



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

May 25, 2004

100265

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

Alameda County  
MAY 24 2004  
Environmental Health

Subject: **StID#3337**  
Site Address: 3609 International Blvd., Oakland, California

Dear Mr. Gholami:

Enclosed for your review is a copy of SOMA's "Second Quarter 2004 Groundwater Monitoring and Remediation System Operation 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. Abolghassem Razi w/enclosure  
Tony's Express Auto Service

Mr. Vince Tong w/enclosure  
Traction International



**Certification**

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Abolghassem Razi, the property owner of 3609 International Boulevard, Oakland, California, to comply with the Alameda County Department of Environmental Health Service's requirements for the Second Quarter 2004 groundwater monitoring event.



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



Alameda County  
MAY 28 2004  
Environmental Health

**Table of Contents**

<b>CERTIFICATION.....</b>	<b>I</b>
<b>TABLE OF CONTENTS.....</b>	<b>II</b>
<b>LIST OF TABLES.....</b>	<b>III</b>
<b>LIST OF FIGURES.....</b>	<b>III</b>
<b>LIST OF APPENDICES.....</b>	<b>IV</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Background.....</b>	<b>2</b>
<b>2.0 FIELD ACTIVITIES.....</b>	<b>3</b>
<b>3.0 LABORATORY ANALYSIS.....</b>	<b>5</b>
<b>4.0 RESULTS.....</b>	<b>5</b>
<b>4.1 Field Measurements.....</b>	<b>6</b>
<b>4.2 Laboratory Analysis.....</b>	<b>8</b>
<b>4.3 Historical Analytical Results.....</b>	<b>9</b>
<b>5.0 GROUNDWATER TREATMENT SYSTEM OPERATION.....</b>	<b>10</b>
<b>6.0 SOIL VAPOR EXTRACTION SYSTEM OPERATION.....</b>	<b>12</b>
<b>7.0 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>13</b>
<b>8.0 REPORT LIMITATIONS.....</b>	<b>15</b>

## List of Tables

- Table 1: Historical Groundwater Elevation Data & Analytical Results
- Table 2: Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results
- Table 3: Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System

## List of Figures

- Figure 1: Site vicinity map.
- Figure 2: Site map showing the locations of groundwater monitoring wells, French drain, SVE system, and GAC system.
- Figure 3: Groundwater elevation contour map in feet. April 2004.
- Figure 4: Contour map of TPH-g concentrations in the groundwater. April 2004.
- Figure 5: Contour map of Benzene concentrations in the groundwater. April 2004.
- Figure 6: Contour map of MtBE concentrations in the groundwater. (EPA Method 8260B). April 2004.
- Figure 7: Schematic of the Groundwater Remediation System
- Figure 8: Cumulative mass of TPH-g and MtBE removed from groundwater since the installation of the treatment system.

## **List of Appendices**

- Appendix A: Table of Elevations & Coordinates on Monitoring Well Surveyed by Kier Wright Civil Engineers Surveyors, Inc., and Field Measurements of Physical, Chemical, and Biodegradation Parameters of Groundwater
- Appendix B: Chain of Custody Form and Laboratory Report for the Second Quarter 2004 Monitoring Event
- Appendix C: Chain of Custody Forms and Laboratory Reports for the Groundwater Extraction Treatment System
- Appendix D: Chain of Custody Form and Laboratory Report for the Soil Vapor Extraction

## 1.0 Introduction

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Abolghassem Razi, the owner of Tony's Express Auto Service, which is located at 3609 International Boulevard at the intersection of 36<sup>th</sup> Avenue in Oakland, California (the "Site"), as shown in Figure 1.

The Site is located in an area where the surrounding properties are primarily commercial businesses and residential housing. The Site currently houses a gasoline service station and convenience store. During Third Quarter 2002 the station was remodeled and several hydraulic hoists were removed. The station no longer has an auto repair facility. Figure 2 illustrates the locations of the main service station, dispenser islands, underground storage tanks (USTs), the on-site and off-site groundwater monitoring wells, and neighboring properties.

This report summarizes the results of the Second Quarter 2004 groundwater monitoring event, which was conducted at the Site on April 29 and April 30, 2004. Included in this report are the bioattenuation parameters measured in the field for each groundwater sample. Also included in this report are the results of the laboratory analysis on the groundwater samples, 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)

In addition to the above laboratory analyses, a natural attenuation study was conducted during this monitoring event. This study consisted of measuring groundwater bioattenuation parameters, which included dissolved oxygen (DO), ferrous iron ( $\text{Fe}^{+2}$ ), nitrate ( $\text{NO}_3^-$ ) and sulfate ( $\text{SO}_4^{-2}$ ). The objective of the natural attenuation study was to evaluate whether the petroleum hydrocarbons found in the groundwater were biodegrading. Therefore, groundwater samples collected

during this monitoring event were analyzed for common electron acceptors and other geochemical indicators. The results of these analyses are also described in this report.

These activities were performed in accordance with the general guidelines of the Regional Water Quality Control Board (RWQCB) and the Alameda County Environmental Health Services (ACEHS).

This report also describes the operation of the groundwater extraction system installed by SOMA in December 1999, as well as the operation of the vapor extraction system, which was installed by SOMA in July 2000. The locations of the groundwater extraction system and the vapor extraction system are displayed in Figure 2.

## **1.1 Background**

In 1992, Soil Tech Engineering, Inc. (STE) conducted an initial environmental investigation to determine whether or not the soil near the product lines and USTs had been impacted by petroleum hydrocarbons. In July 1993, STE removed one single-walled 10,000-gallon gasoline tank and one single-walled 6,000-gallon gasoline tank along with a 550-gallon waste oil tank from the Site. Three double-walled USTs replaced these tanks. Currently, there is one 10,000-gallon double-walled gasoline tank and two 6,000-gallon double-walled gasoline tanks beneath the Site. The locations of the USTs are shown in Figure 2.

In December 1997, Mr. Razi retained Western Geo-Engineers (WEGE) to conduct additional investigations and perform groundwater monitoring on a quarterly basis. The results of the WEGE groundwater monitoring events indicated elevated levels of petroleum hydrocarbons and MtBE in the groundwater.

In April 1999, Mr. Razi retained SOMA to conduct groundwater monitoring, risk-based corrective action (RBCA), a corrective action plan (CAP), as well as soil and groundwater remediation at the Site. The results of the RBCA study indicated that the Site is a high-risk groundwater site; therefore, the soil and groundwater in on and off-site areas warranted remedial actions. The source of the petroleum hydrocarbons in the groundwater was believed to have been the former USTs, which were used to store gasoline at the Site. The results of the CAP study indicated that the installation of a French drain combined with a vapor extraction system would be the most cost effective alternative for the Site's remediation.

In late August 1999, SOMA installed a French drain and groundwater treatment system to prevent further migration of the chemically impacted groundwater. This treatment system has been in operation since early December 1999. In July 2000, following approval from the ACEHS, SOMA installed a vapor extraction system as recommended in our CAP document, dated July 1, 1999.

In January 2002, Environmental Fabric removed old product dispensers and installed new ones in the fuel islands.

On July 25, 2003, SOMA installed an additional on-site extraction pump in the western French drain riser. The extraction pump was installed to create a capture zone in the region around the USTs and to contain off-site migration in the southwestern corner of the Site.

## **2.0 Field Activities**

On April 29 and April 30, 2004, SOMA's field crew conducted a groundwater monitoring event in accordance with the procedures and guidelines of the RWQCB, San Francisco Bay Region. During this groundwater monitoring event a total of eight on-site monitoring wells (MW-1 to MW-8), two off-site monitoring wells (MW-10 and MW-12), and three on-site French drain risers were measured



for depth to groundwater. Well MW-11 was inaccessible during this monitoring event, therefore, no field measurements were taken and no groundwater sample was collected from this well. However, additional field measurements, and grab groundwater samples were collected from all other on and off-site monitoring wells.

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

Kier and Wright Civil Engineers Surveyors, Inc. surveyed the wells and risers on August 9, 2002. At the time of the survey, monitoring well MW-11 could not be accessed due to obstacles preventing the proper use of surveying equipment, therefore, this well was not surveyed. The top of casing elevations were based on the survey data measured at this time. The elevation data was based on a datum of 14.20 NAVD88. The new survey was conducted to comply with an Electronically Deliverable Format (EDF) request made by the State Water Resources Control Board (SWRCB) Database. The survey data measured by Kier and Wright is presented in Appendix A.

Prior to the collection of samples, each well was purged using a battery operated 2-inch diameter pump (Model ES-60 DC). During the purging activities, in order to obtain accurate measurements of groundwater parameters and especially to avoid the intrusion of oxygen from ambient air into the groundwater samples, field measurements were conducted in-situ (i.e., down-hole inside each monitoring well). The pH, temperature, electric conductivity (EC), dissolved oxygen (DO), turbidity, and Oxygen Reduction Potential (ORP) were measured in-situ using a Horiba, Model U-22 multi-parameter instrument. The Horiba, Model U-22 was calibrated at the Site using standard solutions and procedures provided by the manufacturer. Detailed field measurements are shown in Appendix A.

The purging continued until the parameters for pH, temperature, EC, DO, turbidity, and redox stabilized, or three casing volumes were purged. The groundwater samples were also tested on-site for ferrous iron ( $\text{Fe}^{+2}$ ), and nitrate ( $\text{NO}_3^-$ ), and sulfate ( $\text{SO}_4^{-2}$ ) concentrations once stabilization occurred. Ferrous iron, nitrate, and sulfate were measured colorimetrically using the Hach Colorimeter Model 890.

For sampling purposes, after purging, a disposable polyethylene bailer was used to collect sufficient samples from each monitoring well for laboratory analyses. The groundwater sample was transferred into three 40-mL VOA vials and preserved with hydrochloric acid. The vials were then sealed to prevent development of air bubbles within the headspace. After the groundwater samples were collected, they were placed on ice and maintained at 4°C in a cooler. A chain of custody (COC) form was written and placed along with the samples in the cooler. On April 30, 2004, 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 and MtBE. TPH-g was prepared using EPA Method 5030B and measured using EPA Method 8015B. EPA Method 8021B was used to measure BTEX and MtBE concentrations. Detections of MtBE were confirmed using EPA Method 8260B.

### **4.0 Results**

The following sections provide the results of the field measurements and laboratory analyses for the April 29 and April 30, 2004 groundwater monitoring event.

#### 4.1 Field Measurements

Table 1 presents the calculated groundwater elevations at each monitoring well and riser. The calculated groundwater elevation data was used to evaluate the impact of the French drain and determine the extent of the groundwater extraction capture zone.

As shown in Table 1, the groundwater elevations for the monitoring wells ranged from 26.63 feet in monitoring well MW-12 to 30.10 feet in monitoring well MW-5. The groundwater elevations for the center, east and west risers were 23.05 feet, 26.86 feet and 25.26 feet, respectively.

In general, the groundwater elevations in all of the monitoring wells and French drain risers decreased, with the exception of the eastern French drain riser. Local recharge rates at each well, as well as, seasonal fluctuations determine the variations in the groundwater elevations. Due to the lack of rain encountered this quarter, the watertable level descended from the ground surface, which caused the groundwater elevations to decrease.

Figure 3 displays the groundwater elevation contour map, as measured during the Second Quarter 2004. Throughout the Site, the groundwater flows towards the French drain at an approximate gradient of 0.075 feet/feet. The lowest site-wide groundwater elevation was measured in the center French drain riser. The calculated groundwater elevation data was also used to evaluate the impact of the French drain operation. Based on the groundwater elevation data, it appears that the French drain is providing excellent hydraulic control in preventing the contaminants from migrating further off-site.

The field notes for the physical, chemical and biodegradation parameters measured during this monitoring event are included in Appendix A.

Naturally occurring biological processes can enhance the removal rate of contaminants in the subsurface. During the degradation process, indigenous bacteria that exist in the subsurface utilize the energy released from the transfer of electrons to drive the redox reactions that remove organic mass from contaminated groundwater. The more positive the redox potential of an electron acceptor, the more energetically favorable is the reaction utilizing that electron acceptor. Based on thermodynamic considerations, the most energetically preferred electron acceptor for redox reactions is DO, followed by nitrate, manganese, ferric iron, sulfate, and carbon dioxide, in descending order of preference. Evaluating the distribution of these electron acceptors can provide evidence of where and to what extent hydrocarbon biodegradation is occurring.

In general, DO was consumed throughout the Site. ORP showed negative redox potentials in all of the wells, with the exception of MW-2 and MW-4. Oxidation of petroleum hydrocarbons appears to have occurred in these monitoring wells at these DO readings. The negative redox potentials indicate these wells are conducive to anaerobic biodegradation.

The presence of  $\text{Fe}^{2+}$  indicates that the available DO in the subsurface has been consumed and anaerobic bacteria began to utilize other electrons acceptors, such as  $\text{Fe}^{3+}$ ,  $\text{NO}_3^-$  and  $\text{SO}_4^{2-}$ , to metabolize dissolved hydrocarbons. Ferrous iron concentrations can thus be used as an indicator of anaerobic biodegradation. Ferrous iron is a product of the reduction reaction of ferric iron and hydrocarbons. The presence of ferrous iron was detected in all of the wells, with the exception of wells MW-4 and MW-10. Ferrous iron concentrations were detected at the equipment's maximum allowable range in monitoring wells MW-3 and MW-6.

Nitrate concentrations were below the minimum allowable level of the Hach Model DR/850 colorimeter in the groundwater samples collected from wells MW-1, MW-3, MW-5, MW-8, MW-10, and MW-12. The presence of high ferrous

iron concentrations in combination with non-detectable nitrate levels is indicative of anaerobic biodegradation beneath the Site.

The absence of sulfate in the groundwater samples may be indicative of an anaerobic methanogenesis process. Sulfate was below the equipment tolerance level in wells MW-1, MW-3, MW-8, MW-10, and MW-12.

#### **4.2 Laboratory Analysis**

Table 1 presents the results of the laboratory analyses on the groundwater samples collected during the Second Quarter 2004 monitoring event. In general, the most impacted monitoring wells this quarter were MW-1 and MW-3, which are in the vicinity of the USTs, and MW-6, which is near the soil vapor extraction (SVE) system.

As shown in Table 1, TPH-g was detected in all of the groundwater samples collected this quarter, with the exception of well MW-4. Figure 4 displays the contour map of the TPH-g concentrations in the groundwater collected during the Second Quarter 2004 monitoring event. As shown in Figure 4, high TPH-g concentrations were detected in the vicinity of the USTs in wells MW-1 and MW-3. The highest TPH-g concentration was detected near the SVE system in MW-6, at 99,000 µg/L.

As shown in Table 1, all BTEX concentrations were at low levels in MW-2, which is near the pump islands. In well MW-4, toluene was below the laboratory reporting limit, all other BTEX analytes were at low levels. In well MW-5, all BTEX analytes were below the laboratory reporting limit, with the exception of a trace concentration of ethylbenzene and toluene. The toluene concentration in well MW-5 may have been misrepresentative due to matrix interferences during analytical testing. The laboratory designated this interference with a "C" flag; see the laboratory report in Appendix B for further clarification. In well MW-7 all BTEX

analytes were below the laboratory reporting limit, with the exception of toluene and total xylene, which were found in trace concentrations. Toluene in well MW-7 was also "C" flagged.

The highest benzene and toluene concentrations were 4,200 µg/L and 590 µg/L, respectively, detected in well MW-3. The highest ethylbenzene and total xylene concentrations were detected in well MW-6 at 2,200 µg/L and 5,200 µg/L, respectively. BTEX constituents were also detected at high concentrations in well MW-1.

Figure 5 displays the contour map of benzene concentrations in the groundwater collected during the Second Quarter 2004 monitoring event. As shown in Figure 5, the highest benzene concentrations were found in MW-1 and MW-3, which are in the vicinity of the USTs, and well MW-6, which is in the vicinity of the vapor extraction system.

MtBE was below the laboratory reporting limit in monitoring wells MW-2, MW-4, MW-6, and MW-8. Figure 6 displays the contour map of MtBE concentrations in the groundwater during the Second Quarter 2004 monitoring event, as analyzed using EPA Method 8260B. The elevated MtBE concentration found in MW-1 may be attributed to the proximity and down-gradient location of MW-1 to the USTs. In general, with the exception of wells MW-1 and MW-3, MtBE was either at low concentrations or below the laboratory reporting limit throughout the Site.

The laboratory report and COC form for the Second Quarter 2004 monitoring event are included in Appendix B.

#### **4.3 Historical Analytical Results**

Table 1 shows the historical groundwater analytical data. The following concentration trends have been observed since the previous monitoring event.

- TPH-g increased in wells MW-1, MW-5, MW-7, MW-10, and MW-12. TPH-g decreased in wells MW-2, MW-3, and MW-8. TPH-g decreased to below the laboratory reporting limit in well MW-4. TPH-g significantly increased in well MW-6.
- In wells MW-1, MW-2, MW-4, and MW-8 all BTEX analytes decreased. In well MW-3 both benzene and ethylbenzene increased, and both toluene and total xylenes decreased. In well MW-5 both benzene and total xylenes remained below the laboratory reporting limit, and both toluene and ethylbenzene slightly increased.
- In well MW-6 all BTEX analytes increased. In well MW-7 both benzene and ethylbenzene remained below the laboratory reporting limit, and both toluene and total xylenes slightly increased. In well MW-10 both benzene and toluene decreased, and both ethylbenzene and total xylenes slightly increased. In well MW-12 all BTEX analytes decreased, with the exception of total xylenes, which remained constant.
- MtBE decreased in wells MW-1, MW-3, MW-8, and MW-12. MtBE increased slightly in wells MW-5, MW-7, and MW-10. MtBE remained constant in well MW-10. MtBE has remained below the laboratory reporting limit in MW-2, MW-4, and MW-6.

## **5.0 Groundwater Treatment System Operation**

The treatment system began operating on December 9, 1999. Since that time, 2,497,350 gallons of groundwater has been treated and discharged, under the existing discharge permit (as of May 3, 2004), into the East Bay Municipal Utility District's (EBMUD's) sewer system.

On July 25, 2004, a downhole pneumatic pump was installed in the western riser of the French drain. On January 9, 2004, the pneumatic downhole pumps in the western and center French drain risers were removed and replaced with

electrical downhole pumps. The schematic of the remediation system is displayed in Figure 7.

As required by the discharge permit and the ACEHS, sampling of the groundwater treatment system has been performed on a routine basis. Table 2 presents the total volume of treated groundwater and the groundwater analytical results. Table 2 shows that all of the effluent samples have been below the discharge limits set forth by EBMUD.

The analytical data for the October 2002 sampling period was erroneous. The high non-detectable concentration levels are due to a high dilution factor caused by the presence of 2-Butanone. During the laboratory testing 2-Butanone was detected at a high concentration of 200,000  $\mu\text{g/L}$  in only the effluent sample. The influent sample concentration for 2-Butanone was only 20  $\mu\text{g/L}$ . Based on the fact that 2-Butanone has not been detected in any of the effluent samples since December 1999, and because there was a very low influent concentration, the sample results shown are erroneous and are only used to depict that sampling was conducted in October 2002. The high TPH-g concentration for this sample may not be representative due to the sample exhibiting unknown peaks, and the sample also exhibiting a fuel pattern, which did not resemble the standard. The laboratory designated these items by "Y" and "Z" flags. However, the system was turned off upon detection of these concentrations and a carbon change-out was performed.

The laboratory reports for the groundwater treatment system are included in Appendix C of this report.

The cumulative weight of TPH-g and MtBE extracted from the groundwater since the installation of the treatment system is displayed in Figure 8. As Figure 8 shows, an approximate total of 171 pounds of TPH-g and 81 pounds of MtBE have been removed since the system's initial start-up until May 3, 2004.



## 6.0 Soil Vapor Extraction System Operation

The soil vapor extraction (SVE) system consists of 6 vapor extraction wells, a de-moisturizing unit, a blower, and four drums of GAC filters. The vapor extraction system began operating on July 24, 2000. Since then, during its working days, the system has extracted and treated more than 3,000,000 liters per day of soil gas. When the system first began to operate the influent had a concentration of 394 parts per million on volumetric basis (ppmv) of petroleum hydrocarbons. However, it gradually decreased to 68 ppmv after 31 days of operation.

