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Alameda County Environmental Health

## SECOND QUARTER 2007 GROUNDWATER MONITORING

ABE Petroleum LLC 17715 Mission Boulevard Hayward, California 94539

> Prepared for Mr. Paul Garg ABE Petroleum LLC

Prepared by Sierra Environmental, Inc.

June 22, 2007 Project 03-103.07 June 22, 2007 Project 03-103.02

Mr. Paul Garg ABE Petroleum LLC 33090 Mission Boulevard Union City, California 94587

Subject: Report for Second Quarter 2007 Groundwater Monitoring, ABE

Petroleum LLC, 17715 Mission Boulevard, Hayward, California

#### Dear Mr. Garg:

Sierra Environmental, Inc. (Sierra) is pleased to present this report summarizing the results for the second quarter 2007 groundwater monitoring at the subject location, hereafter, referred to as Site. Figure 1 shows the Site location. The groundwater monitoring was concurred by Alameda County Health Care Services (ACHCS) in a letter dated February 16, 2000, as result of gasoline impact to groundwater beneath the Site.

On June 6, 2007, Sierra obtained and recorded groundwater data, and collected groundwater samples from five (5) groundwater monitoring wells at and near the Site for chemical analysis. Sierra submitted the samples to Entech Analytical Labs, Inc. (Entech) of Santa Clara, California for chemical analysis. Entech is an independent State-certified analytical laboratory (# 2346).

#### **BACKGROUND**

Please refer to Appendix A for Site's background information.

#### **GROUNDWATER MONITORING**

On June 6, 2007, Sierra performed the second quarter 2007 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1, MW2, MW3, MW6, and MW7 (Figure 2) using an electronic sounder. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 18.47' to 22.33' feet below TOC with a westerly flow direction during this monitoring event. Table I presents the groundwater measurement data.

MW4 and MW5 were inaccessible due to route 238 expansion construction project.

Sierra's field personnel purged the wells using bailers. pH, temperature, and electrical conductivity of groundwater were recorded during the purging activities to affirm that groundwater in the wells have stabilized. After completion of the purging, groundwater samples MW-1, MW-2, MW-3, MW-6, and MW-7 were collected from the wells. After collection, the groundwater from each well was transferred into clean volatile organic analysis vials. The vials were sealed with Teflon-septum screw caps, labeled, placed on ice in a cooler, and delivered to Entech with chain-of-custody documentation.

All sampling and measurement equipment were washed with Liqui-Nox® (a phosphate free laboratory detergent), and rinsed with tap water at each measurement and sampling interval. Purged and wash water was stored in 55-gallon drums at a designated location at the Site. Sierra's quality assurance/quality control (QA/QC) protocol is presented in Appendix B.

#### **CHEMICAL ANALYSIS**

The samples were analyzed for TPHG using the United States Environmental Protection Agency (EPA) method GC-MS 5030B. The samples were also analyzed for benzene, toluene, ethyl benzene, total xylenes (BTEX), and fuel oxygenates using EPA method 8260B. Copies of certified analytical results and chain-of-custody documentation are presented in Appendix C. Copies of the field notes are presented in Appendix D.

#### **ANALYTICAL RESULTS**

Table II presents Summary of the analytical results.

#### CONCLUSION AND RECOMMENDATIONS

Concentration of the gasoline constituents in groundwater beneath the Site remains high. Historical information indicates that contaminated soil exists in the former tank excavation area, and is considered to be the source of the groundwater contamination. Sierra recommends performing a feasibility study and remedial action plan for the Site. Sierra also recommends continuing the quarterly groundwater monitoring at the Site.

#### LIMITATIONS

The content and conclusion provided by Sierra in this report are based on information collected during its assessment/monitoring, which include, but are not limited to field observations and analytical results for the groundwater samples collected at the Site.

Sierra assumes that the samples collected and laboratory results are reasonably representative of the whole Site, which may not be the case at unsampled areas.

This assessment/monitoring was performed in accordance with generally accepted principles and practices of environmental engineering and assessment in Northern California at the time of the work. This report presents our professional opinion based on our findings, technical knowledge, and experience working on similar projects. No warranty, either expressed or implied, is made. The conclusions presented are based on the analytical results and current regulatory requirements. We are not responsible for the impact of any changes in environmental standards or regulations in the future.

Please feel welcome to call us if you have questions.

Very Truly Yours, Sierra Environmental, Inc.

Reza Baradaran, PE, GE Registered Geotechnical Engineer

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Mitch Hajiaghai, REA II, CAC Project Manager

Attachments:

Table I - Groundwater Elevation Data

Table II - Analytical Results for Groundwater Samples

Figure 1 - Site Location Map

Figure 2 - Groundwater Monitoring Well Locations

Appendix A - Background Information

Appendix B - QA/QC Protocol

Appendix C - Certified Analytical Results and Chain-of-Custody Documentation

Appendix D - Field Notes

cc: Ms. Donna Drogos ACHCS (1 Copy)

R03-103.07\2ndQ2007GWMH06222007

TABLE I GROUNDWATER ELEVATION DATA

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to <sup>1</sup> Water (ft)	Water Table <sup>2</sup> Elevation (ft)
MW1	8-18-00	2	99.46	20.32	79.14
	3-30-01	_		20.30	79.16
	6-22-01			21.91	77.55
	9-20-01			23.56	75.90
	12-27-01			22.59	76.87
	9-24-02			23.69	75.77
	12-17-02			22.75	76.71
	4-2-03			21.15	78.31
	6-12-03			20.64	78.82
	9-29-03			22.95	76.51
	12-04-03			23.70	75.76
	03-09-04			19.80	79.66
	6-24-04			21.44	78.02
	9-09-04			23.30	76.16
	12-21-04			22.92	76.54
	3-16-05			18.99	80.47
	6-09-05			20.02	79.44
	9-22-05			20.69	78.77
	12-07-05			21.90	77.56
	3-10-06			17.85	81.61
	6-7-06		59.50	15.91	43.59
	9-11-06			18.60	40.90
	12-13-06			20.05	39.45
	3-12-07			19.47	40.03
	6-6-07			21.11	38.39

TABLE I GROUNDWATER ELEVATION DATA (CONTINUED)

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to <sup>1</sup> Water (ft)	Water Table <sup>2</sup> Elevation (ft)
MW2	8-18-00 3-30-01 6-22-01 9-20-01 12-27-01 9-24-02 12-17-02 4-2-03 6-12-03 9-29-03 12-04-03 03-09-04 6-24-04 9-09-04 12-21-04 3-16-05 6-09-05 9-22-05 12-7-05	2	100.58	21.55 21.55 23.15 24.78 23.82 24.89 23.99 22.32 21.84 24.15 24.91 21.05 22.95 24.55 24.21 20.29 21.68 21.98 23.22	79.03 79.03 77.43 75.80 76.76 75.69 76.59 78.26 78.74 76.43 75.67 79.53 77.63 76.03 76.03 76.37 80.29 78.90 78.60 77.36
	3-10-06 6-7-06 9-11-06 12-13-06 3-12-07 6-6-07		60.61	19.15 17.31 19.99 21.48 20.71 22.33	81.43 43.30 40.62 39.13 39.90 38.28

