

RO-346



**ENVIRONMENTAL ENGINEERING, INC**  
2680 Bishop Drive • Suite 203 • San Ramon, CA 94583  
TEL (925) 244-8600 • FAX (925) 244-8601

**Third Quarter 2003**  
**Groundwater Monitoring Report**  
**Castro Valley Gasoline Service Station**  
**3519 Castro Valley Boulevard**  
**Castro Valley, California**

October 14, 2003

Project 2761

Prepared for  
**Mr. Mirazim Shakoori**  
**3519 Castro Valley Boulevard**  
**Castro Valley, California 94546**

Prepared by  
**SOMA Environmental Engineering, Inc.**  
**2680 Bishop Drive, Suite 203**  
**San Ramon, California 94583**



**ENVIRONMENTAL ENGINEERING, INC**  
2680 Bishop Drive • Suite 203 • San Ramon, CA 94583  
TEL (925) 244-6600 • FAX (925) 244-6601

October 29, 2003

Ms. Eva Chu  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Subject: **#RO0000346**  
Site Address: 3519 Castro Valley Boulevard, Castro Valley, CA  
Castro Valley Gasoline Service Station

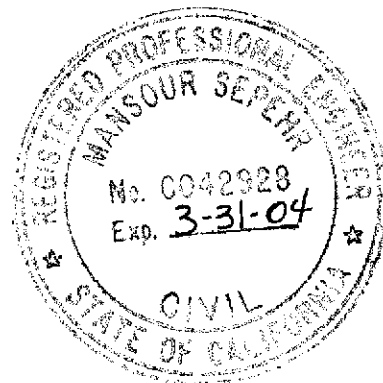
Dear Ms. Chu:

Enclosed for your review is SOMA's "Third Quarter 2003 Groundwater Monitoring Report" for the subject site.

Thank you for your time in reviewing our report. If you have any questions or comments, please call me at (925) 244-6600.

Sincerely,

Mansour Sepéhr, Ph.D., PE  
Principal Hydrogeologist

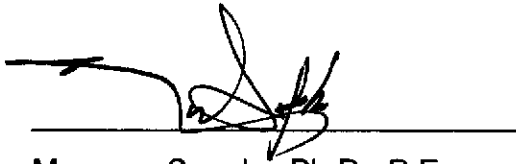


Enclosure

cc: Mr. Mirazim Shakoori w/enclosure

## Certification

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Mirazim Shakoori, the property owner of 3519 Castro Valley Boulevard, Castro Valley, California to comply with the Alameda County Health Care Services' requirements for the Third Quarter 2003 groundwater monitoring event.



Mansour Sepehr, Ph.D., P.E.

Principal Hydrogeologist



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## 1.0 Introduction

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Mirazim Shakoori the property owner of the Former BP Station located at 3519 Castro Valley Boulevard, Castro Valley, California, (the "Site"), as shown in Figure 1.

The Site is located at the southeast corner of the intersection of Castro Valley Boulevard and Redwood Road in a mixed commercial/residential area of Castro Valley, California at an elevation of 178 feet above mean sea level (msl).

This report summarizes the results of the groundwater monitoring event conducted on September 17, 2003 at the Site. It includes the physical and chemical properties, measured in the field, for each groundwater sample. The physical and chemical properties consisted of measurements of pH, temperature, and electrical conductivity (EC). Also included in this report are the results of the laboratory analyses for each groundwater sample, which was analyzed for:

- Total petroleum hydrocarbons as gasoline (TPH-g)
- Benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX)
- Methyl tertiary Butyl Ether (MtBE)
- Gasoline Oxygenates, which included tertiary butyl alcohol (TBA), isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE) and methyl tertiary amyl ether (TAME).
- Lead Scavengers, which included 1,2-Dichloroethane (1,2-DCA) and 1,2-Dibromoethane (EDB)
- Ethanol

These activities were performed in accordance with the general guidelines of the Alameda County Health Care Services (ACHCS).

### **1.1 Previous Activities**

In 1984, it appears that three single-walled fiberglass underground storage tanks (USTs) with capacities of 6,000 gallons, 8,000 gallons, and 10,000 gallons were installed on-site in the southeastern portion of the Site. A former dispenser island reportedly existed on the west side of the Site; however, there was no available information on the date of the dispenser removal.

In 1988, a 1,000-gallon double-walled fiberglass waste oil tank (WOT) was installed to replace the previous waste oil UST. In September 1988, Kaprealian Engineering, Inc. (KEI) removed the original 380-gallon WOT and observed holes in this UST. Confirmation soil samples from the bottom of the excavation - at 8.5 feet below ground surface (bgs) - contained benzene at 6.8 micrograms per kilogram (ug/Kg or parts per billion) and toluene at 9.5 ug/Kg. Further lab analysis did not detect total petroleum hydrocarbons (TPH) or total oil and grease (TOG). In March 1989, an Unauthorized Release Report (URR) was submitted to the ACHCS.

Prior to 1989, the subject site was a Mobil service station. In 1989, the subject property became a British Petroleum (BP) station. In March 1994, the subject property was transferred to Mr. Mirazim Shakoori who operated the Site as a Chevron station.

In September and October 1992, Environmental Science & Engineering, Inc. (ESE) drilled five soil boreholes and converted them into monitoring wells (ESE-1 through ESE-5). They ranged in depth from approximately 23 to 30 feet bgs.



The results of this site investigation are as follows.

The maximum level of soil contamination was detected in monitoring well borehole ESE-5 at a depth of 10.5 feet bgs with 220,000 ug/Kg TPH-g, 1,400 ug/Kg benzene, 8,200 ug/Kg toluene, 3,300 ug/Kg ethylbenzene, and 18,000 ug/Kg xylenes.

ESE encountered petroleum hydrocarbon contaminants in all of the monitoring wells with the maximum groundwater concentration detected in ESE-1, located west of and adjacent to the three USTs. This well contained TPH-g at 2,300 ug/L, benzene at 370 ug/L, toluene at 160 ug/L, ethylbenzene at 17 ug/L, and xylenes at 110 ug/L. A URR for this documented release was submitted to the ACHCS in March 1993.

In December 1994, ACC Environmental Consultants, Inc. (ACC) conducted an investigation along the western edge of the property for the Redwood Boulevard road-widening project. ACC drilled five boreholes to a maximum depth of 10 feet bgs. The maximum TPH-g and BTEX soil concentrations detected in the road-widening boreholes were 59,000 ug/Kg TPH-g, 5,890 ug/Kg benzene, 220,000 ug/Kg ethylbenzene, and 540,000 ug/Kg xylenes.

In July 1995, Alisto Engineering (AE) installed three additional monitoring wells. AE installed two on-site wells, MW-6 and MW-8, and one off-site well, MW-7, on the adjacent property southeast of the Site.

In February and March 1996, AE also advanced several hand-augered boreholes in the vicinity of the former western pump island and product lines. The boreholes were hand-augered to a maximum depth of 8.5 feet bgs. AE reported that petroleum hydrocarbon concentrations increased with depth and the highest concentration was encountered at the capillary fringe. It was

concluded that a dissolved phase plume migrated from an upgradient source. In the following month, April 1996, AE decommissioned well MW-8 on the western margin of the Site to accommodate the road-widening project along Redwood Boulevard.

Since 1992, quarterly monitoring has been conducted at the Site. In 1999, the sampling schedule was modified to include semi-annual sampling of ESE-5 and MW-7. Prior to SOMA, URS Corporation, Cambria Environmental Technology, Inc., Blaine Technical Services, AE, and ESE conducted these monitoring and sampling events.

In May 2000, an apparently leaking shear valve was discovered in the southern dispenser island piping. A URR was submitted to the ACHCS.

In a letter dated June 16, 2003, Eva Chu, of the ACHCS, required an additional investigation to delineate the horizontal and vertical extent of the off-site MtBE plume.

In September 2003, in order to comply with the UST upgrade regulations, three single-walled fiberglass USTs, with capacities of 6,000 gallons, 8,000 gallons, and 10,000 gallons were removed and replaced with new double-walled fuel tanks. The new USTs consisted of double-walled fiberglass tanks with capacities of 12,000 gallons and 20,000 gallons. In addition to the removal and replacement of the USTs, the dispensers and product lines were also removed and replaced. W.A. Craig removed and replaced the former USTs, product lines, and dispensers. The on-site participating agency was the ACHCS.

## **1.2 General Hydrogeology**

Based on joint monitoring events with the adjacent Xtra (Shell) station to the west, from January 1995 to April 1998, the groundwater flow direction varied from north/northwest to south/southeast, but primarily to the northeast. Based on monitoring events since the cessation of the joint events, the groundwater flow direction has usually been to the south and east. The on-site groundwater flow has been consistently to the southeast/south.

## **2.0 Field Activities**

On September 17, 2003, SOMA's field crew conducted a groundwater monitoring event in accordance with the procedures and guidelines of the ACHCS. This was the first time SOMA monitored this site. During this groundwater monitoring event, two on-site monitoring wells (MW-6 and ESE-5), and one off-site monitoring well (MW-7) were monitored. Figure 2 illustrates the locations of the wells. Construction activities were being conducted during this monitoring event for the replacement of the USTs, dispensers, and product lines; therefore, these three wells were the only wells that were not either abandoned or inaccessible.

The depth to groundwater at each monitoring well was measured from the top of the casing to the nearest 0.01 foot using an electric sounder. The top of the casing elevation data and the depth to groundwater at each monitoring well were used to calculate the groundwater elevation.

During the monitoring event, each well was purged using a battery operated 2-inch diameter pump (Model ES-60 DC) prior to the collection of samples. In order to ensure that the final samples were in equilibrium with (and representative of) the surrounding groundwater, during purging several samples

were taken for field measurements of pH, temperature and EC. The field parameters were measured using a Hanna pH, conductivity, and temperature meter. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacturer.

Appendix A details the field measurements taken during the monitoring event.

The purging of the wells continued until the parameters for pH, temperature and EC stabilized or three casing volumes were purged. Once the purging at each location was complete, a groundwater sample was collected. The groundwater samples were transferred into three 40-mL VOA vials and preserved with hydrochloric acid. The vials were then sealed to prevent the development of air bubbles within the headspace. After the groundwater samples were collected, they were placed into an ice-filled cooler. A chain of custody (COC) form was written for all of the samples and was submitted to the laboratory along with the groundwater samples. SOMA's field crew delivered the groundwater samples to Curtis and Tompkins Laboratory in Berkeley, California, on September 17, 2003.

### **3.0 Laboratory Analysis**

Curtis & Tompkins, Ltd., a state certified laboratory, analyzed the groundwater samples for TPH-g, BTEX, MtBE, gasoline oxygenates, lead scavengers, and ethanol. Samples for TPH-g measurement were prepared using EPA Method 5030B and analyzed using Method EPA 8015B. Samples for BTEX measurements were prepared using EPA Method 5030B and analyzed using EPA Method 8021B. Samples for MtBE, gasoline oxygenates, lead scavengers, and ethanol were prepared using EPA Method 5030B and analyzed using EPA Method 8260B.

## 4.0 Results

The following sections provide the results of field measurements and laboratory analyses for the September 17, 2003 groundwater monitoring event.

### 4.1 Field Measurements

Table 1 presents the calculated groundwater elevations at each monitoring well. As shown in Table 1, the depth to groundwater ranged from 8.48 feet in monitoring well ESE-5 to 10.21 feet in monitoring well MW-6. The corresponding groundwater elevations, ranged from 167.03 feet in monitoring well MW-7 to 169.03 feet in monitoring well MW-6.

The groundwater elevation contour map is displayed in Figure 3. The groundwater flow direction is south to slightly southeast across the Site. The groundwater gradient is approximately 0.011 feet/foot.

This was the first time SOMA monitored this site using a limited number of wells. Further monitoring events will aid in determining a more detailed groundwater flow direction and gradient. However, based on monitoring data from previous consultants, the groundwater flow direction appears to be have remained consistent, with flow to the south to southeast across the Site.

Table 2 summarizes the field measurements of the physical and chemical properties of the groundwater samples collected from the monitoring wells at the time of sampling. The pH measurements ranged from 6.77 in monitoring well ESE-5 to 6.94 in monitoring well MW-7. The temperature measurements ranged from 19.50°C in monitoring well MW-7 to 22.94°C in monitoring well ESE-5. EC ranged from 752  $\mu\text{S}/\text{cm}$  in MW-6 to 1,070  $\mu\text{S}/\text{cm}$  in ESE-5.

## 4.2 Laboratory Analyses

Table 3 presents the results of the laboratory analyses on the groundwater samples. As Table 3 shows, TPH-g was below the laboratory reporting limit for monitoring wells MW-6 and MW-7 and at 970  $\mu\text{g/L}$  in well ESE-5.

Figure 4 displays the contour map of TPH-g concentrations in the groundwater on September 17, 2003. As displayed in Figure 4, the only TPH-g concentration was detected in well ESE-5, which is in the vicinity of the former dispenser islands.

