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Fourth Quarter 2003
GROUNDWATER MONITORING REPORT
TEXACO GASOLINE SERVICE STATION
15101 FREEDOM AVENUE
SAN LEANDRO, CALIFORNIA

November 6, 2003

Project 2551

Prepared for

Mr. Mohammad Pazdel
35840 Alcazar Court
Fremont, California

Prepared by

SOMA Environmental Engineering, Inc.
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120-473

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November 6, 2003

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

Subject: Texaco Gasoline Service Station (Formerly Freedom ARCO Station)
Site Address: 15101 Freedom Avenue, San Leandro, California
STID 4473/RO0000473

Dear Ms. Chu:

Enclosed for your review is a copy of SOMA's "Fourth Quarter 2003 Groundwater Monitoring Report" for the subject property.

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 Sepehr, Ph.D.,PE
Principal Hydrogeologist

Enclosure

cc: Mr. Mohammad Pazdel w/enclosure

Certification

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Mohammad Pazdel, for the property located at 15101 Freedom Avenue, San Leandro, California, to comply with the Alameda County Health Care Services' requirements for the Fourth 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. Mohammad Pazdel, the property owner. Formerly, the property was known as Freedom ARCO Station located at 15101 Freedom Avenue, between 151st Street and Fairmont Boulevard, just west of Interstate 580 in San Leandro, California (the "Site"). The Site is currently operating as a service station under the brand name of Texaco. Figure 1 shows the location of the Site.

Since the 1960's, the Site has been used as a gasoline service station. In 1985, Mr. Mohammad Pazdel purchased the business and in 1992 he purchased the property from Mr. Mohammad Mashhoon. From 1985 until 1997, when Mr. Pazdel sold the business, the Site operated as "Freedom ARCO Station".

This groundwater monitoring report summarizes the results of the Fourth Quarter 2003 groundwater monitoring event conducted at the Site on October 9, 2003. This report includes the results of on-site measurements of the physical and chemical properties of the groundwater, which include pH, temperature, and electrical conductivity (EC). During this monitoring event, five monitoring wells (MW-1 to MW-5) were sampled and analyzed for the following chemicals, as requested by the Alameda County Health Care Services (ACHCS):

- Total petroleum hydrocarbons as gasoline (TPH-g)
- Benzene, toluene, ethylbenzene, and 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)

These activities were performed in accordance with the general guidelines of the California Regional Water Quality Control Board (CRWQCB).

1.1 Previous Activities

On May 20, 1999, in order to comply with underground storage tank (UST) upgrade regulations, three 10,000-gallon single walled USTs were removed and replaced with new double-walled fuel tanks. Geo-Logic oversaw the removal of the USTs from the Site, which consisted of approximately 250 feet of product piping and six dispensers. Paradiso Mechanical, Inc. removed the old USTs and installed the new USTs. The on-site participating agency was the ACHCS. During the upgrade of the USTs, petroleum chemicals were detected in subsurface soils beneath the old USTs. As a result, an over-excavation of the UST cavity was performed.

After excavating and removing the product piping and three USTs, they were transported to the Ecology Control Industries facility in Richmond, California for proper disposal.

On May 20 and May 21, 1999, Geo-Logic collected soil samples from beneath the USTs, product piping, and dispensers. On May 20, 1999, seven soil samples were collected from the west and east sides of the tank excavation pit (T1W, T2W, T3W, T1E, T2E, T3E, and an additional soil sample at T1W). The depths at which the samples were taken ranged from 12 to 14 feet below ground surface (bgs). In addition, six soil samples were collected from beneath the dispensers (P1, P2, P4, P5, P6, and P7). The depths at which the samples were taken ranged from 2.5 to 3 feet bgs. One soil sample was collected beneath the product lines (P3) at a depth of 2.5 feet bgs.

On May 21, 1999, eight additional soil samples (P8, P9, P10, P11, P12, P13, P14, and P15) were collected beneath the product piping and in the area of the dispensers at depths ranging from 3 to 3.5 feet bgs. A stockpile soil sample was also collected at this time.

On June 2, 1999, additional soil samples were collected during over-excavation activities from beneath the product piping and the base of the tank excavation cavity. An additional soil sample (P12) was collected from beneath the product piping at a depth of 5 feet bgs. In order to define the vertical extent of the hydrocarbon contamination, three additional soil samples were collected in the western portion of the tank cavity at depths ranging from 16.5 to 24.5 feet bgs.

The soil samples collected during the removal and over-excavation activities were submitted to Calcoast Analytical in Emeryville, California. Soil samples were analyzed for TPH-g using EPA Method 8015, BTEX compounds and MtBE using EPA Method 8020B and total lead using EPA Method 6010A. EPA Method 8260B was used to confirm the presence of MtBE. The concentration of TPH-g in soil samples ranged between 0.76 mg/Kg (in P3, at a depth of 2.5 feet bgs) and 4,000 mg/Kg (in T1W, at a depth of 24.5 feet bgs). Benzene concentrations ranged between 28 mg/Kg (in T1W, at a depth of 13.5 feet bgs) and non-detectable levels (in P2 through P6, and P14, at depths ranging from 2.5 to 3 feet bgs). MtBE concentrations ranged from below the laboratory reporting limit to 0.93 mg/Kg.

On July 7, 1999, a 20,000-gallon gasoline UST, an 8,000-gallon gasoline UST, and a 6,000-gallon diesel UST were installed in the tank cavity by Paradiso Mechanical, Inc.

In July 2001, CCS Environmental Services of San Rafael, California (CCS), at the request of the ACHCS, conducted additional soil and groundwater

investigations to further examine potential petroleum hydrocarbon contamination discovered during the removal and upgrade of the USTs at the Site. During this investigation, CCS drilled five soil borings (SB-1 through SB-5) using the direct-push method. The soil boring locations are shown in Figure 2. The soil borings were advanced to a maximum depth of 31 feet. Due to the semi-confined nature of the saturated sediments directly beneath the Site, the groundwater stabilized at depths of 17 to 20 feet bgs, shortly after drilling.

The results of the July 2001 investigation indicated that petroleum-impacted soils are generally encountered below a depth of 19 feet and are predominantly present within the capillary fringe, just above the saturated zone. The maximum concentrations of TPH-g and BTEX in soil samples collected between 19 and 25.5 feet bgs were 470, 2.6, 16, 12, and 73 mg/Kg, respectively. MtBE was below the laboratory reporting limit of 0.005 mg/Kg in all soil samples.

The groundwater analytical results from the July 2001 investigation showed that the maximum concentrations of TPH-g and BTEX in the groundwater samples collected from the soil borings were 83, 19, 1.8, 1.5, and 73 mg/L, respectively. MtBE was detected in the groundwater at each of the borings except SB-4. The maximum reported MtBE concentration was 87 mg/L at soil boring SB-2.

On April 22 and 23, 2002, SOMA installed 5 (4-inch diameter) on-site groundwater monitoring wells (MW-1 to MW-5) to evaluate the groundwater flow gradient, the extent of petroleum hydrocarbons, and MtBE contamination beneath the Site. After installing the wells, they were developed and sampled. Figure 2 displays the locations of the monitoring wells. Appendix A shows the table of elevations and coordinates, as surveyed by Kier & Wright Civil Engineer & Land Surveyors in May 2002.

Based on SOMA's approved workplan submitted on July 22, 2003, an additional off-site investigation was performed to evaluate the lateral extent of soil and

groundwater contamination. The off-site investigation included a sensitive receptor survey to locate water supply wells and/or water bodies within a 2,000 foot radius of the Site. In September 2003, six temporary well boreholes were advanced to depths of at least 40 feet below ground surface (bgs). The results of this investigation are presented in SOMA's " Off-Site Soil and Groundwater Investigation at Former Texaco Station, 15101 Freedom Avenue, San Leandro, California."

2.0 FIELD ACTIVITIES

On October 9, 2003, SOMA's field crew conducted a groundwater monitoring event in accordance with the procedures and guidelines of the CRWQCB. During this groundwater monitoring event, a total of five monitoring wells (MW-1 to MW-5) were monitored.

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

Prior to collecting samples, each well was purged using a battery operated 2-inch diameter pump (Model ES-60 DC).

In order to ensure that the final samples were in equilibrium with and representative of the surrounding groundwater, several samples were taken during the purging for field measurements of pH, temperature and EC. These 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.

The purging continued until these parameters stabilized or three casing volumes were purged. For sampling purposes, after purging, a disposable polyethylene bailer was used to collect sufficient samples from each monitoring well for laboratory analyses.

The groundwater samples collected from each monitoring well were transferred to four 40-mL VOA vials, which had been prepared with a hydrochloric acid preservative. The vials were sealed to prevent the development of air bubbles within the headspace area. After the groundwater samples were collected, they were placed in an ice chest and maintained at 4 °C. A chain of custody (COC) form was completed for all of the samples and was submitted along with the samples to the laboratory. On that same day, October 9, 2003, SOMA's field crew delivered the groundwater samples to Curtis & Tompkins, Ltd. laboratory in Berkeley, California.

3.0 LABORATORY ANALYSIS

Curtis & Tompkins, Ltd., a state certified laboratory, analyzed the groundwater samples for TPH-g, BTEX, MtBE, and gasoline oxygenates. Samples for TPH-g measurement were prepared using EPA Method 5030B and analyzed using Method 8015B. Samples for BTEX measurements were prepared using EPA Method 5030B and analyzed using EPA Method 8021B. MtBE, gasoline oxygenates, and lead scavengers measurements 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 October 9, 2003 groundwater monitoring event.

4.1 Field Measurements

Table 1 presents the calculated groundwater elevations at each groundwater monitoring well. As Table 1 shows, depths to groundwater ranged from 20.06 feet in monitoring well MW-5 to 23.49 feet in monitoring well MW-1. The corresponding groundwater elevations ranged from 27.73 feet in monitoring well MW-5 to 28.22 feet in monitoring well MW-1.

Table 2 presents the historical groundwater elevations at different groundwater monitoring wells. Table 2 also presents the deviations in groundwater elevations on a quarterly and annually basis. The groundwater elevations have decreased in all of the wells, with the exception of MW-2, since the previous quarter. Variations in seasonal fluctuations, as well as, local recharge rates at each well determine the deviations in groundwater elevations. The decrease in groundwater elevations in all wells, with the exception of MW-2, can be attributed to the drier weather encountered this quarter. The local recharge rate in MW-2 during the Third Quarter 2003 was minimal as compared to the Fourth Quarter 2003. Therefore, based on the differences between quarters the increase in groundwater elevation was observed.

The groundwater elevation contour map in feet is displayed in Figure 3. In general, as shown in Figure 3, the groundwater flows south to southeasterly across the site. The approximate average groundwater gradient on-site is 0.0017 feet/feet. The groundwater flow is consistent with the previous quarter, however, the groundwater gradient has decreased significantly.

Table 3 summarizes the field measurements of the physical and chemical properties of groundwater collected from the monitoring wells at the time of sampling. The pH measurements ranged from 6.60 in monitoring well MW-1 to 6.79 in monitoring well MW-2. In general, the pH measurements remained consistent throughout the Site. The temperature measurements ranged from

19.50 °C in monitoring well MW-4 to 20.89 °C in monitoring well MW-5. The slight variation in temperature may reflect the changes in the ambient temperature during the sampling event. EC ranged from 1,530 µS/cm in monitoring well MW-5 to 1,890 µS/cm in monitoring well MW-4.

The field measurements taken during the Fourth Quarter 2003 monitoring event are shown in Appendix A.

4.2 Laboratory Analysis

Table 4 presents the results of the laboratory analyses on the groundwater samples. In general, the analytical results indicate that the groundwater samples collected from monitoring well MW-3 were the most impacted, with the exception of MtBE, which seems to peak in monitoring well MW-4. High concentrations of TPH-g and BTEX in monitoring well MW-3 can be attributed to leaks from the former USTs prior to their upgrade in 1999.

TPH-g concentrations were detected in all of the monitoring wells. TPH-g concentrations ranged from 3,100 µg/L in monitoring well MW-2 to 41,000 µg/L in monitoring well MW-3. The TPH-g concentration detected in well MW-2 may have been misrepresentative due to heavier hydrocarbons being detected in the analytical results of this sample during laboratory testing. The laboratory designated this deviation by a "H" flag, see the laboratory report for further clarification.

Figure 4 displays the contour map of TPH-g concentrations in the groundwater on October 9, 2003. The highest reported TPH-g concentration was in monitoring well MW-3, which is near the dispenser islands and former USTs. Also, a high TPH-g concentration of 15,000 µg/L was detected in monitoring well MW-5. The TPH-g concentration detected in well MW-5, can be attributed to the groundwater flow direction towards the southeastern corner of the Site.