In November 2002, SOMA met a representative of the Bay Area Air Quality Management District (BAAQMD) on-site. At the request of BAAQMD, an air sample was collected from the influent and effluent of the system. The SVE system was determined to be in compliance with the BAAQMD operating permit. In August 2003, another air sample was collected from the SVE system, based on the analytical results the system has remained in compliance.

The total mass of petroleum hydrocarbons removed by the SVE system is shown in Table 3. As of May 5, 2004, the SVE system removed approximately 415.36 pounds of petroleum hydrocarbons from the vadose zone beneath the Site.

The SVE system was turned off in November 2003, and then re-started on April 5, 2004. During the rainy season, the watertable ascends closer to the ground's surface, and thereby, reduces the unsaturated zone beneath the Site. The SVE system, during the rainy season, is inoperable, and becomes operational during the drier season. This allows a greater petroleum mass to be removed in the larger unsaturated region.

On May 5, 2004, all four SVE carbon drums were changed out. On May 10, 2004, samples were collected at the influent and effluent of the SVE system. The samples were collected at the system influent to determine the overall hydrocarbon removal efficiency. The samples were collected at the effluent to

verify that the system was still in compliance with BAAQMD's discharge requirements.

The laboratory report for the soil vapor extraction system is included in Appendix D of this report.

## **7.0 Conclusions and Recommendations**

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

1. The groundwater remediation system is providing excellent hydraulic control in preventing further migration of the contaminants.
2. The bio-attenuation study confirmed the occurrence of biodegradation at the Site. Based on the non-detectable levels of DO throughout the Site, and high ferrous iron concentrations detected in wells MW-3 and MW-6, anaerobic bacteria has begun to utilize other electron acceptors such as nitrate and sulfate. Both nitrate and sulfate have been consumed in wells MW-1 and MW-3. Based on this study, the affected areas appear in the vicinity of the USTs in wells MW-1 and MW-3, as well as, the eastern section of the Site in well MW-6.
3. The source area remains in the vicinity of the USTs, in wells MW-1 and MW-3. However, the highest TPH-g concentration was detected in well MW-6. Based on the analytical results from this monitoring event, TPH-g has significantly increased in well MW-6.
4. In the vicinity of the USTs, in well MW-1, all BTEX analytes and MtBE decreased. In well MW-3, both TPH-g and MtBE decreased. In the eastern section of the Site, in well MW-6, increases in concentrations were

detected, with the exception of MtBE, which remained at non-detectable levels.

5. Approximately 2,497,350 gallons of groundwater has been treated and discharged into EBMUD's sewer system, under the existing discharge permit (as of May 3, 2004). All effluent samples from the groundwater treatment system have remained below the allowable discharge requirements. From initial start-up to May 3, 2004, approximately 171 pounds of TPH-g and 81 pounds of MtBE have been removed during the operation of the treatment system.
6. As of May 5, 2004, the SVE system has removed approximately 415.36 pounds of petroleum hydrocarbons from the vadose zone beneath the Site. The operation of the SVE system is based on seasonal fluctuations occurring at the Site. The system is turned off during wetter periods of the year and operational during drier periods.
7. Continuation of the GAC system should decrease the groundwater concentrations throughout the Site. The SVE system was re-started on April 5, 2004, this should decrease the concentrations in the vicinity of well MW-6 during the Third Quarter 2004.

## 8.0 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 as well as the summaries of data produced by previous environmental consultants. 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**  
**Historical Groundwater Elevation Data & Analytical Results**  
**3609 International Boulevard, Oakland, California**

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
MW-1	Oct-94	97.99	82.60	320,000	24,000	21,000	2,600	15,000	NA
	Dec-94	97.99	86.67	80,000	3,800	6,800	2,300	11,000	NA
	Mar-95	97.99	89.92	32,000	190	160	150	490	NA
	Jun-95	97.99	88.46	21,000	950	650	570	150	NA
	Oct-95	97.99	84.70	59,000	140	130	140	390	NA
	Jan-96	97.99	87.92	30,000	71	73	50	120	NA
	Apr-96	97.99	89.70	31,000	98	120	63	170	NA
	Dec-96	97.99	86.32	NA	NA	NA	NA	NA	NA
	Apr-97	97.99	88.85	NA	NA	NA	NA	NA	NA
	Dec-97	97.99	88.69	27,000	2,300	2,100	1,400	5,100	NA
	Sep-98	97.99	84.41	NA	NA	NA	NA	NA	NA
	Dec-98	97.99	86.89	65,000	2,500	2,400	2,300	9,500	160
	Mar-99	97.99	88.08	17,000	480	660	850	9,000	190
	Jun-99	97.99	86.89	25,000	1,110	1,460	1,330	5,265	77
	Aug-99	97.99	84.64	19,750	678	463	693	2,938	38
	Nov-99	97.99	83.54	10,000	693	15	<5	3,471	50
	Feb-00	97.99	86.79	40,000	2,280	1,380	8	6,130	47
	May-00	97.99	86.50	15,610	610	350	310	1,400	<5
	Aug-00	97.99	84.63	11,000	638	<5	<5	<5	17.1
	Nov-00	97.99	84.79	7,050	435	52	ND	689	10
	Mar-01	97.99	89.03	14,570	1,005	440	108	2,030	16
	May-01	97.99	86.49	4,900	310	81	82	398	150
	Aug-01	97.99	84.48	14,820	652	342	568	1,606	2,000
	Nov-01	97.99	83.98	41,000	2,700	5,100	1,000	4,570	74,000
	Feb-02	97.99	87.88	260,000	3,700	12,000	3,700	19,200	23,000
	May-02	97.99	87.13	53,000	4,400	5,100	1300	7,000	32,000
	Jul-02	40.11	27.31	29,000	2,400	2,500	920	4,400	13,000
	Oct-02	40.11	24.61	27,000	2,200	2,400	950	4,500	34,000
Jan-03	40.11	30.38	62,000	3,500	6,000	1600	9,700	48,000	
May-03	40.11	30.40	59,000	3,100	2,700	1500	7,000	14,000	
Jul-03	40.11	27.67	36,000	4,800	1,800	1300	5,600	25,000	
Oct-03	40.11	26.22	630,000 H	3,300	1900 C	3600	27,700	15,000	
Jan-04	40.11	29.66	39,000	3,100	1,600	950	4,300	8,500	
Apr-04	40.11	28.62	41,000	1,200	350C	830	2,740	4,300	
MW-2	Oct-94	98.58	83.22	NA	NA	NA	NA	NA	NA
	Dec-94	98.58	89.98	NA	NA	NA	NA	NA	NA
	Mar-95	98.58	90.90	490	3	3	3	1	NA
	Jun-95	98.58	88.99	8,000	220	330	350	660	NA
	Oct-95	98.58	85.16	46,000	160	130	93	240	NA
	Jan-96	98.58	88.65	46,000	160	130	93	240	NA
	Apr-96	98.58	90.45	27,000	0.1	92	44	13	NA
	Dec-96	98.58	86.91	6,200	11	7	2	14	ND
	Apr-97	98.58	87.18	53,000	150	110	37	0.12	ND
	Dec-97	98.58	89.54	35,000	4,900	4,800	1,800	7,000	NA
	Jun-98	98.58	NM	25,000	2,000	2,000	1,300	4,300	NA
	Sep-98	98.58	85.00	29,000	290	180	160	360	<0.5
	Dec-98	98.58	87.64	26,000	1,400	1,600	880	9,500	<5
	Mar-99	98.58	90.98	7,600	730	830	610	1,900	55
	Jun-99	98.58	87.34	3,500	290	428	211	744	ND
	Aug-99	98.58	85.08	60	6	9	4	11	ND
	Nov-99	98.58	84.48	<50	<5	<5	<5	<5	<5
	Feb-00	98.58	88.73	6,400	372	639	46	134	8
	May-00	98.58	87.70	2,930	130	330	130	570	<5
	Aug-00	98.58	85.55	<50	<5	<5	<5	<5	<5
Nov-00	98.58	85.98	ND	ND	ND	ND	ND	ND	

**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
 3609 International Boulevard, Oakland, California

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
MW-2 cont.	Mar-01	98.58	90.03	932	18	34	1.3	225	ND
	May-01	98.58	87.58	870	37	75	55	179	2.7
	Aug-01	98.58	85.05	125	4	4	3	11	ND
	Nov-01	98.58	85.15	470	13	64	22	83	14
	Feb-02	98.58	89.59	1,700	26	180	95	360	<2
	May-02	98.58	87.99	1,800	31	140	110	348	<2
	Jul-02	40.71	28.01	180	11	6.3	9.4	27	<2.0
	Oct-02	40.71	26.48	<50	<0.5	<0.5	<0.5	0.64	<2.0
	Jan-03	40.71	32.05	510	5	30.0	24.0	92	<2.0
	May-03	40.71	31.54	1,300	14	88.0	78.0	271	<2.0
	Jul-03	40.71	28.48	220	3.9	4.3	7	14.5	<2.0
	Oct-03	40.71	27.06	170 H	1.9	<0.5	2.2	2.2	<2.0
	Jan-04	40.71	31.17	860	7.2	37	50	151	<2.0
	Apr-04	40.71	29.91	730	6.6	19	38	87	<2.0
MW-3	Oct-94	97.78	81.99	3,000,000	190,000	740,000	310,000	130,000	NA
	Dec-94	97.78	87.99	250,000	19,000	22,000	4,400	28,000	NA
	Mar-95	97.78	89.09	350,000	20,000	42,000	5,800	36,000	NA
	Jun-95	97.78	87.53	350,000	20,000	42,000	5,800	36,000	NA
	Oct-95	97.78	84.87	150,000	510	410	210	65	NA
	Jan-96	97.78	87.23	150,000	510	410	210	650	NA
	Apr-96	97.78	89.02	NA	NA	NA	NA	NA	NA
	Dec-96	97.78	85.78	NA	NA	NA	NA	NA	NA
	Apr-97	97.78	86.05	NA	NA	NA	NA	NA	NA
	Dec-97	97.78	NM	NA	NA	NA	NA	NA	NA
	Sep-98	97.78	83.10	NA	NA	NA	NA	NA	NA
	Dec-98	97.78	86.23	51,000	5,700	3,900	1,200	6,300	410
	Mar-99	97.78	89.34	45,000	4,100	6,400	1,000	6,100	470
	Jun-99	97.78	85.98	46,000	8,245	6,425	1,015	7,173	274
	Aug-99	97.78	83.93	64,000	7,484	8,052	1,744	9,749	141
	Nov-99	97.78	83.08	26,000	3,218	1,319	<5	6,697	126
	Feb-00	97.78	86.83	44,000	6,090	3,360	<5	5,780	276
	May-00	97.78	86.10	68,000	15,000	8,900	1,500	7,400	<5
	Aug-00	97.78	84.05	76,000	8,900	5,636	883	7,356	176
	Nov-00	97.78	84.38	48,000	6,789	4,816	676	7,258	83
	Mar-01	97.78	88.35	14,754	2,250	140	ND	1,284	110
	May-01	97.78	85.97	44,000	5,400	3,100	1,400	6,400	200
	Aug-01	97.78	83.68	41,750	3,485	2,670	1,255	5,420	52
	Nov-01	97.78	83.46	NA	NA	NA	NA	NA	NA
	Feb-02	97.78	87.77	62,000	6,000	7,800	1,900	9,200	12,000
	May-02	97.78	86.50	54,000	6,700	3,200	1,800	7,100	9,100
	Jul-02	40.91	27.66	45,000	8,900	1,700	1,600	5,600	2,600
	Oct-02	40.91	25.93	70,000	4,900	5,100	2,100	11,900	21,000
Jan-03	40.91	31.12	35,000	2,900	1,300	860	5,200	13,000	
May-03	40.91	30.90	48,000	5,800	1,400	1,600	7,400	5,900	
Jul-03	40.91	27.97	31,000	4,700	990	1,400	5,200	16,000	
Oct-03	40.91	26.62	30,000	4,400	930	1,600	5,400	7,400	
Jan-04	40.91	30.34	45,000	2,100	850	1,500	5,700	2,900	
Apr-04	40.91	29.07	31,000	4,200	590	1,600	4,370	800	

**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
**3609 International Boulevard, Oakland, California**

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MIBE <sup>1</sup> EPA 8260B (µg/L)
MW-4	Jan-96	97.85	87.74	9,300	230	110	10	29	NA
	Apr-96	97.85	89.50	1,900	12	8	5	14	NA
	Dec-96	97.85	86.27	4,000	14	6	4	12	ND
	Apr-97	97.85	86.62	ND	ND	ND	ND	ND	ND
	Dec-97	97.85	88.42	2,300	410	270	100	1,500	NA
	Jun-98	97.85	NM	1,700	780	160	54	200	NA
	Sep-98	97.85	84.21	6,200	910	77	68	200	18
	Dec-98	97.85	86.72	1,400	590	33	28	94	24
	Mar-99	97.85	89.39	600	200	35	19	56	11
	Jun-99	97.85	86.55	1,000	298	44	19	64	13
	Aug-99	97.85	84.65	660	497	41	54	145	6
	Nov-99	97.85	83.75	<50	<5	<5	<5	<5	<5
	Feb-00	97.85	86.60	7,800	1,200	61	<5	781	<5
	May-00	97.85	86.39	552	42	19	16	67	<5
	Aug-00	97.85	84.50	370	5.08	<5	<5	<5	<5
	Nov-00	97.85	84.80	ND	5.30	ND	ND	8	ND
	Mar-01	97.85	88.61	62	ND	ND	3.2	8.7	ND
	May-01	97.85	86.35	80	12	1.9	4.1	9.8	ND
	Aug-01	97.85	84.05	133	12	2.2	3.9	9	ND
	Nov-01	97.85	84.17	670	180	5	17	53	ND
	Feb-02	97.85	87.88	450	63	4.1	22	28.7	<2
	May-02	97.85	87.04	570	72	29	27	74	<2
	Jul-02	40.01	27.39	450	20	24	19	74	<2.0
	Oct-02	40.01	25.67	320	69	0.99	9	5.49	<2.0
Jan-03	40.01	30.22	310	49	2.5	13	26.7	<2.0	
May-03	40.01	30.23	120	27	1.8	9	14.6	<2.0	
Jul-03	40.01	27.57	<50	1	<0.5	<0.5	<0.5	<0.5	
Oct-03	40.01	26.29	70	12	<0.5	4.7	3.0	<2.0	
Jan-04	40.01	29.46	230	18	2.1	6.1	17.1	<2.0	
Apr-04	40.01	28.62	<50	3.8	<0.5	1.6	1.9	<2.0	
MW-5	Oct-95	99.04	85.47	1,500	1	1	4	5	NA
	Jan-96	99.04	89.01	1,500	1	1	4	5	NA
	Apr-96	99.04	90.80	780	1	1	5	4	NA
	Dec-96	99.04	87.56	NA	NA	NA	NA	NA	NA
	Apr-97	99.04	87.69	NA	NA	NA	NA	NA	NA
	Dec-97	99.04	89.99	790	82	66	59	160	NA
	Jun-98	99.04	NM	400	<5	<5	15	<10	NA
	Sep-98	99.04	85.22	270	2	1	3	3	<5
	Dec-98	99.04	87.84	1,400	1	1	ND	2	ND
	Mar-99	99.04	91.31	650	3	1	16	2	10
	Jun-99	99.04	87.54	270	4	3	6	4	ND
	Aug-99	99.04	85.49	120	ND	4	ND	4	ND
	Nov-99	99.04	84.74	<50	<5	<5	<5	<5	<5
	Feb-00	99.04	89.19	70	<5	<5	<5	7	<5
	May-00	99.04	88.01	627.4	7.4	24	12	32.4	<5
	Aug-00	99.04	85.82	<50	<5	<5	<5	<5	<5
	Nov-00	99.04	85.49	ND	ND	ND	ND	ND	ND
	Mar-01	99.04	90.37	382	6.1	1.9	6.6	5.9	ND
	May-01	99.04	87.92	180	ND	ND	2.1	0.57	4.4
	Aug-01	99.04	85.25	258	1	1.1	3.4	7.3	1.4
	Nov-01	99.04	85.32	920	17	160	26	135	40
	Feb-02	99.04	90.00	290	3.5	2	6.2	6.2	<0.5
	May-02	99.04	88.35	160	<0.5	0.78 C	2	2.15	2.3
	Jul-02	41.16	28.22	110	<0.5	<0.5	0.77	<0.5	<0.5
Oct-02	41.16	26.65	77	<0.5	<0.5	<0.5	<0.5	<2.0	
Jan-03	41.16	32.43	450 Y	<0.5	<0.5	4	0.54	2.1	
May-03	41.16	31.92	130	<0.5	<0.5	1	<0.5	3.1	
Jul-03	41.16	28.71	300	<0.5	1.9 C	0.76	<0.5	<2.0	
Oct-03	41.16	27.27	460 H	<0.5	<0.5	<0.5	<0.5	1.9	
Jan-04	41.16	31.56	160	<0.5	<0.5	0.55 C	<0.5	<5.0	
Apr-04	41.16	30.10	280	<0.5	0.74C	0.62	<0.5	2.1	



**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
**3609 International Boulevard, Oakland, California**

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
MW-6	Oct-95	98.77	84.83	NA	NA	NA	NA	NA	NA
	Jan-96	98.77	86.22	120,000	350	310	200	610	NA
	Apr-96	98.77	90.01	NA	NA	NA	NA	NA	NA
	Dec-96	98.77	86.73	NA	NA	NA	NA	NA	NA
	Apr-97	98.77	87.01	NA	NA	NA	NA	NA	NA
	Dec-97	98.77	89.47	NA	NA	NA	NA	NA	NA
	Sep-98	98.77	84.67	NA	NA	NA	NA	NA	NA
	Dec-98	98.77	87.17	NA	NA	NA	NA	NA	NA
	Mar-99	98.77	90.37	37,000	3,900	4,300	1,600	7,000	180
	Jun-99	98.77	86.87	18,500	2,060	1,650	735	3,170	ND
	Aug-99	98.77	84.87	42,000	3,806	3,649	1,554	7,996	10
	Nov-99	98.77	84.02	40,000	1,084	130	<5	10,940	<5
	Feb-00	98.77	87.82	17,000	1,360	521	<5	4,150	6
	May-00	98.77	87.07	21,700	1,700	1,200	17	3,600	<5
	Aug-00	98.77	84.99	24,000	1,306	870	<5	5,162	<5
	Nov-00	98.77	85.37	19,000	1,387	618	ND	5,250	ND
	Mar-01	98.77	89.28	15,637	713	459	238	2,363	ND
	May-01	98.77	86.95	27,000	780	450	1,800	4,270	ND
	Aug-01	98.77	NM	NA	NA	NA	NA	NA	NA
	Nov-01	98.77	NM	NA	NA	NA	NA	NA	NA
	Feb-02	98.77	88.85	14,000	440	180	750	1,020	<10
	May-02	98.77	87.44	10,000	400	160	470	970	<2
	Jul-02	40.92	27.64	24,000	1,000	410	1,400	3,770	<20
	Oct-02	40.92	25.99	22,000	1,200	620	1,300	2,800	<20
Jan-03	40.92	31.14	12,000	730	230	740	1,680	<20	
May-03	40.92	31.00	150,000 H	1,400	780	2,500	8,700	<40	
Jul-03	40.92	27.94	29,000	1,600	520	1,500	4,400	<200	
Oct-03	40.92	26.57	36,000	1,300	430	1,600	4,570	<40	
Jan-04	40.92	30.32	30,000	1,300	320	1,500	3,040	<50	
Apr-04	40.92	29.12	99,000	1,700	580 C	2,200	5,200	<50	
MW-7	Oct-95	97.83	84.88	NA	10	12	17	NA	3,300
	Jan-96	97.83	88.26	3,300	9	12	17	45	NA
	Apr-96	97.83	90.08	1,900	2	3	5	7	NA
	Dec-96	97.83	86.86	NA	NA	NA	NA	NA	NA
	Apr-97	97.83	84.88	NA	NA	NA	NA	NA	NA
	Dec-97	97.83	89.18	1,400	130	98	75	200	NA
	Jun-98	97.83	NM	620	4	<5	9	<10	NA
	Sep-98	97.83	84.74	1,800	1	1	1	2	88
	Dec-98	97.83	87.31	990	5	10	5	20	160
	Mar-99	97.83	90.83	300	3	1	1	1	62
	Jun-99	97.83	87.13	320	3	7	4	3	26
	Aug-99	97.83	85.03	570	5	10	ND	ND	ND
	Nov-99	97.83	84.58	290	<5	9	<5	<5	12
	Feb-00	97.83	88.33	80	<5	<5	<5	<5	23
	May-00	97.83	87.31	494.9	4.9	22	4.2	21.9	29
	Aug-00	97.83	85.20	80	<5	<5	<5	<5	11.7
	Nov-00	97.83	85.88	50	ND	ND	ND	ND	9.1
	Mar-01	97.83	89.79	82	0.97	ND	0.76	ND	78
	May-01	97.83	87.23	370	ND	9.1	1.3	2.3	28
	Aug-01	97.83	84.81	610	3.7	3	6.2	18.9	10
	Nov-01	97.83	85.00	1,700	24	220	41	205	69
	Feb-02	97.83	88.92	380	<0.5	2.5	2	3.8	78
	May-02	97.83	87.70	560	15	28.0	9.2	44.0	37
	Jul-02	39.94	27.79	270	5.3	1.3 C	2.3	8.1	46
Oct-02	39.94	26.20	350	<0.5	2.1 C	<0.5	3.1 C	43	
Jan-03	39.94	31.49	220 Y	<0.5	<0.5	0.78	0.55	19	
May-03	39.94	32.25	280	<0.5	<0.5	<0.5	<0.5	11	
Jul-03	39.94	28.22	230	<0.5	1.3 C	<0.5	0.63	5.9	
Oct-03	39.94	26.84	460	<0.5	<0.5	<0.5	<0.5	5.0	
Jan-04	39.94	30.71	380	<0.5	1.4 C	<0.5	<0.5	<5.0	
Apr-04	39.94	29.54	480	<0.5	2.5 C	<0.5	0.90	0.62	

