

**Alameda County**  
**APR 30 2003**  
**Environmental Health**

**FIRST QUARTER 2003  
GROUNDWATER MONITORING**

**ABE Petroleum LLC  
17715 Mission Boulevard  
Hayward, California 94539**

**Prepared for  
Mr. Paul Garg  
ABE Petroleum LLC**

**Prepared by  
Sierra Environmental, Inc.**

**April 18, 2003  
Project 03-103.07**



**Sierra Environmental, Inc.**  
*Environmental Consultants*

**April 18, 2003**  
**Project 03-103.07**

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

**Subject: Report for First Quarter 2003 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 of the first quarter 2003 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.

Sierra obtained and recorded groundwater data, and collected groundwater samples from three groundwater monitoring wells (MW1 through MW3) at the Site for chemical analysis. Sierra submitted the samples to Entech Analytical Labs, Inc. (Entech) of Santa Clara, California. Entech is an independent State-certified analytical laboratory (# 2346).

## **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 2. 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.

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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 2.

On August 14, 2000, Sierra drilled three exploratory 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 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.

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.

## **GROUNDWATER MONITORING**

On April 2, 2003, Sierra performed first quarter 2003 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3) using an electronic sounder. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.15 to 22.32 feet below TOC with a westerly flow direction during this monitoring event. Table I presents the groundwater measurement data.

Sierra's field personnel purged the wells using bailers. pH, temperature, and electrical conductivity of groundwater was recorded during the purging activities to affirm that groundwater in the wells have stabilized. After completion of the purging, groundwater samples MW-1 through MW-3 were collected from the wells. After collection, the groundwater from each well was transferred into clean volatile organic analysis (VOA) vials. The VOAs were sealed with Teflon-septum screw caps, labeled, placed 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 A.

## **CHEMICAL ANALYSIS**

The samples were analyzed for TPHG using the United States Environmental Protection Agency (EPA) modified method 8015, and for benzene, toluene, ethyl benzene, and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) using EPA method 8020. Additionally, the samples were analyzed for fuel oxygenates using EPA method 8260B. Copies of certified analytical results and chain-of-custody documentation are presented in Appendix B.

## **ANALYTICAL RESULTS**

Analytical results obtained during this monitoring event show a slight decrease of the gasoline constituents in the groundwater samples collected from the monitoring wells. Table II presents Summary of the analytical results.

## **CONCLUSION**

The groundwater data obtained during this monitoring event show a slight decrease of the gasoline constituents in the groundwater samples. The concentrations of TPHG, benzene, and MTBE remain to be high in the groundwater beneath the Site.

## **WELLHEAD MEASUREMENTS**

Sierra retained C.T.L Engineering, Inc. (CTL) to measure horizontal and vertical controls of the groundwater monitoring wellheads using global positioning system (GPS) at the Site.

Additionally, Sierra has been transferring the analytical results to the State Water Resources Control Board using Geotracker™.

## **LIMITATIONS**

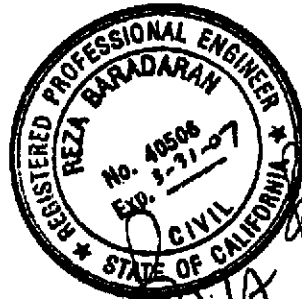
The content and conclusion provided by Sierra in this report are based on information collected during its assessment/monitoring, which include, but are not limited to field observations and analytical results for the groundwater samples collected at the Site.

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  
Principal

A handwritten signature in black ink, appearing to read "Mitch Hajiaghai".

Mitch Hajiaghai, REA II, CAC  
Principal

- Attachments:
- Table I - Groundwater Elevation Data
  - Table II - Analytical Results for Groundwater Samples
  - Figure 1 - Site Location Map
  - Figure 2 - Former UST and Soil Sample Locations
  - Figure 3 - Groundwater Monitoring Well Locations
  - Appendix A - QA/QC Protocol
  - Appendix B - Certified Analytical Results and Chain-of-Custody Documentation

cc: Mr.Scott O. Seery, ACHCS (1 Copy)