In general, as shown in Table 4, the least impacted BTEX analyte location during this monitoring event was in the vicinity of MW-2. BTEX concentrations in MW-2 were 4.3 µg/L, non-detectable, 210 µg/L, and 160 µg/L, respectively. Toluene was detected at a low level of 2.7 µg/L in well MW-1. The benzene concentration in well MW-2 and the toluene concentration detected in well MW-1 may have been misrepresentative. These deviations in the analytical results can be attributed to matrix interference encountered during analytical testing of the groundwater samples collected from these wells. The laboratory designated these interferences by a "C" flag, see the laboratory report for further clarification. The highest BTEX concentrations were detected in MW-3 at 6,100 µg/L, 1,100 µg/L, 2,200 µg/L, and 10,200 µg/L, respectively.

Figure 5 displays the contour map of benzene concentrations in the groundwater on October 9, 2003. Similar to the results for TPH-g, the highest benzene concentration was detected in monitoring well MW-3, near the dispenser islands. Benzene was detected in MW-5 at 1,000 µg/L, this can be attributed to the groundwater flow direction, however, the concentration in this well is several orders of magnitudes below the concentration detected in well MW-3.

Table 4 shows the results of the MtBE analysis using EPA Method 8260B. MtBE concentrations were below the laboratory reporting limit in wells MW-1 and MW-2. The highest MtBE concentration was detected in monitoring well MW-4 at 7,800 µg/L.

Figure 6 displays the contour map of MtBE concentrations in the groundwater on October 9, 2003. As shown in Figure 6, the highest MtBE concentration was detected in the vicinity of the dispenser islands, in monitoring well MW-4. This can be attributed to the location of the product piping from the existing USTs to the dispenser islands and the solubility of MtBE in groundwater.

Table 5 presents the historical groundwater analytical data. The following concentration trends were observed for TPH-g, BTEX, and MtBE since the previous monitoring event.

- TPH-g concentrations significantly increased in monitoring wells MW-1 and MW-3. TPH-g significantly decreased in well MW-2. TPH-g decreased in well MW-4. TPH-g slightly increased in well MW-5.
- In MW-1, all BTEX analytes slightly increased. In MW-2, all BTEX analytes decreased, with the exception of toluene which remained below the laboratory reporting limit. In well MW-3, all BTEX analytes increased, with the exception of benzene, which remained constant. Total xylenes increased significantly in well MW-3. In well MW-4, both benzene and ethylbenzene increased, and both toluene and total xylenes decreased. In well MW-5, all BTEX analytes increased.
- MtBE remained below the laboratory reporting limit in wells MW-1 and MW-2. MtBE decreased in well MW-3. MtBE significantly increased in well MW-4 and slightly increased in well MW-5.

Table 6 shows the results of the gasoline oxygenates and lead scavengers analytical results from the groundwater samples collected during the Fourth Quarter 2003. TBA was below the laboratory reporting limit in wells MW-3 and MW-5. Detectable TBA concentrations ranged from 12 µg/L in well MW-2 to 1,400 µg/L in well MW-4.

Figure 7 displays the contour map of TBA concentrations in the groundwater on October 9, 2003. As shown in Figure 7, the highest TBA concentration was detected near the dispenser islands in monitoring well MW-4.

As shown in Table 6, DIPE was below the laboratory reporting limit in all groundwater samples collected this quarter. ETBE was only detected in well MW-4. TAME was below the laboratory reporting limit in monitoring wells MW-1,

MW-2, and MW-4. TAME was detected in wells MW-3 and MW-5 at 200 µg/L and 740 µg/L, respectively. Lead Scavengers, 1,2-DCA and EDB, were below the laboratory reporting limit in all of the groundwater samples collected during the Fourth Quarter 2003.

Figure 8 displays the contour map of TAME concentrations in the groundwater on October 9, 2003. As shown in Figure 8, the only TAME concentrations were detected in monitoring well MW-3, near the USTs and downgradient well MW-5.

Table 7 displays the historical analytical results of gasoline oxygenates in the groundwater sampled at the Site. In compliance with a request from the ACHCS, dated July 2, 2002, SOMA had the groundwater samples analyzed for gasoline oxygenates for the first time during the Third Quarter 2002 monitoring event.

The following concentration trends were observed for gasoline oxygenates since the previous monitoring event.

- In well MW-1, TBA increased and DIPE, ETBE, and TAME remained below the laboratory reporting limit. In well MW-2, TBA decreased and DIPE, ETBE, and TAME remained below the laboratory reporting limit.
- In well MW-3, TBA, DIPE and ETBE remained below the laboratory reporting limit, and TAME decreased. In well MW-4, TBA and ETBE increased, DIPE remained below the laboratory reporting limit, and TAME decreased.
- In well MW-5, TBA decreased, DIPE and ETBE remained below the laboratory reporting limit, and TAME increased.

Appendix B includes the laboratory report and COC form for the Fourth Quarter 2003.

5.0 CONCLUSION AND RECOMMENDATIONS

The results of the October 9, 2003 groundwater monitoring event can be summarized as follows:

1. The groundwater flow direction is south to southeasterly with an average gradient of 0.0017 feet/feet. The groundwater flow is consistent with the previous quarter, however, the groundwater gradient has significantly decreased. The decrease in groundwater gradient can be attributed to the local recharge rates at each well and the drier weather encountered during this quarter. Sedimentation on the well screens can significantly decrease the recharge rates.

2. The highest TPH-g and BTEX concentrations were detected in monitoring well MW-3. The high TPH-g and benzene concentrations detected in monitoring well MW-3 can be attributed to a possible earlier release in the vicinity of the former USTs. During the upgrade of the USTs in May 1999, petroleum chemicals were detected in the subsurface soils beneath the old USTs.

3. The highest concentration of MtBE was detected in monitoring well MW-4. This can be attributed to the proximity of the well to the dispenser islands. Monitoring well MW-4 is located west of the dispenser islands that were remodeled in May 1999. However, MtBE is still significantly lower in MW-4 than the concentration detected during the initial monitoring event in May 2002, where MtBE was detected at 12,000 µg/L.

4. In compliance with a request from the ACHCS, gasoline oxygenates were analyzed for the first time during the Third Quarter 2002 monitoring event. During the Fourth Quarter 2003 monitoring event, TBA was found to be present in monitoring wells MW-1, MW-2 and MW-4. Historically, DIPE

has remained below the laboratory limit in all monitoring wells. ETBE has historically remained below the laboratory reporting limit in all wells, with the exception of well MW-4. ETBE, in well MW-4, has deviated in concentrations from below the laboratory reporting limit to a high of 50 µg/L during this quarter. Historically, TAME has remained below the laboratory reporting limit in wells MW-1 and MW-2. TAME decreased in wells MW-3 and MW-4, and increased slightly in well MW-5.

5. SOMA conducted an off-site investigation to evaluate the lateral extent of soil and groundwater contamination. The off-site investigation included a sensitive receptor survey to locate water supply wells and/or water bodies within a 2,000 foot radius of the Site. The results of this investigation are included in SOMA's report entitled "Off-Site Soil and Groundwater Investigation at Former Texaco Station, 15101 Freedom Avenue, San Leandro, California." dated November 5, 2003.

6.0 REPORT LIMITATIONS

This report is the summary of work done by SOMA, including observations and descriptions of the Site's conditions. It includes the analytical results produced by Curtis & Tompkins Laboratories for the current groundwater monitoring event. The number and location of the wells were selected to provide the required information, but may not be completely representative of the entire Site's conditions. All conclusions and recommendations are based on the results of the laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

SOMA warrants that the services provided were done in accordance with the generally accepted practices in the environmental engineering and consulting field at the time of this sampling.

7.0 REFERENCES

SOMA Environmental Engineering Inc., November 5, 2003. "Off-Site Soil and Groundwater Investigation at Former Texaco Station, 15101 Freedom Avenue, San Leandro, California."

SOMA Environmental Engineering Inc., September 4, 2003. "Third Quarter 2003 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

SOMA Environmental Engineering Inc., June 18, 2003. "Second Quarter 2003 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

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SOMA Environmental Engineering Inc., December 19, 2002. "Fourth Quarter 2002 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

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SOMA Environmental Engineering Inc., June 19, 2002. "Second Quarter 2002 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

Alameda County Health Care Services, August 23, 2001. A Letter in Connection with a Request for Conducting a Subsurface Investigation.

CSS Environmental Services, Inc., August 15, 2001. "Preliminary Site Assessment for the Property Located at 15101 Freedom Avenue, San Leandro, California".

Geo-logic, Geotechnical and Environmental Consulting Services, June 11, 1999. "Report of Soil Sampling During Tank Removal and Station Upgrade".

Figures

Figure 1: Site vicinity map.

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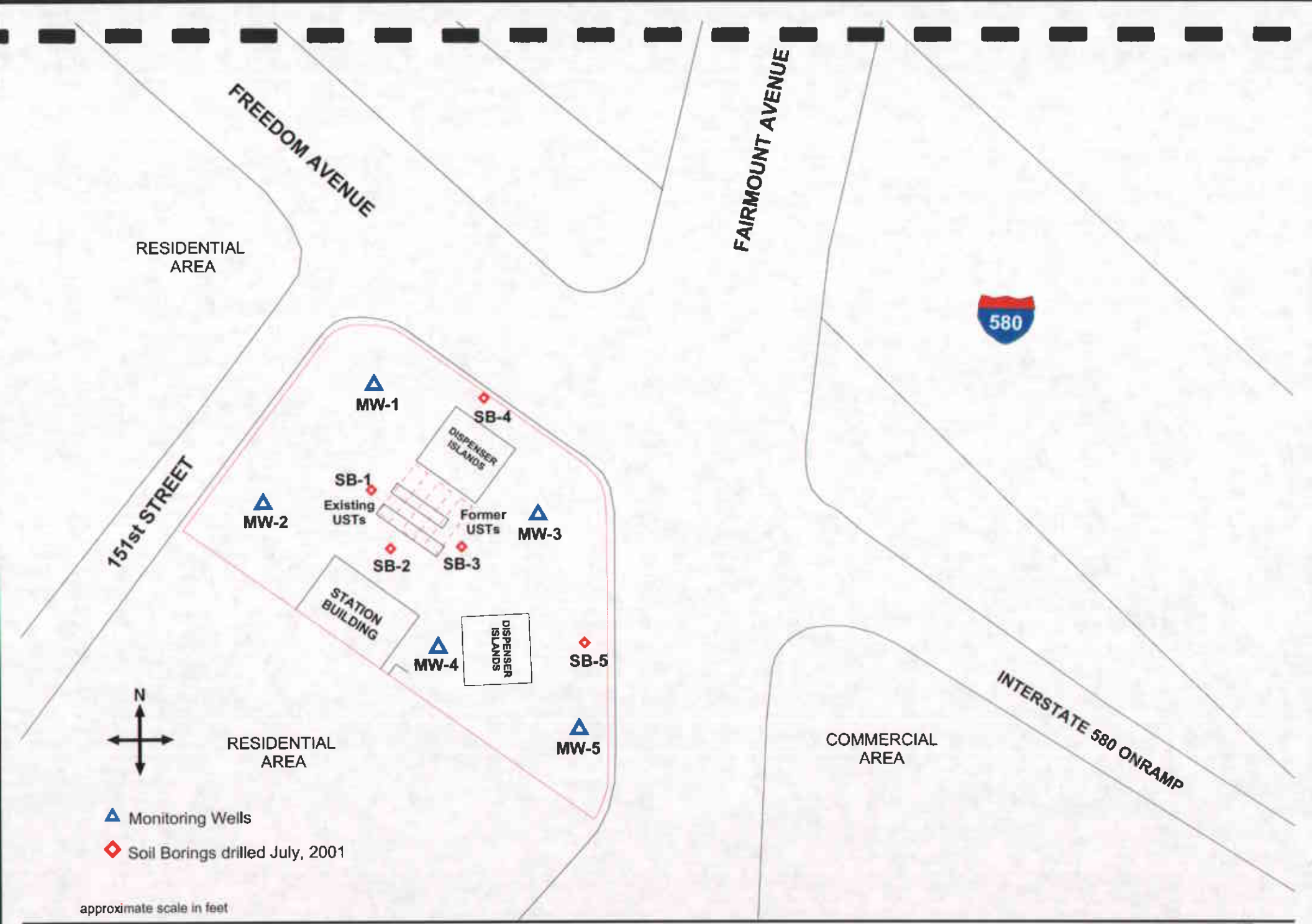

Figure 2: Site map showing locations of groundwater monitoring wells and soil borings.

