ENVIRONMENTAL ENGINEERING, INC.
TEL (925) 244-6600 FAX (925) 244-6601

RO 317

Second Quarter 2004
Groundwater Monitoring Report

Mash Petroleum Inc.

5725 Thornhill Drive

Oakland, California

May 5, 2004

Project 2831

Prepared for

Mr. Mo Mashhoon

1721 Jefferson Street

Oakland, California 94612

Prepared by

SOMA Environmental Engineering, Inc.

2680 Bishop Drive, Suite 203

San Ramon, California 94583

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

May 6, 2004

Mr. Don Hwang
Alameda County
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Fuel Leak Case No. RO0000317-5725 Thornhill Drive, Oakland, CA

Dear Don:

Enclosed for your review is a copy of SOMA's "Second Quarter 2004 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. Mo Mashhoon

Certification

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Mo Mashhoon, the property owner of 5725 Thornhill Drive, Oakland, California, to comply with the Alameda County Health Care Services Agency's, and California Regional Water Quality Control Board's, requirements for the Second Quarter 2004 groundwater monitoring event.

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

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Mo Mashhoon, the property owner of 5725 Thornhill Drive, Oakland, California (the "Site"), as shown in Figure 1. The Site is currently an active ARCO station, located in an area consisting primarily of commercial and residential land uses.

This report summarizes the results of the Second Quarter 2004 groundwater monitoring event, conducted at the Site on April 22, 2004. Also included in this report are the physical and chemical properties measured in the field for each groundwater sample. The physical and chemical properties consisted of measurements of pH, temperature, and electrical conductivity (EC). Also included in this report are the results of the laboratory analyses for each groundwater sample, which were analyzed for:

- Total petroleum hydrocarbons as gasoline (TPH-g)
- Benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX)
- Methyl tertiary Butyl Ether (MtBE)
- Total petroleum hydrocarbons as diesel (TPH-d)
- Total petroleum hydrocarbons as motor oil (TPH-mo)
- Gasoline oxygenates, which consisted of TBA, DIPE, ETBE, TAME, and Ethanol, and
- Lead scavengers, which consisted of 1,2-DCA and EDB

1.1 Previous Activities

In November 1998, Penn Environmental removed a 550-gallon steel underground waste oil tank (WOT) from the Site. Soil samples collected from the WOT excavation contained up to 1,100,000 µg/kg TPH-g, 2,700,000 µg/kg TPH-d, and 4,200,000 µg/kg TPH-Mo.

On February 4, 1999, Penn Environmental over-excavated the contaminated soil surrounding the former WOT. Aqua Science Engineers, Inc., (ASE) collected confirmation soil samples from two sidewalls of the excavation. The only compound detected in one of these two soil samples was MtBE at 40 µg/kg.

In July 1999, ASE drilled borehole BH-A in the vicinity of the former WOT. The only compounds that were detected at concentrations above the California Department of Health Services' (DHS) maximum contaminant levels (MCLs) for drinking water were MtBE and cadmium. On September 6, 2000, ASE drilled soil boreholes BH-B and BH-C. On October 23, 2000, ASE drilled soil boreholes BH-D and BH-E. ASE also collected water samples from Temescal Creek. No hydrocarbons were detected in the water sample collected from Temescal Creek. Figure 2 shows the locations of the borings; the groundwater analytical data for each borehole is shown in Appendix A.

On March 1 and 2, 2004, nine temporary well boreholes, HP-1 through HP-7, HP-9 and HP-10 were advanced by Gregg Drilling & Testing (Gregg). Due to the excessive traffic hazards and the disruption of local traffic flow posed by advancing HP-8 in the middle of the street, this borehole was not drilled. Groundwater samples were collected following the completion of each temporary well borehole. Appendix A shows the soil and groundwater analytical results from this investigation. The locations of the boreholes are shown in Figure 2.

During the Site's investigation activities, Gregg decommissioned the three existing on-site monitoring wells, MW-1, MW-2 and MW-3, under the supervision

of SOMA. On March 12, 2004, Woodward Drilling installed three new monitoring wells SOMA-1, SOMA-2 and SOMA-3. On March 19, 2004, licensed surveyors from Kier & Wright surveyed the casing elevations of the monitoring wells and water level elevations along Temescal Creek. Kier & Wright performed a

horizontal and vertical survey on the wells in accordance with the requirements set forth by the State for the GeoTracker database. On April 7, 2004, Gregg developed the recently installed monitoring wells. Figure 2 shows the locations of the monitoring wells. Appendix B shows the survey data.

2.0 FIELD ACTIVITIES

On April 22, 2004, SOMA's field crew conducted a groundwater monitoring event in accordance with the procedures and guidelines of the California Regional Water Quality Control Board (CRWQCB) and the Alameda County Health Care Services (ACHCS). During this groundwater monitoring event, three on-site wells (SOMA-1, SOMA-2, and SOMA-3) were monitored.

The depth to groundwater at each monitoring well was measured from the top of the casing to the nearest 0.01 foot using an electric sounder. The top of the casing elevation data and the depth to groundwater in each monitoring well were used to calculate the groundwater elevation. The top of casing elevation was based on an elevation datum of 37 feet NAVD88. The survey data can be found in Appendix B.

During the monitoring event, each well was purged using a battery operated 2-inch diameter pump (Model ES-60 DC) prior to the collection of samples. In order to ensure that the final samples were in equilibrium with (and representative of) the surrounding groundwater, during purging several samples were taken for field measurements of pH, temperature and EC. The field parameters were measured using a Hanna pH, conductivity, and temperature meter. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacturer.

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

The purging of the wells continued until the parameters for pH, temperature and EC stabilized or three casing volumes were purged. A disposable polyethylene bailer was used to collect sufficient samples from each well for laboratory analyses. The groundwater sample was transferred to five 40-mL VOA vials and preserved with hydrochloric acid. The vials were then sealed to prevent the development of air bubbles within the headspace. The groundwater sample collected from each well was also transferred into a 1-liter amber non-preserved glass container. After the groundwater samples were collected, they were placed on ice in an ice chest, and maintained at 4^0C. A chain of custody (COC) form was written for all of the samples. After the sampling was complete, on April 22, 2004, SOMA's field crew delivered the groundwater samples along with the COC to Curtis & Tompkins, Ltd. in Berkeley, California.

3.0 LABORATORY ANALYSIS

Curtis & Tompkins, Ltd., a state certified laboratory, analyzed the groundwater samples for TPH-g, BTEX, TPH-d, TPH-mo, ethanol, gasoline oxygenates, and lead scavengers. TPH-g was prepared using EPA Method 5030B and measured using EPA Method 8015B. BTEX was prepared using EPA Method 5030B and measured using EPA Method 8021B. TPH-d and TPH-mo were prepared using EPA Method 3520C and measured using EPA Method 8015B. Lead scavengers and gasoline oxygenates, which included MtBE, were prepared using EPA method 5030B and measured using EPA Method 8260B.

4.0 RESULTS

The following sections provide the results of the field measurements and laboratory analyses for the April 22, 2004 groundwater monitoring event.

4.1 Field Measurements

Table 1 presents the calculated groundwater elevations at each monitoring well. As shown in Table 1, the groundwater elevations ranged from 568.10 feet in monitoring well SOMA-2 to 570.72 feet in monitoring well SOMA-3. This was the first time SOMA monitored the newly installed wells. Further monitoring events will aid in determining a more detailed groundwater flow direction and gradient trend. However, based on the data measured in the Second Quarter 2004, the groundwater flows south to southwesterly across the Site at a gradient of 0.042 feet/feet as displayed in Figure 3.

4.2 Laboratory Analyses

Table 1 presents the results of the laboratory analyses for hydrocarbons, BTEX, and MtBE, for the groundwater samples collected during this monitoring event.

As shown in Table 1, the main constituents of concern appear to be TPH-g, TPH-d, and MtBE. TPH-mo was below the laboratory reporting limit in all of the groundwater samples. All BTEX concentrations were below the laboratory reporting limit for wells SOMA-1 and SOMA-3. In SOMA-2, benzene and toluene were at non-detectable levels, and ethylbenzene and total xylenes were at low levels. The highest TPH-g, TPH-d, and MtBE concentrations were detected in well SOMA-2. Based on the groundwater elevation data, SOMA-2 appears to be the most downgradient well from the UST cavity and pump islands.

Figure 4 through Figure 7 display the contour maps for TPH-g, TPH-d, benzene, and MtBE. Figure 6 illustrates that benzene has not impacted any of the Site's wells.

Table 2 shows the analytical results for gasoline oxygenates and lead scavengers. As shown in Table 2, with the exception of a trace concentration of TAME in SOMA-2, all gasoline oxygenate and lead scavenger constituents were

below the laboratory reporting limit in all of the groundwater samples collected during this monitoring event.

Appendix C contains the laboratory report and COC form from the Second Quarter 2004 monitoring event.

5.0 CONCLUSIONS & RECOMMENDATIONS

The findings of the Second Quarter 2004 groundwater monitoring event can be summarized as follows:

- This was the first time SOMA monitored the Site, therefore, further monitoring events will aid in determining a more detailed groundwater flow direction, gradient, and concentration pattern.
- The most impacted well appears to be SOMA-2, which is the most downgradient well. Based on previous site investigations, both hydrocarbon and MtBE plumes have migrated southwesterly off-site with the flow of groundwater.
- Due to the close proximity of Temescal Creek, in relation to the Site, SOMA recommends the installation of additional off-site wells. This will aid in determining the extent of the off-site contamination and possible impact on Temescal Creek.

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.

Tables

Table 1

SOMA Historical Groundwater Elevation Data & Analytical Results (Hydrocarbons, BTEX, & MtBE)

5725 Thornhill Drive,Oakland California

Monitoring Well	Date	Casing Elevation (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)
SOMA-1	Apr-04	576.47	570.72	63	<50	<300	<0.5	<0.5	<0.5	<0.5	7.7
SOMA-2	Apr-04	575.50	568.10	1,900	690 LY	<300	<0.5	<0.5	5.2	9.9	1,900.0
SOMA-3	Apr-04	575.92	568.78	190	120 Y	<300	<0.5	<0.5	<0.5	<0.5	5.1

Notes:
<: not detected at or above laboratory reporting limits.
L: Lighter hydrocarbons contributed to the quantitation.
Y: Sample exhibits chromatographic pattern which did not resemble standard.

Table 2
Groundwater Analytical Results
Gasoline Oxygenates & Lead Scavengers
5725 Thornhill Drive,Oakland California

Monitoring Well	Date	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
SOMA-1	Apr-04	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000
SOMA-2	Apr-04	<100	<5.0	<5.0	19.0	<5.0	<5.0	<10000
SOMA-3	Apr-04	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1000

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

Gasoline Oxygenates:
TBA: tertiary butyl alcohol
DIPE: Isopropyl ether
ETBE: Ethyl tertiary butyl ether
TAME: Methyl tertiary amyl ether
Ethanol

Lead Scavengers:
1,2-Dichloroethane
EDB: 1,2-Dibromoethane

Figures

Figure 1: Site vicinity map.

SOMA
ENVIRONMENTAL ENGINEERING, INC.

