

Alameda County  
JUL 08 2005  
Environmental Health

**SECOND QUARTER 2005  
GROUNDWATER MONITORING**

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

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

**Prepared by  
Sierra Environmental, Inc.**

**June 28, 2005  
Project 03-103.07**



Sierra Environmental, Inc.  
*Environmental Consultants*

Alameda County  
JUL 08 2005  
Environmental Health

June 28, 2005  
Project 03-103.07

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

**Subject: Report for Second Quarter 2005 Groundwater Monitoring, ABE Petroleum LLC, 17715 Mission Boulevard, Hayward, California**

**Dear Mr. Garg:**

Sierra Environmental, Inc. (Sierra) is pleased to present this report summarizing the results for the first quarter 2005 groundwater monitoring at the subject location, hereafter, referred to as Site. Figure 1 shows the Site location. The groundwater monitoring was concurred by Alameda County Health Care Services (ACHCS) in a letter dated February 16, 2000, as result of gasoline impact to groundwater beneath the Site.

On June 9, 2005, 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).

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

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## 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.

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 first quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 19.80 to 20.20 feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On June 24, 2004, Sierra performed second quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.44 to 22.95 feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On September 9, 2004, Sierra performed third quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 23.30' to 24.55' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On December 21, 2004, Sierra performed fourth quarter 2004 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 22.92' to 24.21' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

On March 16, 2005, Sierra performed first quarter 2005 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1 through MW3 (Figure 3). Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 18.99' to 20.29' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

## **GROUNDWATER MONITORING**

On June 9, 2005, Sierra performed the second quarter 2005 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 20.02' to 21.68' 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 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) method GC-MS. The samples were also analyzed for benzene, toluene, ethyl benzene, total xylenes (BTEX), and fuel oxygenates using EPA method 8260B. Copies of certified analytical results and chain-of-custody documentation are presented in Appendix 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 for the gasoline constituents obtained during this monitoring event show a generally decreasing trend in concentrations in comparison with the same hydrologic cycle in 2004.

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 dated September 10, 2003, prepared for the site. Sierra also recommends continuing with quarterly groundwater monitoring at the site during 2005.

## 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.

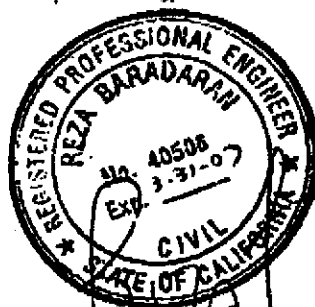
Sierra assumes that the samples collected and laboratory results are reasonably representative of the whole Site, which may not be the case at unsampled areas.

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
  - Appendix C - Field Notes

cc: Mr. Amir Gholami, ACHCS (1 Copy)

R03-103.07/2ndQ2005GWMH06282005



**TABLE I  
GROUNDWATER ELEVATION DATA**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW1	8-18-00	2	99.46	20.32	79.14
	3-30-01			20.30	79.16
	6-22-01			21.91	77.55
	9-20-01			23.56	75.90
	12-27-01			22.59	76.87
	9-24-02			23.69	75.77
	12-17-02			22.75	76.71
	4-2-03			21.15	78.31
	6-12-03			20.64	78.82
	9-29-03			22.95	76.51
	12-04-03			23.70	75.76
	03-09-04			19.80	79.66
	6-24-04			21.44	78.02
	9-09-04			23.30	76.16
	12-21-04			22.92	76.54
3-16-05	18.99	80.47			
6-09-05	20.02	79.44			
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
	12-21-04			24.21	76.37
3-16-05	20.29	80.29			
6-09-05	21.68	78.90			

**TABLE I  
GROUNDWATER ELEVATION DATA  
CONTINUED**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW3	8-18-00	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
	12-21-04			23.35	76.34
	3-16-05			19.43	80.26
	6-09-05			20.47	79.22