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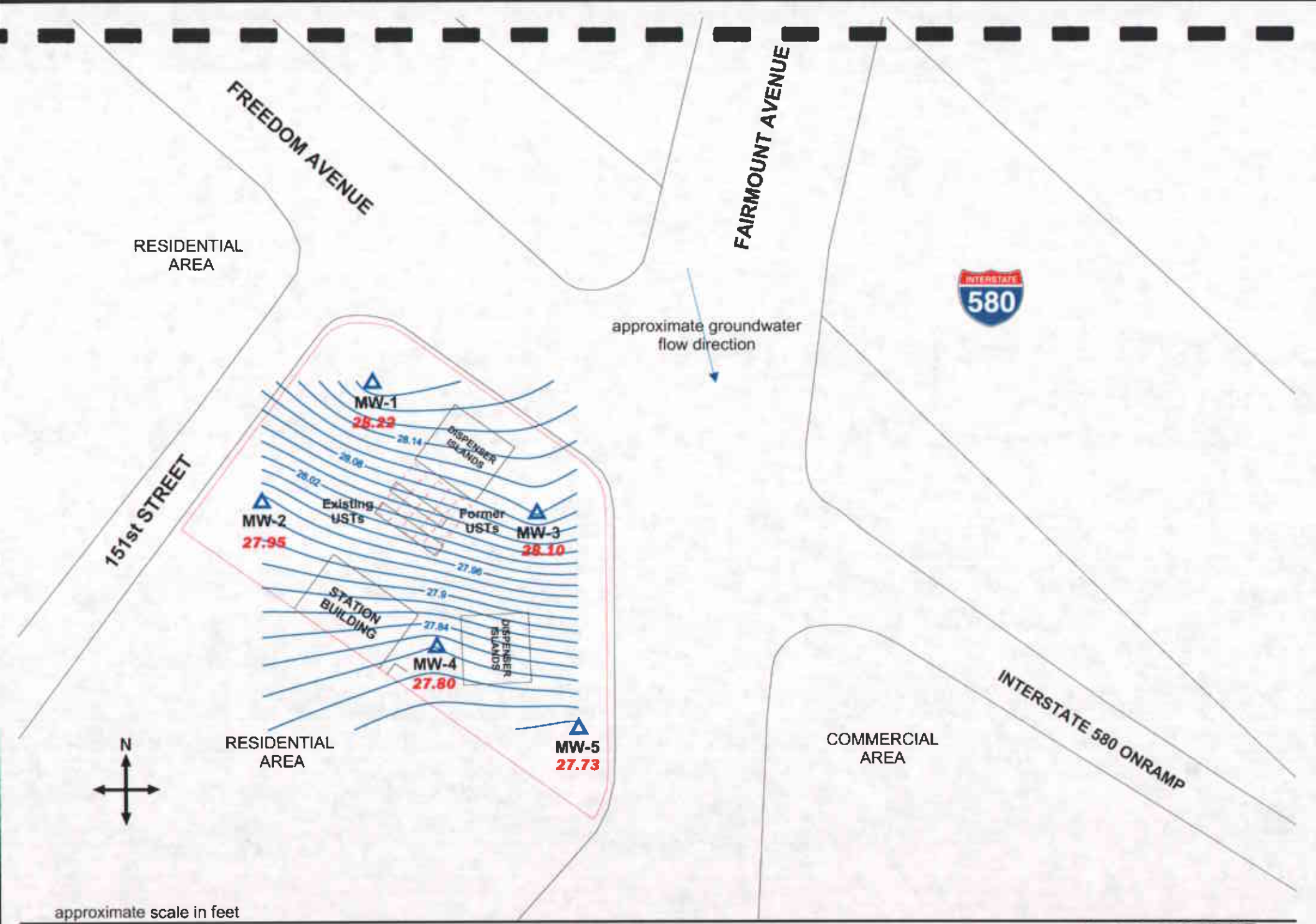

Figure 3: Groundwater elevation contour map in feet.
October 9, 2003.

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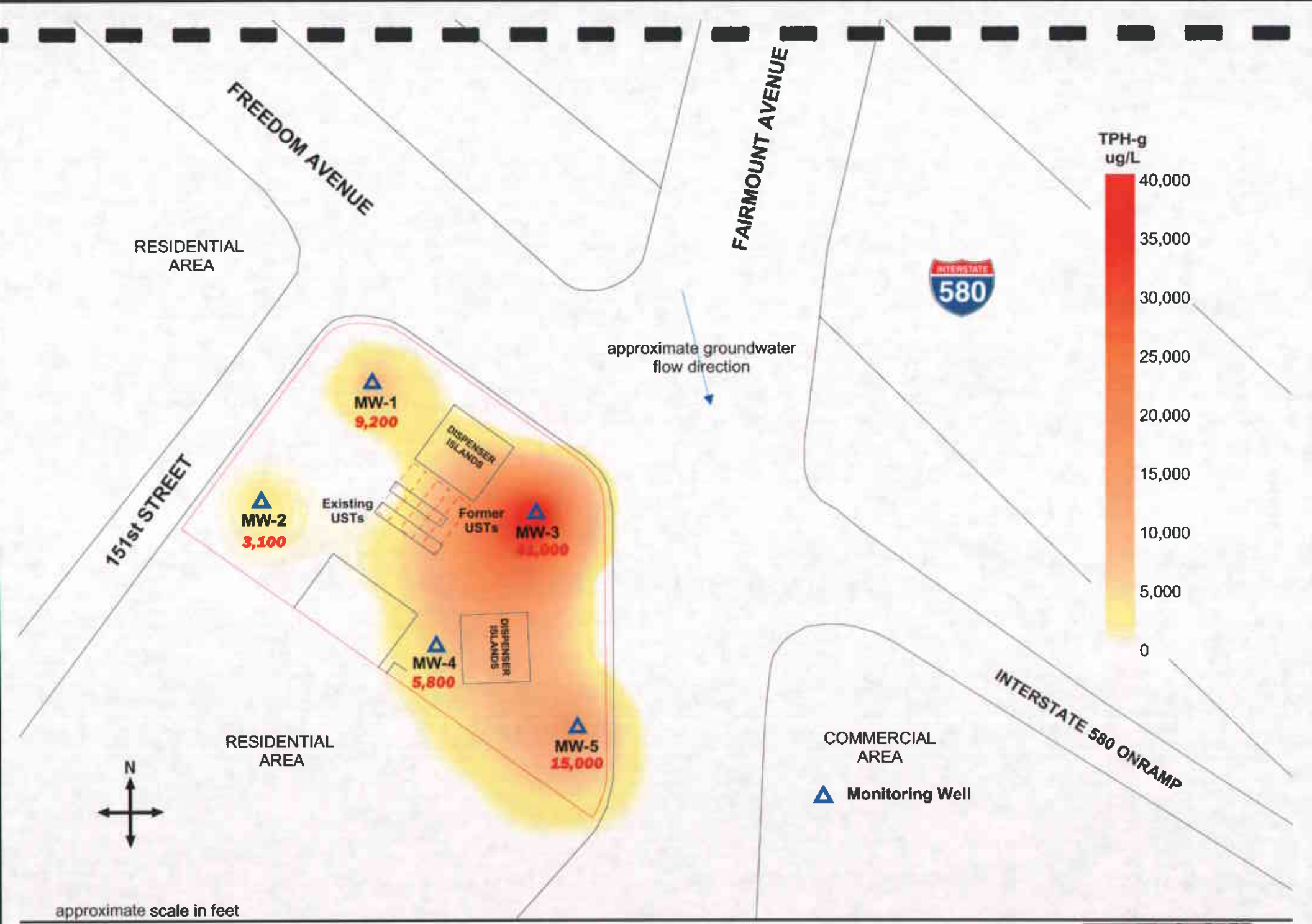

Figure 4: Contour map of TPH-g concentrations in groundwater.
October 9, 2003.

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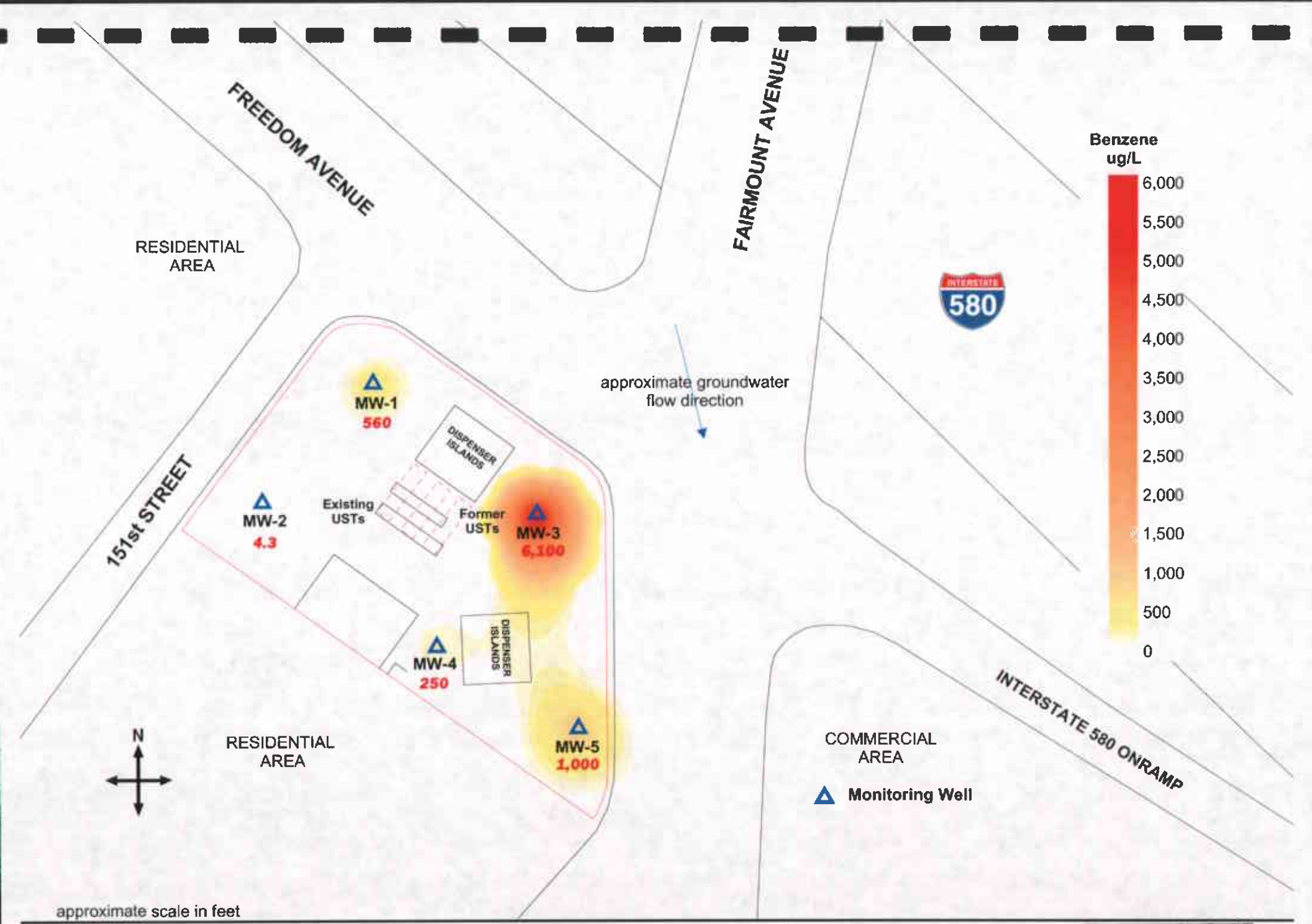

Figure 5: Contour map of Benzene concentrations in groundwater.
October 9, 2003.