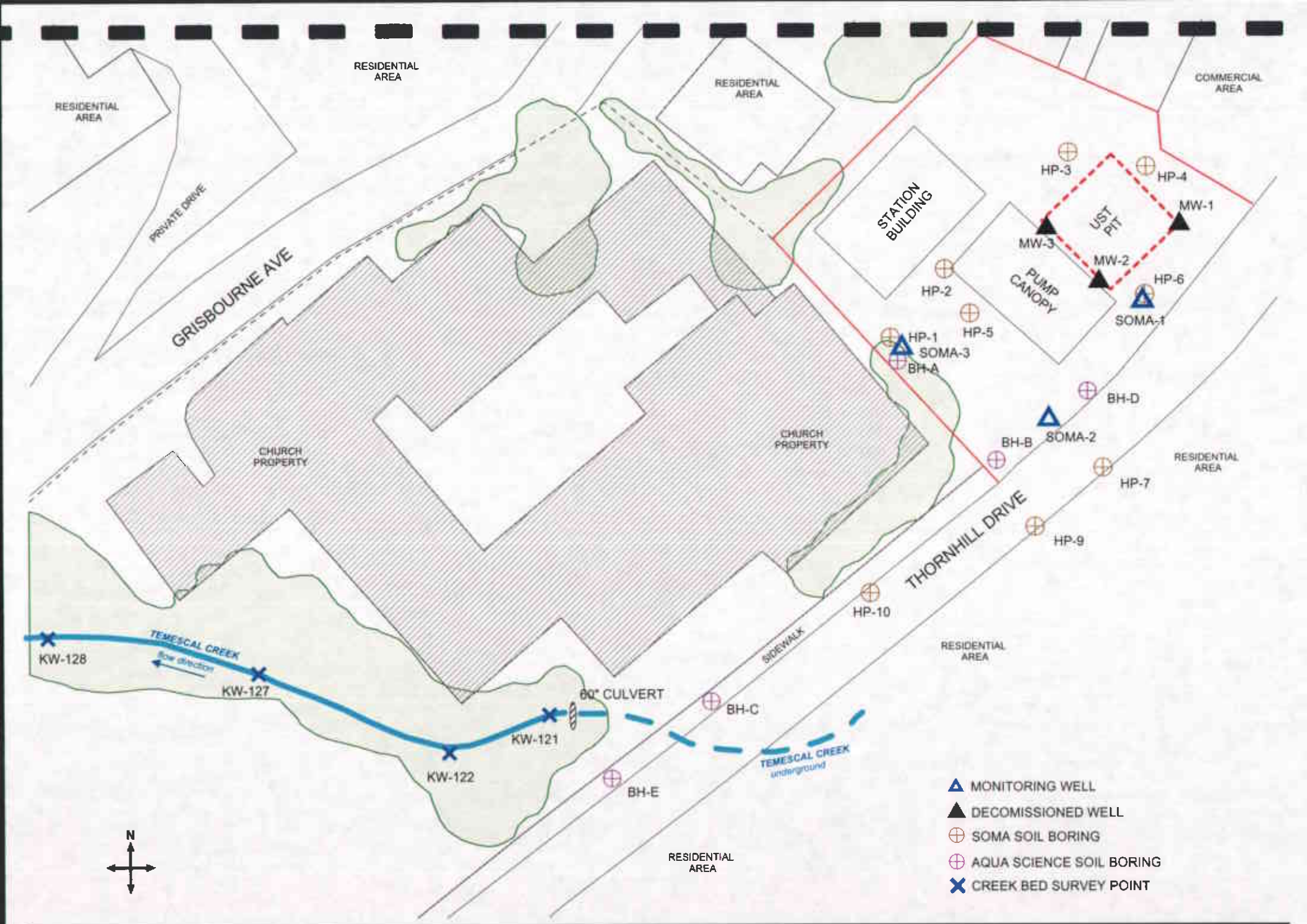


Figure 2: Site map showing locations of monitoring wells, soil borings, creekbed survey points, decomissioned UST backfill wells, and previously drilled soil borings.

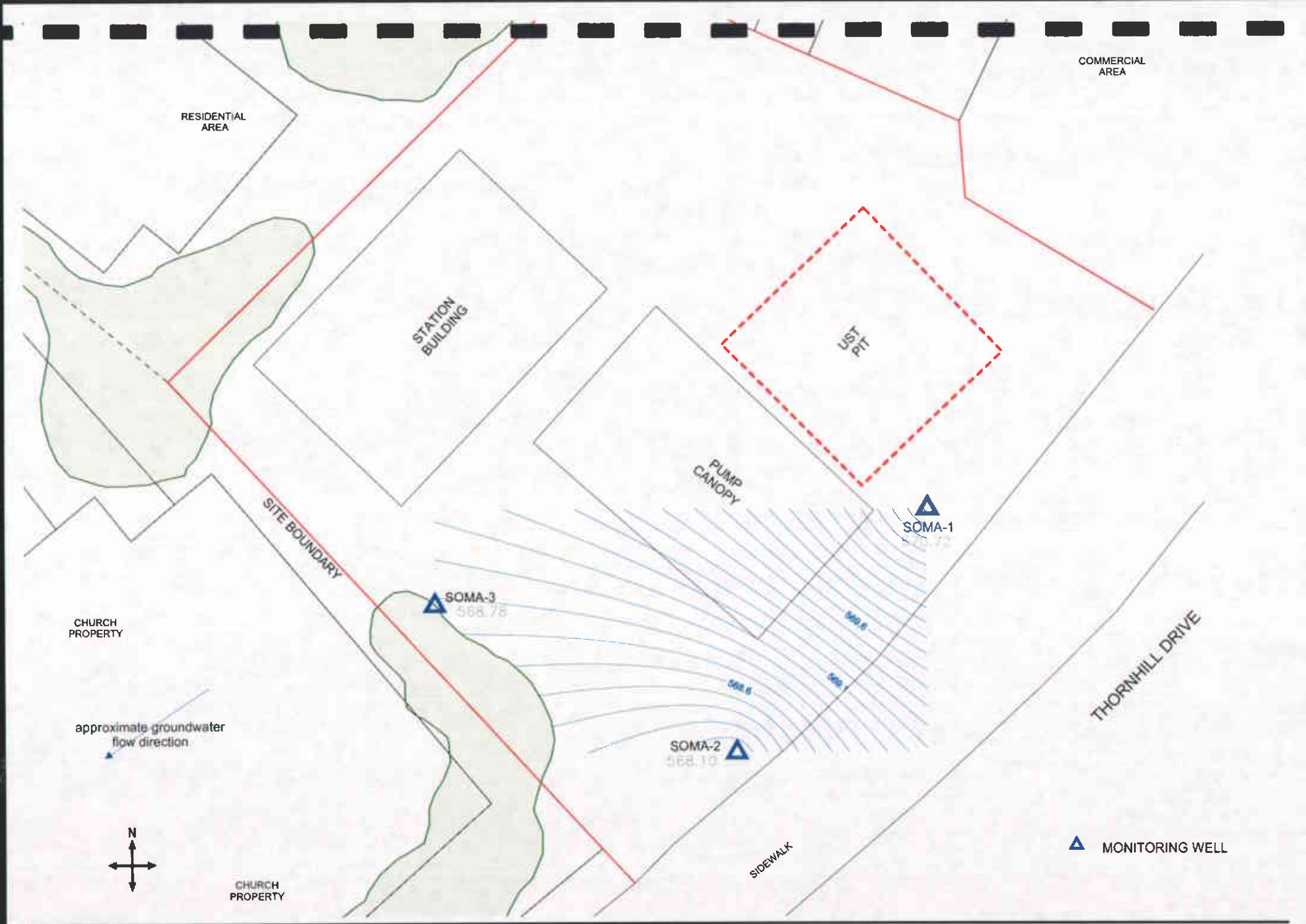


Figure 3: Groundwater elevation contour map in feet. April, 2004.

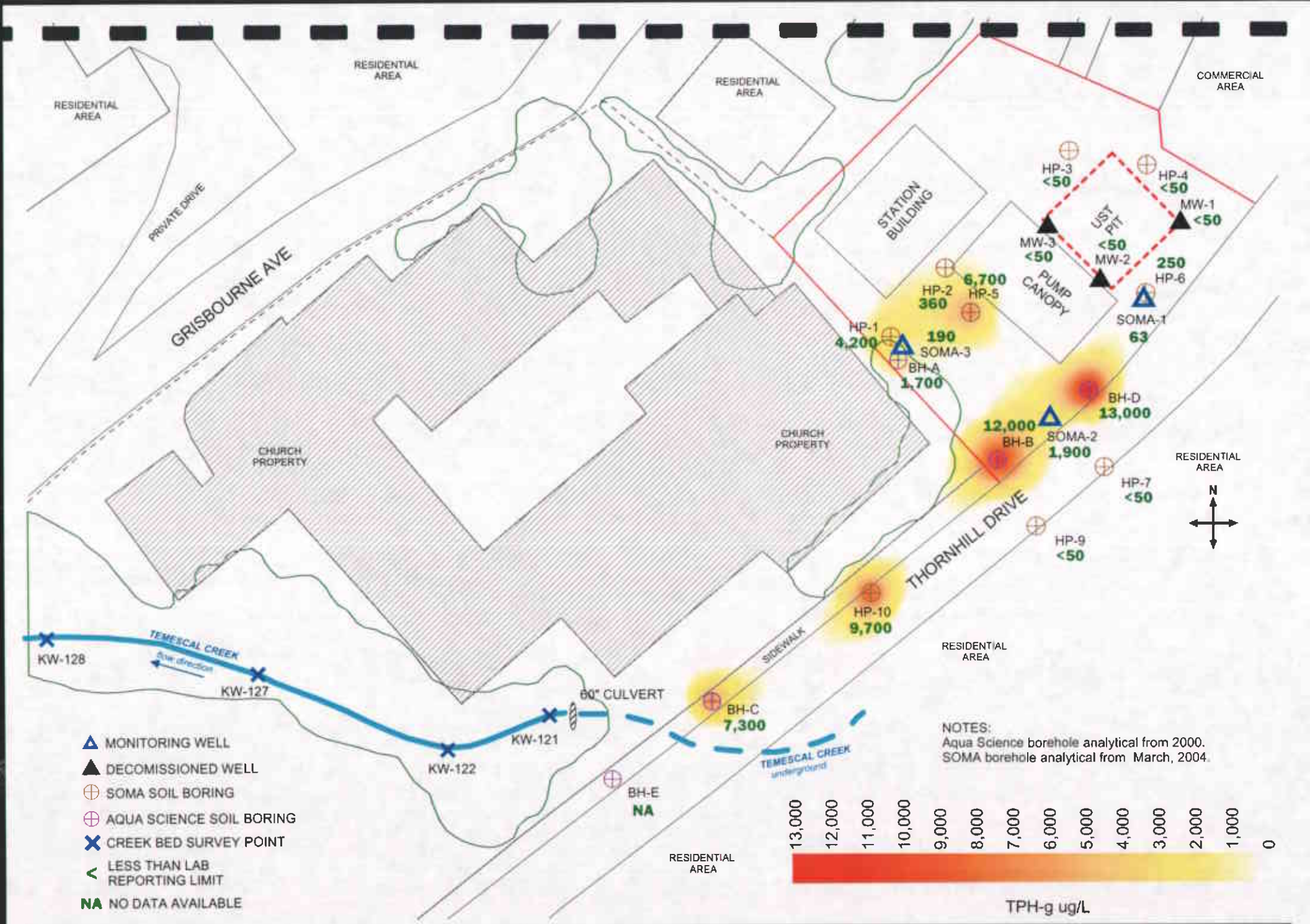


Figure 4: Contour map of TPH-g concentrations in the groundwater.
April, 2004.

