene			< 0.00100	)	mg/L		1	0.00100
Toluene			< 0.00100	)	mg/L		1	0.00100
Ethylbenzene	9		< 0.00100	)	mg/L		1	0.00100
Xylene			<0.00100	J	mg/L		1	0.00100
						Spike	Parcent	Becovery
Surrogate		Flag	Result	Unite	Dilution	Amount	Recovery	Limite
Trifluorotolu	ene (TFT)	+ 1ag	0 108	mr/T	1	0 100	108	77.8 - 191.1
4-Bromofluo	robenzene (4-BFB)		0.0756	mg/L	1	0.100	76	40 1 - 136
- 21011101100								

Report Date: 1746	April 4, 2008		Wor OX	k Order: 80 (Y/E.C. Hill	32828 TB	•	¥	Page Number: Lea Count	3 of ( ty, NM
Sample: 155	068 - MW-4			•					
Analysis: QC Batch: Prep Batch:	Chloride (Titration) 46973 40403		Analytic Date An Sample	al Method: alyzed: Preparation:	SM 4500 2008-03- 2008-03-	)-Cl B 31 31	F F	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Persenter	Flore	· ·	RL		Thuite		Dilution		τα
Chloride	riag		510		mg/L		10		2.00
Sample: 155	069 - MW-5								
Analysis: QC Batch: Prep Batch:	BTEX 47097 40483	Analy Date Samp	vtical Met Analyzed le Prepar	hod: S 80 : 2008 ation: 2008	21B -04-03 -04-02		Prep Anal Prep	Method: S lyzed By: D pared By: D	5030E C C
			RL			•			
Parameter Benzene Toluene	Flag		Result 0.00180 <0.00100		Units mg/L mg/L		Dilution 1 1	000000000000000000000000000000000000000	RI .0010 .0010
Xylene			<0.00100	<u>-</u>	mg/L mg/L		1	0	0.0010
Surrogate		Flag R	esult	Units	Dilution	Spike Amount	Perce Recov	ent Rec ery Lin	overy mits
Trifluorotolue 4-Bromofluoro	ne (TFT) obenzene (4-BFB)	0	0.108 .0752	mg/L mg/L	1 1	0.100 0.100	108 75	3 77.8 40.1	- 121. - 136
			· .						
Sample: 155	6069 - MW-5								
Analysis: QC Batch: Prep Batch:	Chloride (Titration) 46973 40403		Analyti Date An Sample	cal Method: nalyzed: Preparation	SM 450 2008-03 : 2008-03	0-Cl B -31 -31	] [ [	Prep Method: Analyzed By: Prepared By:	N/A AR AR
D			RL						
Chloride	Flag	·····	85.4		mg/L		Dilution 1		2.0
Method Bla	$\mathbf{nk}$ (1) OC Bate	h∙ 46973	. *						
QC Batch: Prep Batch:	46973 40403	E G	)ate Anal 2C Prepa	yzed: 2008 ration: 2008	8-03-31 8-03-31			Analyzed By Preparéd By	: AR : AR
				MDL	r				
Parameter Chloride	F	lag		Result <0.500			Units mg/L		R

Report Date: April 4, 2008 1746			Work Ord OXY/E.	er: 803282 C. Hill TB	8		Paį	ge Number Lea Cour	r: 4 of nty, NM
Method Blank (1) QC Bate	sh: 47097								
QC Batch: 47097 Prep Batch: 40483		Date Ar QC Pre	nalyzed: paration:	2008-04-0 2008-04-0	)3 )2		An Pr	alyzed By epared By	r: DC : DC
				MDL					
Parameter	Flag	<u></u>		Result		UI	its		RL
Benzene			<0.0	)00300		mę	5/L		0.00
Toluene			<0.0	00200		mę	g/L		0.00
Xylene			<0.(	000000		m	5/L r/I		0.00
			<u> </u>	00400			5/ <b>L</b>		0.00
					9	Spike	Percent	Re	covery
Surrogate	Flag	Result	Units	Dilut	ion A	mount	Recovery	<u> </u>	imits
Trifluorotoluene (TFT)		0.107	mg/L	· 1	(	J.100	107	77.2	- 129.
4-Bromonuorobenzene (4-BFB)	<u> </u>	0.0740	mg/L	<u> </u>		0.100		09.1	- 122.
Prep Batch: 40403	Ţ	QU Pre	eparation:	2008-03-	31 C	N	Pr	epared By	7: AR
Param	L		Unite	Dil	Spike	M D	atrix	<b>)</b>	Rec.
Chloride	1	<u>00</u>	mg/L	1	100		1 500	100	85 - 11
Percent recovery is based on the s	nike result	RPD is	based on	the spike a	and spike d	unlicate	result		
			oused on		nu opine u	apineare			_
	LCSD	· .		Spike	Matrix	n	Rec.	חחח	RPI
Demons	Desult	TT. ***	D'1	A .			1.177217	KPD	Lim
Param Chloride	Result 101	Units mg/L	Dil.	Amount 100	<u>Result</u>	101	85 - 115	1	20
Param Chloride Percent recovery is based on the s	Result 101 pike result	Units mg/L . RPD is	Dil. 1 based on	Amount 100 the spike a	Result <0.500 and spike d	101 Luplicate	85 - 115 result.	1	20
Param Chloride Percent recovery is based on the s Laboratory Control Spike (LC QC Batch: 47097	Result 101 pike result CS-1)	Units mg/L . RPD is Date A	Dil. 1 based on	Amount 100 the spike a 2008-04-	Result <0.500 and spike d	101 uplicate	85 - 115 result.	1	<u>20</u>
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483	Result 101 pike result CS-1)	Units mg/L . RPD is Date A QC Pro	Dil. 1 based on nalyzed: eparation:	Amount 100 the spike a 2008-04- 2008-04-	Result           <0.500	101 uplicate	85 - 115 result. Ai	1 nalyzed B repared B	20 y: DC y: DC
Param Chloride Percent recovery is based on the s Laboratory Control Spike (LC QC Batch: 47097 Prep Batch: 40483	Result 101 pike result CS-1) LC	Units mg/L . RPD is Date A QC Pro	Dil. 1 based on nalyzed: eparation:	Amount 100 the spike a 2008-04- 2008-04-	Result <0.500 and spike d 03 02 Spike	101 Juplicate	85 - 115 result. An Pr	1 nalyzed B repared B	20 y: DC y: DC Rec.
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param	Result 101 pike result CS-1) LC Res	Units mg/L . RPD is Date A QC Pro	Dil. 1 based on nalyzed: eparation: Jnits	Amount 100 the spike a 2008-04- 2008-04- Dil. A	Result <0.500 and spike d 03 02 Spike Amount	Matr Resu	85 - 115 result. An Pr ix It Rec	1 nalyzed B repared B	20 y: D( y: D( Rec. Limit
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene	Result 101 pike result CS-1) LC Res 0.1	Units mg/L . RPD is Date A QC Pro 2S ult U 03 I	Dil. 1 based on nalyzed: eparation: Jnits ng/L	Amount 100 the spike a 2008-04- 2008-04- Dil. A 1	Result <0.500 and spike d 03 02 Spike Amount 0.100	Matr Resu	85 - 115 result. A: Pi ix It Rec 110 10;	1 nalyzed B repared B  3 84	20 y: D( y: D( Rec. Limit - 119.
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene	Result 101 pike result CS-1) LC Res 0.1 0.1	Units mg/L . RPD is Date A QC Pro CS ult U 03 r 03 r	Dil. 1 based on nalyzed: eparation: Juits ng/L ng/L	Amount 100 the spike a 2008-04- 2008-04- Dil. A 1 1	Result <0.500 and spike d 03 02 Spike Amount 0.100 0.100	Matr Resu <0.00 <0.00	85 - 115 result. Ar Pr ix It Rec 110 103 100 103	1 malyzed B repared B 2. 3 84 3 84	20 y: D( y: D( Rec. Limit - 119. 9 - 118
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Y	Result         101           pike result         CS-1)         LC	Units mg/L . RPD is Date A QC Pro	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L ng/L	Amount 100 the spike a 2008-04- 2008-04- Dil. A 1 1 1	Result           <0.500	Matr Resu <0.00 <0.00 <0.00	85 - 115 result. A P ix lt Rec 110 10; 100 10; 100 10;	1 nalyzed B repared B 2. 84. 84. 2. 84.	20 y: D( y: D( Rec. Limit - 119. 9 - 118 4 - 118
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Xylene	Result 101 pike result CS-1) LC Res 0.1 0.1 0.1 0.3	Units mg/L . RPD is Date A QC Pro 2S ult U 03 1 03 1	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L ng/L ng/L	Amount 100 the spike a 2008-04- 2008-04- 2008-04- Dil. A 1 1 1 1 1	Result           <0.500	Matr Resu <0.00 <0.00 <0.00	85 - 115 result. A Pr ix lt Rec 110 10; 100 10; 290 10;	1 nalyzed B repared B 3 84. 3 84. 2 84. 1 84.	20 y: D( y: D( Limit - 119. 9 - 118 4 - 118 8 - 117
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Xylene         Percent recovery is based on the s	Result 101 pike result CS-1) LC Res 0.1 0.1 0.1 0.3 pike result	Units mg/L . RPD is Date A QC Pro CS ult U 03 1 03 1 . RPD is	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L ng/L based on	Amount 100 the spike a 2008-04- 2008-04- Dil. A 1 1 1 1 1 the spike a	Result           <0.500	Matr Resu <0.00 <0.00 <0.00 <0.00	85 - 115 result. An Pr ix lt Rec 110 10; 100 10; 100 10; 290 10; result.	1 nalyzed B repared B  3 84. 3 84. 2 84. 1 84.	20 y: D( y: D( Limit - 119. 9 - 118 4 - 118 3 - 117
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Xylene         Percent recovery is based on the s	Result 101 pike result CS-1) LC Res 0.1 0.1 0.3 pike result LCSD	Units mg/L . RPD is Date A QC Pro 2S ult U 03 1 03 1 03 1 . RPD is	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L hased on	Amount 100 the spike a 2008-04- 2008-04- 2008-04- Dil. A 1 1 1 1 1 1 1 Spike a	Result <0.500 and spike d 03 02 Spike Amount 0.100 0.100 0.100 0.100 0.300 and spike d Matrix	Matr Resu <0.00 <0.00 <0.00 luplicate	85 - 115 result. Ar Pr ix lt Rec 110 10: 100 10: 290 10: result. Rec	1 malyzed B repared B 3 84 3 84. 2 84. 2 84. 1 84.	20 y: D( y: D( Limit - 119. 9 - 118 4 - 118 8 - 117 RP
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Xylene         Percent recovery is based on the s         Param	Result 101 pike result CS-1) LC Res 0.1 0.1 0.1 0.3 pike result LCSD Result	Units mg/L . RPD is Date A QC Pro CS ult U 03 1 03 1 . RPD is Units	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L ng/L based on Dil.	Amount 100 the spike a 2008-04- 2008-04- 2008-04- Dil. A 1 1 1 1 the spike a Spike Amount	Result <0.500 and spike d 03 02 Spike Amount 0.100 0.100 0.100 0.100 0.300 and spike d Matrix Result	Matr Resu <0.00 <0.00 <0.00 duplicate Rec.	85 - 115 result. Ar Pr ix lt Rec 110 103 100 103 100 103 290 103 result. Rec. Limit	1 nalyzed B repared B 3 84. 3 84. 2 84. 2 84. 1 84.	20 y: D( y: D( Limit - 119.7 9 - 118 4 - 118 8 - 117 RP Lim
Param         Chloride         Percent recovery is based on the s         Laboratory Control Spike (LC         QC Batch:       47097         Prep Batch:       40483         Param         Benzene         Toluene         Ethylbenzene         Xylene         Percent recovery is based on the s         Param         Benzene         Toluene         Ethylbenzene         Xylene         Percent recovery is based on the s         Param         Benzene	Result 101 pike result CS-1) LC Res 0.1 0.1 0.1 0.3 pike result LCSD Result 0.102	Units mg/L RPD is Date A QC Pro Ult U 03 1 03 1 03 1 . RPD is Units mg/L	Dil. 1 based on nalyzed: eparation: Jnits ng/L ng/L ng/L based on Dil. 4 1	Amount 100 the spike a 2008-04- 2008-04- 2008-04- Dil. A 1 1 1 1 the spike a Spike Amount 0.100	Result           <0.500	Matr Resu <0.00 <0.00 <0.00 <0.00 luplicate Rec. 102	85 - 115 result. A P ix lt Rec 110 10; 100 10; 100 10; 290 10; result. Rec. Limit 84 - 119.7	1 nalyzed B repared B  3 84. 3 84. 2 84. 1 84. 1 84.	20 y: DC y: DC Limit - 119.5 9 - 118. 4 - 118. 8 - 117. RP1 Lim 20

control spikes continued....

