R0257

THIRD 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.

September 24, 2004
Project 03-103.07

Sierra Environmental, Inc.
Environmental Consultants

September 24, 2004
Project 03-103.07

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

Subject: Report for Third 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 third 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 September 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.

980 W. Taylor Street
San Jose, CA 95126
Phone (408) 971- 6758
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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 2.

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 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 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 second 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.

On June 24, 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 21.44 to 22.95 feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

GROUNDWATER MONITORING

On September 9, 2004, Sierra performed the third 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 20.20 to 24.55 feet below TOC with a northerly 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 were 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 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 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 for the 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.

ANALYTICAL RESULTS

Table II presents Summary of the analytical results.

CONCLUSION AND RECOMMENDATIONS

The analytical results obtained during this monitoring event show a generally increasing trend in 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 ACHCS regarding its addendum to work plan for soil and groundwater investigation at the site. Sierra also recommends continuing with quarterly groundwater monitoring at the site for the last quarter of 2004.

LIMITATIONS

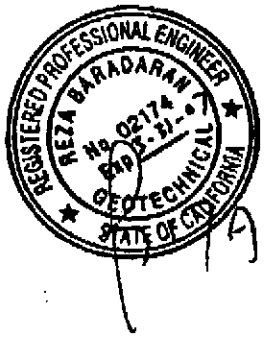
The content and conclusion provided by Sierra in this report are based on information collected during its assessment/monitoring, which include, but are not limited to field observations and analytical results for the groundwater samples collected at the Site.

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.



SEP 29 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

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

R03-103.06\3rdQ2004GWMH09242004

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
	6-24-04			21.44	78.02
	9-09-04			23.30	76.16
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
	6-24-04			22.95	77.63
	9-09-04			24.55	76.03
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
	6-24-04			22.11	77.58
	9-09-04			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

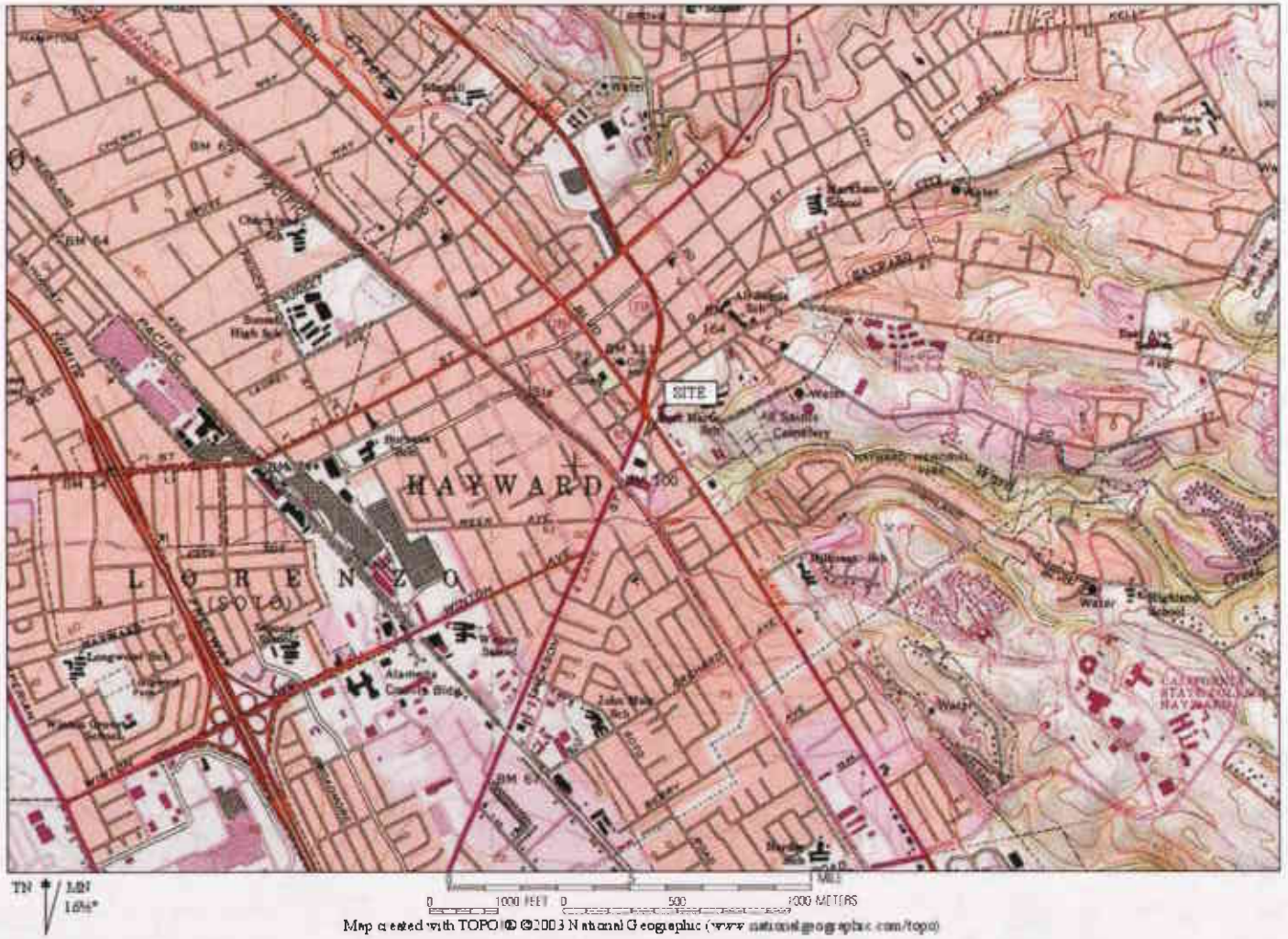
Sample ID	Sample Date	Sample Location	TPHG[1] ppb[3]	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Xylenes ppb	MTBE[2] ppb
MW-1	8-18-00	MW1	280,000	10,000	16,000	11,000	49,000	4,000
*	3-30-01		98,000	8,600	14,000	6,300	26,000	7,600
*	6-22-01		110,000	7,500	12,000	5,700	24,000	3,800
*	9-20-01		93,000	8,700	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
*	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
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
*	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