R02-103.06\1\*Q2003GWMMH04162003

**TABLE I  
GROUNDWATER ELEVATION DATA**

Well ID	Measurement Date	Well Casing Diameter (In)	Well Casing Elevation (ft)	Depth to Water <sup>1</sup> (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
MW2	8-18-00	2	100.58	21.55	79.03
	3-30-01			21.55	79.03
	6-22-01			23.15	77.43
	9-20-01			24.78	75.80
	12-27-01			23.82	76.76
	9-24-02			24.89	75.69
	12-17-02			23.99	76.59
	4-2-03			22.32	78.26
MW3	8-18-00	2	99.69	20.68	79.01
	3-30-01			20.68	79.01
	6-22-01			22.31	77.38
	9-20-01			23.92	75.77
	12-27-01			22.95	76.74
	9-24-02			24.03	75.66
	12-17-02			23.09	76.60
	4-2-03			21.46	78.23

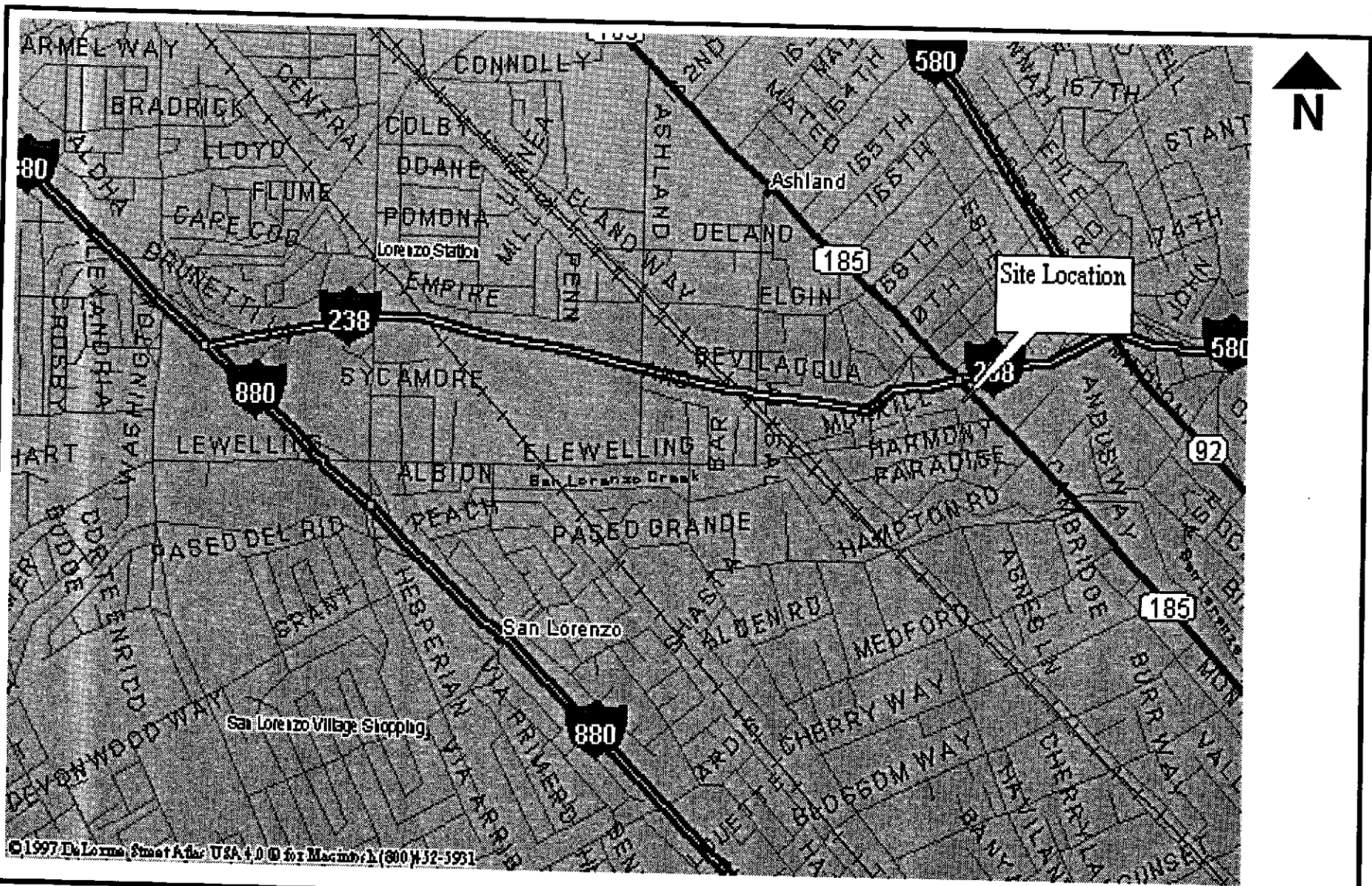
1. Depths to groundwater were measured to the top of the well casings
2. Water table elevations were measured in relation to an assumed datum (100') relative elevation