- -	LCSD		51	Spike	Matrix	D	Rec.	DDD	RPD
Param	Result	Units	DII.	Amount	Result	Rec.	Limit	RPD	Limit
Ethylbenzene	0.101	mg/L	1	0.100	< 0.00100	101	84.4 - 118.6	1	20
Xylene	0.300	mg/L	1	0.300	< 0.00290	100	84.8 - 117.8	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.107	0.108	mg/L	1	0.100	107	108	80 - 128.3
4-Bromofluorobenzene (4-BFB)	0.0762	0.0781	mg/L	1	0.100	76	78	67.7 - 126.3

#### Matrix Spike (MS-1) Spiked Sample: 155069

QC Batch:	46973	Date Analyzed:	2008-03-31	Analyzed By:	AR
Prep Batch:	40403	QC Preparation:	2008-03-31	Prepared By:	AR

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	176	mg/L	1	100	85.38	91	70 - 130
Percent recovery is based	on the spike result RPD	is based on	the spile	and onike due	lighto regult		

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\mathbf{Limit}$
Chloride	181	mg/L	1	100	85.38	96	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Matrix Spike (MS-1) Spiked Sample: 154975

QC Batch:	47097	Dat	e Analyzed	l: 2008	8-04-03		Analy	zed By: DC
Prep Batch:	40483	QC	Preparatio	on: 2008	8-04-02		Prepa	ared By: DC
		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1.09	mg/L	5	0.500	0.5975	98	77.5 - 121.1
Toluene		0.499	mg/L	5	0.500	< 0.00500	100	78.8 - 119.6
Ethylbenzene	е	0.507	mg/L	5	0.500	0.0115	99	77.9 - 120.5
Xylene		1.48	mg/L	5	1.50	< 0.0145	98	78.3 - 119.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Benzene	1.10	mg/L	5	0.500	0.5975	100	77.5 - 121.1	1	20
Toluene	0.508	mg/L	5	0.500	< 0.00500	102	78.8 - 119.6	<b>2</b>	20
Ethylbenzene	0.518	mg/L	5	0.500	0.0115	101	77.9 - 120.5	2	20
Xylene	1.51	mg/L	5	1.50	< 0.0145	100	78.3 - 119.4	2	20
Percent recovery is based	on the spike result	. RPD is	based	on the spik	e and spike o	luplicat	e result.	,	

continued ...

Report Date: April 4, 2008 Work Order: 8032828 Page Number: 6 of 6 1746 OXY/E.C. Hill TB Lea County, NM matrix spikes continued .... MS MSD Spike MS MSD Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit MSD MSMS MSD Spike Rec. Surrogate Result Result Units Dil. Amount Rec. Limit Rec. Trifluorotoluene (TFT) 0.540 0.537 mg/L 5 0.5 107 108 86.6 - 118.9 4-Bromofluorobenzene (4-BFB) 0.373 0.372 59.4 - 127.3 mg/L 5 0.575 74 Standard (ICV-1) QC Batch: 46973 Date Analyzed: 2008-03-31 Analyzed By: AR **ICVs ICVs ICVs** Percent True Found Percent Recovery Date Flag Units Conc. Conc. Recovery Limits Analyzed Param Chloride mg/L 100 98.8 99 85 - 115 2008-03-31 Standard (CCV-1) QC Batch: 46973 Date Analyzed: 2008-03-31 Analyzed By: AR **CCVs CCVs CCVs** Percent Date True Found Percent Recovery Param Flag Units Conc. Conc. Limits Recovery Analyzed 100 Chloride 101 2008-03-31 mg/L 101 85 - 115 Standard (ICV-1) QC Batch: 47097 Date Analyzed: 2008-04-03 Analyzed By: DC ICVs **ICVs** ICVs Percent Date True Percent Found Recovery Conc. Param Flag Units Conc. Recovery Limits Analyzed Benzene mg/L 0.100 85 - 115 2008-04-03 0.107 107 Toluene 85 - 115 mg/L 0.100 0.107 107 2008-04-03 Ethylbenzene mg/L 0.100 0.106 106 85 - 115 2008-04-03 Xylene mg/L 0.300 0.314 105 85 - 115 2008-04-03 Standard (CCV-1) QC Batch: 47097 Date Analyzed: 2008-04-03 Analyzed By: DC **CCVs** CCVs **CCVs** Percent True Found Percent Date Recovery Param Flag Conc. Limits Analyzed Units Conc. Recovery Benzene mg/L 0.100 2008-04-03 0.100100 85 - 115 Toluene mg/L 0.100 0.0999 100 85 - 115 2008-04-03

Ethylbenzene

Xylene

mg/L

mg/L

0.100

0.300

0.0998

0.296

100

99

85 - 115

85 - 115

2008-04-03

2008-04-03

	·		_		Y	03	2	82	28			_							
Analysis Request and Chain	of Custody	y I	Red	cor	d					A	NAL	PAGI YSIS	C: RE	QUES	T	OF	•	<u> </u>	
HIGHLANDER ENVIRONA 1910 N. Big Spring Midland, Texas 797	<i>ENTAL (</i> St. 05	CO.	RF	2.					(Cir Si si Si si Si Si si Si Si si Si Si Si si Si Si Si Si Si Si Si Si Si Si Si Si Si			Spec		Meth	od N	io.)		1	
(432) 682-4559	Fax (	432)	682	2-39	46				33				. 8		-			a la	
CLIENT NAME: SITE MANAGER: OXV ZKE TAVE	rez	2212	PR	ESER METI	VATIVI IOD	5			884			201 00	30/042		Chlor	.		20	
$\begin{array}{ccc} PROJECT NO.: & PROJECT NAME: \\ 1746 & OXY - E.C. H.II T & OXY - E.C. H.II & T & OXY - E.C. & H.II & T & OXY & O$	4	(u/u)				(eos)	0/808 1 20	3	al Ag As		Volatific	A 1100	of Vol. B	0/608 /ene	pR. TOS.	pec. a (Atr)	atos)	The second second	1
LAB 1.D. DATE TIME E L B SAMPLE IDENTIFICA	7 TTON	PULTERED	HCL	HNOS	NONE	BTEX 8020	17 BOS	PAH 8870	RCRA Meta	TCLP Vola	TCLP Sem	RCI	CLES Ser	PCB's 808	BOD, 753,	Gamma S Alaha Bet	PLN (Ache	A weer on	
155066 3.28.00 D:30 W X MW- Z		4	x	٨		χ									X			ľ	
067 ( 12:00 D X MW- 3 (PSH)		1		X														X	
068 11:00 w × mw - 4		4	x	X		x									X				
069 - 11:45 W X mw - 5	4	1	x	x		x			·						x				
	A A					ho													
RECEIVED BT: (Signature) Date: 1212103 RECEIVE Time: 1535- 4400	M Shitter		Date Time		53	5	SYCA				$\frac{1}{G}$			a	Di Ti	ne:	<u> </u>		a
RELINQUISHED BY: (Signature) Date: RECEIVED	BY: (Signature)		Time	<u> </u>			TE EA	DEX	ELIVE	BED	>	(unt I I	909 729		AIRE OTH	ILL # SR:			
Time:	BY: (Signature)		Time	·			- HIG	HLAI	NDER	CONT	TACT	PER	SON:			Resul RUSH Auth	ta by: I Char, orined:	ges	
CONTACT:     PHONE:     DATE:       SAMPLE CONDITION WHEN RECEIVED:     MATRIX:     States       3, 5     S-Soil     S	-Air SD-Solid SludgeSludge	Æ:	RE	VARIOS	BT	EX,	CH CHS MJL	Ke wi	2 vole	7 <u>a</u> -1 - 7	he	re ala	2 vel	k		Yes	(	No	

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Environmental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 8808 Camp Bowie Blvd. West, Suite 180

Lubbock, Texas 79424 800•378•1296 El Paso, Texas 79922 888•588•3443 Midland, Texas 79703 Ft. Worth, Texas 76116 E-Mail: łab@traceanalysis.com

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6 FAX 806•794•1298 3 FAX 915•585•4944 1 FAX 432•689•6313 0 FAX 817•560•4336

ANALYTICAL RESULTS FOR HIGHLANDER ENVIRONMENTAL SERVICES Attention: Ike Tavarez 1910 N. Big Spring St. Midland, TX 79705

April 02, 2008 Receiving Date: 03/28/08 Sample Type: Product Project No: 1746 Project Location: Lea County, NM Lab Receiving #: 8032828 Prep Date: 4/01/08 Analysis Date: 4/01/08 Sampling Date: 3/28/08 Sample Condition: Intact & Cool Sample Received by: HS Project Name: OXY/E.C. Hill TB

TA#: 155067 FIELD CODE: MW-3 (PSH)

FINGERPRINT

Product sample 155067 (MW-3) was diluted with pentane and analyzed by GC, FID, capillary column and direct injection. The fingerprint (attached) shows the sample to be fresh crude. No significant aging was evident as shown by the significant number and concentration of light end peaks C6 to C20.

CHEMIST: TG

Director, Dr. Blair Leftwich

- 08 DATE

Page 1 of 1

: 6.3.0.0445 Software Version Date : 4/1/2008 10:17:12 AM 1 Reprocess Number turbogc3\_xp: 129951 Operator turbochrom Sample Name : 155067 Sample Number 052 46979 Study AutoSampler BUILT-IN Rack/Vial 0/52 Instrument Name TPH2 Channel : A Instrument Serial # None A/D mV Range : 1000 **Delay Time** 0.00 min End Time : 4.77 min 25.0000 pts/s Sampling Rate Sample Volume 1.000000 ut 1.0000 Sample Amount : 0.000000 Area Reject Data Acquisition Time : 3/31/2008 11:15:49 PM : 400.00 Dilution Factor Cycle : 12 Raw Data File : D:\Data\Tph2\DMT2A052.raw <Modified> Sample 155061 1:400 dilution Result File : D:\Data\Tph2\DMT2A052.rst Inst Method : d:\methods\tph2extsur020508 from D:\Data\Tph2\DMT2A052.raw Proc Method : d:\methods\tph2extranges020508.mth from D:\Data\Tph2\DMT2A052.rst Calib Method : d:\methods\tph2extranges020508.mth from D:\Data\Tph2\DMT2A052.rst Report Format File: d:\methods\lims-tx1005ext-soil.rpt Sequence File : D:\Sequence\DMT2A.seq ALCO CENCERCOLOCIEN đ 300 Response [mV] 200 8 8 <u>G</u> C12 C20 C30-C30-C30-34 SS C36 1 0.5 1.5 2.0 3.5 1.0 2.5 3.0 4.0 4.5 Time [min] **TX1005 EXT** Analytical Method: TX1005 EXT Reporting Units: mg/Kg Matrix: soil Component Adjusted Raw Area Fingerprint RAMM 04/01/09

Name	Amount	Amount	[µV·s]
Gasoline	374267.331	935.67	2016426.80
Diesel	513073.086	1282.68	4902083.82
Surrogate	33635.314	84.09	321363.82
ORO	54686.527	136.72	508823.01
>C28-C35	54686.527	136.72	508823.01

#### 8257520.46

Report stored in ASCII file: D:\Data\Tph2\DMT2A052.TX0

Page 1 of 1



6701 Aberdeen Avenue, Suite 9Lubbock, Texas 79424200 East Sunset Road, Suite EEl Paso, Texas 799225002 Basin Street, Suite A1Midland, Texas 797036015 Harris Parkway, Suite 110Ft. Worth, Texas 76132

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**NELAP** Certifications

Lubbock T104704219-08-TX

El Paso T104704221-08-TX

Midland T104704392-08-TX

## Analytical and Quality Control Report

Ike Tavarez Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: July 1, 2008

Work Order: 8062729

Project Location:Lea Co, NMProject Name:OXY USA/Hill, TBProject Number:OXY USA/Hill, TB

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
164967	MW-2	water	2008-06-26	15:10	2008-06-26
164968	MW-4	water	2008-06-26	15:00	2008-06-26
164969	MW-5	water	2008-06-26	14:30	2008-06-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 9 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

Dr. Blair Leftwich, Director

#### **Standard Flags**

 ${f B}$  - The sample contains less than ten times the concentration found in the method blank.

Page 2 of 9

## Case Narrative

Samples for project OXY USA/Hill, TB were received by TraceAnalysis, Inc. on 2008-06-26 and assigned to work order 8062729. Samples for work order 8062729 were received intact without headspace and at a temperature of 3.0 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	
BTEX	S 8021B	
Chloride (IC)	E 300.0	

.