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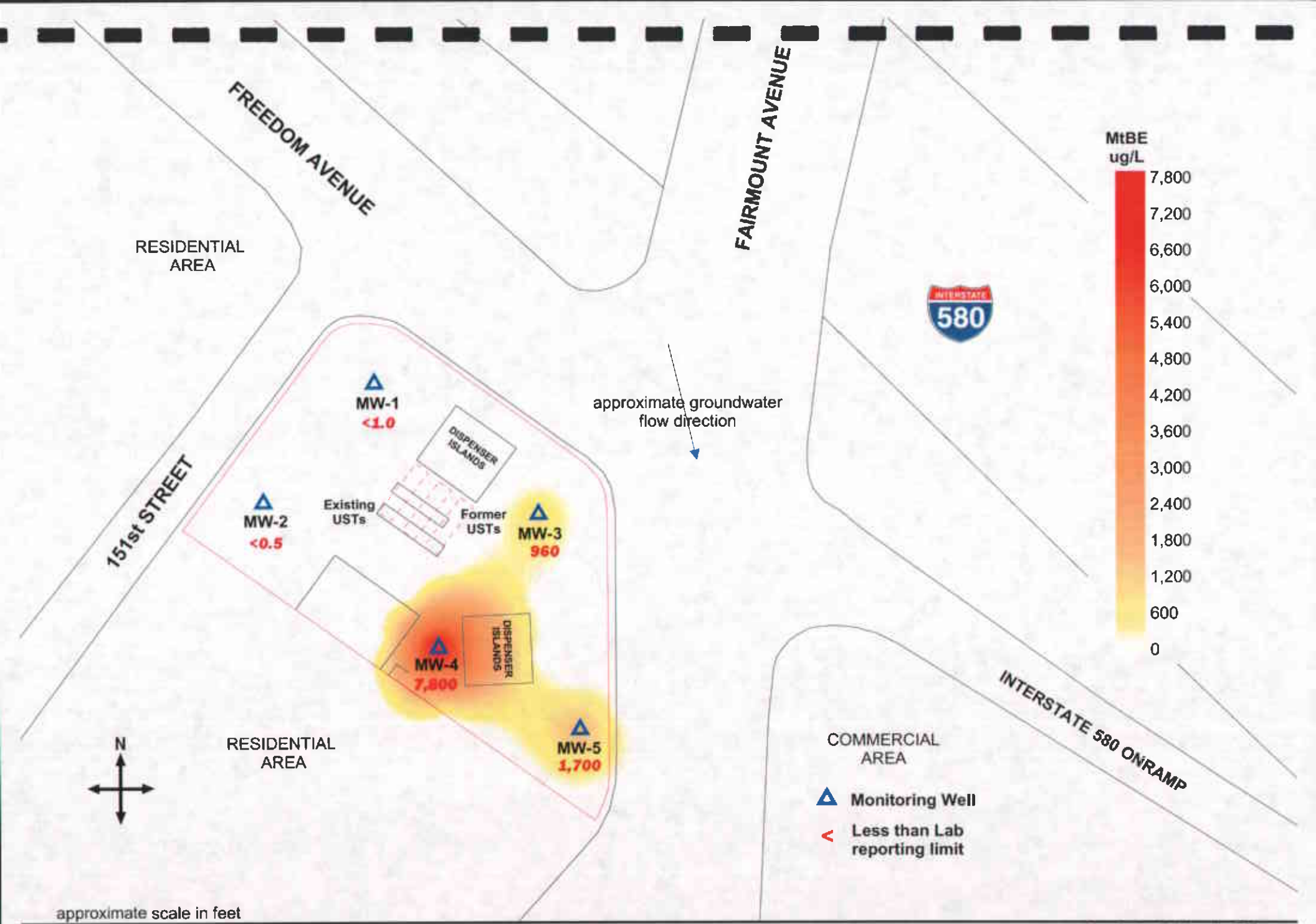

Figure 6: Contour map of MtBE concentrations in groundwater (EPA Method 8260). October 9, 2003.

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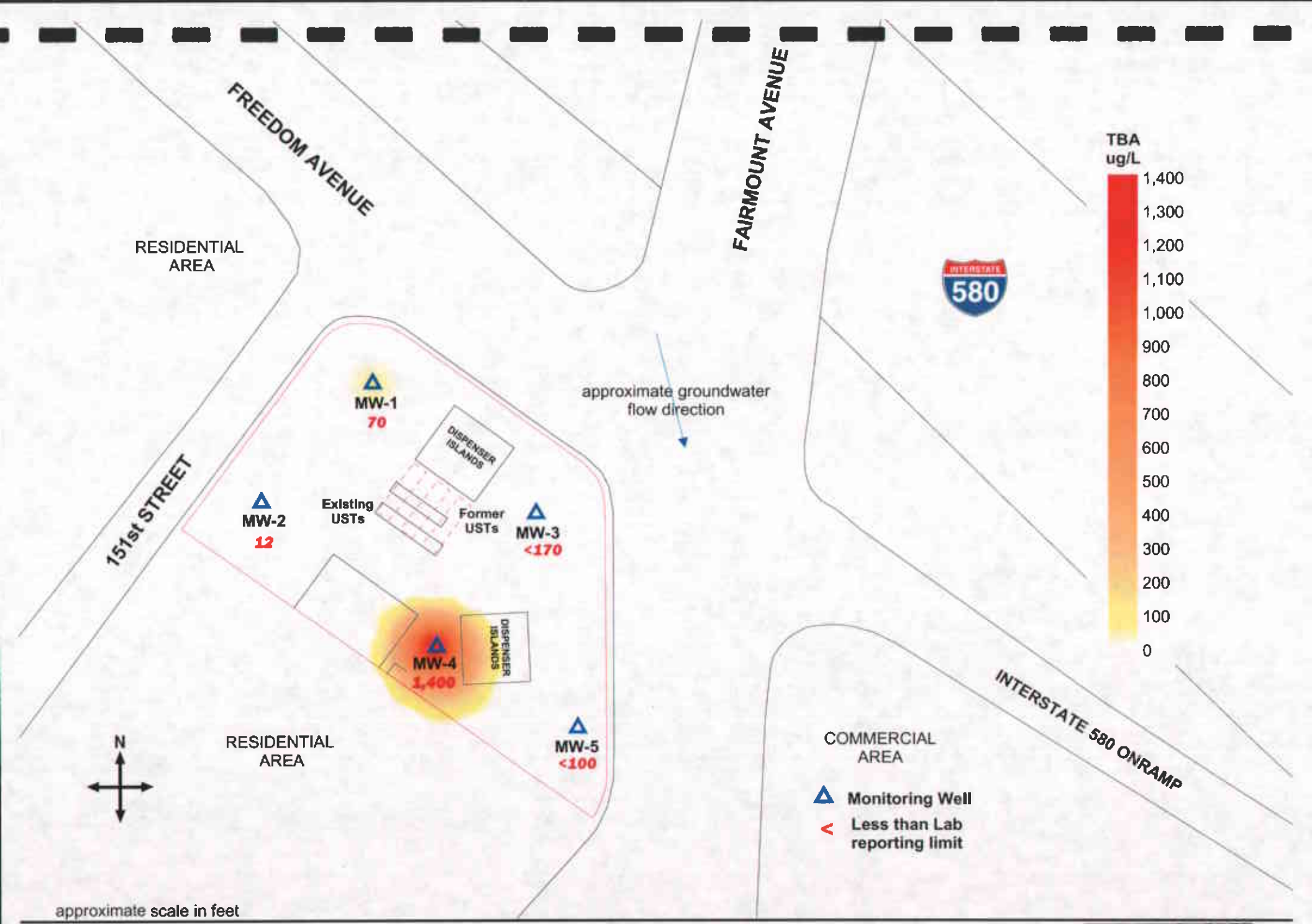


Figure 7: Contour map of TBA concentrations in groundwater.
October 9, 2003.

SOMA ENVIRONMENTAL ENGINEERING, INC.

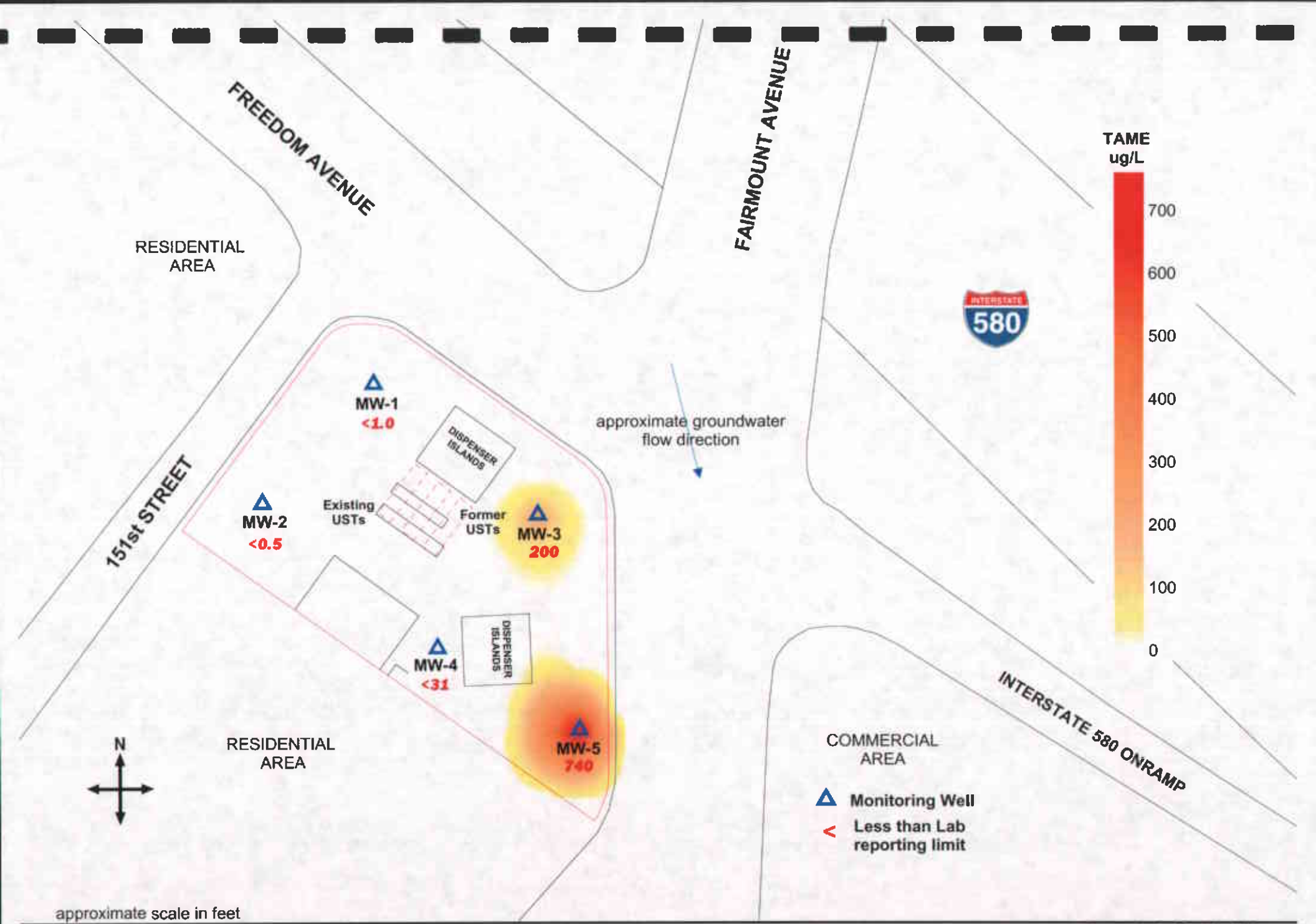


Figure 8: Contour map of TAME concentrations in groundwater.
October 9, 2003.

SOMA ENVIRONMENTAL ENGINEERING, INC.

Tables

Table 1
Groundwater Elevation Data
October 9, 2003
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Top of Casing Elevation [1] (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
MW-1	51.71	23.49	28.22
MW-2	49.66	21.71	27.95
MW-3	51.16	23.06	28.10
MW-4	50.54	22.74	27.80
MW-5	47.79	20.06	27.73

Notes:
Monitoring wells were surveyed by Kier and Wright Civil Engineer & Land Surveyors.
Surveying was conducted on May 7, 2002.
[1] : Top of casing elevations were surveyed to an assumed datum of 67.07 M.S.L

Table 2
Historical Groundwater Elevation Data
15101 Freedom Avenue, San Leandro, CA

Date	MW-1	MW-2	MW-3	MW-4	MW-5
Oct 2003	**28.22**	**27.95**	**28.10**	**27.80**	**27.73**
Aug 2003	30.41	26.48*	28.50	28.22	28.25
May 2003	29.28	29.33	29.27	29.30	29.27
Feb 2003	29.09	29.15	29.14	29.06	29.09
Nov 2002	28.13	27.87	27.97	27.73	27.65
Aug 2002	28.40	28.25	28.28	28.04	27.99
Jun 2002	28.86	26.83 *	28.88	28.76	28.77

Notes:
The first time SOMA monitored this Site was in May 2002.
*: Due to minimal recharge rates in well MW-2, the groundwater elevation recorded on these dates did not match the overall site conditions.

Annual change	-0.87	-1.20	-1.04	-1.26	-1.36
Quarterly change	-2.19	1.47	-0.40	-0.42	-0.52

Table 3

Field Measurements at the Time of Sampling

October 9, 2003

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	pH	Temp (°C)	E.C. (uS/cm)
MW-1	6.60	20.50	1550
MW-2	6.79	19.78	1720
MW-3	6.71	20.67	1540
MW-4	6.65	19.50	1890
MW-5	6.69	20.89	1530

Table 4

Groundwater Analytical Data

October 9, 2003

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [1] (µg/L)
MW-1	9,200	560.0	2.7 C	670	648	<1.0
MW-2	3100 H	4.3 C	<0.5	210	160	<0.5
MW-3	41,000	6100.0	1,100	2,200	10,200	960
MW-4	5,800	250.0	32	300	970	7,800
MW-5	15,000	1000.0	130	1,000	1,430	1,700

Notes:

< : Not detected above laboratory reporting limits.