**TABLE II  
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES**

Sample ID	Sample Date	Sample Location	TPHG <sup>1</sup> ppb <sup>3</sup>	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Xylenes ppb	MTBE <sup>2</sup> ppb
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
MW-2	8-18-00	MW2	290,000	3700	990	7,300	26,000	ND <sup>4</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
MW-3	8-18-00	MW3	46,000	3,200	550	3,700	14,000	2,200
*	3-30-01		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

1. TPHG = Total Petroleum Hydrocarbons as Gasoline
  2. MTBE = Methyl Tertiary Butyl Ether
  3. ppb = Parts Per Billion
  4. ND = Below Laboratory Detection Limit
- \* The Sample was Analyzed for Fuel Oxygenates using EPA Method 8260B. Only MTBE was Detected in the Sample





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**SIERRA ENVIRONMENTAL, INC.**  
*Environmental Consultants*

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**SITE LOCATION MAP**

First Quarter 2003 Groundwater Monitoring  
 ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

**FIGURE**

**1**

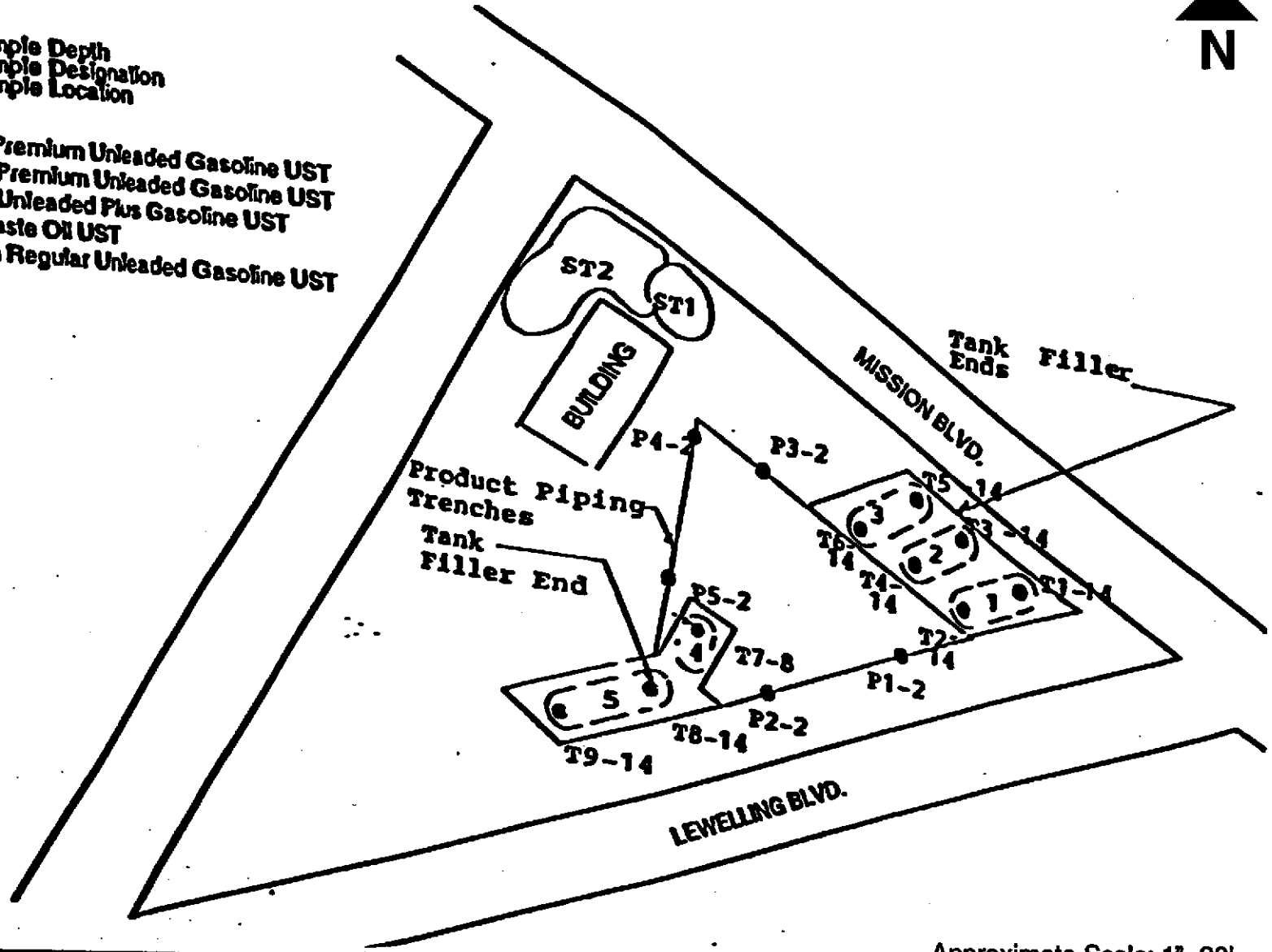
April 18, 2003  
 Project 02-103.07

**LEGEND**

● T1-14



- 1 = 2,000-gallon Premium Unleaded Gasoline UST
- 2 = 6,000-Gallon Premium Unleaded Gasoline UST
- 3 = 6,000-Gallon Unleaded Plus Gasoline UST
- 4 = 500-gallon Waste Oil UST
- 5 = 10,000-gallon Regular Unleaded Gasoline UST



Approximate Scale: 1"=30'



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**Former UST and Soil Sample Locations**