As shown in Table 3, all BTEX analytes were below the laboratory reporting limit in wells MW-6 and MW-7. In well ESE-5, benzene was detected at 10  $\mu\text{g/L}$ , toluene and ethylbenzene were both below the laboratory reporting limit, and total xylenes was detected at 5.3  $\mu\text{g/L}$ . However, based on the laboratory results, the reported benzene concentration in ESE-5 may not be representative due to matrix interferences encountered during the analytical testing; the laboratory indicated this interference by a "C" flag, (see the "C" flag designation in the lab report included as Appendix B). Figure 5 displays the contour map of benzene concentrations in the groundwater on September 17, 2003.

MtBE concentrations were analyzed using both EPA Method 8021B and 8260B. EPA Method 8260B, however, is a more accurate analytical method than EPA Method 8021B. Therefore, to properly determine the MtBE plume and on-site concentrations, the MtBE iso-concentration figure is contoured using EPA Method 8260B.

MtBE concentrations, using EPA Method 8260B, were detected in the groundwater samples collected from both ESE-5 and MW-7. The MtBE concentrations at ESE-5 and MW-7 were 34  $\mu\text{g/L}$  and 460  $\mu\text{g/L}$ , respectively.

The MtBE concentration detected in MW-6 was below the laboratory reporting limit.

Figure 6 shows the contour map of MtBE concentrations in the groundwater, as analyzed using EPA Method 8260B. The results of the recent monitoring event showed that the highest MtBE concentration was off-site in monitoring well MW-7. The high MtBE concentrations can be attributed to the migration of the plume due to the south/southeasterly groundwater flow direction and the high solubility of MtBE in the groundwater. The lowest groundwater elevation encountered during this monitoring event was at MW-7.

As shown in Table 4, all gasoline oxygenates, lead scavengers, and ethanol were below the laboratory reporting limit in all monitoring wells, with the exception of MW-7. Only TAME was detected in well MW-7. TAME was detected at a concentration of 9.8 µg/L.

Appendix B displays the analytical results for each groundwater sample collected during the Third Quarter 2003 monitoring event.

Appendix C displays the historical groundwater elevations and the historical groundwater analytical data for the Site.

## **5.0 Conclusions & Recommendations**

The findings of the Third Quarter 2003, groundwater monitoring event can be summarized as follows:

- The groundwater flow direction is south to southeasterly across the Site. The lowest groundwater elevation was measured at off-site well MW-7. The groundwater gradient is approximately 0.011 feet/feet.
- TPH-g and benzene were detected at maximum concentrations in well ESE-5 at 970 µg/L and 10 µg/L, respectively. However, the benzene

concentration detected in well ESE-5 was "C" flagged, see the laboratory report, in Appendix B, for further clarification.

- The highest MtBE concentration was detected in well MW-7 at 460 µg/L. For the last four years, MtBE has been detected in off-site well MW-7, with concentrations ranging from 95 to 4,400 ug/L; however, most of detections were above 1,000 ug/L. With consistent on-site groundwater flow to the southeast/south, contaminated groundwater has been migrating off-site towards the adjacent commercial property located south of the Site.
- TPH-g, BTEX, and MtBE constituents were all below the laboratory reporting limit in well MW-6. MtBE was detected in well MW-7 only.
- All gasoline oxygenates, lead scavengers, and ethanol were below the laboratory reporting limit in all wells, with the exception of well MW-7. TAME was the only gasoline oxygenate constituent to be detected in MW-7.
- This was the first time SOMA monitored this site. Further monitoring events will determine a more detailed groundwater flow and concentration pattern.
- SOMA is currently planning to conduct additional field investigations to delineate the off-site extent of the groundwater petroleum contaminants emanating from the subject site.
- During the Third Quarter 2003, the gasoline USTs were replaced with new ones. The capacities of these 2 new tanks are 12,000 and 20,000 gallons. In addition to the removal of the USTs, the dispensers, product lines, and vent lines were also replaced. Two monitoring wells, ESE-3 and ESE-4, were decommissioned due to the construction activities.



## 6.0 References

Mobil Oil Corp., August 29, 1984, "Monitoring Plan: Alameda County"

Kaprealian Engineering, Inc., October 17, 1988, "Soil Sampling Report, 3519 Castro Valley Blvd., Castro Valley, California".

Unauthorized Release Report, March 1989

Environmental Science & Engineering Inc., October 30, 1992, "Workplan for Preliminary Site Assessment, 3519 Castro Valley Blvd., Castro Valley, California".

Environmental Science & Engineering Inc., November 23, 1992, "Preliminary Site Assessment Report, 3519 Castro Valley Blvd., Castro Valley, California".

Unauthorized Release Report, March 1993

Alisto Engineering Group, June 3, 1994, "Workplan for Supplemental Site Investigation, 3519 Castro Valley Blvd., Castro Valley, California".

ACC Environmental Consultants, December 1994, "Summary Results Redwood Road Expansion, 3519 Castro Valley Blvd., Castro Valley, California".

Alisto Engineering Group, February 24, 1995, "Expanded Site Plan, 3519 Castro Valley Blvd., Castro Valley, California".

Alisto Engineering Group, May 1, 1996, "Groundwater Monitoring Well Destruction Report, 3519 Castro Valley Blvd., Castro Valley, California".

Unauthorized release report, May 2, 2000

URS Corp., April 4, 2003 "First Quarter Monitoring Report, 3519 Castro Valley Blvd., Castro Valley, California".

URS Corp., July 18, 2003, "Second Quarter Monitoring Report, 3519 Castro Valley Blvd., Castro Valley, California".

# Tables

**Table 1**  
**Static Groundwater Elevations**  
**September 17, 2003**  
**3519 Castro Valley Blvd, Castro Valley, CA**

Well	Top of casing elevation <sup>1</sup> (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
ESE-5	176.26	8.48	167.78
MW-6	179.24	10.21	169.03
MW-7	176.55	9.52	167.03

notes:

The Third Quarter 2003 was the first time SOMA monitored this site.

**Table 2**  
**Field Measurements of Physical and Chemical**  
**Properties of Groundwater at Time of Sampling**  
**September 17, 2003**  
**3519 Castro Valley Blvd, Castro Valley, CA**

Monitoring Well	pH	Temp (°C)	EC (uS/cm)
ESE-5	6.77	22.94	1,070
MW-6	6.78	20.67	752
MW-7	6.94	19.50	790

notes:

The Third Quarter 2003 was the first time SOMA monitored this site.

**Table 3**  
**Groundwater Analytical Data, TPH-g, BTEX, MtBE**  
**September 17, 2003**  
**3519 Castro Valley Blvd, Castro Valley, CA**

Monitoring Well	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> (µg/L) 8021B / 8260B
ESE-5	970	10 C	<0.5	<0.5	5.3	52 / 34
MW-6	<50	<0.5	<0.5	<0.5	<0.5	<2.0
MW-7	<50	<0.5	<0.5	<0.5	<0.5	410 / 460

Notes:

< : Not detected above laboratory reporting limit.

<sup>1</sup> MtBE was analyzed by using EPA Method 8021B and confirmed using EPA Method 8260B.

C: Presence confirmed, but RPD between columns exceeds 40%.

The Third Quarter 2003 was the first time SOMA collected groundwater samples at the Site.

**Table 4**  
**Groundwater Analytical Data**  
**Gasoline Oxygenates, Lead Scavengers, Ethanol**  
**September 17, 2003**  
**3519 Castro Valley Blvd, Castro Valley, CA**

Monitoring Well	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	ETHANOL (µg/L)
ESE-5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
MW-6	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
MW-7	<10	<0.5	<0.5	9.8	<0.5	<0.5	<1000

Notes:

< : Not detected above laboratory reporting limit.

Gasoline Oxygenates:

TBA: tertiary butyl alcohol

DIPE: isopropyl ether

ETBE: ethyl tertiary butyl ether

TAME: methyl tertiary amyl ether

Lead Scavengers:

1,2-DCA: 1,2-Dichloroethane

EDB: 1,2-Dibromoethane

The Third Quarter 2003 was the first time that SOMA analyzed groundwater samples at the Site.

# Figures



Figure 1: Site vicinity map.

NOTES:  
ESE-4, and ESE-3 were decommissioned during UST tank excavation activities.

MW-8 was decommissioned by the previous consultant.

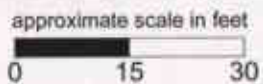
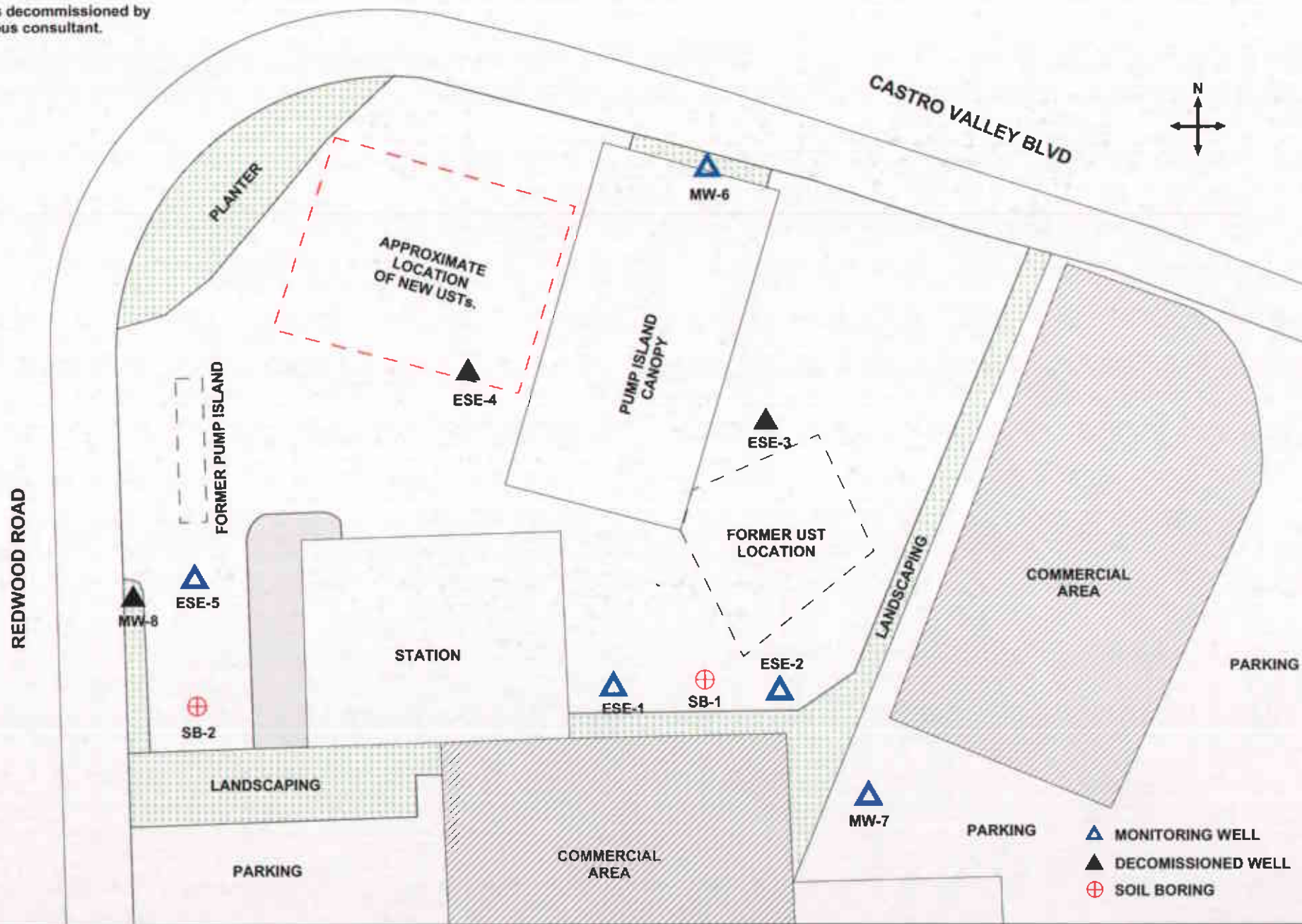


Figure 2: Site map showing approximate locations of existing monitoring wells, decommissioned wells, and soil borings.



NOTES:  
 ESE-2 was inaccessible during  
 UST excavation activities.