TABLE I GROUNDWATER ELEVATION DATA (CONTINUED)

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW3	8-18-00 3-30-01 6-22-01 9-20-01 12-27-01 9-24-02 12-17-02 4-2-03 6-12-03 9-29-03 12-04-03 03-09-04 6-24-04 9-09-04 12-21-04 3-16-05 6-09-05 9-22-05	(in) 2	99.69	20.68 20.68 22.31 23.92 22.95 24.03 23.09 21.46 20.99 23.30 24.05 20.20 22.11 20.20 23.35 19.43 20.47 21.13	79.01 79.01 79.01 77.38 75.77 76.74 75.66 76.60 78.23 78.70 76.39 75.64 79.49 77.58 79.49 76.34 80.26 79.22 78.56
	12-7-05 3-10-06 6-7-06 9-11-06 12-13-06 3-12-07 6-6-07		59.73	22.36 18.30 16.47 19.13 20.66 19.88 21.48	77.33 81.39 43.26 40.60 39.07 39.85 38.25

**TABLE I GROUNDWATER ELEVATION DATA** (CONTINUED)

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW4	6-7-06 9-11-06 12-13-06 3-12-07 6-6-07	2	59.29	15.71 18.40 19.64 19.13 N/A	43.58 40.89 39.65 40.16 N/A
MW5	6-7-06 9-11-06 12-13-06 3-12-07 6-6-07	2	56.31	13.35 15.99 17.45 16.68 N/A	42.96 40.32 38.86 39.63 N/A
MW6	6-7-06 9-11-06 12-13-06 3-12-07 6-6-07	2	56.63	13.64 16.25 17.72 16.95 18.47	42.99 40.38 38.91 39.68 38.16
MW7	6-7-06 9-11-06 12-13-06 3-12-07 6-6-07	2	57.50	14.50 17.12 18.58 17.81 19.32	43.00 40.38 38.92 39.69 38.18

- 1.
- Depths to groundwater were measured to the top of the well casings Water table elevations were measured in relation to mean sea level (MSL) 2.
- N/A = Not Accessible 3.

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

Sample ID	Sample Date	Sample Location	TPHG¹ μg/L	Benzene μg/L	Toluene μg/L	Ethylbenzene μg/L	Xylenes μg/L	MTBE² μg/L
MW-1	8-18-00	MW1	280,000	10,000	16,000	11,000	49,000	4,000
*	3-30-01		98,000	8,600	14,000	6,300	26,000	7,600
*	6-22-01		110,000	7,500	12,000	5,700	24,000	3,800
*	9-20-01		93,000	8,700	11,000	6,300	27,000	4,600
*	12-27-01		140,000	7,700	11,000	6,500	28,000	7,700
*	9-24-02		110,000	4,600	4,000	4,000	18,000	3,400
*	12-17-02		110,000	6,600	6,700	5,400	23,000	2,900
*	4-2-03		89,000	4,800	6,000	4,600	20,000	5,900
*	6-12-03		69,000	4,100	4,300	3,900	17,000	4,700
*	9-29-03		96,000	7,000	7,700	5,100	22,000	6,200
*	12-04-03		110,000	5,800	5,900	4,300	18,000	4,500
*	03-09-04		130,000	5,900	9,700	4,900	22,000	6,000
*	6-24-04		48,000	5,800	7,500	4,000	18,000	4,000
*	9-09-04		64,000	4,800	7,500	4,500	19,000	2,200
*	12-21-04		53,000	4,800	6,000	3,600	15,000	2,600
*	3-16-05		82,000	4,000	8,600	3,900	18,000	4,300
*	6-09-05		52,000	3,600	6,400	3,300	17,000	3,500
*	9-22-05		62,000	3,500	5,400	3,900	17,000	2,100
*	12-7-05		40,000	3,300	7,500	3,700	18,000	2,500
*	3-10-06		53,000	3,600	6,900	4,000	18,000	3,300
*	6-07-06		57,000	4,200	12,000	3,700	16,000	3,900
*	9-11-06		120,000	3,600	9,500	5,200	23,000	3,000
*	12-13-06		21,000	2,600	8,400	4,300	20,000	1,200
*	3-12-07		96,000	2,300	5,600	5,900	26,000	1,400
*	6-6-07		58,000	2,000	3,400	3,900	16,000	1,500

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG μg/L	Benzene μg/L	Toluene μg/L	Ethyl benzene μg/L	Xylenes μg/L	MTBE μg/L
MW-2	8-18-00	MW2	290,000	3700	990	7,300	26,000	ND <sup>3</sup>
*	3-30-01		47,000	3,200	470	4,500	13,000	3,100
*	6-22-01		57,000	2,500	350	4,200	12,000	1,800
*	9-20-01		42,000	2,300	230	4,300	12,000	2,200
*	12-27-01		70,000	2,900	390	4,800	14,000	2,400
*	9-24-02		110,000	1,600	200	3,400	9,100	2,500
*	12-17-02		66,000	2,400	340	4,600	13,000	1,900
*	4-2-03		29,000	1,000	130	2,300	5,100	2,000
*	6-12-03		8,700	380	52	790	2,000	2,200
*	9-29-03		52,000	1,700	200	4,500	9,800	2,300
*	12-04-03		66,000	1,500	210	4,500	9,200	1,900
*	03-09-04		61,000	1,500	2,000	4,200	8,500	2,200
*	6-24-04		29,000	1,200	72	3,100	6,000	2,100
*	9-09-04		37,000	1,600	110	4,000	8,500	3,100
*	12-21-04		27,000	1,400	84	3,100	5,400	3,200
*	3-16-05		54,000	1,700	140	4,500	8,900	4,000
*	6-09-05		2,800	420	ND₃	180	51	930
*	9-22-05		33,000	1,400	ND	3,400	5,700	2,200
*	12-7-05		20,000	1,600	130	3,400	6,000	3,000
*	3-10-06		34,000	2,100	170	4,200	7,500	4,400
*	6-07-06		29,000	2,400	250	3,600	5,100	3,200
*	9-11-06		32,000	1,100	140	2,400	3,500	1,600
*	12-13-06		36,000	1,400	220	3,400	4,900	1,900
*	3-12-07		36,000	1,200	250	3,800	5,700	1,800
*	6-6-07		24,000	1,100	170	3,000	4,200	1,400