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
CONTINUED

Sample ID	Sample Date	Sample Location	TPHG[1] ppb[3]	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Xylenes ppb	MTBE[2] ppb
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
*	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

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

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



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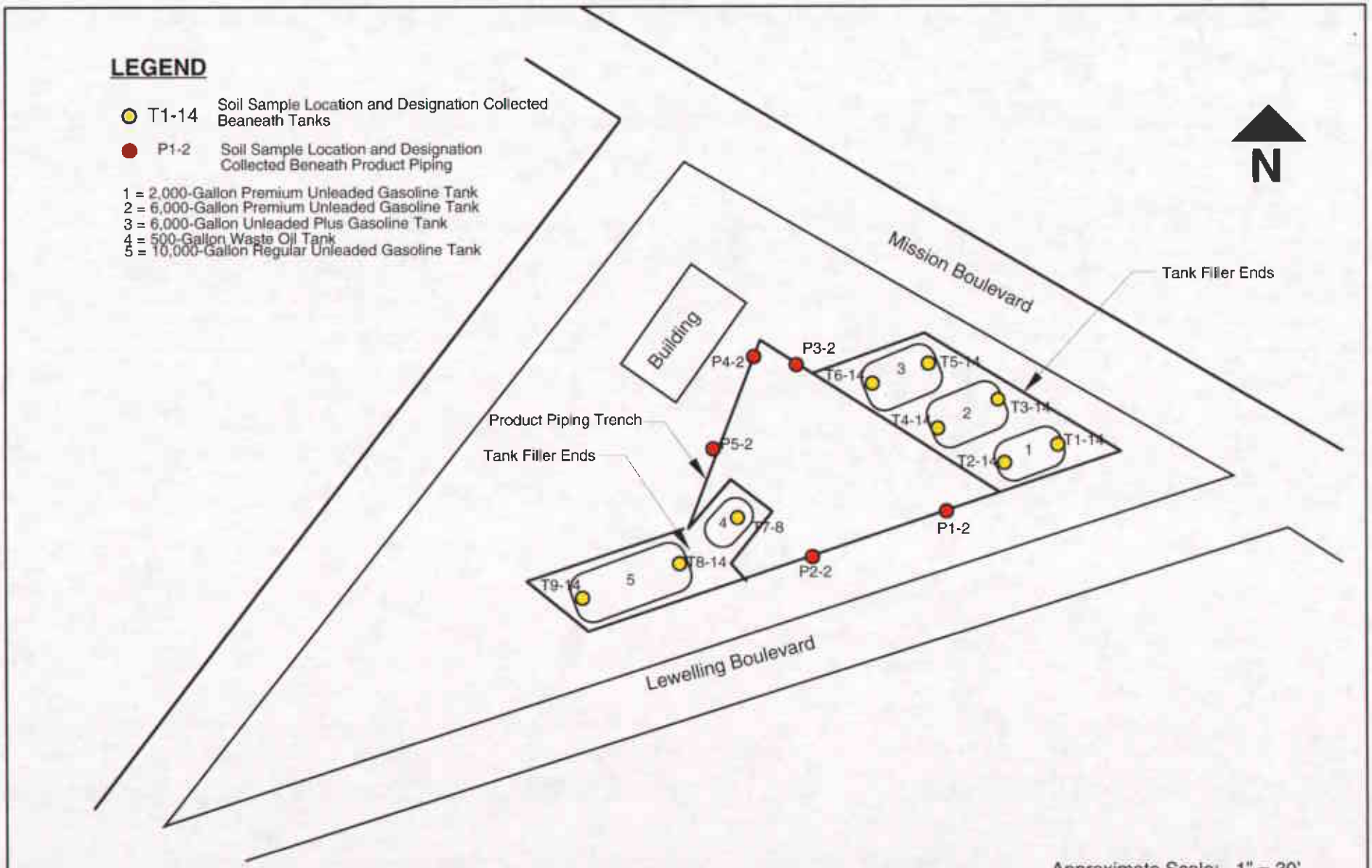
Site Location Map

