Ro 257

ALAMEDA COUNTY
APR 2 4 2004
ENVIRONMENTAL HEALTH

FIRST QUARTER 2004
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 05, 2004
Project 03-103.07

Sierra Environmental, Inc.
Environmental Consultants

April 05, 2004
Project 03-103.07

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

Subject: Report for First Quarter 2004 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 2004 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 March 9, 2004, 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 for chemical analysis. 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.

980 W. Taylor Street
San Jose, CA 95126
Phone (408) 971- 6758
Fax (408) 971 - 6759

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. Groundwater monitoring well locations are shown on Figure 3.

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 third 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.

GROUNDWATER MONITORING

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 3) using an electronic sounder. 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.

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) 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. Copies of the field notes are presented in Appendix C.

Sierra has submitted the analytical results to the State Water Board via Geotracker. Electronic Data Delivery Confirmation is presented in Appendix D.

ANALYTICAL RESULTS

Table II presents Summary of the analytical results.

CONCLUSION AND RECOMMENDATIONS

The analytical results obtained during this monitoring event show consistent high concentrations of the gasoline constituents in the groundwater beneath the Site.

Sierra recommends proceeding with the soil and groundwater investigation, and corrective action at the site as soon as possible. Sierra is awaiting a response from ACHSA regarding its addendum to work plan for soil and groundwater investigation.

LIMITATIONS

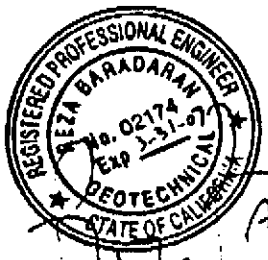
The content and conclusion provided by Sierra in this report are based on information collected during its assessment/monitoring, which include, but are not limited to field observations and analytical results for the groundwater samples collected at the Site.

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.



APR. 5 - 2004

Reza Baradaran, PE, GE
Principal

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
Appendix C	-	Field Notes
Appendix D	-	Electronic Data Delivery Confirmation

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

R03-103.06\1stQ2004GWMH04052004

TABLE I
GROUNDWATER ELEVATION DATA

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water[1] (ft)	Water Table[2] 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
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
	6-12-03			21.84	78.74
	9-29-03			24.15	76.43
	12-04-03			24.91	75.67
	03-09-04			21.05	79.53
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
	6-12-03			20.99	78.70
	9-29-03			23.30	76.39
	12-04-03			24.05	75.64
	03-09-04			20.20	79.49