SOMA

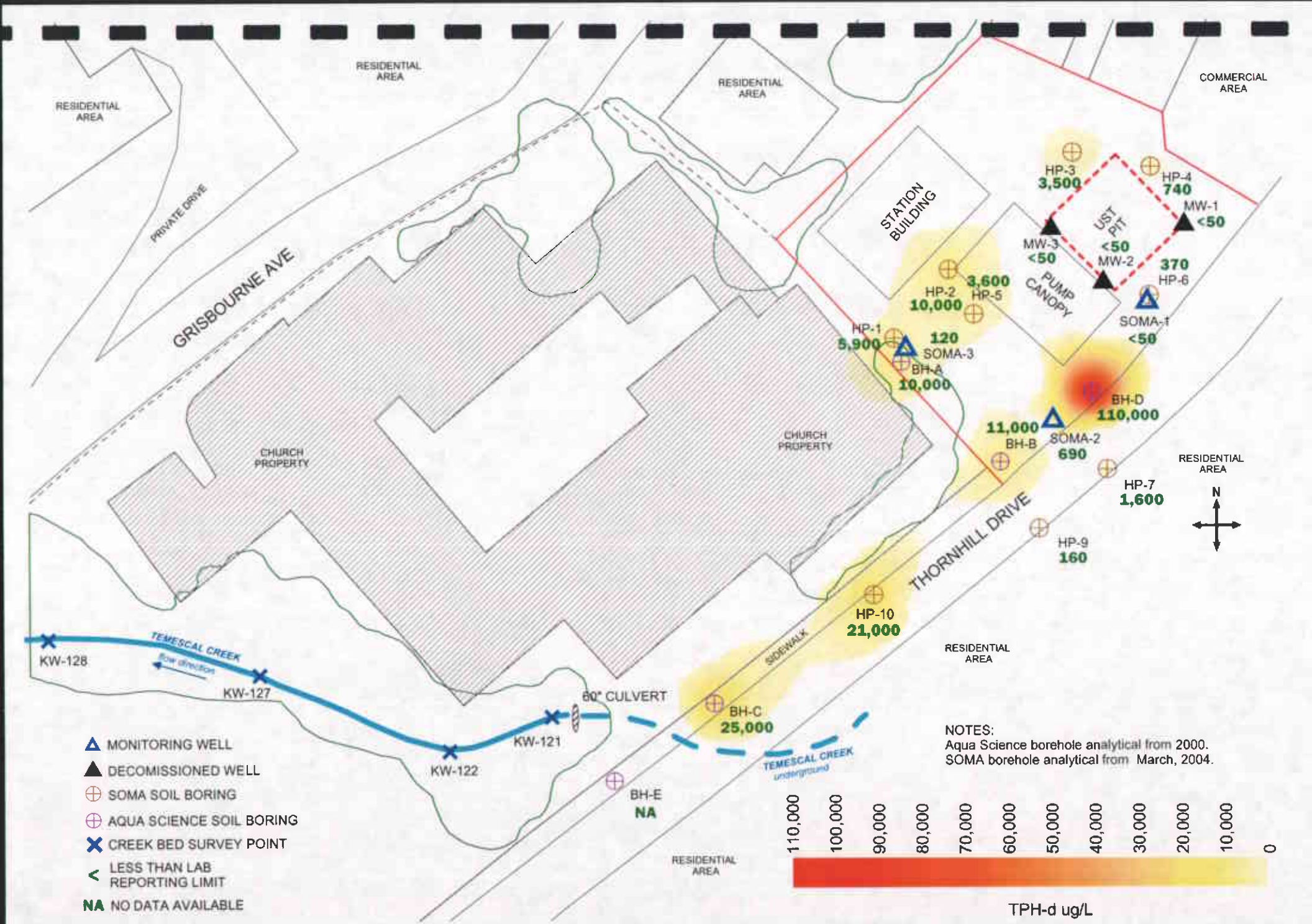


Figure 5: Contour map of TPH-d concentrations in the groundwater.
April, 2004.

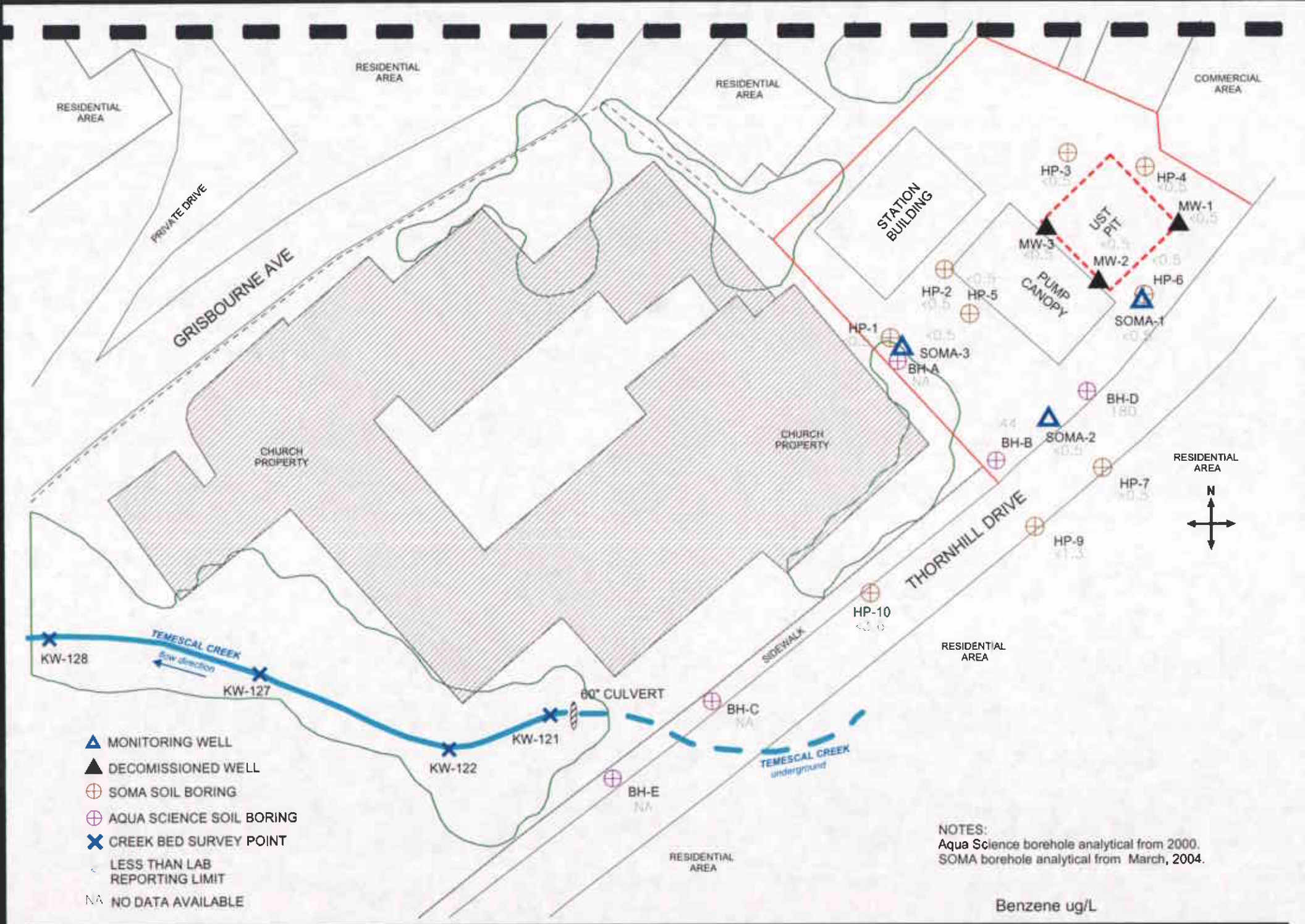


Figure 6: Map of Benzene concentrations in the groundwater.
April, 2004.

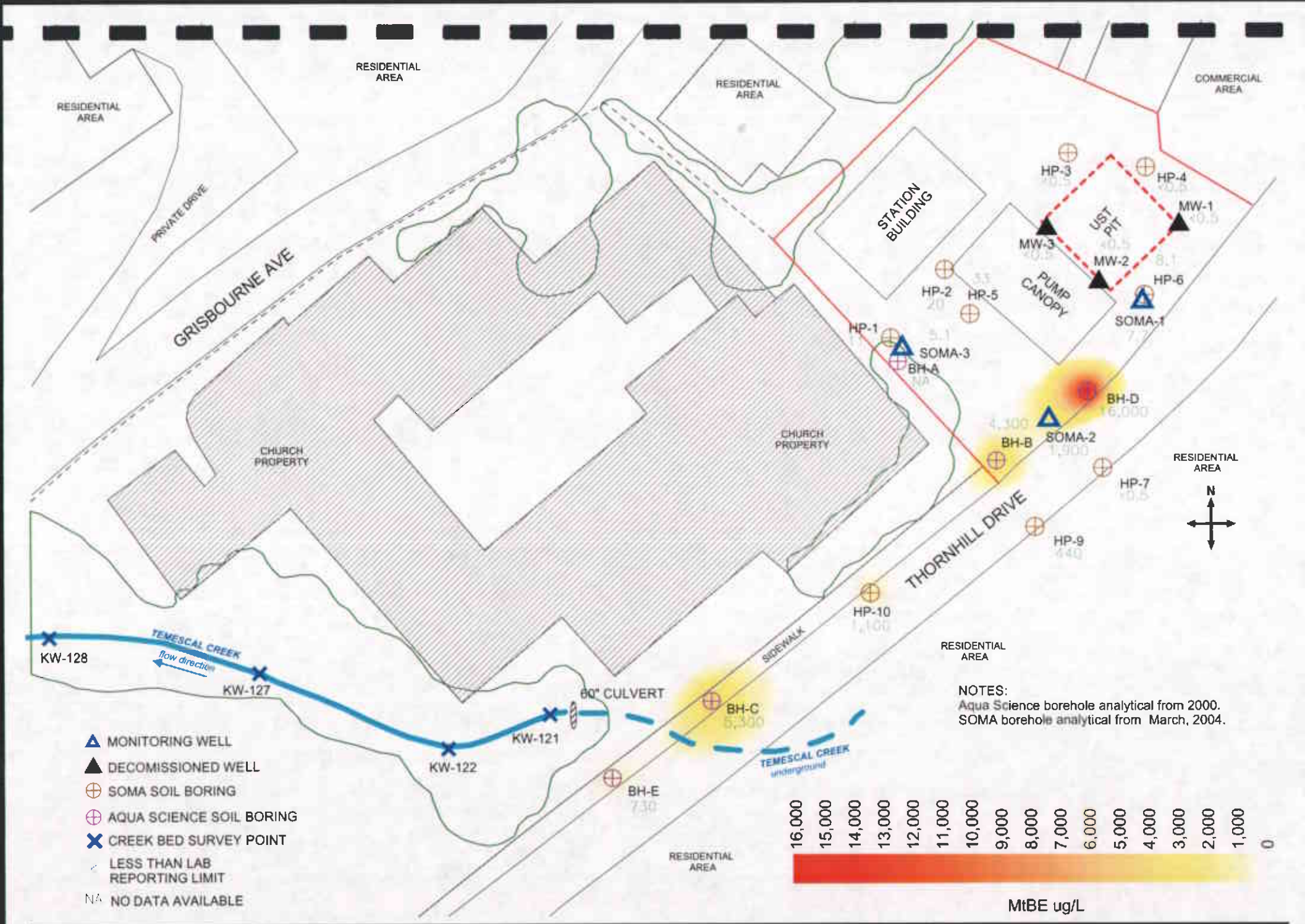


Figure 7: Map of MtBE concentrations in the groundwater.
April, 2004.