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8062729 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: July 1, 2008 OXY USA/Hill, TB

Work Order: 8062729 OXY USA/Hill, TB

Page Number: 4 of 9 Lea Co, NM

# **Analytical Report**

#### Sample: 164967 - MW-2

Laboratory:	Midland	·	•		
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	49863	Date Analyzed:	2008-06-28	Analyzed By:	DC
Prep Batch:	42779	Sample Preparation:	2008-06-28	Prepared By:	DC

			RI	L				
Parameter	Flag		Resul	t	Units	Ι	Dilution	$\mathbf{RL}$
Benzene			< 0.0010	0	mg/L		1	0.00100
Toluene			< 0.0010	0	mg/L		1	0.00100
Ethylbenzene			< 0.0010	0	mg/L		1	0.00100
Xylene			< 0.0010	0	mg/L		1	0.00100
Surrogate	I	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0947	mg/L	ī	0.100	95	65.1 - 116.8

mg/L

0.0928

ľ

0.100

93

52 - 124.1

#### Sample: 164967 - MW-2

4-Bromofluorobenzene (4-BFB)

гтер васси:	42008	Sample Preparation:	2008-00-30	Preparec	By: AR
Drop Dotah	10909	Sample Proposition.	2002 06 20	Deserves	
QC Batch:	49892	Date Analyzed:	2008-07-01	Analyzeo	Bv: AR
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Me	thod: N/A
Laboratory:	Midland Chlorido (IC)	Applytical Mathad	E 200 0	Duon Mo	• h ~ .].

#### Sample: 164968 - MW-4

Midland BTEX 49863 42779		Analytical Method: Date Analyzed: Sample Preparation:	S 8021B 2008-06-28 2008-06-28	Prep Method: Analyzed By: Prepared By:	S 5030B DC DC
		RL			
	Flag	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
		< 0.00100	mg/L	1	0.00100
		<0.00100	mg/L	- 1	0.00100
e		< 0.00100	mg/L	1	0.00100
		<0.00100	mg/L	1	0.00100
	Midland BTEX 49863 42779	Midland BTEX 49863 42779 Flag	Midland BTEX Analytical Method: 49863 Date Analyzed: 42779 Sample Preparation: RL Flag Result <0.00100 <0.00100 <0.00100 <0.00100	Midland       BTEX       Analytical Method:       S 8021B         49863       Date Analyzed:       2008-06-28         42779       Sample Preparation:       2008-06-28         RL         Flag       Result       Units         < 0.00100	Midland       Frep Method:       S 8021B       Prep Method:         49863       Date Analyzed:       2008-06-28       Analyzed By:         42779       Sample Preparation:       2008-06-28       Prepared By:         RL       RL       Dilution         Flag       Result       Units       Dilution         <0.00100

1							
							•
Report Date: July 1, 2008		W	ork Order:	8062729		Page I	Number: 5 of 9
OXY USA/Hill, TB		0	XY USA/	Hill, TB			Lea Co, NM
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0967	mg/L	1	0.100	97	65.1 - 116.8
4-Bromofluorobenzene (4-BFB)		0.0951	mg/L	1	0.100	95	52 - 124.1
							<u> </u>
				<i>,</i>			
Sample: 164968 - MW-4							
Laboratory Midland		•					
Analysis: Chloride (IC)		Analyti	cal Metho	$d_{1} = E_{1} \frac{3}{100} 0$		Pron M	Method: N/A
QC Batch: 49892	2	Date A	nalvzed:	2008-07-01	1	Analy	zed By: AR
Prep Batch: 42808		Sample	Preparatio	on: 2008-06-30	)	Prepa	red By: AR
-		•	-			•	<b>.</b>
D		RL		<b>.</b>	_		
Parameter Flag		Kesult		Units	E	niution	RL
Unioride		1080		mg/L			0.500
C							
Sample: 104909 - MW-5	•						
Laboratory: Midland				× · · · ·			
Analysis: BTEX		Analytical N	Method:	S 8021B		Prep Met	hod: S 5030B
QC Batch: 49863		Date Analy:	zed:	2008-06-28		Analyzed	By: DC
Prep Batch: 42779		Sample Prep	paration:	2008-06-28		Prepared	By: DC
		B	T.				
Parameter Flag		Resul	≂ lt	Units	D	ilution	RL
Benzene		<0.0010	00	mg/L	······	1	0.00100
Toluene		< 0.0010	)0	mg/L		1	0.00100
Ethylbenzene		< 0.0010	)0	mg/L		1	0.00100
Xylene		< 0.0010	)0	mg/L	<u>-</u>	1	0.00100
					Spike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Ŭ	0.0993	mg/L	1	0.100	99	65.1 - 116.8
4-Bromofluorobenzene (4-BFB)		0.0979	mg/L	<u> </u>	0.100	98	52 - 124.1
			_				
·	r						
Sample: 164969 - MW-5							
Laboratory: Midland							
Analysis: Chloride (IC)		Analyt	ical Metho	od: E 300 0		Pren	Method: N/A
QC Batch: 49892		Date A	nalyzed:	2008-07-0	1	Analy	zed By: AR
Prep Batch: 42808		Sample	Preparati	ion: 2008-06-3	0	Prepa	ared By: AR
		-		•		ľ	-
						• *	
				· · ·			
					•		
•				• •		-	

Report Date: July 1, 20 OXY USA/Hill, TB	Wo O2	ork Orde XY USA	r: 8062729 /Hill, TB		Page Number: 6 of Lea Co, N				
Parameter	Flag	RL Result		Units	Dil	lution	RL		
Chloride		132	······	mg/L		10	0.500		
Method Blank (1)	QC Batch: 49863						:		
QC Batch: 49863 Prep Batch: 42779		Date Anal QC Prepa	lyzed: ration:	2008-06-28 2008-06-28		Analy Prepa	rzed By: DC ared By: DC		
Parameter	Flag		I	MDL Result	Unit	S	· RL		
Benzene Toluene Ethylbenzene Xylene			$<\!$	00200 00200 00200 00300	mg/ mg/ mg/	L L L L	0.001 0.001 0.001 0.001		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
Trifluorotoluene (TFT) 4-Bromofluorobenzene	(4-BFB)	0.0955 0.0953	mg/L mg/L	1 1	0.100 0.100	96 95	44.6 - 137.4 37.1 - 130.9		
Method Blank (1)	QC Batch: 49892								
QC Batch: 49892 Prep Batch: 42808		Date Ana QC Prepa	lyzed: aration:	2008-07-01 2008-06-30		Analy Prepa	vzed By: AR ared By: AR		
Parameter	Flag		N Re	MDL esult	Uni	ts	RL		
Chloride			<0.	0181	mg/	/L	0.5		
Laboratory Control QC Batch: 49863 Prep Batch: 42779	Spike (LCS-1)	Date Ana QC Prepa	llyzed: aration:	2008-06-28 2008-06-28		Anal Prep	yzed By: DC ared By: DC		
Param	LC Res	CS sult Uni	its I	Spike Dil. Amount	Matrix Result	Rec.	Rec. Limit		
Benzene Toluene Ethylbenzene Xylene	0.1 0.1 0.1 0.3	.02 mg/ .02 mg/ .01 mg/ .04 mg	/L /L /L /L	$\begin{array}{cccc} 1 & 0.100 \\ 1 & 0.100 \\ 1 & 0.100 \\ 1 & 0.300 \end{array}$	<0.00020 <0.00020 <0.00020 <0.00020	$\begin{array}{c cccc} 00 & 102 \\ 00 & 102 \\ 00 & 101 \\ 00 & 101 \end{array}$	71.7 - 120.5 75.4 - 118.8 73.5 - 118 72.9 - 118 2		
	1 .1 .1 .1		1						

