



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

Second Quarter 2003

RO-473

**GROUNDWATER MONITORING REPORT
TEXACO GASOLINE SERVICE STATION
15101 FREEDOM AVENUE
SAN LEANDRO, CALIFORNIA**

June 18, 2003

Project 2551

Prepared for

**Mr. Mohammad Pazdel
35840 Alcazar Court
Fremont, California**

Prepared by

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

RO. 473



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

June 17, 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 "Second 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,

A handwritten signature in black ink, appearing to read 'Mansour Sepehr', written over a horizontal line.

Mansour Sepehr, Ph.D., PE
Principal Hydrogeologist

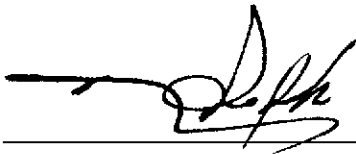


Enclosure

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 Second Quarter 2003 groundwater monitoring event.



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

Principal Hydrogeologist

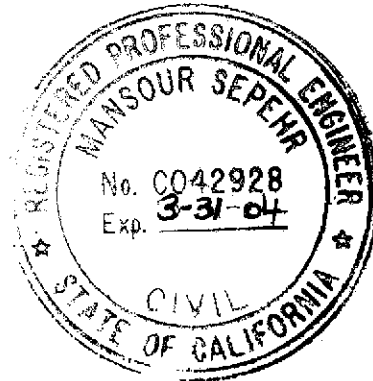


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1.0 INTRODUCTION

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 Second Quarter 2003 groundwater monitoring event conducted at the Site on May 28, 2003. This report includes the results of on-site measurements of the physical and chemical properties of the groundwater, which included 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).

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 this 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 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.

2.0 FIELD ACTIVITIES

On May 28, 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. These groundwater samples were analyzed for TPH-g, BTEX, MtBE and gasoline oxygenates. 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, May 28, 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(M). Samples for BTEX measurements were prepared using EPA

Method 5030B and analyzed using EPA Method 8021B. MtBE and gasoline oxygenates 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 May 28, 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 18.52 feet in monitoring well MW-5 to 22.43 feet in monitoring well MW-1. The corresponding groundwater elevations were fairly consistent throughout the Site, and ranged from 29.27 feet in monitoring wells MW-3 and MW-5 to 29.33 feet in monitoring well MW-2.

Table 2 presents the historical groundwater elevations at different groundwater monitoring wells. SOMA conducted the first monitoring event on the newly installed wells during the Second Quarter 2002. Since the previous monitoring event (First Quarter 2003) groundwater elevations have remained fairly consistent throughout the Site, with only slight increases in groundwater elevations. The groundwater elevation in monitoring well MW-2, as recorded for June 2002, was erroneous and the low groundwater elevation was probably the result of the initial well development. The groundwater elevations for monitoring well MW-2, since the initial monitoring in June 2002, closely match the other existing on-site wells.

The groundwater elevation contour map in feet is displayed in Figure 3. In general, as shown in Figure 3, the groundwater flows southeasterly. The

approximate average groundwater gradient on-site is 0.0003 feet/foot. However, based on this event, as well as, previous monitoring events, the groundwater elevation throughout the Site is fairly consistent, with only a slight deviation from well to well.

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 6.71 in monitoring well MW-4 to 6.88 in monitoring well MW-2. The temperature measurements ranged from 20.05 °C in monitoring well MW-4 to 21.55 °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 1,560 µS/cm in monitoring wells MW-1 and MW-5 to 2,030 µS/cm in monitoring well MW-4. In general, the field measurements stayed fairly consistent throughout the Site from well to well.

The field measurements taken during the Second 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 old USTs prior to their upgrade in 1999.

TPH-g concentrations were detected in all of the monitoring wells. TPH-g concentrations ranged from 1,700 µg/L in monitoring well MW-1 to 52,000 µg/L in monitoring well MW-3. Figure 4 displays the contour map of TPH-g concentrations in the groundwater on May 28, 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 9,100 µg/L was detected in monitoring well MW-5.

In general, as shown in Table 4, the least impacted BTEX analyte location during this monitoring event was in the vicinity of MW-1, with the exception of benzene. BTEX concentrations in MW-1 were 55 µg/L, non-detectable, 90 µg/L, and 115 µg/L, respectively. Toluene was also below the laboratory reporting limit in MW-2. The lowest benzene concentration was detected at MW-2 at 5.2 µg/L. However, the benzene concentration detected in MW-2 may have been misrepresentative due to matrix interferences during the analytical testing. The lab designated this by a "C" flag; see the "C" flag in the lab report, attached as Appendix B, for further clarification. The highest BTEX concentrations were detected in MW-3 at 7,300 µg/L, 3,000 µg/L, 2,800 µg/L, and 12,700 µg/L, respectively. Figure 5 displays the contour map of benzene concentrations in the groundwater on May 28, 2003. Similar to the results for TPH-g, the highest benzene concentration was detected in monitoring well MW-3, near the dispenser islands.

Table 4 shows the results of the MtBE analysis using EPA Method 8260B. MtBE concentrations were detected in all of the monitoring wells. MtBE concentrations were detected at trace concentrations in monitoring wells MW-1 and MW-2 at 2 µg/L and 1.2 µg/L, respectively. The highest MtBE concentrations were detected in wells MW-3 and MW-4 at 2,100 µg/L and 2,300 µg/L, respectively. Figure 6 displays the contour map of MtBE concentrations in the groundwater on May 28, 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 decreased in monitoring wells MW-1 and MW-5. TPH-g increased in MW-2 and significantly increased in wells MW-3 and MW-4.
- All BTEX analytes decreased in monitoring wells MW-1 and MW-5. Toluene was the only BTEX constituent to decrease in MW-2. All BTEX analytes increased in monitoring well MW-3. Benzene and total xylenes both increased in MW-4. Toluene and ethylbenzene both decreased in MW-4.
- MtBE increased slightly in wells MW-1 and MW-2. MtBE also increased in MW-3. MtBE decreased significantly in well MW-4 and also decreased in well MW-5.

Table 6 shows the results of gasoline oxygenates analytical results from the groundwater samples collected during the Second Quarter 2003. TBA was detected in all of the monitoring wells, with the exception of MW-5, which was below the laboratory reporting limit. Detectable TBA concentrations ranged from 25 µg/L in monitoring well MW-1 to 690 µg/L in monitoring well MW-4. Figure 7 displays the contour map of TBA concentrations in the groundwater on May 28, 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 and ETBE were below the laboratory reporting limit in all groundwater samples collected this quarter. TAME was below laboratory reporting limit in monitoring wells MW-1 and MW-2. Detectable TAME concentrations ranged from 17 µg/L in monitoring well MW-4 to 530 µg/L in monitoring well MW-3. Figure 8 displays the contour map of TAME concentrations in the groundwater on May 28, 2003. As shown in Figure 8, the

highest TAME concentration was detected in monitoring well MW-3, near the USTs.

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.

- TBA decreased in monitoring well MW-1, and significantly decreased in MW-4. TBA increased in MW-2 and MW-3. TBA remained below the laboratory reporting limit in MW-5.
- DIPE has remained below the laboratory reporting limit in all monitoring wells. ETBE remained below the laboratory reporting limit in all monitoring wells, with the exception of MW-4. ETBE decreased to below the laboratory reporting limit in well MW-4 during the Second Quarter 2003.
- TAME has historically remained below the laboratory reporting limit in monitoring wells MW-1 and MW-2. TAME increased in monitoring wells MW-3 and MW-4. TAME decreased in well MW-5.

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

5.0 CONCLUSION AND RECOMMENDATIONS

The results of the May 28, 2003 groundwater monitoring event can be summarized as follows:

1. The groundwater flow direction is southeasterly. The approximate average groundwater gradient on-site is 0.0003 feet/feet. However, based on this event, as well as previous monitoring events, the groundwater elevation throughout the Site is fairly consistent, with only a slight deviation from well to well.
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. During the Second Quarter 2003 monitoring event, TBA was found to be present in all monitoring wells with the exception of MW-5. Historically, DIPE and ETBE were below the laboratory limit in all monitoring wells, with the exception of monitoring well MW-4. However, ETBE during the Second Quarter 2003, decreased to below the laboratory reporting limit in well MW-4. Historically, TAME has remained below the laboratory reporting limit in wells MW-1 and MW-2. TAME has steadily increased in well MW-3.

5. Based on the following factors SOMA recommends a further site investigation to determine the extent of the chemical concentrations south of monitoring well MW-5 and along Fairmont Avenue, east of the Site.

- High TPH-g and benzene concentrations were detected in monitoring well MW-3. Both TPH-g and benzene increased this quarter in monitoring well MW-3.
- The highest concentration of MtBE was detected in monitoring well MW-4. A high MtBE concentration was also detected in well MW-3; the MtBE concentration increased from the previous quarter.
- In well MW-3, both TBA and TAME concentrations increased since the previous monitoring event. TAME also increased in well MW-4.
- Residential housing is located near the Site.

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., March 21, 2003. "First Quarter 2003 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

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

SOMA Environmental Engineering Inc., September 26, 2002. "Third Quarter 2002 Groundwater Monitoring Report, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California".

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.