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG μg/L	Benzene μg/L	Toluene μg/L	Ethylbenzene μg/L	Xylenes μg/L	MTBE μg/L
MW-3	8-18-00	MW3	46,000	3,200	550	3,700	14,000	2,200
*	3-30-01	WW	30,000	3,300	340	2,800	9,100	4,700
*	6-22-01		35,000	4,000	340	2,900	7,600	4,100
*	9-20-01		30,000	3,800	260	2,500	6,600	5,300
*	12-27-01		39,000	4,400	340	3,000	6,700	5,500
*	9-24-02		53,000	4,100	270	3,100	6,600	6,400
*	12-17-02		40,000	3,600	240	2,200	5,700	5,200
*	4-2-03		24,000	2,000	130	1,800	3,300	3,000
*	6-12-03		26,000	2,700	180	2,000	4,200	5,500
*	9-29-03		39,000	4,000	220	3,200	5,300	4,800
*	12-04-03		40,000	3,200	180	2,200	4,300	4,400
*	03-09-04		39,000	3,100	160	2,100	4,400	4,000
*	6-24-04		21,000	3,000	110	2,300	3,800	3,400
*	9-09-04		26,000	4,100	140	2,200	4,300	6,000
*	12-21-04		20,000	3,400	99	1,700	2,900	6,400
*	3-16-05		35,000	1,800	78	1,900	2,600	4,000
*	6-09-05		2,000	55	ND	120	30	150
*	9-22-05		17,000	2,000	69	1,500	1,900	3,500
*	12-7-05		11,000	1,800	62	1,500	1,700	2,300
*	3-10-06		9,100	1,100	24	990	810	1,300
*	6-07-06		3,000	440	16	180	450	320
*	9-11-06		17,000	1,300	38	1,000	1,600	690
*	12-13-06		13,000	1,200	ND	1,000	1,300	520
*	3-12-07		120,000	10,000	210	11,000	11,000	ND
*	6-6-07		13,000	1,200	19	1,100	1,100	590

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG μg/L	Benzene μg/L	Toluene μg/L	Ethylbenzene μg/L	Xylenes μg/L	MTBE μg/L
MW-4	6-7-06	MW4	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		NS	NS	NS	NS	NS	NS
MW-5	6-7-06	MW5	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		NS	NS	NS	NS	NS	NS
MW-6	6-7-06	MW6	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1
MW-7	6-7-06	MW7	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		27	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1

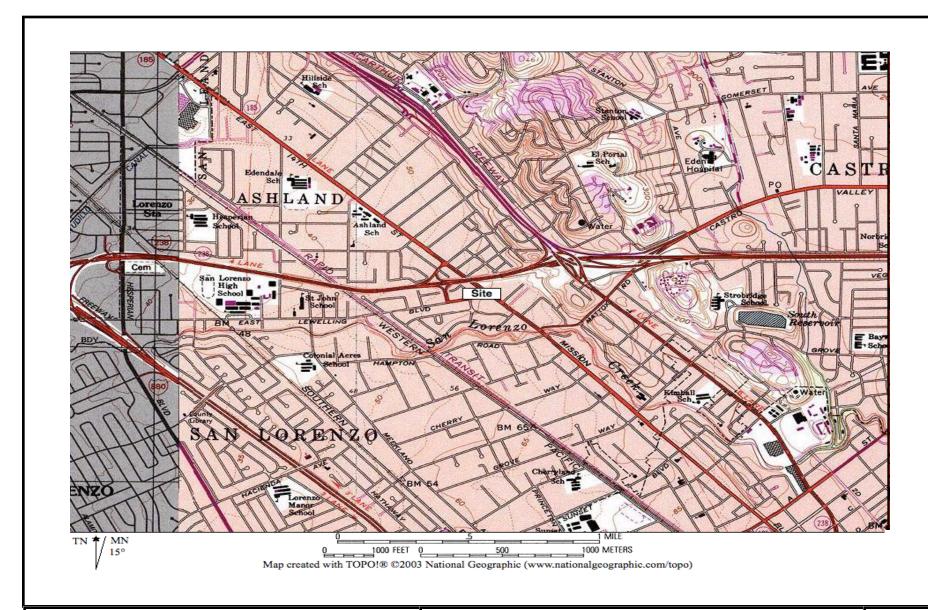
NOTE: Concentration of 1,200 μg/L of tert-Butanol (TBA) was also detected in sample MW-3.

1. TPHG = Total Petroleum Hydrocarbons as Gasoline

2. MTBE = Methyl Tertiary Butyl Ether

3. NS = Not Sampled

The Sample was analyzed for Fuel Oxygenates using EPA Method 8260B. Analytical result is for MTBE





## SIERRA ENVIRONMENTAL, INC. Environmental Consultants

980 W. Taylor Street, San Jose, CA 95126 Phone [408] 971-6758 • Fax [408] 971-6759

## SITE LOCATION MAP

Second Quarter 2007 Groundwater Monitoring Report ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

## **FIGURE**

1

June 22, 2007 Project 03-103.07

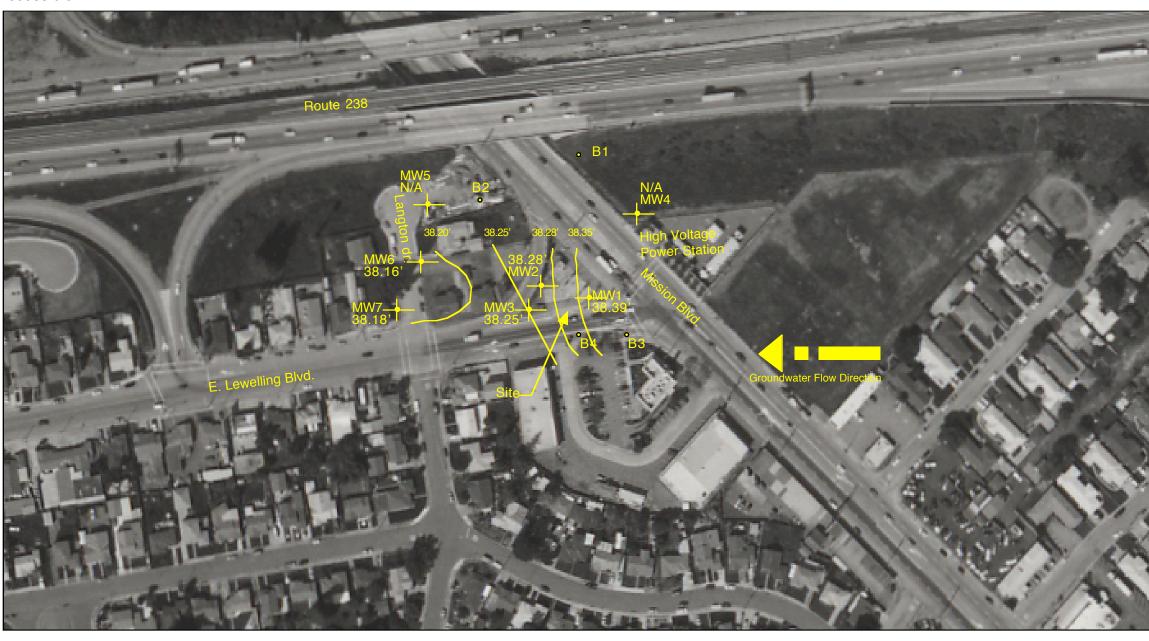
## **LEGEND**

Historical Soil Boring Location And Designation

MW4 Groundwater Monitoring Well Location And Designation

## N/A Not Accessible





Source: Pacific Aerial Surveys 3-11-05





#### SIERRA ENVIRONMENTAL, INC.

Environmental Consultants

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## On-Site & Off-Site Monitoring Well and Boring Locations