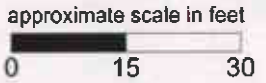
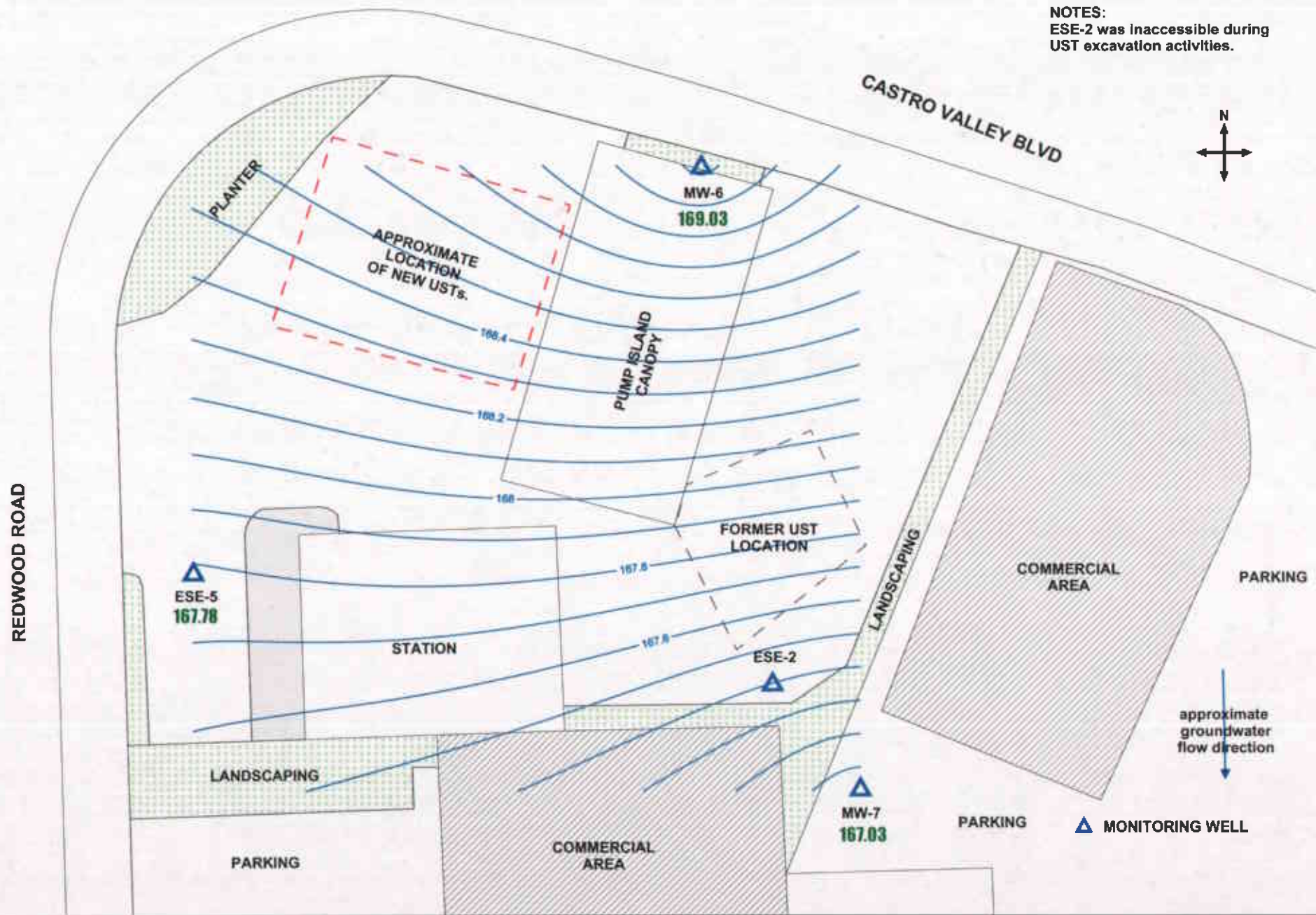
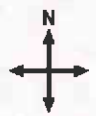
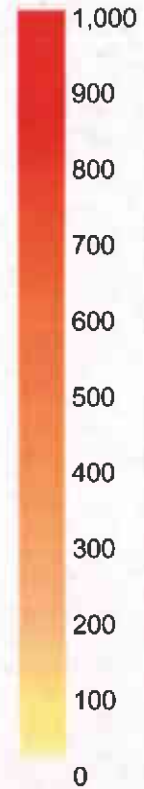


Figure 3: Groundwater elevation contour map in feet.  
 September 17, 2003.



NOTES:  
ESE-2 was Inaccessible during  
UST excavation activities.

TPH-g  
ug/L



REDWOOD ROAD

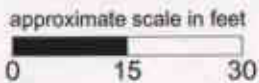
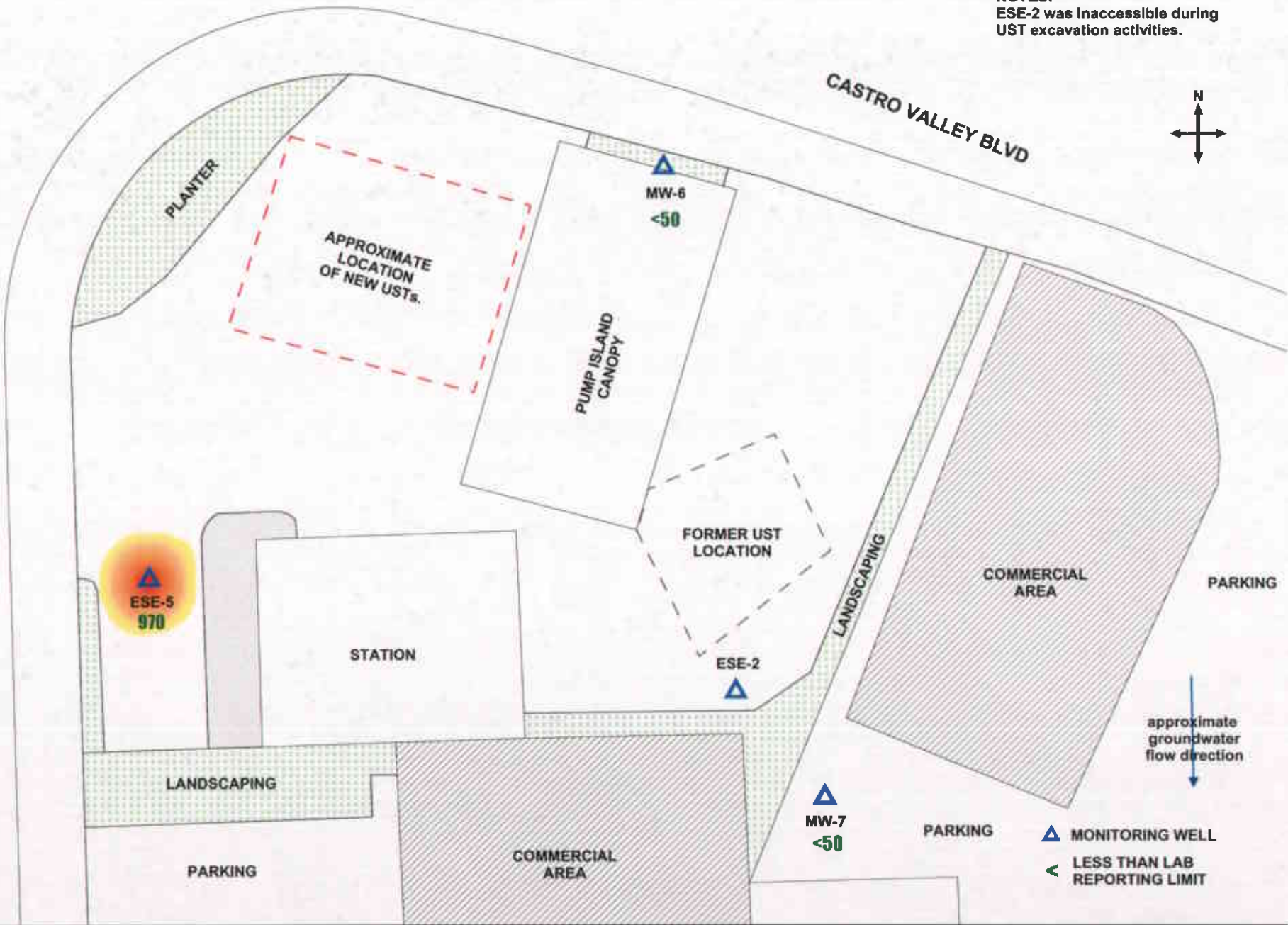


Figure 4: Contour map of TPH-g concentrations in the groundwater.  
September 17, 2003.



NOTES:  
 ESE-2 was Inaccessible during  
 UST excavation activities.  
 Benzene in ug/L

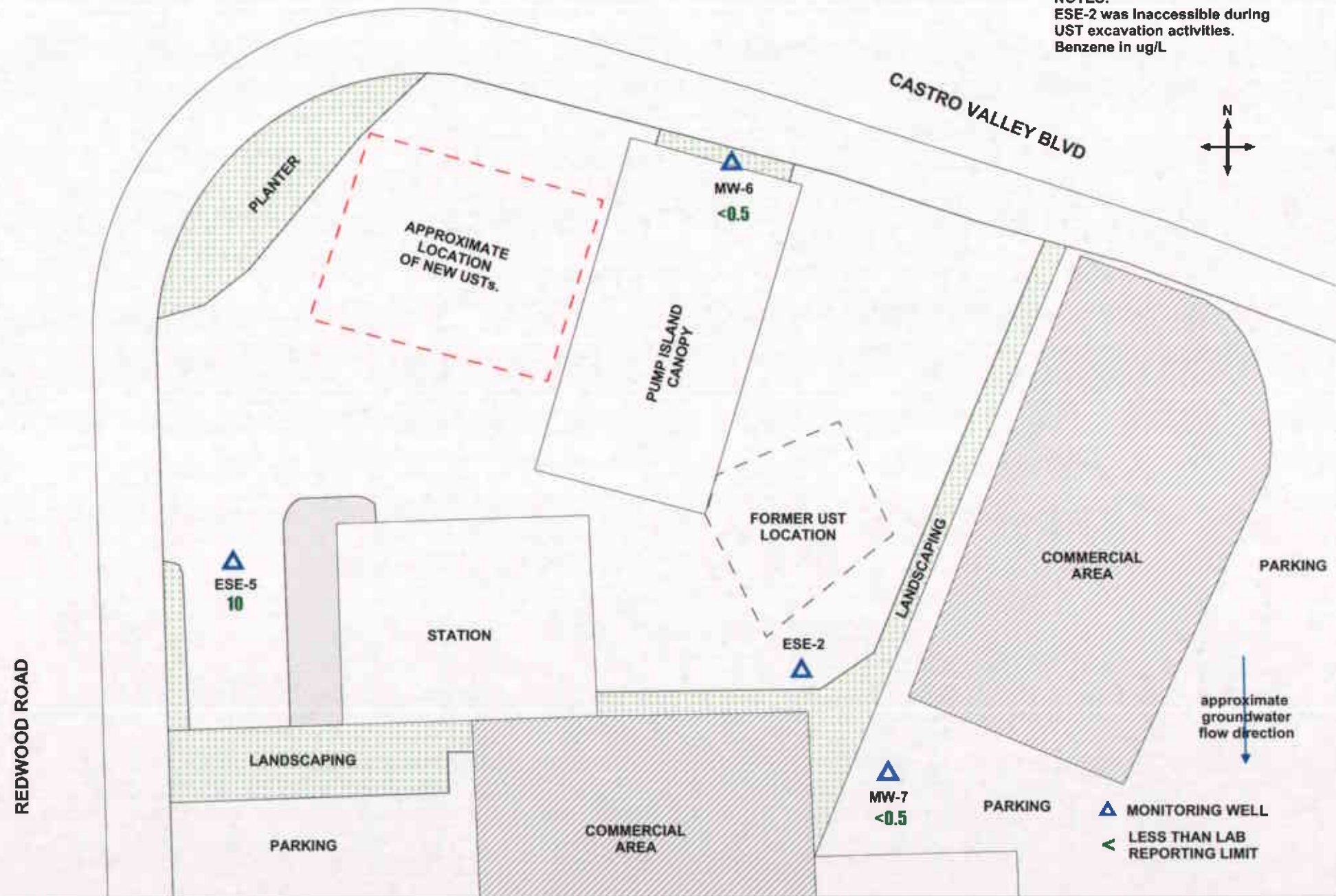
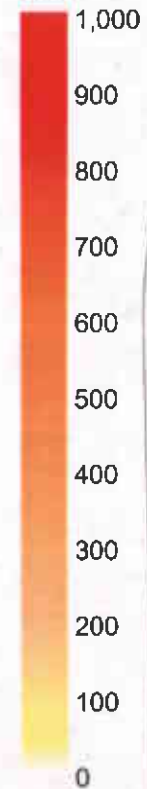


Figure 5: Map of Benzene concentrations in the groundwater.  
 September 17, 2003.

NOTES:  
ESE-2 was inaccessible during  
UST excavation activities.