**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
**3609 International Boulevard, Oakland, California**

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
MW-8	Oct-95	97.25	84.39	NA	NA	NA	NA	NA	NA
	Jan-96	97.25	87.46	94,000	310	250	180	480	NA
	Apr-96	97.25	89.27	58,000	250	170	140	330	NA
	Dec-96	97.25	86.12	27,000	88	43	44	80	ND
	Apr-97	97.25	84.30	24,000	86	55	50	100	ND
	Dec-97	97.25	85.30	28,000	6,000	1,600	2,100	4,700	NA
	Jun-98	97.25	NM	54,000	4,600	2,800	3,500	7,300	NA
	Sep-98	97.25	84.23	NA	NA	NA	NA	NA	NA
	Dec-98	97.25	86.50	61,000	6,300	1,700	2,200	4,400	1,300
	Mar-99	97.25	89.67	22,000	1,800	470	2,000	2,000	820
	Jun-99	97.25	86.45	39,500	3,610	1,635	2,175	5,913	988
	Aug-99	97.25	84.50	58,000	5,379	2,438	3,001	6,960	639
	Nov-99	97.25	83.60	10,500	92	<5	<5	3,414	769
	Feb-00	97.25	86.40	44,200	1,080	617	<5	4,160	240
	May-00	97.25	86.10	25,940	940	130	1,600	3,560	75
	Aug-00	97.25	84.38	22,000	632	538	<5	2,686	37.3
	Nov-00	97.25	84.70	3,000	278	350	209	980	21
	Mar-01	97.25	88.50	2,360	81	16	71	270	221
	May-01	97.25	86.10	3,100	110	28	140	194	410
	Aug-01	97.25	84.28	5,620	153	46	373	345	174
	Nov-01	97.25	84.06	13,000	600	270	750	1,200	400
	Feb-02	97.25	87.37	240,000	1,400	<25	4,200	6,560	<100
	May-02	97.25	86.93	9,000	360	56	560	622	2,100
	Jul-02	39.38	27.59	8,400	340	78	530	517	1,200
Oct-02	39.38	25.58	18,000	950	75	1,400	1,269	700	
Jan-03	39.38	29.90	8,100	300	29	370	302	1,100	
May-03	39.38	29.90	18,000	380	33 C	1,000	516	540	
Jul-03	39.38	27.46	12,000	460	54 C	910	435	890	
Oct-03	39.38	26.29	16,000	830	87	2,000	675	280	
Jan-04	39.38	29.06	18,000	330	37 C	860	239	500	
Apr-04	39.38	26.15	12,000	240	26 C	650	128.8 C	<4	
MW-10	Dec-96	94.54	84.10	NA	NA	NA	NA	NA	NA
	Apr-97	94.54	84.47	1,000	21	9	3	3	ND
	Dec-97	94.54	85.76	10,000	5,300	76	1,100	780	NA
	Sep-98	94.54	82.61	9,900	5,400	66	970	620	2,600
	Dec-98	94.54	84.35	8,700	3,800	51	790	420	1,800
	Mar-99	94.54	87.24	4,100	15	28	420	250	2,800
	Jun-99	94.54	84.59	4,200	1,168	34	264	154	1,195
	Aug-99	94.54	82.94	3,250	2,135	97	600	248	1,800
	Nov-99	94.54	82.04	2,950	1,134	20	<5	70	652
	Feb-00	94.54	85.29	<50	<5	<5	<5	<5	448
	May-00	94.54	85.09	4,400	1,500	25	390	107.1	580
	Aug-00	94.54	83.02	6,800	1,055	26	54	53.8	1,283
	Nov-00	94.54	83.19	ND	ND	ND	ND	ND	145
	Mar-01	94.54	86.47	4,935	969	18	41	72	630
	May-01	94.54	84.74	2,900	630	11	200	31	270
	Aug-01	94.54	82.90	242	35	1	11	2	64
	Nov-01	94.54	82.48	3,500	900	260	310	258	410
	Feb-02	94.54	86.26	4,700	1,100	20	370	63.7	500
	May-02	94.54	85.05	3,400	660	13	260	48.0	270
	Jul-02	36.71	25.78	160	26	0.55	8.1	1.0	72
	Oct-02	36.71	24.17	550	130	3.00	31.0	2.7	70
	Jan-03	36.71	28.48	17,000	870	11	290	27	270
	May-03	36.71	28.41	2,500	650	10	190	15.81 C	180
	Jul-03	36.71	25.95	750	160	4	58	6.66 C	79
Oct-03	36.71	24.80	2,000	410	11	170	9.14 C	110	
Jan-04	36.71	27.80	4,000	600	15	280	15.3 C	110	
Apr-04	36.71	27.09	5,100	580	<1	330	26.4	160	

**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
 3609 International Boulevard, Oakland, California

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
MW-11	Dec-96	95.94	83.95	NA	NA	NA	NA	NA	NA
	Apr-97	95.94	84.47	NA	NA	NA	NA	NA	NA
	Dec-97	95.94	85.54	710	66	97	59	190	NA
	Jun-98	95.94	NM	1,100	45	24	71	100	NA
	Sep-98	95.94	82.70	170	7	1	4	9	22
	Dec-98	95.94	84.36	650	27	4	25	33	>0.5
	Mar-99	95.94	87.13	710	30	6	53	84	8
	Jun-99	95.94	84.44	4,600	1,240	35	290	159	1,291
	Aug-99	95.94	83.19	170	4	4	ND	6	ND
	Nov-99	95.94	82.09	<50	<5	<5	<5	<5	<5
	Feb-00	95.94	82.34	700	20	15	<5	35	<5
	May-00	95.94	82.14	477	27	13	9.5	29.0	<5
	Aug-00	95.94	81.07	590	10.5	5.94	<5	7.75	<5
	Nov-00	95.94	83.39	60	ND	ND	ND	ND	ND
	Mar-01	95.94	86.33	273	8.6	2.1	10	14	ND
	May-01	95.94	84.79	280	12	8.3	3.3	9.8	12
	Aug-01	95.94	82.90	NA	NA	NA	NA	NA	NA
	Nov-01	95.94	82.46	300	7.9	26	5.1	28.9	ND
	Feb-02	95.94	86.25	560	34	20	32	37.3	< 0.5
	May-02	95.94	84.95	280	18	3	7.6	7.6	<2
	Jul-02	NS	NM	120	5.6	<0.5	0.61	0.53	<2.0
	Oct-02	NS	NM	NA	NA	NA	NA	NA	NA
	Jan-03	NS	NC	700	32	5.7	25	14.10	<2.0
	May-03	NS	NC	280	17	1.5 C	8	4.10	<2.0
	Jul-03	NS	NC	340	19 C	3.2	0.58	0.89	<2.0
	Oct-03	NS	NC	210	5.0 C	<0.5	<0.5	<0.5	<0.5
Jan-04	NS	NC	NA	NA	NA	NA	NA	NA	
Apr-04	NS	NC	NA	NA	NA	NA	NA	NA	
MW-12	Nov-99	94.84	81.64	80	<5	<5	<5	<5	229
	Feb-00	94.84	84.64	4,000	351	37	<5	24	513
	May-00	94.84	84.36	3,930	230	10	34	12	200
	Aug-00	94.84	82.77	1,730	15.4	12.4	<5	<5	185
	Nov-00	94.84	82.79	1,010	9.3	19.0	ND	7.40	215
	Mar-01	94.84	85.80	1,517	13	5.6	5.5	11	214
	May-01	94.84	84.32	31,000	1,200	ND	95	165	1,900
	Aug-01	94.84	82.60	2,090	71	1.8	3	4	142
	Nov-01	94.84	82.08	3,000	81	69	13	73	120
	Feb-02	94.84	86.06	2,500	77	<0.5	5.7	7.4	95
	May-02	94.84	84.58	2,700	74	<0.5	20	5.1	94
	Jul-02	36.84	25.91	2,200	57	<0.5	11	2.6	100
	Oct-02	36.84	23.71	2,600	71	<0.5	<0.5	10.3	84
	Jan-03	36.84	27.61	2,300	65	<0.5	1	4.00	86
	May-03	36.84	27.60	2,200	58	<0.5	4.2 C	4.1 C	96
	Jul-03	36.84	25.40	2,200	92 C	16 C	<0.5	9.20	66
Oct-03	36.84	24.34	2200 H	31 C	<0.5	<0.5	3.5 C	49	
Jan-04	36.84	27.28	1,700	24 C	14 C	3	5.00	72	
Apr-04	36.84	26.63	2,000	11 C	<0.5	<0.5	5 C	36	
FDC	Feb-00	97.10	81.70	NA	NA	NA	NA	NA	NA
	May-00	97.10	84.69	NA	NA	NA	NA	NA	NA
	Aug-00	97.10	81.40	NA	NA	NA	NA	NA	NA
	Nov-00	97.10	80.25	NA	NA	NA	NA	NA	NA
	Mar-01	97.10	87.71	NA	NA	NA	NA	NA	NA
	May-01	97.10	81.25	NA	NA	NA	NA	NA	NA
	Aug-01	97.10	83.80	NA	NA	NA	NA	NA	NA
	Nov-01	97.10	79.28	NA	NA	NA	NA	NA	NA
	Feb-02	97.10	80.36	NA	NA	NA	NA	NA	NA
	May-02	97.10	86.74	NA	NA	NA	NA	NA	NA
	Jul-02	39.35	27.42	NA	NA	NA	NA	NA	NA
	Oct-02	39.35	25.61	NA	NA	NA	NA	NA	NA
	Jan-03	39.35	24.17	NA	NA	NA	NA	NA	NA
	May-03	39.35	23.15	NA	NA	NA	NA	NA	NA
	Jul-03	39.35	22.90	NA	NA	NA	NA	NA	NA
	Oct-03	39.35	22.82	NA	NA	NA	NA	NA	NA
Jan-04	39.35	25.61	NA	NA	NA	NA	NA	NA	
Apr-04	39.35	23.05	NA	NA	NA	NA	NA	NA	

**Table 1**  
**Historical Groundwater Elevation Data & Analytical Results**  
**3609 International Boulevard, Oakland, California**

Monitoring Well	Date	Top Of Casing Elevation (feet)	Groundwater Elevations (feet)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE <sup>1</sup> EPA 8260B (µg/L)
FDE	May-00	97.90	84.68	NA	NA	NA	NA	NA	NA
	Aug-00	97.90	NM	NA	NA	NA	NA	NA	NA
	Nov-00	97.90	85.15	NA	NA	NA	NA	NA	NA
	Mar-01	97.90	88.76	NA	NA	NA	NA	NA	NA
	May-01	97.90	84.85	NA	NA	NA	NA	NA	NA
	Aug-01	97.90	84.21	NA	NA	NA	NA	NA	NA
	Nov-01	97.90	83.98	NA	NA	NA	NA	NA	NA
	Feb-02	97.90	84.72	NA	NA	NA	NA	NA	NA
	May-02	97.90	86.72	NA	NA	NA	NA	NA	NA
	Jul-02	40.06	27.25	NA	NA	NA	NA	NA	NA
	Oct-02	40.06	25.53	NA	NA	NA	NA	NA	NA
	Jan-03	40.06	26.93	NA	NA	NA	NA	NA	NA
	May-03	40.06	28.27	NA	NA	NA	NA	NA	NA
	Jul-03	40.06	26.96	NA	NA	NA	NA	NA	NA
	Oct-03	40.06	26.21	NA	NA	NA	NA	NA	NA
	Jan-04	40.06	26.79	NA	NA	NA	NA	NA	NA
Apr-04	40.06	26.86	NA	NA	NA	NA	NA	NA	
FDW	May-00	96.90	84.70	NA	NA	NA	NA	NA	NA
	Aug-00	96.90	NM	NA	NA	NA	NA	NA	NA
	Nov-00	96.90	81.40	NA	NA	NA	NA	NA	NA
	Mar-01	96.90	86.78	NA	NA	NA	NA	NA	NA
	May-01	96.90	83.40	NA	NA	NA	NA	NA	NA
	Aug-01	96.90	83.82	NA	NA	NA	NA	NA	NA
	Nov-01	96.90	82.59	NA	NA	NA	NA	NA	NA
	Feb-02	96.90	84.12	NA	NA	NA	NA	NA	NA
	May-02	96.90	86.76	NA	NA	NA	NA	NA	NA
	Jul-02	39.16	27.37	NA	NA	NA	NA	NA	NA
	Oct-02	39.16	25.66	NA	NA	NA	NA	NA	NA
	Jan-03	39.16	27.03	NA	NA	NA	NA	NA	NA
	May-03	39.16	28.32	NA	NA	NA	NA	NA	NA
	Jul-03	39.16	27.04	NA	NA	NA	NA	NA	NA
	Oct-03	39.16	25.68	NA	NA	NA	NA	NA	NA
	Jan-04	39.16	25.58	NA	NA	NA	NA	NA	NA
Apr-04	39.16	25.26	NA	NA	NA	NA	NA	NA	

Notes:

- <sup>1</sup> MtBE was analyzed using the EPA Method 8021B and confirmed using 8260B.
- C Presence confirmed, but confirmation concentration differed by more than a factor of two.
- H: Heavier hydrocarbons may have contributed to the quantitation.
- NA: Not Analyzed
- ND, < : Not Detected above laboratory reporting limits.
- NS: Not Surveyed.
- Y: Sample exhibits fuel pattern which does not resemble standard.
- <sup>2</sup> Top of casing elevations were re-surveyed to comply with the EDF requirements for electronic reporting of data to the State Water Resources Control Board Database on August 9, 2002.
- NA: Not Applicable, Well/Drain did not exist at time of sampling
- NC: Not calculated. No top of casing elevation was available for MW-11.
- NM: Not Measured
- FDC: French drain center riser.
- FDE: French drain east riser.
- FDW: French drain west riser.

**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent and GAC-1					
		Reading (gallons)	(concentrations in ug/L)		Benzene	Toluene	Ethylbenzene	Total Xylenes
			MtBE	TPH-g				
<b>2004</b>								
May	5/3/2004	2,497,350	< 2.0	< 50	<0.5	<0.5	<0.5	<0.5
			< 2.0	< 50	<0.5	<0.5	<0.5	<0.5
April	4/15/2004	2,436,190	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
March	3/17/2004	2,376,200	Carbon Change-out of 2000 lb vessel and 55 gallon polishing vessel					
February	2/24/2004	2,276,770	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
January	1/27/2004	2,165,220	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	1/13/2004	2,116,720	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
<b>2003</b>								
December	12/8/2003	2,092,330	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
November	11/17/2003	2,087,670	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	11/3/2003	2,079,460	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
October	10/13/2003	2,073,060	5.3	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	10/1/2003	2,072,610	Carbon Change-out of 2000 lb vessel and 55 gallon polishing vessel					
September	9/15/2003	2,056,910	<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			6	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	9/2/2003	2,040,040	<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
August	8/19/2003	2,021,040	<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			<5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
July	7/21/2003	1,995,240	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			40	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	7/9/2003	1,990,260	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			36	< 50	< 5.0	< 5.0	< 5.0	< 5.0
June	6/18/2003	1,978,560	Carbon Change-out of 2000 lb vessel and 55 gallon polishing vessel					
	6/10/2003	1,972,780	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
May	5/21/2003	1,951,830	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	5/1/2003	1,918,270	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0

**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent and GAC-1					
		Reading (gallons)	(concentrations in ug/L)			Benzene	Toluene	Ethylbenzene
April	4/11/2003	1,882,440	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
March	3/19/2003	1,846,490	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
February	2/25/2003	1,804,960	replaced 55-gallon polishing vessel with new 55 gallon carbon drum					
	2/19/2003	1,791,720	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
January	1/27/2003	1,733,500	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	1/2/2003	1,675,600	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
<b>2002</b>								
December	12/10/2002	1,672,870	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
November	11/22/2002	1,668,650	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
	11/13/2002	1,664,780	replaced gasket on top of 2000 lb GAC vessel, slight leak was detected					
	11/7/2002	1,663,880	Carbon Change-out of 2000 lb vessel and 55 gallon polishing vessel					
October	10/16/02 <sup>3</sup>	1,661,590	< 310	2,000 Y Z	< 310	< 310	< 310	< 310
			< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
September	9/19/2002	1,653,600	< 5	< 50	< 5	< 5	< 5	< 5
			< 5	< 50	< 5	< 5	< 5	< 5
August	8/23/2002	1,641,650	1	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
July	7/23/2002	1,632,834	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0
			< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0

**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent and GAC-1					
		Reading (gallons)	(concentrations in ug/L)					
			MtBE	TPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes
June	6/24/2002	1,610,050	1.7	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
May	5/30/2002	1,571,630	< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	5/20/2002	1,548,000	removed newly installed compressor, installed another compressor					
	5/8/2002	1,538,850	installed new compressor					
	5/1/2002	1,529,650	installed new 55 gallon GAC Vessel					
April	4/24/2002	1,528,740	< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	4/1/2002	1,478,500	repaired valve plate assembly on compressor					
March	3/25/2002	1,478,420	performed carbon change-out on treatment system					
	3/18/2002	NR	replaced piston on compressor					
	3/14/2002	1,478,330	compressor not building up pressure					
February	2/27/2002	1,449,830	< 0.5	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			1.1	< 50	< 0.5	< 0.5	< 0.5	< 0.5
January	1/22/2002	1,381,370	< 2.0	< 50	< 0.5	< 0.5	< 0.5	< 0.5
			< 2.0	< 50	< 0.5	< 0.5	< 0.5	< 0.5
2001								
December	12/12/2001	1,311,340	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
November	11/2/2001	1,272,660	ND	ND	ND	ND	ND	ND
			0.6	ND	ND	ND	ND	ND
September	9/28/2001	NA	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
August	8/22/2001	1,243,100	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
July	7/26/2001	1,227,270	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
	7/11/2001	1,226,730	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA

**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent and GAC-1					Total Xylenes
		Reading (gallons)	(concentrations in ug/L)					
			MtBE <sup>2</sup>	TPH-g	Benzene	Toluene	Ethylbenzene	
June	6/29/2001	1,224,600	NA	NA	NA	NA	NA	NA
			ND	ND	ND	ND	ND	ND
	6/26/2001	NR	installed new compressor					
	6/16/2001	1,216,580	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
			compressor not working, repaired compressor					
	6/7/2001	1,216,580	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
May	5/30/2001	1,205,198	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	5/23/2001	1,194,390	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	5/17/2001	1,182,360	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
	5/10/2001	1,166,850	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	5/5/2001	1,151,600	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
April	4/28/2001	1,135,690	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	4/21/2001	1,113,570	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	4/11/2001	1,082,700	NA	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
	4/6/2001	1,065,540	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
March	3/29/2001	1,036,330	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
			system was re-started					
	3/21/2001	1,036,070	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
			belt replaced on compressor					
	3/17/2001	1,035,100	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	3/13/2001	1,032,500	ND	ND	ND	ND	ND	ND
			NA	NA	NA	NA	NA	NA
	3/2/2001	996,520	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	3/1/2002	NR	system re-started after carbon change-out					
February	2/28/2002	NR	Carbon Change-out was performed on GAC-1, washed algae from holding tank cleaned 2000 lb GAC, re-started system					
	2/10/2001	975,490	System shut down for maintenance and cleaning.					
January	1/29/2001	957,880	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND



**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent and GAC-1					Total Xylenes
		Reading (gallons)	(concentrations in ug/L)		Benzene	Toluene	Ethylbenzene	
			MtBE <sup>2</sup>	TPH-g				
<b>2000</b>								
December	12/5/2000	883,000	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
November	11/24/2000	NR	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
	11/1/2000	842,000	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
October	10/1/2000	809,000	ND	ND	ND	ND	ND	ND
			ND	ND	ND	ND	ND	ND
August	8/27/2000	781,000	ND	ND	ND	ND	ND	ND
	8/24/2000	778,000	Totalizer meter replaced at 775,000 gallons					
July	7/26/2000	726,000	ND	ND	ND	ND	ND	ND
	7/19/2000	718,000	ND	ND	ND	ND	ND	ND
	7/13/2000	712,000	ND	ND	ND	ND	ND	ND
	7/7/2000	706,000	ND	ND	ND	ND	ND	ND
June	6/29/2000	700,000	ND	ND	ND	ND	ND	ND
	6/21/2000	682,220	ND	ND	ND	ND	ND	ND
	6/16/2000	669,720	ND	ND	ND	ND	ND	ND
	6/10/2000	651,200	ND	ND	ND	ND	ND	ND
May	5/31/2000	629,000	ND	ND	ND	ND	ND	ND
	5/23/2000	603,700	ND	ND	ND	ND	ND	ND
	5/18/2000	570,000	ND	ND	ND	ND	ND	ND
	5/10/2000	530,400	ND	ND	ND	ND	ND	ND
April	4/30/2000	488,300	ND	ND	ND	ND	ND	ND
	4/18/2000	485,300	ND	ND	ND	ND	ND	0.51
			compressor stopped, system shut down until April 29, 2000					
	4/10/2000	440,200	ND	ND	ND	ND	ND	ND
	4/4/2000	390,100	ND	ND	ND	ND	ND	ND
	4/2/2000	NR	performed a carbon change-out on GAC-1					

**Table 2**  
**Total Volume of Water Treated, Historical Operational Data, and Effluent and GAC-1 Analytical Results**  
**3609 International Boulevard, Oakland, California**

Month	Date	Meter	Lab Results For Effluent <sup>1</sup> and GAC-1						
		Reading (gallons)	(concentrations in ug/L)						
			MtBE <sup>2</sup>	TPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes	
March		3/31/2000	NR	replaced GAC-2 with a special GAC designed for removal of MtBE					
		3/24/2000	388,000	ND	ND	ND	ND	ND	ND
		3/17/2000	357,100	ND	ND	ND	ND	ND	ND
		3/10/2000	329,000	ND	ND	ND	ND	ND	ND
		3/3/2000	300,000	transfer overheated, repaired pump, restarted system 3/6/00					
February		2/25/2000	274,000	ND	ND	ND	ND	ND	ND
		2/18/2000	233,000	ND	ND	ND	ND	ND	ND
		2/11/2000	190,000	ND	ND	ND	ND	ND	ND
		2/4/2000	160,800	ND	ND	ND	ND	ND	ND
January		1/28/2000	130,600	ND	ND	ND	ND	ND	ND
		1/21/2000	103,435	ND	ND	ND	ND	ND	ND
		1/17/2000	NR	GAC-1 was replaced with 2,000 lb GAC unit					
		1/14/2000	83,500	185	ND	ND	ND	ND	ND
				1999					
December		12/23/1999	51,680	1486	NA	ND	ND	ND	ND
				ND	NA	ND	ND	ND	ND
		12/16/1999	30,450	963	NA	ND	ND	ND	ND
				ND	NA	ND	ND	ND	ND
		12/9/1999	9,000	230	ND	ND	ND	ND	ND
Pumping began on December 6, 1999									

**Notes:**

- 1 Effluent is equivalent to PSP#1
  - 2 MTBE was analyzed using EPA Method 8260B, prior to the September 2003. After September 2003, MtBE was only analyzed by EPA Method 8021B.
  - 3 Lab data as shown for Oct. 2002 is erroneous data. During lab analysis a high detection of 2-Butanone was detected in only the effluent sample. The influent sample for 2-Butanone was at only 20 ppb. This caused a high dilution factor causing a high non-detectable value. The high TPH-g value was misrepresentative due to the Y and Z flags.
- ND, < : Not Detected above laboratory reporting limits  
 NA: Not Analyzed  
 NR: Not recorded. Totalizer reading not recorded.  
 Y: Sample exhibits fuel pattern which does not resemble standard  
 Z: Sample exhibits unknown single peak or peaks

**Table 3**  
**Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent				
7/24/2000	5:00	394	0	85	0	0	0.00
7/25/2000	5:15	38	2	95	24	3,914,096	1.01
7/26/2000	5:05	207	1	80	48	3,228,121	4.52
7/27/2000	9:00	160	5	92	64	2,500,944	2.71
7/28/2000	4:30	141	7	87	96	4,656,139	4.44
7/29/2000	1:30	225	8	85	117	3,032,734	4.62
7/30/2000	9:00	226	12	85	136	2,816,110	4.31
7/31/2000	3:00	141	5	85	166	4,332,478	4.13
8/1/2000	5:00	135	4	80	192	3,533,942	3.23
8/2/2000	4:00	80	4	80	215	3,126,180	1.69
8/3/2000	5:00	60	5	85	240	3,610,398	1.47
8/4/2000	3:00	57	4	85	262	3,177,150	1.23
8/5/2000	2:00	97	8	87	285	3,399,721	2.23
8/6/2000	12:00	114	8	80	307	2,990,259	2.31
8/7/2000	12:00	93	9	85	331	3,465,982	2.18
8/8/2000	4:30	152	10	85	360	4,115,854	4.23
8/10/2000	10:00	173	1	85	377	2,527,279	2.96
8/11/2000	7:00	78	4	70	410	3,924,715	2.07
8/12/2000	9:00	100	6	70	424	1,665,031	1.13
8/13/2000	5:00	107	9	70	456	3,805,784	2.75
8/14/2000	12:30	122	5	70	476	2,319,150	1.91
8/15/2000	6:00	103	12	70	505	3,508,457	2.44
8/16/2000	12:30	112	0	70	524	2,200,219	1.67
8/18/2000	9:00	90	0	75	568	5,670,449	3.45
8/21/2000	12:00	74	5	80	643	10,194,065	5.10
8/24/2000	12:00	68	13	80	712	9,378,540	4.31
8/27/2000	12:30	68.5	2	80	785	9,854,263	4.57
8/31/2000	1:30	52	6	80	882	13,184,324	4.64
9/4/2000	12:30	54	5	80	977	12,912,482	4.72
9/7/2000	12:00	55	3	80	1,048	9,718,342	3.62
9/11/2000	4:30 <sup>2</sup>	141	0	80	1,149	13,660,047	13.03
9/14/2000	9:30	56	5	80	1,214	8,834,856	3.35
9/18/2000	2:00	46	9.5	80	1,314	13,660,047	4.25
9/18/2000	4:30 <sup>3</sup>	34	0	80	1,317	339,802	0.08
9/21/2000	4:30	43	1	80	1,389	9,786,302	2.85
9/25/2000	5:30	55	6	80	1,486	13,184,324	4.91
9/28/2000	9:00	47.5	7.5	80	1,550	8,766,896	2.82

**Table 3**  
**Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent				
10/1/2000	1:00	38.5	6	80	1,626	10,329,986	2.69
10/5/2000	3:00 <sup>4</sup>	28.5	3	80	1,724	13,320,245	2.57
10/5/2000	5:00	36	0	80	1,726	271,842	0.07
10/8/2000	3:00	28.5	3	80	1,796	9,514,460	1.83
10/14/2000	3:00	24.5	2.5	80	1,940	19,572,604	3.24
10/17/2000	2:00	36.5	3.5	80	2,011	9,650,381	2.38
10/20/2000	8:30	18.5	3.5	80	2,078	9,038,737	1.13
10/25/2000	2:00	38	3.7	80	2,203	17,058,068	4.39
10/29/2000	10:00	35	4	80	2,295	12,504,719	2.96
11/2/2000	4:00	30.5	4	80	2,397	13,863,928	2.86
11/7/2000	4:00	30	6	80	2,517	16,310,504	3.31
11/19/2000	12:00	92.7	5.5	80	2,801	38,601,525	24.20
11/24/2000	13:30	25	6.5	80	2,923	16,514,385	2.79
11/29/2000	15:00	14.5	3.5	80	3,044	16,514,385	1.62
12/4/2000	16:30	10.7	1	80	3,190	19,776,486	1.43
12/13/2000	15:30	24	3	80	3,405	29,222,986	4.74
12/28/2000	14:30	10	6	85	3,764	51,845,314	3.51
1/4/2001 <sup>5</sup>	14:00	8.7	3.7	85	3,907	20,723,684	1.22
8/8/2001	15:00	217	0	85	3,907	0	0
9/6/2001	12:00	85	0	85	4,048	20,362,644	11.71
9/13/2001	16:00	186	8	85	4,220	24,839,538	31.26
9/18/2001	15:00	184	9	85	4,344	17,907,574	22.29
9/21/2001 <sup>6</sup>		--	--	--	4,344	0	0
10/12/01 <sup>7</sup>		--	--	--	4,344	0	0
10/23/2001	17:00	114	58	87	4,344	0	0
10/25/01 <sup>4</sup>	15:00	133	0	85	4,390	6,643,132	5.98
10/29/2001 <sup>8</sup>	13:20	569	0	85	4,485	13,647,304	52.53
11/7/2001	15:30	177	0	87	4,679	28,675,904	34.34
11/16/2001	15:00	117	0	87	4,894	31,853,904	25.21
11/21/01 <sup>9</sup>	12:00	85	72	87	5,011	17,294,231	9.94
2/15/02 <sup>10</sup>	16:30	49	0	80	5,011.5	67,960	0.02
2/16/2002	15:45	50	0	80	5,035	3,160,160	1.07
2/21/2002	16:00	37	4	80	5,155	16,344,484	4.09
2/27/2002	10:30	11	0	83	5,294	19,530,979	1.45
3/7/02 <sup>11</sup>	12:20	10		80	5,488	26,429,812	1.79
6/12/2002 <sup>12</sup>	16:15	53	2	75	NA	NA	NA
6/17/2002	11:00	28	2	80	114.75	15,593,148	0.96
6/24/2002	11:20	24	3.1	80	168.33	22,866,400	1.21
7/5/2002	13:25	20	5	80	264.09	35,873,552	1.58
7/11/2002	15:30	26	8.0	80	144.09	19,572,752	1.12
7/23/2002	10:10	28	7.5	83	287.78	40,557,673	2.50
8/9/2002	12:20	7.5	0	80	408.09	55,434,983	0.91

**Table 3**  
**Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent				
8/15/2002 <sup>11</sup>	15:00	7.0	1	80	144.11	19,575,902	0.30
8/23/2002 <sup>13</sup>	15:20	NA	NA	NA	NA	NA	NA
8/26/2002	11:15	14.0	2.0	80	71.83	9,757,387	0.30
9/11/2002	10:10	34.4	0	80	383.95	52,156,428	3.95
9/19/2002	10:55	8.8	1.1	80	192.75	26,183,160	0.51
9/25/2002	10:30	18.8	1.8	80	144.75	19,662,840	0.81
10/2/2002	8:10	17.1	2.5	80	168.75	22,923,000	0.86
10/9/2002		PID malfunction		80	168.75	22,923,000	NA
10/16/2002	13:45	17.0	4.0	80	168.75	22,923,000	0.86
10/24/2002		16.5	6.4	80	192.75	26,183,160	0.95
11/1/2002		21.1	0.0	85	192.75	27,819,608	1.29
11/6/2002	10:12	PID malfunction		87	120.75	17,837,915	NA
11/7/2002		17.5	0.0	85	24.75	3,572,168	0.14
11/13/2002	11:30	15.0	0.0	85	144.75	20,891,768	0.69
11/22/2002	14:30	6.6	0.0	80	219.00	29,748,960	0.43
11/22/2002		system shut-down due to rainy season and low influent readings					
2003							
5/9/2003	10:30	0.1	0.0	82	0	0	0
5/12/2003	10:30	0.4	0.3	85	72.00	10,391,760	0.01
5/21/2003	11:00	2.2	2.2	83	216.50	30,512,211	0.15
6/4/2003	10:30	2.5	0.1	82	335.50	46,713,678	0.26
6/10/2003	10:30	2.2	0.08	82	144.00	20,049,984	0.10
6/16/2003	12:15	2.1	0.07	82	146.25	20,363,265	0.09
6/24/2003	16:55	2.6	0.08	82	196.75	27,394,683	0.16
6/30/2003	11:30	2.2	0.1	82	138.50	19,284,186	0.09
7/16/2003	12:00	2.2	0.22	82	384.50	53,536,242	0.26
7/21/2003	10:50	2.1	0.21	82	119.00	16,569,084	0.08
7/28/2003	11:15	2.2	0.22	82	168.25	23,426,457	0.11
8/11/2003	12:15	2.1	0.21	82	337.00	46,922,532	0.22
8/19/2003	10:05	2.1	0.22	82	190.00	26,454,840	0.12
8/25/2003	11:30	2.2	0.23	81	145.30	19,984,271	0.10
9/2/2003	10:50	2.1	0.21	80	190.30	25,850,352	0.12
9/8/2003	2:10	9.1	3.19	83	147.30	20,759,578	0.42
9/11/2003	10:00	All 4 SVE carbon drums changed-out					
9/22/2003	1:30	7	0.2	88	335.25	50,094,396	0.77
10/1/2003	10:30	6.5	0.2	85	213.00	30,742,290	0.44
10/6/2003	11:00	7	0.3	85	120.50	17,391,765	0.27
10/13/2003	11:15	5	0.2	85	168.25	24,283,523	0.27
10/29/2003	10:00	2.4	0	85	382.75	55,242,308	0.29
11/3/2003	11:30	3	0	85	121.50	17,536,095	0.12
11/10/2003	11:10	3.5	0	85	167.67	24,199,330	0.19
11/17/2003	13:50	4.1	0	85	170.70	24,637,131	0.22
11/24/2003	11:00	3.8	0	85	165.20	23,843,316	0.20
11/24/2003		system shut-down due to rainy season and low influent readings					
2004							
4/5/2004	13:00	5.6	0.11	85	0	2405.5	0
4/12/2004	10:30 AM	6.5	0.2	83	165.5	23,324,577	0.33
4/20/2004	12:00 PM	7.1	0.9	84	193.5	27,599,292	0.43
4/23/2004	11:00PM	7.2	2.3	80	59	8,014,560	0.13
5/3/2004	12:00 PM	7.1	3.4	80	241	32,737,440	0.51
5/5/2004	11:00 PM	All 4 SVE carbon drums changed-out					
Total Mass of Petroleum Hydrocarbons Removed =							415.36
Average Daily Removal Rate (pounds / day)=							0.30

**Table 3**  
**Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent				

Notes:

- <sup>1</sup> The representative molecular weight of hydrocarbons was assumed to be 78 gram/mole and used the measured temperature of Vapor (36 °C) in converting ppm-v to ppm on mass basis.
- <sup>2</sup> System accidentally shut down from main box, readings taken 30 minutes after startup.
- <sup>3</sup> GAC Replaced
- <sup>4</sup> GAC-1 removed, new GAC installed at effluent end
- <sup>5</sup> SVE System turned off for rainy season due to low influent concentrations
- <sup>6</sup> system down, hoses disconnected and GAC moved for replacement
- <sup>7</sup> system down for electrical repair
- <sup>8</sup> Carbon change-out of three drums, moved new effluent drum on 10/25/01 to GAC-1
- <sup>9</sup> system shut-down due to high effluent value
- <sup>10</sup> System re-started (since November 21, 2001), installed new 4-55 gallon vapor phase carbon vessels, repaired blower
- <sup>11</sup> System was shut-down due to low influent reading
- <sup>12</sup> System was restarted on 6/12/02
- <sup>13</sup> System was re-started but no readings were taken

# FIGURES

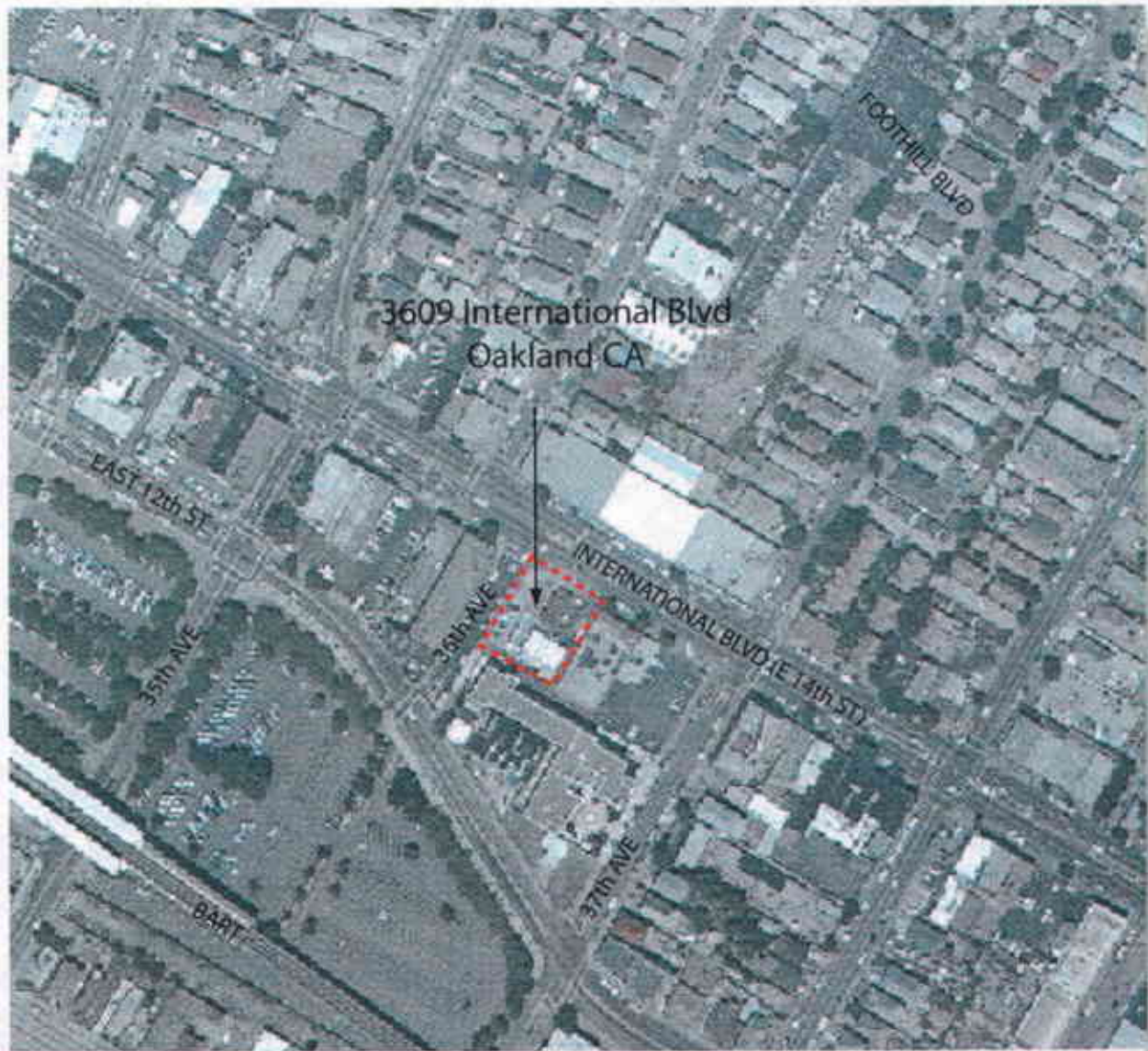


Figure 1: Site vicinity map.