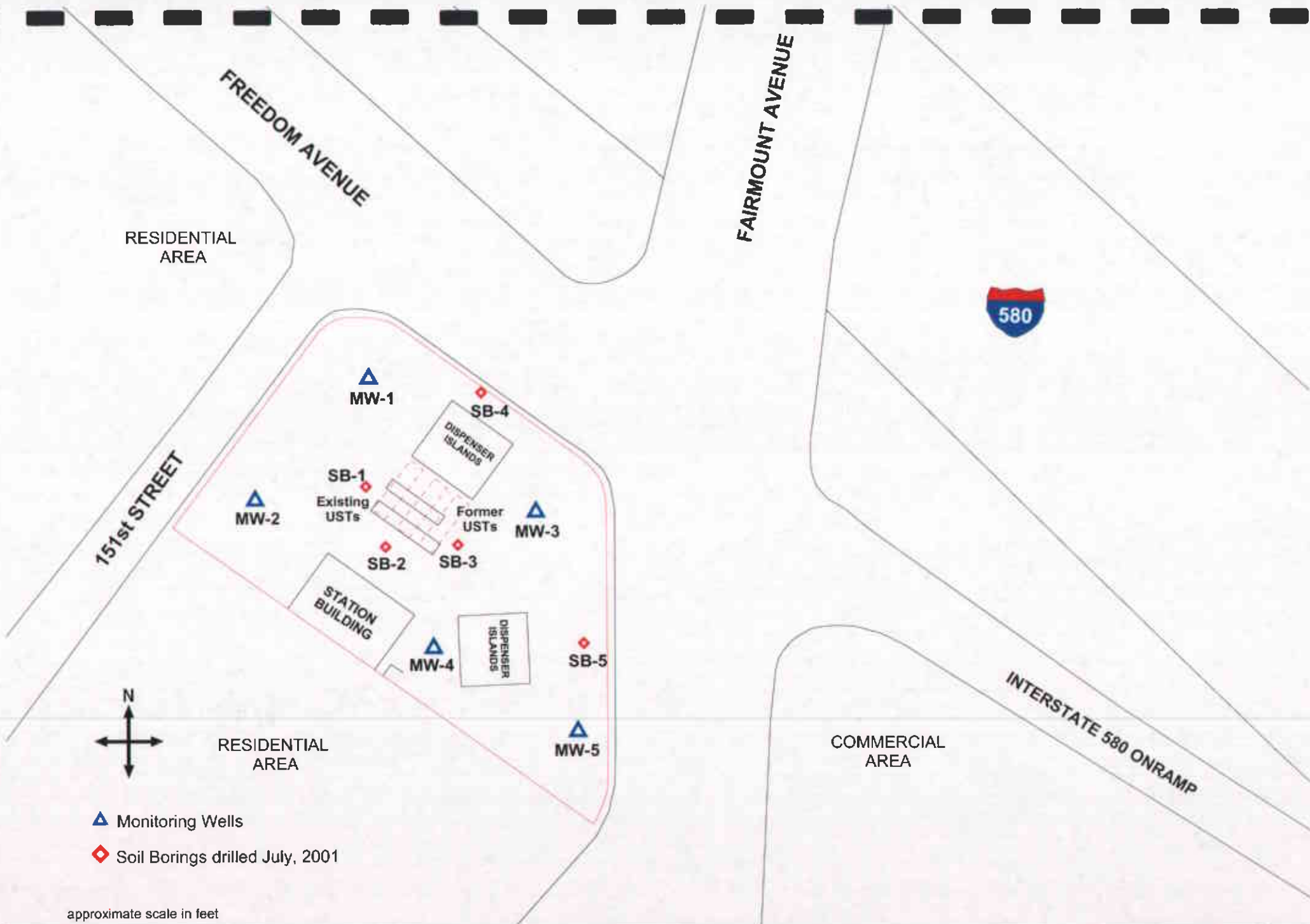


Figure 2: Site map showing locations of groundwater monitoring wells and soil borings.

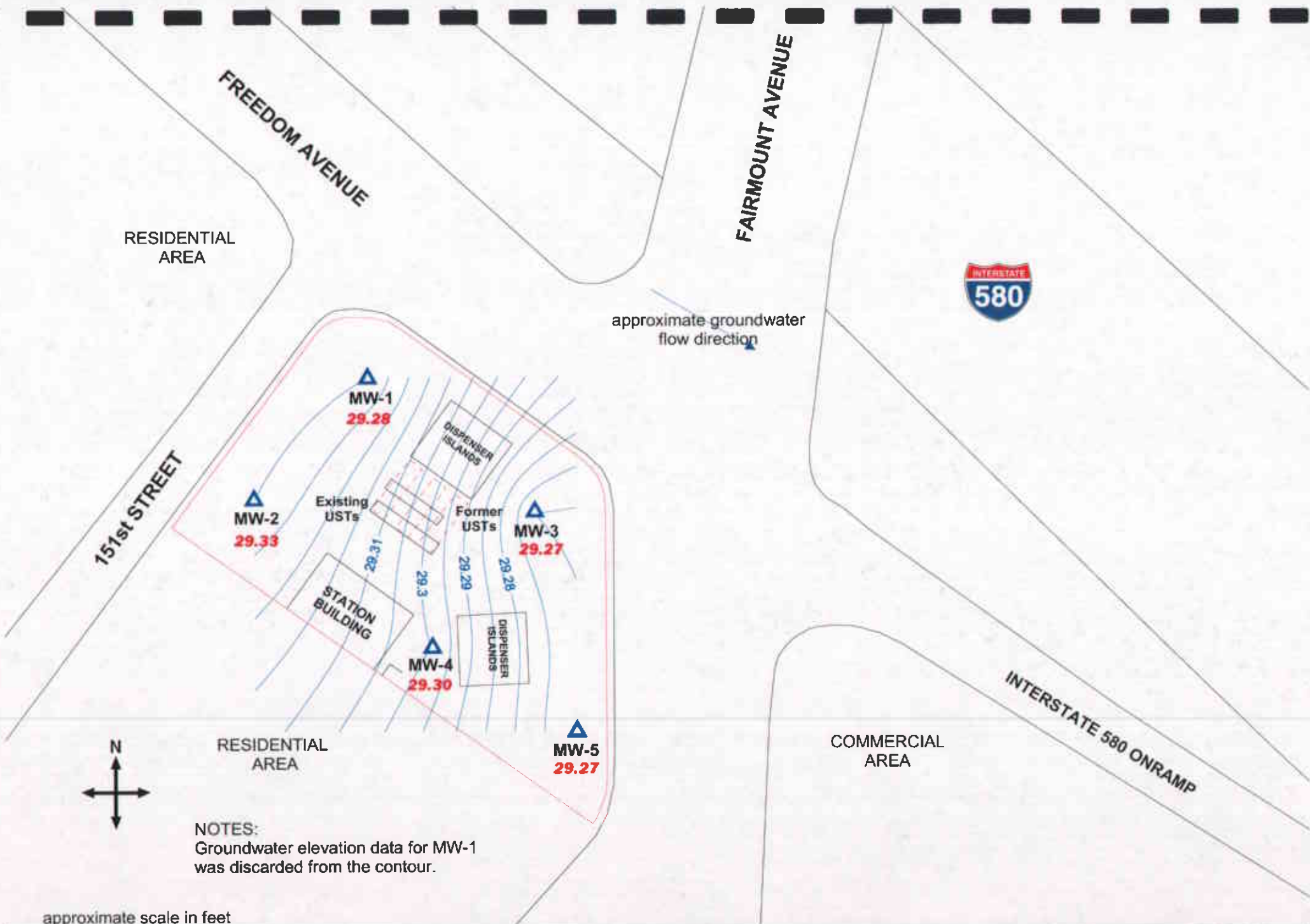


Figure 3: Groundwater elevation contour map in feet.
May 28, 2003.

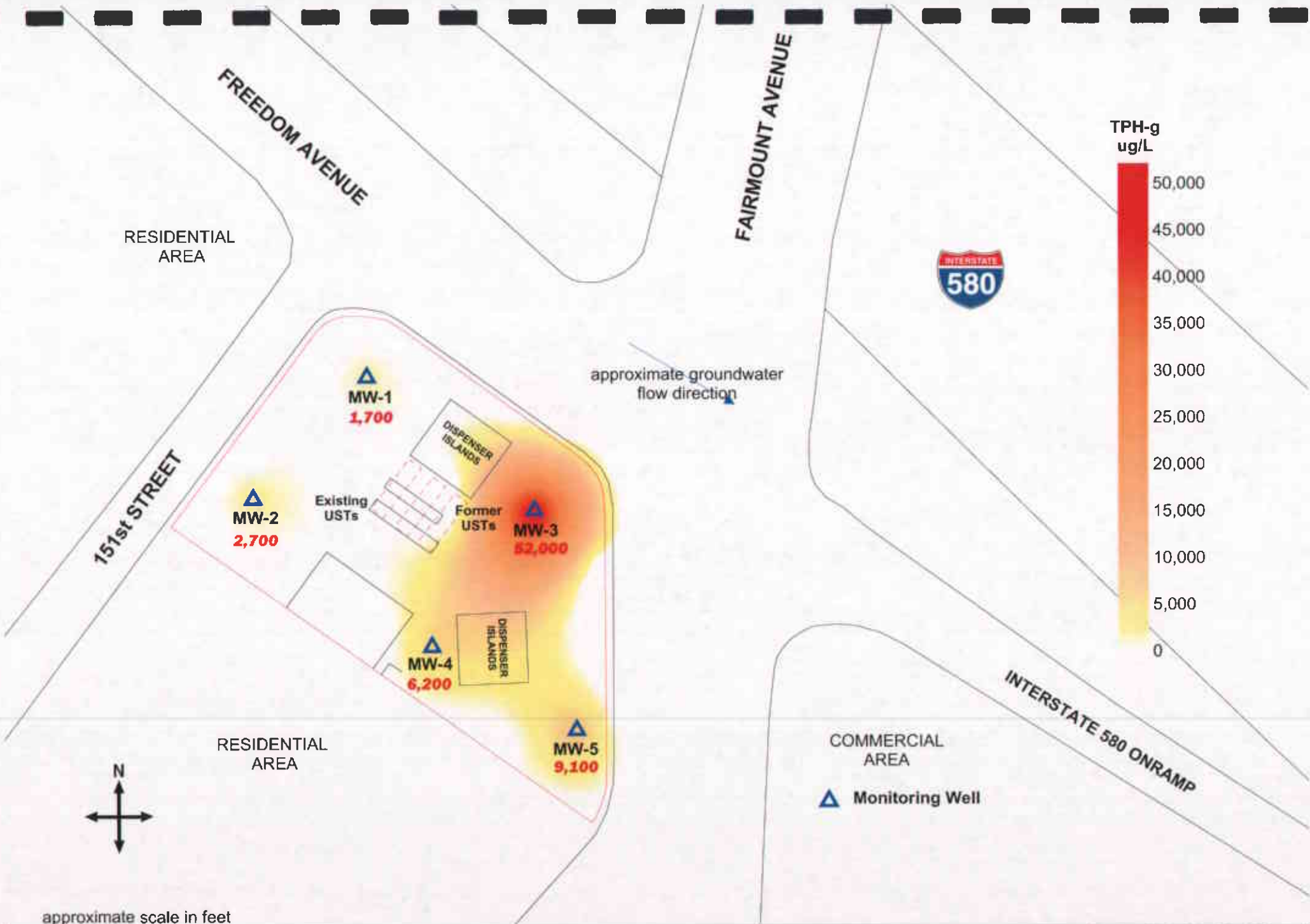


Figure 4: Contour map of TPH-g concentrations in groundwater.
May 28, 2003.