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

H: Heavier Hydrocarbons contributed to the quantitation.

[1] MtBE analyzed by EPA Method 8260B.

Table 5
Historical Groundwater Analytical Data:
TPH-g, BTEX, MtBE, & Total Lead
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE[1] (µg/L) 8260B	Total Lead (µg/L)
MW-1	**Oct 2003**	**9,200**	**560**	**2.7 C**	**670**	**648**	**<1.0**	**NA**
	Aug 2003	2,600	2.5	<0.5	190	130	<0.5	NA
	May 2003	1,700	55	<0.5	90	115	2	NA
	Feb 2003	2,900	160	1.6 C	170	211	<0.5	NA
	Nov 2002	7,900	570	3.1	680	392	< 1.0	NA
	Aug 2002	9,100	590	2.6	830	362	<1.3	<3.0
	May 2002	5,700	360	4.5	340	450	2	<3
MW-2	**Oct 2003**	**3100 H**	**4.3 C**	**<0.5**	**210**	**160**	**<0.5**	**NA**
	Aug 2003	8,500	640	<2.5	560	659	<0.8	NA
	May 2003	2,700	5.2 C	<0.5	120	140	1.2	NA
	Feb 2003	890	1.7 C	0.80 C	68	38.92 C	<0.5	NA
	Nov 2002	3,400	4.6	< 0.5	310	160	< 0.5	NA
	Aug 2002	2,700	4.6	<0.5	310	140	<0.5	<3.0
	May 2002	3,100	67	8	250	215	56	<3
MW-3	**Oct 2003**	**41,000**	**6,100**	**1,100**	**2,200**	**10,200**	**960**	**NA**
	Aug 2003	31,000	6,100	860	1,500	6,900	1,200	NA
	May 2003	52,000	7,300	3,000	2,800	12,700	2,100	NA
	Feb 2003	39,000	5,500	1,500	2,000	8,600	1,300	NA
	Nov 2002	47,000	5,300	1,200	2,200	8,600	1,000	NA
	Aug 2002	40,000	5,800	1,100	1,600	6,500	1,300	12
	May 2002	44,000	6,000	900	1,500	6,200	2,400	15
MW-4	**Oct 2003**	**5,800**	**250**	**32**	**300**	**970**	**7,800**	**NA**
	Aug 2003	7,500	180	57	220	1,450	1,900	NA
	May 2003	6,200	140	46	200	790	2,300	NA
	Feb 2003	3,200	98	66	220	360	6,600	NA
	Nov 2002	5,100	150	10	460	258	2,400	NA
	Aug 2002	3,800	70	<5.0	300	115	4,800	3.9
	May 2002	880	25	1.0[C]	110	52	12,000	<3
MW-5	**Oct 2003**	**15,000**	**1,000**	**130**	**1,000**	**1,430**	**1,700**	**NA**
	Aug 2003	12,000	660	75	660	1,110	1,000	NA
	May 2003	9,100	210	31	560	790	600	NA
	Feb 2003	12,000	390	71	770	1,100	860	NA
	Nov 2002	16,000	1,300	380	930	1,550	1,200	NA
	Aug 2002	18,000	1,000	660	950	1,720	1,500	4.8
	May 2002	25,000	1,000	1,200	1,100	3,060	1,800	3.5

Notes:

<: Not detected above the laboratory reporting limit.

[C] Presence confirmed, but confirmation concentration differed by more than a factor of two.

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

H: Heavier hydrocarbons contributed to the quantitation.

[1] MtBE analyzed by EPA Method 8021B, and confirmed by EPA Method 8260B.

NA Not Analyzed

The first time SOMA monitored this Site was in May 2002.

Table 6
Gasoline Oxygenates & Lead Scavengers
October 9, 2003
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
MW-1	70	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	12	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	<170	<8.3	<8.3	200	<8.3	<8.3
MW-4	1400	<31	50	<31	<31	<31
MW-5	<100	<5.0	<5.0	740	<5.0	<5.0

Notes:
<: Not detected above the laboratory reporting limit.

Table 7
Historical Gasoline Oxygenates Results
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-1	**Oct 2003**	**70**	**<1.0**	**<1.0**	**<1.0**
	Aug 2003	<10	<0.5	<0.5	<0.5
	May 2003	25	<0.5	<0.5	<0.5
	Feb 2003	47	<0.5	<0.5	<0.5
	Nov 2002	42	< 1.0	< 1.0	< 1.0
	Aug 2002	78	<1.3	<1.3	<1.3
MW-2	**Oct 2003**	**12**	**<0.5**	**<0.5**	**<0.5**
	Aug 2003	69	<0.8	<0.8	<0.8
	May 2003	31	<0.5	<0.5	<0.5
	Feb 2003	12	<0.5	<0.5	<0.5
	Nov 2002	15	<0.5	<0.5	<0.5
	Aug 2002	21	<0.5	<0.5	<0.5
MW-3	**Oct 2003**	**<170**	**<8.3**	**<8.3**	**200**
	Aug 2003	180	<4.2	<4.2	270
	May 2003	520	<10	<10	530
	Feb 2003	140	<5.0	<5.0	320
	Nov 2002	85	< 1.3	<1.3	220
	Aug 2002	<330	<8.3	<8.3	330
MW-4	**Oct 2003**	**1400**	**<31**	**50**	**<31**
	Aug 2003	550	<7.1	7.3	18
	May 2003	690	<8.3	<8.3	17
	Feb 2003	1600	<20	22	<20
	Nov 2002	580	< 5.0	6	13
	Aug 2002	1500	<17	<17	18
MW-5	**Oct 2003**	**<100**	**<5.0**	**<5.0**	**740**
	Aug 2003	130	<3.6	<3.6	270
	May 2003	<33	<1.7	<1.7	110
	Feb 2003	<63	<3.1	<3.1	280
	Nov 2002	66	< 2.0	< 2.0	560
	Aug 2002	<250	<6.3	<6.3	510

Notes:
August 8, 2002 was the first time that samples were analyzed for Gasoline Oxygenates
<: Not detected above the laboratory reporting limit.
TBA: tert-Butyl Alcohol
DIPE: Isopropyl Ether
ETBE: Ethyl tert-Butyl Ether
TAME: Methyl tert-Amyl Ether

Appendix A

Table of Elevations & Coordinates on Monitoring Wells Measured by Kier Wright Civil Engineers Surveyors, Inc., and Field Measurements of Physical and Chemical Parameters of Groundwater Samples

Survey Date 05/07/02
Job No. A02545

Table of Elevations & Coordinates

On Monitoring Wells
Texaco Service Station
15101 Freedom Avenue
San Leandro, California

Well No.	Northing	Easting	Elevation
MW-1	5106.89	4812.60	51.71 -Top of PVC casing, North side @ Punch Mark 52.08 – Top North Rim of Box
MW-2	5056.82	4766.17	49.66 – Top of PVC Casing, North Side @ Punch Mark 50.19 - Top North Rim of Box
MW-3	5051.97	4881.26	51.16 - Top of PVC Casing, North side @ Punch Mark 51.60 - Top North Rim of Box
MW-4	4996.14	4839.06	50.54 – Top of PVC Casing, North side @ Punch Mark 50.98 - Top North Rim of Box
MW-5	4961.75	4898.20	47.79 – Top of PVC Casing, North side @Punch Mark 48.25 - Top North Rim of Box
Building Corner	5035.26	4796.09	
Building Corner	5009.72	4831.30	
Building Corner	4979.40	4808.97	
Building Corner	5005.06	4773.92	

Benchmark: Alameda County Benchmark "Fair-580"
Alameda County disc stamped "Fair-580 – 1976" set in the top of the Northwesterly concrete walk at the Northwest corner of the Fairmont Drive over-crossing of I-580, 1' southeast of the northwesterly concrete bridge rail, 1.9' southwesterly of the northeasterly end of the northwest concrete walk for the bridge.
Elevation = 67.07 M.S.L. Datum

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-1	**Project No.:**	2551
Casing Diameter:	4 inches	**Address:**	15101 Freedom Ave.
Depth of Well:	30 feet		San Leandro, CA
Top of Casing Elevation:	51.71 feet	**Date:**	9-Oct-03
Depth to Groundwater:	23.49 feet	**Sampler:**	Tony Perini
Groundwater Elevation:	28.22 feet		
Water Column Height:	6.51 feet		
Purged Volume:	10 gallons		

Purging Method:	**Bailer**	☐	**Pump**	■
Sampling Method:	**Bailer**	■	**Pump**	☐

Color:	**Yes**	☐	**No**	☑	**Describe:** _____
Sheen:	**Yes**	☐	**No**	☑	**Describe:** _____
Odor:	**Yes**	☐	**No**	☑	**Describe:** _____

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (~~µs/cm~~ mS/cm)
10:56 AM	1.0	6.67	68.6	1.60
11:01 AM	5.0	6.63	69.0	1.53
11:08 AM	10	6.60	68.9	1.55
11:15 AM	Sampled			

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-2	**Project No.:**	2551
Casing Diameter:	4 inches	**Address:**	15101 Freedom Ave.
Depth of Well:	30 feet		San Leandro, CA
Top of Casing Elevation:	49.66 feet	**Date:**	9-Oct-03
Depth to Groundwater:	21.71 feet	**Sampler:**	Tony Perini
Groundwater Elevation:	27.95 feet		
Water Column Height:	8.29 feet		
Purged Volume:	12 gallons		

Purging Method:	**Bailer**	☐	**Pump**	■
Sampling Method:	**Bailer**	■	**Pump**	☐

Color:	**Yes**	☐	**No**	☑	**Describe:**
Sheen:	**Yes**	☐	**No**	☑	**Describe:**
Odor:	**Yes**	☐	**No**	☑	**Describe:**

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. ~~(µs/cm)~~ mS/cm
10:19 AM	4.0	6.92	68.6	1.80
10:23 AM	4.0	6.80	67.8	1.72
10:27 AM	8.0	6.74	67.8	1.68
10:31 AM	12	6.79	67.6	1.72
10:35 AM	sampled			

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-3	**Project No.:**	2551
Casing Diameter:	4 inches	**Address:**	15101 Freedom Ave.
Depth of Well:	30 feet		San Leandro, CA
Top of Casing Elevation:	51.16 feet	**Date:**	9-Oct-03
Depth to Groundwater:	23.06 feet	**Sampler:**	Tony Perini
Groundwater Elevation:	28.10 feet		
Water Column Height:	6.94 feet		
Purged Volume:	10 gallons		

Purging Method:	**Bailer**	☐		**Pump**	■
Sampling Method:	**Bailer**	■		**Pump**	☐
Color:	**Yes**	☑	**No** ☐	**Describe:**	cloudy
Sheen:	**Yes**	☐	**No** ☑	**Describe:**	
Odor:	**Yes**	☐	**No** ☑	**Describe:**	

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (~~µs/cm~~ ms/cm)
12:38 PM	1.0	6.87	71.2	1.60
12:43 PM	7.0	6.71	69.4	1.55
12:46 PM	10	6.71	69.2	1.54
12:50 PM	sampled			

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-4	**Project No.:**	2551
Casing Diameter:	4 inches	**Address:**	15101 Freedom Ave.
Depth of Well:	30 feet		San Leandro, CA
Top of Casing Elevation:	50.54 feet	**Date:**	9-Oct-03
Depth to Groundwater:	22.74 feet	**Sampler:**	Tony Perini
Groundwater Elevation:	27.80 feet		
Water Column Height:	7.26 feet		
Purged Volume:	10 gallons		

Purging Method:	**Bailer**	☐		**Pump**	■
Sampling Method:	**Bailer**	■		**Pump**	☐
Color:	**Yes**	☑	**No** ☐	**Describe:**	cloudy
Sheen:	**Yes**	☐	**No** ☑	**Describe:**	
Odor:	**Yes**	☐	**No** ☑	**Describe:**	

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (~~µs/cm~~ mS/cm)
11:33 AM	1.0	6.75	68.0	1.92
11:37 AM	6.0	6.65	67.3	1.85
11:40 AM	10	6.65	67.1	1.89
11:45 AM	sampled			

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-5	**Project No.:**	2551
Casing Diameter:	4 inches	**Address:**	15101 Freedom Ave.
Depth of Well:	30 feet		San Leandro, CA
Top of Casing Elevation:	47.79 feet	**Date:**	9-Oct-03
Depth to Groundwater:	20.06 feet	**Sampler:**	Tony Perini
Groundwater Elevation:	27.73 feet		
Water Column Height:	9.94 feet		
Purged Volume:	10 gallons		