Third Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

FIGURE
1

Sep 24, 2004
Project 03-103.07



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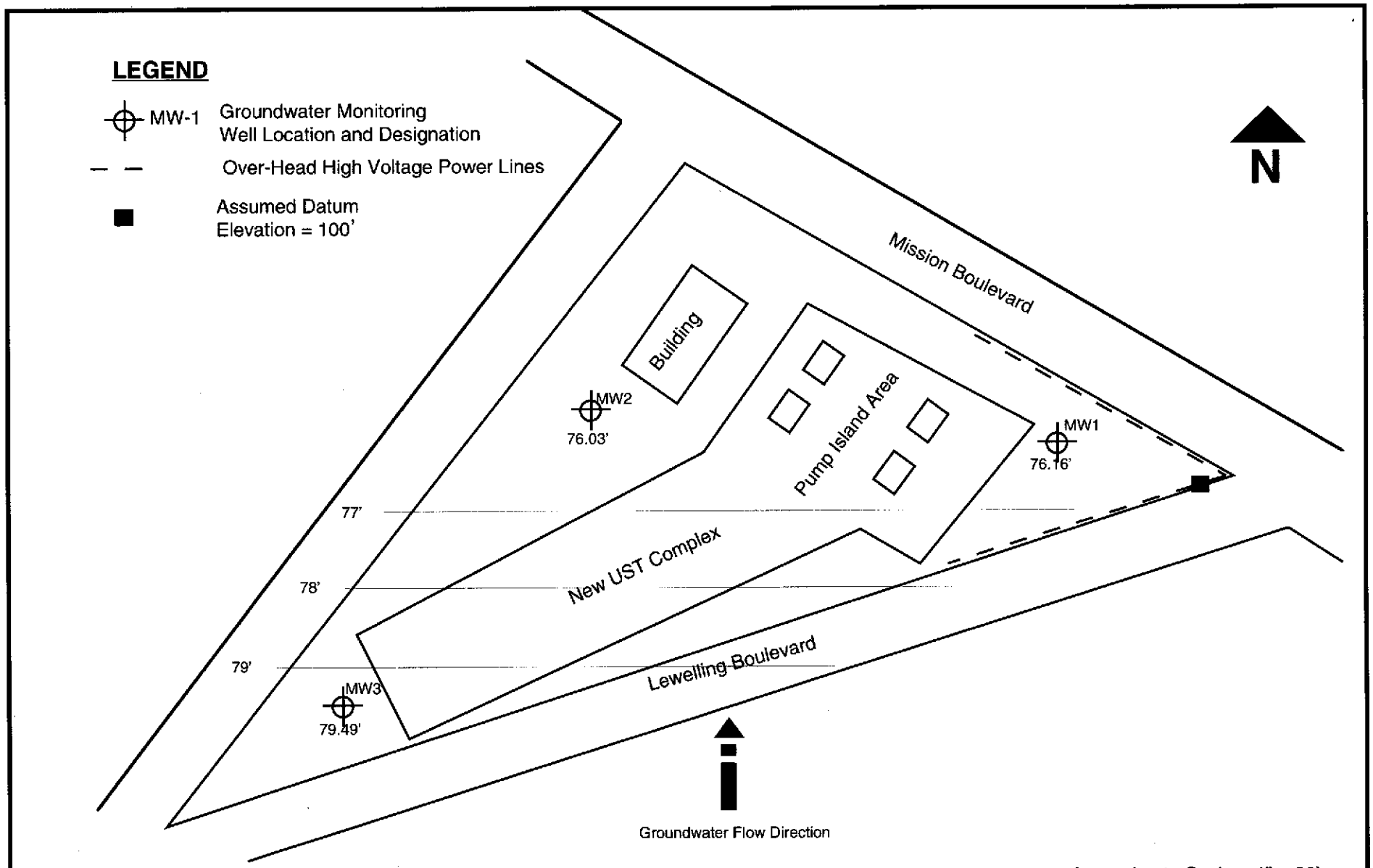
Former UST and Soil Sample Locations