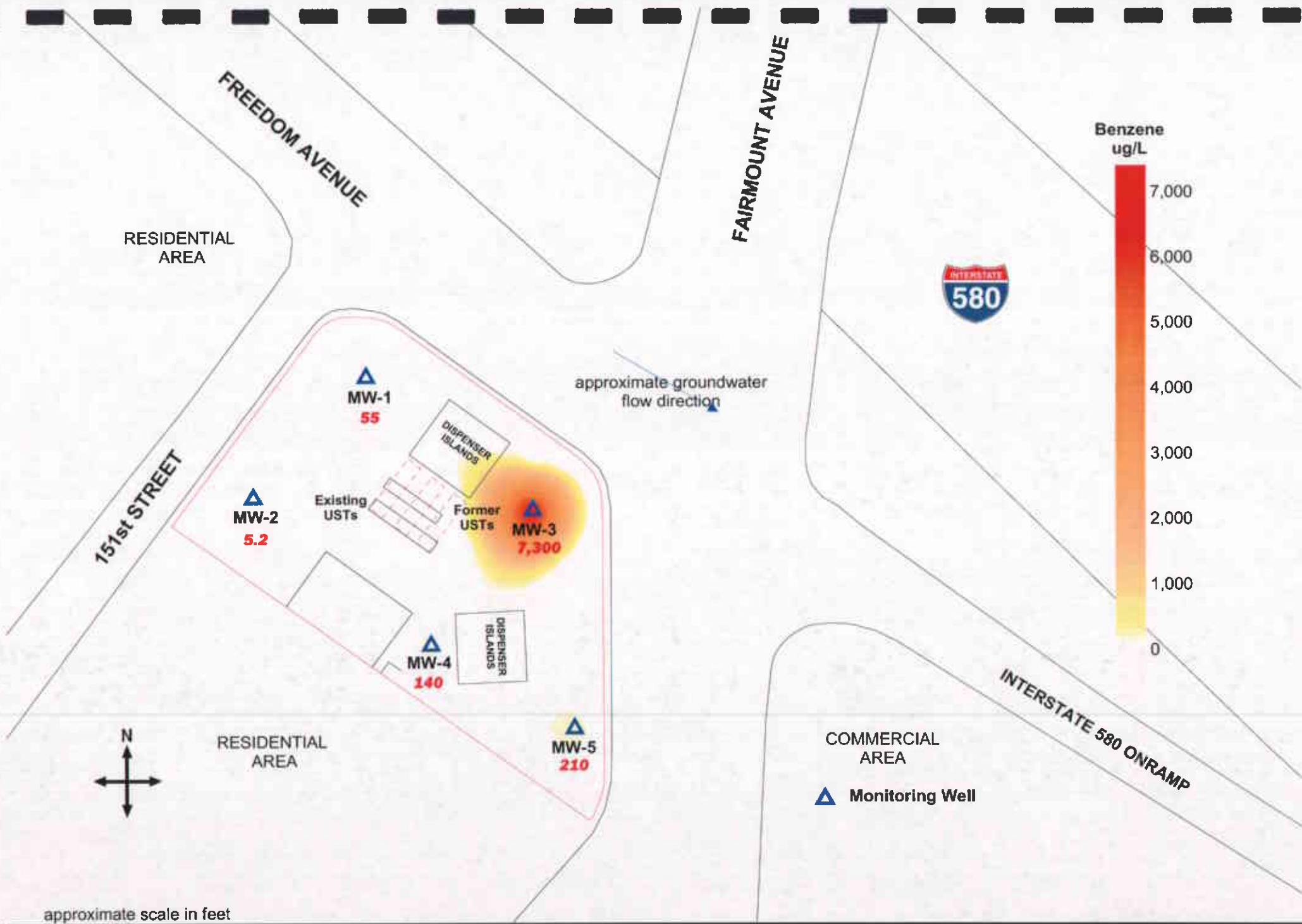


Figure 5: Contour map of Benzene concentrations in groundwater.
May 28, 2003.

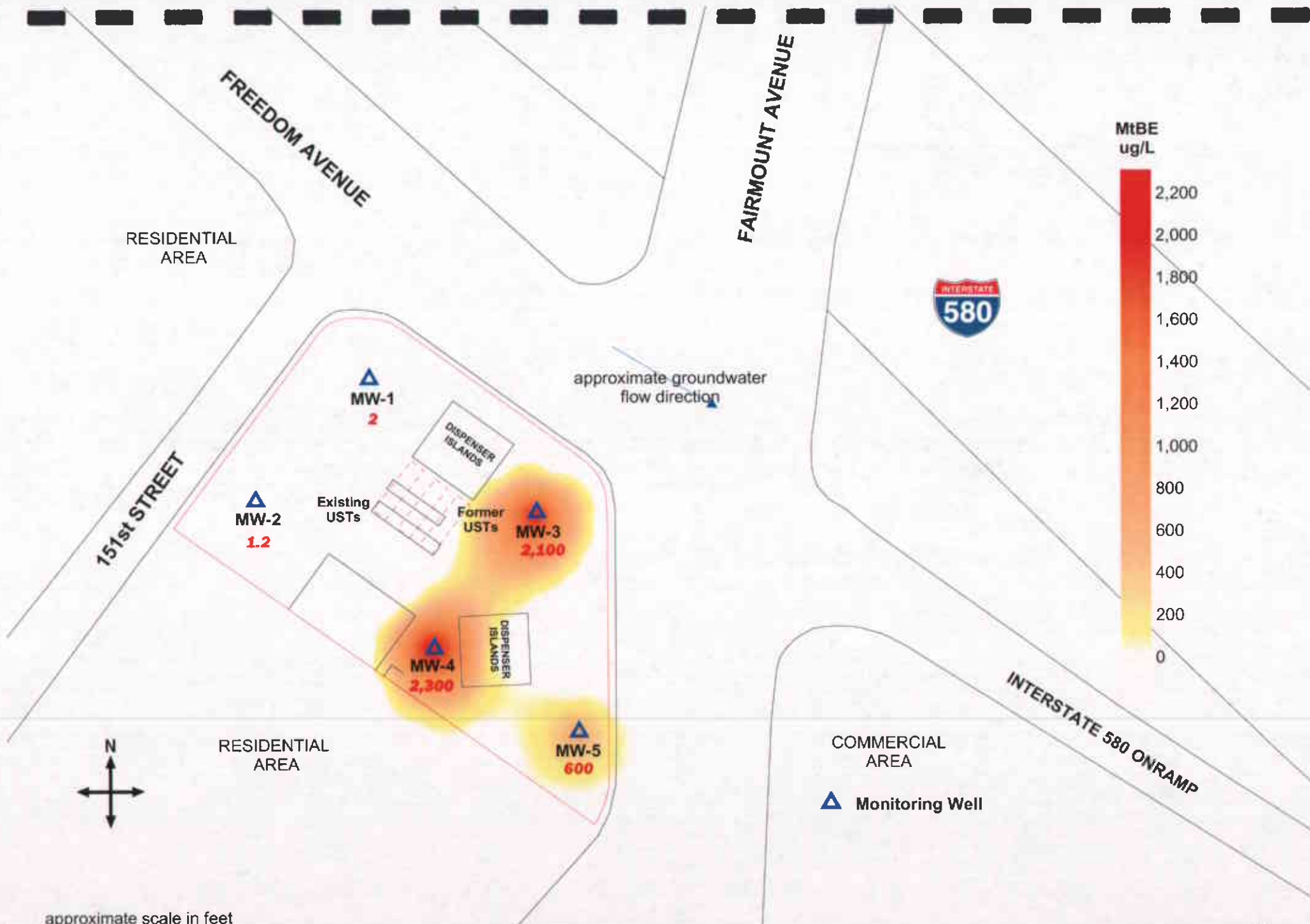


Figure 6: Contour map of MtBE concentrations in groundwater (EPA Method 8260).
May 28, 2003.