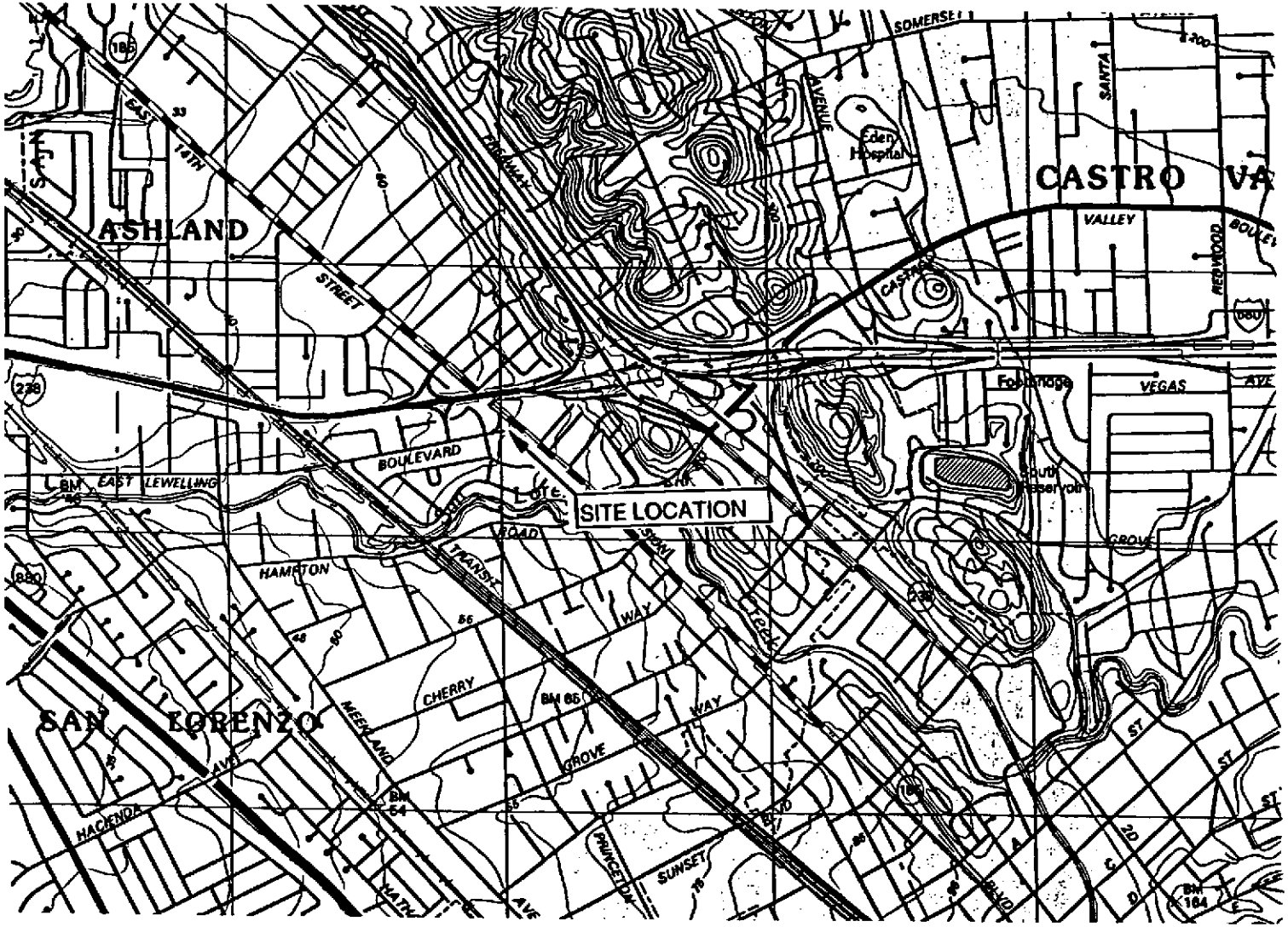
1. Depths to groundwater were measured to the top of the well casings
2. Water table elevations were measured in relation to an assumed datum (100') relative elevation

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

Sample ID	Sample Date	Sample Location	TPHG[1] ppb[3]	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Xylenes ppb	MTBE[2] 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
*	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
MW-2	8-18-00	MW2	290,000	3700	990	7,300	26,000	ND[4]
*	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
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
*	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

1. TPHG = Total Petroleum Hydrocarbons as Gasoline
2. MTBE = Methyl Tertiary Butyl Ether
3. ppb = Parts Per Billion [ppb (µg/liter)
4. ND = Not Detected

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



Source: Hayward Quadrangle, California, 7.5-Minute Series (Topographic)