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 µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
MW-1	8-18-00	MW1	280,000	10,000	16,000	11,000	49,000	4,000
*	3-30-01		98,000	8,600	14,000	6,300	26,000	7,600
*	6-22-01		110,000	7,500	12,000	5,700	24,000	3,800
*	9-20-01		93,000	8,700	11,000	6,300	27,000	4,600
*	12-27-01		140,000	7,700	11,000	6,500	28,000	7,700
*	9-24-02		110,000	4,600	4,000	4,000	18,000	3,400
*	12-17-02		110,000	6,600	6,700	5,400	23,000	2,900
*	4-2-03		89,000	4,800	6,000	4,600	20,000	5,900
*	6-12-03		69,000	4,100	4,300	3,900	17,000	4,700
*	9-29-03		96,000	7,000	7,700	5,100	22,000	6,200
*	12-04-03		110,000	5,800	5,900	4,300	18,000	4,500
*	03-09-04		130,000	5,900	9,700	4,900	22,000	6,000
*	6-24-04		48,000	5,800	7,500	4,000	18,000	4,000
*	9-09-04		64,000	4,800	7,500	4,500	19,000	2,200
*	12-21-04		53,000	4,800	6,000	3,600	15,000	2,600
*	3-16-05		82,000	4,000	8,600	3,900	18,000	4,300
*	6-09-05		52,000	3,600	6,400	3,300	17,000	3,500
MW-2	8-18-00	MW2	290,000	3700	990	7,300	26,000	ND <sup>3</sup>
*	3-30-01		47,000	3,200	470	4,500	13,000	3,100
*	6-22-01		57,000	2,500	350	4,200	12,000	1,800
*	9-20-01		42,000	2,300	230	4,300	12,000	2,200
*	12-27-01		70,000	2,900	390	4,800	14,000	2,400
*	9-24-02		110,000	1,600	200	3,400	9,100	2,500
*	12-17-02		66,000	2,400	340	4,600	13,000	1,900
*	4-2-03		29,000	1,000	130	2,300	5,100	2,000
*	6-12-03		8,700	380	52	790	2,000	2,200
*	9-29-03		52,000	1,700	200	4,500	9,800	2,300
*	12-04-03		66,000	1,500	210	4,500	9,200	1,900
*	03-09-04		61,000	1,500	2,000	4,200	8,500	2,200
*	6-24-04		29,000	1,200	72	3,100	6,000	2,100
*	9-09-04		37,000	1,600	110	4,000	8,500	3,100
*	12-21-04		27,000	1,400	84	3,100	5,400	3,200
*	3-16-05		54,000	1,700	140	4,500	8,900	4,000
*	6-09-05		2,800	420	ND	180	51	930