MtBE  
ug/L



REDWOOD ROAD

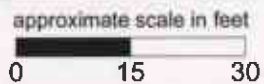
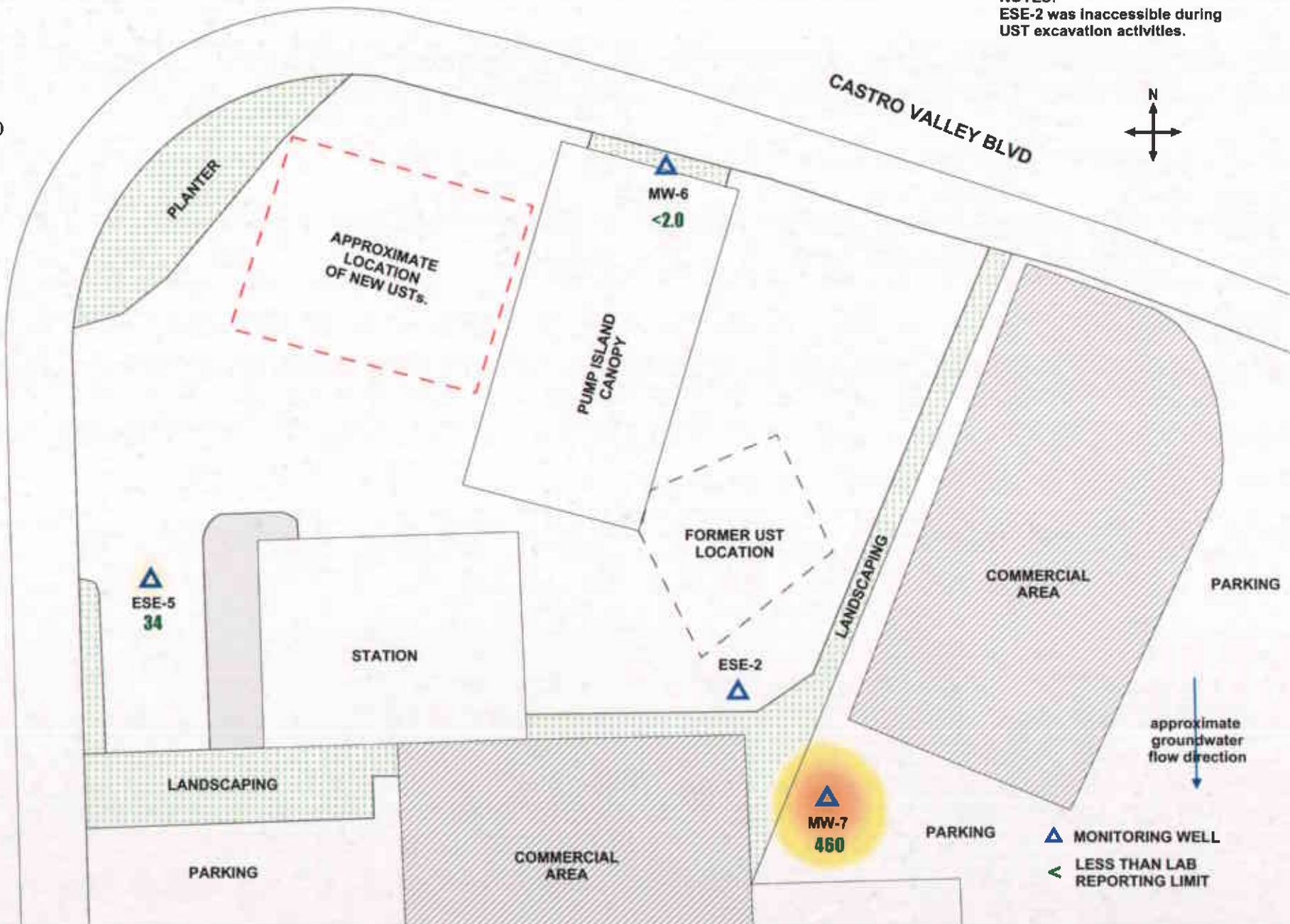


Figure 6: Contour map of MtBE concentrations in the groundwater (EPA Method 8260B).  
September 17, 2003.

# APPENDIX A

Field measurements of physical and chemical properties of  
groundwater samples collected during the  
Third Quarter 2003



ENVIRONMENTAL ENGINEERING, INC

Well No.: ESE-5  
 Casing Diameter: 2 inches  
 Depth of Well: 23.80 feet  
 Top of Casing Elevation: 176.26 feet  
 Depth to Groundwater: 8.48 feet  
 Groundwater Elevation: 167.78 feet  
 Water Column Height: 15.32 feet  
 Purged Volume: 11 gallons

Project No.: 2071 2761  
 Address: 3519 Castro Valley Blvd  
 Castro Valley, CA  
 Date: September 17, 2003  
 Sampler: ROY ZARKIN

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: No  Yes  Describe: cloudy  
 Sheen: No  Yes  Describe: slight petro sheen  
 Odor: No  Yes  Describe: slight petro

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (µs/cm)
11:30 AM	1.0	6.70	73.5	1106
11:32 AM	3.0	6.74	75.2	1066
11:33 AM	5.0	6.85	75.5	1062
11:34 AM	7.0	6.77	73.6	1069
11:36 AM	11	6.77	73.3	1070
11:40 AM	sampled			



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-6  
 Casing Diameter: 2 inches  
 Depth of Well: 29.30 feet  
 Top of Casing Elevation: 179.24 feet  
 Depth to Groundwater: 10.21 feet  
 Groundwater Elevation: 169.03 feet  
 Water Column Height: 19.09 feet  
 Purged Volume: 8.0 gallons

Project No.: 2071 2761  
 Address: 3519 Castro Valley Blvd  
 Castro Valley, CA  
 Date: September 17, 2003  
 Sampler: ROY ZARRIN

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: No  Yes  Describe: Muddy

Sheen: No  Yes  Describe: \_\_\_\_\_

Odor: No  Yes  Describe: \_\_\_\_\_

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (µS/cm)
11:50 AM	1.0	6.89	70.8	763
11:51 AM	3.0	6.81	70.5	751
11:52 AM	6.0	6.82	69.1	755
11:53 AM	8.0	6.78	69.2	752
11:55 AM	Sampled			



ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-7  
 Casing Diameter: 2 inches  
 Depth of Well: 29 feet  
 Top of Casing Elevation: 176.55 feet  
 Depth to Groundwater: 9.52 feet  
 Groundwater Elevation: 167.03 feet  
 Water Column Height: 21.48 feet  
 Purged Volume: 7.0 gallons

Project No.: ~~207~~ 2761  
 Address: 3519 Castro Valley Blvd  
 Castro Valley, CA  
 Date: September 17, 2003  
 Sampler: ROY ZARRIN

Purging Method: Bailer  Pump

Sampling Method: Bailer  Pump

Color: No  Yes  Describe: muddy

Sheen: No  Yes  Describe: \_\_\_\_\_

Odor: No  Yes  Describe: \_\_\_\_\_

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (µs/cm)
11:03 AM	1.0	6.90	68.6	811
11:05 AM	4.0	6.92	67.5	758
11:07 AM	7.0	6.94	67.1	790
11:10 AM	sampled			



# **Appendix B**

**Chain of Custody Form and Laboratory Report  
for the Third Quarter 2003 Monitoring Event**



A N A L Y T I C A L   R E P O R T

Prepared for:

SOMA Environmental Engineering Inc.  
2680 Bishop Dr.  
Suite 203  
San Ramon, CA 94583

Date: 08-OCT-03


Lab Job Number: 167628

Project ID: 2761

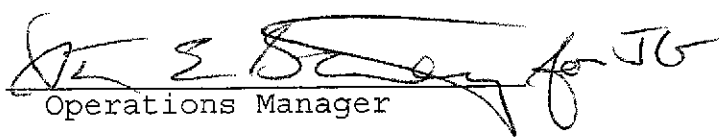
Location: 3519 Castro Valley Blvd.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis.

Reviewed by:

  
Project Manager

Reviewed by:

  
Operations Manager

This package may be reproduced only in its entirety.



**Anna Pajarillo**

---

**From:** "Tony Perini" <tperini@somaenv.com>  
**To:** <anna@ctberk.com>  
**Sent:** Wednesday, September 24, 2003 3:47 PM  
**Subject:** Additional analysis for CAstro Valley project

I would like to have an additional analysis for the groundwater samples collected at 3519 Castro Valley, Castro Valley. The lab number for this project is 167628, our project number is 2761. The additional analysis will include gasoline oxygenates (TBA, DIPE, ETBE, TAME), ethanol, and lead scavengers (1,2-DCA and EDB).

Thank you.

9/24/2003



# Chromatogram

Sample Name : 167628-001,84626  
FileName : g:\gc05\data\261g005.raw  
Method : TVHBTXE  
Start Time : 0.00 min  
Scale Factor : 1.0

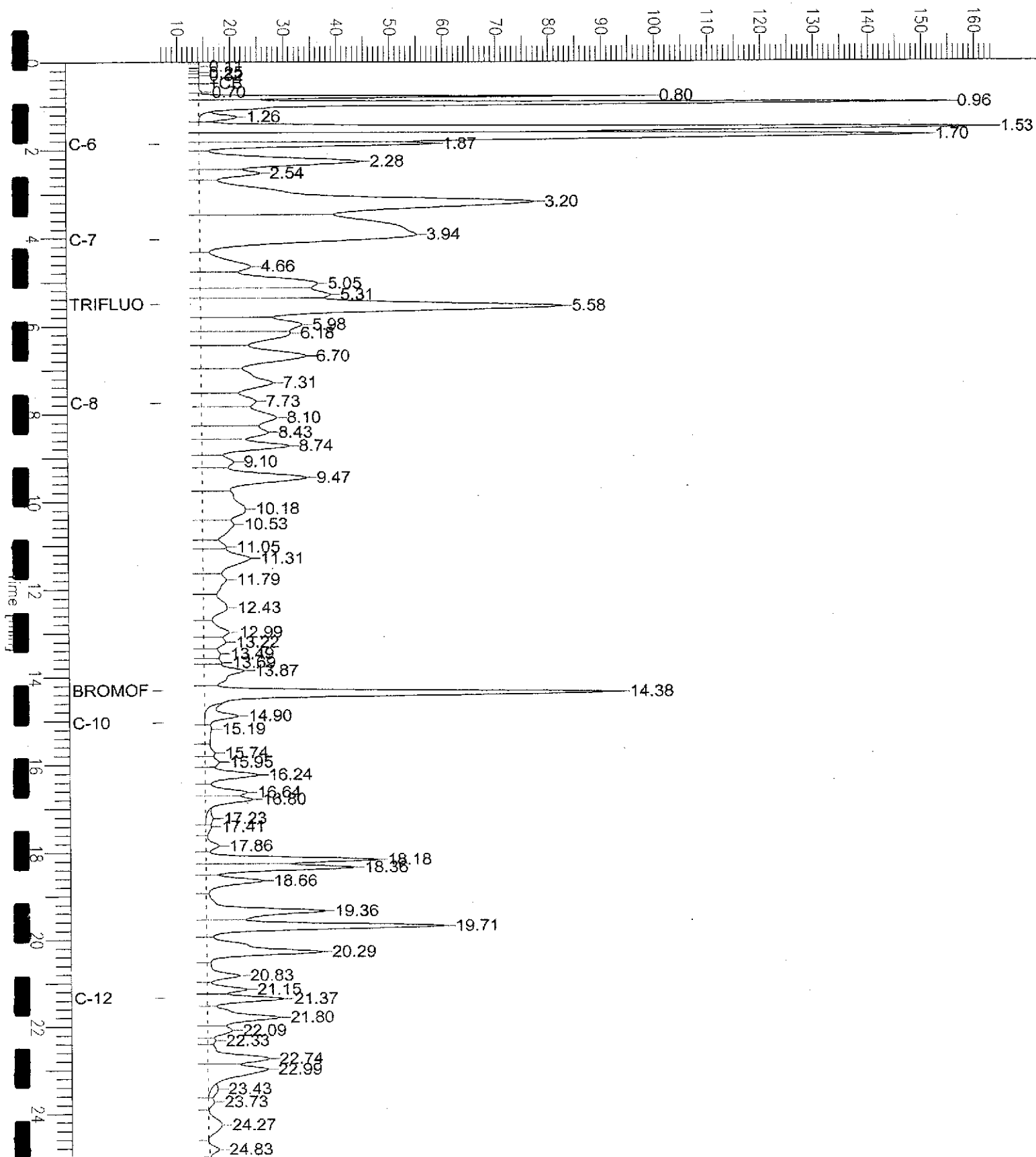
End Time : 25.00 min  
Plot Offset : 7 mV

Sample #: a1.3  
Date : 9/18/03 04:03 PM  
Time of Injection: 9/18/03 02:54 PM  
Low Point : 6.68 mV  
Plot Scale: 156.3 mV

Page 1 of 1

ESE-5

Response [mV]