Third Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

17715 Mission Boulevard • Hayward • California

FIGURE
2
Sep 24, 2004
Project 03-103.07



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Environmental Consultants
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Groundwater Monitoring Well Locations

Second Quarter 2004 Groundwater Monitoring
ABE Petroleum LLC

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FIGURE 3

July 12, 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

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

Certificate ID: 40325 - 9/14/2004 4:52:04 PM

Order:	40325	**Date Collected:**	9/9/2004
Project Name:	ABE	**Date Received:**	9/9/2004
Project Number:	03-103.07	**P.O. Number:**	03-103.07

Certificate of Analysis - Final Report

On September 09, 2004, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Method	Comments
Liquid	8260Petroleum	EPA 8260B	
	TPH as Gasoline - GC/MS	GC-MS	

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,

Laurie Glantz-Murphy
Laboratory Director

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

Project Number: 03-103.07
Project Name: ABE
Date Received: 9/9/2004
P.O. Number: 03-103.07
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40325-001 **Sample ID: MW-1** **Matrix:** Liquid **Sample Date:** 9/9/2004

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	4800		200	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Toluene	7500		200	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl Benzene	4500		200	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Xylenes, Total	19000		200	200	µg/L	N/A	N/A	09/13/2004	WMS1040913
Methyl-t-butyl Ether	2200		200	200	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl-t-butyl Ether	ND		200	1000	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Butanol (TBA)	ND		200	2000	µg/L	N/A	N/A	09/13/2004	WMS1040913
Diisopropyl Ether	ND		200	1000	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Amyl Methyl Ether	ND		200	1000	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.3	64 - 125
Dibromofluoromethane	102.0	23 - 172
Toluene-d8	95.6	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Method: GC-MS

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	64000		200	5000	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	95.9	64 - 125
Dibromofluoromethane	101.0	23 - 172
Toluene-d8	96.9	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

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

Project Number: 03-103.07
Project Name: ABE
Date Received: 9/9/2004
P.O. Number: 03-103.07
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40325-002 **Sample ID: MW-2** **Matrix:** Liquid **Sample Date:** 9/9/2004

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	1600		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Toluene	110		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl Benzene	4000		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Xylenes, Total	8500		100	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Methyl-t-butyl Ether	3100		100	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl-t-butyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Butanol (TBA)	ND		100	1000	µg/L	N/A	N/A	09/13/2004	WMS1040913
Diisopropyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Amyl Methyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	85.0	64 - 125
Dibromofluoromethane	102.0	23 - 172
Toluene-d8	93.6	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Method: GC-MS