Purging Method:	**Bailer**	☐	**Pump**	■
Sampling Method:	**Bailer**	■	**Pump**	☐

Color:	**Yes**	☑	**No**	☐	**Describe:** cloudy
Sheen:	**Yes**	☐	**No**	☑	**Describe:**
Odor:	**Yes**	☐	**No**	☑	**Describe:**

Field Measurements:

Time	Vol (gallons)	pH	Temp (°F)	E.C. (~~µs/cm~~ mS/cm)
12:07 PM	1.0	6.78	70.5	1.52
12:11 PM	6.0	6.71	69.7	1.52
12:14 PM	10	6.69	69.6	1.53
12:20 PM	Sampled			

Appendix B

Laboratory Report and

Chain of Custody Form

for the

Fourth Quarter 2003 Monitoring Event

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

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: 26-OCT-03
Lab Job Number: 168108
Project ID: 2551
Location: 15101 Freedom Avenue

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 NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: _____
Project Manager

Reviewed by: _____
Operations Manager

CHAIN OF CUSTODY

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

C&T LOGIN # 168108

Sampler: Tony Perini

Project No: 2551

Report To: Tony Perini

Project Name: 15101 Freedom Ave.,San Leandro

Company : SOMA Environmental

Turnaround Time: Standard

Telephone: 925-244-6600

Fax: 925-244-6601

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Analyses: TPHg 8015	Analyses: BTEX + ~~MBE 8021 GC~~ 8021B	Analyses: MtBE Confirmation ~~8260 GCMS~~	Analyses: Gasoline Oxygenates
	MW-1	10/9/03 11:15 AM		✓		4-VOAs	✓			✓	✓	✓	✓	✓
	MW-2	10:35 AM		↓		↓	↓			↓	↓	↓	↓	↓
	MW-3	12:50 PM												
	MW-4	11:45 AM												
	MW-5	12:20 PM		↓		↓	↓			↓	↓	↓	↓	↓

Notes: EDF OUTPUT REQUIRED
Grab Sample

Received ☒ On ice ☒ Cold ☐ Ambient ☒ Intact

Preservation Correct? ☒ Yes ☐ No ☐ N/A

RELINQUISHED BY:	RECEIVED BY:
Tony Perini 10/9/03	Anna Pujardo 10/9/03 1430
Tony Perini 2:30PM DATE/TIME	Anna Pujardo DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03

Field ID:	MW-1	Diln Fac:	2.000
Type:	SAMPLE	Batch#:	85251
Lab ID:	168108-001	Analyzed:	10/11/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	9,200	100	8015B
Benzene	560	1.0	EPA 8021B
Toluene	2.7 C	1.0	EPA 8021B
Ethylbenzene	670	1.0	EPA 8021B
m,p-Xylenes	590	1.0	EPA 8021B
o-Xylene	58	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	149	57-150	8015B
Bromofluorobenzene (FID)	112	65-144	8015B
Trifluorotoluene (PID)	101	54-149	EPA 8021B
Bromofluorobenzene (PID)	93	58-143	EPA 8021B

Field ID:	MW-2	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	85217
Lab ID:	168108-002	Analyzed:	10/09/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,100 H	50	8015B
Benzene	4.3 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	210	0.50	EPA 8021B
m,p-Xylenes	160	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	125	57-150	8015B
Bromofluorobenzene (FID)	107	65-144	8015B
Trifluorotoluene (PID)	114	54-149	EPA 8021B
Bromofluorobenzene (PID)	112	58-143	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
H= Heavier hydrocarbons contributed to the quantitation
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03

Field ID:	MW-3	Diln Fac:	20.00
Type:	SAMPLE	Batch#:	85251
Lab ID:	168108-003	Analyzed:	10/11/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	41,000	1,000	8015B
Benzene	6,100	10	EPA 8021B
Toluene	1,100	10	EPA 8021B
Ethylbenzene	2,200	10	EPA 8021B
m,p-Xylenes	7,300	10	EPA 8021B
o-Xylene	2,900	10	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	125	57-150	8015B
Bromofluorobenzene (FID)	105	65-144	8015B
Trifluorotoluene (PID)	87	54-149	EPA 8021B
Bromofluorobenzene (PID)	87	58-143	EPA 8021B

Field ID:	MW-4	Diln Fac:	2.000
Type:	SAMPLE	Batch#:	85251
Lab ID:	168108-004	Analyzed:	10/11/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,800	100	8015B
Benzene	250	1.0	EPA 8021B
Toluene	32	1.0	EPA 8021B
Ethylbenzene	300	1.0	EPA 8021B
m,p-Xylenes	550	1.0	EPA 8021B
o-Xylene	420	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	134	57-150	8015B
Bromofluorobenzene (FID)	112	65-144	8015B
Trifluorotoluene (PID)	103	54-149	EPA 8021B
Bromofluorobenzene (PID)	91	58-143	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
H= Heavier hydrocarbons contributed to the quantitation
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03

Field ID:	MW-5	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	85251
Lab ID:	168108-005	Analyzed:	10/11/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	15,000	250	8015B
Benzene	1,000	2.5	EPA 8021B
Toluene	130	2.5	EPA 8021B
Ethylbenzene	1,000	2.5	EPA 8021B
m,p-Xylenes	1,200	2.5	EPA 8021B
o-Xylene	230	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	126	57-150	8015B
Bromofluorobenzene (FID)	110	65-144	8015B
Trifluorotoluene (PID)	110	54-149	EPA 8021B
Bromofluorobenzene (PID)	91	58-143	EPA 8021B

Type:	BLANK	Batch#:	85217
Lab ID:	QC228459	Analyzed:	10/09/03
Diln Fac:	1.000		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	8015B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	98	57-150	8015B
Bromofluorobenzene (FID)	98	65-144	8015B
Trifluorotoluene (PID)	98	54-149	EPA 8021B
Bromofluorobenzene (PID)	98	58-143	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
H= Heavier hydrocarbons contributed to the quantitation
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03

Type:	BLANK	Batch#:	85251
Lab ID:	QC228599	Analyzed:	10/11/03
Dln Fac:	1.000		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	8015B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	96	57-150	8015B
Bromofluorobenzene (FID)	100	65-144	8015B
Trifluorotoluene (PID)	78	54-149	EPA 8021B
Bromofluorobenzene (PID)	82	58-143	EPA 8021B

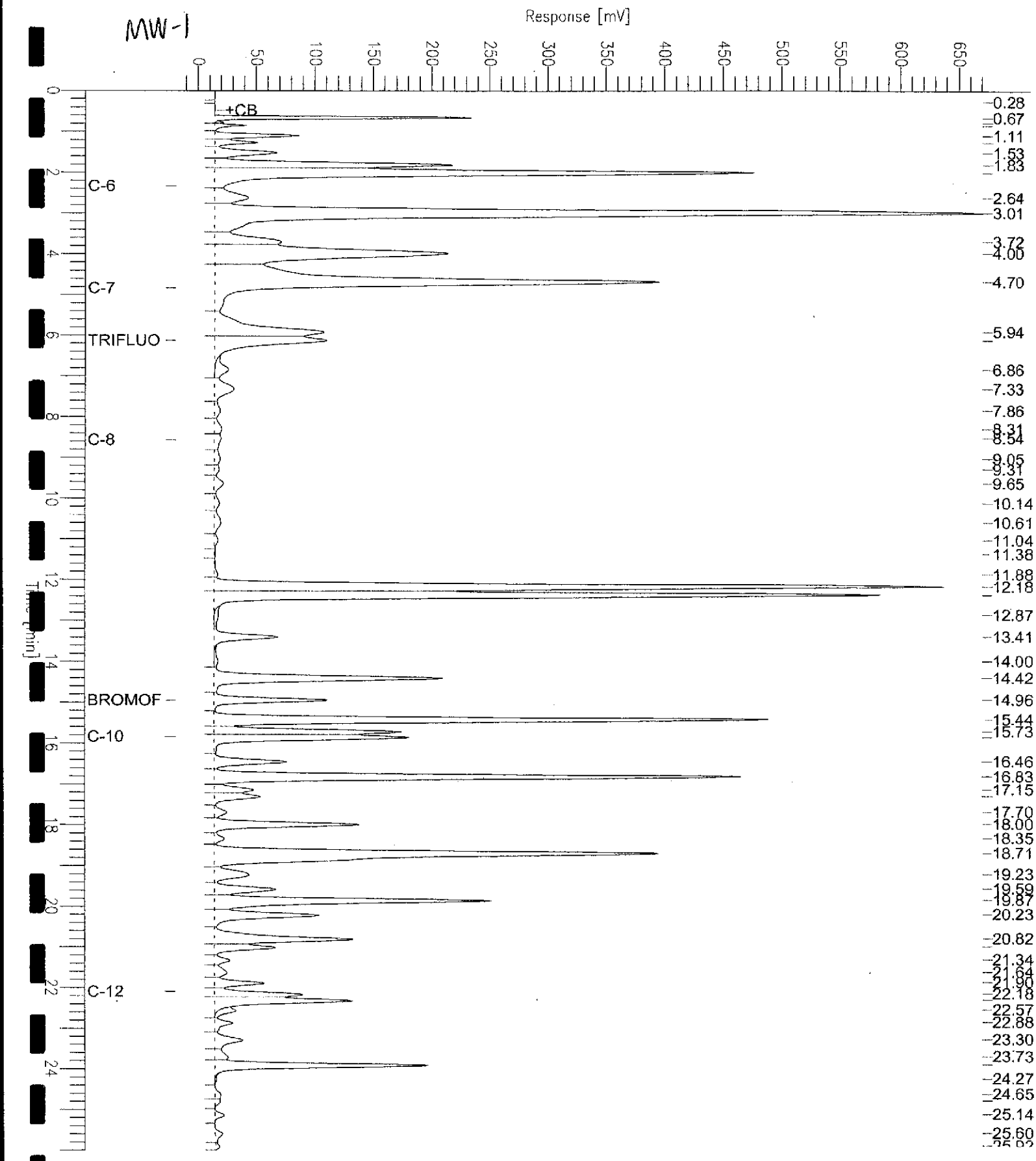
C= Presence confirmed, but RPD between columns exceeds 40%
H= Heavier hydrocarbons contributed to the quantitation
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 168108-001,85251
FileName : G:\GC07\DATA\283A031.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -19 mV

Sample #: d1.3 Page 1 of 1
Date : 10/11/03 04:49 PM
Time of Injection: 10/11/03 04:23 PM
Low Point : -18.63 mV High Point : 670.59 mV
Plot Scale: 689.2 mV

MW-1

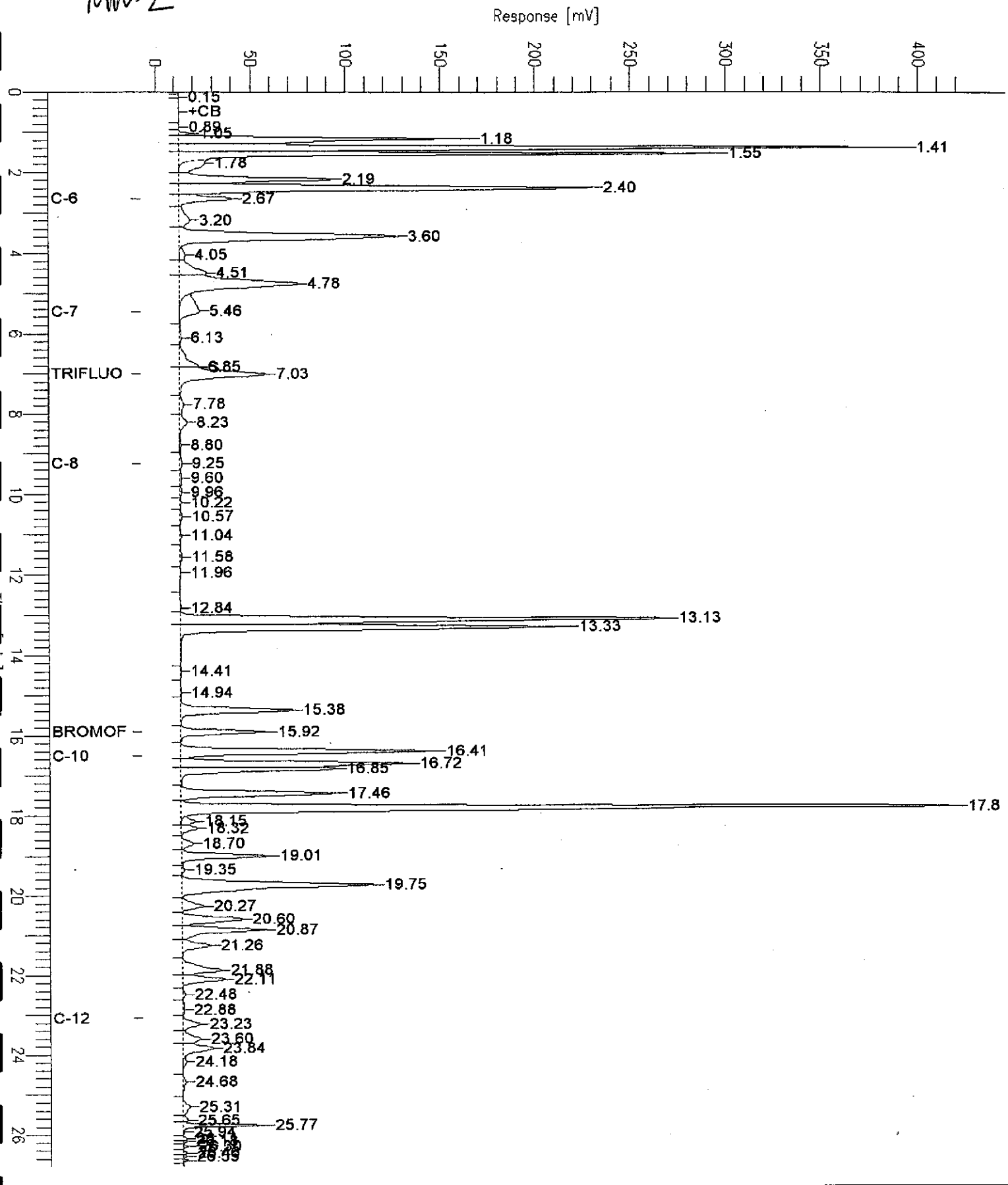


GC19 TVH 'X' Data File (FID)