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

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

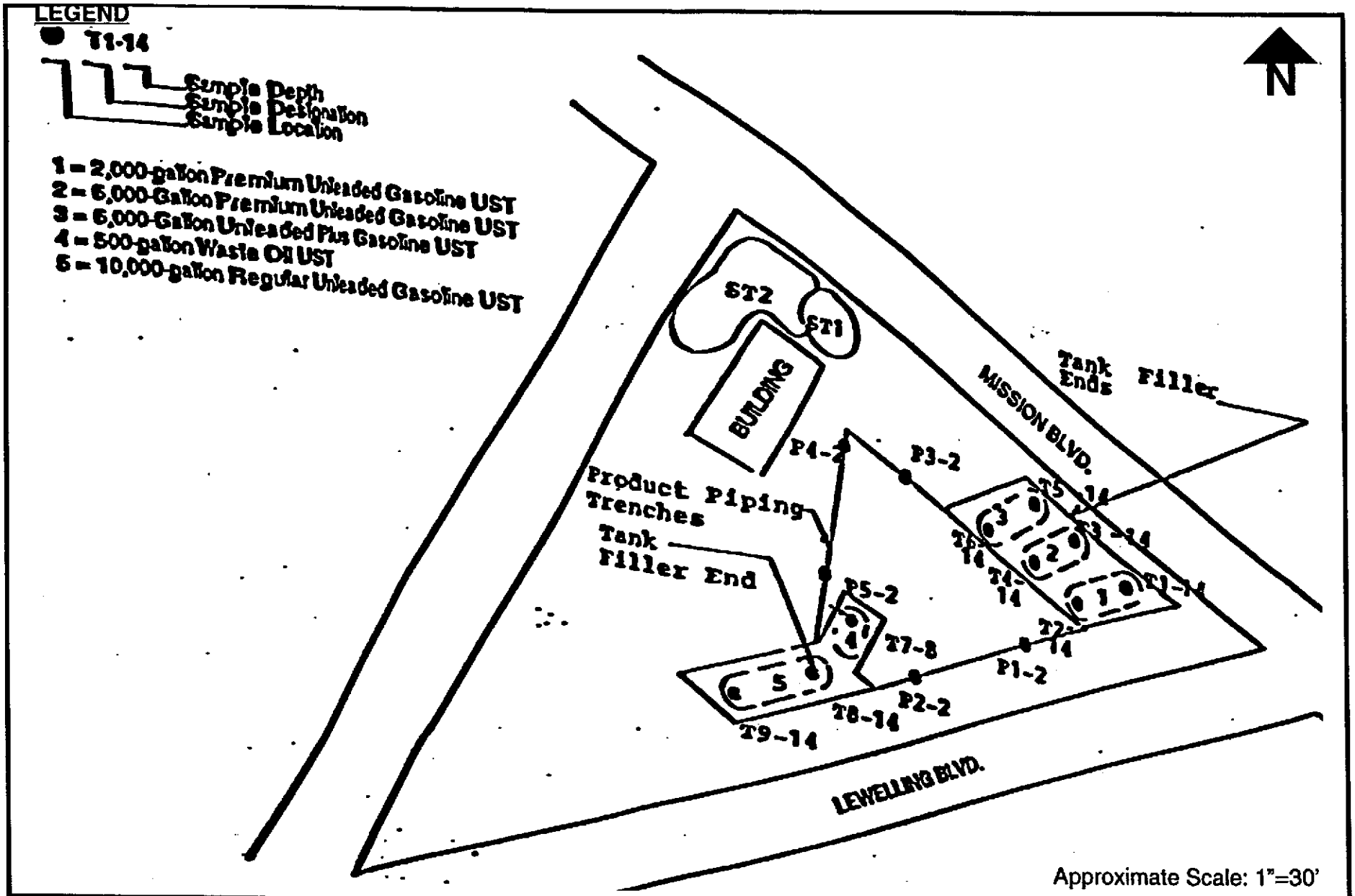
Site Location Map

First Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

FIGURE
1

April 05, 2004
Project 03-103.07



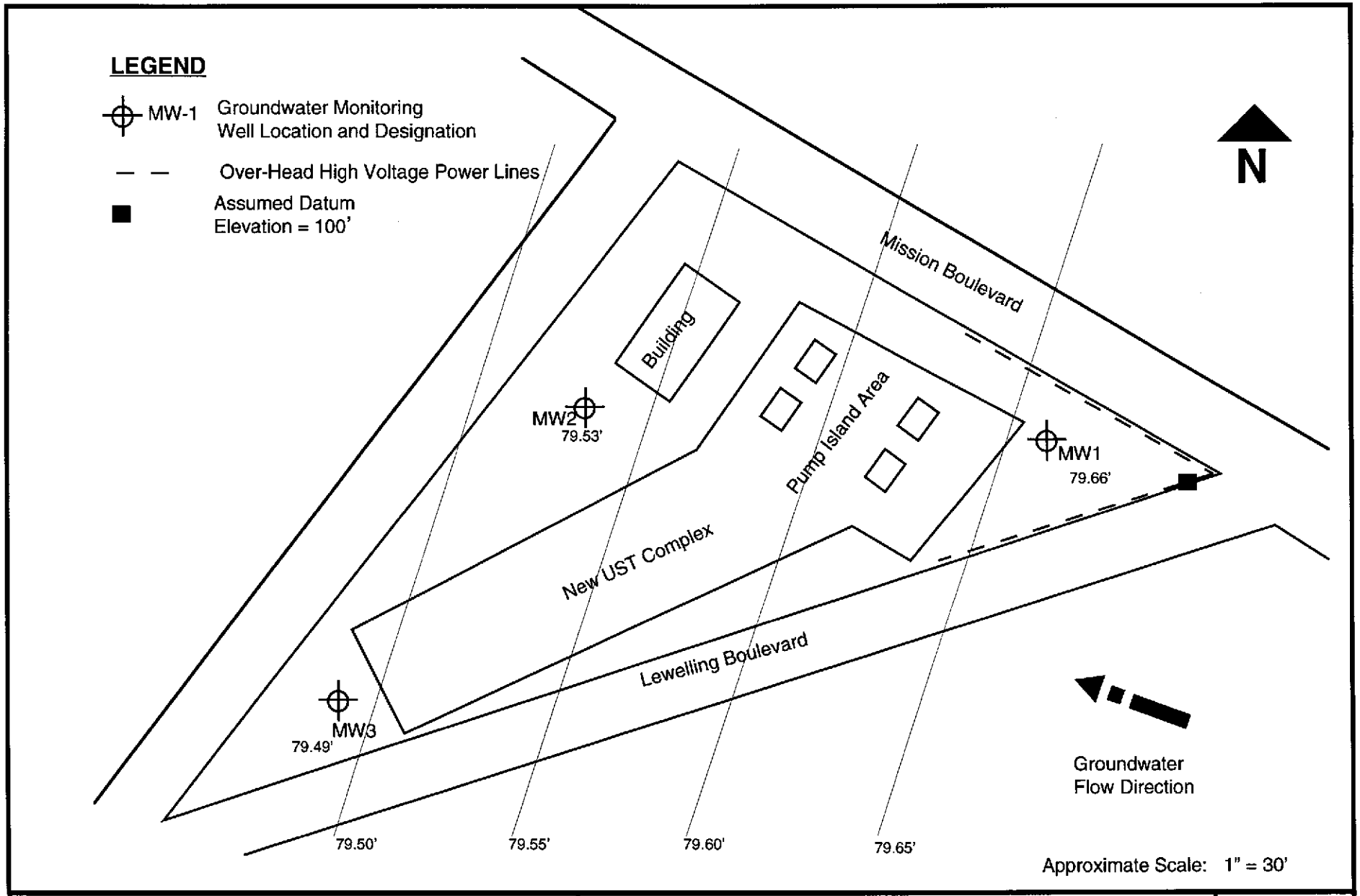
SIERRA ENVIRONMENTAL, INC.
Environmental Consultants
980 W. Taylor Street, San Jose, CA 95126
Phone [408]248-3700 • Fax [408] 248-4700

Former UST and Soil Sample Locations

First Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

FIGURE
2
April 05, 2004
Project 03-103.07



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants
980 W. Taylor St.,San Jose, CA 95126
Phone [408]971-6758 • Fax [408] 971-6759

Groundwater Monitoring Well Locations

First Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

FIGURE 3

April 05, 2004
Project 03-103.07

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® (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

March 24, 2004

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

Order:	38167	**Date Collected:**	3/9/2004
Project Name:	ABE	**Date Received:**	3/9/2004
Project Number:	03-103.07	**P.O. Number:**	03-103.07
Project Notes:			

On March 09, 2004, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method	Comments
Liquid	8260Petroleum	EPA 8260B	
	EDF	EDF	
	TPH as Gasoline	EPA 8015 MOD. (Purge	
	BTEX	EPA 8020	

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 Phone: (408) 588-0200 Fax: (408) 588-0201

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

Date: 3/17/04
Date Received: 3/9/04
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-001 **Client Sample ID:** MW-1