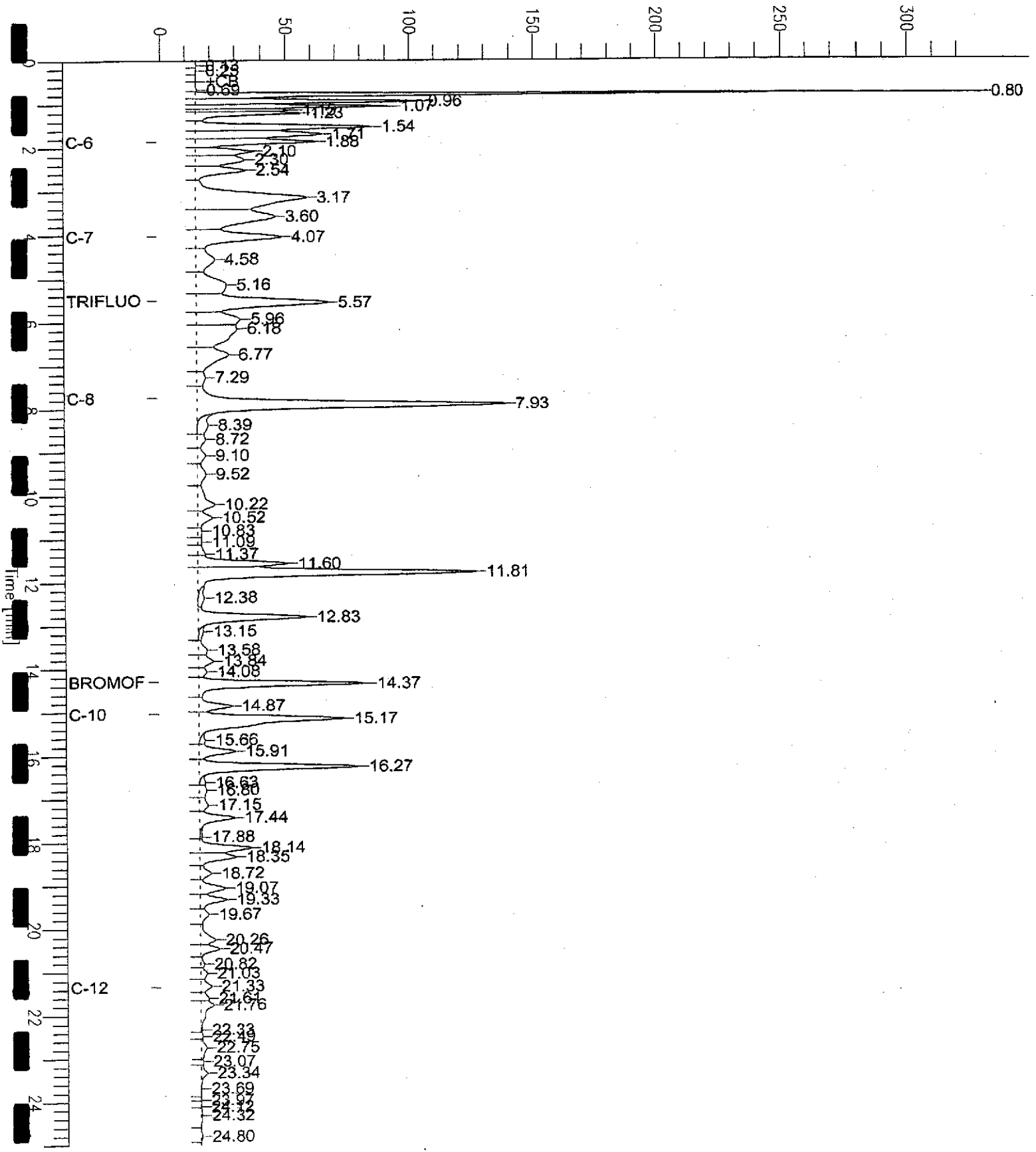
# Chromatogram

Sample Name : ccv/lcs.qc226155,84626,03ws1335,2.5/5000  
File Name : G:\GC05\DATA\261G002.raw  
Method : TVHBTXE  
Start Time : 0.00 min End Time : 25.00 min  
Scale Factor: 1.0 Plot Offset: -1 mV

Sample #:   
Date : 9/18/03 01:07 PM  
Time of Injection: 9/18/03 12:42 PM  
Low Point : -1.35 mV High Point : 329.96 mV  
Plot Scale: 331.3 mV

*Gasoline*

Response [mV]





## Total Volatile Hydrocarbons

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2762	Analysis:	8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC226155	Batch#:	84626
Matrix:	Water	Analyzed:	09/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,067	107	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	57-150
Bromofluorobenzene (FID)	116	65-144



**Benzene, Toluene, Ethylbenzene, Xylenes**

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2762	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC226156	Batch#:	84626
Matrix:	Water	Analyzed:	09/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.587	86	63-133
Benzene	10.00	9.752	98	78-123
Toluene	10.00	8.989	90	79-120
Ethylbenzene	10.00	9.156	92	80-120
m,p-Xylenes	20.00	19.27	96	76-120
o-Xylene	10.00	9.470	95	80-121

Surrogate	%REC	Limits
Trifluorotoluene (PID)	67	54-149
Bromofluorobenzene (PID)	90	58-143





## Gasoline Oxygenates by GC/MS

Lab #: 167628	Location: 3519 Castro Valley Blvd.
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2761	Analysis: EPA 8260B
Matrix: Water	Sampled: 09/17/03
Units: ug/L	Received: 09/17/03

Field ID: ESE-5	Diln Fac: 1.000
Type: SAMPLE	Batch#: 84829
Lab ID: 167628-001	Analyzed: 09/25/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	23	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	93	77-129
Toluene-d8	97	80-120
Bromofluorobenzene	105	80-123

Field ID: MW-6	Diln Fac: 1.000
Type: SAMPLE	Batch#: 84829
Lab ID: 167628-002	Analyzed: 09/25/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	93	77-129
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-123



## Gasoline Oxygenates by GC/MS

Lab #: 167628	Location: 3519 Castro Valley Blvd.
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2761	Analysis: EPA 8260B
Matrix: Water	Sampled: 09/17/03
Units: ug/L	Received: 09/17/03

Field ID: MW-7 Lab ID: 167628-003  
 Type: SAMPLE

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
tert-Butyl Alcohol (TBA)	ND	10	1.000	84829	09/25/03
ETBE	460	1.7	3.333	84715	09/22/03
Isopropyl Ether (DIPE)	ND	0.5	1.000	84829	09/25/03
Ethyl tert-Butyl Ether (ETBE)	ND	0.5	1.000	84829	09/25/03
Methyl tert-Amyl Ether (TAME)	9.8	0.5	1.000	84829	09/25/03
1,2-Dichloroethane	ND	0.5	1.000	84829	09/25/03
1,2-Dibromoethane	ND	0.5	1.000	84829	09/25/03
Ethanol	ND	1,000	1.000	84829	09/25/03

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	95	80-121	1.000	84829	09/25/03
1,2-Dichloroethane-d4	94	77-129	1.000	84829	09/25/03
Toluene-d8	99	80-120	1.000	84829	09/25/03
Bromofluorobenzene	99	80-123	1.000	84829	09/25/03

Type: BLANK Batch#: 84715  
 Lab ID: QC226511 Analyzed: 09/22/03  
 Diln Fac: 1.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
ETBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-121
1,2-Dichloroethane-d4	91	77-129
Toluene-d8	106	80-120
Bromofluorobenzene	104	80-123





## Gasoline Oxygenates by GC/MS

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2761	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	84715
Units:	ug/L	Analyzed:	09/22/03
File Fac:	1.000		

Type: BS Lab ID: QC226507

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		NA		
MTBE	50.00	45.01	90	69-124
Isopropyl Ether (DIPE)		NA		
Methyl tert-Butyl Ether (ETBE)		NA		
Methyl tert-Amyl Ether (TAME)		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-121
1,2-Dichloroethane-d4	87	77-129
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-123

Type: BSD Lab ID: QC226508

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)		NA				
MTBE	50.00	47.30	95	69-124	5	20
Isopropyl Ether (DIPE)		NA				
Methyl tert-Butyl Ether (ETBE)		NA				
Methyl tert-Amyl Ether (TAME)		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-121
1,2-Dichloroethane-d4	88	77-129
Toluene-d8	104	80-120
Bromofluorobenzene	97	80-123



## Gasoline Oxygenates by GC/MS

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2761	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	84715
Units:	ug/L	Analyzed:	09/22/03
Diln Fac:	1.000		

Type: BS Lab ID: QC226509

Analyte	Spiked	Result	%REC	Limite
tert-Butyl Alcohol (TBA)	250.0	282.2	113	70-130
MTBE		NA		
Isopropyl Ether (DIPE)	50.00	56.78	114	70-130
Ethyl tert-Butyl Ether (ETBE)	50.00	53.23	106	70-130
Methyl tert-Amyl Ether (TAME)	50.00	50.36	101	70-130

Surrogate	Result
Dibromofluoromethane	NA
1,2-Dichloroethane-d4	NA
Toluene-d8	NA
Bromofluorobenzene	NA

Type: BSD Lab ID: QC226510

Analyte	Spiked	Result	%REC	Limite	RPD	Lim
tert-Butyl Alcohol (TBA)	250.0	260.8	104	70-130	8	20
MTBE		NA				
Isopropyl Ether (DIPE)	50.00	55.82	112	70-130	2	20
Ethyl tert-Butyl Ether (ETBE)	50.00	52.43	105	70-130	2	20
Methyl tert-Amyl Ether (TAME)	50.00	49.28	99	70-130	2	20

Surrogate	Result
Dibromofluoromethane	NA
1,2-Dichloroethane-d4	NA
Toluene-d8	NA
Bromofluorobenzene	NA





## Gasoline Oxygenates by GC/MS

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2761	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	84829
Units:	ug/L	Analyzed:	09/25/03
Diln Fac:	1.000		

Type: BS Lab ID: QC226939

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		NA		
MTBE	50.00	52.33	105	69-124
isopropyl Ether (DIPE)		NA		
ethyl tert-Butyl Ether (ETBE)		NA		
Methyl tert-Amyl Ether (TAME)		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	96	77-129
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-123

Type: BSD Lab ID: QC226940

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)		NA				
MTBE	50.00	50.64	101	69-124	3	20
isopropyl Ether (DIPE)		NA				
ethyl tert-Butyl Ether (ETBE)		NA				
Methyl tert-Amyl Ether (TAME)		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	96	77-129
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-123

NA= Not Analyzed  
 RPD= Relative Percent Difference  
 Page 1 of 1

## Gasoline Oxygenates by GC/MS

Lab #:	167628	Location:	3519 Castro Valley Blvd.
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2761	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	84829
Units:	ug/L	Analyzed:	09/25/03
Filen Fac:	1.000		

Type: BS Lab ID: QC226941

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	250.0	259.8	104	70-130
MTBE		NA		
Isopropyl Ether (DIPE)	50.00	54.65	109	70-130
Ethyl tert-Butyl Ether (ETBE)	50.00	54.27	109	70-130
Methyl tert-Amyl Ether (TAME)	50.00	48.13	96	70-130

Surrogate	Result
Dibromofluoromethane	NA
1,2-Dichloroethane-d4	NA
Toluene-d8	NA
Bromofluorobenzene	NA

Type: BSD Lab ID: QC226942

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	250.0	266.9	107	70-130	3	20
MTBE		NA				
Isopropyl Ether (DIPE)	50.00	52.19	104	70-130	5	20
Ethyl tert-Butyl Ether (ETBE)	50.00	52.84	106	70-130	3	20
Methyl tert-Amyl Ether (TAME)	50.00	47.58	95	70-130	1	20

Surrogate	Result
Dibromofluoromethane	NA
1,2-Dichloroethane-d4	NA
Toluene-d8	NA
Bromofluorobenzene	NA

 NA= Not Analyzed  
 RPD= Relative Percent Difference

# **Appendix C**

Historical Groundwater Elevations  
and  
Groundwater Analytical Results

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB	
ESE-1 (c)	10/5/1992	177.69	11.22	166.47	2100	370	150	17	110	---	(l)	---	PACE
ESE-1D (d)	10/5/1992	---	---	---	2300	370	160	16	110	---	(l)	---	PACE
ESE-1	4/1/1993	177.69	8.79	168.90	5900	1500	410	110	390	---	(l)	---	PACE
ESE-1	6/29/1993	177.69	10.34	167.35	7600	2900	390	130	460	---	(l)	---	PACE
ESE-1	9/23/1993	177.69	10.91	166.78	2000	490	40	20	56	600	(e)(l)	---	PACE
QC-1 (d)	9/23/1993	---	---	---	1500	420	39	19	56	550	(e)(l)	---	PACE
ESE-1	12/10/1993	177.69	9.93	167.76	1800	480	42	19	66	921	(e)(l)	3.2	PACE
QC-1 (d)	12/10/1993	---	---	---	1500	380	38	17	55	770	(e)(l)	---	PACE
ESE-1	2/17/1994	177.69	9.64	168.05	1900	380	48	24	80	585	(e)(l)	---	PACE
QC-1 (d)	2/17/1994	---	---	---	2200	430	42	19	65	491	(e)(l)	---	PACE
ESE-1	8/8/1994	177.69	11.72	165.97	2100	450	46	16	50	760	(e)	5.1	PACE
ESE-1	10/12/1994	177.69	10.48	167.21	760	240	16	51	39	230	(e)	3.5	PACE
ESE-1	1/19/1995	177.69	7.77	169.92	840	600	120	22	58	---	8.0	ATI	
ESE-1	5/2/1995	177.69	8.69	169.00	2000	640	67	24	98	---	8.5	ATI	
ESE-1	7/28/1995	177.69	10.12	167.57	190	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.9	ATI	
ESE-1	11/17/1995	177.69	10.57	167.12	200	3.4	ND<1.0	1	ND<2.0	600	7.7	ATI	
ESE-1	2/7/1996	177.69	7.41	170.28	750	370	23	21	64	680	2.5	SPL	
ESE-1	4/23/1996	177.69	9.12	168.57	310	100	ND<1	ND<1	ND<1	1500	6.3	SPL	
ESE-1	7/9/1996	177.69	10.12	167.57	730	230	74	13	63	750	2.9	SPL	
ESE-1	10/10/1996	177.69	10.80	166.89	420	26	1.6	7.3	12	430	7.4	SPL	
ESE-1	1/20/1997	177.69	8.52	169.17	660	290	4.2	13	36	450	5.9	SPL	
ESE-1	4/25/1997	177.69	9.77	167.92	410	ND<0.5	ND<1.0	ND<1.0	ND<1.0	580	5.3	SPL	
ESE-1	7/18/1997	177.69	10.55	167.14	420	ND<0.5	ND<1.0	ND<1.0	ND<1.0	370	5.0	SPL	
ESE-1	10/27/1997	177.69	10.36	167.33	300	56	ND<1.0	6.5	ND<1.0	220	4.8	SPL	
ESE-1	1/22/1998	177.69	7.52	170.17	4200	440	9	15	17.7	1300	4.2	SPL	
ESE-1	4/23/1998	177.69	8.80	168.89	15000	3400	190	910	900	4900	4.2	SPL	
QC-1	4/23/1998	---	---	---	15000	2800	140	730	730	4400	---	---	SPL
ESE-1	7/29/1998	177.69	9.73	167.96	---	---	---	---	---	---	---	---	---
ESE-1	7/30/1998	---	---	---	15000	ND<2.5	ND<5.0	ND<5.0	ND<5.0	15000	4.0	SPL	
ESE-1	12/17/1998	177.69	9.51	168.18	2400	73	1.0	2.8	4.6	2000/2500*	---	---	SPL
ESE-1	3/19/1999	177.69	8.65	169.04	4700	58	ND<1.0	ND>1.0	ND<1.0	4700	---	---	SPL
ESE-1	6/23/1999	177.69	10.51	167.18	600	170	ND<1.0	7.2	5.0	3900	---	---	SPL
ESE-1	9/27/1999	177.69	10.32	167.37	920	200	ND<25	ND<25	ND<25	4900	---	---	SPL
ESE-1	12/9/1999	177.69	10.24	167.45	460	130	1.2	5.2	1.5	5100	---	---	PACE
ESE-1	3/9/2000	177.69	7.72	169.97	3000	(j) 1300	120	80	140	7300	---	---	PACE
ESE-1	6/8/2000	177.69	9.40	168.29	2900	540	9.7	20	17	5200	---	---	PACE
ESE-1	9/18/2000	177.69	10.05	167.64	890	3.4	ND<0.5	1.4	ND<0.5	2800	---	---	PACE