Second Quarter 2007 Groundwater Monitoring **ABE PETROLEUM LLC** 

17715 Mission Boulevard - Hayward - California

**FIGURE** 

June 22, 2007 Project 03-103.07

# Appendix A BACKGROUND INFORMATION

## **BACKGROUND**

On September 16, 1997, Balch Petroleum Contractors & Builders, Inc. (Balch) of Milpitas, California, removed one 2,000-gallon, two 6,000-gallon, one 10,000-gallon single-wall steel gasoline, and one 500-gallon single-wall steel waste oil USTs from the Site. Former UST locations are shown in Figure A of this appendix.

No hole or damage was observed in the tanks. No groundwater was encountered in the tank excavations. After UST removal, Sierra collected soil samples from the tank excavations for chemical analysis.

Up to 2,300 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHG) was detected in the soil samples collected from beneath the tanks at approximately 14 feet below ground surface (bgs). The soil sample locations are shown in Figure A.

On August 14, 2000, Sierra drilled three exploratory soil borings and converted them to groundwater monitoring well MW1 through MW3. The wells are approximately 35 feet deep. Sierra collected soil and groundwater samples from the borings/wells for chemical analysis. The analytical results showed up to 720 ppm TPHG, 2.2 ppm benzene, and 3.4 ppm methyl tertiary butyl ether (MTBE) in the soil samples. Up to 290000 ppb TPHG, 10000 ppb benzene, and 4300 ppb MTBE were detected in the groundwater samples. Gasoline constituents were detected in groundwater samples collected from all three monitoring wells. Groundwater monitoring well locations are shown on Figure 2.

On March 30, 2001, Sierra performed first quarter 2001 groundwater monitoring at the Site. The field and analytical results are presented in Table I and II. Groundwater was measured at approximately 20 to 21 feet from top of the well casing (TOC) at the Site with a northwesterly flow direction.

On June 22, 2001, Sierra performed second quarter 2001 groundwater monitoring at the Site. Groundwater levels were measured at approximately 22 to 23 feet below TOC with a northwesterly flow direction during this monitoring event.

On September 20, 2001, Sierra performed third quarter 2001 groundwater monitoring at the Site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 24 to 25 feet below TOC with a northwesterly flow direction during this monitoring event.

On December 27, 2001, Sierra performed fourth quarter 2001 groundwater monitoring at the Site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 22.59 to 23.82 feet below TOC with a northwesterly flow direction during this monitoring event.

On September 24, 2002, Sierra performed third quarter 2002 groundwater monitoring at the Site. Depth of groundwater was measured to the TOC. Groundwater levels were

measured at approximately 23.69 to 24.89 feet below TOC with a northwesterly flow direction during this monitoring event.

On December 17, 2002, Sierra performed fourth quarter 2002 groundwater monitoring at the Site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 22.75 to 23.99 feet below TOC with a northwesterly flow direction during this monitoring event.

On April 2, 2003, Sierra performed first quarter 2003 groundwater monitoring at the Site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.25 to 22.32 feet below TOC with a westerly flow direction during this monitoring event.

On June 12, 2003, Sierra performed second quarter 2003 groundwater monitoring at the site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 20.64 to 20.94 feet below TOC with a westerly flow direction during this monitoring event.

Sierra prepared soil and Groundwater investigation plan and addendum to the plan dated May 27 and September 10, 2003 respectively for the site. The Addendum to the plan dated September 10, 2003 is being reviewed by ACHCS.

On September 29, 2003, Sierra performed third quarter 2003 groundwater monitoring at the site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 22.95 to 24.15 feet below TOC with a westerly flow direction during this monitoring event.

On December 4, 2003, Sierra performed fourth quarter 2003 groundwater monitoring at the site. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 23.70 to 24.91 feet below TOC with a westerly flow direction during this monitoring event.

On March 9, 2004, Sierra performed first quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 19.80 to 20.20 feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On June 24, 2004, Sierra performed second quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.44 to 22.95 feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On September 9, 2004, Sierra performed third quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 23.30' to 24.55' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On December 21, 2004, Sierra performed fourth quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 22.92' to 24.21' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On March 16, 2005, Sierra performed first quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 18.99' to 20.29' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On June 9, 2005, Sierra performed second quarter 2005 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 20.02' to 21.68' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On September 22, 2005, Sierra performed Third quarter 2005 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 20.69' to 23.22' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On December 7, 2005, Sierra performed fourth quarter 2005 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.90' to 23.93' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On May 4, 2006, Sierra retained services of Vironex Environmental Services (Vironex) to drill soil boring B1 through B4 at the Jack In The Box and Cal/Trans properties. Sierra collected grab groundwater samples from the borings for chemical analysis. Up to 370  $\mu$ g/l total petroleum hydrocarbons as gasoline (TPHG), 16  $\mu$ g/l toluene 15  $\mu$ g/l ethylbenzene, and 100  $\mu$ g/l xylenes were detected in the water sample collected from

the borings (B3 and B4) advanced at the Jack In The Box property. No benzene or methyl tertiary butyl ether (MTBE) was detected in water samples collected at this property. Only 3.2  $\mu g/l$  MTBE was detected in the water samples collected from the borings advanced at the Cal/Trans properties. The MTBE was detected in boring B2 located within 300 feet northwest at hydraulic down gradient of the Site. On May 10 and 11, 2006, Sierra retained services of Hew Drilling Company, Inc. (Hew) to construct 4 groundwater monitoring wells (MW4 through MW7) at the CalTrans properties, and Langton Drive. After the well construction, Sierra had the wellheads surveyed, developed the wells, and collected groundwater samples from the wells for chemical analysis. No gasoline constituents were detected in the groundwater samples collected from the wells. The analytical results for the soil and groundwater samples collected from the boring and the wells suggest the tip of the dissolved MTBE plume in the groundwater is confined within 300 feet northwest of the Site. The length of the dissolved plume of other gasoline constituents in groundwater is shorter than the MTBE plume.