First Quarter 2003 Groundwater Monitoring  
ABE Petroleum LLC




17715 Mission Boulevard • Hayward • California

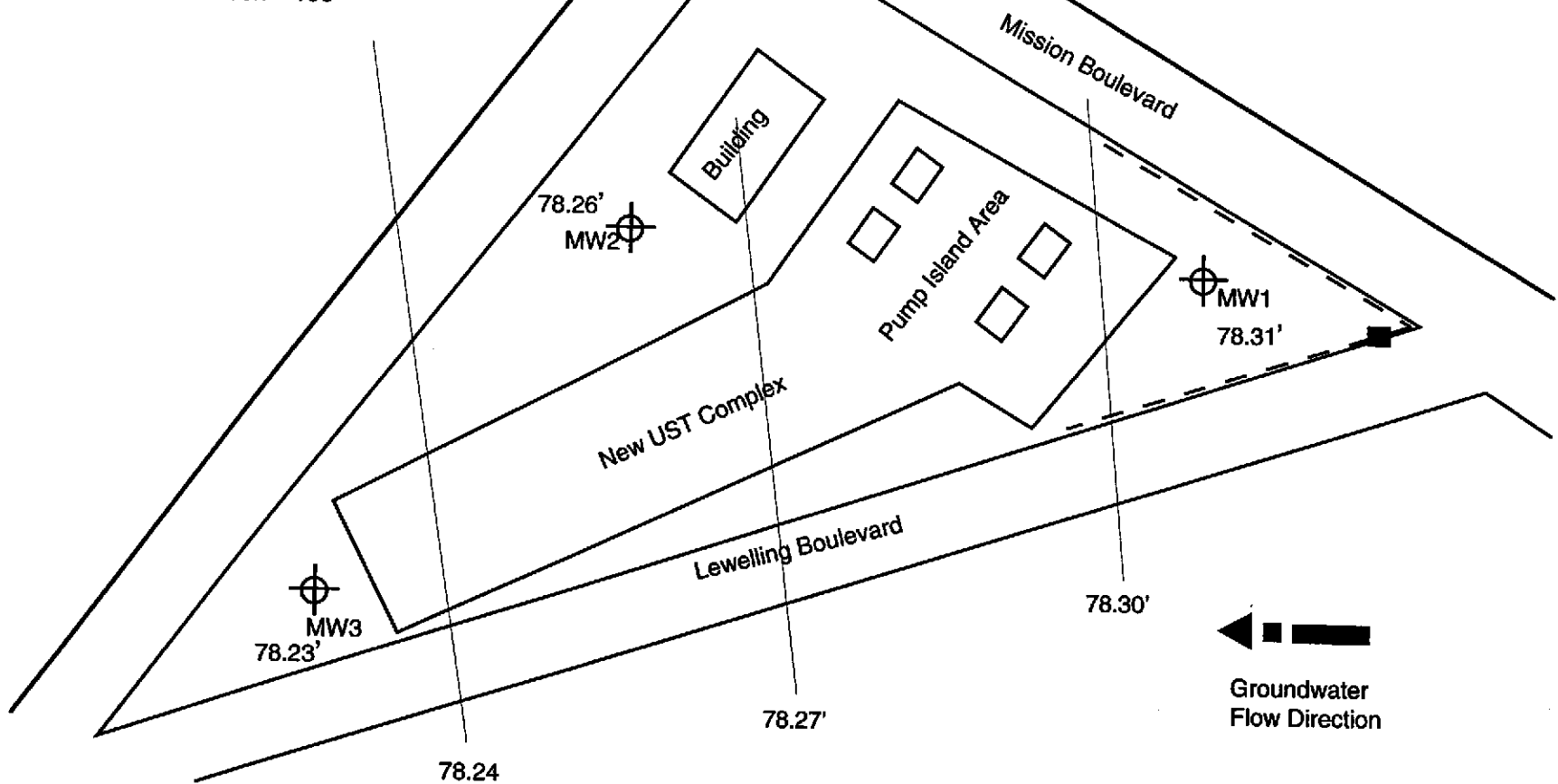
**FIGURE**

**2**

April 18 2003  
Project 02-103.07

**LEGEND**

-  MW-1 Groundwater Monitoring Well Location and Designation
-  Over-Head High Voltage Power Lines
-  Assumed Datum Elevation = 100'



Approximate Scale: 1" = 30'



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**Groundwater Monitoring Well Locations**  
First Quarter 2003 Groundwater Monitoring  
ABE Petroleum LLC  
17715 Mission Boulevard • Hayward • California

**FIGURE**  
**3**  
April 18, 2003  
Project 02-103.07

**Appendix A**  
**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<sup>®</sup> (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 B**  
**CERTIFIED ANALYTICAL REPORTS AND**  
**CHAIN-OF-CUSTODY DOCUMENTATION**

# Entech Analytical Labs, Inc.

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

April 11, 2003

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

<b>Order:</b> 33868	<b>Date Collected:</b> 4/2/2003
<b>Project Name:</b> ABE Petroleum	<b>Date Received:</b> 4/2/2003
<b>Project Number:</b> 02-103.07	<b>P.O. Number:</b> 02-103.07
<b>Project Notes:</b>	

On April 02, 2003, samples were received under documented chain of custody. Results for the following analyses are attached:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>
Liquid	EDF Deliverables	EDF
	Gas/BTEX	EPA 8015 MOD. (Purgeable)
		EPA 8020
	Oxygenates by EPA 8260B	EPA 8260B

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,



Patti Sandrock  
QA/QC Manager



# Entech Analytical Labs, Inc.

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