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	37000		100	2500	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	93.3	64 - 125
Dibromofluoromethane	101.0	23 - 172
Toluene-d8	94.9	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

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

Project Number: 03-103.07
Project Name: ABE
Date Received: 9/9/2004
P.O. Number: 03-103.07
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40325-003 **Sample ID: MW-3** **Matrix:** Liquid **Sample Date:** 9/9/2004

Method: EPA 8260B / EPA 5030B / Purge & Trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	4100		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Toluene	140		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl Benzene	2200		100	50	µg/L	N/A	N/A	09/13/2004	WMS1040913
Xylenes, Total	4300		100	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Methyl-t-butyl Ether	6000		100	100	µg/L	N/A	N/A	09/13/2004	WMS1040913
Ethyl-t-butyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Butanol (TBA)	ND		100	1000	µg/L	N/A	N/A	09/13/2004	WMS1040913
Diisopropyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913
tert-Amyl Methyl Ether	ND		100	500	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	87.9	64 - 125
Dibromofluoromethane	98.9	23 - 172
Toluene-d8	96.9	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Method: GC-MS

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	26000		100	2500	µg/L	N/A	N/A	09/13/2004	WMS1040913

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.5	64 - 125
Dibromofluoromethane	98.0	23 - 172
Toluene-d8	98.2	70 - 134

Analyzed by: Xbian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

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Quality Control - Method Blank

Liquid

Validated by: MTU - 09/14/04

QC Batch ID: WMS1040913

Analysis Date: 9/13/2004

Method Blank

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
1,1,1,2-Tetrachloroethane	ND	1	0.5	0.5	µg/L
1,1,1-Trichloroethane	ND	1	0.5	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	1	0.5	0.5	µg/L
1,1,2-Trichloroethane	ND	1	0.5	0.5	µg/L
1,1-Dichloroethane	ND	1	0.5	0.5	µg/L
1,1-Dichloroethene	ND	1	0.5	0.5	µg/L
1,1-Dichloropropene	ND	1	0.5	0.5	µg/L
1,2,3-Trichlorobenzene	ND	1	5	5	µg/L
1,2,3-Trichloropropane	ND	1	0.5	0.5	µg/L
1,2,4-Trichlorobenzene	ND	1	5	5	µg/L
1,2,4-Trimethylbenzene	ND	1	5	5	µg/L
1,2-Dibromo-3-Chloropropane	ND	1	5	5	µg/L
1,2-Dibromoethane (EDB)	ND	1	0.5	0.5	µg/L
1,2-Dichlorobenzene	ND	1	0.5	0.5	µg/L
1,2-Dichloroethane	ND	1	0.5	0.5	µg/L
1,2-Dichloropropane	ND	1	0.5	0.5	µg/L
1,3,5-Trimethylbenzene	ND	1	5	5	µg/L
1,3-Dichlorobenzene	ND	1	0.5	0.5	µg/L
1,3-Dichloropropane	ND	1	0.5	0.5	µg/L
1,4-Dichlorobenzene	ND	1	0.5	0.5	µg/L
1,4-Dioxane	ND	1	50	50	µg/L
2,2-Dichloropropane	ND	1	0.5	0.5	µg/L
2-Butanone (MEK)	ND	1	20	20	µg/L
2-Chloroethyl-vinyl Ether	ND	1	5	5	µg/L
2-Chlorotoluene	ND	1	5	5	µg/L
2-Hexanone	ND	1	20	20	µg/L
4-Chlorotoluene	ND	1	5	5	µg/L
4-Methyl-2-Pentanone(MIBK)	ND	1	20	20	µg/L
Acetone	ND	1	20	20	µg/L
Acetonitrile	ND	1	5	5	µg/L
Acrolein	ND	1	5	5	µg/L
Acrylonitrile	ND	1	5	5	µg/L
Benzene	ND	1	0.5	0.5	µg/L
Benzyl Chloride	ND	1	5	5	µg/L
Bromobenzene	ND	1	0.5	0.5	µg/L
Bromochloromethane	ND	1	0.5	0.5	µg/L
Bromodichloromethane	ND	1	0.5	0.5	µg/L
Bromoform	ND	1	0.5	0.5	µg/L
Bromomethane	ND	1	0.5	0.5	µg/L
Carbon Disulfide	ND	1	0.5	0.5	µg/L
Carbon Tetrachloride	ND	1	0.5	0.5	µg/L
Chlorobenzene	ND	1	0.5	0.5	µg/L
Chloroethane	ND	1	0.5	0.5	µg/L
Chloroform	ND	1	0.5	0.5	µg/L