On May 10<sup>th</sup> and 11<sup>th</sup>, 2006, Sierra constructed groundwater monitoring well MW4 through MW7 at the Cal Tran properties in northwest and east of the Site and two of those monitoring wells were constructed along the Langton Drive in southwest and west of the site.

More than 72 hours after well construction, Sierra developed the wells to clean and stabilize the sand and aquifer material around the slotted section of the wells. Before the development, Sierra measured the depth of the groundwater level in the wells. The water extracted from the well during the well development activities was stored in 55-gallon drums for future proper disposal.

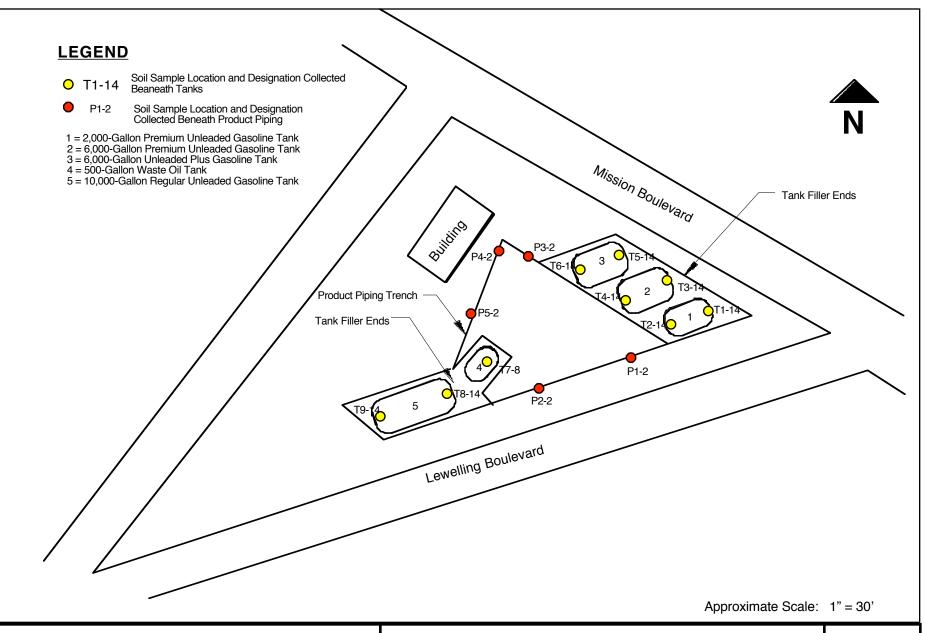
On July 7, 2006, Sierra retained CTL Engineering, Inc. (CTL) to survey the wellhead elevations with respect to mean sea level, as well as obtain horizontal and vertical controls using Global Positioning System (GPS). The wellhead elevations were tied to the monitoring wells MW1 through MW3 at the Site.

Based on the groundwater elevation measurements obtained on July 7, 2006, groundwater flow direction is toward northwest with an approximate gradient of 0.02 ft/ft. Figure 4 also shows groundwater elevation contour.

On September 11, 2006, Sierra performed third quarter 2006, groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW7 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 15.99' to 19.99' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On December 13, 2006, Sierra performed fourth quarter 2006, groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW7 (Figure 2). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 17.45' to 21.48' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On March 12, 2007, Sierra performed the first quarter 2007 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW7 (Figure 2) using an electronic sounder. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 16.68' to 20.71' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.





SIERRA ENVIRONMENTAL, INC.

Environmental Consultants

980 W. Taylor St., San Jose, CA 95126 Phone [408]971-6758 • Fax [408] 971-6759 Former UST and Soil Sample Locations

Second Quarter 2007 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard · Hayward · California

**FIGURE** 



June 22-2007 Project 03-103.07

# Appendix B QA/QC PROTOCOL

#### QA/QC PROTOCOL

## **Groundwater Level and Well Depth Measurements**

Groundwater level and well depths are measured using electrical sounder. An electrical sounder consists of a reel, two-conductor cable, a water sensor, and a control panel with a buzzer. To measure groundwater level, the sensor is lowered into a well. A low current circuit is completed when the sensor makes contact with water. The current in the circuit is then amplified and activates a buzzer which produce an audible signal. Cable markings are divided at 0.05-foot increments. Well depths are measured to the nearest 0.01 foot. Groundwater levels are measured before and after sample collection to ensure data accuracy.

## **Well Purging**

Low flow submersible electrical pumps or bailers are used to purge groundwater monitoring wells. Approximately 3 to 5 well casing volume of water is removed from the well as a measure to stabilize natural, and representative groundwater in each well. pH, electrical conductivity, and temperature of the purged water is measured and recorded at approximately each casing volume interval. Purge water is stabilized when pH is recorded within 0.5 unit, electrical conductivity is within 5 percent, and temperature is within 1.0 degree Celsius.

## **Groundwater Sampling**

Groundwater samples are transferred into appropriate containers provided by certified analytical laboratories. The containers include proper preservatives, and labels with appropriate project information. Groundwater is transferred into the containers with as little agitation as possible. After collection, containers are sealed and checked to ensure that no head space or air bubbles are present in the sample.

After collection, if required, samples are kept in a cooler to be delivered to analytical laboratory with chain-of-custody documentation.

## **Equipment Decontamination**

All sampling equipment are washed with Liqui-Nox® (a phosphate free laboratory detergent), and rinsed with tap water before each sampling event, and at each sampling interval. To reduce the risk of cross contamination, wells which have shown lower levels of contamination historically are purged and sampled first.

## **Analytical Procedures**

Samples are analyzed by an accredited State-certified analytical laboratory using procedures prescribed by United State Environmental Protection Agency (EPA) and other Federal, State, and Local agencies. At minimum a field blank is analyzed with each group of samples for quality assurance measures. At minimum two qualified personnel review analytical results and compare them with historical data for consistency and accuracy.

## **Field Reports**

All field observations are documented in field reports. A field report contain project information, climatic condition, contractor/subcontractor information, field observation, discussions and communications during each particular field activity. Field reports are stored in appropriate project files. Project managers review field reports to obtain necessary information regarding the status of each project on daily basis.

# Appendix C CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

3334 Victor Court, Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Mitch Hajiaghai Lab Certificate Number: 55794

Sierra Environmental, Inc. Issued: 06/14/2007

980 West Taylor Street San Jose, CA 95126

Project Number: 03-103.02 Global ID: T0600102154

**Project Name: ABE** 

Project Location: 17715 Mission Boulevard

## Certificate of Analysis - Final Report

On June 06, 2007, samples were received under chain of custody for analysis.

Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix Test / Comments

Liquid Electronic Deliverables for Geotracker

TPH-Purgeable - GC/MS: EPA 5030B / GC/MS

VOCs: EPA 5030B / EPA 8260B

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346). If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,

C. L. Thom

Laboratory Director

C. L. Thom

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Sierra Environmental, Inc. 980 West Taylor Street San Jose, CA 95126 Attn: Mitch Hajiaghai

Project Number: 03-103.02 Project Name: ABE

Project Location: 17715 Mission Boulevard

GlobalID: T0600102154

Certificate of Analysis - Data Report

Samples Received: 06/06/2007 Sample Collected by: Client

**Lab #:** 55794-001 **Sample ID: MW-1 Matrix:** Liquid **Sample Date:** 6/6/2007 11:00 AM

VOCs: EPA 5030B / EPA 8260B									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	2000		200	100	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Toluene	3400		200	100	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Ethyl Benzene	3900		200	100	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Xylenes, Total	16000		200	100	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Methyl-t-butyl Ether	1500		200	200	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butyl Ethyl Ether	ND		200	1000	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butanol (TBA)	ND		200	2000	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Diisopropyl Ether	ND		200	1000	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Amyl Methyl Ether	ND		200	1000	$\mu  g/L$	N/A	N/A	6/12/2007	WM1A070611A

Surrogate	Surrogate Recovery	Control	mits (%)		
4-Bromofluorobenzene	104	60	-	130	
Dibromofluoromethane	97.8	60	-	130	
Toluene-d8	94 6	60	_	130	

Analyzed by: XBian

Reviewed by: MaiChiTu

Parameter	Result (	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	58000		200	5000	μg/L	N/A	N/A	6/12/2007	WM1A070611A
Surrogate	Surrogate Recovery		Control 1	Limits (%)				Analyzed by: XBia	ın
4-Bromofluorobenzene	93.5		60 -	130				Reviewed by: Mai	ChiTu
Dibromofluoromethane	102		60 -	130					
Toluene-d8	88.3		60 -	130					

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Sierra Environmental, Inc. 980 West Taylor Street San Jose, CA 95126 Attn: Mitch Hajiaghai

Project Number: 03-103.02

Project Name: ABE

Project Location: 17715 Mission Boulevard

GlobalID: T0600102154

## Certificate of Analysis - Data Report

Samples Received: 06/06/2007 Sample Collected by: Client

**Lab #:** 55794-002 **Sample ID: MW-2 Matrix:** Liquid **Sample Date:** 6/6/2007 10:40 AM

VOCs: EPA 5030B / EPA 8260B									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	1100		100	50	$\mu  g \! / L$	N/A	N/A	6/12/2007	WM1A070611A
Toluene	170		100	50	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Ethyl Benzene	3000		100	50	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Xylenes, Total	4200		100	50	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Methyl-t-butyl Ether	1400		100	100	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butyl Ethyl Ether	ND		100	500	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butanol (TBA)	ND		100	1000	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Diisopropyl Ether	ND		100	500	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Amyl Methyl Ether	ND		100	500	$\mu  g/L$	N/A	N/A	6/12/2007	WM1A070611A

Surrogate	Surrogate Recovery	Control Limits (%				
4-Bromofluorobenzene	99.4	60	-	130		
Dibromofluoromethane	94.2	60	-	130		
Toluene-d8	94 5	60	_	130		

Analyzed by: XBian

Reviewed by: MaiChiTu

Parameter	Result (	Qual	D/P-F	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	24000		100	2500	μg/L	N/A	N/A	6/12/2007	WM1A070611A
Surrogate	Surrogate Recovery		Control l	Limits (%)				Analyzed by: XBia	ın
4-Bromofluorobenzene	89.6		60 -	130				Reviewed by: Mai	ChiTu
Dibromofluoromethane	98.6		60 -	130					
Toluene-d8	88.2		60 -	130					

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Sierra Environmental, Inc. 980 West Taylor Street San Jose, CA 95126 Attn: Mitch Hajiaghai

Project Number: 03-103.02

Project Name: ABE

Project Location: 17715 Mission Boulevard

Analyzed by: XBian Reviewed by: MaiChiTu

GlobalID: T0600102154

## **Certificate of Analysis - Data Report**

Samples Received: 06/06/2007 Sample Collected by: Client

<b>Lab #:</b> 55794-003	Sample ID: MW-3	Matrix: Liquid	<b>Sample Date:</b> 6/6/2007	10:20 AM

VOCs: EPA 5030B / EPA 8260B									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	1200		25	12	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Toluene	19		25	12	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Ethyl Benzene	1100		25	12	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Xylenes, Total	1100		25	12	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Methyl-t-butyl Ether	590		25	25	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butyl Ethyl Ether	ND		25	120	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Butanol (TBA)	1200		25	250	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
Diisopropyl Ether	ND		25	120	$\mu g/L$	N/A	N/A	6/12/2007	WM1A070611A
tert-Amyl Methyl Ether	ND		25	120	$\mug/L$	N/A	N/A	6/12/2007	WM1A070611A

Surrogate	Surrogate Recovery	Control Limits (%)				
4-Bromofluorobenzene	98.5	60	- 13	30		
Dibromofluoromethane	97.1	60	- 13	30		
Toluene-d8	89.4	60	- 13	30		

Parameter	Result	Qual	D/P-F	Detection L	Limit Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	13000		25	620	μg/L	N/A	N/A	6/12/2007	WM1A070611A
Surrogate	Surrogate Recovery	y	Control	Limits (%)				Analyzed by: XBia	an
4-Bromofluorobenzene	88.9		60	- 130				Reviewed by: Mai	ChiTu
Dibromofluoromethane	102		60	- 130					
Toluene-d8	83.4		60	- 130					

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Sierra Environmental, Inc. 980 West Taylor Street San Jose, CA 95126 Attn: Mitch Hajiaghai

Project Number: 03-103.02 Project Name: ABE

Project Location: 17715 Mission Boulevard

Analyzed by: XBian Reviewed by: MaiChiTu

GlobalID: T0600102154

## Certificate of Analysis - Data Report

Samples Received: 06/06/2007 Sample Collected by: Client

**Lab #:** 55794-004 **Sample ID: MW-6 Matrix:** Liquid **Sample Date:** 6/6/2007 9:50 AM

VOCs: EPA 5030B / EPA 8260B									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Toluene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Ethyl Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Xylenes, Total	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Methyl-t-butyl Ether	ND		1.0	1.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Butyl Ethyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Butanol (TBA)	ND		1.0	10	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Diisopropyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Amyl Methyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A

Surrogate	Surrogate Recovery	Control Limits (%)				
4-Bromofluorobenzene	104	60 -	130			
Dibromofluoromethane	99.9	60 -	130			
Toluene-d8	97.4	60 -	130			

Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	<b>Analysis Date</b>	QC Batch
TPH as Gasoline	ND		1.0	25	μg/L	N/A	N/A	6/11/2007	WM1A070611A
Surrogate	Surrogate Recovery	7	Control	Limits (%)				Analyzed by: XBia	nn
4-Bromofluorobenzene	93.6		60	- 130				Reviewed by: Mai	ChiTu
Dibromofluoromethane	104		60	- 130					
Toluene-d8	90.8		60 -	- 130					

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Sierra Environmental, Inc. 980 West Taylor Street San Jose, CA 95126 Attn: Mitch Hajiaghai

Project Number: 03-103.02 Project Name: ABE

Project Location: 17715 Mission Boulevard

GlobalID: T0600102154

Certificate of Analysis - Data Report

Samples Received: 06/06/2007 Sample Collected by: Client

Sample ID: MW-7 **Lab #:** 55794-005 Matrix: Liquid Sample Date: 6/6/2007 10:10 AM

VOCs: EPA 5030B / EPA 8260B									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	ND		1.0	0.50	μg/L	N/A	N/A	6/11/2007	WM1A070611A
Toluene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Ethyl Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Xylenes, Total	ND		1.0	0.50	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Methyl-t-butyl Ether	ND		1.0	1.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Butyl Ethyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Butanol (TBA)	ND		1.0	10	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
Diisopropyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	6/11/2007	WM1A070611A
tert-Amyl Methyl Ether	ND		1.0	5.0	μg/L	N/A	N/A	6/11/2007	WM1A070611A

Surrogate	Surrogate Recovery	Control Limits (%)				
4-Bromofluorobenzene	104	60 -	130			
Dibromofluoromethane	102	60 -	130			
Toluene-d8	97.4	60 -	130			

Analyzed by: XBian

Reviewed by: MaiChiTu

#### TPH-Purgeable - GC/MS: EPA 5030B / GC/MS

Parameter	Result (	Qual	D/P-F	<b>Detection Limit</b>	Units	Prep Date	Prep Batch	<b>Analysis Date</b>	QC Batch
TPH as Gasoline	ND		1.0	25	$\mu g\!/\!L$	N/A	N/A	6/11/2007	WM1A070611A
Surrogate	Surrogate Recovery		Control l	Limits (%)				Analyzed by: XBia	ın
4-Bromofluorobenzene	94.2		60 -	130				Reviewed by: Mai	ChiTu
Dibromofluoromethane	106		60 -	130					
Toluene-d8	90.9		60 -	130					

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Method Blank - Liquid - VOCs: EPA 5030B / EPA 8260B

QC Batch ID: WM1A070611A Validated by: MaiChiTu - 06/12/07

QC Batch Analysis Date: 6/11/2007

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.50	μg/L
Diisopropyl Ether	ND	1	5.0	μg/L
Ethyl Benzene	ND	1	0.50	μg/L
Methyl-t-butyl Ether	ND	1	1.0	μg/L
tert-Amyl Methyl Ether	ND	1	5.0	μg/L
tert-Butanol (TBA)	ND	1	10	μg/L
tert-Butyl Ethyl Ether	ND	1	5.0	μg/L
Toluene	ND	1	0.50	μg/L
Xylenes, Total	ND	1	0.50	μg/L

Surrogate for Blank	% Recovery	Cont	rol	Limits
4-Bromofluorobenzene	102	60	-	130
Dibromofluoromethane	86.6	60	-	130
Toluene-d8	95.7	60	_	130

Method Blank - Liquid - TPH-Purgeable - GC/MS: EPA 5030B / GC/MS

QC Batch ID: WM1A070611A Validated by: MaiChiTu - 06/12/07

QC Batch Analysis Date: 6/11/2007

Parameter			Result	DF	PQLR	Units
TPH as Gasoline			ND	1	25	μg/L
Surrogate for Blank	% Recovery	<b>Control Limits</b>				
4-Bromofluorobenzene	92.3	60 - 130				
Dibromofluoromethane	90.6	60 - 130				
Toluene-d8	89.3	60 - 130				

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LCS / LCSD - Liquid - VOCs: EPA 5030B / EPA 8260B

QC Batch ID: WM1A070611A Reviewed by: MaiChiTu - 06/12/07

QC Batch ID Analysis Date: 6/11/2007

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Parameter	Method Blan	k Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
Benzene	< 0.50	20	18.6	μg/L	93.0	70 - 130
Methyl-t-butyl Ether	<1.0	20	17.0	μg/L	85.0	70 - 130
Toluene	<0.50	20	17.2	μg/L	86.0	70 - 130
Surrogate	% Recovery	Control Limits				
4-Bromofluorobenzene	110	60 - 130				
Dibromofluoromethane	99.8	60 - 130				
Toluene-d8	91.5	60 - 130				

#### **LCSD**

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	<b>RPD Limits</b>	Recovery Limits	
Benzene	< 0.50	20	18.0	μg/L	90.0	3.28	25.0	70 - 130	
Methyl-t-butyl Ether	<1.0	20	17.7	μg/L	88.5	4.03	25.0	70 - 130	
Toluene	<0.50	20	17.0	μg/L	85.0	1.17	25.0	70 - 130	
Surrogate	% Recovery C	ontrol Limits							
4-Bromofluorobenzene	103	60 - 130							
Dibromofluoromethane	97.1	60 - 130							
Toluene-d8	95.2	60 - 130							

LCS / LCSD - Liquid - TPH-Purgeable - GC/MS: EPA 5030B / GC/MS

QC Batch ID: WM1A070611A Reviewed by: MaiChiTu - 06/12/07

QC Batch ID Analysis Date: 6/11/2007

## **LCS**

Parameter TPH as Gasoline	Method B <25	lank Spike Amt	SpikeResult	<b>Units</b> μg/L	% Recovery 96.6			Recovery Limits 65 - 135	
Surrogate	% Recovery	<b>Control Limits</b>	121	µ9/∟	90.0			00 - 100	
4-Bromofluorobenzene	93.8	60 - 130							
Dibromofluoromethane	92.4	60 - 130							
Toluene-d8	89.4	60 - 130							
LCSD Parameter TPH as Gasoline	Method B <25	lank Spike Amt 125	SpikeResult 115	<b>Units</b> μg/L	% Recovery 91.7	<b>RPD</b> 5.18	RPD Limits	Recovery Limits 65 - 135	
Surrogate	% Recovery	<b>Control Limits</b>							
4-Bromofluorobenzene	90.5	60 - 130							
Dibromofluoromethane	95.8	60 - 130							
Toluene-d8	91.7	60 - 130							