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

Date: 4/11/03  
Date Received: 4/2/2003  
Project Name: ABE Petroleum  
Project Number: 02-103.07  
P.O. Number: 02-103.07  
Sampled By: Mike Hajiaghai

## Certified Analytical Report

Order ID: 33868

Lab Sample ID: 33868-001

Client Sample ID: MW-1

Sample Time:

Sample Date: 4/2/2003

Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	4800		500	0.5	250	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Toluene	6000		500	0.5	250	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Ethyl Benzene	4600		500	0.5	250	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Xylenes, Total	20000		500	1	500	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
			Surrogate			Surrogate Recovery			Control Limits (%)	
			4-Bromofluorobenzene			75.5			65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
tert-Butanol	ND		100	10	1000	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Methyl-t-butyl Ether	5900		100	1	100	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Diisopropyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Ethyl-t-butyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
tert-Amyl Methyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
			Surrogate			Surrogate Recovery			Control Limits (%)	
			4-Bromofluorobenzene			86.8			73 - 151	
			Dibromofluoromethane			100.5			57 - 156	
			Toluene-d8			105.9			77 - 150	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	89000		500	50	25000	µg/L	N/A	4/3/2003	WGC62803D	EPA 8015 MOD. (Purgeable)
			Surrogate			Surrogate Recovery			Control Limits (%)	
			4-Bromofluorobenzene			70.7			65 - 135	