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Quality Control - Method Blank

Liquid

Validated by: MTU - 09/14/04

QC Batch ID: WMS1040913

Analysis Date: 9/13/2004

Method Blank

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
Chloromethane	ND	1	0.5	0.5	µg/L
cis-1,2-Dichloroethene	ND	1	0.5	0.5	µg/L
cis-1,3-Dichloropropene	ND	1	0.5	0.5	µg/L
Cyclohexanone	ND	1	20	20	µg/L
Dibromochloromethane	ND	1	0.5	0.5	µg/L
Dibromomethane	ND	1	0.5	0.5	µg/L
Dichlorodifluoromethane	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
Freon 113	ND	1	1	1	µg/L
Hexachlorobutadiene	ND	1	5	5	µg/L
Iodomethane	ND	1	1	1	µg/L
Isopropanol	ND	1	20	20	µg/L
Isopropylbenzene	ND	1	1	1	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
Methylene Chloride	ND	1	5	5	µg/L
n-Butylbenzene	ND	1	5	5	µg/L
n-Propylbenzene	ND	1	5	5	µg/L
Naphthalene	ND	1	5	5	µg/L
p-Isopropyltoluene	ND	1	5	5	µg/L
Pentachloroethane	ND	1	0.5	0.5	µg/L
sec-Butylbenzene	ND	1	5	5	µg/L
Styrene	ND	1	0.5	0.5	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
tert-Butyl Ethyl Ether	ND	1	5	5	µg/L
tert-Butylbenzene	ND	1	5	5	µg/L
Tetrachloroethene	ND	1	0.5	0.5	µg/L
Tetrahydrofuran	ND	1	20	20	µg/L
Toluene	ND	1	0.5	0.5	µg/L
trans-1,2-Dichloroethene	ND	1	0.5	0.5	µg/L
trans-1,3-Dichloropropene	ND	1	0.5	0.5	µg/L
trans-1,4-Dichloro-2-butene	ND	1	1	1	µg/L
Trichloroethene	ND	1	0.5	0.5	µg/L
Trichlorofluoromethane	ND	1	0.5	0.5	µg/L
Vinyl Acetate	ND	1	5	5	µg/L
Vinyl Chloride	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
Xylenes, Total	ND	1	1	1	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	**87.9**	64 - 125
Dibromofluoromethane	**99.6**	23 - 172
Toluene-d8	**103.0**	70 - 134

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Quality Control - Laboratory Control Spike / Duplicate Results

Liquid

Reviewed by: MTU - 09/14/04

QC Batch ID: WMS1040913

Analysis Date: 9/13/2004

LCS **Method: EPA 8260B** **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.5	20.0	17.5	LCS	9/13/2004	**88**			60 - 132
Benzene	<0.5	20.0	21.1	LCS	9/13/2004	**110**			77 - 154
Chlorobenzene	<0.5	20.0	20.3	LCS	9/13/2004	**100**			66 - 141
Methyl-t-butyl Ether	<1	20.0	19.4	LCS	9/13/2004	**97**			58 - 127
Toluene	<0.5	20.0	18.9	LCS	9/13/2004	**95**			47 - 137
Trichloroethene	<0.5	20.0	19.9	LCS	9/13/2004	**100**			57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**92.8**	64 - 125
Dibromofluoromethane	**100.0**	23 - 172
Toluene-d8	**96.4**	70 - 134