Sample Name : 168108-002,85217
FileName : G:\GC19\DATA\282X005.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -8 mV

Sample #: a1.3 Page 1 of 1
Date : 10/10/03 09:17 AM
Time of Injection: 10/9/03 06:21 PM
Low Point : -7.76 mV High Point : 420.44 mV
Plot Scale: 428.2 mV

MW-2

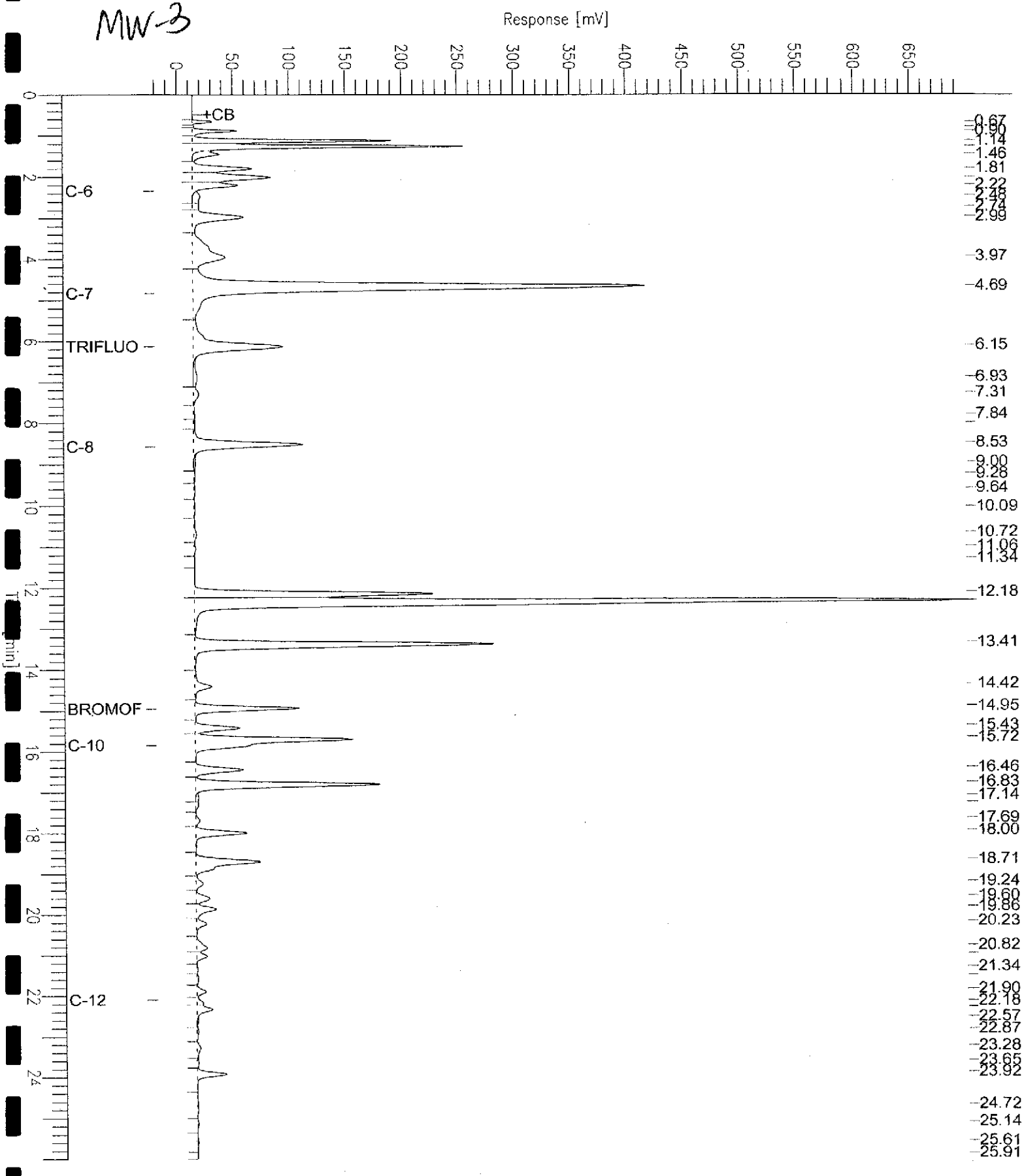


GC07 TVH 'A' Data File RTX 502

Sample Name : 168108-003,85251
FileName : G:\GC07\DATA\283A029.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Sample Factor: 1.0 Plot Offset: -20 mV

Sample #: d1.3 Page 1 of 1
Date : 10/11/03 03:39 PM
Time of Injection: 10/11/03 03:13 PM
Low Point : -20.10 mV High Point : 699.70 mV
Plot Scale: 719.8 mV

MW-3

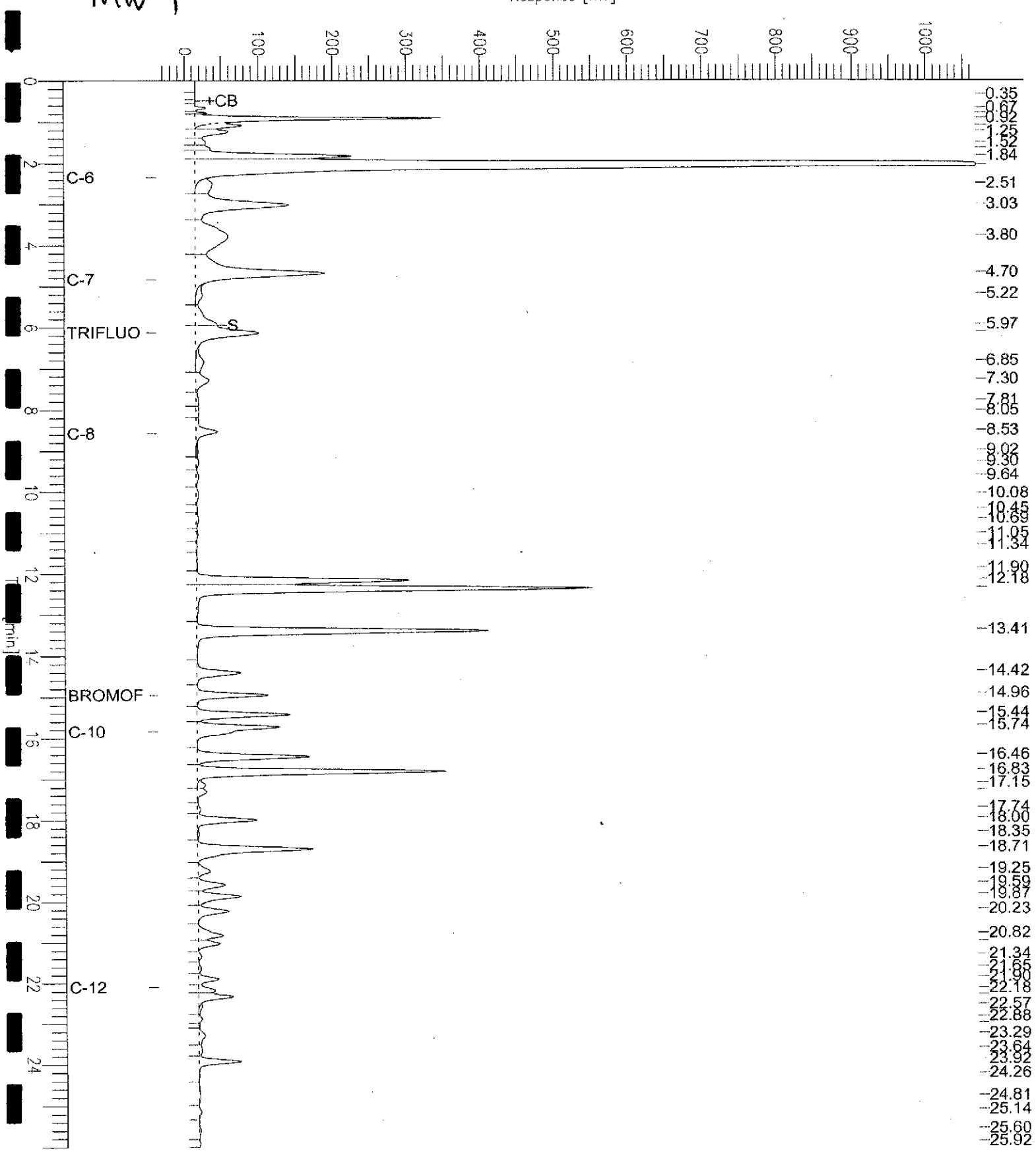


GC07 TVH 'A' Data File RTX 502

Sample Name : 168108-004,85251
FileName : G:\GC07\DATA\283A032.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Sample Factor: 1.0 Plot Offset: -38 mV

Sample #: d1.3 Page 1 of 1
Date : 10/13/03 10:01 AM
Time of Injection: 10/11/03 04:58 PM
Low Point : -38.47 mV High Point : 1068.03 mV
Plot Scale: 1106.5 mV

MW4

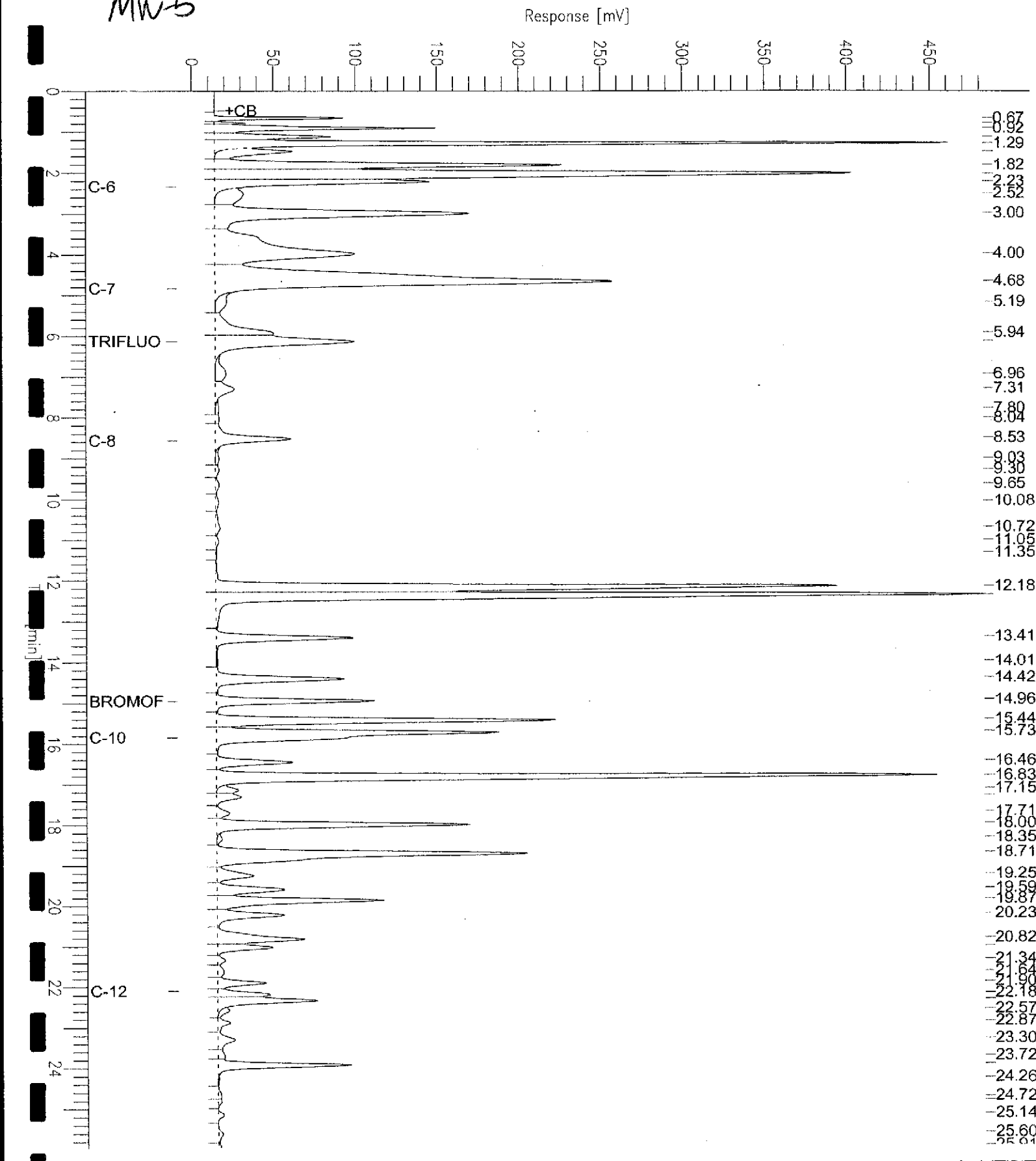


GC07 TVH 'A' Data File RTX 502

Sample Name : 168108-005,85251
FileName : G:\GC07\DATA\283A030.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -9 mV