APPENDIX A

Historical Groundwater and

Soil Analytical Results

Groundwater Analytical Data
5725 Thornhill Drive Oakland, CA
March 1-2, 2004

Temporary Well Borehole Field ID	Date Sampled	TPH-Gasoline (µg/L)	TPH-Diesel (µg/L)	TPH-Motor Oil (µg/L)	MtBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)
HP-1	03/01/04	**4,200^{Y}**	**5,900^{HLY}**	**11,000**	**11**	<0.5	<0.5	<0.5	<0.5
HP-2	03/01/04	**360^{Y}**	**10,000^{HY}**	**58,000**	**20**	<0.5	<0.5	<0.5	<0.5
HP-3	03/01/04	<50	**3,500^{HY}**	**5,700**	<0.5	<0.5	<0.5	<0.5	<0.5
HP-4	03/01/04	<50	**740^{HY}**	**6,300H**	<0.5	<0.5	<0.5	<0.5	<0.5
HP-5	03/01/04	**6,700^{Y}**	**3,600^{HLY}**	**650**	**33**	<0.5	<0.5	<0.5	**0.7**
HP-6	03/01/04	**250^{HY}**	**370^{HY}**	**730**	**8.1**	<0.5	**1.5**	<0.5	**2.5**
HP-7	03/02/04	<50	**1,600^{HY}**	**1,400**	<0.5	<0.5	<0.5	<0.5	<0.5
HP-9	03/02/04	<50	**160^{HY}**	**1,700**	**440**	<1.3	<1.3	<1.3	<0.5
HP-10	03/02/04	**9,700^{Y}**	**21,000^{HLY}**	**5,700**	**1,100**	<3.6	<3.6	<3.6	<0.5
MW-1	03/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	03/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	03/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:
(1) µg/L= micrograms per Liter
(2) <= Not detected at or above the laboratory reporting limit stated
(3) ^{H} Heavier hydrocarbons contributed to the quantification
(4) ^{L} Lighter hydrocarbons contributed to the quantification
(5) ^{Y} Sample exhibits chromatographic pattern which does not resemble standard
(6) Methyl tert-Amyl Ether (TAME) was detected in HP-9 at 5.2 µg/L and in HP-10 at 13 µg/L
(7) Monitoring Wells MW-1, MW-2 and MW-3 were deccommisioned as per the Alameda County Health Care Services' directive

Soil Analytical Data
5725 Thornhill Drive Oakland, CA
MArch 1-2, 2004

Temporary Well Borehole Field ID	Date Sampled	TPH-Gasoline (µg/kg)	TPH-Diesel (µg/kg)	TPH-Motor Oil (µg/kg)	MtBE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl benzene (µg/kg)	Total Xylenes (µg/kg)
HP1- (5-5.5')	03/01/04	<930	7,800^{HY}	62,000	<4.5	<4.5	<4.5	<4.5	<4.5
HP1- (9-9.5')	03/01/04	16,000^{Y}	6,000^{HY}	17,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP1- (14.5-15')	03/01/04	<1,100	5,400^{HY}	19,000	<4.9	<4.9	<4.9	<4.9	<4.9
HP1- (19.5-20')	03/01/04	<970	2,000^{Y}	<5,000	<4.5	<4.5	<4.5	<4.5	<4.5
HP1- (24.5-25')	03/01/04	<1,000	1,500^{Y}	<5,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP2- (4-4.5')	03/01/04	<1,100	3,500H^{Y}	51,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP2- (9-9.5')	03/01/04	<1,100	210,000^{HY}	910,000	<4.3	<4.3	<4.3	<4.3	<4.3
HP2- (14-14.5')	03/01/04	<1,100	5,200^{HY}	34,000	6.3	<4.6	<4.6	<4.6	<4.6
HP2- (19-19.5')	03/01/04	<970	10,000^{HY}	59,000	<4.4	<4.4	<4.4	<4.4	<4.4
HP2- (25-25.5')	03/01/04	<950	6,500^{HY}	39,000	4.7	<4.3	<4.3	<4.3	<4.3
HP3- (5.5-6')	03/01/04	<950	23,000^{HY}	78,000	<4.8	<4.8	<4.8	<4.8	<4.8
HP3- (10-10.5')	03/01/04	<1,000	22,000^{HY}	65,000	<5.0	<5.0	<5.0	<5.0	<5.0
HP3- (16-16.5')	03/01/04	<930	17,000^{HY}	77,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP3- (21-21.5')	03/01/04	<1,100	11,000^{HY}	60,000	<4.5	<4.5	<4.5	<4.5	<4.5
HP3- (26-26.5')	03/01/04	<980	8,300^{HY}	39,000	<4.2	<4.2	<4.2	<4.2	<4.2
HP4- (4-4.5')	03/01/04	<1.0	3,000^{HY}	17,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP4- (9-9.5')	03/01/04	<0.92	<1,000	<5,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP4- (14-14.5')	03/01/04	<1,000	1,100^{HY}	11,000	<4.9	<4.9	<4.9	<4.9	<4.9
HP4- (19-19.5')	03/01/04	<910	1,100^{Y}	<5,000	<4.8	<4.8	<4.8	<4.8	<4.8
HP4- (24-24.5')	03/01/04	<960	5,000^{HY}	42,000^{H}	<4.7	<4.7	<4.7	<4.7	<4.7
HP5- (5-5.5')	03/01/04	<1,000	22,000^{HY}	140,000	17	<4.4	<4.4	<4.4	<4.4
HP5- (10-10.5')	03/01/04	<1,100	<1,000	<5,000	10	<4.3	<4.3	<4.3	<4.3
HP5- (15.5-16')	03/01/04	2,600^{HY}	6,100^{HY}	33,000	24	<4.5	<4.5	<4.5	<4.5
HP5- (19.5-20')	03/01/04	<1,100	1,700^{Y}	<5,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP5- (27-27.5')	03/01/04	9,100^{HY}	2,800^{Y}	<5,000	11	<4.9	<4.9	<4.9	<4.9
HP6- (4-4.5')	03/01/04	<1,100	<1,000	<5,000	<4.3	<4.3	<4.3	<4.3	<4.3
HP6- (9-9.5')	03/01/04	<960	5,400^{HY}	30,000	<4.3	<4.3	<4.3	<4.3	<4.3
HP6- (14-14.5')	03/01/04	<910	2,200^{HY}	16,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP6- (19-19.5')	03/01/04	<910	2,500^{HY}	8,100	4.9	<4.5	<4.5	<4.5	<4.5
HP6- (23.5-24')	03/01/04	<960	3,200^{HY}	19,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP6- (27.5-28')	03/01/04	<1,00	2,200^{Y}	<5,000	7.0	<4.7	<4.7	<4.7	<4.7

Soil Analytical Data
5725 Thornhill Drive Oakland, CA
MArch 1-2, 2004

Temporary Well Borehole Field ID	Date	TPH-Gasoline (µg/L)	TPH-Diesel (µg/L)	TPH-Motor Oil (µg/L)	MtBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)
HP7- (6-6.5')	03/02/04	<970	**6,300^{HY}**	**16,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP7- (11.5-12')	03/02/04	<1,000	**2,000^{HY}**	**6,400^{HY}**	<4.8	<4.8	<4.8	<4.8	<4.8
HP7- (16.5-17')	03/02/04	<930	**3,700^{Y}**	<5,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP7- (22-22.5')	03/02/04	<920	<1,000	<5,000	<5.0	<5.0	<5.0	<5.0	<5.0
HP7- (26.5-27')	03/02/04	<970	**11,000^{HY}**	**15,000**	<5.0	<5.0	<5.0	<5.0	<5.0
HP9- (7-7.5')	03/02/04	<1,100	**1,900^{Y}**	<5,000	<4.4	<4.4	<4.4	<4.4	<4.4
HP9- (11.5-12')	03/02/04	<960	**4,300^{HY}**	**53,000^{H}**	<4.8	<4.8	<4.8	<4.8	<4.8
HP9- (16-16.5')	03/02/04	<990	**5,300^{HY}**	**52,000^{H}**	<4.6	<4.6	<4.6	<4.6	<4.6
HP9- (21.5-22')	03/02/04	<980	<1,000	**5,600**	**28**	<5.0	<5.0	<5.0	<5.0
HP9- (26.5-27')	03/02/04	<1,100	<990	<5,000	**36**	<4.4	<4.4	<4.4	<4.4
HP10- (6-6.5')	03/02/04	<940	**5,700^{HY}**	**72,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP10- (11.5-12')	03/02/04	**16,000^{Y}**	**16,000^{LY}**	<5,000	**94**	<5.0	<5.0	<5.0	<5.0
HP10- (18.5-19')	03/02/04	**130,000^{Y}**	**58,000^{HLY}**	**16,000**	**270**	<5.0	<5.0	<5.0	<5.0
HP10- (19.5-20')	03/02/04	<920	<990	<5,000	**11**	<4.8	<4.8	<4.8	<4.8
HP10- (22.5-23')	03/02/04	**3,700^{Y}**	**8,000^{HY}**	**22,000**	<4.9	<4.9	<4.9	<4.9	<4.9

Notes:
(1) µg/L= micrograms per Liter
(2) <= Not detected at or above the laboratory reporting limit
(3) ^{H} Heavier hydrocarbons contributed to the quantification
(4) ^{L} Lighter hydrocarbons contributed to the quantification
(5) ^{Y} Sample exhibits chromatographic pattern which does not resemble standard

ASE Groundwater Analytical Data
5725 Thornhill Drive Oakland, CA
1999-2000

Temporary Well Borehole Field ID	Date Sampled	TPH-Gasoline (µg/L)	TPH-Diesel (µg/L)	TPH-Motor Oil (µg/L)	MtBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)
BH-A	08/99	1,700	10,000	4,700	NA	NA	NA	NA	NA
BH-B	09/06/00	12,000	11,000	420	4,300	44	NA	360	49
BH-C	09/06/00	7,300	25,000	620	5,300	NA	NA	NA	NA
BH-D	10/23/00	13,000	110,000	18,000	16,000	180	NA	490	1,000
BH-E	10/23/00	NA	NA	NA	730	NA	0.95	NA	1.8

Notes:
(1) µg/L= micrograms per Liter
(2) NA= Analytical Data Not Available

Appendix B

Table of elevations & coordinates on monitoring wells measured
by Kier Wright Civil Engineers Surveyors, Inc.
and
Field measurements of physical and chemical properties
of groundwater samples collected during the
Second Quarter 2004

DATE: 4/28/04
JOB# A04549

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL, PROJECT # 2830
5725 THORNHILL DRIVE, OAKLAND

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.)	EASTING (FT.) / LONGITUDE (D.M.S.)	ELEVATION (FT.)	DESCRIPTION
SOMA-1	2130799.64	6067141.82	576.47	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.73174"	W 122°12'44.98565"	576.72	RIM
			576.70	CONC.
SOMA-2	2130764.55	6067114.08	575.50	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.37985"	W 122°12'45.32339"	575.74	RIM
			575.75	CONC.
SOMA-3	2130785.85	6067071.01	575.92	TOP PIPE , BLACK MARK N. SIDE (FELT TIP) (LOCKED AND TIGHT)
	N 37°50'03.58261"	W 122°12'45.86506"	576.31	RIM
			576.30	CONC.

ADDITIONAL POINTS

PT#	NORTHING (FT.)	EASTING (FT.)	ELEVATION (FT.)	DESCRIPTION
108	2130820.55	6067045.27	N/A	BL<
109	2130800.14	6067066.40	N/A	BL<
110	2130830.97	6067096.14	N/A	BL<
104	2130818.02	6067033.92	N/A	BLOCK WALL 8" <PT
105	2130808.04	6067041.66	N/A	BLOCK WALL 8" END
106	2130821.74	6067037.78	N/A	BLOCK WALL 8" END
107	2130821.83	6067037.75	N/A	FNC-WD B-C CL
111	2130872.58	6067087.64	N/A	FNC-WD END CL
112	2130837.52	6067194.12	N/A	FOGL
113	2130793.20	6067156.45	N/A	FOGL
114	2130759.63	6067123.75	N/A	FOGL
115	2130740.79	6067101.26	N/A	FOGL END
117	2130628.30	6066947.69	N/A	TC
116	2130738.69	6067095.34	N/A	TC END
128	2130693.29	6066817.93	558.29	C/L CREEK +0.4' TO TOP OF WATER
127	2130685.30	6066880.75	559.78	C/L CREEK +0.4' TO TOP OF WATER
122	2130664.83	6066937.67	562.81	C/L CREEK +0.4' TO TOP OF WATER
121	2130676.03	6066966.79	563.15	C/L 60" CULVERT +0.5' TO TOP OF WATER

Kier & Wright Engineers Surveyors, Inc.
1233 Quarry Lane, Suite 145, Pleasanton, CA 94566
Phone (925) 249-6555,
Fax (925) 249-6563

PRINTED: 4/27/2004
4:36 PM

DATE: 4/28/04
JOB# A04549

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL, PROJECT # 2830
5725 THORNHILL DRIVE, OAKLAND

BENCH MARK: NGS Bench mark No.PID# HT2487
DESCRIPTION FROM NGS DATA SHEET:
DESCRIBED BY EAST BAY MUNICIPAL UTILITIES DISTRICT 1947 (SPH) THE AZIMUTH MARK IS AN EBMUD TRIANGULATION STATION DISC SET 1 FOOT BELOW THE SURFACE AND COVERED BY AN 8 INCH IRON CASTING WITH A REMOVABLE LID MARKED CITY MONUMENT. IT IS IN THE SIDEWALK IN FRONT OF A SAFEWAY STORE AT THE INTERSECTION OF GRAND AND WILDWOOD AVENUES. IT IS 1.5 FEET SOUTHEAST OF THE SOUTHEAST CURB OF WILDWOOD AVE., 6.2 FEET OF EAST CURB OF GRAND AVE. AND 10.4 FEET NORTHEAST OF POWERPOLE. THE MARK IS STAMPED LINDA AZIMUTH MARK 1947.