Sample Time: **Sample Date:** 3/9/04 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Diisopropyl Ether	ND		200	5	1000	µg/L	3/16/04	WMS110576	EPA 8260B
Ethyl-t-butyl Ether	ND		200	5	1000	µg/L	3/16/04	WMS110576	EPA 8260B
Methyl-t-butyl Ether	6000		200	1	200	µg/L	3/16/04	WMS110576	EPA 8260B
tert-Amyl Methyl Ether	ND		200	5	1000	µg/L	3/16/04	WMS110576	EPA 8260B
tert-Butanol (TBA)	ND		200	10	2000	µg/L	3/16/04	WMS110576	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	106.0	64 - 125
Dibromofluoromethane	103.0	23 - 172
Toluene-d8	102.0	70 - 134

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346) Analyzed by: _____ Reviewed by: _____

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Entech Analytical Labs, Inc.

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

Date: 3/17/04
Date Received: 3/9/04
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-002 **Client Sample ID:** MW-2

Sample Time: **Sample Date:** 3/9/04 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Diisopropyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
Ethyl-t-butyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
Methyl-t-butyl Ether	2200		100	1	100	µg/L	3/17/04	WMS110576	EPA 8260B
tert-Amyl Methyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
tert-Butanol (TBA)	ND		100	10	1000	µg/L	3/17/04	WMS110576	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.8	64 - 125
Dibromofluoromethane	98.4	23 - 172
Toluene-d8	102.0	70 - 134

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346) Analyzed by: _____ Reviewed by: _____

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Entech Analytical Labs, Inc.

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

Date: 3/17/04
Date Received: 3/9/04
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-003 **Client Sample ID:** MW-3

Sample Time: **Sample Date:** 3/9/04 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Diisopropyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
Ethyl-t-butyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
Methyl-t-butyl Ether	4000		100	1	100	µg/L	3/17/04	WMS110576	EPA 8260B
tert-Amyl Methyl Ether	ND		100	5	500	µg/L	3/17/04	WMS110576	EPA 8260B
tert-Butanol (TBA)	ND		100	10	1000	µg/L	3/17/04	WMS110576	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	105.0	64 - 125
Dibromofluoromethane	102.0	23 - 172
Toluene-d8	101.0	70 - 134

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346) Analyzed by: _____ Reviewed by: _____

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Entech Analytical Labs, Inc.

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

Date: 3/10/04
Date Received: 3/9/04
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-001 **Client Sample ID:** MW-1

Sample Time: **Sample Date:** 3/9/04 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	5900		500	0.5	250	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Toluene	9700		500	0.5	250	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Ethyl Benzene	4900		500	0.5	250	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Xylenes, Total	22000		500	1	500	µg/L	N/A	3/9/04	WGC43078	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	111.5	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	130000	x	500	50	25000	µg/L	N/A	3/9/04	WGC43078	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	116.3	65 - 135

Comment: TPH as Gasoline value reported possibly aged Gasoline.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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

Analyst 03/10/04 Date Supervisor 03/10/04 Date

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

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

Date: 3/10/04
Date Received: 3/9/04
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-002 **Client Sample ID:** MW-2

Sample Time: **Sample Date:** 3/9/04 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	1500		200	0.5	100	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Toluene	2000		200	0.5	100	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Ethyl Benzene	4200		200	0.5	100	µg/L	N/A	3/9/04	WGC43078	EPA 8020
Xylenes, Total	8500		200	1	200	µg/L	N/A	3/9/04	WGC43078	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	119.3	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	61000	x	200	50	10000	µg/L	N/A	3/9/04	WGC43078	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	135.0	65 - 135

Comment: TPH as Gasoline value reported possibly aged Gasoline.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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

Analyst Date 03/10/04 Supervisor Date 03/10/04

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

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

Date: 3/24/2004
Date Received: 3/9/2004
Project Name: ABE
Project Number: 03-103.07
P.O. Number: 03-103.07
Sampled By: Mike Hajiaghai