Sample #: d1.3 Page 1 of 1
Date : 10/11/03 04:13 PM
Time of Injection: 10/11/03 03:47 PM
Low Point : -9.21 mV High Point : 482.53 mV
Plot Scale: 491.7 mV

MW-5

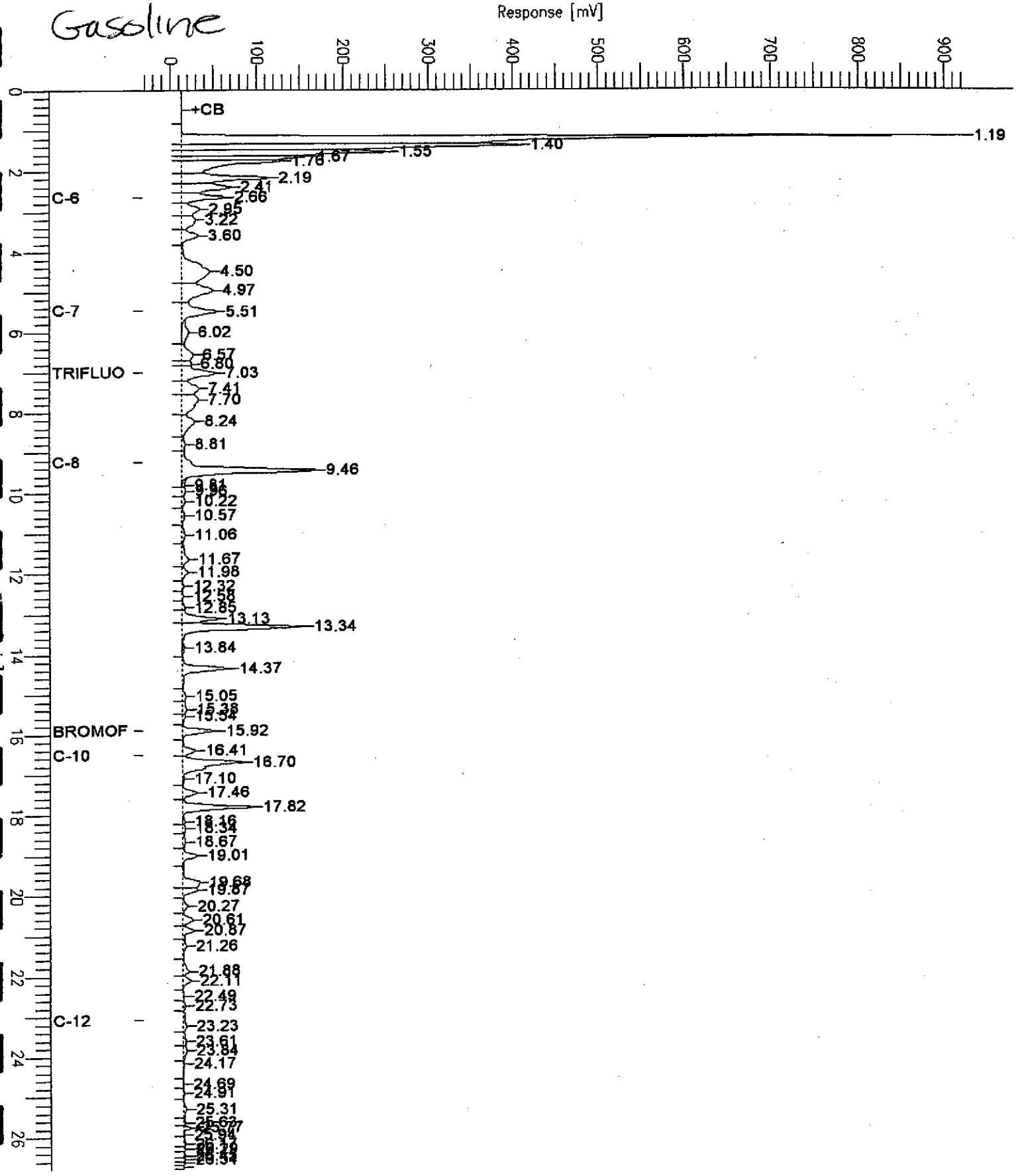


GC19 TVH 'X' Data File (FID)

Sample Name : ccv/lcs,qc228460,85217,03ws1625,5/5000
FileName : G:\GC19\DATA\282X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -33 mV

Sample #: Page 1 of 1
Date : 10/9/03 05:07 PM
Time of Injection: 10/9/03 04:39 PM
Low Point : -32.90 mV High Point : 923.60 mV
Plot Scale: 956.5 mV

Gasoline



Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC228460	Batch#:	85217
Matrix:	Water	Analyzed:	10/09/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,053	103	80-120
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		110	57-150
Bromofluorobenzene (FID)		97	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC228600	Batch#:	85251
Matrix:	Water	Analyzed:	10/11/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,917	96	80-120
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		118	57-150
Bromofluorobenzene (FID)		108	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC228461	Batch#:	85217
Matrix:	Water	Analyzed:	10/09/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
Benzene	20.00	21.27	106	78-123
Toluene	20.00	19.88	99	79-120
Ethylbenzene	20.00	19.98	100	80-120
m,p-Xylenes	40.00	41.38	103	76-120
o-Xylene	20.00	20.49	102	80-121

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		100	54-149
Bromofluorobenzene (PID)		100	58-143

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC228601	Batch#:	85251
Matrix:	Water	Analyzed:	10/11/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
Benzene	20.00	21.10	105	78-123
Toluene	20.00	19.95	100	79-120
Ethylbenzene	20.00	19.93	100	80-120
m,p-Xylenes	40.00	41.50	104	76-120
o-Xylene	20.00	20.42	102	80-121

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		81	54-149
Bromofluorobenzene (PID)		86	58-143

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	8015B
Field ID:	ZZZZZZZZZZ	Batch#:	85217
MSS Lab ID:	168101-002	Sampled:	10/08/03
Matrix:	Water	Received:	10/09/03
Units:	ug/L	Analyzed:	10/10/03
Diln Fac:	1.000		

Type: MS Lab ID: QC228470

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	19.76	2,000	1,959	97	76-120
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		117	57-150
Bromofluorobenzene (FID)		105	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC228471

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,146	106	76-120	9	20
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		117	57-150
Bromofluorobenzene (FID)		106	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	8015B
Field ID:	ZZZZZZZZZZ	Batch#:	85251
MSS Lab ID:	168123-001	Sampled:	10/09/03
Matrix:	Water	Received:	10/09/03
Units:	ug/L	Analyzed:	10/11/03
Diln Fac:	1.000		

Type: MS Lab ID: QC228602

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<18.00	2,000	1,901	95	76-120
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		116	57-150
Bromofluorobenzene (FID)		108	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC228603

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,892	95	76-120	0	20
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		119	57-150
Bromofluorobenzene (FID)		110	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03
Batch#:	85309	Analyzed:	10/14/03

Field ID: MW-1 Lab ID: 168108-001
Type: SAMPLE Diln Fac: 2.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	70	20
MTBE	ND	1.0
Isopropyl Ether (DIPE)	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	1.0
1,2-Dichloroethane	ND	1.0
1,2-Dibromoethane	ND	1.0

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-121
1,2-Dichloroethane-d4	108	77-129
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-123

Field ID: MW-2 Lab ID: 168108-002
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	12	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

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-121
1,2-Dichloroethane-d4	96	77-129
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03
Batch#:	85309	Analyzed:	10/14/03

Field ID: MW-3 Lab ID: 168108-003
Type: SAMPLE Diln Fac: 16.67

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	170
MTBE	960	8.3
Isopropyl Ether (DIPE)	ND	8.3
Ethyl tert-Butyl Ether (ETBE)	ND	8.3
Methyl tert-Amyl Ether (TAME)	200	8.3
1,2-Dichloroethane	ND	8.3
1,2-Dibromoethane	ND	8.3

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-121
1,2-Dichloroethane-d4	91	77-129
Toluene-d8	97	80-120
Bromofluorobenzene	102	80-123

Field ID: MW-4 Lab ID: 168108-004
Type: SAMPLE Diln Fac: 62.50

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	1,400	630
MTBE	7,800	31
Isopropyl Ether (DIPE)	ND	31
Ethyl tert-Butyl Ether (ETBE)	50	31
Methyl tert-Amyl Ether (TAME)	ND	31
1,2-Dichloroethane	ND	31
1,2-Dibromoethane	ND	31

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-121
1,2-Dichloroethane-d4	93	77-129
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-123

ND= Not Detected
RL= Reporting Limit

8.0

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	10/09/03
Units:	ug/L	Received:	10/09/03
Batch#:	85309	Analyzed:	10/14/03

Field ID: MW-5 Lab ID: 168108-005
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	1,700	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
Methyl tert-Amyl Ether (TAME)	740	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dibromoethane	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	95	77-129
Toluene-d8	100	80-120
Bromofluorobenzene	104	80-123

Type: BLANK Diln Fac: 1.000
Lab ID: QC228826

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

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-121
1,2-Dichloroethane-d4	105	77-129
Toluene-d8	100	80-120
Bromofluorobenzene	105	80-123

ND= Not Detected
RL= Reporting Limit

8.0

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	85309
Units:	ug/L	Analyzed:	10/14/03
Diln Fac:	1.000		

Type: BS Lab ID: QC228822

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		NA		
MTBE	50.00	55.64	111	69-124
Isopropyl Ether (DIPE)		NA		
Ethyl tert-Butyl Ether (ETBE)		NA		
Methyl tert-Amyl Ether (TAME)		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-121
1,2-Dichloroethane-d4	105	77-129
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-123

Type: BSD Lab ID: QC228823

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)		NA				
MTBE	50.00	55.86	112	69-124	0	20
Isopropyl Ether (DIPE)		NA				
Ethyl tert-Butyl Ether (ETBE)		NA				
Methyl tert-Amyl Ether (TAME)		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-121
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	99	80-120
Bromofluorobenzene	104	80-123

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	168108	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	85309
Units:	ug/L	Analyzed:	10/14/03
Diln Fac:	1.000		

Type: BS Lab ID: QC228824

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	250.0	279.7	112	70-130
MTBE	50.00	59.42	119	69-124
Isopropyl Ether (DIPE)	50.00	58.30	117	70-130
Ethyl tert-Butyl Ether (ETBE)	50.00	51.15	102	70-130
Methyl tert-Amyl Ether (TAME)	50.00	50.62	101	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-121
1,2-Dichloroethane-d4	99	77-129
Toluene-d8	100	80-120
Bromofluorobenzene	105	80-123

Type: BSD Lab ID: QC228825

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	250.0	291.7	117	70-130	4	20
MTBE	50.00	60.02	120	69-124	1	20
Isopropyl Ether (DIPE)	50.00	57.19	114	70-130	2	20
Ethyl tert-Butyl Ether (ETBE)	50.00	51.09	102	70-130	0	20
Methyl tert-Amyl Ether (TAME)	50.00	49.01	98	70-130	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-121
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	100	80-120
Bromofluorobenzene	107	80-123

RPD= Relative Percent Difference