Elevation =37. FEET NAVD88 Datum
BY VERTCON

HORIZONTAL CONTROL:

PID - AA5496
NORTHING =1,988,577.07 , EASTING = 6,077,862.13 FEET; EPOCH DATE = 1991.35

PID - HT2541
NORTHING = 2,130,331.28 , EASTING = 6,062,624.49 FEET; EPOCH DATE = 1991.35

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.

Kier & Wright Engineers Surveyors, Inc.
1233 Quarry Lane, Suite 145, Pleasanton, CA 94566
Phone (925) 249-6555,
Fax (925) 249-6563

PRINTED: 4/27/2004
4:36 PM

ENVIRONMENTAL ENGINEERING, INC

Well No.:	SOMA 1	**Project No.:**	2831
Casing Diameter:	2 inches	**Address:**	5725 Thornhill Drive
Depth of Well:	28.00 feet		Oakland, CA
Top of Casing Elevation:	576.47 feet	**Date:**	April 22, 2004
Depth to Groundwater:	5.75 feet	**Sampler:**	Mehran Nowroozi
Groundwater Elevation:	570.72 feet		
Water Column Height:	22.25 feet		
Purged Volume:	9 gallons		

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (^{0}C)	E.C. (µs/cm)
10:45 AM	Started To Purge			
10:46 AM	1 gal	6.48	19.6	907
10:48 AM	4 gal	6.54	18.4	461
10:50 AM	7 gal	6.65	18.1	473
10:52 AM	9 gal	6.65	17.8	470
Sampled 10:55				

ENVIRONMENTAL ENGINEERING, INC

Well No.:	Soma 2	**Project No.:**	2831
Casing Diameter:	2 inches	**Address:**	5725 Thornhill Drive
Depth of Well:	28.10 feet		Oakland, CA
Top of Casing Elevation:	575.50 feet	**Date:**	April 22, 2004
Depth to Groundwater:	7.40 feet	**Sampler:**	Mehran Nowroozi
Groundwater Elevation:	568.10 feet		
Water Column Height:	20.70 feet		
Purged Volume:	9 gallons		

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
11:20 AM	1gal	7.38	19.0	1237
11:22 AM	4gal	7.31	18.2	756
11:23 AM	6gal	7.13	17.8	711
11:25 AM	9gal	7.33	16.9	745
Samples 11:27AM				

ENVIRONMENTAL ENGINEERING, INC

Well No.:	Soma-3	**Project No.:**	2831
Casing Diameter:	2 inches	**Address:**	5725 Thornhill Drive
Depth of Well:	27.90 feet		Oakland, CA
Top of Casing Elevation:	575.92 feet	**Date:**	April 22, 2004
Depth to Groundwater:	7.14 feet	**Sampler:**	Mehran Nowroozi
Groundwater Elevation:	568.78 feet		
Water Column Height:	20.76 feet		
Purged Volume:	9 gallons		

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

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µs/cm)
11:45 am	1gal	7.18	22.7	1193
11:47 am	4gal	7.47	18.0	925
11:49 am	7gal	7.36	18.0	922
11:51 am	9gal	7.25	17.5	843
Samples 11:53 am.				

Appendix C

Chain of Custody Form and Laboratory Report

for the

Second Quarter 2004 Monitoring Event

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

ANALYTICAL REPORT

Prepared for:

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

Date: 06-MAY-04
Lab Job Number: 171890
Project ID: 2831
Location: Thornhill Drive, Oakland

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 # 171890

Sampler: Mehran Nowrooz

Project No: 2831

Report To: Tony Perini

Project Name: Thornhill Drive, Oakland

Company : SOMA Environmental

Turnaround Time: Standard

Telephone: 925-244-6600

Fax: 925-244-6601

Analyses

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	Preservative: none	TPHg 8015	BTEX 8021 GC	GASoline Oxygenates, Lead Scavengers 8260B	Ethanol	TPHd 8015	TPHmo 3550/8015
-1	SOMA-1	4/22/04 10:55AM		*		1L-Amber, 5-VOA	*			*	*	*	*	*	*	*	*
-2	SOMA-2	4/22/04 11:27AM		*		1L-Amber, 5-VOA	*			*	*	*	*	*	*	*	*
-3	SOMA-3	4/22/04 10:53AM		*		1L-Amber, 5-VOA	*			*	*	*	*	*	*	*	*

Notes: **EDF OUTPUT REQUIRED**
Gasoline Oxygenates: DIPE, ETBE, TAME, TBA
Lead Saveugers: EDB, 1,2-DCA

Received In Cooler w/Ice. AY 4/22/04

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME
Mehran Nowrooz	1:20 pm 4/22/04	Anna [signature]	4/22/04 1320
M. Nowrooz			

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831		
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04
Diln Fac:	1.000	Analyzed:	04/22/04
Batch#:	90520		

Field ID: SOMA-1 Lab ID: 171890-001
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	63	50	EPA 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)	93	74-142	EPA 8015B
Bromofluorobenzene (FID)	90	80-139	EPA 8015B
Trifluorotoluene (PID)	94	55-139	EPA 8021B
Bromofluorobenzene (PID)	95	62-134	EPA 8021B

Field ID: SOMA-2 Lab ID: 171890-002
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,900	50	EPA 8015B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	5.2	0.50	EPA 8021B
m,p-Xylenes	5.7	0.50	EPA 8021B
o-Xylene	4.2	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	125	74-142	EPA 8015B
Bromofluorobenzene (FID)	104	80-139	EPA 8015B
Trifluorotoluene (PID)	108	55-139	EPA 8021B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831		
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04
Diln Fac:	1.000	Analyzed:	04/22/04
Batch#:	90520		

Field ID: SOMA-3 Lab ID: 171890-003
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	190	50	EPA 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)	100	74-142	EPA 8015B
Bromofluorobenzene (FID)	94	80-139	EPA 8015B
Trifluorotoluene (PID)	98	55-139	EPA 8021B
Bromofluorobenzene (PID)	96	62-134	EPA 8021B

Type: BLANK Lab ID: QC248751

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 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)	90	74-142	EPA 8015B
Bromofluorobenzene (FID)	85	80-139	EPA 8015B
Trifluorotoluene (PID)	91	55-139	EPA 8021B
Bromofluorobenzene (PID)	87	62-134	EPA 8021B

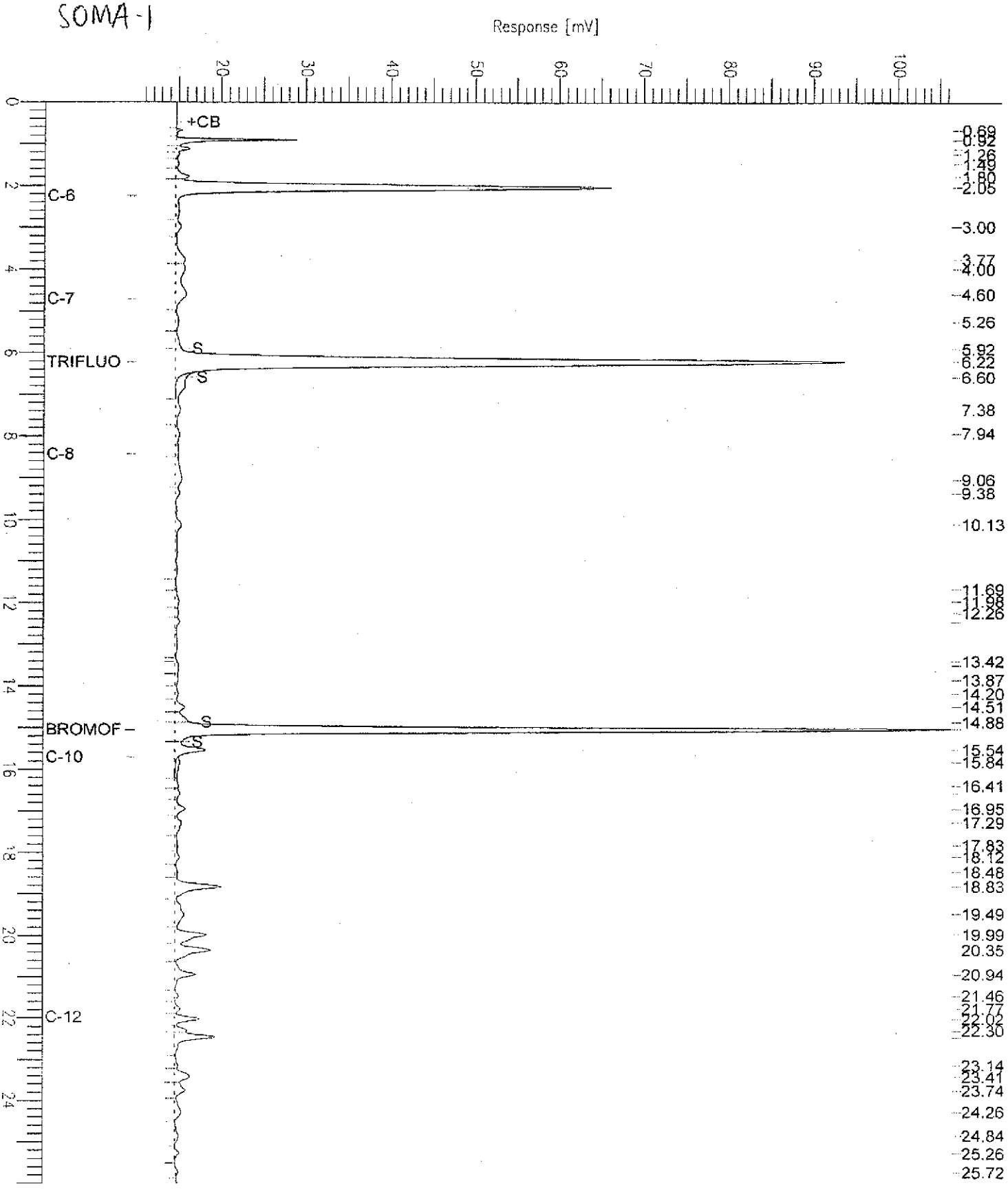
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 171890-001,90520
FileName : G:\GC07\DATA\113A010.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 10 mV

Sample #: a1.0 Page 1 of 1
Date : 4/23/04 07:20 AM
Time of Injection: 4/22/04 05:47 PM
Low Point : 10.05 mV High Point : 106.45 mV
Plot Scale: 96.4 mV