**TABLE II  
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES  
CONTINUED**

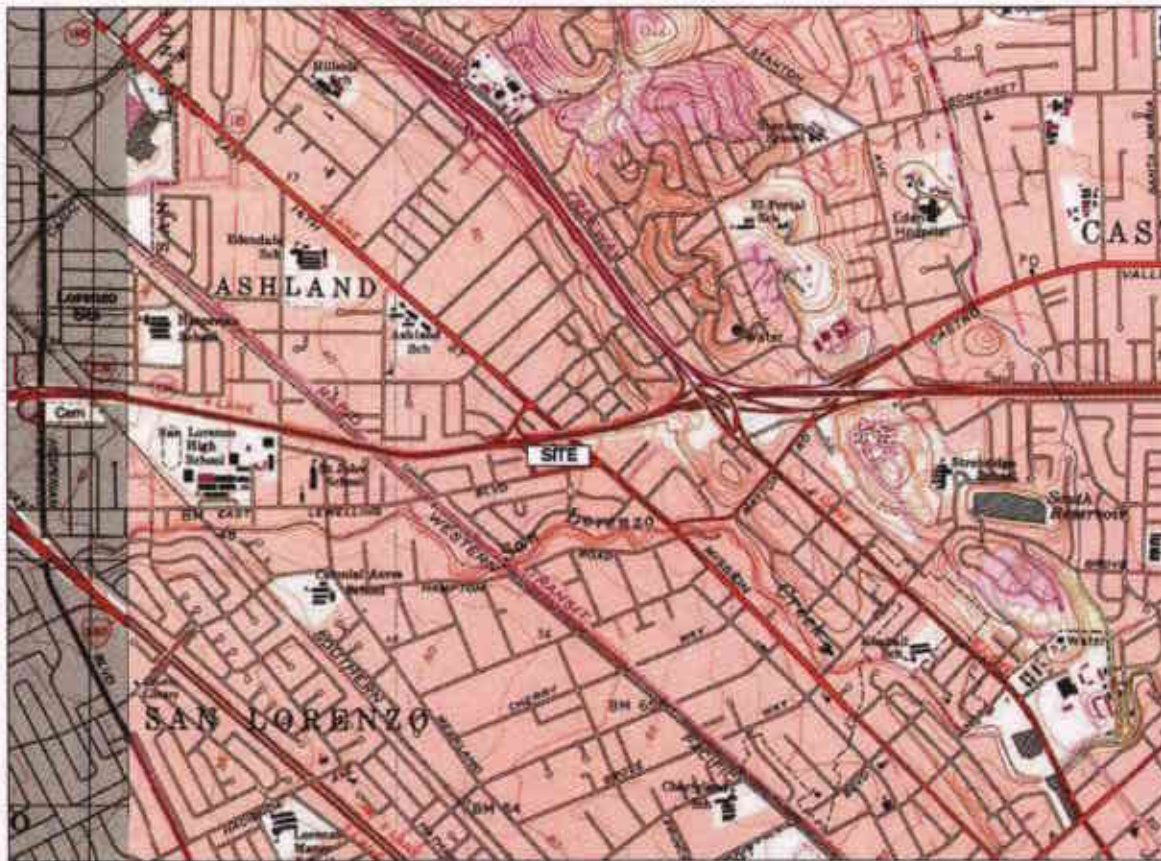
Sample ID	Sample Date	Sample Location	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
MW-3	8-18-00	MW3	46,000	3,200	550	3,700	14,000	2,200
*	3-30-01		30,000	3,300	340	2,800	9,100	4,700
*	6-22-01		35,000	4,000	340	2,900	7,600	4,100
*	9-20-01		30,000	3,800	260	2,500	6,600	5,300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

1. TPHG = Total Petroleum Hydrocarbons as Gasoline

2. MTBE = Methyl Tertiary Butyl Ether

3. ND = Not Detected

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



Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)