Certified Analytical Report

Order ID: 38167 **Lab Sample ID:** 38167-003 **Client Sample ID:** MW-3

Sample Time: **Sample Date:** 3/9/2004 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	3100		100	0.5	50	µg/L	N/A	3/23/2004	WGC43089	EPA 8020
Toluene	160		100	0.5	50	µg/L	N/A	3/23/2004	WGC43089	EPA 8020
Ethyl Benzene	2100		100	0.5	50	µg/L	N/A	3/23/2004	WGC43089	EPA 8020
Xylenes, Total	4400		100	1	100	µg/L	N/A	3/23/2004	WGC43089	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	126.6	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	39000		100	50	5000	µg/L	N/A	3/23/2004	WGC43089	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	145.4	65 - 135

Comment: .

Comment: Surrogate recovery was outside QC limit due to matrix interference.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analyst 03/24/04 Date

Supervisor 03/24/04 Date

Entech Analytical Labs, Inc.

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

Quality Control - Method Blank

Prep Batch ID:
Prep Date:

QC Batch ID: WMS110576
Matrix: Liquid

Method: EPA 8260B

Analysis Date: 3/16/2004

Parameter	Result	DF	PQL	DLR	Units
1,2-Dibromoethane (EDB)	ND	1	0.5	0.5	µg/L
1,2-Dichloroethane	ND	1	0.5	0.5	µg/L
Benzene	ND	1	0.5	0.5	µg/L
Diisopropyl Ether	ND	1	5	5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylene, m+p	ND	1	1	1	µg/L
Xylene, o	ND	1	0.5	0.5	µg/L

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

QC Reviewed by: _____

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	113.0	64 - 125
Dibromofluoromethane	117.0	23 - 172
Toluene-d8	107.0	70 - 134

Entech Analytical Labs, Inc.

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

Quality Control - Laboratory Control Spike / Duplicate Results

Prep Batch ID: **Conc. Units:** µg/L **QC Batch ID:** WMS110576

Prep Date: **Analysis Date:** 3/16/2004 **Matrix:** Liquid

Method EPA 8260B

Parameter	Blank Result	Spike Amount	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
LCS								
1,1-Dichloroethene	ND	20.	18.3	LCS	**91.5**			60 - 132
Benzene	ND	20.	23.5	LCS	**117.5**			77 - 154
Chlorobenzene	ND	20.	20.8	LCS	**104.0**			66 - 141
Methyl-t-butyl Ether	ND	20.	25.	LCS	**125.0**			58 - 127
Toluene	ND	20.	20.1	LCS	**100.5**			47 - 137
Trichloroethene	ND	20.	20.3	LCS	**101.5**			57 - 159

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	110.0	64 - 125
Dibromofluoromethane	113.0	23 - 172
Toluene-d8	99.6	70 - 134

LCSD								
1,1-Dichloroethene	ND	20.	19.7	LCSD	**98.5**	**7.4**	25	60 - 132
Benzene	ND	20.	25.1	LCSD	**125.5**	**6.6**	25	77 - 154
Chlorobenzene	ND	20.	22.6	LCSD	**113.0**	**8.3**	25	66 - 141
Methyl-t-butyl Ether	ND	20.	25.2	LCSD	**126.0**	**0.8**	25	58 - 127
Toluene	ND	20.	21.6	LCSD	**108.0**	**7.2**	25	47 - 137
Trichloroethene	ND	20.	21.6	LCSD	**108.0**	**6.2**	25	57 - 159

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	108.0	64 - 125
Dibromofluoromethane	112.0	23 - 172
Toluene-d8	99.6	70 - 134

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

QC Reviewed by: 

Entech Analytical Labs, Inc.

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

Quality Control - Method Blank

Prep Batch ID: | **QC Batch ID:** WGC43078

Prep Date: | **Matrix:** Liquid

Method: EPA 8015 MOD. (Purgeable) | **Analysis Date:** 3/9/2004

Parameter	Result	DF	PQL	DLR	Units
TPH as Gasoline	ND	1	50	50	µg/L

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

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	97.0	65 - 135

QC Reviewed by: _____

Method: EPA 8020 | **Analysis Date:** 3/9/2004

Parameter	Result	DF	PQL	DLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

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

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	101.1	65 - 135

QC Reviewed by: _____

Entech Analytical Labs, Inc.