**Table 1**  
**Groundwater Elevation and Analytical Data**  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-1	12/14/2000	177.69	8.20	169.49	1600	11.1	ND<0.5	ND<0.5	ND<0.5	2730	---	PACE
ESE-1	3/21/2001	177.69	9.75	167.94	5700	2.28	ND<0.5	0.51	ND<1.5	6810	---	PACE
ESE-1	6/18/2001	177.69	10.21	167.48	2000	152	0.669	3.62	2.34	1980	---	PACE
ESE-1	9/18/2001	177.69	10.30	167.39	2500	57.1	ND<5.0	6.25	ND<15	2090	---	PACE
ESE-1	12/13/2001	177.69	9.82	167.87	2800	208	6.05	8.54	9.66	2030	---	PACE
ESE-1	3/14/2002	177.69	9.10	168.59	1800	140	6.31	4.5	9.41	1970	---	PACE
ESE-1	6/19/2002	177.69	9.92	167.77	1100	220	2.02	4.23	3.8	1280	---	PACE
ESE-1	9/10/02*	177.69	10.21	167.48	490	39	2.9	ND<2.0	4.9	670	---	SEQ
ESE-1	12/16/2002	177.69	8.56	169.13	730	140	6.0	3.2	9.1	670	---	SEQ
ESE-1	3/11/2003	177.69	9.40	168.29	1700	490	21	22	41	530	---	SEQ
ESE-1	6/17/2003 (n)	177.69	9.86	167.83	1300	140	ND<10	ND<10	ND<10	480	---	SEQ

**Table 1**  
**Groundwater Elevation and Analytical Data**  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet) (a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet) (b)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-2	10/5/1992	178.23	11.68	166.55	300	5.4	16	3.9	45	---	(l)	PACE
ESE-2	4/1/1993	178.23	9.17	169.06	240	27	ND<0.5	17	2.6	123	(e)(l)	PACE
ESE-2	6/29/1993	178.23	10.88	167.35	1700	260	24	110	23	---	(l)	PACE
QC-1 (d)	6/29/1993	---	---	---	1300	240	17	110	25	---	(l)	PACE
ESE-2	9/23/1993	178.23	11.56	166.67	240	3.1	0.5	0.6	2.5	643	(e)(l)	PACE
ESE-2	12/10/1993	178.23	10.48	167.75	250	2.4	2.4	1.5	11	940	(e)(l)	PACE
ESE-2	2/17/1994	178.23	10.06	168.17	900	ND<0.5	ND<0.5	ND<0.5	ND<0.5	930	(e)(l)	PACE
ESE-2	8/8/1994	178.23	11.11	167.12	750	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1400	(e)	PACE
ESE-2	10/12/1994	178.23	11.31	166.92	1700	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3000	(e)	PACE
ESE-2	1/19/1995	178.23	8.25	169.98	300	2	0.9	0.7	1	---	---	ATI
ESE-2	5/2/1995	178.23	9.21	169.02	1200	4	ND<2.5	ND<2.5	ND<5.0	---	---	ATI
ESE-2	7/28/1995	178.23	10.64	167.59	2000	ND<2.5	ND<2.5	ND<2.5	ND<5.0	---	---	ATI
ESE-2	11/17/1995	178.23	11.13	167.10	3600	ND<25	ND<25	ND<25	ND<50	12000	---	ATI
QC-1 (d)	11/17/1995	---	---	---	3400	ND<25	ND<25	ND<25	ND<50	12000	---	ATI
ESE-2	2/7/1996	178.23	7.94	170.29	450	ND<0.5	ND<1	ND<1	ND<1	2300	---	SPL
ESE-2	4/23/1996	178.23	9.73	168.50	260	0.9	ND<1	ND<1	ND<1	8600	---	SPL
ESE-2	7/9/1996	178.23	10.70	167.53	780	ND<2.5	ND<5	ND<5	ND<5	13393	---	SPL
ESE-2	10/10/1996	178.23	11.39	166.84	2900	ND<0.5	ND<1.0	ND<1.0	ND<1.0	12000	---	SPL
ESE-2	1/20/1997	178.23	9.04	169.19	ND<250	ND<2.5	ND<5.0	ND<5.0	ND<5.0	13000	---	SPL
ESE-2	4/25/1997	178.23	10.31	167.92	2700	ND<0.5	ND<1.0	ND<1.0	ND<1.0	15000	---	SPL
ESE-2	7/18/1997	178.23	11.02	167.21	11000	ND<5	ND<10	ND<10	ND<10	11000	---	SPL
ESE-2	10/27/1997	178.23	10.93	167.30	6100	ND<2.5	ND<5.0	ND<5.0	ND<5.0	7100	---	SPL
QC-1 (d)	10/27/1997	---	---	---	6600	ND<2.5	ND<5.0	ND<5.0	ND<5.0	7400	---	SPL
ESE-2	1/22/1998	178.23	7.93	170.30	13000	ND<0.5	ND<1.0	ND<1.0	ND<1.0	10000	---	SPL
QC-1 (d)	1/22/1998	---	---	---	13000	ND<0.5	ND<1.0	ND<1.0	ND<1.0	10000	---	SPL
ESE-2	4/23/1998	178.23	9.34	168.89	19000	ND<5	ND<10	ND<10	ND<10	36000	---	SPL
ESE-2	7/29/1998	178.23	10.29	167.94	---	---	---	---	---	---	---	---
ESE-2	7/30/1998	---	---	---	19000	ND<5	ND<10	ND<10	ND<10	36000	---	SPL
ESE-2	12/17/1998	178.23	10.20	168.03	12000	ND<5.0	ND<5.0	ND<5.0	ND<5.0	13000/17000*	---	SPL
ESE-2	3/19/1999	178.23	9.02	169.21	18000	160	ND<1.0	ND<1.0	ND<1.0	18000	---	SPL
ESE-2	6/23/1999	178.23	9.99	168.24	280	ND<1.0	ND<1.0	ND<1.0	ND<1.0	16000	---	SPL
ESE-2	9/27/1999	178.23	10.69	167.54	ND<500	ND<25	ND<25	ND<25	ND<25	12000	---	SPL
ESE-2	12/9/1999	178.23	11.26	166.97	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	12000	---	PACE
ESE-2	3/9/2000	178.23	7.95	170.28	ND<50	1.6	ND<0.5	ND<0.5	ND<0.5	7900	---	PACE
ESE-2	6/8/2000	178.23	9.66	168.57	1600	ND<0.5	0.73	ND<0.5	2.2	9400	---	PACE
ESE-2 (k)	9/18/2000	178.23	---	---	---	---	---	---	---	---	---	---
ESE-2	12/14/2000	178.23	11.15	167.08	6000	0.75	ND<0.5	ND<0.5	ND<0.5	11200	---	PACE

**Table 1**  
**Groundwater Elevation and Analytical Data**  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-2	3/21/2001	178.23	10.35	167.88	6900	786	45.7	37.7	71.5	3790	--	PACE
ESE-2	6/18/2001	178.23	11.24	166.99	6400	ND<2.5	ND<2.5	ND<2.5	ND<7.5	9320	---	PACE
ESE-2	9/18/2001	178.23	11.35	166.88	4800	ND<12.5	ND<12.5	ND<12.5	ND<37.5	6960	---	PACE
ESE-2	12/13/2001	178.23	10.97	167.26	59000	0.592	ND<0.5	ND<0.5	ND<1.0	5940	---	PACE
ESE-2	3/14/2002	178.23	10.13	168.10	4500	76	ND<0.5	ND<0.5	ND<1.0	6660	---	PACE
ESE-2	6/19/2002	178.23	10.91	167.32	250	ND<12.5	ND<12.5	ND<12.5	ND<25	4900	---	PACE
ESE-2	9/10/02*	178.23	10.82	167.41	1500	ND<5.0	ND<5.0	ND<5.0	6.3	3100	---	SEQ
ESE-2	12/16/2002	178.23	7.87	170.36	1400	ND<5.0	ND<5.0	ND<5.0	ND<5.0	2400	---	SEQ
ESE-2	3/11/2003	178.23	10.24	167.99	2800	ND<10	ND<10	ND<10	ND<10	4800	---	SEQ
ESE-2	6/17/2003 (n)	178.23	10.19	168.04	10000	ND<100	ND<100	ND<100	ND<100	4400	---	SEQ

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB	
ESE-3	10/5/1992	178.20	10.58	167.62	430	57	31	3.6	34	---	(l)	---	PACE
ESE-3	4/1/1993	178.20	8.14	170.06	2400	460	220	74	210	---	(l)	---	PACE
ESE-3	6/29/1993	178.20	9.72	168.48	280	56	14	15	13	---	(l)	---	PACE
ESE-3	9/23/1993	178.20	10.46	167.74	72	13	3.5	1.7	4.1	---	(l)	---	PACE
ESE-3	12/10/1993	178.20	9.30	168.90	270	71	32	6.1	33	---	(l)	2.7	PACE
ESE-3	2/17/1994	178.20	8.97	169.23	520	140	10	20	33	5.74	(l)	---	PACE
ESE-3	8/8/1994	178.20	10.02	168.18	ND<50	8.8	1.6	1.6	2.3	ND<5.0	(l)	6.2	PACE
ESE-3	10/12/1994	178.20	10.32	167.88	470	190	6.4	15	18	ND<5.0	(l)	3.5	PACE
ESE-3	1/19/1995	178.20	7.40	170.80	330	260	27	21	20	---	---	6.7	ATI
ESE-3	5/2/1995	178.20	8.26	169.94	530	180	30	23	44	---	---	8.6	ATI
ESE-3	7/28/1995	178.20	9.54	168.66	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	8.8	ATI
ESE-3	11/17/1995	178.20	10.04	168.16	ND<50	1.7	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	7.3	ATI
ESE-3	2/7/1996	178.20	7.08	171.12	ND<50	8.6	ND<1	ND<1	ND<1	ND<10	---	3.9	SPL
ESE-3	4/23/1996	178.20	8.79	169.41	ND<50	7.6	ND<1	ND<1	ND<1	65	---	6.9	SPL
ESE-3	7/9/1996	178.20	10.09	168.11	ND<50	12	2.6	2	3.9	26	---	3.4	SPL
ESE-3	10/10/1996	178.20	10.48	167.72	---	---	---	---	---	---	---	---	---
ESE-3	10/11/1996	178.20	---	---	260	140	ND<1.0	ND<1.0	2.6	ND<10	---	7.2	SPL
ESE-3	1/20/1997	178.20	8.65	169.55	ND<50	1.5	1.7	ND<1.0	ND<1.0	14	---	5.7	SPL
ESE-3	4/25/1997	178.20	10.02	168.18	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	14	---	5.4	SPL
ESE-3	7/18/1997	178.20	10.66	167.54	10000	1400	1400	300	1280	ND<250	---	5.2	SPL
ESE-3	10/27/1997	178.20	9.83	168.37	ND<250	ND<2.5	ND<5.0	ND<5.0	36	ND<50	---	5.0	SPL
ESE-3	1/22/1998	178.20	7.06	171.14	130	ND<0.5	ND<1.0	ND<1.0	ND<1.0	120	---	4.3	SPL
ESE-3	4/23/1998	178.20	8.44	169.76	4800	560	ND<10	15	ND<10	4000	---	3.9	SPL
ESE-3	7/29/1998	178.20	9.27	168.93	---	---	---	---	---	---	---	---	---
ESE-3	7/30/1998	---	---	---	1800	6.2	ND<5.0	ND<5.0	ND<5.0	1700	---	4.1	SPL
ESE-3	12/17/1998	178.20	9.15	169.05	600	54	ND<1.0	2.1	4.9	340/480*	---	---	SPL
ESE-3	3/19/1999	178.20	8.14	170.06	2000	260	4.4	13	28	870	---	---	SPL
ESE-3	6/23/1999	178.20	9.44	168.76	290	91	ND<1.0	8.3	16	240	---	---	SPL
ESE-3	9/27/1999	178.20	9.69	168.51	130	35	ND<1.0	2.7	3.8	100	---	---	SPL
ESE-3	12/9/1999	178.20	10.99	167.21	380	84	1.7	8.7	6.3	160	---	---	PACE
ESE-3	3/9/2000	178.20	7.12	171.08	950	190	4.6	39	62	350	---	---	PACE
ESE-3	6/8/2000	178.20	10.92	167.28	300	37	ND<0.5	2.3	1.3	400	---	---	PACE
ESE-3	9/18/2000	178.20	11.12	167.08	920	140	1.3	15	4.8	170	---	---	PACE
ESE-3	12/14/2000	178.20	9.70	168.50	320	64	ND<0.5	6.24	1.76	201	---	---	PACE
ESE-3	3/21/2001	178.20	10.07	168.13	680	80.5	0.546	21.1	18.2	398	---	---	PACE
ESE-3	6/18/2001	178.20	11.42	166.78	380	47	ND<0.5	3.11	ND<1.5	242	---	---	PACE
ESE-3	9/18/2001	178.20	11.55	166.65	340	54.8	ND<0.5	4.36	ND<1.5	79.7	---	---	PACE