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)



Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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

Date: 4/11/03  
Date Received: 4/2/2003  
Project Name: ABE Petroleum  
Project Number: 02-103.07  
P.O. Number: 02-103.07  
Sampled By: Mike Hajiaghai

## Certified Analytical Report

Order ID: 33868

Lab Sample ID: 33868-002

Client Sample ID: MW-2

Sample Time:

Sample Date: 4/2/2003

Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	1000		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Toluene	130		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Ethyl Benzene	2300		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Xylenes, Total	5100		100	1	100	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Surrogate							Surrogate Recovery		Control Limits (%)	
4-Bromofluorobenzene							70.4		65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
tert-Butanol	ND		100	10	1000	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Methyl-t-butyl Ether	2000		100	1	100	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Diisopropyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Ethyl-t-butyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
tert-Amyl Methyl Ether	ND		100	5	500	µg/L	N/A	4/4/2003	WMS310009	EPA 8260B
Surrogate							Surrogate Recovery		Control Limits (%)	
4-Bromofluorobenzene							87.1		73 - 151	
Dibromofluoromethane							97.9		57 - 156	
Toluene-d8							105.1		77 - 150	

Comment: Sample diluted due to high concentrations of non target compounds.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	29000		100	50	5000	µg/L	N/A	4/3/2003	WGC62803D	EPA 8015 MOD. (Purgeable)
Surrogate							Surrogate Recovery		Control Limits (%)	
4-Bromofluorobenzene							67.7		65 - 135	

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA BLAP #2346)



Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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

Date: 4/11/03  
Date Received: 4/2/2003  
Project Name: ABE Petroleum  
Project Number: 02-103.07  
P.O. Number: 02-103.07  
Sampled By: Mike Hajiaghai

## Certified Analytical Report

Order ID: 33868

Lab Sample ID: 33868-003

Client Sample ID: MW-3

Sample Time:

Sample Date: 4/2/2003

Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	2000		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Toluene	130		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Ethyl Benzene	1800		100	0.5	50	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Xylenes, Total	3300		100	1	100	µg/L	N/A	4/3/2003	WGC62803D	EPA 8020
Surrogate						Surrogate Recovery			Control Limits (%)	
4-Bromofluorobenzene						74.3			65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
tert-Butanol	ND		100	10	1000	µg/L	N/A	4/7/2003	WMS510012	EPA 8260B
Methyl-t-butyl Ether	3000		100	1	100	µg/L	N/A	4/7/2003	WMS510012	EPA 8260B
Diisopropyl Ether	ND		100	5	500	µg/L	N/A	4/7/2003	WMS510012	EPA 8260B
Ethyl-t-butyl Ether	ND		100	5	500	µg/L	N/A	4/7/2003	WMS510012	EPA 8260B
tert-Amyl Methyl Ether	ND		100	5	500	µg/L	N/A	4/7/2003	WMS510012	EPA 8260B
Surrogate						Surrogate Recovery			Control Limits (%)	
4-Bromofluorobenzene						79.8			73 - 151	
Dibromofluoromethane						83.5			57 - 156	
Toluene-d8						88.8			77 - 150	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	24000		100	50	5000	µg/L	N/A	4/3/2003	WGC62803D	EPA 8015 MOD. (Purgeable)
Surrogate						Surrogate Recovery			Control Limits (%)	
4-Bromofluorobenzene						71.8			65 - 135	

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)



Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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