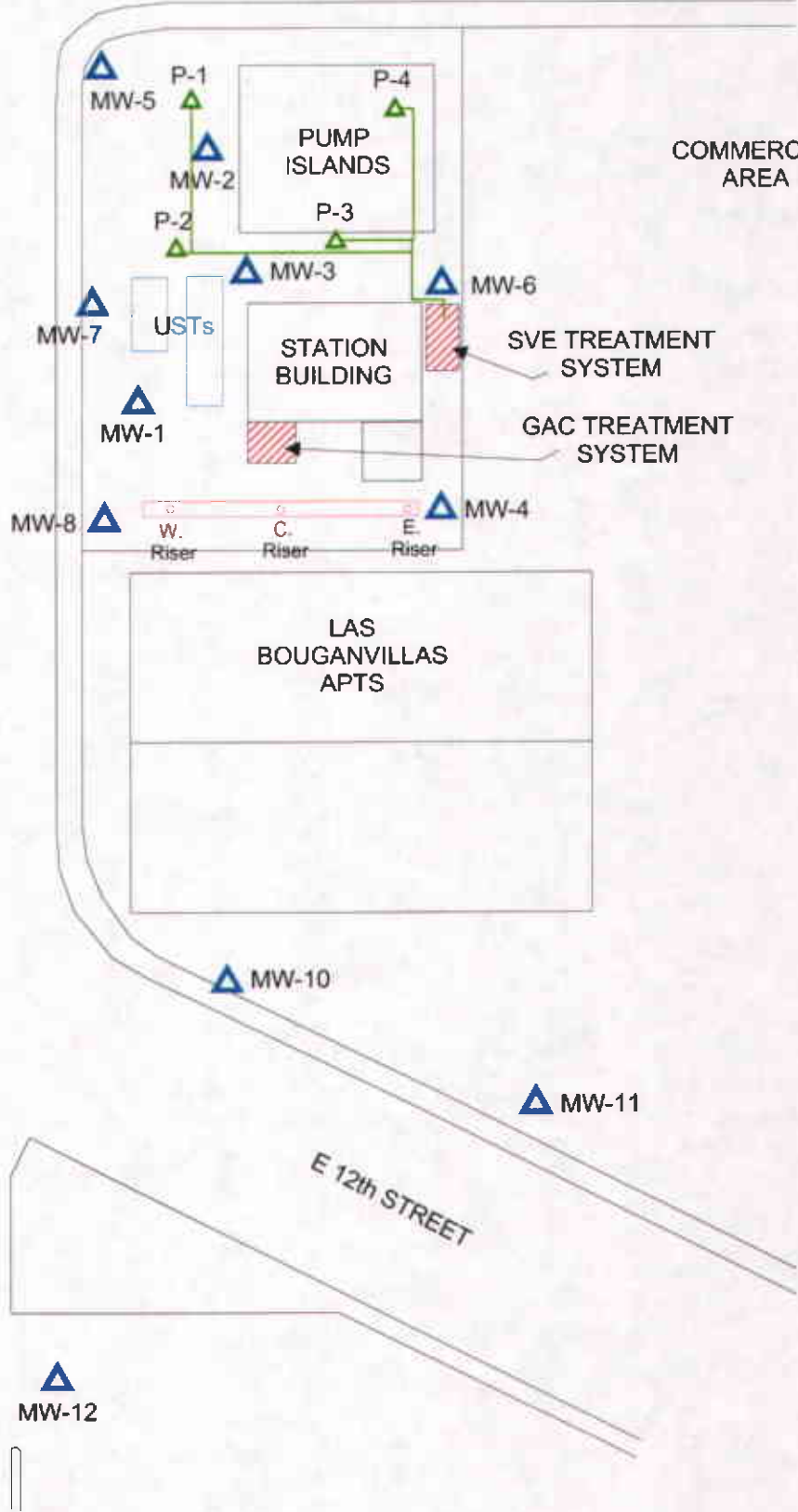


INTERNATIONAL BLVD

COMMERCIAL AREA

COMMERCIAL AREA

36th AVENUE



-  MONITORING WELL
-  EXTRACTION WELL
-  EXTRACTION MANIFOLD PIPING

approximate scale in feet



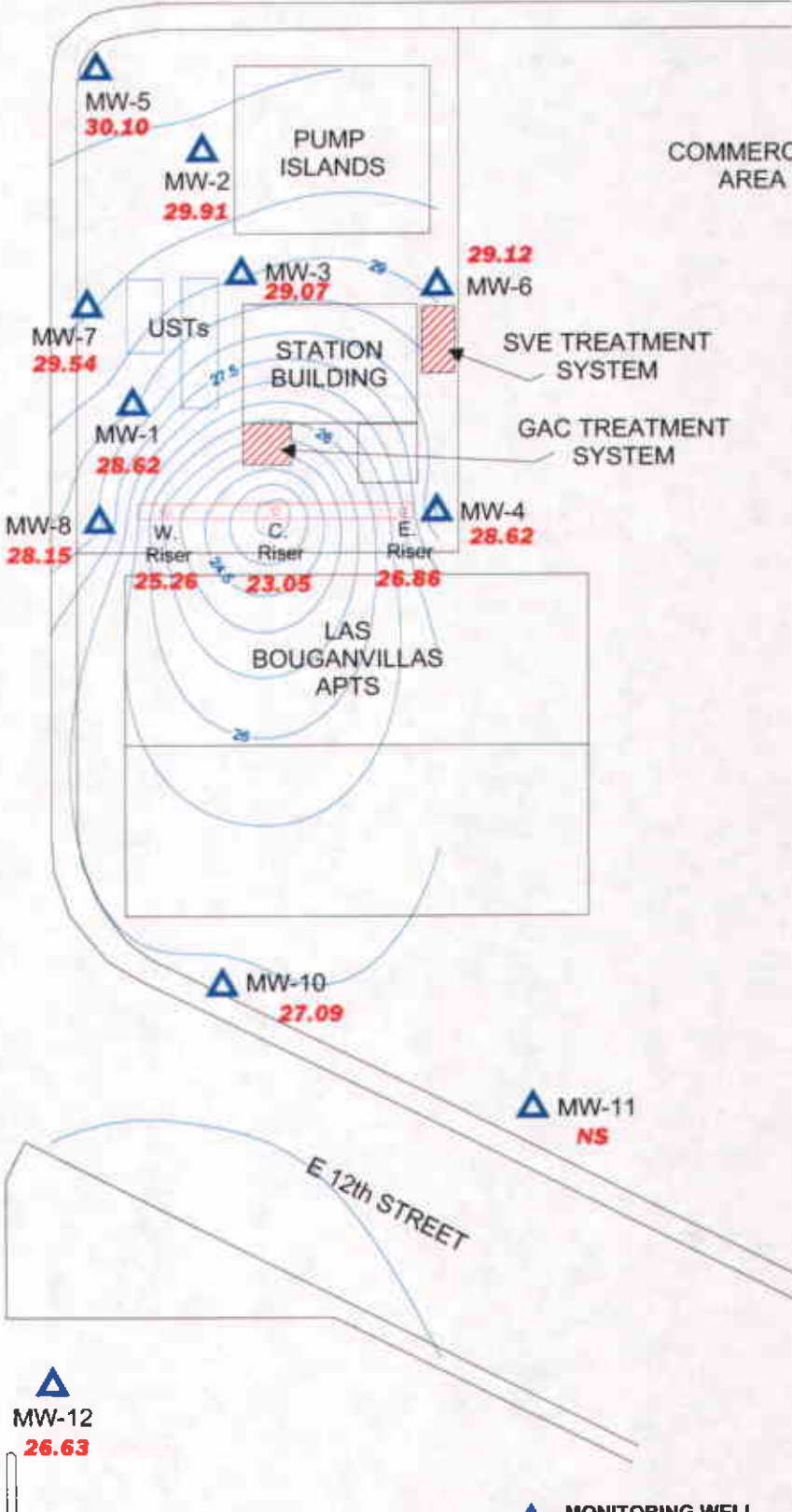
Figure 2: Site map showing location of groundwater monitoring wells, French drain, SVE system, and GAC system.

COMMERCIAL AREA

INTERNATIONAL BLVD

COMMERCIAL AREA

36th AVENUE



approximate groundwater flow direction



 MONITORING WELL

**NS** NOT SURVEYED DUE TO OBSTRUCTIONS

approximate scale in feet



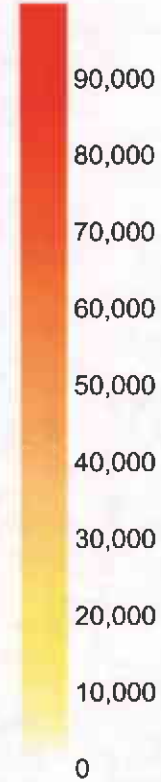
Figure 3: Groundwater elevation contour map in feet. April, 2004.

COMMERCIAL AREA

INTERNATIONAL BLVD

COMMERCIAL AREA

TPH-g  
ug/L



36th AVENUE

MW-5  
280

MW-2  
730

MW-3  
31,000

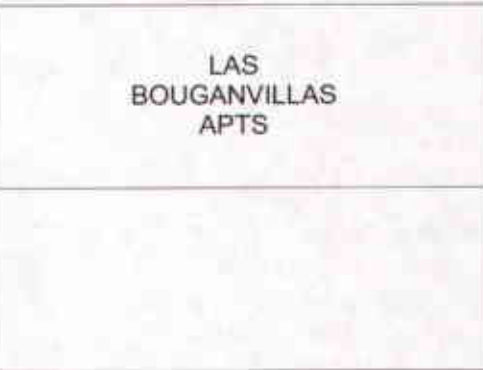
MW-6  
99,000

MW-7  
480

MW-1  
41,000

MW-8  
12,000

MW-4  
<50



MW-10  
5,100

MW-11  
NA

E 12th STREET

MW-12  
2,000



▲ MONITORING WELL

< LESS THAN LAB REPORTING LIMITS

NA NOT ANALYZED

approximate scale in feet



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

COMMERCIAL AREA

INTERNATIONAL BLVD

COMMERCIAL AREA

Benzene  
ug/L



36th AVENUE

PUMP ISLANDS

STATION BUILDING

USTs

W. Riser C. Riser E. Riser

LAS BOUGANVILLAS APTS

SVE TREATMENT SYSTEM

GAC TREATMENT SYSTEM

E 12th STREET



MW-12  
11

MW-5  
<0.5

MW-2  
6.6

MW-3  
4,200

MW-6  
1,700

MW-7  
<0.5

MW-1  
1,200

MW-8  
240

MW-4  
3.8

MW-10  
580

MW-11  
NA

- ▲ MONITORING WELL
- < LESS THAN LAB REPORTING LIMITS
- NA NOT ANALYZED

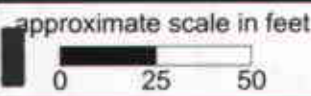


Figure 5: Contour map of Benzene concentrations in the groundwater. April, 2004.





COMMERCIAL AREA

INTERNATIONAL BLVD

COMMERCIAL AREA

MtBE  
ug/L



36th AVENUE

MW-5  
2.1

MW-2  
<2.0

MW-3  
900

MW-6  
<50

MW-7  
0.62

MW-1  
4,300

STATION BUILDING

GAC TREATMENT SYSTEM

SVE TREATMENT SYSTEM

MW-8  
<4

W. Riser C. Riser E. Riser

MW-4  
<2.0

LAS BOUGANVILLAS APTS

MW-10  
160

MW-11  
NA

E 12th STREET

MW-12  
36



- ▲ MONITORING WELL
- < LESS THAN LAB REPORTING LIMITS
- NA NOT ANALYZED

approximate scale in feet

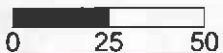


Figure 6: Contour map of MtBE concentrations in the groundwater. (EPA Method 8260B). April, 2004.

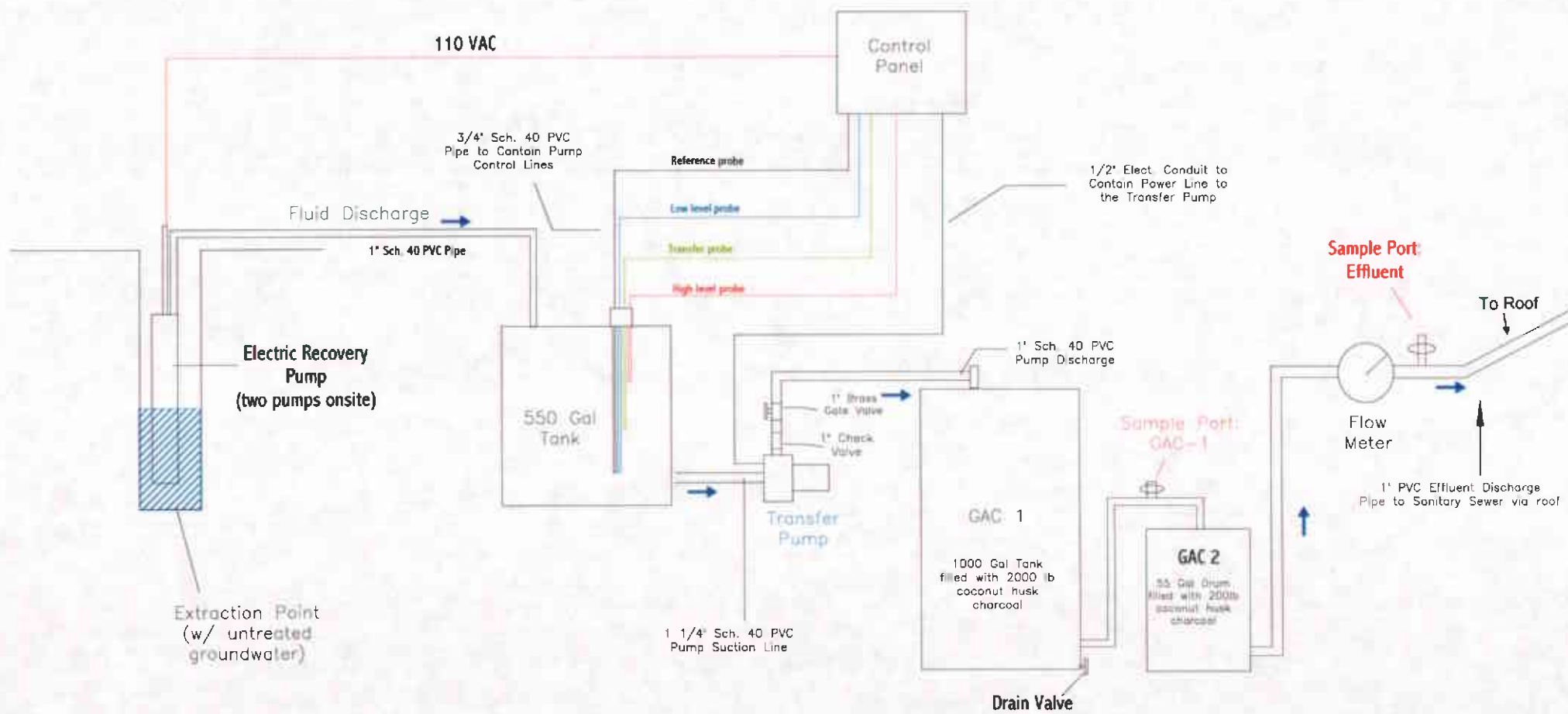


Figure 7: Schematic of the Groundwater Remediation System.

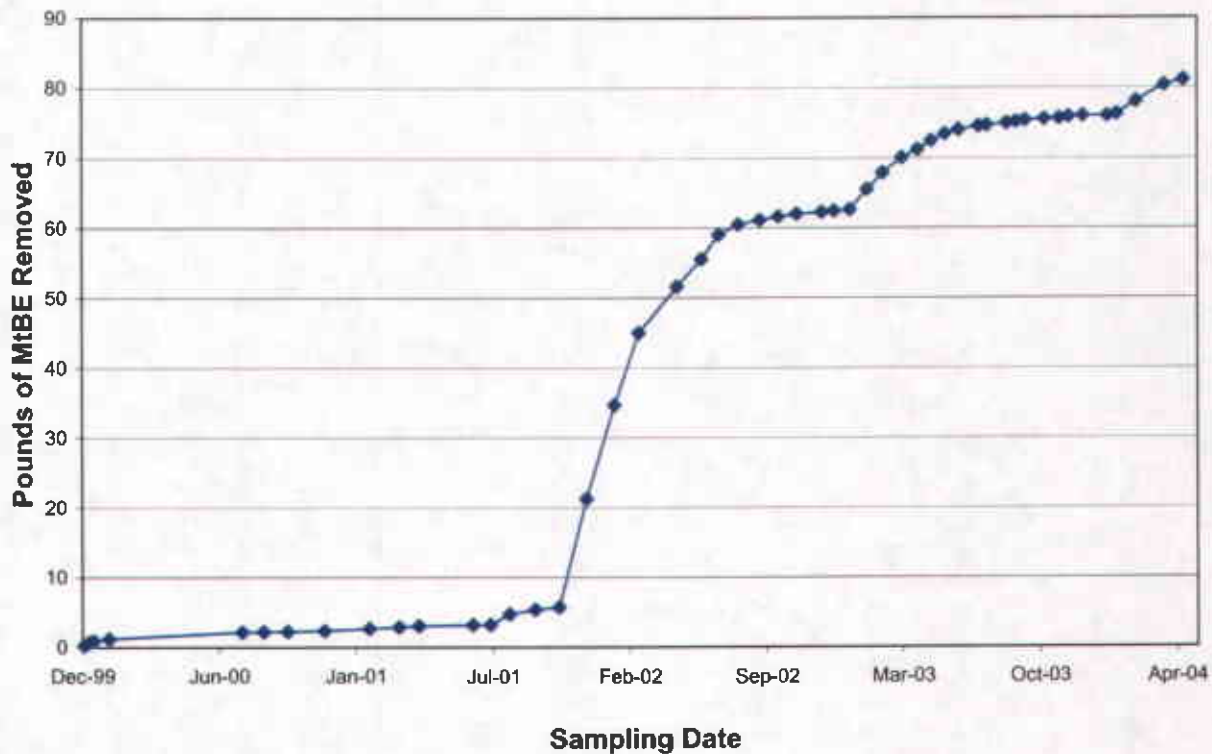
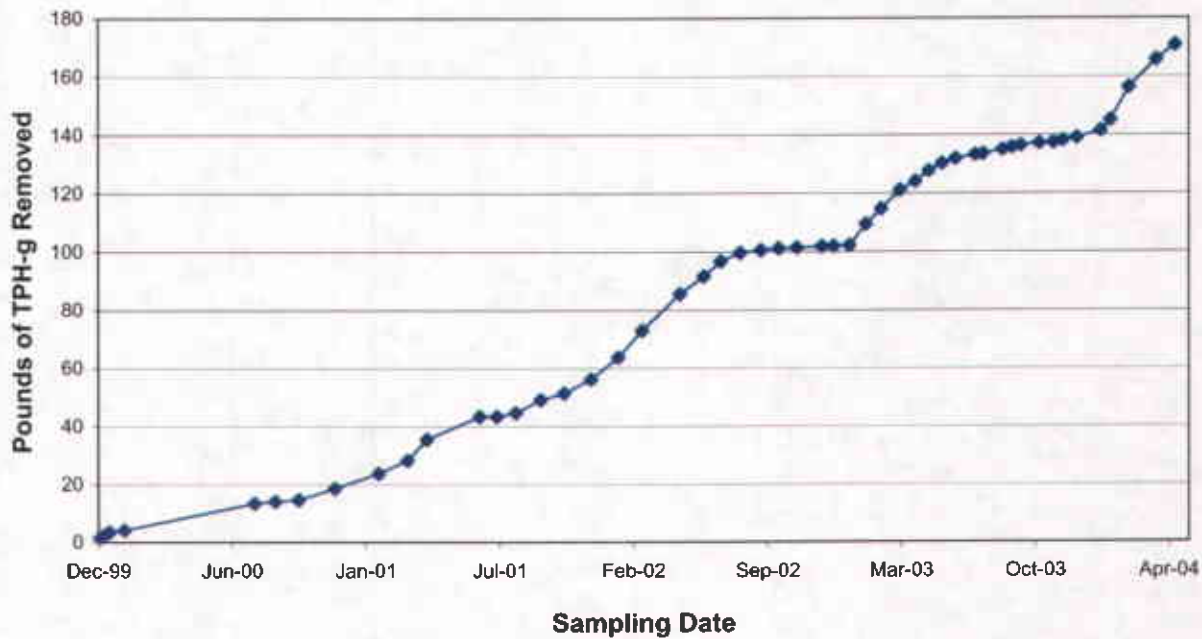


Figure 8. Cumulative mass of TPH-g and MtBE removed from groundwater since the installation of the treatment system.