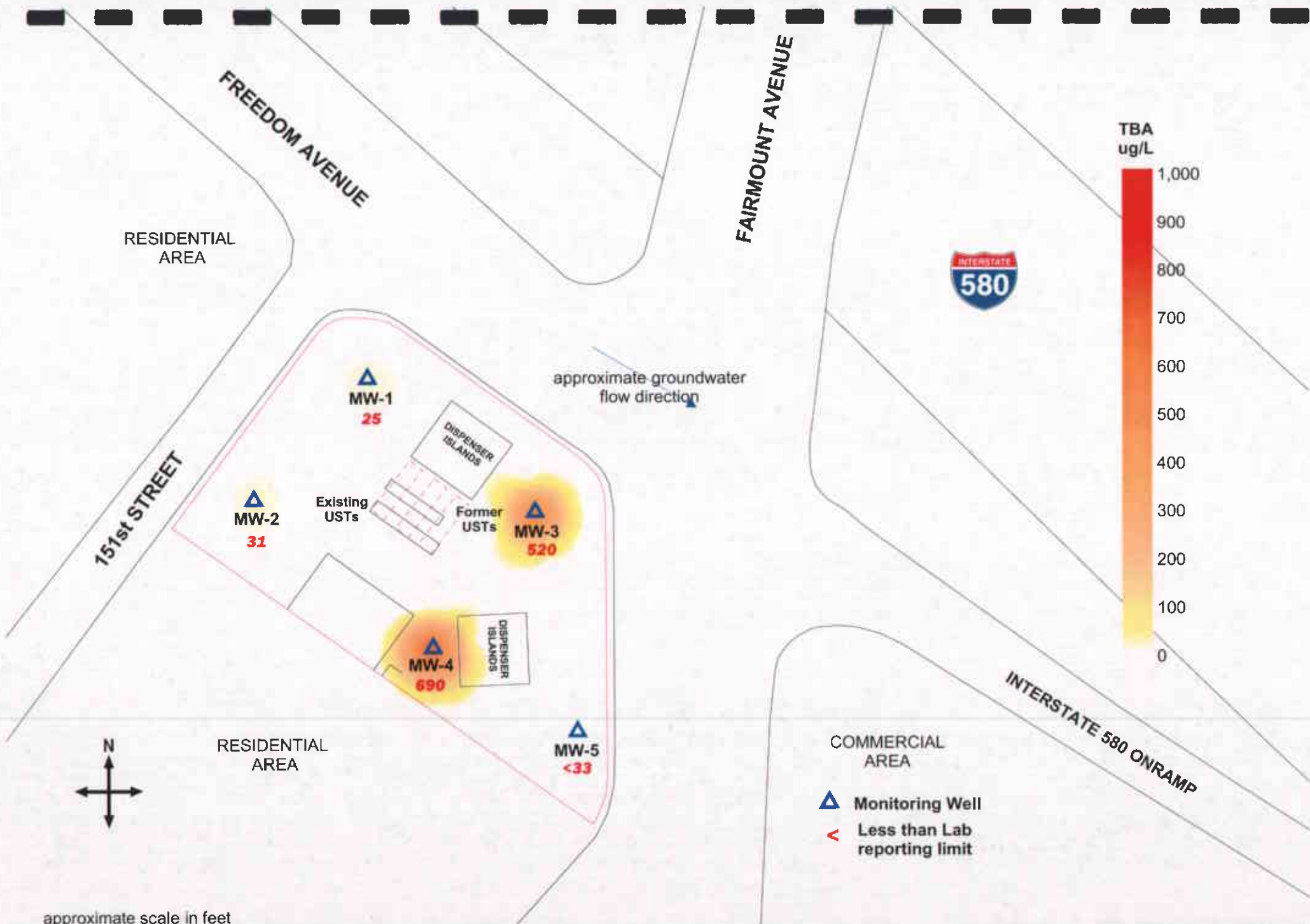


Figure 7: Contour map of TBA concentrations in groundwater.
May 28, 2003.

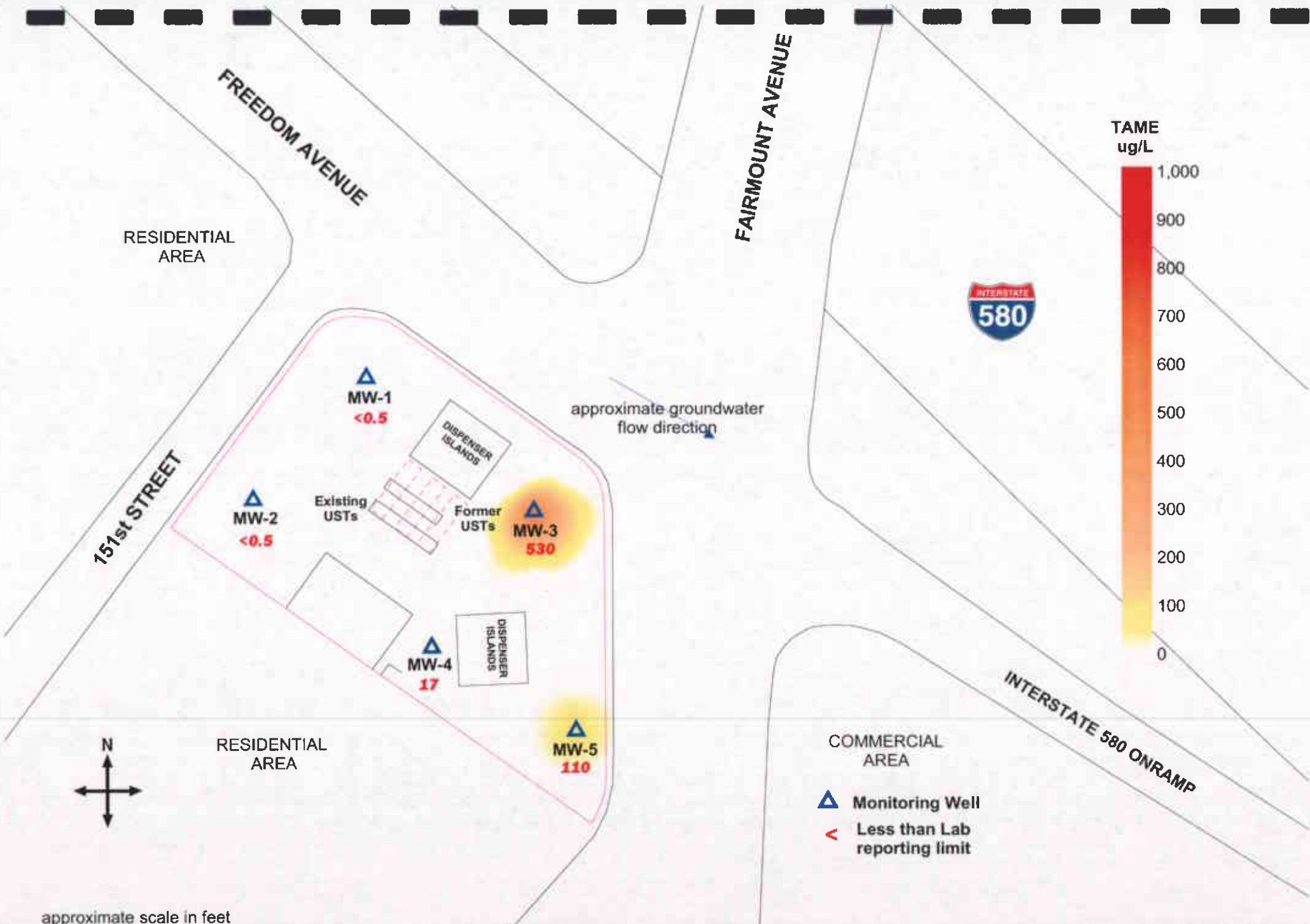


Figure 8: Contour map of TAME concentrations in groundwater.
May 28, 2003.

Tables

Table 1
Groundwater Elevation Data
 May 28, 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	22.43	29.28
MW-2	49.66	20.33	29.33
MW-3	51.16	21.89	29.27
MW-4	50.54	21.24	29.30
MW-5	47.79	18.52	29.27

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
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.

*: The groundwater elevation recorded during the Second Quarter 2002 for monitoring well MW-2 was erroneous.

This was probably due the initial development of the well. Since the initial monitoring of MW-2 the elevations recorded for MW-2 have closely matched the other existing wells.

Annual change	0.19	0.18	0.13	0.24	0.18
Quarterly change	0.19	0.18	0.13	0.24	0.18

Table 3
Field Measurements at the Time of Sampling
May 28, 2003
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	pH	Temp (°C)	E.C. (uS/cm)
MW-1	6.73	20.89	1560
MW-2	6.88	20.33	1740
MW-3	6.75	21.22	1730
MW-4	6.71	20.05	2030
MW-5	6.74	21.55	1560

Table 4
Groundwater Analytical Data
May 28, 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)	Total Lead (µg/L)
MW-1	1,700	55	<0.5	90	115	2	NA
MW-2	2,700	5.2 C	<0.5	120	140	1.2	NA
MW-3	52,000	7,300	3,000	2,800	12,700	2,100	NA
MW-4	6,200	140	46	200	790	2,300	NA
MW-5	9,100	210	31	560	790	600	NA

Notes:

< : Not detected above laboratory reporting limits.

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

¹ MtBE analyzed by EPA Method 8260B.

NA Not Analyzed

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)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MtBE ¹ (µg/L) 8260B	Total Lead (µg/L)
MW-1	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	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	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	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	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.

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
May 28, 2003
15101 Freedom Avenue, San Leandro, CA

Monitoring Well	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-1	25	<0.5	<0.5	<0.5
MW-2	31	<0.5	<0.5	<0.5
MW-3	520	<10	<10	530
MW-4	690	<8.3	<8.3	17
MW-5	<33	<1.7	<1.7	110

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	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	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	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	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	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

<u>Well No.</u>	<u>Northing</u>	<u>Easting</u>	<u>Elevation</u>
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

Kier & Wright Civil Engineer & Land Surveyors, Inc.