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

Quality Control - Laboratory Control Spike / Duplicate Results

Prep Batch ID: | **Conc. Units:** µg/L | **QC Batch ID:** WGC43078

Prep Date: | **Analysis Date:** 3/9/2004 | **Matrix:** Liquid

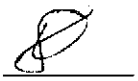
Method EPA 8015 MOD. (Purgeable)

Parameter	Blank Result	Spike Amount	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
LCS								
TPH as Gasoline	ND	250.	239.	LCS	**95.6**			65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	90.2		65 - 135					
LCSD								
TPH as Gasoline	ND	250.	235.	LCSD	**94.0**	**1.7**	25	65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	87.4		65 - 135					

Method EPA 8020

Parameter	Blank Result	Spike Amount	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
LCS								
Benzene	ND	8.	7.28	LCS	**91.0**			65 - 135
Ethyl Benzene	ND	8.	7.33	LCS	**91.6**			65 - 135
Toluene	ND	8.	7.56	LCS	**94.5**			65 - 135
Xylenes, total	ND	24.	22.4	LCS	**93.3**			65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	101.3		65 - 135					
LCSD								
Benzene	ND	8.	7.18	LCSD	**89.8**	**1.4**	25	65 - 135
Ethyl Benzene	ND	8.	7.15	LCSD	**89.4**	**2.5**	25	65 - 135
Toluene	ND	8.	7.31	LCSD	**91.4**	**3.4**	25	65 - 135
Xylenes, total	ND	24.	21.6	LCSD	**90.0**	**3.6**	25	65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	101.3		65 - 135					

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

QC Reviewed by: 

Entech Analytical Labs, Inc.

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

Quality Control - Matrix Spike / Duplicate Results

Prep Batch ID: | **Conc. Units:** µg/L | **QC Batch ID:** WGC43078

Prep Date: | **Analysis Date:** 3/9/2004 | **Matrix:** Liquid

Method EPA 8015 MOD. (Purgeable)

Parameter	Blank Result	Spike Amount	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 38113-009								
TPH as Gasoline	ND	250.	248.2	MS	**99.3**			65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	87.7		65 - 135					
MSD SampleNumber: 38113-009								
TPH as Gasoline	ND	250.	246.8	MSD	**98.7**	**0.6**	25	65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	87.6		65 - 135					

Method EPA 8020

Parameter	Blank Result	Spike Amount	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 38113-009								
Benzene	ND	2.8	2.54	MS	**90.3**			65 - 135
Ethyl Benzene	ND	3.7	3.25	MS	**88.6**			65 - 135
Toluene	ND	16.4	16.01	MS	**97.4**			65 - 135
Xylenes, total	ND	19.5	17.36	MS	**88.8**			65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	103.3		65 - 135					
MSD SampleNumber: 38113-009								
Benzene	ND	2.8	2.53	MSD	**90.0**	**0.4**	25	65 - 135
Ethyl Benzene	ND	3.7	3.27	MSD	**89.1**	**0.6**	25	65 - 135
Toluene	ND	16.4	15.98	MSD	**97.3**	**0.2**	25	65 - 135
Xylenes, total	ND	19.5	17.46	MSD	**89.4**	**0.6**	25	65 - 135
Surrogate	**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene	103.8		65 - 135					

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

QC Reviewed by: 

Entech Analytical Labs, Inc.