**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-3	12/13/2001	178.20	10.12	168.08	270	31.4	ND<0.5	1.31	2.24	129	---	PACE
ESE-3	3/14/2002	178.20	9.84	168.36	670	89.8	0.769	23.4	30.4	413	---	PACE
ESE-3	6/19/2002	178.20	10.57	167.63	130	18.6	ND<0.5	ND<0.5	ND<1.0	166	---	PACE
ESE-3	9/10/02*	178.20	9.90	168.30	88	12	ND<0.5	ND<0.5	ND<0.5	93	---	SEQ
ESE-3	12/16/2002	178.20	9.23	168.97	290	55	17	3.7	14	78	---	SEQ
ESE-3	3/11/2003	178.20	9.05	169.15	100	3.4	ND<0.50	0.54	ND<0.50	140	---	SEQ
ESE-3	6/17/2003 (n)	178.20	9.30	168.90	520	17	ND<5.0	5.3	ND<5.0	130	---	SEQ

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 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-4	10/5/1992	177.73	10.33	167.40	98	7.2	1.3	1.1	6.1	--	(l)	PACE
ESE-4	4/1/1993	177.73	7.88	169.85	550	93	20	23	33	--	(l)	PACE
ESE-4	6/29/1993	177.66	(f) 8.33	169.33	150	23	0.6	5.4	0.5	54	(e)(l)	PACE
ESE-4	9/23/1993	177.66	10.05	167.61	110	14	1.7	3.2	4.6	--	(l)	PACE
ESE-4	12/10/1993	177.66	8.95	168.71	110	21	7.2	4.2	10	28.75	(f)	PACE
ESE-4	2/17/1994	177.66	8.65	169.01	210	26	1.2	4.7	11	113	(e)(l)	PACE
ESE-4	8/8/1994	177.66	9.76	167.90	76	9.6	ND<0.5	2	ND<0.5	62	(e)	PACE
ESE-4	10/12/1994	177.66	9.62	168.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	44	(e)	PACE
ESE-4	1/19/1995	177.66	6.97	170.69	140	56	14	24	23	--		ATI
ESE-4	5/2/1995	177.66	7.85	169.81	130	21	2.8	8.6	8.2	--		ATI
ESE-4	7/28/1995	177.66	9.20	168.46	ND<50	ND<0.5	ND<0.50	ND<0.50	ND<1.0	--		ATI
ESE-4	11/17/1995	177.66	9.68	167.98	ND<50	ND<0.5	0.6	ND<0.50	ND<1.0	18		ATI
ESE-4	2/7/1996	177.66	6.59	171.07	100	2.6	ND<1	1.6	4.1	42		SPL
ESE-4	4/23/1996	177.66	8.30	169.36	160	37	15	16	31	43		SPL
ESE-4	7/9/1996	177.66	9.21	168.45	60	17	1.5	6.8	11.6	27		SPL
ESE-4	10/10/1996	177.66	9.97	167.69	--	--	--	--	--	--		--
ESE-4	10/11/1996	177.66	--	--	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	18		SPL
ESE-4	1/20/1997	177.66	7.68	169.98	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	130		SPL
ESE-4	4/25/1997	177.66	9.15	168.51	ND<250	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50		SPL
ESE-4	7/18/1997	177.66	9.71	167.95	ND<50	15	ND<10	ND<10	ND<10	ND<100		SPL
ESE-4	10/27/1997	177.66	9.38	168.28	ND<250	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50		SPL
ESE-4	1/22/1997	177.66	6.59	171.07	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10		SPL
ESE-4	4/23/1998	177.66	7.90	169.76	ND<250	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50		SPL
ESE-4	7/29/1998	177.66	8.96	168.70	--	--	--	--	--	--		--
ESE-4	7/30/1998	--	--	--	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10		SPL
ESE-4	12/17/1998	177.66	8.32	169.34	--	--	--	--	--	--		--
ESE-4	3/19/1999	177.66	7.71	169.95	--	--	--	--	--	--		--
ESE-4	6/23/1999	177.66	8.78	168.88	--	--	--	--	--	--		--
ESE-4	9/27/1999	177.66	9.27	168.39	--	--	--	--	--	--		--
ESE-4	12/9/1999	177.66	9.21	168.45	--	--	--	--	--	--		--
ESE-4	3/9/2000	177.66	6.82	170.84	--	--	--	--	--	--		--
ESE-4	6/8/2000	177.66	8.72	168.94	--	--	--	--	--	--		--
ESE-4	9/18/2000	177.66	9.02	168.64	--	--	--	--	--	--		--
ESE-4	12/14/2000	177.66	8.61	169.05	--	--	--	--	--	--		--
ESE-4	3/21/2001	177.66	8.61	169.05	--	--	--	--	--	--		--
ESE-4	6/18/2001	177.66	9.24	168.42	--	--	--	--	--	--		--
ESE-4	9/18/2001	177.66	9.35	168.31	--	--	--	--	--	--		--

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-4	12/13/2001	177.66	8.53	169.13	---	---	---	---	---	---	---	---
ESE-4	3/14/2002	177.66	8.44	169.22	---	---	---	---	---	---	---	---
ESE-4	6/19/2002	177.66	10.97	166.69	---	---	---	---	---	---	---	---
ESE-4	9/10/02*	177.66	9.27	168.39	---	---	---	---	---	---	---	---
ESE-4	12/16/2002	177.66	6.90	170.76	---	---	---	---	---	---	---	---
ESE-4	3/11/2003	177.66	8.83	168.83	---	---	---	---	---	---	---	---
ESE-4	6/17/2003	177.66	8.84	168.82	---	---	---	---	---	---	---	---

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**Groundwater Elevation and Analytical Data**  
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 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB	
ESE-5	10/5/1992	176.08	9.22	166.86	1300	200	3.8	1.2	18	---	(l)	---	PACE
ESE-5	4/1/1993	176.08	7.02	169.06	13000	2200	26	730	1000	---	(l)	---	PACE
QC-1 (d)	4/1/1993	---	---	---	13000	2500	25	740	1100	---	(l)	---	PACE
ESE-5	6/29/1993	176.08	10.21	165.87	7600	1500	9.3	170	100	---	(l)	---	PACE
ESE-5	9/23/1993	176.08	10.64	165.44	560	19	1.2	0.9	1.8	---	(l)	---	PACE
ESE-5	12/10/1993	176.08	9.42	166.66	1700	300	3	76	110	14.07	(l)	2.5	PACE
ESE-5	2/7/1994	176.08	9.35	166.73	3500	640	7.8	90	130	45.13	(l)	---	PACE
ESE-5	8/8/1994	176.08	8.76	167.32	2600	210	4.6	9.4	4.4	33	(e)	5.8	PACE
QC-1 (d)	8/8/1994	---	---	---	2500	230	4.6	13	4.8	32	(e)	---	PACE
ESE-5	10/12/1994	176.08	8.95	167.13	5600	560	9.5	75	21	79.2	(l)	3.6	PACE
QC-1 (d)	10/12/1994	---	---	---	6000	550	10	78	22	77	(e)	---	PACE
ESE-5	1/19/1995	176.08	5.40	170.68	1900	620	ND<5	95	15	---	---	7.6	ATI
QC-1 (d)	1/19/1995	---	---	---	1600	620	ND<5	93	17	---	---	---	ATI
ESE-5	5/2/1995	176.08	6.48	169.60	5700	1100	ND<10	180	58	---	---	8.2	ATI
QC-1 (d)	5/2/1995	---	---	---	5300	1100	ND<10	180	58	---	---	---	ATI
ESE-5	7/28/1995	176.08	7.97	168.11	520	15	ND<0.50	1.7	1.3	---	---	8.2	ATI
QC-1 (d)	7/28/1995	---	---	---	460	7.2	ND<0.50	1.9	1.5	---	---	---	ATI
ESE-5	11/17/1995	176.08	8.39	167.69	850	39	1.8	7.6	2.7	24	---	6.3	ATI
ESE-5	2/7/1996	176.08	4.71	171.37	4100	670	6	190	140	ND<50	---	1.5	SPL
ESE-5	4/23/1996	176.08	7.35	168.73	3000	570	ND<5	79	100	84	---	6.5	SPL
ESE-5	7/9/1996	176.08	9.40	166.68	620	150	1.7	9.3	6.4	25	---	3.7	SPL
ESE-5	10/10/1996	176.08	9.04	167.04	1100	29	ND<5.0	ND<5.0	ND<5.0	ND<50	---	6.3	SPL
QC-1 (d)	10/10/1996	---	---	---	1100	31	ND<5.0	ND<5.0	ND<5.0	ND<50	---	---	SPL
ESE-5	1/20/1997	176.08	5.82	170.26	2100	980	ND<25	280	80	ND<250	---	5.4	SPL
QC-1 (d)	1/20/1997	---	---	---	2700	910	8.8	280	84	180	---	---	SPL
ESE-5	4/25/1997	176.08	7.24	168.84	---	---	---	---	---	---	---	---	---
ESE-5	4/28/1997	176.08	---	---	ND<250	7.9	ND<5.0	ND<5.0	ND<5.0	ND<50	---	---	---
ESE-5	7/18/1997	176.08	7.86	168.22	1200	ND<5	ND<10	ND<5.0	ND<10	ND<100	---	4.9	SPL
QC-1 (d)	7/18/1997	---	---	---	630	31	ND<5.0	ND<5.0	ND<5.0	130	---	---	SPL
ESE-5	10/27/1997	176.08	7.91	168.17	ND<250	5.4	ND<5.0	ND<5.0	ND<5.0	ND<50	---	5.2	SPL
ESE-5	1/22/1998	176.08	4.64	171.44	170	7.7	ND<1.0	ND<1.0	ND<1.0	130	---	4.6	SPL
ESE-5	4/23/1998	176.08	6.31	169.77	720	79	ND<5.0	9.0	ND<5.0	180	---	4.6	SPL
ESE-5	7/29/1998	176.08	7.43	168.65	---	---	---	---	---	---	---	---	---
ESE-5	7/30/1998	---	---	---	840	9.8	ND<1.0	4.0	ND<1.0	710	---	---	---
ESE-5	12/17/1998	176.08	7.05	169.03	---	---	---	---	---	---	---	---	---
ESE-5	3/19/1999	176.08	5.00	171.08	ND<250	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	---	---	---
ESE-5	6/23/1999	176.08	7.77	168.31	---	---	---	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
ESE-5	9/27/1999	176.08	8.11	167.97	450	10	ND<5.0	6.3	ND<5.0	220	---	SPL
ESE-5	12/9/1999	176.08	7.66	168.42	---	---	---	---	---	---	---	---
ESE-5	3/9/2000	176.08	5.08	171.00	1700	170	2.5	45	6.4	140	---	PACE
ESE-5	6/8/2000	176.08	7.36	168.72	---	---	---	---	---	---	---	---
ESE-5	9/18/2000	176.08	7.71	168.37	130	0.65	ND<0.5	0.71	ND<0.5	51	---	PACE
ESE-5	12/14/2000	176.08	2.36	173.72	---	---	---	---	---	---	---	---
ESE-5	3/21/2001	176.08	7.42	168.66	1000	10.3	ND<2.5	11	ND<7.5	70.8	---	PACE
ESE-5	6/18/2001	176.08	7.92	168.16	---	---	---	---	---	---	---	---
ESE-5	9/18/2001	176.08	8.05	168.03	200	0.868	ND<0.5	0.55	ND<1.5	57.5	---	PACE
ESE-5	12/13/2001	176.26	(m) 7.80	168.46	---	---	---	---	---	---	---	---
ESE-5	3/14/2002	176.26	6.55	169.71	1300	17.1	1.35	15.4	1.42	37.4	---	PACE
ESE-5	6/19/2002	176.26	7.83	168.43	---	---	---	---	---	---	---	---
ESE-5	9/10/02*	176.26	8.22	168.04	680	9.9	ND<5.0	ND<5.0	ND<5.0	44	---	SEQ
ESE-5	12/16/2002	176.26	6.58	169.68	---	---	---	---	---	---	---	---
ESE-5	3/11/2003	176.26	6.77	169.49	2100	14	ND<2.5	15	3.0	80	---	---
ESE-5	6/17/2003	176.26	6.75	169.51	---	---	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
MW-6	7/28/1995	179.24	10.00	169.24	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.1	ATI
MW-6	11/17/1995	179.24	10.44	168.80	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	6.8	ATI
MW-6	2/7/1996	179.24	7.68	171.56	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	2.4	SPL
MW-6	4/23/1996	179.24	9.33	169.91	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	6.6	SPL
MW-6	7/9/1996	179.24	10.10	169.14	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	2.7	SPL
MW-6	10/10/1996	179.24	11.00	168.24	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.9	SPL
MW-6	1/20/1997	179.24	8.70	170.54	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.5	SPL
MW-6	4/25/1997	179.24	10.16	169.08	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	5.1	SPL
MW-6	7/18/1997	179.24	10.66	168.58	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.8	SPL
MW-6	10/27/1997	179.24	10.25	168.99	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.8	SPL
MW-6	1/22/1998	179.24	7.76	171.48	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.0	SPL
MW-6	4/23/1998	179.24	9.10	170.14	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	4.2	SPL
MW-6	7/29/1998	179.24	10.40	168.84	---	---	---	---	---	---	---	---
MW-6	7/30/1998	---	---	---	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	3.8	SPL
MW-6	12/17/1998	179.24	9.40	169.84	---	---	---	---	---	---	---	---
MW-6	3/19/1999	179.24	9.10	170.14	---	---	---	---	---	---	---	---
MW-6	6/23/1999	179.24	9.79	169.45	---	---	---	---	---	---	---	---
MW-6	9/27/1999	179.24	10.10	169.14	---	---	---	---	---	---	---	---
MW-6	12/9/1999	179.24	9.97	169.27	---	---	---	---	---	---	---	---
MW-6	3/9/2000	179.24	8.56	170.68	---	---	---	---	---	---	---	---
MW-6	6/8/2000	179.24	9.11	170.13	---	---	---	---	---	---	---	---
MW-6	9/18/2000	179.24	9.77	169.47	---	---	---	---	---	---	---	---
MW-6	12/14/2000	179.24	9.17	170.07	---	---	---	---	---	---	---	---
MW-6	3/21/2001	179.24	9.82	169.42	---	---	---	---	---	---	---	---
MW-6	6/18/2001	179.24	10.19	169.05	---	---	---	---	---	---	---	---
MW-6	9/18/2001	179.24	10.25	168.99	---	---	---	---	---	---	---	---
MW-6	12/13/2001	179.24	9.75	169.49	---	---	---	---	---	---	---	---
MW-6	3/14/2002	179.24	9.53	169.71	---	---	---	---	---	---	---	---
MW-6	6/19/2002	179.24	9.87	169.37	---	---	---	---	---	---	---	---
MW-6	9/10/02*	179.24	9.49	169.75	---	---	---	---	---	---	---	---
MW-6	12/16/2002	179.24	8.39	170.85	---	---	---	---	---	---	---	---
MW-6	3/11/2003	179.24	9.40	169.84	---	---	---	---	---	---	---	---
MW-6	6/17/2003	179.24	9.71	169.53	---	---	---	---	---	---	---	---