1233 Quarry Lane, Suite 145 ♦ PLEASANTON, CALIFORNIA 94566 ♦ (925) 249-6555 ♦ (925) 249-6563



Well No.: MW-1
 Casing Diameter: 4 inches
 Depth of Well: 30.10 feet
 Top of Casing Elevation: 51.71 feet
 Depth to Groundwater: 22.43 feet
 Groundwater Elevation: 29.28 feet
 Water Column Height: 7.67 feet
 Purged Volume: 10 gallons

Project No.: 2551
 Address: 15101 Freedom Ave.
 San Leandro, CA
 Date: 28-May-03
 Sampler: Tony Perini

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 (°C)	E.C. (µs/cm)
11:41 AM	1.0	6.87	22.94	1,980
11:43 AM	3.0	6.74	21.78	1,540
11:45 AM	6.0	6.75	21.16	1,570
11:47 AM	10	6.73	20.89	1,560
11:55 AM	samples			



Well No.: MW-2
 Casing Diameter: 4 inches
 Depth of Well: 30 feet
 Top of Casing Elevation: 49.66 feet
 Depth to Groundwater: 20.33 feet
 Groundwater Elevation: 29.33 feet
 Water Column Height: 9.67 feet
 Purged Volume: 10 gallons

Project No.: 2551
 Address: 15101 Freedom Ave.
 San Leandro, CA
 Date: 28-May-03
 Sampler: Tony Perini

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)
11 AM	1.0	6.82	23.28	2,220
11:02 AM	3.0	6.88	21.11	1,820
11:05 AM	6.5	6.80	20.56	1,760
11:07 AM	10	6.88	20.33	1,740
11:15 AM	sampled			



Well No.: MAW-3
 Casing Diameter: 4 inches
 Depth of Well: 29.90 feet
 Top of Casing Elevation: 51.16 feet
 Depth to Groundwater: 21.89 feet
 Groundwater Elevation: 29.27 feet
 Water Column Height: 8.01 feet
 Purged Volume: 11 gallons

Project No.: 2551
 Address: 15101 Freedom Ave.
 San Leandro, CA
 Date: 28-May-03
 Sampler: Tony Perini

Purging Method: Bailer Pump
 Sampling Method: Bailer Pump

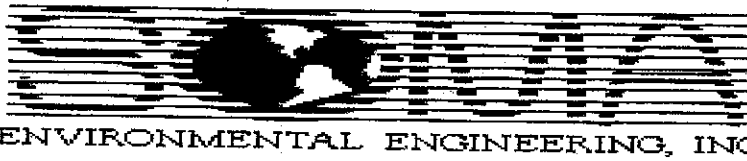
Color: Yes No Describe: cloudy
 Sheen: Yes No Describe: _____
 Odor: Yes No Describe: _____

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
1:44 PM	1.0	6.85	24.05	1.790
1:46 PM	4.0	6.74	22.50	1.670
1:48 PM	6.5	6.74	21.61	1.700
1:50 PM	8.0	6.72	21.44	1.720
1:52 PM	10	6.75	21.22	1.730

2 PM

SAMPLES



Well No.: MW-4
 Casing Diameter: 4 inches
 Depth of Well: 30.10 feet
 Top of Casing Elevation: 50.54 feet
 Depth to Groundwater: 21.24 feet
 Groundwater Elevation: 29.30 feet
 Water Column Height: 8.86 feet
 Purged Volume: 10 gallons

Project No.: 2551
 Address: 15101 Freedom Ave.
 San Leandro, CA
 Date: 28-May-03
 Sampler: Tony Perini

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 (°C)	E.C. (µm/cm)
12:15 PM	1.0	6.81	25.0	2,090
12:17 PM	4.0	6.68	21.05	1,980
12:19 PM	6.5	6.72	20.60	2,030
12:21 PM	10	6.71	20.05	2,030
12:30 PM	sampled			



Well No.: MMU-5
 Casing Diameter: 4 inches
 Depth of Well: 29.70 feet
 Top of Casing Elevation: 47.79 feet
 Depth to Groundwater: 18.52 feet
 Groundwater Elevation: 29.27 feet
 Water Column Height: 11.18 feet
 Purged Volume: 10 gallons

Project No.: 2551
 Address: 15101 Freedom Ave.
 San Leandro, CA
 Date: 28-May-03
 Sampler: Tony Perini

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 (°C)	E.C. (µs/cm)
12:52 PM	1.0	6.84	23.77	10600
12:54 PM	4.0	6.76	21.94	10560
12:56 PM	7.5	6.76	21.38	10560
12:58 PM	10	6.74	21.55	10560
1:00 PM	Sample	10		

Appendix B

Laboratory Report and
Chain of Custody Form
for the

Second Quarter 2003 Monitoring Event



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

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

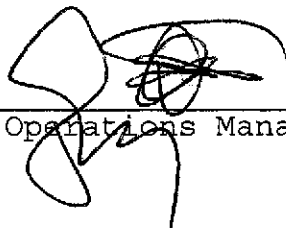
Date: 11-JUN-03
Lab Job Number: 165473
Project ID: 2551
Location: 15101 Freedom Avenue

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

This package may be reproduced only in its entirety.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	05/28/03
Units:	ug/L	Received:	05/28/03
Batch#:	81724		

Field ID:	MW-1	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	05/29/03
Lab ID:	165473-001		

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,700	50	8015B
Benzene	55	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	90	0.50	EPA 8021B
m,p-Xylenes	100	0.50	EPA 8021B
o-Xylene	15	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	143	68-145	8015B
Bromofluorobenzene (FID)	113	66-143	8015B
Trifluorotoluene (PID)	128	53-143	EPA 8021B
Bromofluorobenzene (PID)	120	52-142	EPA 8021B

Field ID:	MW-2	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	05/29/03
Lab ID:	165473-002		

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,700	50	8015B
Benzene	5.2 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	120	0.50	EPA 8021B
m,p-Xylenes	140	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	124	68-145	8015B
Bromofluorobenzene (FID)	111	66-143	8015B
Trifluorotoluene (PID)	121	53-143	EPA 8021B
Bromofluorobenzene (PID)	117	52-142	EPA 8021B

C = Presence confirmed, but RPD between columns exceeds 40%

ND = Not Detected

RL = Reporting Limit

GC04 TVH 'J' Data File FID

Sample Name : 165473-001,81724
 FileName : G:\GC04\DATA\148J036.raw
 Method : TVHBTXE
 Start Time : 0.00 min
 Scale Factor : 1.0

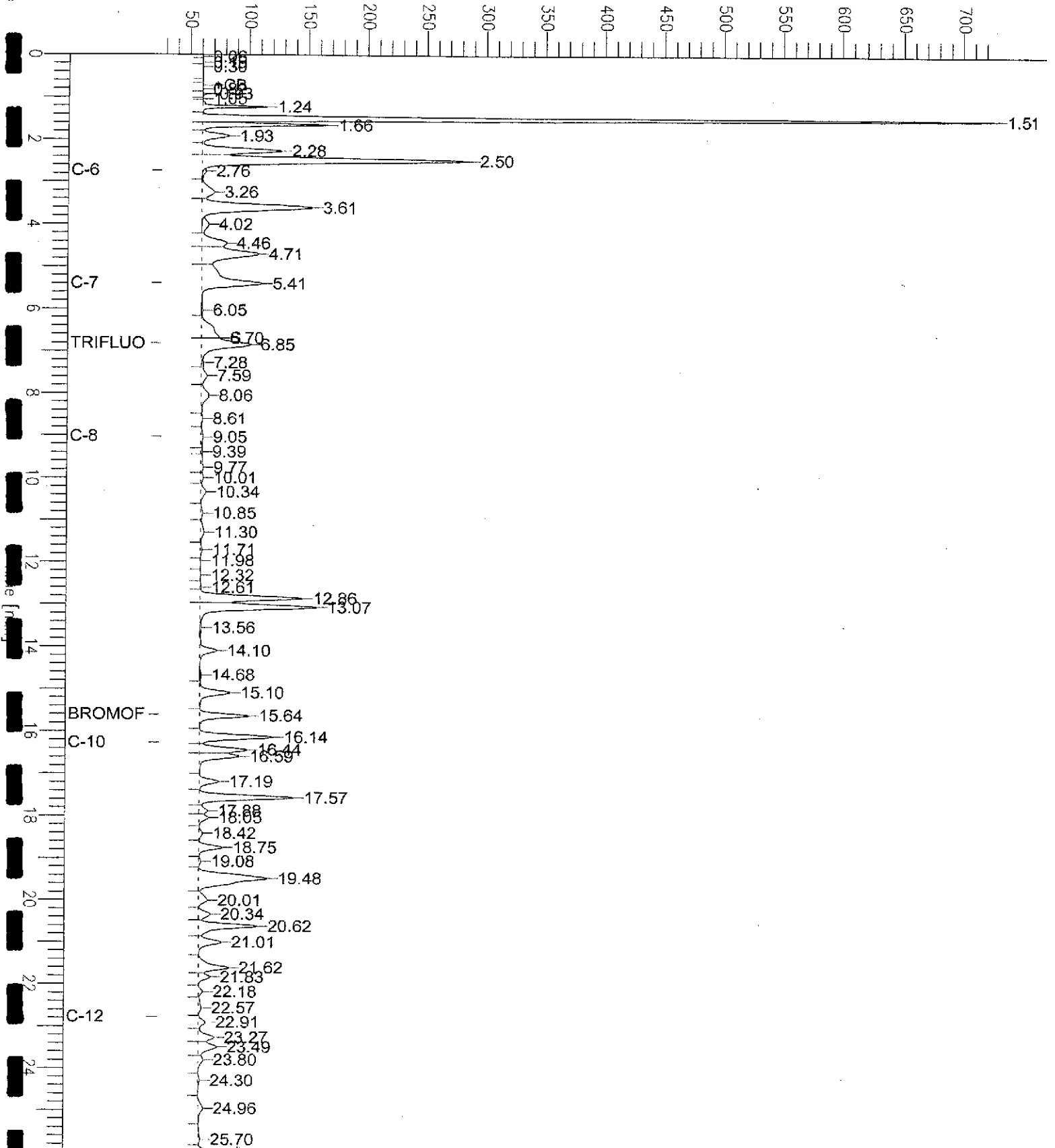
End Time : 26.00 min
 Plot Offset : 27 mV

Sample #: c1
 Date : 5/29/03 10:04 AM
 Time of Injection: 5/29/03 09:33 AM
 Low Point : 26.96 mV
 High Point : 727.75 mV
 Plot Scale : 700.8 mV

Page 1 of 1

MW-1

Response [mV]