## Quality Control Results Summary

QC Batch #: WGC62803D  
Matrix: Liquid

Units:  $\mu\text{g/L}$   
Date Analyzed: 4/3/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
<b>Test: TPH as Gasoline</b>											
TPH as Gasoline	EPA 8015 M	ND		250		227.	LCS	90.8			65.0 - 135.0
Surrogate			Surrogate Recovery			Control Limits (%)					
4-Bromofluorobenzene			81.7			65 - 135					
<b>Test: BTEX</b>											
Benzene	EPA 8020	ND		8		7.9	LCS	98.8			65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		8		8.2	LCS	102.5			65.0 - 135.0
Toluene	EPA 8020	ND		8		7.9	LCS	98.8			65.0 - 135.0
Xylenes, total	EPA 8020	ND		24		24.8	LCS	103.3			65.0 - 135.0
Surrogate			Surrogate Recovery			Control Limits (%)					
4-Bromofluorobenzene			92.4			65 - 135					
<b>Test: TPH as Gasoline</b>											
TPH as Gasoline	EPA 8015 M	ND		250		220.	LCSD	88.0	3.13	25.00	65.0 - 135.0
Surrogate			Surrogate Recovery			Control Limits (%)					
4-Bromofluorobenzene			84.2			65 - 135					
<b>Test: BTEX</b>											
Benzene	EPA 8020	ND		8		7.7	LCSD	96.3	2.56	25.00	65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		8		7.9	LCSD	98.8	3.73	25.00	65.0 - 135.0
Toluene	EPA 8020	ND		8		7.6	LCSD	95.0	3.87	25.00	65.0 - 135.0
Xylenes, total	EPA 8020	ND		24		24.	LCSD	100.0	3.28	25.00	65.0 - 135.0
Surrogate			Surrogate Recovery			Control Limits (%)					
4-Bromofluorobenzene			95.7			65 - 135					

# Entech Analytical Labs, Inc.

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## Quality Control Results Summary

QC Batch #: WMS510012  
Matrix: Liquid

Units: µg/L  
Date Analyzed: 4/4/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
<b>Test: Oxygenates by EPA 8260B</b>											
Methyl-t-butyl Ether	EPA 8260B	ND		20		16.34	LCS	81.7			54.0 - 130.5
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
4-Bromofluorobenzene			80.8			73 - 151					
Dibromofluoromethane			85.1			57 - 156					
Toluene-d8			85.7			77 - 150					
<b>Test: Oxygenates by EPA 8260B</b>											
Methyl-t-butyl Ether	EPA 8260B	ND		20		15.43	LCSD	77.2	5.73	25.00	54.0 - 130.5
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
4-Bromofluorobenzene			79.5			73 - 151					
Dibromofluoromethane			84.1			57 - 156					
Toluene-d8			85.6			77 - 150					

# Entech Analytical Labs, Inc.

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## Quality Control Results Summary

QC Batch #: WMS310009  
Matrix: Liquid

Units: µg/L  
Date Analyzed: 4/4/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
<b>Test: EPA 8260B</b>											
1,1-Dichloroethene	EPA 8260B	ND		20		17.3	LCS	86.5			58.7 - 114.2
Benzene	EPA 8260B	ND		20		17.6	LCS	88.0			67.6 - 131.8
Chlorobenzene	EPA 8260B	ND		20		17.4	LCS	87.0			87.7 - 116.2
Methyl-t-butyl Ether	EPA 8260B	ND		20		16.6	LCS	83.0			54.0 - 130.5
Toluene	EPA 8260B	ND		20		17.2	LCS	86.0			81.9 - 110.5
Trichloroethene	EPA 8260B	ND		20		18.3	LCS	91.5			75.5 - 110.2
<b>Surrogate</b>		<b>Surrogate Recovery</b>		<b>Control Limits (%)</b>							
4-Bromofluorobenzene		96.9		73 - 151							
Dibromofluoromethane		95.8		57 - 156							
Toluene-d8		108.4		77 - 150							
<b>Test: TPH as Gasoline - GC-MS</b>											
TPH as Gasoline	GC-MS	ND		250		286.6	LCS	114.6			65.0 - 135.0
<b>Surrogate</b>		<b>Surrogate Recovery</b>		<b>Control Limits (%)</b>							
4-Bromofluorobenzene		87.3		73 - 151							
Dibromofluoromethane		95.8		57 - 156							
Toluene-d8		102.5		77 - 150							
<b>Test: EPA 8260B</b>											
1,1-Dichloroethene	EPA 8260B	ND		20		17.6	LCSD	88.0	1.72	25.00	58.7 - 114.2
Benzene	EPA 8260B	ND		20		19.2	LCSD	96.0	8.70	25.00	67.6 - 131.8
Chlorobenzene	EPA 8260B	ND		20		20.3	LCSD	101.5	15.38	25.00	87.7 - 116.2
Methyl-t-butyl Ether	EPA 8260B	ND		20		19.6	LCSD	98.0	16.57	25.00	54.0 - 130.5
Toluene	EPA 8260B	ND		20		19.8	LCSD	99.0	14.05	25.00	81.9 - 110.5
Trichloroethene	EPA 8260B	ND		20		19.3	LCSD	96.5	5.32	25.00	75.5 - 110.2
<b>Surrogate</b>		<b>Surrogate Recovery</b>		<b>Control Limits (%)</b>							
4-Bromofluorobenzene		99.1		73 - 151							
Dibromofluoromethane		99.3		57 - 156							
Toluene-d8		111.4		77 - 150							
<b>Test: TPH as Gasoline - GC-MS</b>											
TPH as Gasoline	GC-MS	ND		250		305	LCSD	122.0	6.22	25.00	65.0 - 135.0
<b>Surrogate</b>		<b>Surrogate Recovery</b>		<b>Control Limits (%)</b>							
4-Bromofluorobenzene		86.9		73 - 151							
Dibromofluoromethane		95.1		57 - 156							
Toluene-d8		101.8		77 - 150							