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: July 1, 2008 OXY USA/Hill, TB			Work Or OXY U	der: 806 SA/Hill,	2729 TB				Page	Number Lea (	: 7 of 9 Co, NM
· ·	LCSD			Spike	Ma	trix		F	lec.		RPD
Param	Result	Units	Dil.	Amount	Re	sult	Rec.	$\mathbf{L}_{i}$	imit	RPD	Limit
Benzene	0.104	mg/L	1	0.100	<0.0	00200	104	71.7	- 120.5	2	20
Toluene	0.104	mg/L	1	0.100	< 0.0	00200	104	75.4	- 118.8	2	20
Ethylbenzene Vedene	0.103	mg/L	1	0.100	<0.0	00200	103	73.5	110.0	2	20
Ayiene	0.310	mg/L	<u> </u>	0.300	<0.0		103	(2.9	- 118.2	2	20
Percent recovery is based on the	spike result.	RPD	is based of	n the spil	ke and	spike d	uplica	te result			
		5	LCSD			Spil	æ	LCS	LCSD	I	Rec.
Surrogate	Kesu		nesult	Units	<u>Dil.</u>	Amou	int	Kec.	<u>Rec.</u>	<u></u>	imit
A Bromofluorobengene (A-BFB)	0.10	0	0.101	mg/L mg/I	1	0.10	10 10	100	101	38.2	- 131.0
Laboratory Control Spike (L	CS-1)	_									
QC Batch: 49892 Prep Batch: 42808		Date QC F	Analyzed: Preparation	2008- n: 2008-	07-01 06-30			·	Anal Prep	yzed By ared By	: AR : AR
	L	CS				Spike		Matrix			Rec.
Param	Res	sult	Units	Dil.	Α	mount		Result	Ree	с.	Limit
Chloride	12	.1	mg/L	1		12.5		< 0.0181	97	· . (	90 - 110
Percent recovery is based on the	spike result.	RPD	is based o	n the spi	ke and	spike d	uplica	te resul	t.		
· · · · ·	LCSD										
_				Spik	е	Matrix			Rec.		RPD
Param	Result	Uni	ts Dil.	Spike Amou	e nt	Matrix Result	R	ec. 1	Rec. Limit	RPD	RPD Limit
Param Chloride	Result 12.1	Uni mg/	ts Dil. $/L$ 1	Spike Amou 12.5	e nt	Matrix Result <0.0181	<u>R</u>	ec. 1 7 90	Rec. Limit ) - 110	RPD_	RPD Limit
Param Chloride Percent recovery is based on the	Result 12.1 spike result.	Uni mg/ RPD	ts Dil. $\frac{1}{L}$ 1 is based of	Spike Amou 12.5 n the spi	e nt ke and	Matrix Result <0.0181 spike d	Ro 9 uplica	ec. 1 7 <u>9</u> ( ite resul	Rec. Limit ) - 110 t.	RPD 0	RPD Limit
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike	Result 12.1 spike result. d Sample: 1	Uni mg/ RPD 64974	ts Dil. $\frac{1}{1}$ is based of	Spike Amou 12.5 n the spi	e nt ke and	Matrix Result <0.0181 spike d	Ro 9 uplica	ec. 1 7 90 ute resul	Rec. Limit ) - 110 t.	RPD 0	RPD Limit
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike OC Batch: 49863	Result 12.1 spike result. d Sample: 1	Uni mg/ RPD 64974	ts Dil. $\frac{1}{L}$ 1 is based of	Spike Amou 12.5 n the spi	e nt ke and	Matrix Result <0.0181 spike d	Ra 9 uplica	ec. 1 7 90 ute resul	Rec. Limit ) - 110 t.	RPD 0	RPD Limit
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779	Result 12.1 spike result. d Sample: 1	Uni <sup>i</sup> mg/ RPD 64974 Date QC I	ts Dil. /L 1 is based of Analyzed Preparatio	Spike Amou 12.5 n the spi : 2008 n: 2008	e nt ke and -06-28 -06-28	Matrix Result <0.0181 spike d	Ra 9 uplica	ec. 1 7 90 tte resul	Rec. Limit ) - 110 t. Anal Prep	RPD 0 lyzed By pared By	RPD Limit    
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779	Result 12.1 spike result. d Sample: 1	Uni <sup>*</sup> mg/ RPD 64974 Date QC I	ts Dil. /L 1 is based of Analyzed Preparatio	Spike Amou 12.5 n the spi : 2008 n: 2008	e nt ke and -06-28 -06-28	Matrix Result <0.0181 spike d	Ra 9 uplica	ec. 1 7 90 tte resul	Rec. Limit ) - 110 t. Anal Prep	RPD 0	RPD Limit
Param Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 49863 Prep Batch: 42779	Result 12.1 spike result. d Sample: 1 M	Uni mg/ RPD 64974 Date QC I	ts Dil. /L 1 is based of Analyzed Preparatio	Spike <u>Amou</u> 12.5 n the spi : 2008 n: 2008	e nt ke and -06-28 -06-28 Sj	Matrix Result <0.0181 spike d	Ra 9 uplica	ec. <u>1</u> 7 <u>90</u> Ite resul fatrix	Rec. Limit ) - 110 t. Anal Prep	RPD 0 lyzed By pared By	RPD Limit T DC DC Rec.
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param	Result 12.1 spike result. d Sample: 1 M Res	Uni mg/ RPD 64974 Date QC I S ult	ts Dil. /L 1 is based of Analyzed Preparatio Units	Spika <u>Amou</u> 12.5 n the spi : 2008 n: 2008 Dil.	e nt ke and -06-28 -06-28 Sj Am	Matrix Result <0.0181 spike d	Ra 9 uplica M I	ec. 1 7 90 Ite resul Iatrix Iesult	Rec. Limit ) - 110 t. Anal Prep Rec.	RPD 0 lyzed By pared By	RPD Limit 7: DC 7: DC Rec. Limit
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.5	Uni mg/ RPD 64974 Date QC I S ult 62	ts Dil. <u>/L 1</u> is based of Analyzed Preparatio <u>Units</u> <u>mg/L</u>	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5	e nt ke and -06-28 -06-28 Sj <u>An</u>	Matrix Result <0.0181 spike d pike hount 500	Ra 9 uplica M I C	fatrix fatrix tesult 1119	Rec. Limit ) - 110 t. Anal Prep Rec. 90	RPD 0 lyzed By pared By	RPD Limit C DC DC Rec. Limit - 160.8
Param Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene Toluene Ethylbenzene	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.4 0.4	Uni mg/ RPD 64974 Date QC I S ult 62 60 54	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5	e nt 	Matrix Result <0.0181 spike d pike tount 500 500	Ra 9 Juplica M II C C	ec. ] 7 90 tte resul fatrix tesult .1119 0.00100	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91	RPD 0 lyzed By pared By	RPD Limit 7: DC 7: DC 7: DC 8ec. Limit 1 - 160.8 9 - 160.7
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene Toluene Ethylbenzene Xvlene	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.4 0.4 0.4 1.5	Uni mg/ RPD 64974 Date QC I S ult 62 60 54	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L mg/L mg/L	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5 5 5	e nt ke and -06-28 -06-28 Sj <u>Am</u> 0. 0.	Matrix Result <0.0181 spike d pike hount 500 500 500	Ra 9 uplica M I C C C C C C C C C C C C C C C C C C	ec. ] 7 90 tte resul tte resul 1119 ).00100 ).00100 ).00100	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91 91 91	RPD 0 lyzed By bared By 10 10	RPD Limit 7: DC 7:
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene Toluene Ethylbenzene Xylene Parcent recovery is based on the	Result 12.1 spike result. d Sample: 1 d Sample: 1 M Res 0.5 0.4 0.4 1.3 spike result.	Uni mg/ RPD 64974 Date QC I S ult 62 60 54 66 86	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L mg/L mg/L	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5 5 5 5	e nt ke and -06-28 -06-28 Sj <u>An</u> 0. 0. 0. 1	Matrix Result <0.0181 spike d pike hount 500 500 .500 .50	Ra 9 uplica 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ec. ] 7 90 tte resul tte resul fatrix tesult .1119 ).00100 ).00100 ).00150	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91 91 91	RPD 0 lyzed By bared By 10 10 10 10	RPD Limit 7: DC 7: DC 7: DC 8ec. Limit 1 - 160.8 9 - 160.7 9 - 158.3 0 - 158
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene Toluene Ethylbenzene Xylene <u>Percent recovery is based on the</u> continued	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.4 0.4 1.3 spike result	Uni mg/ RPD 64974 Date QC I S ult 62 60 54 66 86 . RPD	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L mg/L is based of	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5 5 5 m the spi	e nt ke and -06-28 -06-28 Sj Am 0. 0. 0. 1 ke and	Matrix Result <0.0181 spike d pike nount 500 500 .500 .500 .500	Ra 9 uplica M I C C C C C C C C C C C C C C C C C C	fatrix fatrix tesult .1119 ).00100 ).00150 ate resul	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91 91 91 t.	RPD 0 byzed By bared By 10 10 10 10	RPD Limit 7: DC 7: DC 7: DC 8ec. Limit 1 - 160.8 9 - 160.7 9 - 158.3 0 - 158
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the continued	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.4 0.4 1.5 spike result.	Uni mg/ RPD 64974 Date QC I 54 60 54 66 54 66 . RPD	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L mg/L mg/L is based of	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	e nt ke and -06-28 -06-28 Sj An 0. 0. 0. 0. 1 kke and	Matrix Result <0.0181 spike d pike hount 500 500 .500 .500 l spike d	Ra 9 uplica M I C C C C C C C C C C C C C C C C C C	fatrix fatrix te result .1119 ).00100 ).00150 ate resul	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91 91 91 (t.	RPD 0 lyzed By pared By 10 10 10	RPD Limit 7: DC 7: DC 7: DC 7: DC 8: DC 8: DC 160.8 160.7 158.3 0 - 158
Param Chloride Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 49863 Prep Batch: 42779 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the continued	Result 12.1 spike result. d Sample: 1 M Res 0.5 0.4 0.4 1.5 spike result	Uni mg/ RPD 64974 Date QC I S ult 62 60 54 60 54 86 RPD	ts Dil. /L 1 is based of Analyzed Preparatio Units mg/L mg/L mg/L is based of	Spike Amou 12.5 n the spi : 2008 n: 2008 Dil. 5 5 5 5 5 m the spi	e nt ke and -06-28 -06-28 -06-28 Sj <u>Am</u> 0. 0. 0. 1 ke and	Matrix Result <0.0181 spike d pike tount 500 500 .500 .500 .500	Ra 9 uplica 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	fatrix fatrix te result .1119 ).00100 ).00150 ate result	Rec. Limit ) - 110 t. Anal Prep Rec. 90 92 91 91 (t.	RPD 0 lyzed By pared By 10 10 10	RPD Limit 7: DC 7: DC 7: DC 8ec. Limit 1 - 160.8 9 - 160.7 9 - 158.3 0 - 158
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matrix spikes continued Param	MSD Result MSD Result	Units	Dil.	Spike	i N	Antrix					
	MSD Result			Amount	F	Result	Rec.	R Li	lec. mit	RPD	RPD Limit
Param	1000 010	Units	, Dil	Spike Amount	N F	Aatrix Result	Rec.	R Li	tec.	RPD	RPD Limit
Benzene	0.446	mg/I	5	0.500	(	).1119	67	10 -	160.8	23	20
Toluene <sup>2</sup>	0.339	mg/I	5	0.500	.<(	0.00100	68	10 -	160.7	30	20
Ethylbenzene <sup>3</sup>	0.330	mg/I	5	0.500	<	0.00100	66	10 -	158.3	32	20
Xylene 4	0.986	mg/I	5	1.50	<	0.00150	66	10	- 158	32	20
Percent recovery is based on the spi	ke result.	RPD	is based o	n the spik	e and	spike dur	licate	result			
						opine dap			•		
~	MS		MSD			Spike	;	MS	MSD	]	Rec.
Surrogate	Resu	lt	Result	Units	Dil.	Amou	nt	Rec.	Rec.	I	imit
Triffuorotoluene (TFT)	0.49	6	0.468	mg/L	5	0.5		99 99	94	33.1	- 132.5
4-Bromofluorobenzene (4-BFB)	0.49	0	0.470	mg/L	5	0.5		98	94	37.	5 - 136
QC Batch: 49892 Prep Batch: 42808		QC I	Analyzed Preparatio	: 2008-0 n: 2008-0	07-01 06-30			<b>F</b> 4 *	Anal Prep	yzed By ared By	r: AR r: AR
Param	M Boo	15 111	Unite	וית		Spike	A L		Po		Rec.
Chloride	32	21	mg/L	10		125		204			$\frac{1}{20} - 110$
Personal resolution the resident						120	.1:	201			50 - 110
Percent recovery is based on the spi	ike result.	RPD	is based (	on the spir	te and	i spike duj	plicate	e result			
· .	MSD			Spike	9	Matrix		F	Rec.		RPD
Param	$\mathbf{Result}$	Uni	ts Dil.	Amou	nt	Result	Rec.	. L	imit	RPD	Limit
Chloride	325	mg/	/L 10	125		204	97	90	- 110	1	
Percent recovery is based on the sp	ike result.	RPD	is based o	on the spil	ke and	l spike du	plicat	e result	5.		
Standard (ICV-1)											
QC Batch: 49863		Date	Analyzed	l: 2008-0	6-28				Ana	lyzed B	y: DC
		IC	$\mathbf{Vs}$	ICVs		ICVs		Per	cent		
		Tr	ue	Found		Percent		Reco	overy		Date
Param Flag U	Jnits	Co	nc.	Conc.		Recovery		Lir	nits	A	nalyzed
Benzene r	ng/L	0.1	100	0.100		100		85 -	115	20	08-06-28
Toluene r	ng/L	0.1	.00	0.100		100	١	85 -	- 115	20	08-06-28

<sup>1</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control. <sup>2</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.
 <sup>2</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.
 <sup>3</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.
 <sup>4</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

OXY USA/Hil	luly 1, 2008 l, TB		Wor OX	k Order: 80627 Y USA/Hill, T	729 'B	Page	Number: 9 of 9 Lea Co, NM
standard contin	ued		ICVs	ICVs	ICVs	Percent	
Param	Flag	Units	Conc.	Found Conc.	Recovery	Limits	Date Analyzed
Ethylbenzene		mg/L	0.100	0.100	100	85 - 115	2008-06-28
Xylene		mg/L	0.300	0.302	101	85 - 115	2008-06-28
Standard (CC	CV-1)						
QC Batch: 49	863		Date Analy	zed: 2008-06-	28	Anal	yzed By: DC
			CCVs	CCVs	CCVs	Percent	
_			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene Teluer -		mg/L	0.100	0.102	E 102	85 - 115	2008-06-28
Toluene Ethylbenzene		mg/L mg/L	0.100	0.102	102	85 - 115 85 - 115	2008-00-28
Xvlene		mg/L	0.300	0.306	102	85 - 115	2008-06-28
			ICVs	ICVs	-01 ICVs	Anal Percent	yzed By: AR
Param Chloride	Flag	Units mg/L	ICVs True Conc. 12.5	ICVs Found Conc.	ICVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110	yzed By: AR Date <u>Analyzed</u> 2008-07-01
Param Chloride	Flag	Units mg/L	ICVs True Conc. 12.5	ICVs Found Conc. 12.1	ICVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110	yzed By: AR Date <u>Analyzed</u> 2008-07-01
Param Chloride Standard (CO QC Batch: 49	Flag CV-1)	Units mg/L	ICVs True Conc. 12.5 Date Analy	ICVs Found Conc. 12.1	-01 ICVs Percent Recovery 97 -01	Anal Percent Recovery Limits 90 - 110 Anal	yzed By: AR Date <u>Analyzed</u> 2008-07-01
Param Chloride Standard (CO QC Batch: 49	Flag CV-1) 9892	Units mg/L	ICVs True Conc. 12.5 Date Analy CCVs True	ICVs Found Conc. 12.1 yzed: 2008-07 CCVs Found	-01 ICVs Percent Recovery 97 -01 -01 CCVs Percent	Anal Percent Recovery Limits 90 - 110 Anal Percent Recovery	yzed By: AR Date <u>Analyzed</u> 2008-07-01 lyzed By: AR Date
Param Chloride Standard (C QC Batch: 49 Param Chloride	Flag CV-1) 9892 Flag	Units mg/L Units mg/L	ICVs True Conc. 12.5 Date Analy CCVs True Conc. 12.5	ICVs Found Conc. 12.1 yzed: 2008-07 CCVs Found Conc. 12.1	-01 ICVs Percent Recovery 97 -01 -01 CCVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110 Anal Percent Recovery Limits 90 - 110	yzed By: AR Date <u>Analyzed</u> 2008-07-01 lyzed By: AR Date <u>Analyzed</u> 2008-07-01
Param Chloride Standard (CO QC Batch: 49 Param Chloride	Flag CV-1) 9892 Flag	Units mg/L Units mg/L	ICVs True Conc. 12.5 Date Analy CCVs True Conc. 12.5	ICVs Found Conc. 12.1 yzed: 2008-07 CCVs Found Conc. 12.1	-01 ICVs Percent Recovery 97 -01 -01 CCVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110 Anal Percent Recovery Limits 90 - 110	yzed By: AR Date Analyzed 2008-07-01 lyzed By: AR Date Analyzed 2008-07-01
Param Chloride Standard (CO QC Batch: 49 Param Chloride	Flag CV-1) 9892 Flag	Units mg/L Units mg/L	ICVs True Conc. 12.5 Date Analy CCVs True Conc. 12.5	ICVs Found Conc. 12.1 yzed: 2008-07 CCVs Found Conc. 12.1	ICVs Percent Recovery 97 -01 -01 CCVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110 Anal Percent Recovery Limits 90 - 110	yzed By: AR Date Analyzed 2008-07-01 lyzed By: AR Date Analyzed 2008-07-01
Param Chloride Standard (C QC Batch: 49 Param Chloride	Flag CV-1) 9892 Flag	Units mg/L Units mg/L	ICVs True Conc. 12.5 Date Analy CCVs True Conc. 12.5	ICVs Found Conc. 12.1 yzed: 2008-07 CCVs Found Conc. 12.1	ICVs Percent Recovery 97 -01 -01 CCVs Percent Recovery 97	Anal Percent Recovery Limits 90 - 110 Anal Percent Recovery Limits 90 - 110	yzed By: AR Date <u>Analyzed</u> 2008-07-01 lyzed By: AR Date <u>Analyzed</u> 2008-07-01
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Analysis Request of Chain of Custody Record           Analysis Request of Chain of Custody Record           HIGHLANDER ENVIRONMENTAL CORP.           1910 N. Big Spring St.         Midland, Texas 79705           (432) 682-4559           CLEAT NAME:           OLSA           The MANAGER:           The MANAGER		_						806272	1					ι	00	#	8	01	۶J	$\overline{\mathbf{r}}$	a	٩		_						
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969         22 /22 /28         1430         MW-5         4         N         N           ARELAGUESTED DY, GUDTAND         MW-5         4         N         N         N         N           ARELAGUESTED DY, GUDTAND         Math:         Trace:         Trace:         SAMPLED DY, Print a /NBD         Date:         SAMPLED DY, Print a /NBD         Date:         Context           RELAGUESTED DY, GUDTAND         Math:         Trace:         Trace	968	3:121128	1500	N		1	MW-4		ł		Л			1	И							T		X						
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opies - Laboratory rotains Vallow copy - Return Orginal copy to Highlander Environmental Corp. - Project Manager retains Pink copy - Accounting receives Gold