GC04 TVH 'J' Data File FID

Sample Name : 165473-002,81724

FileName : G:\GC04\DATA\148J037.raw

Method : TVHBTXE

Start Time : 0.00 min

Scale Factor : 1.0

End Time : 26.00 min

Plot Offset : 39 mV

Sample #: c1

Date : 5/29/03 10:41 AM

Time of Injection: 5/29/03 10:09 AM

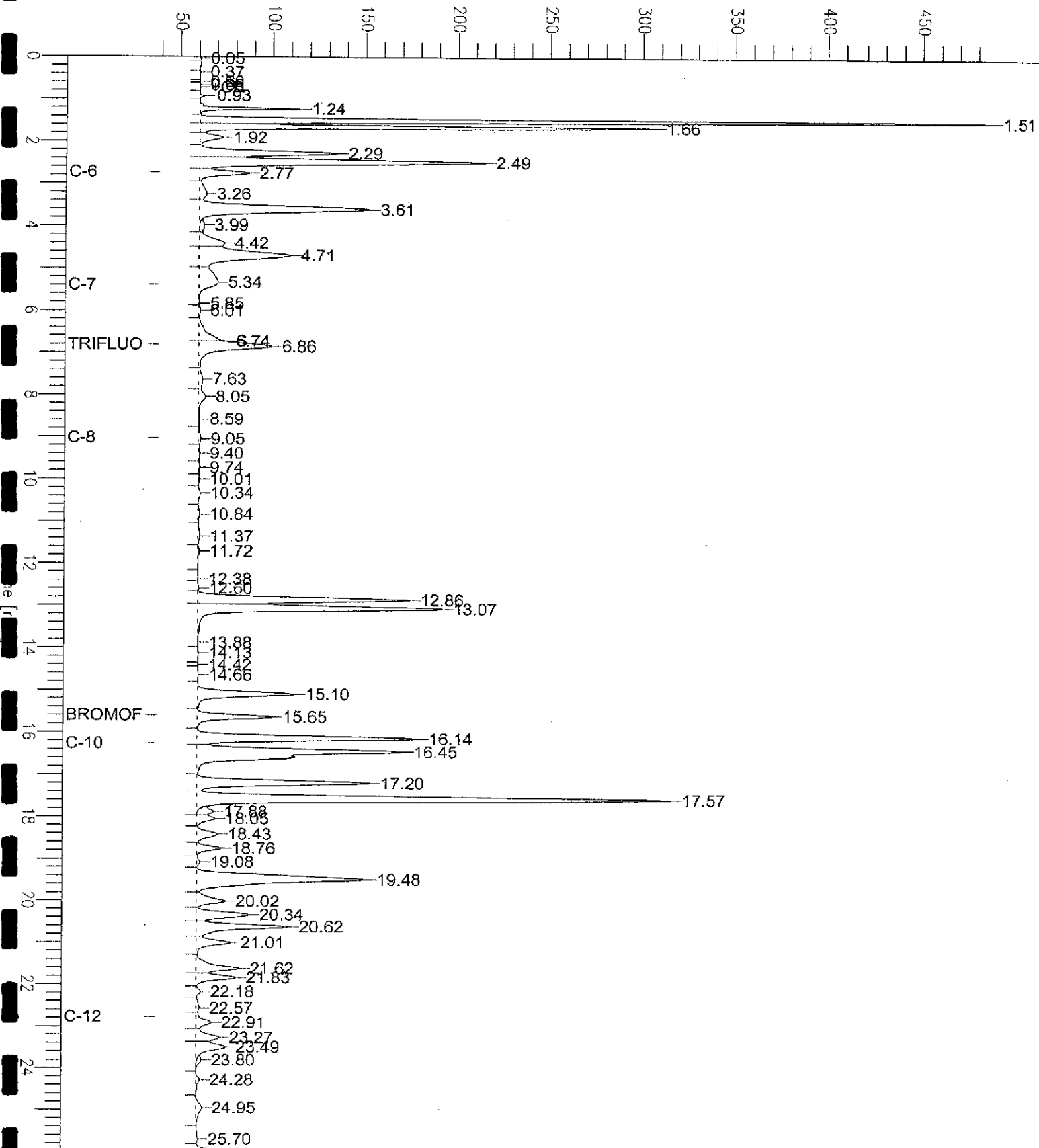
Low Point : 38.93 mV

Plot Scale: 448.5 mV

Page 1 of 1

MW-2

Response [mV]



Curtis & Tompkins Laboratories Analytical Report

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	05/28/03
Units:	ug/L	Received:	05/28/03
Batch#:	81724		

Field ID:	MW-3	Diln Fac:	25.00
Type:	SAMPLE	Analyzed:	05/29/03
Lab ID:	165473-003		

Analyte	Result	RL	Analysis
Gasoline C7-C12	52,000	1,300	8015B
Benzene	7,300	13	EPA 8021B
Toluene	3,000	13	EPA 8021B
Ethylbenzene	2,800	13	EPA 8021B
m,p-Xylenes	9,100	13	EPA 8021B
o-Xylene	3,600	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	137	68-145	8015B
Bromofluorobenzene (FID)	116	66-143	8015B
Trifluorotoluene (PID)	135	53-143	EPA 8021B
Bromofluorobenzene (PID)	126	52-142	EPA 8021B

Field ID:	MW-4	Diln Fac:	2.000
Type:	SAMPLE	Analyzed:	05/29/03
Lab ID:	165473-004		

Analyte	Result	RL	Analysis
Gasoline C7-C12	6,200	100	8015B
Benzene	140	1.0	EPA 8021B
Toluene	46	1.0	EPA 8021B
Ethylbenzene	200	1.0	EPA 8021B
m,p-Xylenes	410	1.0	EPA 8021B
o-Xylene	380	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	135	68-145	8015B
Bromofluorobenzene (FID)	137	66-143	8015B
Trifluorotoluene (PID)	142	53-143	EPA 8021B
Bromofluorobenzene (PID)	126	52-142	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%

D= Not Detected

L= Reporting Limit

GC04 TVH 'J' Data File FID

Sample Name : 165473-003,81724

Sample #: c1

Page 1 of 1

FileName : G:\GC04\DATA\148J033.raw

Date : 5/29/03 08:11 AM

Method : TVHBTXE

Time of Injection: 5/29/03 07:45 AM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 43.30 mV

High Point : 398.46 mV

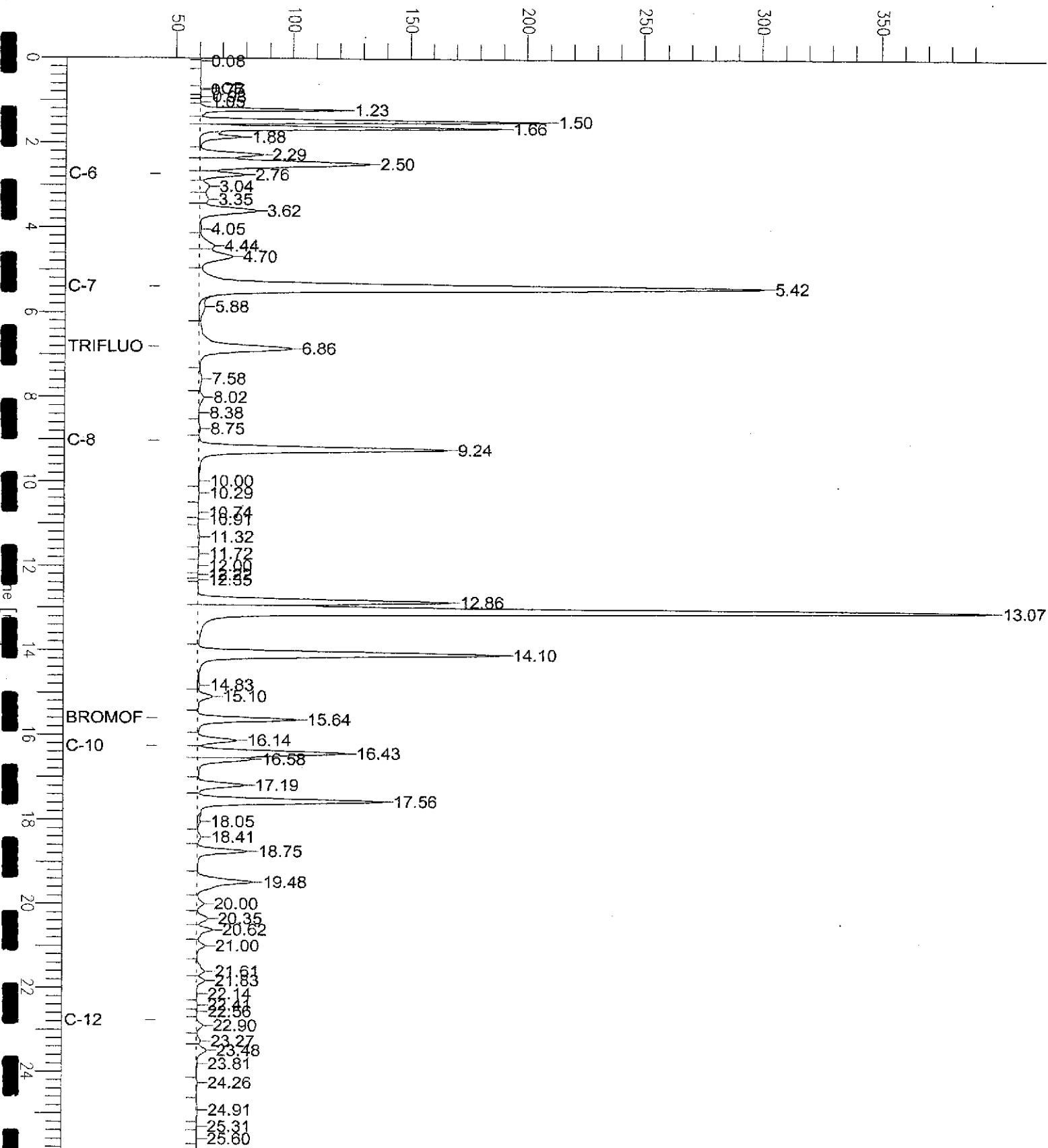
Scale Factor: 1.0

Plot Offset: 43 mV

Plot Scale: 355.2 mV

MW-3

Response [mV]



GC04 TVH 'J' Data File FID

Sample Name : 165473-004,81724

Sample #: d1

Page 1 of 1

FileName : G:\GC04\DATA\148J034.raw

Date : 5/29/03 12:14 PM

Method : TVHBTXE

Time of Injection: 5/29/03 08:21 AM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 21.40 mV