# **APPENDIX A**

Table of Elevations & Coordinates on Monitoring Wells  
Surveyed by Kier Wright Civil Engineers Surveyors, Inc.,

and

Field Measurements of Physical, Chemical, and  
Biodegradation Parameters of Groundwater



**TABLE OF ELEVATIONS & COORDINATES  
 ON MONITORING WELLS**  
 SOMA ENVIRONMENTAL  
 Oakland-E. 14 the St. "International Blvd"

WELL NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
FD-C	2109299.85	6064039.85	39.35 40.25	Notch on north side of PVC Punch north rim of box
FD-E	2109281.13	6064067.87	40.06 40.55	Notch on north side of PVC Punch north rim of box
FD-W	2109314.99	6064017.59	39.16 39.95	Notch on north side of PVC Punch north rim of box
MW-1	2109338.74	6064025.97	40.11 40.76	Notch on north side of PVC Punch north rim of box
MW-2	2109383.20	6064073.06	40.71 41.61	Notch on north side of PVC Punch north rim of box
MW-3	2109351.11	6064064.63	40.91 41.68	Notch on north side of PVC Punch north rim of box
MW-4	2109278.18	6064076.40	40.01 40.67	Notch on north side of PVC Punch north rim of box
MW-5	2109410.84	6064058.46	41.16 41.60	Notch on south side of PVC Punch south rim of box
MW-6	2109320.46	6064105.06	40.92 41.52	Notch on north side of PVC Punch north rim of box
MW-7	2109368.19	6064025.54	39.94 40.54	Notch on north side of PVC Punch north rim of box
MW-8	2109321.68	6064000.46	39.38 39.72	Notch on north side of PVC Punch north rim of box

**TABLE OF ELEVATIONS & COORDINATES  
ON MONITORING WELLS**  
SOMA ENVIRONMENTAL  
Oakland-E. 14 the St. "International Blvd"

WELL NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
MW-10	2109193.97	6063957.39	36.71 37.70	Notch on north side of PVC Punch north rim of box
MW-11	2109125.26	6064007.52	XXXX	NO ELEVATION , BOAT ON TOP
MW-12	2109121.85	6063865.00	36.84 36.87	Notch on north side of PVC

Bench-mark: NGS Bench mark No.M-554. To reach the station from the intersection of Interstate Highway 880 and Hegenberger Rd in South Oakland go northeast on Hegenberger Rd for 0.5 MI to a side road right Baldwin St. Turn right and go south on Baldwin St for 0.35 MI to a T-intersection, 85th Ave. for 0.1 MI to a side road right, Railroad Ave. Turn right and go south on Railroad Ave. for 0.1 MI to the station on the left, east, side of the road in a large concrete headwall for a culvert.

Elevation = 14.20 NAVD88 Datum.

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









Well No.: MW-4  
 Casing Diameter: 2 inches  
 Depth of Well: 26.10 feet  
 Top of Casing Elevation: 40.0 feet  
 Depth to Groundwater: 11.39 feet  
 Groundwater Elevation: 28.62 feet  
 Water Column Height: 14.71 feet  
 Purged Volume: 10 gallons

Project No.: 2331  
 Address: 3609 International Blvd.  
 Oakland, CA  
 Date: April 29, 2004  
 Sampler: Tony Perini  
 Mehran Nowroozi

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)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Fe <sup>+2</sup> (mg/L)	NO <sub>3</sub> <sup>-1</sup> (mg/L)	SO <sub>4</sub> <sup>-2</sup> (mg/L)
4:34 PM	started									
4:36 PM	2.5	7.0	18.87	538	0.0	174	67			
4:39 PM	7.0	6.80	18.93	534	0.0	115	69			
4:41 PM	10	6.79	19.00	533	0.0	46.9	67			
sampled	4:45 PM							0	5.0	19

NOTES: well casing cracked & recommend to abandon the well















# **Appendix B**

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

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: 19-MAY-04

Lab Job Number: 172032

Project ID: 2331

Location: 3609 Int'l Blvd., 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

This package may be reproduced only in its entirety.

Laboratory Number: 172032  
Client: SOMA Environmental  
Project: 2331  
Request Date: 4/30/2004

### CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for ten water samples requested from the above referenced project on April 30, 2004. The samples were received cold and intact.

#### Total Volatile Hydrocarbons:

In the samples, several surrogate recoveries exceed control limits due to coelution of the surrogate peak with other hydrocarbon peaks. The associated surrogates are acceptable.

No other analytical problems were encountered.

#### Purgeable Organics (EPA 8260):

No analytical problems were encountered.

# CHAIN OF CUSTODY

## Analyses

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

C&T LOGIN # 172032

Sampler: Tony Perini / Eric Jennings

Project No: 2331

Report To: Tony Perini

Project Name: 3609 International Blvd, Oakland Company: SOMA Environmental

Turnaround Time: Standard Telephone: 925-244-6600

Fax: 925-244-6601

Lab No.	Sample ID.	Sampling Date Time	Matrix			# of Containers	Preservative				TPHg 8015	BTEX + MtBE 8021 GC	MTBE Confirmation 8260 GCMS
			Soil	Water	Waste		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE			
-1	MW-1	4/30/04 1128 AM		✓		3-VOLs	✓				✓	✓	✓
-2	MW-2	4/29/04 3:15 PM											
-3	MW-3	4/30/04 1058 AM											
-4	MW-4	4/29/04 4:45 PM											
-5	MW-5	4/30/04 930 AM											
-6	MW-6	4/30/04 1023 AM											
-7	MW-7	4/29/04 404 PM											
-8	MW-8	4/30/04 10 AM											
-9	MW-10	4/29/04 2:38 PM		✓			✓				✓	✓	✓
	MW-11												
-10	MW-12	4/29/04 205 PM		✓			✓				✓	✓	✓

Notes: **EDF OUTPUT REQUIRED**

Received  
 On Ice  
 Cold  Ambient  Intact

RELINQUISHED BY:		RECEIVED BY:	
<u>Tony Perini</u>	<u>4/30/04</u>	<u>Kevin Andrews</u>	<u>4/30/04 1305</u>
<u>Eric Jennings</u>	<u>1:05 AM</u>		
	DATE/TIME		DATE/TIME
	DATE/TIME		DATE/TIME



### Total Volatile Hydrocarbons

Lab #: 172032	Location: 3609 Int'l Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2331	
Matrix: Water	Batch#: 90745
Units: ug/L	Received: 04/30/04

Field ID: MW-1	Diln Fac: 20.00
Type: SAMPLE	Sampled: 04/30/04
Lab ID: 172032-001	Analyzed: 05/01/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	41,000	1,000	EPA 8015B
MTBE	4,100	40	EPA 8021B
Benzene	1,200	10	EPA 8021B
Toluene	350 C	10	EPA 8021B
Ethylbenzene	830	10	EPA 8021B
m,p-Xylenes	2,200	10	EPA 8021B
o-Xylene	540	10	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	143 *	74-142	EPA 8015B
Bromofluorobenzene (FID)	128	80-139	EPA 8015B
Trifluorotoluene (PID)	106	55-139	EPA 8021B
Bromofluorobenzene (PID)	102	62-134	EPA 8021B

Field ID: MW-2	Diln Fac: 1.000
Type: SAMPLE	Sampled: 04/29/04
Lab ID: 172032-002	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	730	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	6.6	0.50	EPA 8021B
Toluene	19	0.50	EPA 8021B
Ethylbenzene	38	0.50	EPA 8021B
m,p-Xylenes	67	0.50	EPA 8021B
o-Xylene	20	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	120	74-142	EPA 8015B
Bromofluorobenzene (FID)	117	80-139	EPA 8015B
Trifluorotoluene (PID)	100	55-139	EPA 8021B
Bromofluorobenzene (PID)	106	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range

### Total Volatile Hydrocarbons

Lab #: 172032	Location: 3609 Int'l Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2331	
Matrix: Water	Batch#: 90745
Units: ug/L	Received: 04/30/04

Field ID: MW-3	Diln Fac: 50.00
Type: SAMPLE	Sampled: 04/30/04
Lab ID: 172032-003	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	31,000	2,500	EPA 8015B
MTBE	1,100 C	100	EPA 8021B
Benzene	4,200	25	EPA 8021B
Toluene	590	25	EPA 8021B
Ethylbenzene	1,600	25	EPA 8021B
m,p-Xylenes	3,500	25	EPA 8021B
o-Xylene	870	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	124	74-142	EPA 8015B
Bromofluorobenzene (FID)	118	80-139	EPA 8015B
Trifluorotoluene (PID)	98	55-139	EPA 8021B
Bromofluorobenzene (PID)	109	62-134	EPA 8021B

Field ID: MW-4	Diln Fac: 1.000
Type: SAMPLE	Sampled: 04/29/04
Lab ID: 172032-004	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	3.8	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	1.6	0.50	EPA 8021B
m,p-Xylenes	1.9	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	97	74-142	EPA 8015B
Bromofluorobenzene (FID)	114	80-139	EPA 8015B
Trifluorotoluene (PID)	89	55-139	EPA 8021B
Bromofluorobenzene (PID)	104	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range

**Total Volatile Hydrocarbons**

Lab #: 172032	Location: 3609 Int'l Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2331	
Matrix: Water	Batch#: 90745
Units: ug/L	Received: 04/30/04

Field ID: MW-5	Diln Fac: 1.000
Type: SAMPLE	Sampled: 04/30/04
Lab ID: 172032-005	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	280	50	EPA 8015B
MTBE	9.4 C	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	0.74 C	0.50	EPA 8021B
Ethylbenzene	0.62	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)	135	74-142	EPA 8015B
Bromofluorobenzene (FID)	117	80-139	EPA 8015B
Trifluorotoluene (PID)	104	55-139	EPA 8021B
Bromofluorobenzene (PID)	107	62-134	EPA 8021B

Field ID: MW-6	Diln Fac: 25.00
Type: SAMPLE	Sampled: 04/30/04
Lab ID: 172032-006	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	99,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	1,700	13	EPA 8021B
Toluene	580 C	13	EPA 8021B
Ethylbenzene	2,200	13	EPA 8021B
m,p-Xylenes	4,100	13	EPA 8021B
o-Xylene	1,100	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	150 *	74-142	EPA 8015B
Bromofluorobenzene (FID)	149 *	80-139	EPA 8015B
Trifluorotoluene (PID)	116	55-139	EPA 8021B
Bromofluorobenzene (PID)	105	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range

### Total Volatile Hydrocarbons

Lab #: 172032	Location: 3609 Int'l Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2331	
Matrix: Water	Batch#: 90745
Units: ug/L	Received: 04/30/04

Field ID: MW-7	Diln Fac: 1.000
Type: SAMPLE	Sampled: 04/29/04
Lab ID: 172032-007	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	480	50	EPA 8015B
MTBE	3.6 C	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	2.5 C	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m, p-Xylenes	0.90	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	120	74-142	EPA 8015B
Bromofluorobenzene (FID)	119	80-139	EPA 8015B
Trifluorotoluene (PID)	99	55-139	EPA 8021B
Bromofluorobenzene (PID)	102	62-134	EPA 8021B

Field ID: MW-8	Diln Fac: 2.000
Type: SAMPLE	Sampled: 04/30/04
Lab ID: 172032-008	Analyzed: 05/01/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	12,000	100	EPA 8015B
MTBE	ND	4.0	EPA 8021B
Benzene	240	1.0	EPA 8021B
Toluene	26 C	1.0	EPA 8021B
Ethylbenzene	650	1.0	EPA 8021B
m, p-Xylenes	120	1.0	EPA 8021B
o-Xylene	8.8 C	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	545 *	>LR b 74-142	EPA 8015B
Bromofluorobenzene (FID)	127	80-139	EPA 8015B
Trifluorotoluene (PID)	112	55-139	EPA 8021B
Bromofluorobenzene (PID)	103	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range

### Total Volatile Hydrocarbons

Lab #: 172032	Location: 3609 Int'l Blvd., Oakland
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2331	
Matrix: Water	Batch#: 90745
Units: ug/L	Received: 04/30/04

Field ID: MW-10	Diln Fac: 2.000
Type: SAMPLE	Sampled: 04/29/04
Lab ID: 172032-009	Analyzed: 05/01/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,100	100	EPA 8015B
MTBE	190 C	4.0	EPA 8021B
Benzene	580	1.0	EPA 8021B
Toluene	ND	1.0	EPA 8021B
Ethylbenzene	330	1.0	EPA 8021B
m,p-Xylenes	25	1.0	EPA 8021B
o-Xylene	1.4	1.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	115	74-142	EPA 8015B
Bromofluorobenzene (FID)	116	80-139	EPA 8015B
Trifluorotoluene (PID)	118	55-139	EPA 8021B
Bromofluorobenzene (PID)	108	62-134	EPA 8021B

Field ID: MW-12	Diln Fac: 1.000
Type: SAMPLE	Sampled: 04/29/04
Lab ID: 172032-010	Analyzed: 04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,000	50	EPA 8015B
MTBE	45 C	2.0	EPA 8021B
Benzene	11 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	3.1	0.50	EPA 8021B
o-Xylene	1.9 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	152 *	74-142	EPA 8015B
Bromofluorobenzene (FID)	137	80-139	EPA 8015B
Trifluorotoluene (PID)	187 *	55-139	EPA 8021B
Bromofluorobenzene (PID)	111	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range



Total Volatile Hydrocarbons

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331		
Matrix:	Water	Batch#:	90745
Units:	ug/L	Received:	04/30/04

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC249583	Analyzed:	04/30/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MIBK	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	98	74-142	EPA 8015B
Bromofluorobenzene (FID)	111	80-139	EPA 8015B
Trifluorotoluene (PID)	89	55-139	EPA 8021B
Bromofluorobenzene (PID)	100	62-134	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 b= See narrative  
 ND= Not Detected  
 RL= Reporting Limit  
 LR= Response exceeds instrument's linear range

# GC04 TVH 'J' Data File FID

Sample Name : 172032-001,90745

Sample #: a1.0

Page 1 of 1

File Name : G:\GC04\DATA\121J026.raw

Date : 5/1/04 10:26 AM

Method : TVHBTXE

Time of Injection: 5/1/04 09:13 AM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 34.80 mV

High Point : 556.93 mV

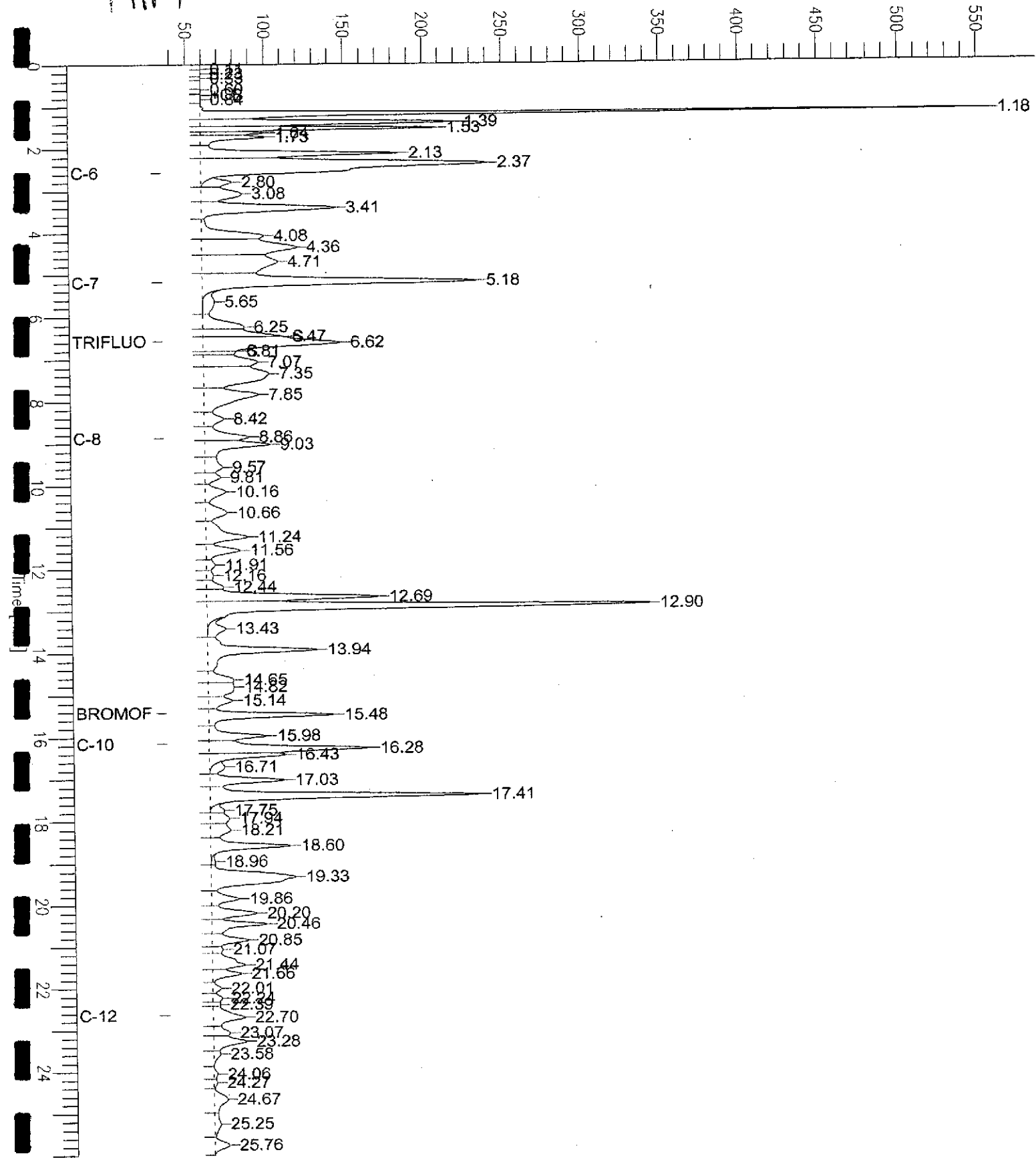
Scale Factor: 1.0

Plot Offset: 35 mV

Plot Scale: 522.1 mV

MW-1

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-002,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J008.raw

Date : 4/30/04 05:01 PM

Method : TVHBTXE

Time of Injection: 4/30/04 04:30 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 50.81 mV