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

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

**SITE LOCATION MAP**

**Second Quarter 2005 Groundwater Monitoring  
 ABE Petroleum LLC**

**17715 Mission Boulevard • Hayward • California**

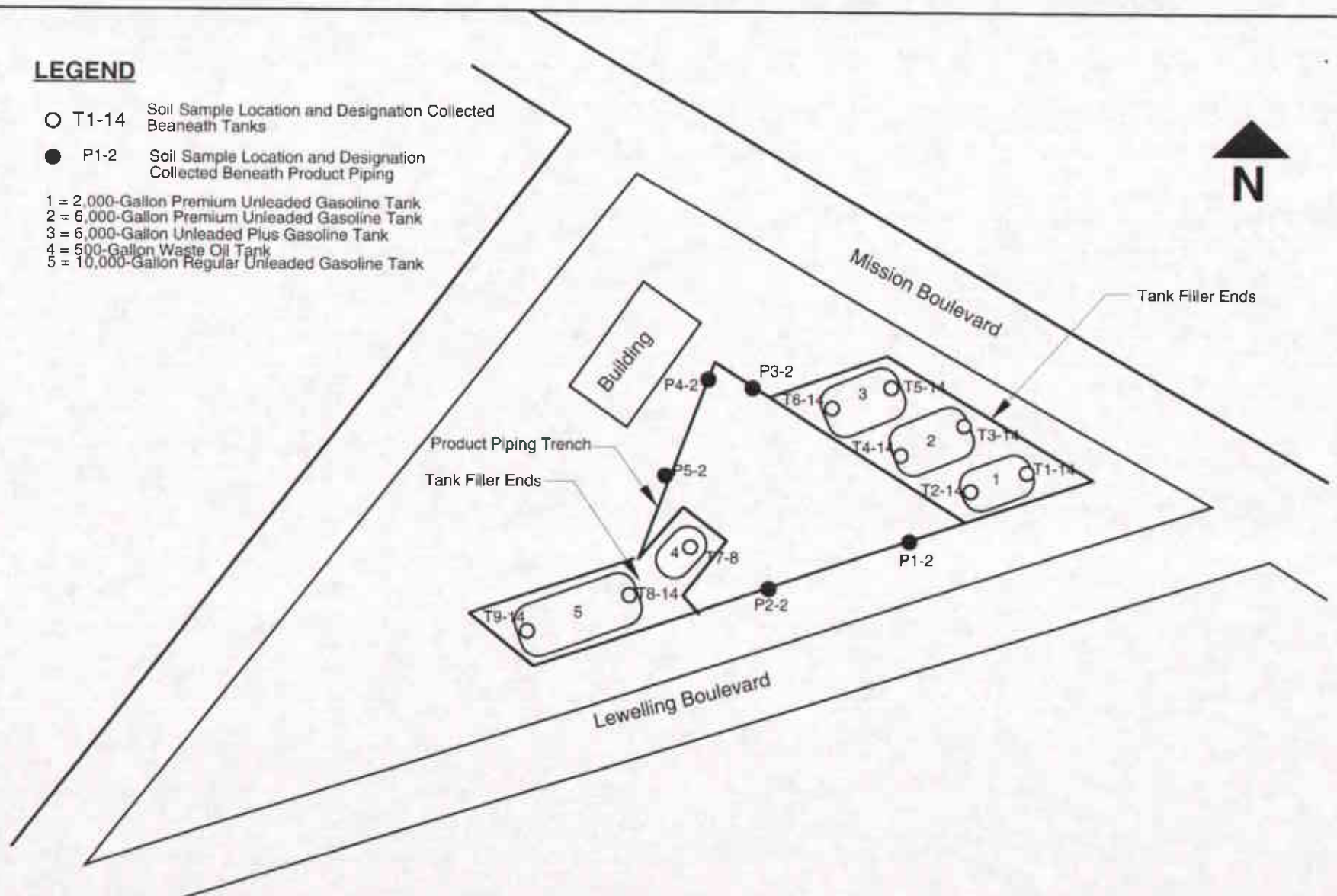
**FIGURE**

**1**

June 28, 2005  
 Project 03-103.07

**LEGEND**

- T1-14 Soil Sample Location and Designation Collected Beneath Tanks
  - P1-2 Soil Sample Location and Designation Collected Beneath Product Piping
- 1 = 2,000-Gallon Premium Unleaded Gasoline Tank  
 2 = 6,000-Gallon Premium Unleaded Gasoline Tank  
 3 = 6,000-Gallon Unleaded Plus Gasoline Tank  
 4 = 500-Gallon Waste Oil Tank  
 5 = 10,000-Gallon Regular Unleaded Gasoline Tank



Approximate Scale: 1" = 30'