High Point : 750.91 mV

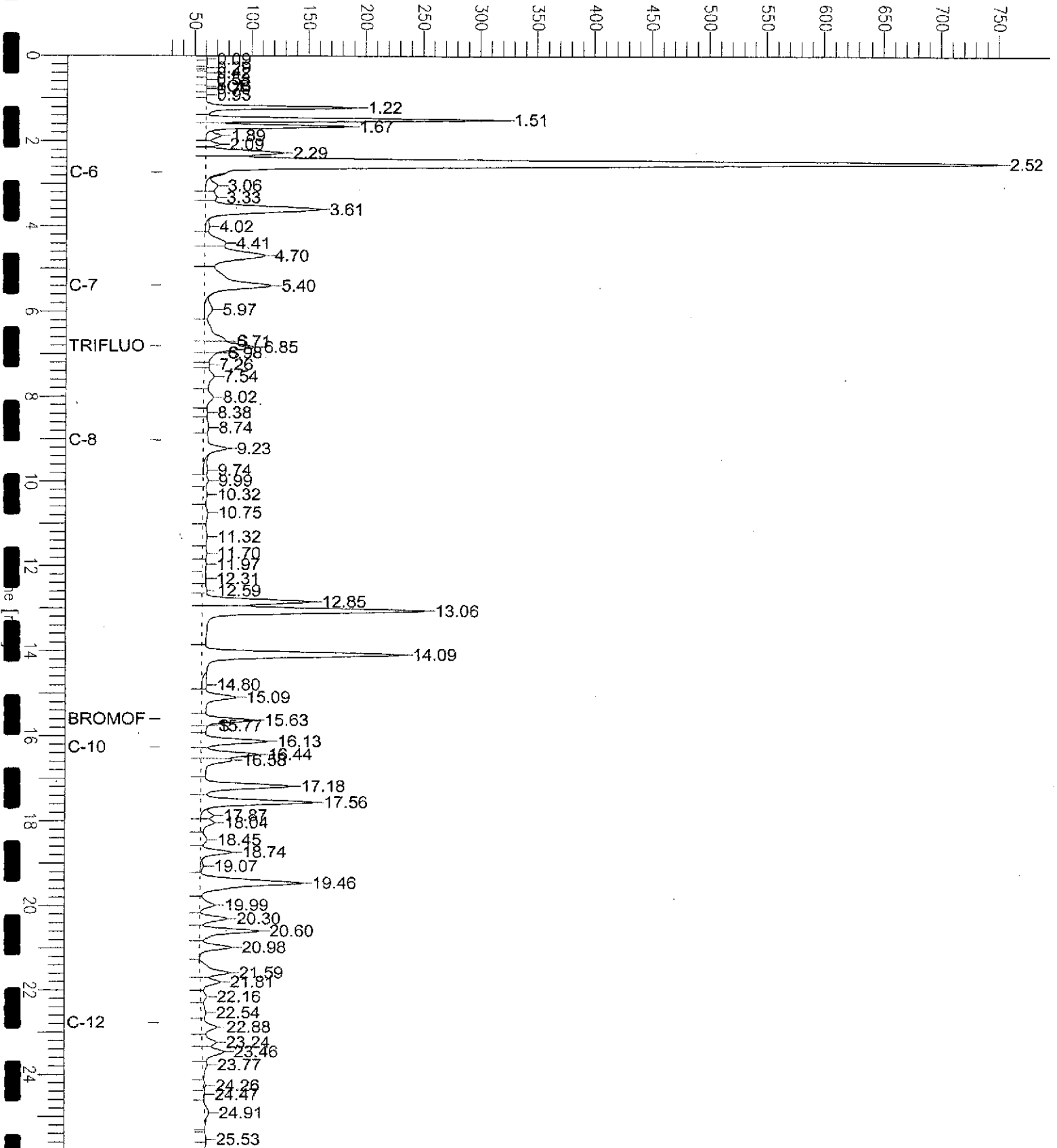
Scale Factor: 1.0

Plot Offset: 21 mV

Plot Scale: 729.5 mV

MW-4

Response [mV]



Curtis & Tompkins Laboratories Analytical Report

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551		
Matrix:	Water	Sampled:	05/28/03
Units:	ug/L	Received:	05/28/03
Batch#:	81724		

Field ID:	MW-5	Diln Fac:	2.000
Type:	SAMPLE	Analyzed:	05/29/03
Lab ID:	165473-005		

Analyte	Result	RL	Analysis
Gasoline C7-C12	9,100	100	8015B
Benzene	210	1.0	EPA 8021B
Toluene	31	1.0	EPA 8021B
Ethylbenzene	560	1.0	EPA 8021B
m,p-Xylenes	660	1.0	EPA 8021B
o-Xylene	130	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	135	68-145	8015B
Bromofluorobenzene (FID)	121	66-143	8015B
Trifluorotoluene (PID)	139	53-143	EPA 8021B
Bromofluorobenzene (PID)	132	52-142	EPA 8021B

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC214642	Analyzed:	05/28/03

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)	111	68-145	8015B
Bromofluorobenzene (FID)	108	66-143	8015B
Trifluorotoluene (PID)	115	53-143	EPA 8021B
Bromofluorobenzene (PID)	116	52-142	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%

D= Not Detected

L= Reporting Limit

GC04 TVH 'J' Data File FID

Sample Name : 165473-005,81724

Sample #: c1

Page 1 of 1

FileName : G:\GC04\DATA\148J035.raw

Date : 5/29/03 12:09 PM

Method : TVHBTXE

Time of Injection: 5/29/03 08:57 AM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 8.44 mV

High Point : 1094.31 mV

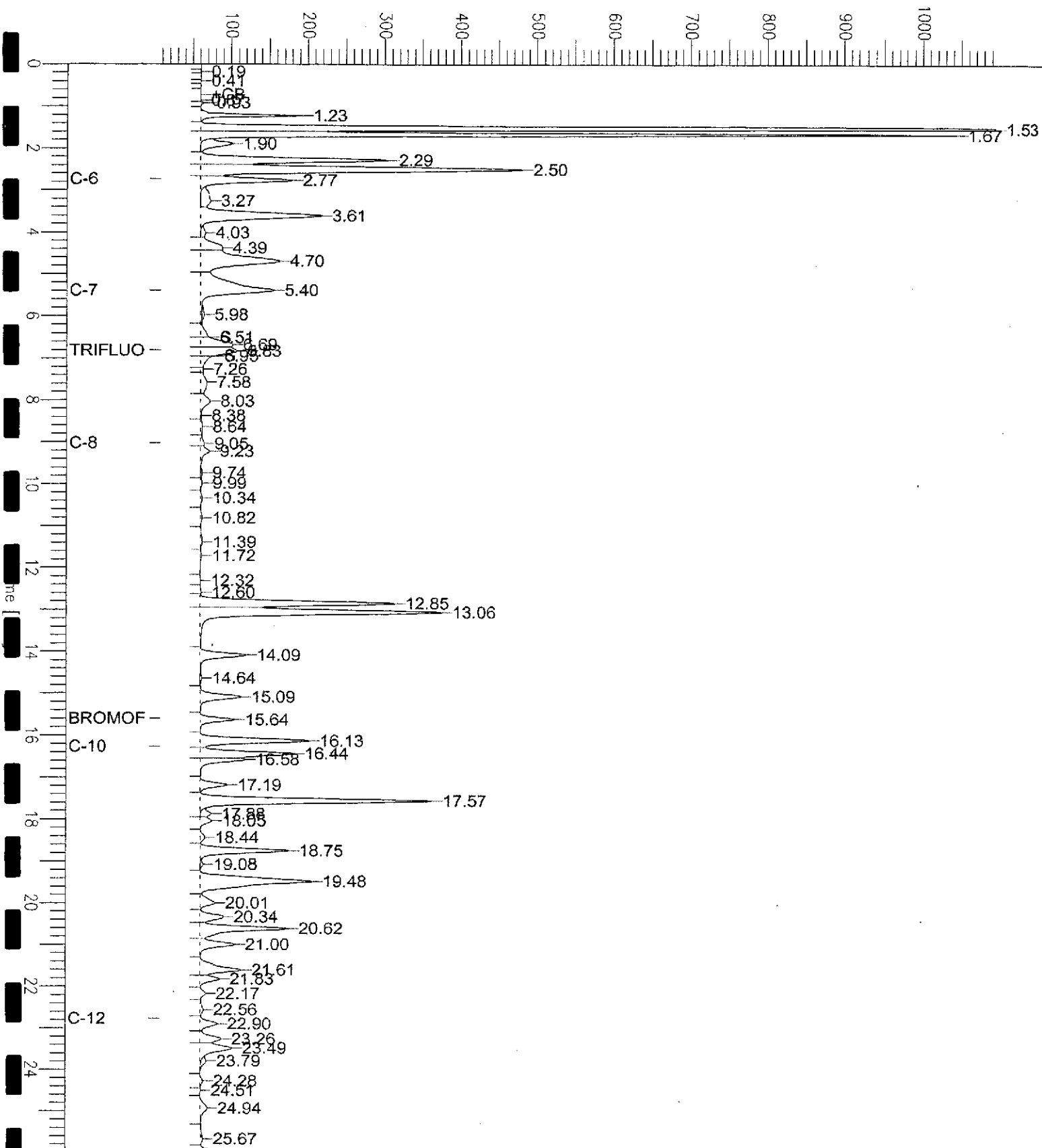
Scale Factor: 1.0

Plot Offset: 8 mV

Plot Scale: 1085.9 mV

MW-5

Response [mV]