High Point : 229.61 mV

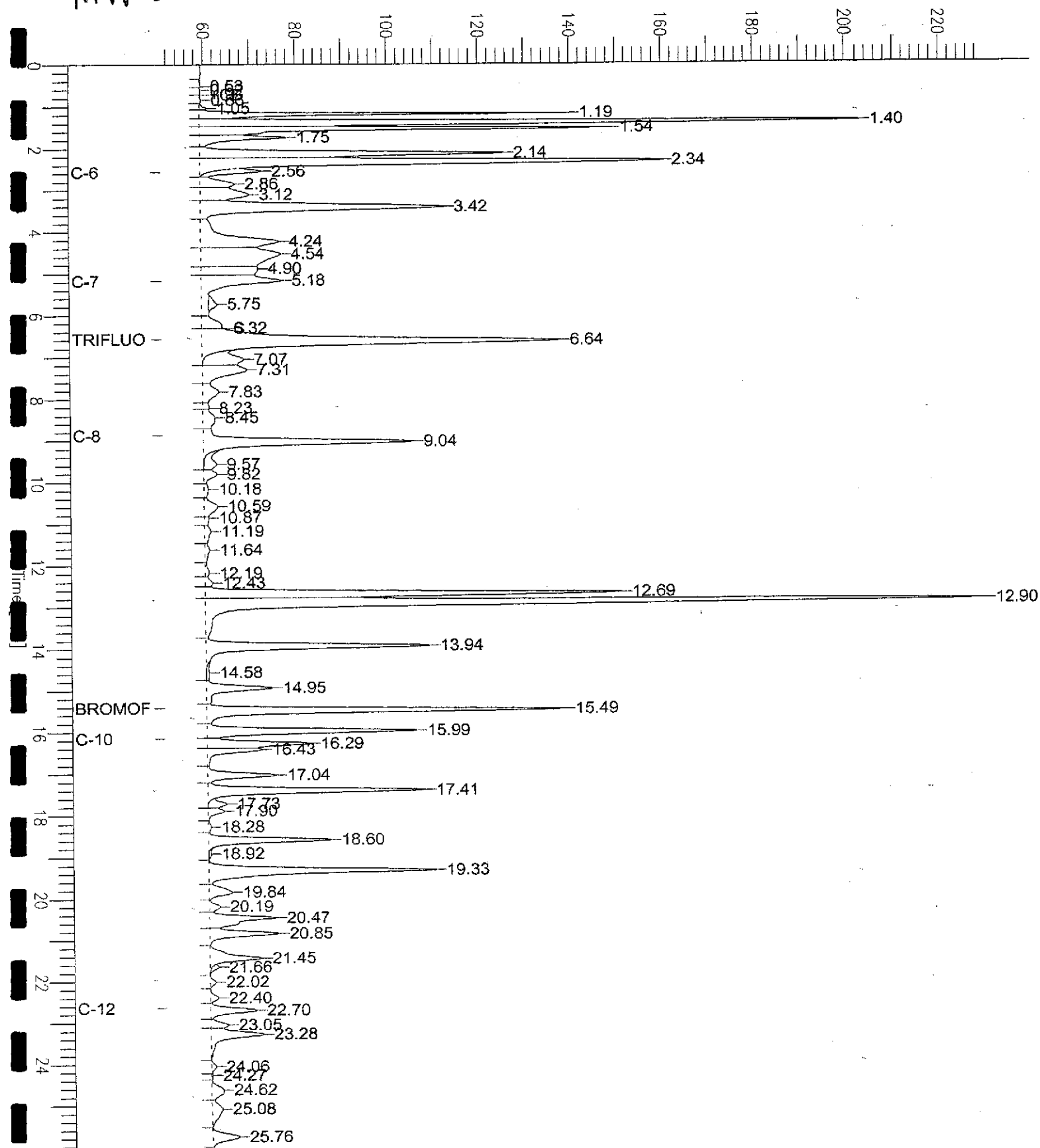
Scale Factor: 1.0

Plot Offset: 51 mV

Plot Scale: 178.8 mV

MW-2

Response [mV]





# GC04 TVH 'J' Data File FID

Sample Name : 172032-003,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J017.raw

Date : 4/30/04 11:14 PM

Method : TVHBTXE

Time of Injection: 4/30/04 10:48 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 49.81 mV

High Point : 253.81 mV

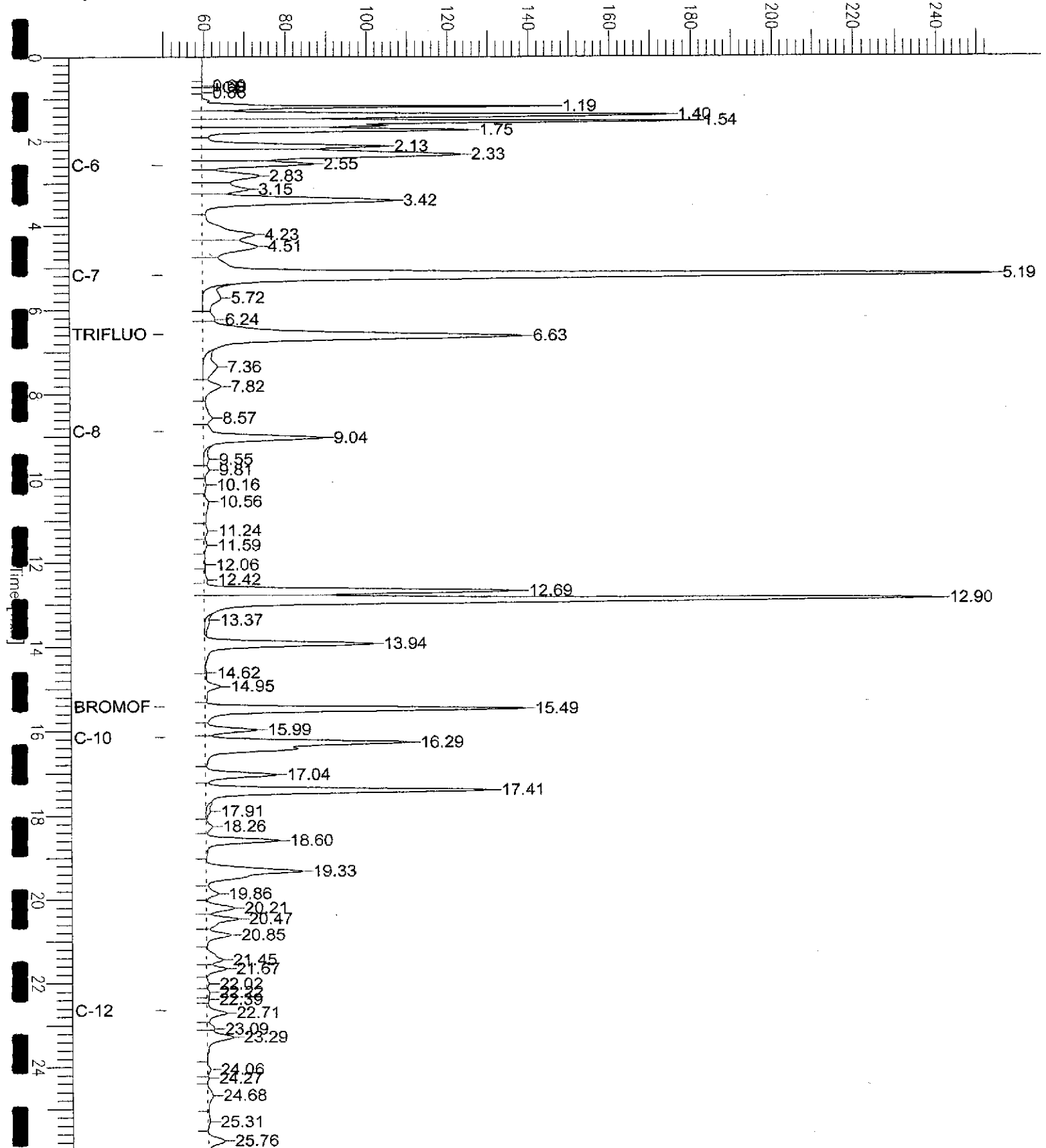
Scale Factor: 1.0

Plot Offset: 50 mV

Plot Scale: 204.0 mV

MW-3

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-005,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J010.raw

Date : 4/30/04 06:12 PM

Method : TVHBTXE

Time of Injection: 4/30/04 05:41 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 54.46 mV

High Point : 160.33 mV

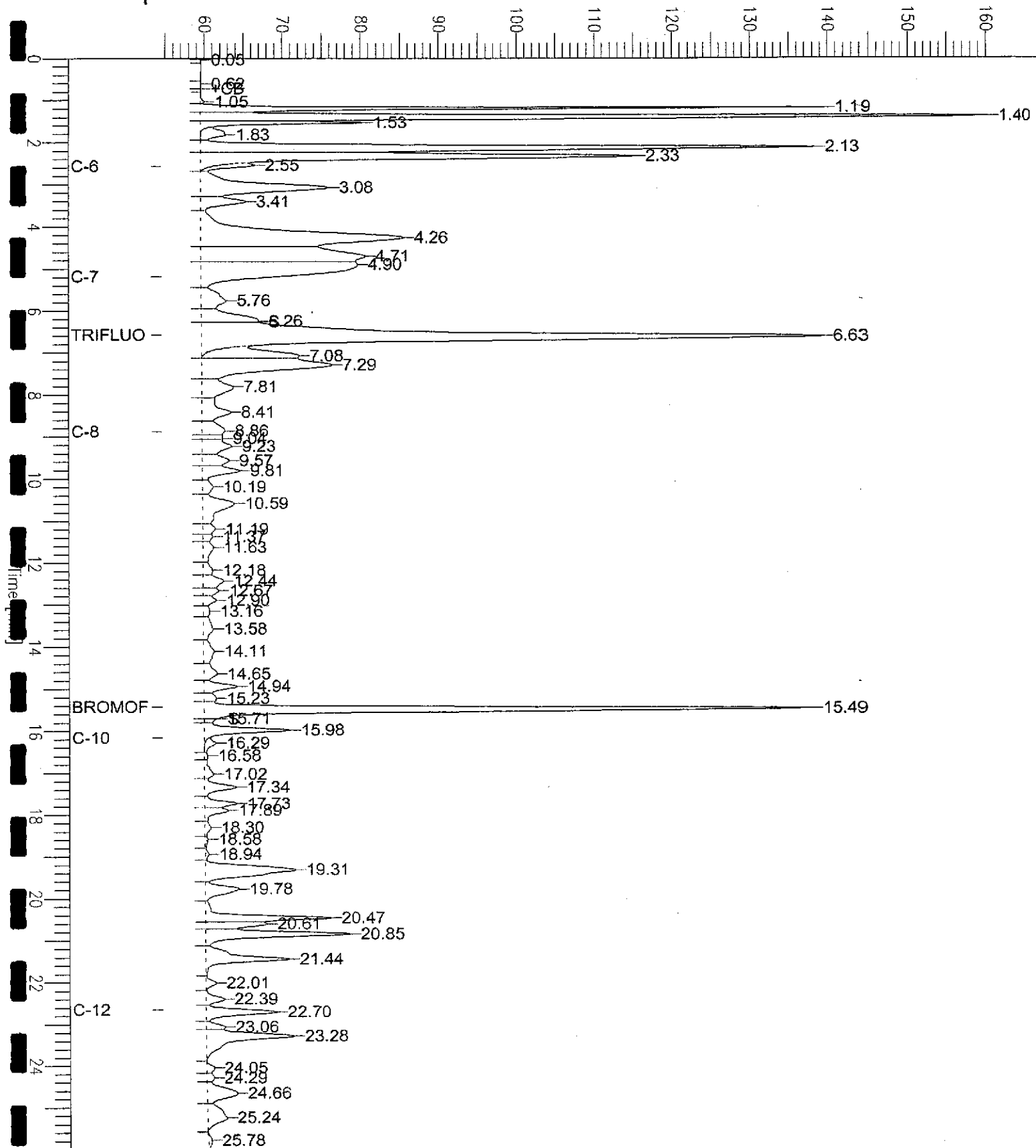
Scale Factor: 1.0

Plot Offset: 54 mV

Plot Scale: 105.9 mV

MW5

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-006,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J018.raw

Date : 5/1/04 10:26 AM

Method : TVHBTXE

Time of Injection: 4/30/04 11:24 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 38.02 mV

High Point : 490.20 mV

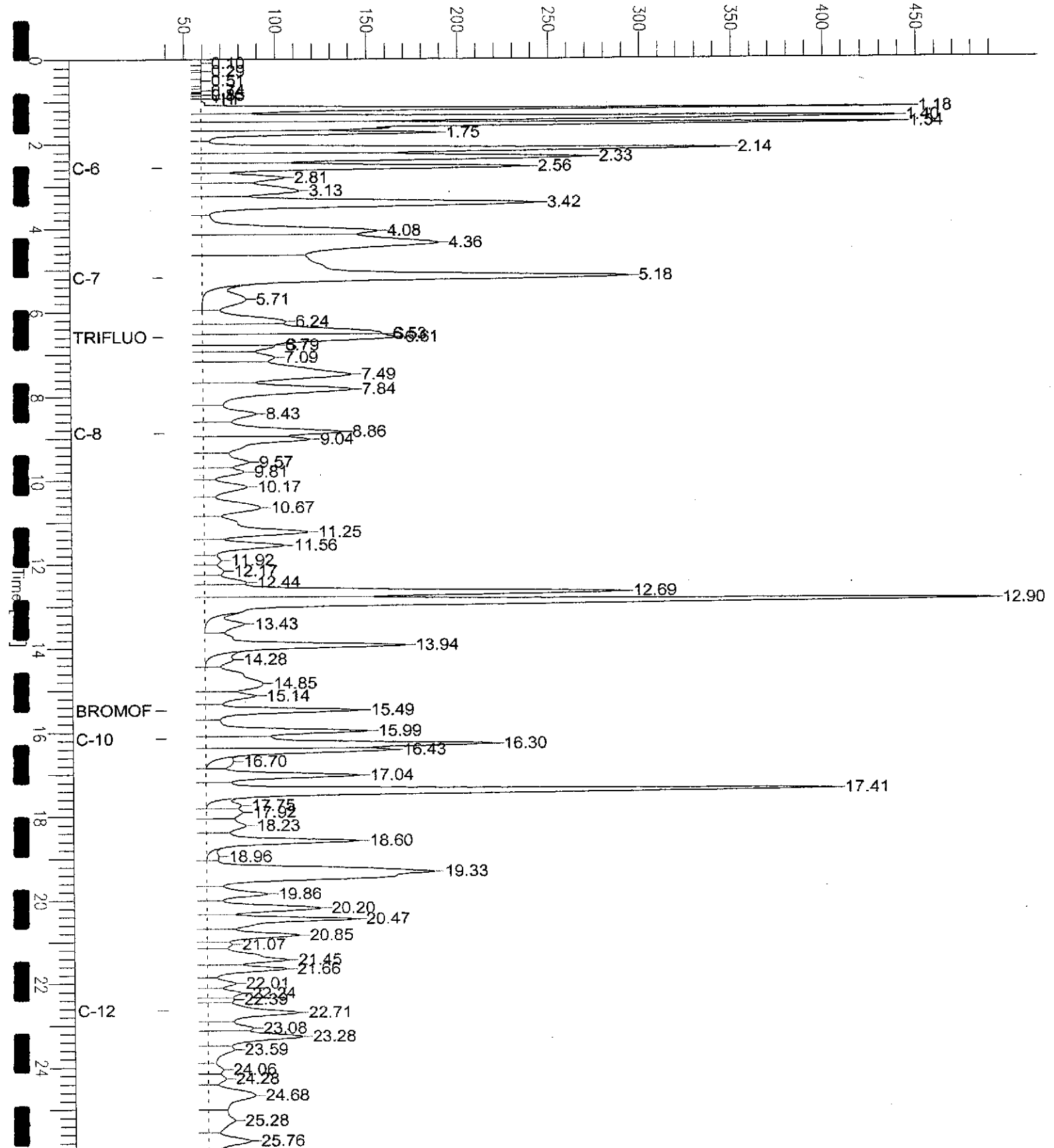
Scale Factor: 1.0

Plot Offset: 38 mV

Plot Scale: 452.2 mV

MW-6

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-007,90745

Sample #: a7

Page 1 of 1

File Name : G:\GC04\DATA\121J014.raw

Date : 4/30/04 09:26 PM

Method : TVHBTXE

Time of Injection: 4/30/04 09:00 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 55.28 mV

High Point : 146.76 mV

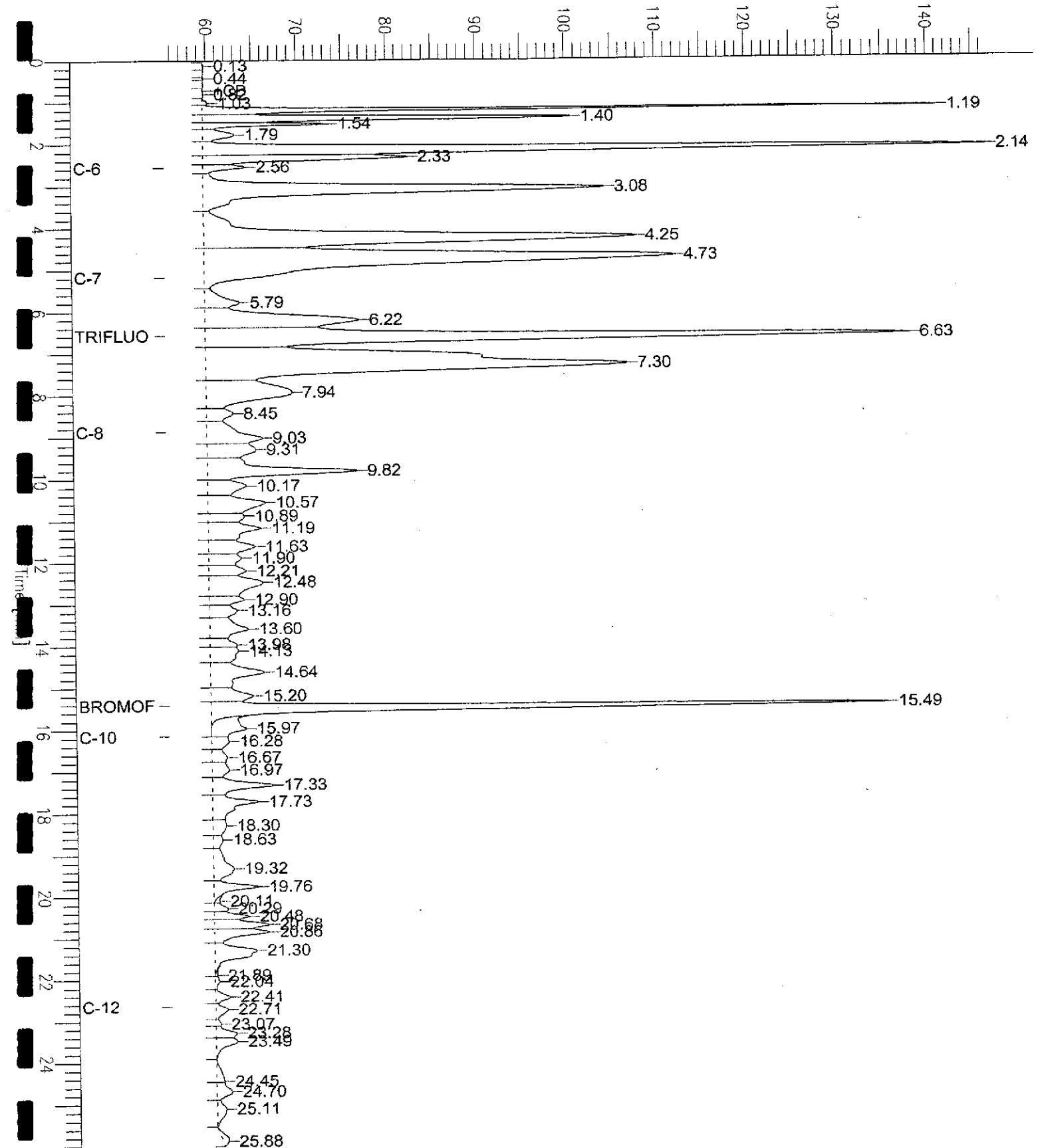
Scale Factor: 1.0

Plot Offset: 55 mV

Plot Scale: 91.5 mV

MW-7

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-008,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J027.raw