**Table 1**  
**Groundwater Elevation and Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet) (a)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (Feet) (b)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
MW-7	7/28/1995	176.55	9.25	167.30	ND<50	0.54 (g)	0.54	ND<0.50	ND<1.0	---	7.1	ATI
MW-7	11/17/1995	176.55	9.73	166.82	1100	ND<10	ND<10	ND<10	ND<20	4000	6.3	ATI
MW-7	2/7/1996	176.55	6.48	170.07	610	ND<0.5	ND<1	ND<1	ND<1	2500	4.1	SPL
QC-1 (d)	2/7/1996	---	---	---	280	ND<0.5	ND<1	ND<1	ND<1	2600	---	SPL
MW-7	4/23/1996	176.55	8.37	168.18	110	ND<0.5	ND<1	ND<1	ND<1	3500	6.4	SPL
QC-1 (d)	4/23/1996	---	---	---	230	ND<0.5	ND<1	ND<1	ND<1	3500	---	SPL
MW-7	7/9/1996	176.55	9.24	167.31	230	ND<0.5	ND<1	ND<1	ND<1	4296	3.1	SPL
QC-1 (d)	7/9/1996	---	---	---	220	ND<0.5	ND<1	ND<1	ND<1	4400	---	SPL
MW-7	10/10/1996	176.55	10.05	166.50	---	---	---	---	---	---	---	---
MW-7	10/11/1996	176.55	---	---	1600	ND<0.5	ND<1.0	ND<1.0	ND<1.0	3000	6.9	SPL
MW-7	1/20/1997	176.55	7.51	169.04	ND<50	0.63	1	ND<1.0	ND<1.0	2600	5.7	SPL
MW-7	4/25/1997	176.55	8.79	167.76	---	---	---	---	---	---	---	---
MW-7	4/28/1997	176.55	---	---	1500	ND<0.5	ND<1.0	ND<1.0	ND<1.0	3600	5.1	SPL
QC-1 (d)	4/28/1997	---	---	---	7700	3500	ND<25	74	37	ND<250	---	SPL
MW-7	7/18/1997	176.55	9.50	167.05	1400	ND<0.5	ND<1.0	ND<1.0	ND<1.0	2600	5.2	SPL
MW-7	10/27/1997	176.55	9.19	167.36	420	ND<0.5	ND<1.0	ND<1.0	ND<1.0	560	4.9	SPL
MW-7	1/22/1998	176.55	6.45	170.10	3100	ND<0.5	ND<1.0	ND<1.0	1.4	2300	4.2	SPL
MW-7	4/23/1998	176.55	8.02	168.53	3800	ND<0.5	ND<1.0	ND<1.0	ND<1.0	3800	3.9	SPL
MW-7	7/29/1998	176.55	8.88	167.67	---	---	---	---	---	---	---	---
MW-7	7/30/1998	---	---	---	500	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	4.1	SPL
QC-1 (d)	7/30/1998	---	---	---	4700	ND<12	ND<25	ND<25	ND<25	4700	---	SPL
MW-7	12/17/1998	176.55	8.62	167.93	---	---	---	---	---	---	---	---
MW-7	3/19/1999	176.55	7.52	169.03	3800	ND<1.0	ND<1.0	ND<1.0	ND<1.0	3800	---	SPL
MW-7	6/23/1999	176.55	9.63	166.92	---	---	---	---	---	---	---	---
MW-7	9/27/1999	176.55	9.39	167.16	140	ND<10	ND<10	ND<10	ND<10	3800	---	SPL
MW-7	12/9/1999	176.55	9.94	166.61	---	---	---	---	---	---	---	---
MW-7	3/9/2000	176.55	6.72	169.83	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1400	---	PACE
MW-7	6/8/2000	176.55	7.38	169.17	---	---	---	---	---	---	---	---
MW-7	9/18/2000	176.55	9.18	167.37	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	580	---	PACE
MW-7	12/14/2000	176.55	8.13	168.42	---	---	---	---	---	---	---	---
MW-7	3/21/2001	176.55	8.98	167.57	1300	ND<0.5	ND<0.5	ND<0.5	ND<1.5	1460	---	PACE
MW-7	6/18/2001	176.55	9.68	166.87	---	---	---	---	---	---	---	---
MW-7	9/18/2001	176.55	9.80	166.75	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	94.9	---	PACE
MW-7	12/13/2001	176.55	9.26	167.29	---	---	---	---	---	---	---	---
MW-7	3/14/2002	176.55	8.69	167.86	800	ND<0.5	ND<0.5	ND<0.5	ND<1.0	952	---	PACE
MW-7	6/19/2002	176.55	9.06	167.49	---	---	---	---	---	---	---	---
MW-7	9/10/02*	176.55	9.23	167.32	260	ND<2.0	ND<2.0	ND<2.0	ND<2.0	580	---	SEQ

**Table 1**  
**Groundwater Elevation and Analytical Data**  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
MW-7	12/16/2002	176.55	7.77	168.78	---	---	---	---	---	---	---	---
MW-7	3/11/2003	176.55	8.30	168.25	620	ND<2.5	ND<2.5	ND<2.5	ND<2.5	1100	---	---
MW-7	6/17/2003	176.55	9.51	167.04	---	---	---	---	---	---	---	---



**Table 1**  
**Groundwater Elevation and Analytical Data**  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	DO (ppm)	LAB
MW-8	7/28/1995	176.34	7.80	168.54	1100	ND<2.5	ND<2.5	ND<2.5	ND<5.0	---	7.2	ATI
MW-8	11/17/1995	176.34	8.29	168.05	8300	75	5.3	670	240	140	7.0	ATI
MW-8	2/7/1996	176.34	4.99	171.35	2300	33	ND<10	190	216	ND<100	1.7	SPL
MW-8	4/23/1996	176.34	6.09	170.25	2000	390	ND<20	150	26	ND<250	5.1	SPL
MW-8 (h)	7/9/1996	---	---	---	---	---	---	---	---	---	---	---
QC-2 (i)	4/1/1993	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(l) ---	PACE
QC-2 (i)	6/29/1993	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(l) ---	PACE
QC-2 (i)	9/23/1993	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	(l) ---	PACE
QC-2 (i)	12/10/1993	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	(l) ---	PACE
QC-2 (i)	2/17/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (i)	8/8/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (i)	10/12/1994	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (i)	1/19/1995	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	ATI
QC-2 (i)	5/2/1995	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (i)	7/28/1995	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (i)	11/17/1995	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (i)	2/7/1996	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
QC-2 (i)	4/23/1996	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL
QC-2 (i)	7/9/1996	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL

Table 1

Groundwater Elevation and Analytical Data  
Former BP Service Station #11105  
3519 Castro Valley Blvd, Castro Valley, CA

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert butyl ether
DO	Dissolved oxygen
ug/L	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
---	Not applicable/available/measured/analyzed
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories
SEQ	Sequoia Analytical

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Former BP Service Station #11105**  
**3519 Castro Valley Blvd, Castro Valley, CA**

NOTES:

- (a) Top of casing elevations surveyed relative to mean sea level.
- (b) Groundwater elevations in feet relative to mean sea level.
- (c) Additional analysis of the sample collected from ESE-1 on 10/5/92 detected 96 ug/L total petroleum hydrocarbons as diesel and 1.8 ug/L 1,2-dichloroethane.
- (d) Blind duplicate.
- (e) A copy of the documentation for this data is included in Alisto report 10-138-09-004.
- (f) Top of casing lowered by 0.07 foot after the monitoring event on 4/01/93.
- (g) Sample result may be falsely elevated due to matrix interference.
- (h) Well destroyed.
- (i) Travel blank.
- (j) Gasoline does not include MTBE.
- (k) Well Inaccessible.
- (l) A copy of the documentation for this data can be found in Blaine Tech Services report 010618-J-1. MTBE data for the September 28, 1992, September 29, 1992, October 5, 1992, and April 1, 1993 sampling events have been destroyed. No chromatograms could be located for MTBE data from wells sampled on June 29, 1993; wells ESE-1, ESE-3, ESE-4, ESE-5, and the Trip Blank, sampled on September 23, 1993; and wells ESE-1, ESE-2, and ESE-3, sampled on December 10, 1993.
- (m) Top of casing altered due to wellhead maintenance.
- (n) Analyzed for TPH-g, BTEX, MTBE and fuel oxygenates by EPA Method 8260B on 6/17/03 sampling event.
- (\*) MTBE by EPA 8020/8260.
- \* During the second quarter of 2002, URS Corporation assumed groundwater monitoring activities for BP.

Source: The data within this table collected prior to June 2002 was provided to URS by BP Group Environmental Management company and their previous consultants. URS has not verified the accuracy of this information.

**Table 2**  
**Fuel Oxygenates Analytical Data**  
 Former BP Service Station #11105  
 3519 Castro Valley Blvd, Castro Valley, CA

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
ESE-1	06/17/03	ND<2,000	ND<400	480	ND<10	ND<10	18
ESE-2	06/17/03	ND<20,000	ND<4,000	4,400	ND<100	ND<100	ND<100
ESE-3	06/17/03	ND<1,000	ND<200	130	ND<5.0	ND<5.0	ND<5.0

Note = All fuel oxygenate compounds analyzed using EPA Method 8260B  
 TBA = tert-Butyl alcohol  
 MTBE = Methyl tert-Butyl ether  
 DIPE = Di-isopropyl ether  
 ETBE = Ethyl tert Butyl ether  
 TAME = tert-Amyl Methyl ether  
 µg/L = micrograms per liter  
 ND< = Not detected at or above specified laboratory method detection limit