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

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

**Former UST and Soil Sample Locations**

**Second Quarter 2005 Groundwater Monitoring  
 ABE Petroleum LLC**




**17715 Mission Boulevard • Hayward • California**

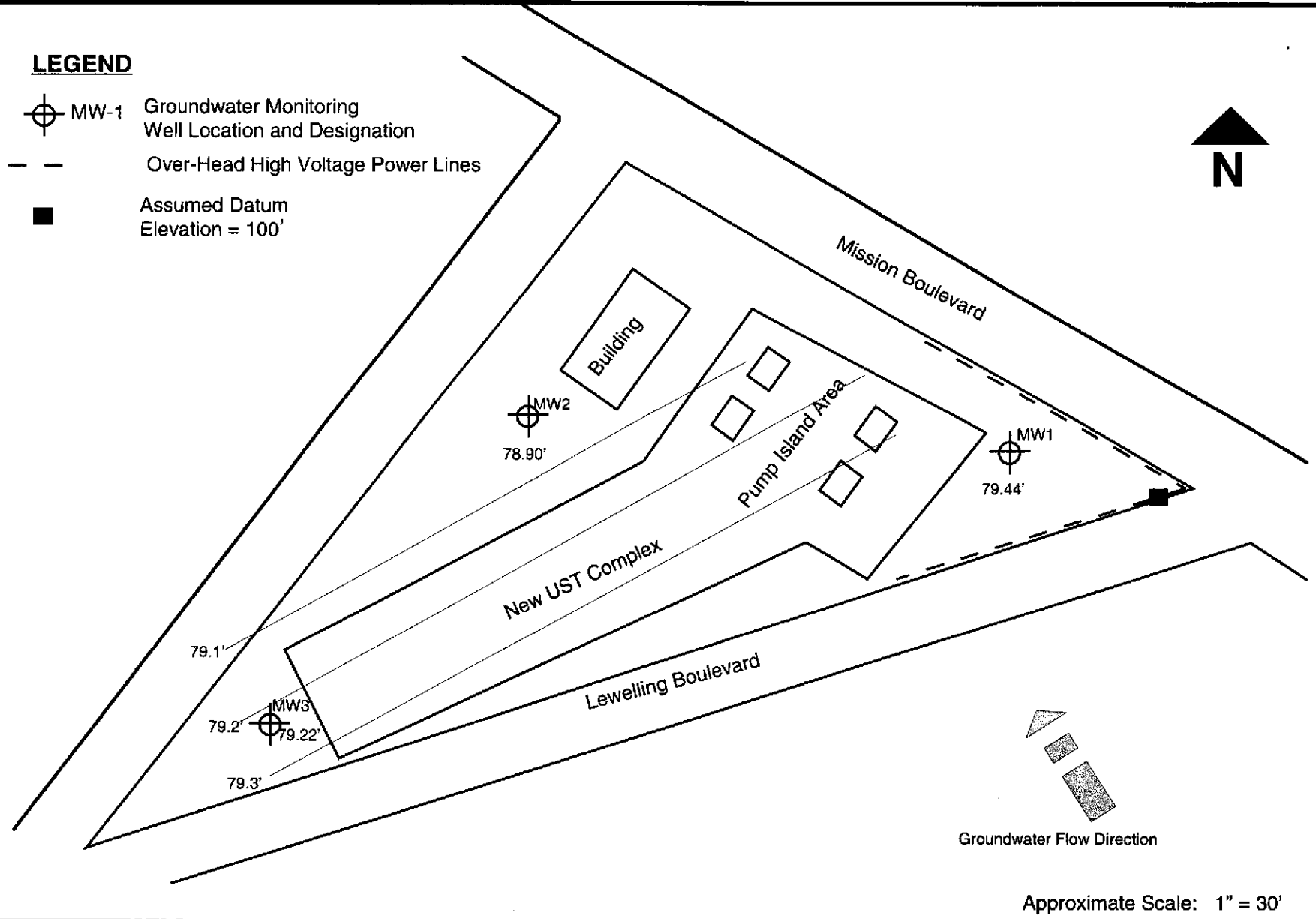
**FIGURE**

**2**

June 28, 2005  
 Project 03-103.07

**LEGEND**

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



Groundwater Flow Direction

Approximate Scale: 1" = 30'



**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**  
**Second Quarter 2005 Groundwater Monitoring**  
**ABE Petroleum LLC**  
**17715 Mission Boulevard • Hayward • California**

**FIGURE**  
**3**  
 June 28, 2005  
 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<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

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

Certificate ID: 43887 - 6/21/2005 4:27:17 PM

Order Number: 43887  
Project Name: ABE  
Project Number: 03-103

Date Received: 6/9/2005 5:44:30 PM  
P.O. Number: 03-103

## Certificate of Analysis - Revision

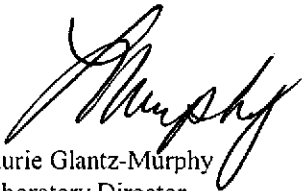
On June 09, 2005, samples were received under chain of custody for analysis.  
Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Comments</u>
Liquid	EPA 8260B - GC/MS TPH as Gasoline by GC/MS	

Note: This is a revision of the original 6/20/2005 issue to correct a laboratory mislabeling.