SOMA-1

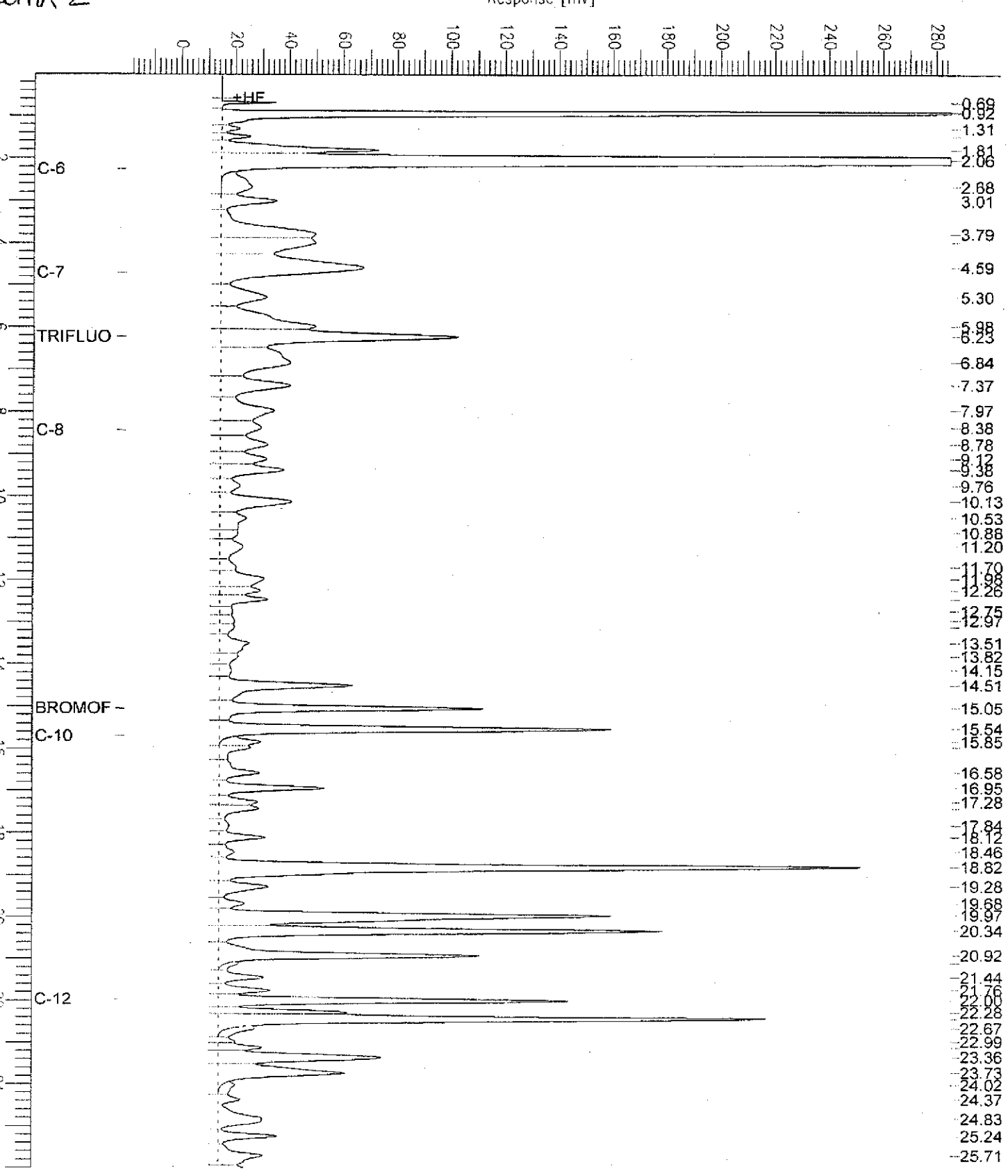


GC07 TVH 'A' Data File RTX 502

Sample Name : 171890-002,90520
FileName : G:\GC07\DATA\113A008.RAW
Method :
Start Time : 0.02 min End Time : 26.00 min
Scale Factor: 0.0 Plot Offset: -20 mV

Sample #: a1.0 Page 1 of 1
Date : 4/23/04 07:15 AM
Time of Injection: 4/22/04 04:38 PM
Low Point : -19.83 mV High Point : 285.47 mV
Plot Scale: 305.3 mV

SCMA-2

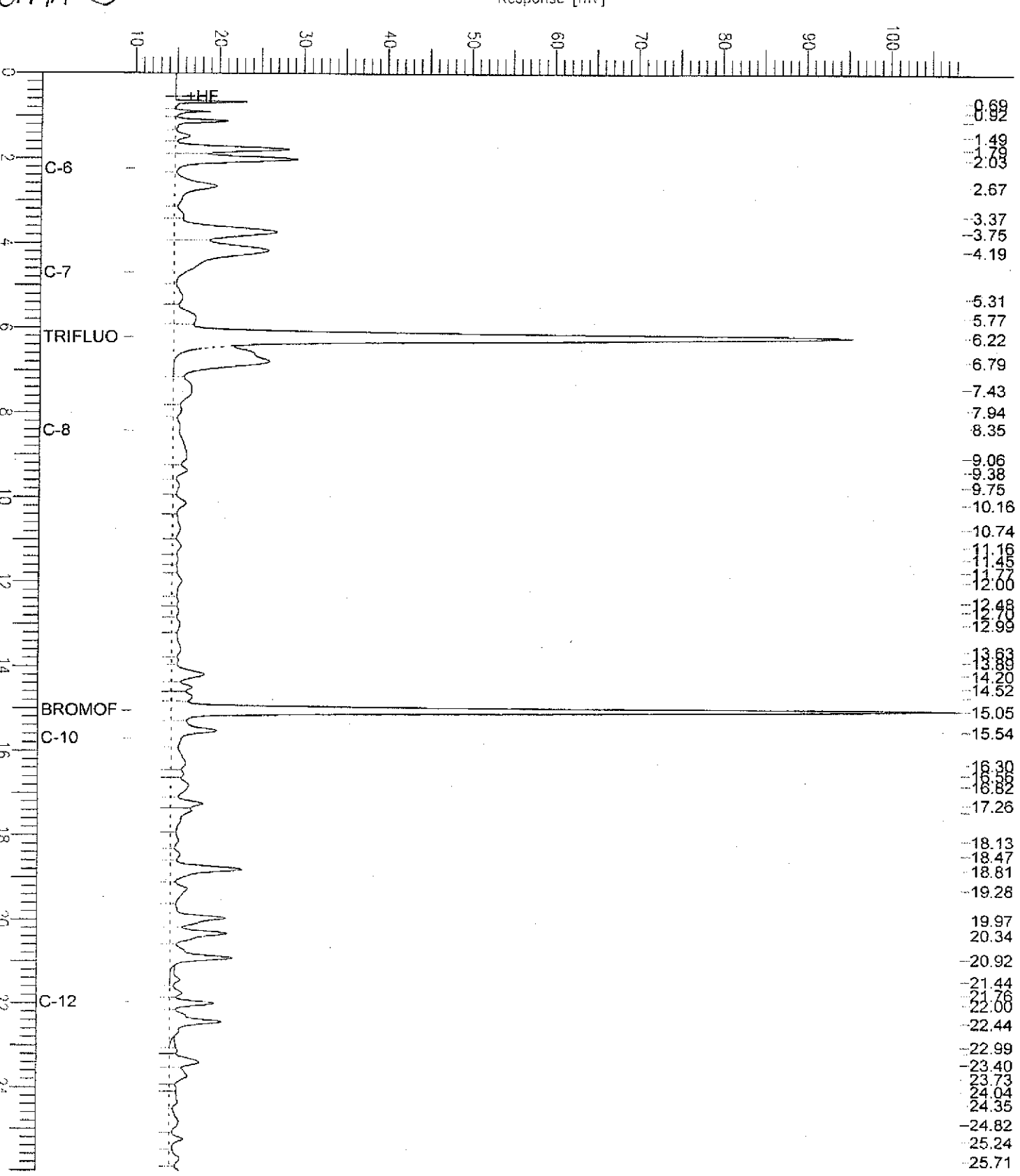


GC07 TVH 'A' Data File RTX 502

Sample Name : 171890-003,90520
FileName : G:\GC07\DATA\113A009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 10 mV

Sample #: a1.0 Page 1 of 1
Date : 4/23/04 07:20 AM
Time of Injection: 4/22/04 05:12 PM
Low Point : 10.00 mV High Point : 108.73 mV
Plot Scale: 98.7 mV

SomA-3

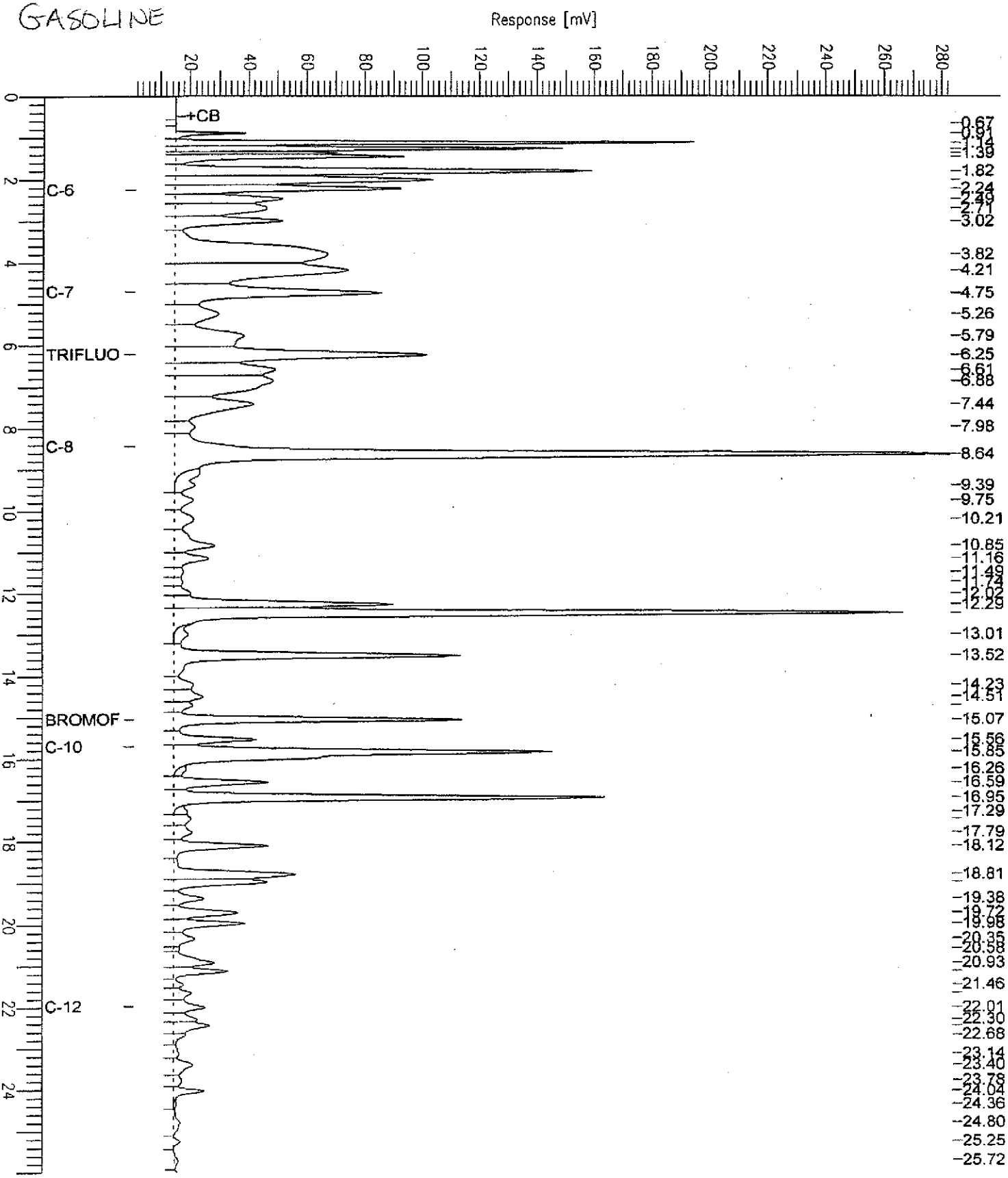


GC07 TVH 'A' Data File RTX 502

Sample Name : ccv/lcs,qc248753,90520,04ws0672,5/5000
FileName : G:\GC07\DATA\113A003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 2 mV