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

Quality Control - Method Blank

Prep Batch ID:
Prep Date:

QC Batch ID: WGC43089
Matrix: Liquid

Method: EPA 8015 MOD. (Purgeable)

Analysis Date: 3/23/2004

Parameter	Result	DF	PQL	DLR	Units
TPH as Gasoline	ND	1	50	50	µg/L

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

QC Reviewed by: _____

Method: EPA 8020

Analysis Date: 3/23/2004

Parameter	Result	DF	PQL	DLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

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

QC Reviewed by: _____

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

CHAIN OF CUSTODY

Project Name: ABE **Project No:** 03-103.07 **Date:** 3-09-04

Project Location: 17715 Mission BLVD. **Client:** ABE **Sampler:** Mike Hajishaei

Sample ID	Date Sampled	Sampling Time	Matrix	Nº of Containers	Analysis Requested							Turnaround Time
					8015/8020 TPHG BTEX	8015 TPHD	Fuel Oxygenate 8260B					
MW-1	3/9/04		Water	4	X		X		38167-001			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	Date	Time	Received by	Date	Time
Mahmood Hajishaei	3/9/04	12:30	[signature]	3/9/04	1230

980 W. Taylor St. • San Jose • California • 95126
Phone (408) 971-6758 • Fax (408) 971-6759

Appendix C
FIELD NOTES

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: ~~03-103.03~~ **Date:** 3-9-04

Project Name: ABE **Well Nº:** ~~MW1~~

Field Personnel: Mike & Mazyar **Weather:** Sunny

Project Location:

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	33.25'	19.80'	13.45'	0.16	0.64	1.44	2.2	6.6

Purge Method: Bailer **Measuring Reference:** TOC

Time						
Volume Purged (gal)	0	2.2	4.4	6.6		
Temperature (° F)	73.8	72.8	72.5	72.1		
pH	6.05	6.15	6.13	6.10		
Specific Conductivity (umhos/cm)	4300	4000	4400	4300		
Turbidity/Color	Very Cloudy	→	→	→		
Odor	Yes	→	→	→		

Comments: Sheens and HC odor were detected/observed

980 W. Taylor St. • San Jose • California • 95126
Phone (408) 971-6758 • Fax (408) 971-6759

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: ~~03-103.03.~~ **Date:** 3-9-04

Project Name: ABE **Well Nº:** ~~MW2~~

Field Personnel: Mike & Mazyar **Weather:** Sunny

Project Location:

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	33.75'	21.05'	12.7'	0.16	0.64	1.44	2.0	6.0

Purge Method: Bailer **Measuring Reference:** TOC

Time						
Volume Purged (gal)	0	2	4	6		
Temperature (° F)	74.6	72.3	71.3	71.0		
pH	5.74	6.05	6.10	6.05		
Specific Conductivity (umhos/cm)	4000	3700	4300	4300		
Turbidity/Color	Light gray	→	→	→		
Odor	Yes	→	→	→		

Comments: Sheen and odor were detected and observed

980 W. Taylor St. • San Jose • California • 95126
Phone (408) 971-6758 • Fax (408) 971-6759

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: ~~03-103.03~~ **Date:** 3-9-04

Project Name: ABE **Well Nº:** ~~MW3~~

Field Personnel: Mike & Mazyar **Weather:** Sunny

Project Location:

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	33.75'	20.20'	13.6	0.16	0.64	1.44	2.2	6.6

Purge Method: Bailer **Measuring Reference:** TOC

Time						
Volume Purged (gal)	0	2.2	4.4	6.6		
Temperature (° F)	71.4	71.2	70.1	70.5		
pH	5.80	5.97	6.21	6.18		
Specific Conductivity (umhos/cm)	5300	4500	5400	5300		
Turbidity/Color	Lightgray	→	→	→		
Odor	Yes	→	→	→		

Comments: Sheen and HC odor were observed/detected

980 W. Taylor St. • San Jose • California • 95126
Phone (408) 971-6758 • Fax (408) 971-6759

Appendix D
ELECTRONIC DATA DELIVERY CONFIRMATION

AB2886 Electronic Delivery

Main Menu | View/Add Facilities | Upload EDD | Check EDD

Your EDF file has been succcessfully uploaded!

Confirmation Number: 8067213594
Date/Time of Submittal: 3/29/2004 10:20:50 AM
Facility Global ID: T0600102154
Facility Name: ABE PETROLEUM
Submittal Title: First Quarter 2004 Groundwater Monitoring
Submittal Type: GW Monitoring Report

Logged in as MITCHHAJIAGHAI (AUTH_RP)

CONTACT SITE ADMINISTRATOR.