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 ID: 03-103  
Date Received: 6/9/2005  
P.O. Number: 03-103  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 43887-001 Sample ID: MW-1

Matrix: Liquid Sample Date: 6/8/2005

EPA 5030B	EPA 8260B	EPA 624	8260Petroleum							
Parameter	Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch	
Benzene	3600		200	120	µg/L	N/A	N/A	6/19/2005	WMS1050619	
Toluene	6400		200	120	µg/L	N/A	N/A	6/19/2005	WMS1050619	
Ethyl Benzene	3300		200	120	µg/L	N/A	N/A	6/19/2005	WMS1050619	
Xylenes, Total	17000		200	120	µg/L	N/A	N/A	6/19/2005	WMS1050619	
Methyl-t-butyl Ether	3500		200	250	µg/L	N/A	N/A	6/19/2005	WMS1050619	
tert-Butyl Ethyl Ether	ND		200	1200	µg/L	N/A	N/A	6/19/2005	WMS1050619	
tert-Butanol (TBA)	ND		200	2500	µg/L	N/A	N/A	6/19/2005	WMS1050619	
Diisopropyl Ether	ND		200	1200	µg/L	N/A	N/A	6/19/2005	WMS1050619	
tert-Amyl Methyl Ether	ND		200	1200	µg/L	N/A	N/A	6/19/2005	WMS1050619	

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	85.7	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	97.5	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

EPA 5030B	GC-MS	TPH as Gasoline - GC-MS							
Parameter	Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	52000		200	6200	µg/L	N/A	N/A	6/19/2005	WMS1050619

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.9	75 - 125
Dibromofluoromethane	93.0	75 - 125
Toluene-d8	95.2	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

# 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 ID: 03-103  
Date Received: 6/9/2005  
P.O. Number: 03-103  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 43887-002

Sample ID: MW-2

Matrix: Liquid Sample Date: 6/8/2005

EPA 5030B EPA 8260B EPA 624

8260Petroleum

Parameter	Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	420		20	10	µg/L	N/A	N/A	6/19/2005	WMS1050619
Toluene	ND		20	10	µg/L	N/A	N/A	6/19/2005	WMS1050619
Ethyl Benzene	180		20	10	µg/L	N/A	N/A	6/19/2005	WMS1050619
Xylenes, Total	51		20	10	µg/L	N/A	N/A	6/19/2005	WMS1050619
Methyl-t-butyl Ether	930		20	20	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Butyl Ethyl Ether	ND		20	100	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Butanol (TBA)	280		20	200	µg/L	N/A	N/A	6/19/2005	WMS1050619
Diisopropyl Ether	ND		20	100	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Amyl Methyl Ether	ND		20	100	µg/L	N/A	N/A	6/19/2005	WMS1050619

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	85.0	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	101	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

EPA 5030B GC-MS

TPH as Gasoline - GC-MS

Parameter	Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	2800		20	500	µg/L	N/A	N/A	6/19/2005	WMS1050619

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.2	75 - 125
Dibromofluoromethane	93.2	75 - 125
Toluene-d8	98.2	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

# 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 ID: 03-103  
Date Received: 6/9/2005  
P.O. Number: 03-103  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab # : 43887-003

Sample ID: MW-3

Matrix: Liquid Sample Date: 6/8/2005

EPA 5030B	EPA 8260B	EPA 624								8260Petroleum	
Parameter			Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene			55		5	2.5	µg/L	N/A	N/A	6/19/2005	WMS1050619
Toluene			ND		5	2.5	µg/L	N/A	N/A	6/19/2005	WMS1050619
Ethyl Benzene			120		5	2.5	µg/L	N/A	N/A	6/19/2005	WMS1050619
Xylenes, Total			30		5	2.5	µg/L	N/A	N/A	6/19/2005	WMS1050619
Methyl-t-butyl Ether			150		5	5.0	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Butyl Ethyl Ether			ND		5	25	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Butanol (TBA)			65		5	50	µg/L	N/A	N/A	6/19/2005	WMS1050619
Diisopropyl Ether			ND		5	25	µg/L	N/A	N/A	6/19/2005	WMS1050619
tert-Amyl Methyl Ether			ND		5	25	µg/L	N/A	N/A	6/19/2005	WMS1050619