Sample #: Page 1 of 1
Date : 4/22/04 10:12 AM
Time of Injection: 4/22/04 09:46 AM
Low Point : 1.64 mV High Point : 283.13 mV
Plot Scale: 281.5 mV

GASOLINE



Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC248752	Batch#:	90520
Matrix:	Water	Analyzed:	04/22/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
Benzene	20.00	19.99	100	80-120
Toluene	20.00	20.23	101	80-120
Ethylbenzene	20.00	20.51	103	80-120
m,p-Xylenes	20.00	20.06	100	80-120
o-Xylene	20.00	20.43	102	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		103	55-139
Bromofluorobenzene (PID)		102	62-134

NA= Not Analyzed

3.0

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC248753	Batch#:	90520
Matrix:	Water	Analyzed:	04/22/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,134	107	80-120
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		116	74-142
Bromofluorobenzene (FID)		99	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

4.0

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	90520
MSS Lab ID:	171880-001	Sampled:	04/19/04
Matrix:	Water	Received:	04/22/04
Units:	ug/L	Analyzed:	04/22/04
Diln Fac:	1.000		

Type: MS Lab ID: QC248819

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	17.08	2,000	2,170	108	80-120
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		109	74-142
Bromofluorobenzene (FID)		95	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC248820

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,166	107	80-120	0	20
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		110	74-142
Bromofluorobenzene (FID)		94	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
RPD= Relative Percent Difference

5.0

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	2831	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04
Diln Fac:	1.000	Prepared:	04/22/04
Batch#:	90541	Analyzed:	04/23/04

Field ID: SOMA-1 Lab ID: 171890-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	121	53-142

Field ID: SOMA-2 Lab ID: 171890-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	690 L Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	118	53-142

Field ID: SOMA-3 Lab ID: 171890-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	120 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	124	53-142

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC248822

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	96	53-142

L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

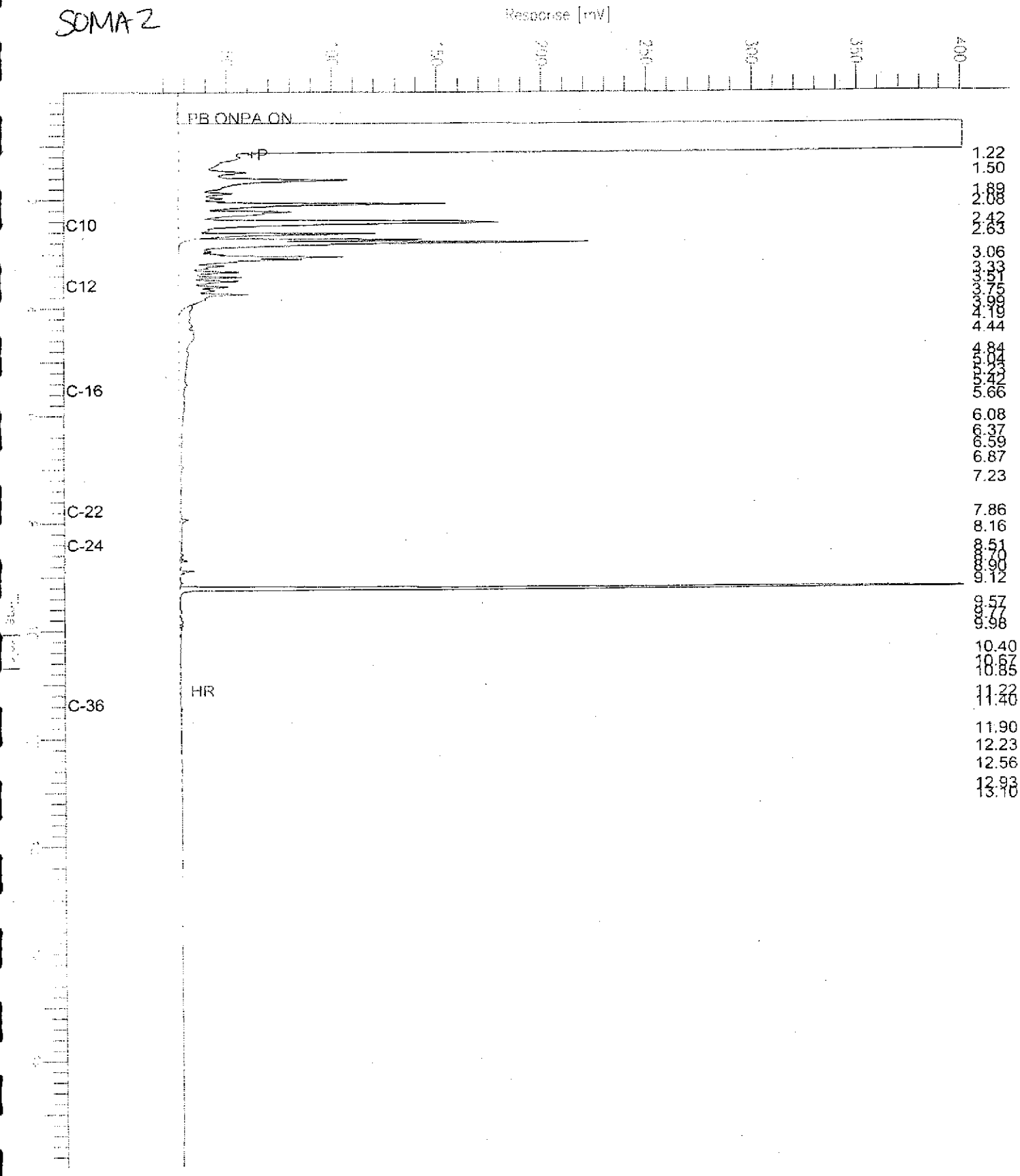
6.0

Chromatogram

Sample Name : 171890-002,90541
FileName : G:\GC15\CHB\114B005.RAW
Method : BTEH111S.MTH
Start Time : 0.01 min End Time : 19.99 min
Scale Factor: 0.0 Plot Offset: 16 mV

Sample #: 90541 Page 1 of 1
Date : 4/24/04 03:03 PM
Time of Injection: 4/23/04 02:14 PM
Low Point : 15.70 mV High Point : 400.99 mV
Plot Scale: 385.3 mV

SOMA 2

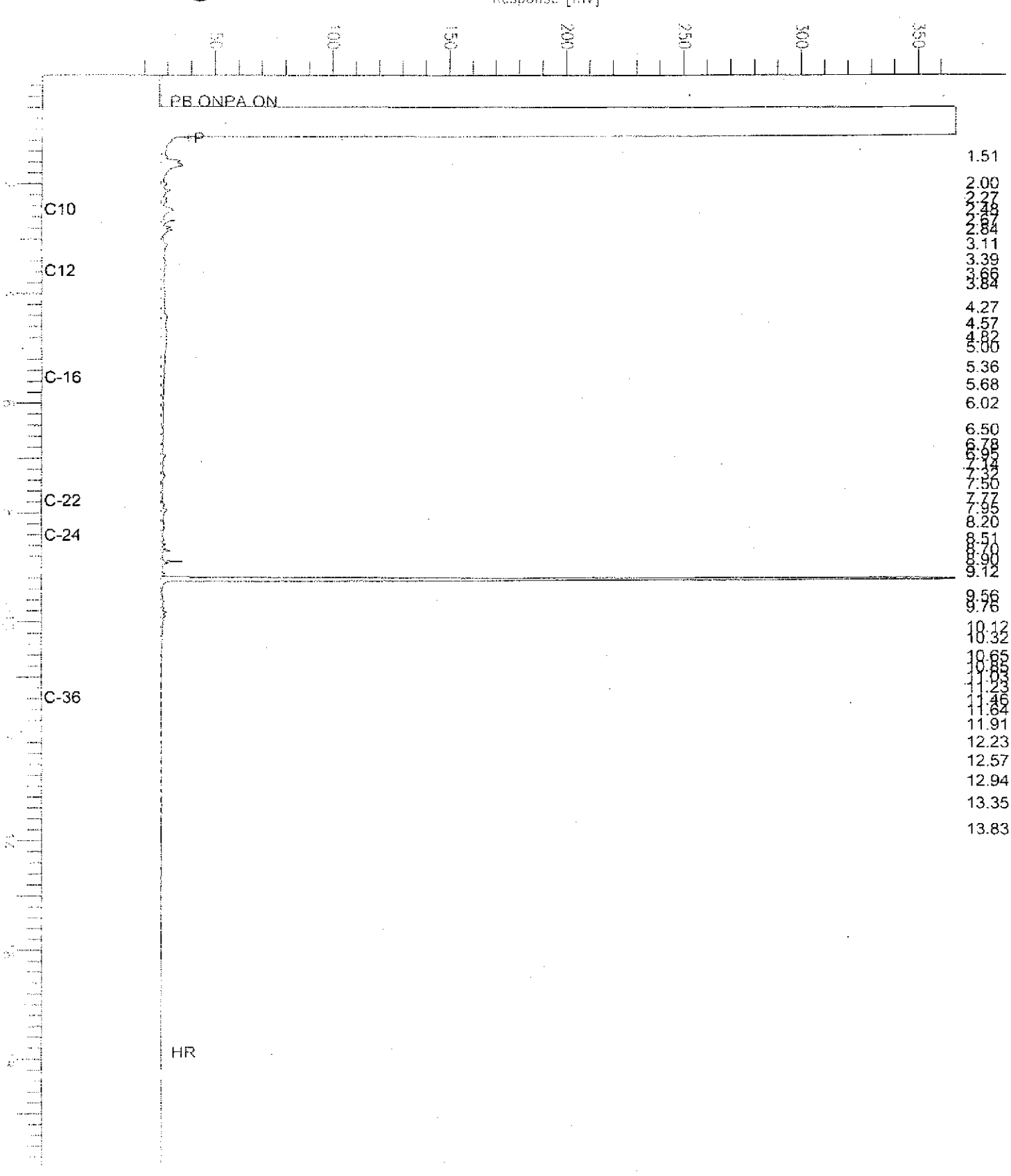


Chromatogram

Sample Name : 171890-003,90541
FileName : G:\GC15\CHB\114B006.RAW
Method : BTEH111S.MTH
Start Time : 0.01 min End Time : 19.99 min
Scale Factor: 0.0 Plot Offset: 16 mV

Sample #: 90541 Page 1 of 1
Date : 4/24/04 03:03 PM
Time of Injection: 4/23/04 02:43 PM
Low Point : 15.57 mV High Point : 366.73 mV
Plot Scale: 351.2 mV