6701 Aberdeen Avenue, Suite 9 Lu 200 East Sünset Road, Suite E El 5002 Basin Street, Suite A1 Mi 6015 Harris Parkway, Suite 110 Ft. V

Lubbock, Texas 79424 800 • 378 • 1296 El Paso, Texas 70922 888 • 588 • 3443 Midland, Texas 70703 Ft. Worth, Texas 76132 E-Mail; lab@traceanalysis.com

806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301 817 • 201 • 5260

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

WBENC: 237019

HUB:1752439743100-86536NCTRCAWFWB38444Y0909

Certifications

**DBE:** VN 20657

## **NELAP** Certifications

Lubbock:

ck: T104704219-08-TX LELAP-02003 Kansas E-10317 El Paso: T104704221-08-TX LELAP-02002

Midland: T104704392-08-TX

## Analytical and Quality Control Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705

Report Date: September 26, 2008

Work Order: 8092318

Project Location:Lea County, TXProject Name:OXY/E.C. Hill A & B TBProject Number:115-6401786

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
174395	MW-2	water	2008-09-22	11:15	2008-09-23
174396	MW-4	water	2008-09-22	11:10	2008-09-23
174397	MW-5	water	2008-09-22	11:05	2008-09-23

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 9 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michae ale

Dr. Blair Leftwich, Director

#### Standard Flags

 ${f B}$  - The sample contains less than ten times the concentration found in the method blank.

## Case Narrative

Samples for project OXY/E.C. Hill A & B TB were received by TraceAnalysis, Inc. on 2008-09-23 and assigned to work order 8092318. Samples for work order 8092318 were received intact without headspace and at a temperature of 3.4 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B
Chloride (IC)	E 300.0

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8092318 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: September 26, 2008 115-6401786

Page Number: 4 of 9 Lea County, TX

# **Analytical Report**

#### Sample: 174395 - MW-2

Laboratory:	Midland					3			
Analysis:	BTEX			Analytical Me	ethod:	S 8021B		Prep Metho	d: S 5030B
QC Batch:	52712			Date Analyze	d:	2008-09-24		Analyzed B	y: DC
Prep Batch:	45164			Sample Prepa	ration:	2008-09-23		Prepared By	y: DC
				$\mathbf{RL}$					
Parameter		Flag		$\mathbf{Result}$		Units	I	Dilution	$\mathbf{RL}$
Benzene				< 0.00100		mg/L		· 1	0.00100
Toluene				< 0.00100		mg/L		1	0.00100
Ethylbenzene	1			< 0.00100		mg/L		1	0.00100
Xylene				< 0.00100		mg/L		1	0.00100
							Spike	Percent	Recovery
Surrogate			Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)			0.0874	mg/L	1	0.100	87	65.1 - 116.8

mg/L

0.0890

1

0.100

89

52 - 124.1

#### Sample: 174395 - MW-2

3.6

4-Bromofluorobenzene (4-BFB)

Chloride		78.0	mg/L	10		0.500
Parameter	Flag	RL Result	Units	Dilution		RL
Prep Batch:	45139	Sample Preparation:	2008-09-24	Pi	repared By:	AR
QC Batch:	52657	Date Analyzed:	2008-09-24	A	nalyzed By:	AR
Analysis	Midland Chloride (IC)	Analytical Mothod	F 300 0	· D	ron Mothod:	N/A

#### Sample: 174396 - MW-4

		,			
Midland					
BTEX		Analytical Method:	S 8021B	Prep Method:	S 5030B
52712		Date Analyzed:	2008-09-24	Analyzed By:	DC
45164	•	Sample Preparation:	2008-09-23	Prepared By:	DC
		RL			
	Flag	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
•		<0.00100	mg/L	1	0.00100
		< 0.00100	mg/L	1	0.00100
		<0.00100	mg/L	1	0.00100
·····		< 0.00100	mg/L	1	0.00100
	Midland BTEX 52712 45164	Midland BTEX 52712 45164 Flag	Midland BTEX Analytical Method: 52712 Date Analyzed: 45164 Sample Preparation: RL Flag Result <0.00100 <0.00100 <0.00100 <0.00100	Midland       BTEX       Analytical Method:       S 8021B         52712       Date Analyzed:       2008-09-24         45164       Sample Preparation:       2008-09-23         RL         Flag       Result       Units         <0.00100	Midland BTEX Analytical Method: S 8021B Prep Method: 52712 Date Analyzed: 2008-09-24 Analyzed By: 45164 Sample Preparation: 2008-09-23 Prepared By: RL Flag Result Units Dilution <0.00100 mg/L 1 <0.00100 mg/L 1 <0.00100 mg/L 1

Report Date: September 26, 2 115-6401786	2008	(	Work Or DXY/E.C.	der: 8092318 Hill A & B TB		Page I L	Number: 5 of 9 ea County, TX
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0853	mg/L	1	0.100	85	65.1 - 116.8
4-Bromofluorobenzene (4-BFB	)	0.0882	mg/L	1	0.100	88	52 - 124.1
Sample: 174396 - MW-4				`			
Laboratory: Midland							
Analysis: Chloride (IC)		Analyti	cal Metho	d: E 300.0		Prep M	Method: N/A
QC Batch: 52657		Date A	nalvzed:	2008-09-24		Analy	zed By: AR
Prep Batch: 45139		Sample	Preparati	on: 2008-09-24		Prepar	red By: AR
		RL					
Parameter Fla	gʻ	Result		Units		Dilution	RL
Chloride	0	932		mg/L		100	0.500
Sample: 174397 - MW-5							
Laboratory: Midland		A 1 17	A 11 . 1	0.00010			
Analysis: BIEA		Analytical 1	Metnoa:	5 8021B		Prep Met	noa: 5 5030B
QU Batch: 52712		Date Analy	zea:	2008-09-24		Analyzed Deseased	By: DC
Prep Datch: 40104		Sample Fre	paration:	2008-09-23		repared	by: DC
		R	.L			•	
Parameter F	lag	Resu	lt	Units		Dilution	
Benzene		< 0.0010	00	mg/L		1	0.00100
Toluene		< 0.0010	00	mg/L		1 .	0.00100
Ethylbenzene		< 0.0010	00	mg/L		1	0.00100
Xylene		<0.0010		mg/L		<u>·</u>	0.00100
~		<b>.</b> .	~~ .		Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Triffuorotoluene (TFT)	2)	0.0866	mg/L	1	0.100	87	65.1 - 116.8
4-Bromofluorobenzene (4-BF)	3),	0.0874	mg/L	<u>l</u>	0.100 .		52 - 124.1
Sample: 174397 - MW-5							
Laboratory: Midland		A nol+	ical Math	. <b>.</b> .		° D	Mathad. N/A
Analysis: Unioride $(IU)$	•	Analyt	ncar wrethe	00.0 D		rep	methou: N/A
$Q \cup Datch: \frac{32037}{120}$	-	Date A	Droporot	2008-09-24	± 1	Analy	zeu Dy: AR
1 tep Daton: 40109		Sample	e i reparat	1011: 2008-09-24	t	гтера	ueu by. An