**CHAIN OF CUSTODY**

Project Name: ABE Petroleum LLC Project No: 02-103.07 Date: 4-2-03

Project Location: 17715 MISSION BLVD Client: ABE Petroleum Sampler: Mike Hagi

Sample ID	Date Sampled	Sampling Time	Matrix	Nº of Containers	Analysis Requested						Turnaround Time		
					8015/8020 TPHG BTEX	8015 TPHD	418.1 TRPH	BTEX 8020	Fuel Oxygenates 8260B			24-hour Other	
MW-1	4/2/03		Water	4	X				X		33868-001	24-hour Other	Normal
MW-2	X		X	X	X				X		-002	24-hour Other	Normal
MW-3	X		X	X	X				X		-003	24-hour Other	Normal
												24-hour Other	Normal
												24-hour Other	Normal
												24-hour Other	Normal
												24-hour Other	Normal

Remarks: Samples contain preservative

Relinquished by <u>Mahmoud Hagi</u>	Date <u>4/2/03</u>	Time <u>12:00</u>	Received by <u>Joseph Machado</u>	Date <u>4/2/03</u>	Time <u>12:00</u>
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1670 Newhall St. • Suite 212 • Santa Clara • California • 95050  
Phone (408) 248-3700 • Fax (408) 248-4700



SIERRA ENVIRONMENTAL, INC.  
*Environmental Consultants*

<b>INVOICE</b>		<b>TERMS</b> Upon Receipt	<b>INVOICE Nº: 514</b> <b>INVOICE DATE: April 25, 2003</b>	
<b>Company:</b> ABE Petroleum <b>Address:</b> 33090 Mission Blvd. Union City, CA 94587  <b>Contact:</b> Mr. Paul Garg	<b>Project Nº:</b> 03-103.07 <b>P.O. Nº:</b> <b>Project Description:</b> 1 <sup>st</sup> Quarter 2003 Groundwater Monitoring <b>Project Location:</b> 17715 Mission Blvd. Hayward, CA			
<b>TASK Nº</b>	<b>PROJECT DESCRIPTION</b>	<b>Unit Cost</b>	<b>Quantity</b>	<b>COST</b>
5 -	<b>1<sup>st</sup> Quarter 2002 Groundwater Monitoring</b>			
	Technical Staff	\$75/hr	6 hr	\$450.00
	Project manager	\$120/hr	2 hr	\$240.00
	Field Technician	\$60/hr	8 hr	\$480.00
	Senior Technical Staff	\$105/hr	5 hr	\$525.00
	Equipment and Material	\$300/LS	1 LS	\$300.00
	Mileage	\$0.40/mile	50 mile	\$20.00
	TPHG, BTEX& Fuel Oxygenates	\$210/sample	3 sample	\$630.00
	Drafting	\$55/hr	3 hr	\$165.00
	Typing/Reproduction/Mailing	\$45/hr	3 hr	\$135.00
7 -	<b>Horizontal and Vertical Wellhead Survey Using GPS</b>			
	Survey 3 wells	\$450/LS	1 LS	\$450.00
<b>TOTAL INVOICE</b>				<b>\$3,395.00</b>

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