LCSD **Method: EPA 8260B** **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.5	20.0	17.8	LCSD	9/13/2004	**89**	**1.7**	25	60 - 132
Benzene	<0.5	20.0	21.5	LCSD	9/13/2004	**110**	**1.9**	25	77 - 154
Chlorobenzene	<0.5	20.0	20.5	LCSD	9/13/2004	**100**	**1.0**	25	66 - 141
Methyl-t-butyl Ether	<1	20.0	20.2	LCSD	9/13/2004	**100**	**4.0**	25	58 - 127
Toluene	<0.5	20.0	19.2	LCSD	9/13/2004	**96**	**1.6**	25	47 - 137
Trichloroethene	<0.5	20.0	20.5	LCSD	9/13/2004	**100**	**3.0**	25	57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**91.6**	64 - 125
Dibromofluoromethane	**102.0**	23 - 172
Toluene-d8	**95.4**	70 - 134

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Quality Control - Method Blank

Liquid

Validated by: MTU - 09/14/04

QC Batch ID: WMS1040913

Analysis Date: 9/13/2004

Method Blank

Method: GC-MS

Parameter	Result	DF	PQL	PQLR	Units
TPH as Gasoline	ND	1	25	25	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	**95.6**	64 - 125
Dibromofluoromethane	**98.6**	23 - 172
Toluene-d8	**105.0**	70 - 134

Quality Control - Laboratory Control Spike / Duplicate Results

Liquid

Reviewed by: MTU - 09/14/04

QC Batch ID: WMS1040913

Analysis Date: 9/13/2004

LCS **Method: GC-MS** **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	125	115	LCS	9/13/2004	**92**			65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**99.8**	64 - 125
Dibromofluoromethane	**96.9**	23 - 172
Toluene-d8	**102.0**	70 - 134

LCSD **Method: GC-MS** **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	125	119	LCSD	9/13/2004	**95**	**3.8**	25	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**100.0**	64 - 125
Dibromofluoromethane	**96.8**	23 - 172
Toluene-d8	**101.0**	70 - 134

SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

CHAIN OF CUSTODY

Project Name: ABE **Project No:** 03-103.07 **Date:** 9/9/04

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

Sample ID	Date Sampled	Sampling Time	Matrix	Nº of Containers	Analysis Requested: 8015/8020 TPHG BTEX	Analysis Requested: 8015 TPHD	Analysis Requested: TPHG BTEX Fuel Oxygenate 8260	Analysis Requested:	Analysis Requested:	Analysis Requested:	Turnaround Time
MW-1	9/9/04		water	4			X	40325-001			24-hour Other ____ Normal
MW-2	↓		↓	X			X		002		24-hour Other ____ Normal
MW-3	↓		↓	X			X		003		24-hour Other ____ Normal
											24-hour Other ____ Normal
											24-hour Other ____ Normal
											24-hour Other ____ Normal
											24-hour Other ____ Normal

Remarks:

Relinquished by	Date	Time	Received by	Date	Time
[signature]	9/9/04	11:30	[signature]	9/9/04	1130

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Appendix C
FIELD NOTES

SIERRA ENVIRONMENTAL, INC.
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GROUNDWATER MONITORING DATA FORM

Project No: 03-103.03 Date: 9/9/04

Project Name: ABE Well Nº: MW1

Field Personnel: Mike 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'	23.30'	9.95'	0.16	0.64	1.44	1.6	4.8 ≈ 5 gl

Purge Method: BAILER Measuring Reference: TOC

Time						
Volume Purged (gal)	0	2	4	5		
Temperature (° F)	73.1	72.9	→	72.5		
pH	5.6	5.4	→	5.3		
Specific Conductivity (umhos/cm)	4900	4700	→	4800		
Turbidity/Color	grey	→	→	→		
Odor	HC Odor	→	→	→		

Comments: HC Odor

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GROUNDWATER MONITORING DATA FORM

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

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

Field Personnel: Mike **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'	24.55	9.2	0.16	0.64	1.44	1.48	4.41 ≈ 4.5

Purge Method: BAILER **Measuring Reference:** Toe

Time						
Volume Purged (gal)	0	1.5	3.0	4.5		
Temperature (° F)	72.1	70.2	71.5	71.2		
pH	~~5.85~~	5.9	5.8	5.75		
Specific Conductivity (umhos/cm)	4900	4800	→	4900		
Turbidity/Color	grey	→	→	→		
Odor	HC odor	→	→	→		

Comments: HC odor

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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

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