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ParameterFlagResultUnitsDilutionRLChloride90.9 $mg/L$ 100.500Method Blank (1)QC Batch: 52657QC Batch:52657Date Analyzed: 2008-09-24Analyzed By: ARPrep Batch:45139QC Preparation: 2008-09-24Prepared By: ARParameterFlagMDLUnitsRLChloride<0.172mg/L0.5Method Blank (1)QC Batch: 52712Date Analyzed: 2008-09-24Analyzed By: DCQC Batch:52712Date Analyzed: 2008-09-23Prepared By: DCPrep Batch:45164QC Preparation: 2008-09-23Prepared By: DCPrep Batch:45164QC Preparation: 2008-09-23Prepared By: DCPrep Batch:52712Date Analyzed: 2008-09-23Prepared By: DCPrep Batch:45164QC Preparation: 2008-09-23Prepared By: DCSurrogateFlagResultUnitsRLSurrogateFlagResultUnitsNountRecoverySurrogateFlagResultUnitsDilutionAnountRecoverySurrogateFlagResultUnitsDilutionAnountRecoveryLimitsThfluorotoluene (TFT)0.0882mg/L10.1008937.1 - 130.9Laboratory Control Spike (LCS-1)QC Preparation: 2008-09-24Analyzed By: ARPrepared By: ARPrep Batch:52657Date Analyzed: 2008-09-24Analyzed By: ARPrep Batch:52657Date An	Report Date: September 26 115-6401786	0	Work O XY/E.C	order: 80923 . Hill A & 1	818 B TB	Page Num 3 Lea C				
Method Blank (1)       QC Batch: 52657       Date Analyzed: 2008-09-24       Analyzed By: AR         Prep Batch:       52657       QC Preparation: 2008-09-24       Prepared By: AR         Parameter       Flag       MDL       RL         Chloride $0.172$ mg/L $0.5$ Method Blank (1)       QC Batch: 52712       Date Analyzed: 2008-09-24       Analyzed By: DC         QC Batch:       52712       Date Analyzed: 2008-09-24       Analyzed By: DC         Prep Batch:       45164       QC Preparation: 2008-09-24       Analyzed By: DC         Prep Batch:       52712       Date Analyzed: 2008-09-24       Analyzed By: DC         Prep Batch:       45164       QC Preparation: 2008-09-24       Analyzed By: DC         Parameter       Flag       Result       Units       RL         Benzene       <0.000500       mg/L       0.001         Toluene       <0.000500       mg/L       0.0001         Surrogate       Flag       Result       Units       Dilution       Recovery       Limits         Trifluorotoluene (TFT)       0.0882       mg/L       1       0.100       89       37.1 - 130.9         Laboratory Control Spike (LCS-1)       QC Preparation:       2008-09-24	Parameter F Chloride	lag	RL Result 90.9		Units mg/L		Dilution 1(	n · 0	RL 0.500	
QC Batch:52657 QC Preparation:Date Analyzed: 2008-09-242008-09-24Analyzed By: Prepared By: ARParameterFlagMDL ResultNIChloride $< 0.172$ $mg/L$ $0.5$ Method Blank (1)QC Batch:52712 $mg/L$ $0.5$ Method Blank (1)QC Batch:52712Date Analyzed: QC Preparation:2008-09-24Analyzed By: DCPrep Batch:45164QC Preparation:2008-09-24Analyzed By: DCDCParameterFlagMDL QC Preparation:2008-09-24Prepared By: DCParameterFlagResultUnitsRL Benzene $< 0.000500$ $mg/L$ $0.001$ Toluene $< 0.000700$ $mg/L$ $0.001$ $0.001$ $MpL$ $0.001$ SurrogateFlagResultUnitsDilutionAmount RecoveryLimitsTrifhuorotoluene (TFT) $0.0882$ $mg/L$ $1$ $0.100$ $88$ $44.6$ Laboratory Control Spike (LCS-1)QC Preparation: $2008-09-24$ Prepared By: AR $AR$ Prep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By: AR $AR$ Prep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By: AR $AR$ Prep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By: AR $AR$ Prep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By: AR $AR$ Prep Batch: $45139$ QC P	Method Blank (1)	C Batch: 52657								
MDL ChlorideMDL ResultUnitsRL O.5Method Blank (1)QC Batch: 52712 $0.172$ $mg/L$ $0.5$ Method Blank (1)QC Batch: 52712Date Analyzed: 2008-09-24Analyzed By: DC Prep Batch: 45164QC Preparation: 2008-09-23Prepared By: DCPrep Batch:45164QC Preparation: 2008-09-23Prepared By: DCDCParameterFlagResultUnitsRL BenzeneOLUGNOmg/L0.0010.0010.001Toluene<0.000500	QC Batch: 52657 Prep Batch: 45139		Date Ana QC Prepa	lyzed: aration:	2008-09-24 2008-09-24			Analyzed Prepared	l By: AR By: AR	
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Benzene $< 0.000300$ mg/L $0.001$ Toluene $< 0.000700$ mg/L $0.001$ Ethylbenzene $< 0.000700$ mg/L $0.001$ Xylene $< 0.00180$ mg/L $0.001$ Surrogate       Flag       Result       Units       Dilution       Amount       Recovery       Limits         Trifluorotoluene (TFT) $0.0882$ mg/L       1 $0.100$ 88       44.6 - 137.4         4-Bromofluorobenzene (4-BFB) $0.0886$ mg/L       1 $0.100$ 89 $37.1 - 130.9$ Laboratory Control Spike (LCS-1)       QC Batch: $52657$ Date Analyzed: $2008-09-24$ Analyzed By: AR         Prep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By: AR         LCS       Spike       Matrix       Rec.         Param       Result       Units       Dil.       Amount       Result       Rec.         Chloride       11.8       mg/L       1       12.5 $<0.172$ 94 $90 - 110$	Parameter	Flag		I	Result		Units			
Former         Spike         Percent         Recovery           Surrogate         Flag         Result         Units         Dilution         Amount         Recovery         Limits           Trifluorotoluene (TFT)         0.0882         mg/L         1         0.100         88         44.6 - 137.4           4-Bromofluorobenzene (4-BFB)         0.0886         mg/L         1         0.100         89         37.1 - 130.9           Laboratory Control Spike (LCS-1)         Date Analyzed:         2008-09-24         Analyzed By:         AR           Prep Batch:         52657         Date Analyzed:         2008-09-24         Prepared By:         AR           Param         LCS         Spike         Matrix         Rec.         Limit           Chloride         11.8         mg/L         1         12.5         <0.172	Denzene Toluene			<0.0	00200 00700		mg/L mg/L		0.001	
Xylene<0.00180 $mg/L$ 0.001SurrogateFlagResultUnitsDilutionAmountRecoveryLimitsTrifluorotoluene (TFT)0.0882 $mg/L$ 10.1008844.6 - 137.44-Bromofluorobenzene (4-BFB)0.0886 $mg/L$ 10.1008937.1 - 130.9Laboratory Control Spike (LCS-1)QC Batch:52657Date Analyzed:2008-09-24Analyzed By:ARPrep Batch:45139QC Preparation:2008-09-24Prepared By:ARChoride11.8mg/L112.5<0.172	Ethylbenzene	· .		<0.0	00700		mg/L		0.001	
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4-Bromofluorobenzene (4-BFB) $0.0886$ $mg/L$ 1 $0.100$ 89 $37.1 - 130.9$ Laboratory Control Spike (LCS-1)QC Batch: $52657$ Date Analyzed: $2008-09-24$ Analyzed By:ARPrep Batch: $45139$ QC Preparation: $2008-09-24$ Prepared By:ARLCSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.Chloride11.8mg/L112.5<0.172	Trifluorotoluene (TFT)		0.0882	mg/L	1	0.10	0	88	44.6 - 137.4	
Laboratory Control Spike (LCS-1)QC Batch:52657Date Analyzed:2008-09-24Analyzed By:ARPrep Batch:45139QC Preparation:2008-09-24Prepared By:ARLCSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.Chloride11.8mg/L112.5<0.172	4-Bromofluorobenzene (4-B	FB)	0.0886	mg/L	1	0.10	00	89	37.1 - 130.9	
LCSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.LimitChloride11.8mg/L112.5<0.172	Laboratory Control Spi QC Batch: 52657 Prep Batch: 45139	ke (LCS-1)	Date Ana QC Prep	alyzed: aration:	2008-09-2 2008-09-2	4		Analyze Prepared	d By: AR d By: AR	
ParamResultUnitsDil.AmountResultRec.LimitChloride11.8mg/L112.5<0.172		·	ĊS			Spike	Matrix		Rec.	
Chloride         11.8         mg/L         1         12.5         <0.172         94         90 - 110	Param	Re	esult I	Units	Dil.	Amount	Result	Rec.	Limit	
	Chloride	1	1.8 r	ng/L	1	12.5	<0.172	94	90 - 110	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: September 26, 2008 115-6401786			Work OXY/E	Order:	80923 A & B	18 TB			Page I	Number: Lea Coun	7 of 9 ty, TX
Param	LCSD Result	Unite	Dil	Spike A mou	e '	Matrix	Rec	F	lec.	RPD	RPD Limit
Chloride	11.4	mg/I	$\frac{1}{1}$	12.5		<0.172	91	90	- 110	3	1/11110
Percent recovery is based on the sp	ike result.	RPD is	s based on	the spil	ce and	spike d	uplicat	e result			- <u></u>
Laboratory Control Spike (LC:	8-1)										
OC Batch: 52712		Date (	analyzed.	2008-	00-24				Anal	wzed By	DC
Prep Batch: 45164		QC Pi	eparation	: 2008-	09-24				Prep	ared By:	DC
i i i i i i i i i i i i i i i i i i i			- <b>F</b>						• P		20
	LCS				Spil	ke	Mat	rix		, R	.ec.
Param	Resul	lt 1	Units	Dil.	Amo	unt	Res	ult	Rec.	Li	mit
Benzene	0.10	2 1	ng/L	1	0.10	00	< 0.00	0500	102	71.7	- 120.5
Toluene	$0.10^{\circ}$	<b>4</b> 1	mg/L	1	0.10	00	< 0.00	0700	104	75.4	- 118.8
Ethylbenzene	0.10	3 1	mg/L	1	0.10	00	< 0.00	0700	103	73.5	- 118
Xylene	0.31	3 1	mg/L	<u> </u>	0.30	00	_<0.0	0180	104	72.9	- 118.2
Percent recovery is based on the sp	ike result.	RPD i	s based or	n the spil	ke and	l spike d	luplicat	te result			
	LCSD			Spike	M	$\operatorname{atrix}$		F	lec.		RPD
Param	Result	Units	Dil. A	Amount	R	esult	Rec.	$\mathbf{L}$	imit	RPD	Limi
Benzene	0.104	mg/L	1	0.100	<0.	000500	104	71.7	- 120.5	2	20
Toluene	0.106	mg/L	1	0.100	<0.	000700	106	75.4	- 118.8	2	20
Ethylbenzene Valene	0.104	mg/L	1	0.100	<0.	000700	104	73.5	1100	1	20
Deposit recovery is based on the on	0.317			0.300	<u>&lt;0</u>	.00100	100	12.9	- 110.2	I	20
Fercent recovery is based on the sp	ike result.	RPD 1	s based of	n the spi	ke and	i spike o	luplica	te result			
	LCS	S I	LCSD			Spi	ke .	LCS	LCSD	F	lec.
Surrogate	Resu	lt F	lesult	Units	Dil.	Amo	unt	Rec.	Rec.	L	imit
	0.093	12 0	.0958	mg/L	1	0.1	00	91	96	38.2	- 131.6
Triffuorotoluene (TFT)	0.001				- E	0.1	00	96	100	43.9	- 132.4
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	0.09	57 0	.0998	mg/L							
Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	0.09	57 0	.0998	mg/L							
Initiaorotoluene (IFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)	0.098 Sample: 1	57 0 74436	.0998	mg/L	1						
Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked OC Batch: 52657	0.098 Sample: 1	57 0 74436 Date	Analyzed:	mg/L 2008-	-09-24				Ana	lvzed Bv	: AR
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)         Spiked         QC Batch:       52657         Prep Batch:       45139	0.098 Sample: 1	57 0 74436 Date QC P	Analyzed: reparation	2008- 1: 2008-	-09-24				Ana Prep	lyzed By bared By	: AR : AR
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)         Spiked         QC Batch:       52657         Prep Batch:       45139	0.098 Sample: 1	57 0 74436 Date QC P	Analyzed: reparation	2008- 1: 2008-	-09-24 -09-24				Ana Prep	lyzed By bared By	: AR : AR
Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked QC Batch: 52657 Prep Batch: 45139	0.09 Sample: 1	57 0 74436 Date QC P 1S	Analyzed: reparation	2008 n: 2008	-09-24 -09-24	Spike		Matrix	Ana Prep	lyzed By bared By	: AR : AR Rec.
Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked QC Batch: 52657 Prep Batch: 45139 Param	0.09 Sample: 1	57 0 74436 Date QC P IS sult	Analyzed: reparation Units	2008- n: 2008- Dil.	-09-24 -09-24	Spike	t	Matrix Result	Anai Prep Re	lyzed By pared By c.	: AR : AR Rec. Limit
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)       Spiked         QC Batch:       52657         Prep Batch:       45139         Param       Chloride	0.09 Sample: 1 M Re: 2	57 0 74436 Date QC P IS sult 74	Analyzed: reparation Units mg/L	2008 n: 2008 Dil.	-09-24	Spike Amount 62.5	t	Matrix Result 211	Ana Prep Re 10	lyzed By bared By c. 1	: AR : AR Rec. <u>Limit</u> 0 - 110
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)         Spiked         QC Batch:       52657         Prep Batch:       45139         Param         Chloride         Percent recovery is based on the spi	0.09 Sample: 1 N Re: 2' Dike result.	57 0 74436 Date QC P 1S sult 74 RPD	Analyzed: reparation Units mg/L is based o	2008 n: 2008 Dil. 5 n the spi	-09-24 -09-24	Spike Amount 62.5 1 spike o	tuplica	Matrix Result 211 te resul	Ana Prep Re 10 t.	lyzed By bared By c. 1 9	: AR : AR Rec. Limit 0 - 110
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)         Spiked         QC Batch:       52657         Prep Batch:       45139         Param         Chloride         Percent recovery is based on the spinor	0.09 Sample: 1 N Re: 2 Dike result.	57 0 74436 Date QC P 1S sult 74 RPD	Analyzed: reparation <u>Units</u> <u>mg/L</u> is based o	2008- n: 2008- Dil. 5 n the spi	-09-24 -09-24 -09-24	Spike Amount 62.5 I spike o	łuplica	Matrix Result 211 te resul	Ana Prep Re 10 t.	lyzed By bared By c. <u>1                                    </u>	: AR : AR Rec. <u>Limit</u> 0 - 110
Triffuorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Matrix Spike (MS-1)         Spiked         QC Batch:       52657         Prep Batch:       45139         Param         Chloride         Percent recovery is based on the sp         Param	0.09 Sample: 1 M Re: 2 Dike result. MSD Result	57 0 74436 Date QC P IS sult 74 RPD	Analyzed: reparation Units mg/L is based o	2008- n: 2008- Dil. 5 n the spi Amor	-09-24 -09-24 dike and ke and	Spike Amount 62.5 I spike o Matrix Besult	tuplica	Matrix Result 211 te resul	Ana Prep Re 10 t. Rec.	lyzed By pared By c. <u>1 9</u> RPD	AR AR Rec. Limit 0 - 110 RPI

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Report Date: September 26, 2008	Work Order: 8092318	Page Number: 8 of 9
115-6401786	OXY/E.C. Hill A & B TB	Lea County, TX

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Matrix Spike (MS-1) Spiked Sample: 174136

QC Batch:	52712	Date Analyzed:	2008-09-24	Analyzed By:	DC
Prep Batch:	45164	QC Preparation:	2008-09-23	Prepared By:	DC

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	20.8	mg/L	50	5.00	15.4129	108	10 - 160.8
Toluene	12.5	mg/L	50	5.00	7.2486	105	10 - 160.7
Ethylbenzene	5.88	mg/L	50	5.00	0.9752	98	10 - 158.3
Xylene	17.2	mg/L	50	15.0	2.5159	98	10 - 158