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	79.3	75 - 125
Dibromofluoromethane	100	75 - 125
Toluene-d8	92.7	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

EPA 5030B GC-MS

Parameter	Result	Qual	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	2000		5	120	µg/L	N/A	N/A	6/19/2005	WMS1050619

TPH as Gasoline - GC-MS

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	84.2	75 - 125
Dibromofluoromethane	91.7	75 - 125
Toluene-d8	90.5	75 - 125

Analyzed by: XBian  
Reviewed by: MaiChiTu

# Entech Analytical Labs, Inc.

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

Method Blank - Liquid - EPA 8260B - 8260Petroleum

QC Batch ID: WMS1050619

Validated by: MaiChiTu - 06/20/05

QC Batch Analysis Date: 6/19/2005

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

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	90.6	75 - 125
Dibromofluoromethane	108	75 - 125
Toluene-d8	107	75 - 125

Method Blank - Liquid - GC-MS - TPH as Gasoline - GC-MS

QC Batch ID: WMS1050619

Validated by: MaiChiTu - 06/20/05

QC Batch Analysis Date: 6/19/2005

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

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	96.2	75 - 125
Dibromofluoromethane	98.5	75 - 125
Toluene-d8	104	75 - 125



# Entech Analytical Labs, Inc.

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

Laboratory Control Sample / Duplicate - Liquid - EPA 8260B - 8260Petroleum

QC Batch ID: WMS1050619

Reviewed by: MaiChiTu - 06/20/05

QC Batch ID Analysis Date: 6/19/2005

## LCS

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
Benzene	<0.50	20	20.4	µg/L	102	80 - 120
Methyl-t-butyl Ether	<1.0	20	21.8	µg/L	109	80 - 120
Toluene	<0.50	20	18.9	µg/L	94.5	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	84.8	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	91.8	75 - 125

## LCSD

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.50	20	21.5	µg/L	108	5.3	25.0	80 - 120
Methyl-t-butyl Ether	<1.0	20	23.8	µg/L	119	8.8	25.0	80 - 120
Toluene	<0.50	20	20.0	µg/L	100	5.7	25.0	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	84.9	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	92.9	75 - 125

Laboratory Control Sample / Duplicate - Liquid - GC-MS - TPH as Gasoline - GC-MS

QC Batch ID: WMS1050619

Reviewed by: MaiChiTu - 06/20/05

QC Batch ID Analysis Date: 6/19/2005

## LCS

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
TPH as Gasoline	<25	120	144	µg/L	115	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	99	75 - 125
Dibromofluoromethane	98.3	75 - 125
Toluene-d8	108	75 - 125

## LCSD

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	120	138	µg/L	110	4.3	25.0	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	99.4	75 - 125
Dibromofluoromethane	98.2	75 - 125
Toluene-d8	106	75 - 125



CHAIN OF CUSTODY

Project Name: ABE Project No: 03-103 Date: 6-9-05  
Project Location: 17715 Mission Blvd., Hayward Client: \_\_\_\_\_ Sampler: Mike Hagg

Sample ID	Date Sampled	Sampling Time	Matrix	Nº of Containers	Analysis Requested							Turnaround Time	
					8260 8815/8020 TPHG BTEX, MDEP <i>Electrode</i>	8015 TPHD	418.1 TRPH	8010 VOCs	8270 SVOCs	BTEX 8020	5 Metals LUFT	24-hour Other _____	Normal ↓
MW-1	<u>6/8/05</u>		<u>Water</u>	<u>3</u>	<u>X</u>					<u>43887</u> <u>43885-001</u>		24-hour Other _____	<u>Normal</u>
MW-2	<u>X</u>		<u>X</u>	<u>X</u>	<u>X</u>					<u>-002</u>		24-hour Other _____	Normal
MW-3	<u>X</u>		<u>X</u>	<u>X</u>	<u>X</u>					<u>-003</u>		24-hour Other _____	Normal
												24-hour Other _____	Normal
												24-hour Other _____	Normal
												24-hour Other _____	Normal
												24-hour Other _____	Normal