SOMA-3

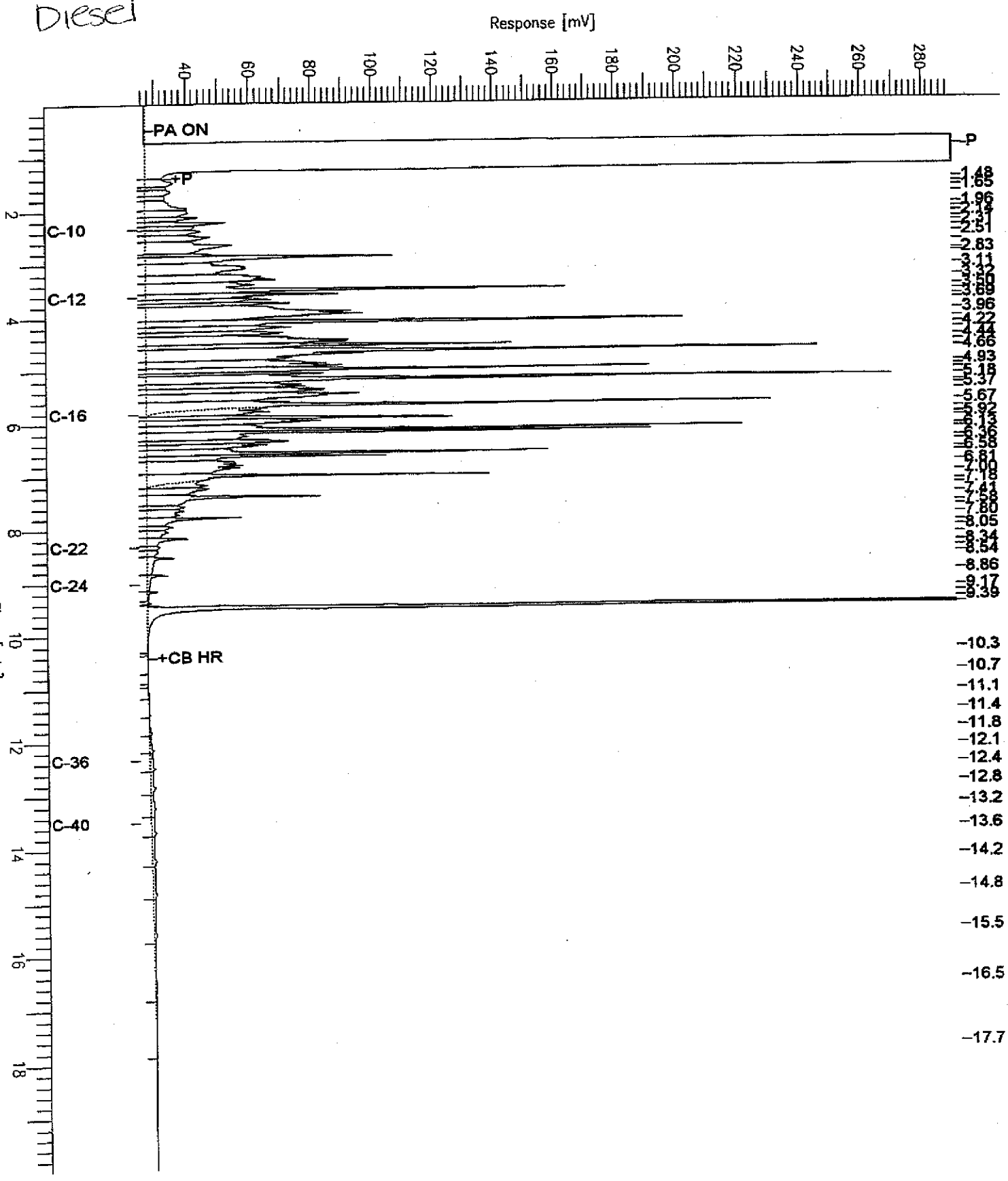


Chromatogram

Sample Name : ccv,04ws0655,dsl
FileName : G:\GC17\CHA\114A003.RAW
Method : ATEH114.MTH
Start Time : 0.01 min End Time : 19.99 min
Scale Factor: 0.0 Plot Offset: 25 mV

Sample #: 500mg/L Page 1 of 1
Date : 4/23/04 02:41 PM
Time of Injection: 4/23/04 02:15 PM
Low Point : 24.81 mV High Point : 289.96 mV
Plot Scale: 265.1 mV

Diesel

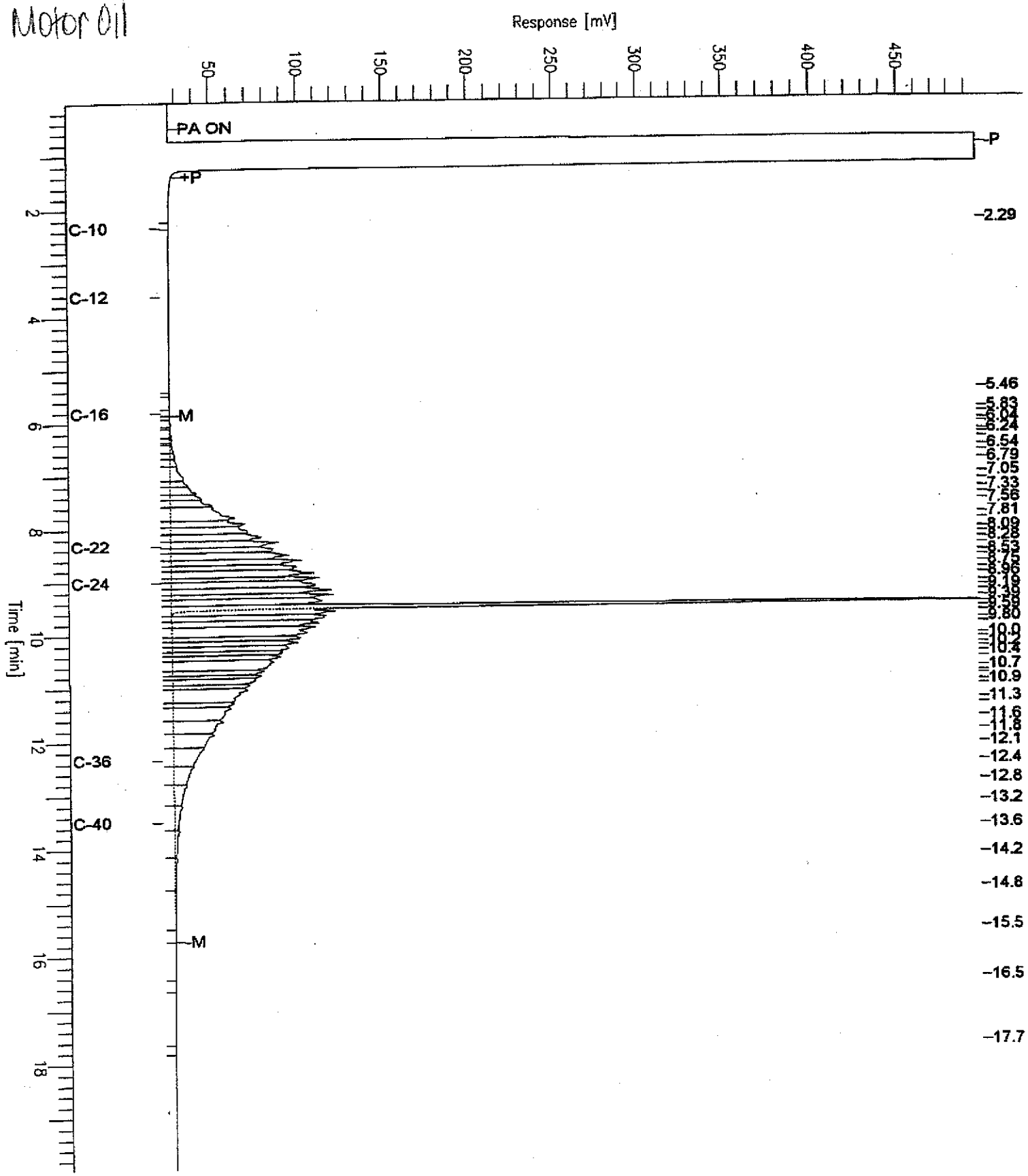


Chromatogram

Sample Name : ccv,04ws0802,mo
FileName : G:\GC17\CHA\114A004.RAW
Method : ATEH114.MTH
Start Time : 0.01 min End Time : 19.99 min
Scale Factor: 0.0 Plot Offset: 22 mV

Sample #: 500mg/L Page 1 of 1
Date : 4/23/04 03:17 PM
Time of Injection: 4/23/04 02:43 PM
Low Point : 21.94 mV High Point : 496.36 mV
Plot Scale: 474.4 mV

Motor Oil



Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	2831	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	90541
Units:	ug/L	Prepared:	04/22/04
Diln Fac:	1.000	Analyzed:	04/23/04

Type: BS
Lab ID: QC248823
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,040	82	57-128

Surrogate	%REC	Limits
Hexacosane	94	53-142

Type: BSD
Lab ID: QC248824
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,973	79	57-128	3	38

Surrogate	%REC	Limits
Hexacosane	93	53-142

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04

Field ID:	SOMA-1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	90572
Lab ID:	171890-001	Analyzed:	04/23/04

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	7.7	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	99	80-124
Toluene-d8	102	80-120
Bromofluorobenzene	111	80-120

Field ID:	SOMA-2	Batch#:	90607
Type:	SAMPLE	Analyzed:	04/26/04
Lab ID:	171890-002		

Analyte	Result	RL	Diln Fac
tert-Butyl Alcohol (TBA)	ND	100	10.00
MTBE	1,900	13	25.00
Isopropyl Ether (DIPE)	ND	5.0	10.00
Ethyl tert-Butyl Ether (ETBE)	ND	5.0	10.00
Methyl tert-Amyl Ether (TAME)	19	5.0	10.00
1,2-Dichloroethane	ND	5.0	10.00
1,2-Dibromoethane	ND	5.0	10.00
Ethanol	ND	10,000	10.00

Surrogate	%REC	Limits	Diln Fac
Dibromofluoromethane	97	80-120	10.00
1,2-Dichloroethane-d4	100	80-124	10.00
Toluene-d8	101	80-120	10.00
Bromofluorobenzene	108	80-120	10.00

ND= Not Detected
RL= Reporting Limit

8.0

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04

Field ID:	SOMA-3	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	90607
Lab ID:	171890-003	Analyzed:	04/26/04

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	5.1	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	100	80-124
Toluene-d8	100	80-120
Bromofluorobenzene	111	80-120

Type:	BLANK	Batch#:	90572
Lab ID:	QC248936	Analyzed:	04/23/04
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
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethanol	ND	1,000

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	99	80-124
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected
RL= Reporting Limit

8.0

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	04/22/04
Units:	ug/L	Received:	04/22/04

Type: BLANK
Lab ID: QC249077
Diln Fac: 1.000

Batch#: 90607
Analyzed: 04/26/04

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

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	101	80-124
Toluene-d8	101	80-120
Bromofluorobenzene	111	80-120

Type: BLANK
Lab ID: QC249078
Diln Fac: 1.000

Batch#: 90607
Analyzed: 04/26/04

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

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	101	80-124
Toluene-d8	101	80-120
Bromofluorobenzene	109	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline Oxygenates by GC/MS

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	90572
Units:	ug/L	Analyzed:	04/23/04
Diln Fac:	1.000		

Type: BS Lab ID: QC248934

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	156.9	126	80-140
MTBE	50.00	50.34	101	76-123
Isopropyl Ether (DIPE)	25.00	25.88	104	80-124
Ethyl tert-Butyl Ether (ETBE)	25.00	26.24	105	80-120
Methyl tert-Amyl Ether (TAME)	25.00	25.80	103	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	80-124
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-120

Type: BSD Lab ID: QC248935

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	134.1	107	80-140	16	20
MTBE	50.00	44.47	89	76-123	12	20
Isopropyl Ether (DIPE)	25.00	23.03	92	80-124	12	20
Ethyl tert-Butyl Ether (ETBE)	25.00	23.19	93	80-120	12	20
Methyl tert-Amyl Ether (TAME)	25.00	23.13	93	80-120	11	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-120
1,2-Dichloroethane-d4	101	80-124
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-120

RPD= Relative Percent Difference

9.0

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline Oxygenates by GC/MS

Lab #:	171890	Location:	Thornhill Drive, Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2831	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	90607
Units:	ug/L	Analyzed:	04/26/04
Diln Fac:	1.000		

Type: BS Lab ID: QC249075

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	144.1	115	80-140
MTBE	50.00	45.48	91	76-123
Isopropyl Ether (DIPE)	25.00	23.21	93	80-124
Ethyl tert-Butyl Ether (ETBE)	25.00	23.68	95	80-120
Methyl tert-Amyl Ether (TAME)	25.00	23.36	93	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	101	80-124
Toluene-d8	100	80-120
Bromofluorobenzene	106	80-120

Type: BSD Lab ID: QC249076

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	143.5	115	80-140	0	20
MTBE	50.00	44.67	89	76-123	2	20
Isopropyl Ether (DIPE)	25.00	22.89	92	80-124	1	20
Ethyl tert-Butyl Ether (ETBE)	25.00	23.37	93	80-120	1	20
Methyl tert-Amyl Ether (TAME)	25.00	22.89	92	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	100	80-124
Toluene-d8	100	80-120
Bromofluorobenzene	106	80-120

RPD= Relative Percent Difference

10.0