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	20.2	mg/L	50	5.00	15.4129	96	10 - 160.8	3	-20
Toluene	12.2	mg/L	50	5.00	7.2486	99	10 - 160.7	2	20
Ethylbenzene	5.84	mg/L	50	5.00	0.9752	97	10 - 158.3	1	20
Xylene	17.0	mg/L	50	15.0	2.5159	96	10 - 158	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

· ·		MS	MSD			Spike	MS	MSD	Rec.
Surrogate	•.	$\mathbf{Result}$	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		4.59	4.44	mg/L	50	5	92	89	33.1 - 132.5
4-Bromofluorobenzene (4-BFB)		4.90	4.68	mg/L	50	5	98	94	37.5 - 136

#### Standard (ICV-1)

QC Batch:	QC Batch: 52657		Date Ana	alyzed: 2008-0	Analyzed By: AR		
			ICVs	ICVs	، ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2008-09-24

#### Standard (CCV-1)

QC Batch: 52657			Date Ana	lyzed: 2008-0	Analyzed By: AR		
	•		CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2008-09-24

Report Date: S 115-6401786			OXY/E.C. Hill A & B TB			Lea County, TX			
Standard (ICV-1)									
QC Batch: 52	712		Date Analyzed: 2008-09-24			Analyzed By: DC			
			ICVs	ICVs	ICVs	Percent	• .		
			True	Found	Percent	Recovery	Date		
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene	······	mg/L	0.100	0.104	104	85 - 115	2008-09-24		
Toluene		mg/L	0.100	0.106	106	85 - 115	2008-09-24		
Ethylbenzene		mg/L	0.100	0.0998	100	85 - 115	2008-09-24		
Xylene		mg/L	0.300	0.306	102	85 - 115	2008-09-24		
Standard (CC	CV-1)								
QC Batch: 52	712		Date Analy	zed: 2008-09-	24	Analy	yzed By: DC		
			CCVs	CCVs	CCVs	Percent			
			True	Found	Percent	Recovery	Date		
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene		. mg/L	0.100	0.107	107	85 - 115	2008-09-24		
Toluene		mg/L	0.100	0.0900	90	85 - 115	2008-09-24		
Ethylbenzene		mg/L	0.100	0.0889	89	85 - 115	2008-09-24		
Xylene		mg/L	0.300	0.271	90	85 - 115	2008-09-24		

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Analysis Request of Chain of Custody Record TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946 CLIENT NAME: OXY SITE MANAGER: Tkc Taug K2 PRESERVATIVE METHOD	nuuto (EXT. 10 C33) a Cd Cr Pb Hg Se a Cd Vr Bri Hg Sa	(Cin	ANALYSIS RE cle or Specify I	QU2 Viethod I	OF:	
TETRATECH     1910 N. Big Spring St.       Midland, Texas 79705       (432) 682-4559 • Fax (432) 682-3946	a Cd Cr Pb Hg Se			Vietnod I		
CLIENT NAME: OXY SITE MANAGER: IKC TAUGICZ PRESERVATIVE METHOD		< 1 I I			TDS	
			60/624		ns, pH,	
PROJECT NO .: PROJECT NAME: 115-6401786 0XY/E.C.H.II AHB TB	NUU.	es Volatiles	8240/82 1. Vol. 8 608	2 g	Air) tos) s/Catio	
LAB I.D. NUMBER DATE TIME TIME LEW COUNTY, TX NUMBER DATE TIME LEW COUNTY, TX NUMBER DATE TIME LEW COUNTY, TX SAMPLE IDENTIFICATION SAMPLE IDENTIFICATION	PAH 8270 PAH 8270 PCPA Metal	TCLP Volatil	RCI GC.MS Vol. GC.MS Sem PCB's 8080	Chlorida Gamma Spe	Alpha Beta ( PLM (Asbes Major Anton	
743959122108 11:15 W X MW-2 4 X X				X		
396 9/22/08 11:10 W X MW-4 4 X X X				X		
397 4/22/08/11:05 W X MW -5 4 X X				X		
			<i>π</i> · · · · · · · · · · · · · · · · · · ·			
ELINQUISHED BY: (Signature)     Date:     7.2.3.0 h     RecEiveD BY: (Signature)     Date:     7.2.3.0 h       Time:     19.1 h     19.1 h     19.1 h     19.1 h     19.1 h       ELINQUISHED BY: (Signature)     Date:     19.1 h     19.1 h     19.1 h       Time:     19.1 h     19.1 h     19.1 h     19.1 h       Time:     19.1 h     19.1 h     19.1 h     19.1 h	SAMPLED	SHIPPED B	8. Initial) ( <u>see rul d' (li 11</u> IY: (Circie) BUS	<u>i)  0</u> A	Date:	<u>1122)07</u> [:15
ELINQUISHED BY: (Signature)         Date:         Date:         Date:           Time:         Time:         Time:         Time:	TETRA TE	CH CONTA	O UPS		Results t	by:
LCEVING LABORATORY:     ICALL     RECEIVED BY: (Signature)       DORESS:     midlight     STATE:     T X       DORESC:     PHONE:     DATE:     TIME:	Rue	Tarl	ler		RUSH Ci Authoriz Yes	harges ed: No
AMPLE CONDITION WHEN RECEIVED: REMARKS: All tests midland						

Please fill out all copies - Laboratory

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## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



#### **Environmental Division**

12-Dec-08

Tim Reed Tetra Tech 1910 N. Big Spring St Midland, TX 79705

Tel: (432) 682-4559 Fax:

Re: Glenn Springs Hill E.C. ABC TB

Work Order : 0812131

Dear Tim,

ALS Laboratory Group received 4 samples on 12/5/2008 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terroll

Electronically approved by: Glenda H. Ramor Lora Terrill VP Lab Operations



Certificate No: T104704231-08-TX

#### ALS Group USA, Corp. Part of the ALS Laboratory Group

10450 Stancliff Rd, Suite 210 Houston, Texas.77099-4338 Phone: (281) 530-5656 Fax: (281) 530-5887 www.alsglobal.com www.elabi.com A Campbell Bröthers Limited Company
0812131-04 Trip Blank

٢,

Date: 12-Dec-08

 $\Box$ 

12/5/2008 09:20

12/5/2008 09:20

12/5/2008 09:20

12/4/2008 11:00

Client: Project: Work Order:	Tetra Tech Glenn Springs Hill 0812131	E.C. ABC TB			Work Order S	ample Sumn	nary
Lab Samp ID	<u>Client Sample ID</u>		<u>Matrix</u>	Tag Number	<b>Collection Date</b>	Date Received	<u>Hold</u>
0812131-01 N	4W-2		Water		12/4/2008 11:30	12/5/2008 09:20	

<u>Lab Samp ID</u>	Client Sample ID	<u>Matrix</u>	<u>Tag Number</u>	<b>Collection Date</b>
0812131-01	MW-2	Water		12/4/2008 11:30
0812131-02	MW-4	Water		12/4/2008 10:15
0812131-03	MW-5	Water		12/4/2008 11:00

Water

SS Page 1 of 1

Date: 12-Dec-08

Client:	Tetra Tech		
Project:	Glenn Springs Hill E.C. ABC TB	Work Order:	0812131
Sample ID:	MW-2	Lab ID:	0812131-01
Collection Date:	12/4/2008 11:30 AM	Matrix:	WATER

Result	Qual	MDL	Réport Limit	Units	Dilution Factor	Date Analyzed
	Meth	od: SW8260				Analyst: PA
U		0.50	5.0	µg/L	1	12/8/2008
U		0.50	5.0	µg/L	· 1	12/8/2008
U		0.50	5.0	∶µg/L	1	12/8/2008
U		1.0	15	µg/L	1	12/8/2008
98.1			70-125	%REC	1	12/8/2008
101			72-125	%REC	1	12/8/2008
98.8			71-125	%REC	1	12/8/2008
103			75-125	%REC	1	12/8/2008
	Meth	od: <b>E300</b>				Analyst: KKP
94.5		2.00	5.00	mg/L	10	12/9/2008
91.4			85-115	%REC	10	12/9/2008
	Result U U 98.1 101 98.8 103 <b>94.5</b> 91.4	Result  Quai    Weth  U    U  U    U  U    U  U    98.1  101    98.8  103    Meth  94.5    91.4  91.4	Result  Qual  MDL    Wethod:  SW8260    U  0.50    U  1.0    98.1  103    98.8  103    103  Method:    E300  91.4	Result  Qual  MDL  Report Limit    Method: SW8260	ResultQualMDLReport LimitUnitsMethod: SW8260	Result  Qual  MDL  Limit  Units  Dilution Factor    Method:  SW8260  1  1  1  1    U  0.50  5.0  µg/L  1  1    U  1.0  15  µg/L  1  1    98.1  70-125  %REC  1  1  10  1 </td

Qualifiers:

U - Analyzed for but Not Detected

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

\* - Value exceeds Maximum Contaminant Level

a - Not accredited

- S Spike Recovery outside accepted recovery limits
- P Dual Column results RPD > 40%
- E Value above quantitation range
  - H Analyzed outside of Hold Time

n - Not offered for accreditation

AR Page 1 of 3

Date: 12-Dec-08

Tetra Tech	
Glenn Springs Hill E.C. ABC TB	Work Order: 0812131
MW-4	Lab ID: 0812131-02
12/4/2008 10:15 AM	Matrix: WATER
	Tetra Tech Glenn Springs Hill E.C. ABC TB MW-4 12/4/2008 10:15 AM

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCL VOLATILES		Meth	od: SW8260				Analyst: <b>PA</b>
Benzene	0.68	J	0.50	5.0	µg/L	1	12/8/2008
Ethylbenzene	. U		0.50	5.0	µg/L	1	12/8/2008
Toluene	U		0.50	5.0	µg/L	1	12/8/2008
Xylenes, Total	U		1.0	15	µg/L	1	12/8/2008
Surr: 1,2-Dichloroethane-d4	99.1			70-125	%REC	1	12/8/2008
Surr: 4-Bromofluorobenzene	97.0			72-125	%REC	1	12/8/2008
Surr: Dibromofluoromethane	101			71-125	%REC	1	12/8/2008
Surr: Toluene-d8	97.1			75-125	%REC	1	12/8/2008
ANIONS		Meth	nod: <b>E300</b>				Analyst: KKP
Chloride	761		20.0	50.0	mg/L	100	12/9/2008
Surr: Selenate (surr)	91.3			85-115	%REC	100	12/9/2008

Qualifiers:

U - Analyzed for but Not Detected

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank-

\* - Value exceeds Maximum Contaminant Level

a - Not accredited

S - Spike Recovery outside accepted recovery limits

P - Dual Column results RPD > 40%

E - Value above quantitation range

H - Analyzed outside of Hold Time

n - Not offered for accreditation

AR Page 2 of 3

Date: 12-Dec-08

Client:	Tetra Tech		
Project:	Glenn Springs Hill E.C. ABC TB	Work Order:	0812131
Sample ID:	MW-5	Lab ID:	0812131-03
<b>Collection Date:</b>	12/4/2008 11:00 AM	Matrix:	WATER

Analyses	Result (	Qual MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCL VOLATILES		Method: SW8260				Analyst: PA
Benzene	U	0.50	5.0	µg/L	. 1	12/8/2008
Ethylbenzene	U	0.50	5.0	μg/L	1	12/8/2008
Toluene	. U	0.50	5.0	µg/L	1	12/8/2008
Xylenes, Total	U .	1.0	15	μg/L	1	12/8/2008
Surr: 1,2-Dichloroethane-d4	102		70-125	%REC	1	· 12/8/2008
Surr: 4-Bromofluorobenzene	95.9		72-125	%REC	1	12/8/2008
Surr: Dibromofluoromethane	102		71-125	%REC	1	12/8/2008
Surr: Toluene-d8	. 104		75-125	%REC	1	12/8/2008
ANIONS		Method: E300				Analyst: KKP
Chloride	124	2.00	5.00	mg/L	10	12/9/2008
Surr: Selenate (surr)	95.4		85-115	%REC	10	12/9/2008

Qualifiers:

U - Analyzed for but Not Detected

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

\* - Value exceeds Maximum Contaminant Level

a - Not accredited

S - Spike Recovery outside accepted recovery limits

P - Dual Column results RPD > 40%

E - Value above quantitation range

H - Analyzed outside of Hold Time

n - Not offered for accreditation

AR Page 3 of 3

#### Date: 12-Dec-08

**QC BATCH REPORT** 

**Client:** Tetra Tech Work Order: 0812131 Glenn Springs Hill E.C. ABC TB **Project:** 

Batch ID: <b>R70986</b>	Instrumen		Metho	d: SW826	0					•	
MBLK Sample I	D: VBLKW-120	1808-R70986				Units: µg/I		Analysis Date: 12/8/2008 11:2			11:20 AM
Client ID:		Run IE	): <b>VOA1_</b> (	081208A		SeqNo: 155	5178	Prep Date:		DF: <b>1</b>	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene		U	5.0								
Ethylbenzene		U	5.0								
Toluene		U	5.0								
Xylenes, Total		U	15							•	
Surr: 1,2-Dichloroeth	ane-d4	46.82	5.0	50		0 93.6	70-125		0		
Surr: 4-Bromofluorol	penzene	49.69	5.0	50		0 99.4	72-125		0		
Surr: Dibromofluoror	nethane	48.18	5.0	50		0 96.4	71-125		0		
Surr: Toluene-d8		48.78	5.0	50		0 97.6	75-125		0		
LCS Sample	D: VLCSW-12	0808-R70986				Units: µg/	L	Analy	ysis Date: 1	2/8/2008	10:29 AM
Client ID:		Run II	D: VÓA1_	081208A		SeqNo: 155	5177	Prep Date:		DF: 1	•
				•			Control			RPD	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.9	5.0	50	0	95.8	73-121	(	c		
Ethylbenzene	46.19	5.0	50	0	92.4	80-120	(	C		
Toluene	48.32	5.0	50	0	96.6	80-120	(	0		
Xylenes, Total	144.6	15	150	0	96.4	80-120		00		
Surr: 1,2-Dichloroethane-d4	48.57	5.0	50	0	97.1	70-125		0		
Surr: 4-Bromofluorobenzene	49.13	5.0	50	0	98.3	72-125		0		
Surr: Dibromofluoromethane	50.57	5.0	50	0	101	71-125		0		
Surr: Toluene-d8	50.02	5.0	50	0	. 100	75-125		0		

MS Sample ID: 08121	24-03AMS				Units: µg/L	-	Analy	sis Date: 1	2/8/2008	03:59 PM
Client ID:	Run ID	: VOA1_0	081208A	· S	eqNo: <b>155</b>	5180	Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	50.77	5.0	50	0	102	73-121		0		
Ethylbenzene	49.51	5.0	50	0	99	80-120	N,	o 2		
Toluene	48.98	5.0	50	0	98	80-120		0.		
Xylenes, Total	138.7	15	150	0	92.5	80-120		0		
Surr: 1,2-Dichloroethane-d4	50.99	5.0	50	0	102	70-125		0		
Surr: 4-Bromofluorobenzene	50.84	5.0	50	. 0	102	72-125		0		
Surr: Dibromofluoromethane	51.07	5.0	50	0	102	71-125		0		
Surr: Toluene-d8	52.38	5.0	50	0	105	75-125		0		

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

B - Analyte detected in assoc. Method Blank

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

R - RPD outside accepted recovery limits

U - Analyzed for but not detected

E - Value above quantitation range

QC Page: 1 of 3

.

P - Dual Column results percent difference > 40%

# Client:Tetra TechWork Order:0812131

### **QC BATCH REPORT**

Project: Glenn Springs Hill E.C. ABC TB

Batch ID: <b>R70986</b>	Instrument ID V	OA1		Metho	d: SW826	0						
MSD Sample	ID: 0812124-03AMSC	)	. Ur			Inits: µg/L		Analysi	ysis Date: 12/8/2008 04:25 PM			
Client ID:		Run ID	: VOA1_(	081208A	SeqNo: 1555181			5181 F	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene		46.59	5.0	50		0	93.2	73-121	50.77	8.59	20	
Ethylbenzene		47.49	5.0	50		0	95	80-120	49.51	4.15	20	
Toluene		48.28	5.0	50		0	-96.6	80-120	48.98	1.42	20	
Xylenes, Total	•	142.5	15	150		0	95	80-120	138.7	2.66	20	
Surr: 1,2-Dichloroel	hane-d4	48.46	5.0	50		0	96.9	70-125	50.99	5.1	20	
Surr: 4-Bromofluoro	benzene	48.33	5.0	50		0	96.7	72-125	50.84	5.06	20	
Surr: Dibromofluoro	methane	49.2	5.0	50		0	:98.4	71-125	51.07	3.73	20	
Surr: Toluene-d8		50.64	5.0	50		0	101	75-125	52.38	3.37	20	
The following sample	es were analyzed in t	this batch:	0	312131-01A	08	121	31-02A	081	2131-03A			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

QC Page: 2 of 3

# Client:Tetra TechWork Order:0812131

### **QC BATCH REPORT**

Project: Glenn Springs Hill E.C. ABC TB

Batch ID: R	70992	Instrument ID ICS	3000		Method	E300										
MBLK	Sample ID:	WBLKW1-120808-F	70992				υ	nits: <b>mg/l</b>		Analysis Date: 12/9/2008 06:50 AN						
Client ID:			Run ID	: ICS3000	0_081208A		Sec	qNo: <b>1555</b>	5359	Prep Date:			DF: 1			
Analyte		R	esult	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%	RPD	RPD Limit	Qual		
Chloride Surr: Sel	lenate (surr)		U 1.709	0.50 0.10	5		0	94.2	85-115		0					
LCS	Sample ID:	WLCSW1-120808-F	70992		· · · · · ·		U	Inits: mg/	L.	Ала	lysis D	ate: 12	2/8/2008 1	2:06 PM		
Client ID:			Run ID	: ICS3000	0_081208A		Se	qNo: <b>155</b>	5333	Prep Date:			DF: 1			
Analyte		R	esult	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%	RPD	RPD Limit	Qual		
Chloride Surr: Sel	lenate (surr)	1	9.92 4.826	0.50 0.10	20 5		0 0	99.6 96.5	90-110 <i>85-115</i>		0			·		
MS	Sample ID:	0812092-01BMS					ι	Jnits: mg/	L	Ana	lysis D	)ate: 12	2/8/2008 0	8:55 PM		
Client ID:			Run ID	: ICS300	0_081208A		Se	qNo: <b>155</b>	5338	Prep Date:			DF. 1			
Analyte		R	esult	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%	RPD	RPD Limit	Qual		
Chloride	1		56.9	0.50	10	48.	65	82.5	80-120		0			EO		
	ienate (surr)		+.420	0.10	5		0	00.0	80-115		<u> </u>					
DUP	Sample ID:	0812092-01BDUP					ι	Jnits: mg/	'L.	Ana	alysis E	Date: 12	2/8/2008 (	8:32 PM		
Client ID:			Run ID	): ICS300	0_081208A		Se	qNo: <b>155</b>	5337	Prep Date:			DF: 1			
Analyte		R	lesult	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%	6RPD	RPD Limit	Qual		
Chloride			49.43	0.50	0		0	0	0-0	48	.65	1.59	20			
Surr: Se	lenate (surr)		4.497	0.10	5		0	89.9	85-115	4.4	439	1.3	20			
The follow	ving samples	were analyzed in th	is batch:	08	312131-01B	08	8121	31-02B	08	12131-03B						

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

O - Referenced analyte value is > 4 times amount spiked

P - Dual Column results percent difference > 40%

QC Page: 3 of 3

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Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group. 2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

Copyright 2008 by ALS Laboratory Group.

#### Sample Receipt Checklist

Client Name: TETRA TECH MIDLAND		Dale/Tir	ne Received: <u>12/5/200</u>	18 09:20
Work Order Number 0812131		Receive	ed by: <u>ADM</u>	
Checklist completed by Hanth . A	12 5/68 Date	Review	ed by IT .	12/81-38 Date
Matrix: waters	Carrier name: <u>FedEx</u>			
Shipping container/cooler in good condition?	Yes 🗸	No	Not Present	
Custody seals intact on shipping container/cooled	r? Yes 🗸	No	Not Present	
Custody seals intact on sample bottles?	Yes	No	Not Present 🗸	
Chain of custody present?	Yes 🗸	No		
Chain of cuslody signed when relinquished and r	received? Yes 🗸	No		
Chain of custody agrees with sample labels?	Yes 🗸	No		•
Samples in proper container/bottle?	Yes 🗸	No.		
Sample containers intact?	Yes .	No		
Sufficient sample volume for indicated test?	Yes	S No		
All samples received within holding time?	Yes 🖌	No		
Container/Temp Blank temperature in compliance	ce? Yes 🗸	/ No		
Temperature(s)/Thermometer(s):	<u>2.3c</u>	<u>002</u>		
Cooler(s)/Kil(s):				
Water - VOA vials have zero headspace?	Yes ¥	No . :	No VOA vials submitted	I
Water - pH acceptable upon receipt?	Yes v	No	N/A	
	Adjusted?	Checked by		
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Corrective Action

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CONESTOGA-ROVERS & ASSOCIATES

**9033 Meridian Way, West Chester, Ohio 45069 Telephone: (513) 942-4750** Fax: (513) 942-8585 www.CRAworld.com

### MEMORANDUM

То:	Tim Reed (Timothy.Reed@TetraTech.com)	Ref. No.:	55628 [55628DM-95]
FROM:	Deborah Brennan/bjw/1-NF DB/Lipi	DATE:	July 15, 2009
CC:	Angela Bown	<u>E-Mail and H</u>	ard Copy if Requested
RE:	Analytical Results and QA/QC Review Quarterly Groundwater Monitoring Program PXP-Hill, E.C. ABC TB Site Lea County, New Mexico June 2009		

#### INTRODUCTION

Groundwater samples were collected in June 2009 in support of the Quarterly Groundwater Monitoring Program at the PXP-Hill, E.C. ABC TB Site. Accutest Laboratories (Accutest) in Houston, Texas and Dayton, New Jersey analyzed the samples for the following:

#### Parameter

Methodology

Select Volatile Organic Compounds (VOCs) Chloride

SW-846 8260B1 EPA 3002

A field key is presented in Table 1. The analytical results are summarized in Table 2. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October 1999, and the "National Functional Guidelines for Inorganic Data Review," February 1994.

Data assessment was based on information obtained from the Chain of Custody form, finished data sheets, blank data, surrogate recoveries, and blank spike recoveries. A copy of the Chain of Custody is attached.

#### QA/QC REVIEW

2

All samples were prepared and analyzed within the method required holding times.

<sup>1</sup> "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and subsequent revisions.

"Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER



#### **CRA** MEMORANDUM

Surrogate compounds were added to all samples, blanks, and QC samples prior to VOC analysis. All surrogate recoveries were acceptable, demonstrating good analytical accuracy.

Method blanks were analyzed for all parameters. Target compounds were not detected in the method blanks indicating that contamination was not an issue for this event.

Blank spike (BS) samples were prepared and analyzed for all parameters. The BS analyses demonstrated acceptable analytical accuracy.

One field duplicate sample set was submitted for analysis. The data indicate that an adequate level of precision was achieved for the sampling event.

One trip blank was submitted for analysis. Target compounds were not detected in the trip blank indicating that contamination was not an issue for this event.

#### CONCLUSION

Based on the preceding assessment, the data were acceptable for use without qualifications.

#### Page 1 of 1

#### . TABLE 1

#### SAMPLE COLLECTION AND ANALYSIS SUMMARY QUARTERLY GROUNDWATER MONITORING PXP-HILL, E.C. ABC TB LEA COUNTY, NEW MEXICO JUNE 2009

Sample I.D. MW-2 MW-4 MW-5		•	<u>Analysis/F</u>	<u>aram</u>	eters
Sample I.D.	Collection Date (mm/dd/yy)	Collection Time (hr:min)	VOCs (BTEX)	Chloride	
MW-2	06/22/09	13:05	х	Х	
MW-4	06/22/09	13:35	Х	Х	
MW-5	06/22/09	14:30	Х	Х	
Dup	06/22/09	-	Х	Х	
Trip Blank	06/22/09	-	Х		

#### Comments

Field Duplicate for MW-5

#### Notes:

BTEXBenzene, Toluene, Ethylbenzene and Xylene.VOCsVolatile Organic Compounds.

CRA 055628Memo-1-Tbls

#### TABLE 2

#### ANALYTICAL RESULTS SUMMARY QUARTERLY GROUNDWATER MONITORING PXP-HILL, E.C. ABC TB LEA COUNTY, NEW MEXICO JUNE 2009

	Sample Location: Sample ID: Sample Date:	MW-2 MW-2 6/22/2009	MW-4 MW-4 6/22/2009	MW-5 MW-5 6/22/2009	MW-5 DUP 6/22/2009 (Duulicate)
Parameters	Units				(Dupneau)
Volatile Organic Compounds -	BTEX				
Benzene	μg/L	1.0 U	0.51 J	1.0 U	1.0 U
Ethylbenzene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Xylene (total)	μg/L	3.0 U	3.0 U	3.0 U	3.0 U
General Chemistry			-		
Chloride	mg/L	89.2	717	82.6	92.2

#### Notes:

J - Estimated concentration.

U - Not present at or above the associated value.

055628Memo-1-Tbls 07/14/2009

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