Remarks: Send the results in PDF Files

Released by: [Signature] Date: 6/9/05 Time: 3:00 Received by: [Signature] Date: 6/9/05 Time: 1548

1670 Newhall St. • Suite 212 • Santa Clara • California • 95050  
Phone (408) 248-3700 • Fax (408) 248-4700

**Appendix C**  
**FIELD NOTES**



GROUNDWATER MONITORING DATA FORM

Project No: 03-103 Date: 6-9-05  
 Project Name: ABE Well No: MW1  
 Field Personnel: Mike Weather: CLAYDY  
 Project Location: 17715 Mission Blvd., Hayward

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"		
				0.16	0.64	1.44		
	<u>33.25</u>	<u>20.02</u>	<u>13.23</u>				<u>2</u>	<u>6.0</u>

Purge Method: Boiler Measuring Reference: TDC

Time						
Volume Purged (gal)		<u>0</u>	<u>2</u>	<u>4</u>	<u>6</u>	
Temperature (° F)		<u>66.0</u>	<u>66.3</u>	<u>65.8</u>	<u>65.1</u>	
pH		<u>6.81</u>	<u>6.76</u>	<u>6.66</u>	<u>6.60</u>	
Specific Conductivity (umhos/cm)		<u>1200</u>	<u>1200</u>	<u>→</u>	<u>→</u>	
Turbidity/Color		<u>Light Gray</u>	<u>→</u>	<u>→</u>	<u>→</u>	
Odor		<u>yes</u>	<u>→</u>	<u>→</u>	<u>→</u>	

Comments: Shearings were observed on wall



**GROUNDWATER MONITORING DATA FORM**

Project No: 03-103

Date: 6/9/05

Project Name: ABE

Well No: MW2

Field Personnel: Mike

Weather: cloudy

Project Location: 17715 Mission Blvd, Hayward

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	21.68	12.07	0.16	0.64	1.44	2	6.0

Purge Method: Bailer

Measuring Reference: TOC

Time						
Volume Purged (gal)	0	2	4	6		
Temperature (° F)	66.0	66.3	65.8	65.1		
pH	6.81	66.3	65.8	65.1		
Specific Conductivity (umhos/cm)	1200	676	6.66	6.60		
Turbidity/Color	Light gray	→	→	→		
Odor	yes	→	→	→		

Comments:



**GROUNDWATER MONITORING DATA FORM**

Project No: 03-103 Date: 6-9-05  
 Project Name: ABE Well No: MW3  
 Field Personnel: Mike Weather: Cloudy  
 Project Location: 17715 Mission Blvd, Hayward

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"		
	<u>33.75</u>	<u>20.47</u>	<u>13.28</u>	0.16	0.64	1.44	<u>2</u>	<u>6.0</u>

Purge Method: Bailer Measuring Reference: TOC

Time						
Volume Purged (gal)		<u>0</u>	<u>2</u>	<u>4</u>	<u>6</u>	
Temperature (° F)		<u>68.0</u>	<u>67.11</u>	<u>66.35</u>	<u>65.81</u>	
pH		<u>6.66</u>	<u>6.53</u>	<u>6.40</u>	<u>6.31</u>	
Specific Conductivity (umhos/cm)		<u>1200</u>	<u>1300</u>	<u>1200</u>	<u>1200</u>	
Turbidity/Color		<u>light grey</u>	<u>→</u>	<u>→</u>	<u>→</u>	
Odor		<u>yes</u>	<u>→</u>	<u>→</u>	<u>→</u>	

Comments: \_\_\_\_\_  
 \_\_\_\_\_