## SIERRA ENVIRONMENTAL, INC. Environmental Consultants

#### CHAIN OF CUSTODY 03-163-02 Date: \_\_ Project No: 03-103:00 Project Name: \_\_ABE Sampler: Mike Hagi Paul Garg Project Location: 17715 Mission Boulevard Client: **Turnaround Time** 55794 **Analysis Requested** Nº of Matrix Sampling Date Sample Containers Time Sampled TPHG&BTEX Fuel BTEX 418.1 8015 8015/8020 8020 Oxygenates TRPH TPHD TPHG 8260B BTEX,MTBE Normal 24-hour X Other 11:00 6-6-67 -001 water Normal 24-hour -002 Other 10,80 1457 Normal 24-hour -003 X 10:20 Normal 24-hour -004 Other 9:50 MALG Normal 24-hour -005 Other MW-1 10,10 Normal 24-hour Other. 3 vone each (Her) Normal 24-hour Demarks: Camples contain preservative. Please email the results in DF format for Geotracker D# 60600102154 to maz.sierra@sbcglobal.net Fime Date Deceived by Fime \$ homes Delinguished by 2:35 Date Deceived by Fime Delinguished by

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# Appendix D FIELD NOTES

## **GROUNDWATER MONITORING DATA FORM**

Project No: 03-10			Date: -	6.	0-01					
Project Name: —A	3E				_	Well N	°: _MV	V1		
Field Personnel:	Mike & Maz	2				Weath	er:	Suna	<b>√</b>	
Project Location:	1771	5	Missi	01	1 Blud					
•										
	T	-		_						
PURGE WATER VOLUME	Total Well Depth (ft)		pth to ter (ft	Wat	er Column (ft)		Multipli asing Dia		Casing Volume	Purged
CALCULATION	Depth (it)	wa	iter (it	_	(11)	2"	4"	6"	(gal)	Volume (gal)
	33.25	21	.11	12	2:14		-		1.94	26.0
	0 1	,		_		0.16	0.64			
Purge Method: _	Barl.	e8			. Measur	ing Ref	erence	: <u>Ta</u>	<sup>2</sup> C	
				_					-	
Time										
Volume Purged (gal)			0		2	Ţ.,	7	6		
Temperature (° F)	2		69.0	,	69.3	6	9.33	6951		
рН			6.7	2	6.68	6.	63	6.57		
Specific Conductivity (	umhos/cm)		220c	-	7200	. 2	300	2200		
Turbidity/Color			gras,		<b>-</b> >		7	7		
Odor			yes		7		$\rightarrow$	7		
										·
			0					7		
Comments:	HC	00	dox		Na	of	5	runj		

## **GROUNDWATER MONITORING DATA FORM**

Project No: 03-10:  Project Name: —AB  Field Personnel: _  Project Location:	Mike & Ma	z 715 M	Well No	: _MV	, <b>6</b> , 0				
PURGE WATER VOLUME	ater Column (ft)	C	Multipl		Casing Volume (gal)	Purged Volume (gal)			
CALCULATION	33.75	27.33	11-42	0.16	0.64	1.44	1.82	5.46 25.0	
Purge Method: _	Bail	es		_ Measu	ring Ref	erence	: Te	o C	
Time									
Volume Purged (gal)		0	>	1.5	3	2-0	5.0		
Temperature (° F )		69	20	70.11	7	0.13	70.18		
рН		6.5	3	6.60	· C	.58	6.50		
Specific Conductivity (	umhos/cm)	220		7200	2	3 2	2200		
Turbidity/Color		Sig	NG	7	_	プ	7		
Odor		Xe	1	-	-	5	7		
Comments: ——							2		

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## SIERRA ENVIRONMENTAL, INC. Environmental Consultants

Date: 6-6-07

## **GROUNDWATER MONITORING DATA FORM**

Project Name: —ABE Well N°: _MW3										
Field Personnel:	Mike & Ma	z				<b>Veath</b>	er:	Suna	- 9	
Project Location:		1715	Miss	011	Blud.					)
PURGE WATER VOLUME	Total Well Depth (ft)	1 1 1 1 1 1 1 1	epth to ater (ft	Wa	ter Column (ft)	c	Multipl asing Dia		Casing Volume (gal)	Purged Volume (gal)
CALCULATION	33.75	2	1-48	10	2,27	2"	4"	6"	1.96	xlest
	33.75	_	- 10	v		0.16	0.64	1.44	7	70 4 0 0
Purge Method:	Ba.	les			_ Measuri	na Dai		. T	OC	
Purge Method.					_ weasuri	ng Rei	erence			
				_	Γ				1	T
Time						_				
Volume Purged (gal)			0		2	1	1	6		
Temperature (° F )			69.	b	693	6	9-40	69-39		
рН			6.3	7	6.40	6	39	6.42		
Specific Conductivity	(umhos/cm)		alve		2100	2	200	TIDE		
Turbidity/Color			1.20	u	-)	-	7	-3		
Odor			Xe	1	1		-)	4		
			1.1		0		/			
Comments: —			A.	6	- ode	7V				
				_						

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SIERRA Form 107-02

## **GROUNDWATER MONITORING DATA FORM**

Project No: 03-10  Project Name: AB  Field Personnel:  Project Location:		z \77\5	Date: ــ Well Nº Weathe	: <u>-</u> M	6-6- W6			
	1							
PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft	Water Column (ft)	Ca	Multipli sing Dia		Casing Volume (gal)	Purged Volume (gal)
CALCULATION	25	18.47	6-53	2"	4"	6"	1.09	
			2	0.16	0.64	1.44	7.01	= 3.0
Purge Method: _	Baile	er	Measu	ring Refe	erence:	7	0 <	
Time								
Volume Purged (gal)		0	1	2		3		
Temperature (° F)		69.0	69.8		.5	69.48	,	
рН		6.76	6,68	6.		6.69		
Specific Conductivity (u	ımhos/cm)	2300	230	0 23	00	2200		
Turbidity/Color		Brown		1-	5	-1		
Odor		No	-3	-		7		
Comments:								

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SIERRA Form 107-02

## **GROUNDWATER MONITORING DATA FORM**

Project No: 03-10	3.00			Date: _	6-	6-0	7	
Project Name: —AB	3E			Well N°:				
Field Personnel: _	Mike & Ma	az		Weather	r:	Bunn.	· •	
Project Location:		17715	Mission	Blud.				
PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft	Water Column (ft)		Multiplie		Casing Volume (gal)	Purged Volume (gal)
CALOULATION	25	19.32	515	2"	4"	6"	an	- 7 -
	25	11.20	2.68	0.16	0.64	1.44	, 100	23.0
Purge Method: _	Baile	~	Measu	ıring Refe	rence:	To	) C	
Time								
Volume Purged (gal)		0	, / /	2		3		
Temperature (° F)		6T.	0		7-//	67.0		
рН	4	6.69	6.35	5 6.	53	6.59	,	
Specific Conductivity (u	umhos/cm )	2200	2200	o 23	00	230e		
Turbidity/Color		1.80 Brown	4 -1		<b>→</b>	1		
Odor		No		_	7	7		
Comments:								

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