GC04 TVH 'J' Data File FID

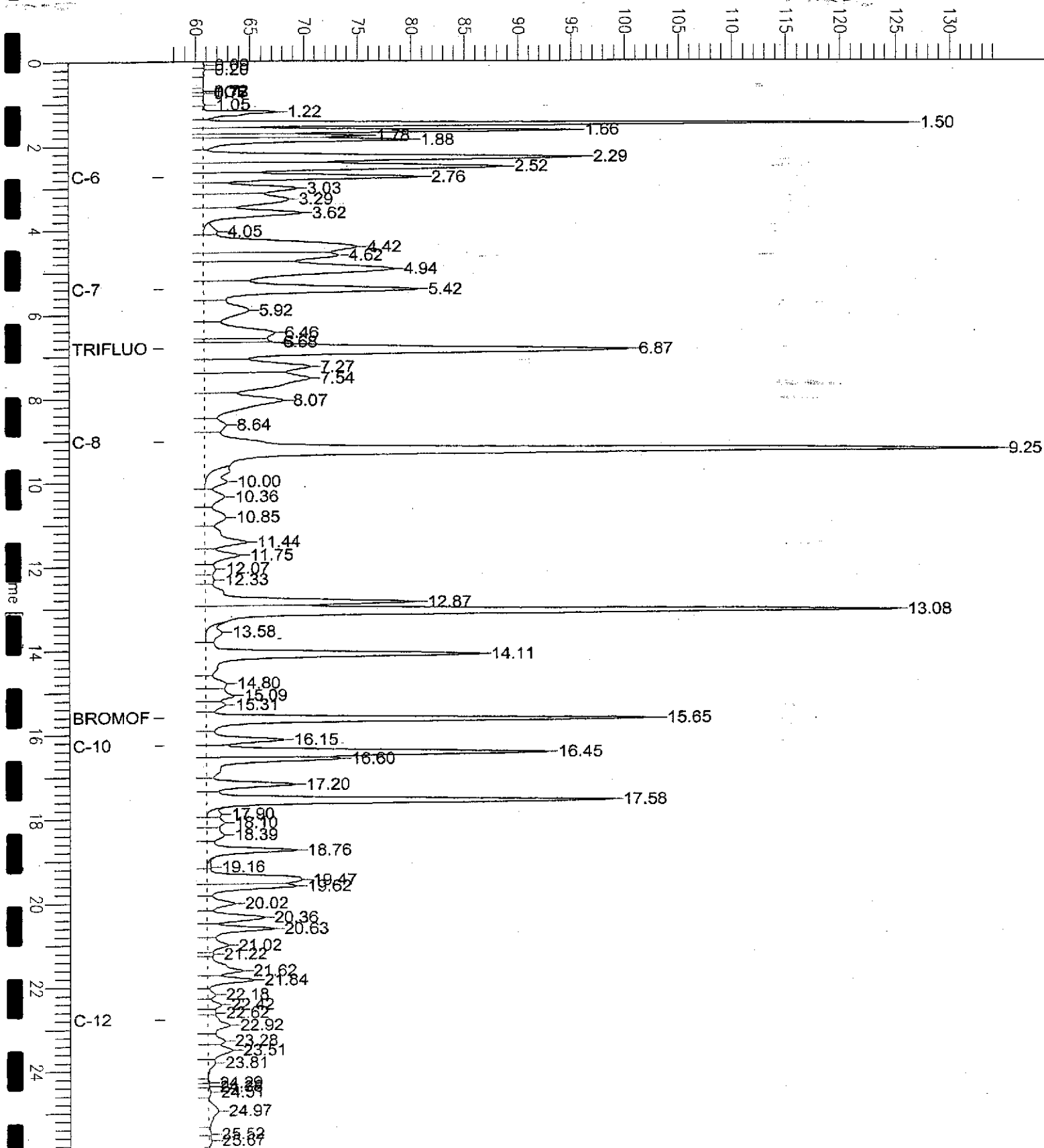
Sample Name : ccv/lcs,qc214644,81724,03ws0682,2.5/5000
File Name : G:\GC04\DATA\148J002.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor : 1.0
End Time : 26.00 min
Plot Offset : 57 mV

Sample # :
Date : 5/29/03 07:42 AM
Time of Injection : 5/28/03 11:21 AM
Low Point : 57.01 mV
Plot Scale : 77.3 mV
High Point : 134.35 mV

Page 1 of 1

Gasoline

Response [mV]



Total Volatile Hydrocarbons

Lab #: 165473	Location: 15101 Freedom Avenue
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2551	Analysis: 8015B
Type: LCS	Diln Fac: 1.000
Lab ID: QC214644	Batch#: 81724
Matrix: Water	Analyzed: 05/28/03
Units: ug/L	

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,081	108	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	68-145
Bromofluorobenzene (FID)	117	66-143

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	165473	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:	QC214643	Batch#:	81724
Matrix:	Water	Analyzed:	05/28/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	10.15	102	65-122
Toluene	10.00	10.86	109	67-121
Ethylbenzene	10.00	9.925	99	70-121
m,p-Xylenes	20.00	21.28	106	72-125
o-Xylene	10.00	10.37	104	73-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	113	53-143
Bromofluorobenzene (PID)	111	52-142



Total Volatile Hydrocarbons

Lab #: 165473	Location: 15101 Freedom Avenue
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2551	Analysis: 8015B
Field ID: ZZZZZZZZZZ	Batch#: 81724
MSS Lab ID: 165454-006	Sampled: 05/27/03
Matrix: Water	Received: 05/28/03
Units: ug/L	Analyzed: 05/28/03
Diln Fac: 1.000	

Type: MS Lab ID: QC214666

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	35.72	2,000	2,045	100	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	129	68-145
Bromofluorobenzene (FID)	115	66-143

Type: MSD Lab ID: QC214667

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,034	100	67-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	137	68-145
Bromofluorobenzene (FID)	125	66-143



Gasoline Oxygenates by GC/MS

Lab #: 165473	Location: 15101 Freedom Avenue
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2551	Analysis: EPA 8260B
Matrix: Water	Sampled: 05/28/03
Units: ug/L	Received: 05/28/03

Field ID: MW-1	Diln Fac: 1.000
Type: SAMPLE	Batch#: 81771
Lab ID: 165473-001	Analyzed: 05/29/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	25	10
MTBE	2.0	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	114	77-130
Toluene-d8	112	80-120
Bromofluorobenzene	98	80-120

Field ID: MW-2	Diln Fac: 1.000
Type: SAMPLE	Batch#: 81771
Lab ID: 165473-002	Analyzed: 05/29/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	31	10
MTBE	1.2	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	113	77-130
Toluene-d8	105	80-120
Bromofluorobenzene	92	80-120

Field ID: MW-3	Diln Fac: 20.00
Type: SAMPLE	Batch#: 81771
Lab ID: 165473-003	Analyzed: 05/29/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	520	200
MTBE	2,100	10
Isopropyl Ether (DIPE)	ND	10
Ethyl tert-Butyl Ether (ETBE)	ND	10
Methyl tert-Amyl Ether (TAME)	530	10

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-121
1,2-Dichloroethane-d4	105	77-130
Toluene-d8	107	80-120
Bromofluorobenzene	93	80-120

ND = Not Detected
RL = Reporting Limit

Gasoline Oxygenates by GC/MS

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/28/03
Units:	ug/L	Received:	05/28/03

Field ID:	MW-4	Diln Fac:	16.67
Type:	SAMPLE	Batch#:	81771
Lab ID:	165473-004	Analyzed:	05/29/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	690	170
MTBE	2,300	8.3
Isopropyl Ether (DIPE)	ND	8.3
Ethyl tert-Butyl Ether (ETBE)	ND	8.3
Methyl tert-Amyl Ether (TAME)	17	8.3

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-121
1,2-Dichloroethane-d4	109	77-130
Toluene-d8	100	80-120
Bromofluorobenzene	95	80-120

Field ID:	MW-5	Diln Fac:	3.333
Type:	SAMPLE	Batch#:	81834
Lab ID:	165473-005	Analyzed:	06/02/03

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	33
MTBE	600	1.7
Isopropyl Ether (DIPE)	ND	1.7
Ethyl tert-Butyl Ether (ETBE)	ND	1.7
Methyl tert-Amyl Ether (TAME)	110	1.7

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-121
1,2-Dichloroethane-d4	98	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	95	80-120

Type:	BLANK	Batch#:	81771
Lab ID:	QC214810	Analyzed:	05/29/03
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-121
1,2-Dichloroethane-d4	100	77-130
Toluene-d8	106	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
 L= Reporting Limit
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Gasoline Oxygenates by GC/MS

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	05/28/03
Units:	ug/L	Received:	05/28/03

Type:	BLANK	Batch#:	81834
Lab ID:	QC215076	Analyzed:	06/02/03
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-121
1,2-Dichloroethane-d4	99	77-130
Toluene-d8	95	80-120
Bromofluorobenzene	98	80-120

Gasoline Oxygenates by GC/MS

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	81771
Units:	ug/L	Analyzed:	05/29/03
Diln Fac:	1.000		

Type: BS Lab ID: QC214808

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		NA		
MTBE	50.00	48.36	97	54-131
Isopropyl Ether (DIPE)		NA		
Ethyl tert-Butyl Ether (ETBE)		NA		
Methyl tert-Amyl Ether (TAME)		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-121
1,2-Dichloroethane-d4	95	77-130
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC214809

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)		NA				
MTBE	50.00	46.42	93	54-131	4	20
Isopropyl Ether (DIPE)		NA				
Ethyl tert-Butyl Ether (ETBE)		NA				
Methyl tert-Amyl Ether (TAME)		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	90	80-121
1,2-Dichloroethane-d4	96	77-130
Toluene-d8	107	80-120
Bromofluorobenzene	94	80-120

NA= Not Analyzed
 PD= Relative Percent Difference

Gasoline Oxygenates by GC/MS

Lab #:	165473	Location:	15101 Freedom Avenue
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2551	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	81834
Units:	ug/L	Analyzed:	06/02/03
Diln Fac:	1.000		

Type: BS Lab ID: QC215074

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)		NA		
MTBE	50.00	51.77	104	54-131
Isopropyl Ether (DIPE)		NA		
Ethyl tert-Butyl Ether (ETBE)		NA		
Methyl tert-Amyl Ether (TAME)		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-121
1,2-Dichloroethane-d4	98	77-130
Toluene-d8	95	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC215075

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)		NA				
MTBE	50.00	53.25	107	54-131	3	20
Isopropyl Ether (DIPE)		NA				
Ethyl tert-Butyl Ether (ETBE)		NA				
Methyl tert-Amyl Ether (TAME)		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-121
1,2-Dichloroethane-d4	97	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	99	80-120

NA= Not Analyzed

RPD= Relative Percent Difference