Date : 5/1/04 10:26 AM

Method : TVHBTXE

Time of Injection: 5/1/04 09:49 AM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 11.66 mV

High Point : 1023.47 mV

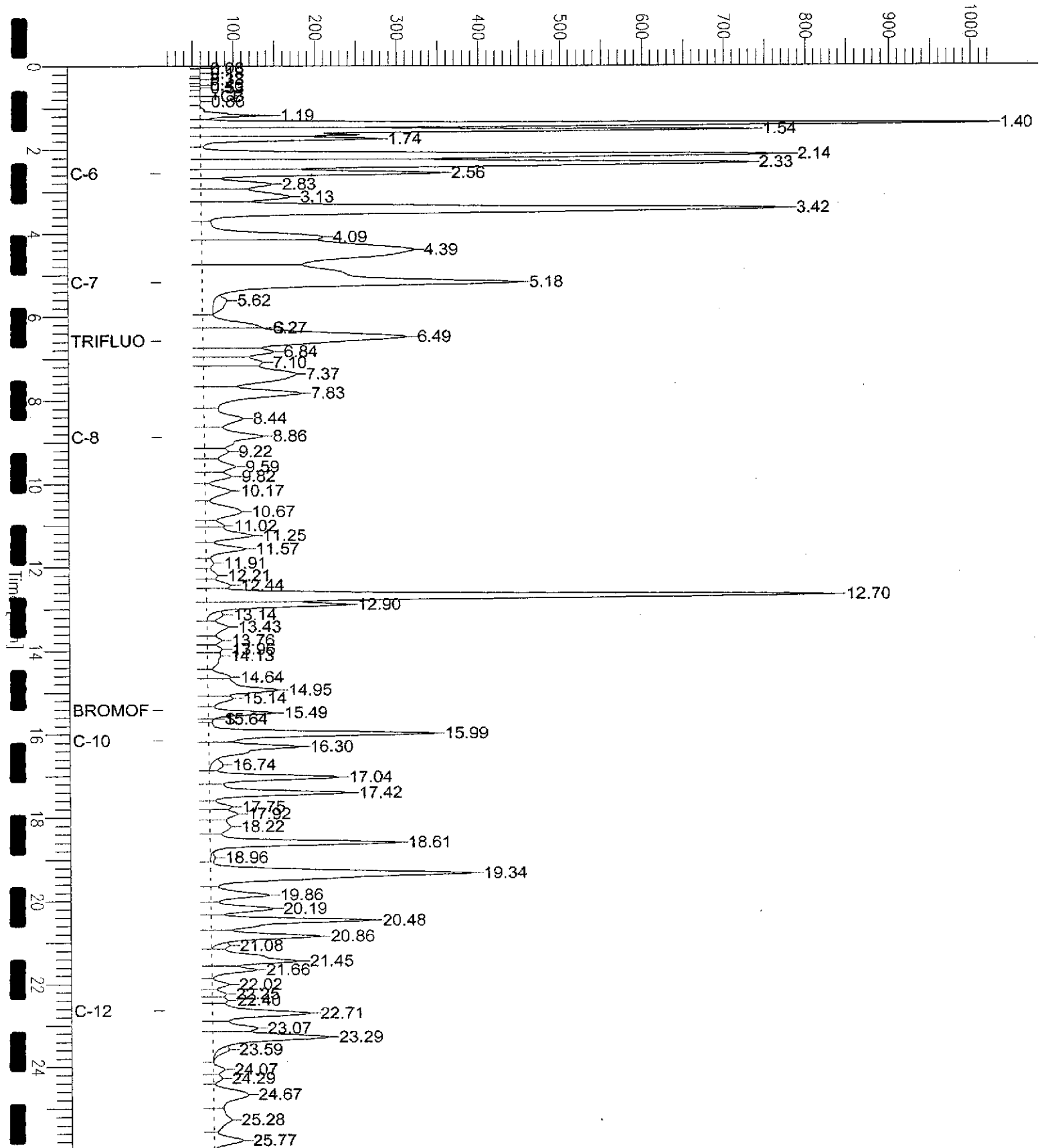
Scale Factor: 1.0

Plot Offset: 12 mV

Plot Scale: 1011.8 mV

MW-8

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-009,90745

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\121J020.raw

Date : 5/1/04 10:26 AM

Method : TVHBTXE

Time of Injection: 5/1/04 12:35 AM

Start Time : 0.00 min End Time : 26.00 min

Low Point : 26.47 mV

High Point : 722.15 mV

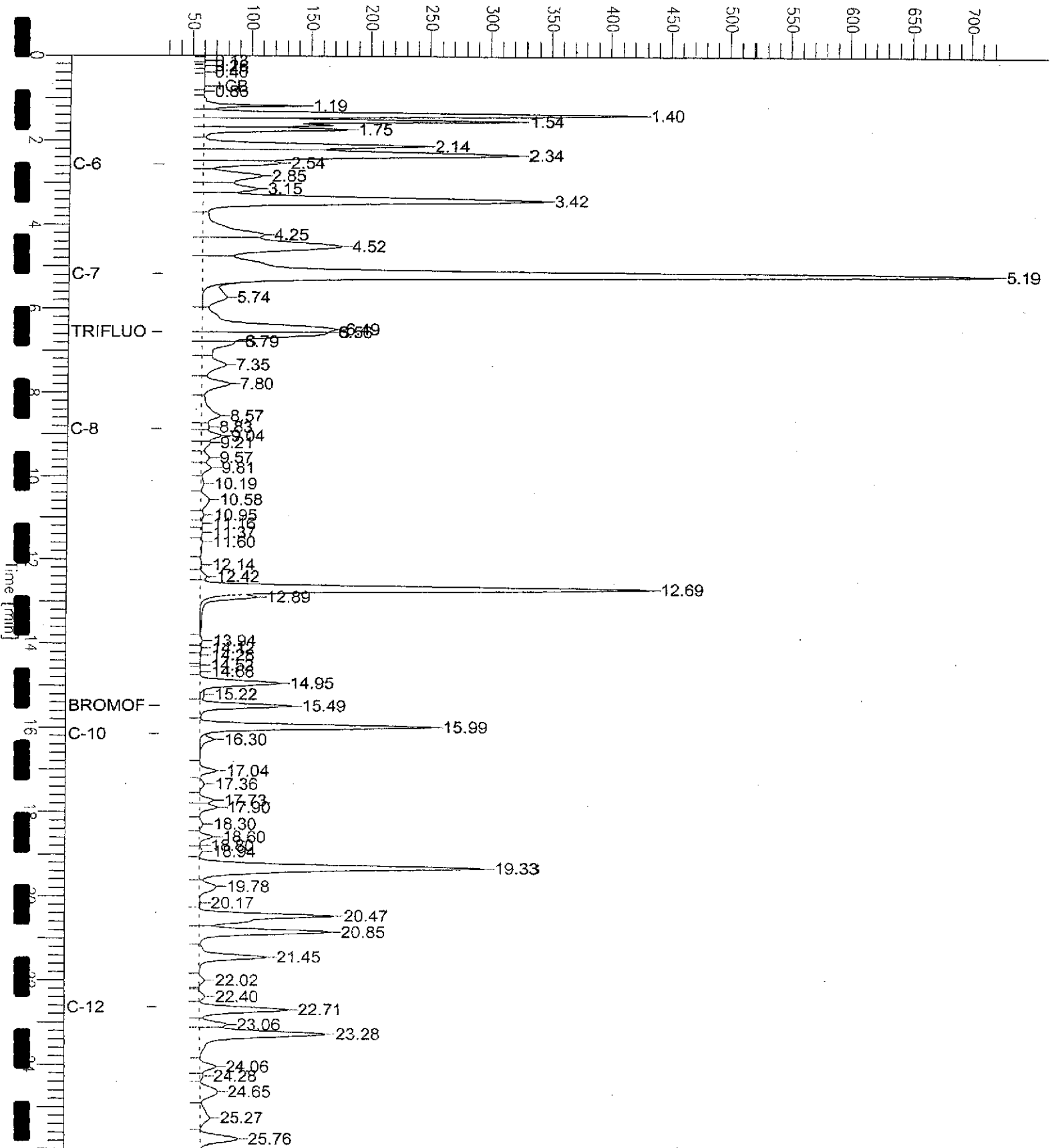
Scale Factor: 1.0

Plot Offset: 26 mV

Plot Scale: 695.7 mV

MW-10

Response [mV]



# GC04 TVH 'J' Data File FID

Sample Name : 172032-010,90745

Sample #: a7

Page 1 of 1

FileName : G:\GC04\DATA\121J015.raw

Date : 5/1/04 10:26 AM

Method : TVHBTXE

Time of Injection: 4/30/04 09:36 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 44.59 mV

High Point : 360.45 mV

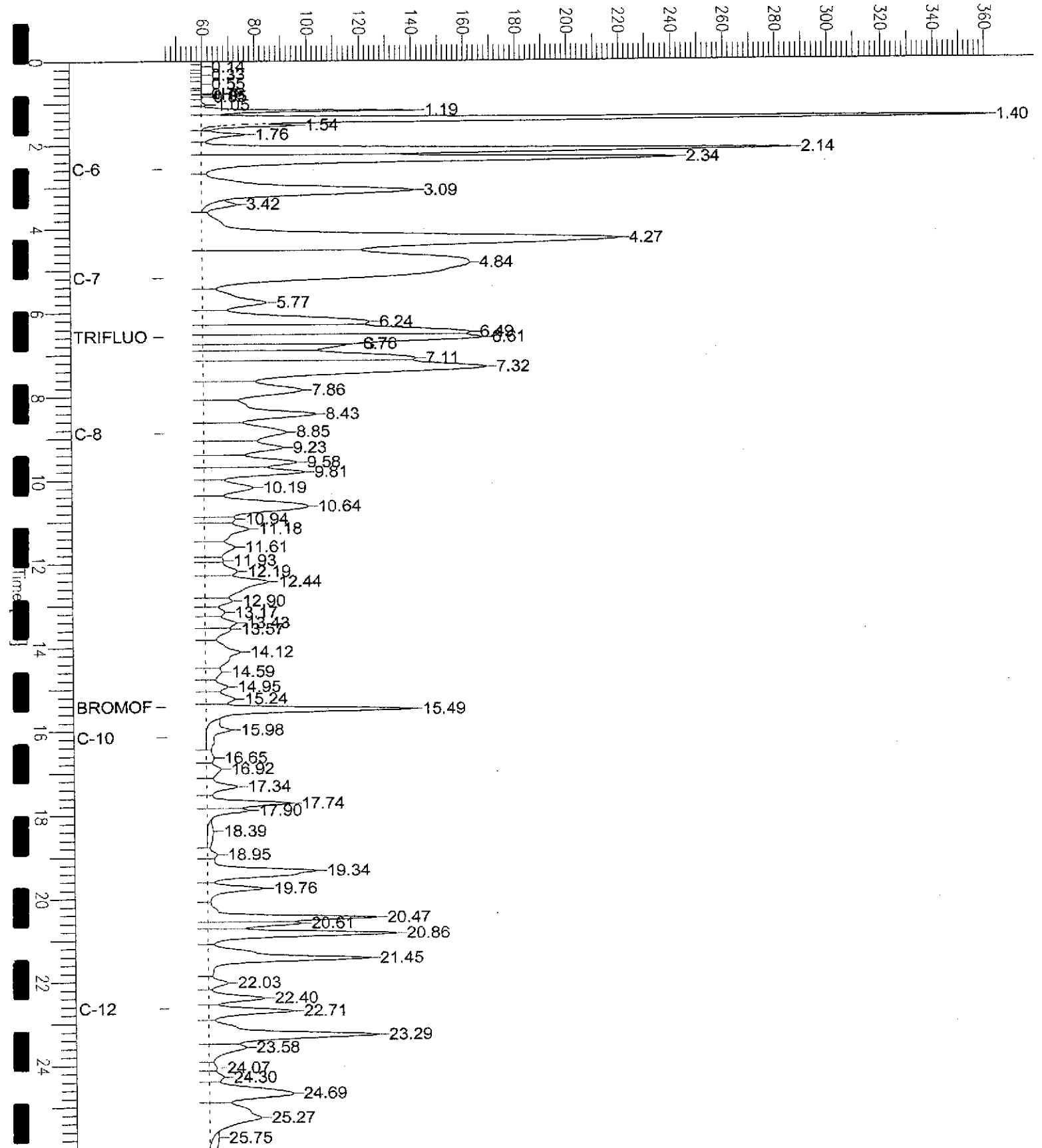
Scale Factor: 1.0

Plot Offset: 45 mV

Plot Scale: 315.9 mV

MW-12

Response [mV]



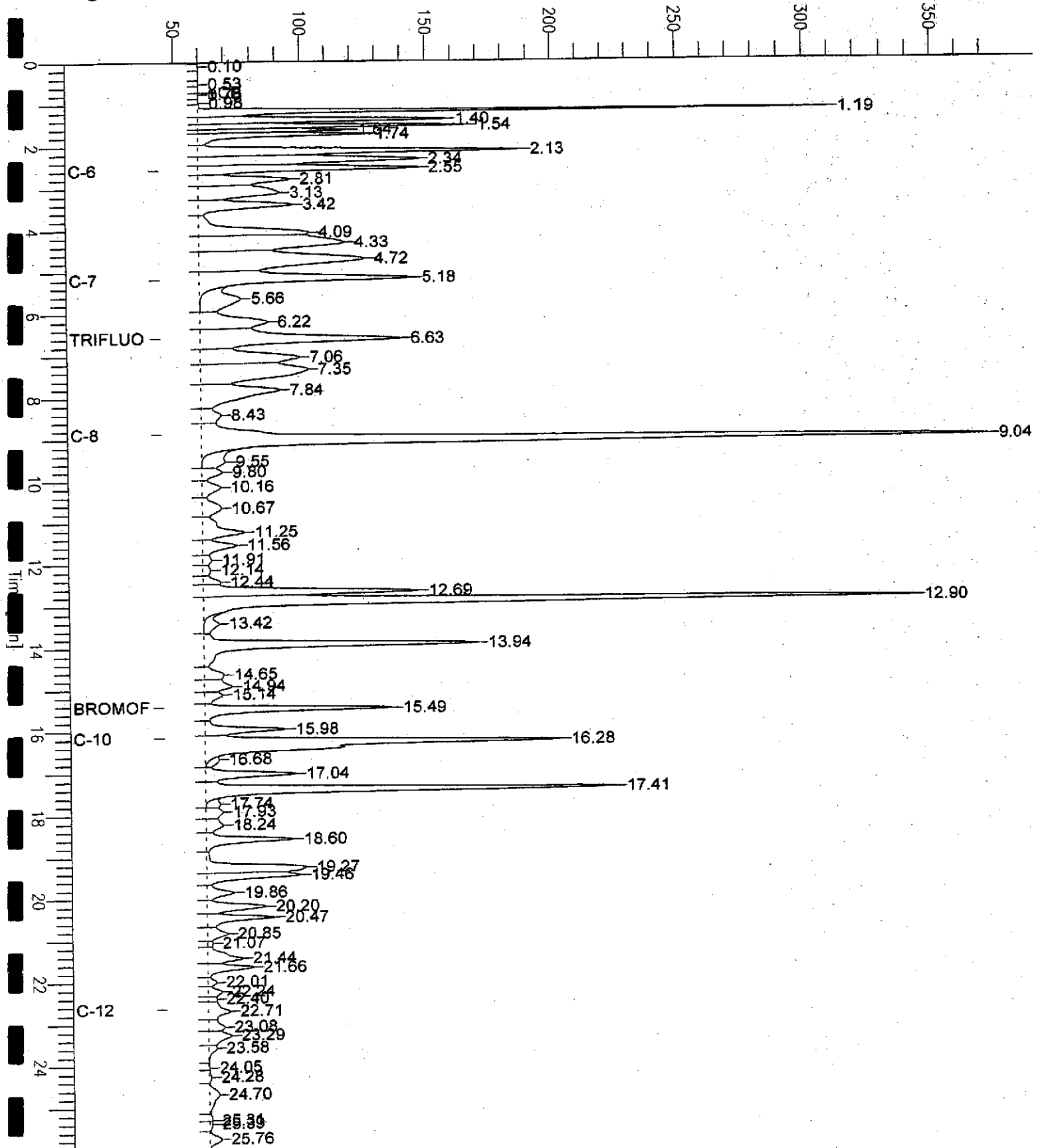
# GC04 TVH 'J' Data File FID

Sample Name : ccv/lcs,gc249585,90744,04ws0672,5/5000  
FileName : G:\GC04\DATA\121J002.raw  
Method : TVHETXE  
Start Time : 0.00 min End Time : 26.00 min  
Scale Factor : 1.0 Plot Offset : 44 mV

Sample # :  
Date : 4/30/04 10:41 AM  
Time of Injection: 4/30/04 10:15 AM  
Low Point : 44.39 mV High Point : 372.44 mV  
Plot Scale : 328.1 mV

*Gasoline*

Response [mV]





## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC249584	Batch#:	90745
Matrix:	Water	Analyzed:	04/30/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
MTBE	20.00	18.06	90	59-131
Benzene	20.00	18.18	91	80-120
Toluene	20.00	18.27	91	80-120
Ethylbenzene	20.00	18.82	94	80-120
m,p-Xylenes	20.00	18.68	93	80-120
o-Xylene	20.00	18.76	94	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		81	55-139
Bromofluorobenzene (PID)		93	62-134

## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC249585	Batch#:	90745
Matrix:	Water	Analyzed:	04/30/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,030	102	80-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		136	74-142
Bromofluorobenzene (FID)		116	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	90745
MSS Lab ID:	172029-001	Sampled:	04/30/04
Matrix:	Water	Received:	04/30/04
Units:	ug/L	Analyzed:	04/30/04
Diln Fac:	1.000		

Type: MS Lab ID: QC249637

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	21.78	2,000	2,104	104	80-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		131	74-142
Bromofluorobenzene (FID)		125	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC249638

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,123	105	80-120	1	20
MTBE		NA				
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		133	74-142
Bromofluorobenzene (FID)		122	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

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



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Matrix:	Water	Received:	04/30/04
Units:	ug/L		

Field ID:	MW-1	Batch#:	90907
Type:	SAMPLE	Sampled:	04/30/04
Lab ID:	172032-001	Analyzed:	05/07/04
Diln Fac:	33.33		

Analyte	Result	RL
MTBE	4,300	17

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-120

Field ID:	MW-3	Batch#:	90850
Type:	SAMPLE	Sampled:	04/30/04
Lab ID:	172032-003	Analyzed:	05/05/04
Diln Fac:	14.29		

Analyte	Result	RL
MTBE	900	7.1

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-120

Field ID:	MW-5	Batch#:	90850
Type:	SAMPLE	Sampled:	04/30/04
Lab ID:	172032-005	Analyzed:	05/05/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	2.1	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-120

ND= Not Detected  
 L= Reporting Limit  
 Page 1 of 3



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Matrix:	Water	Received:	04/30/04
Units:	ug/L		

Field ID:	MW-7	Batch#:	90850
Type:	SAMPLE	Sampled:	04/29/04
Lab ID:	172032-007	Analyzed:	05/05/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	0.62	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-120

Field ID:	MW-10	Batch#:	90850
Type:	SAMPLE	Sampled:	04/29/04
Lab ID:	172032-009	Analyzed:	05/05/04
Diln Fac:	2.000		

Analyte	Result	RL
MTBE	160	1.0

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-120

Field ID:	MW-12	Batch#:	90850
Type:	SAMPLE	Sampled:	04/29/04
Lab ID:	172032-010	Analyzed:	05/05/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	36	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-120

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Matrix:	Water	Received:	04/30/04
Units:	ug/L		

Type:	BLANK	Batch#:	90850
Lab ID:	QC249992	Analyzed:	05/05/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-120

Type:	BLANK	Batch#:	90907
Lab ID:	QC250202	Analyzed:	05/06/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120

Type:	BLANK	Batch#:	90907
Lab ID:	QC250203	Analyzed:	05/06/04
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	93	80-120

## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC249991	Batch#:	90850
Matrix:	Water	Analyzed:	05/05/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	50.00	55.69	111	76-123

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-120

## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	90850
MS Lab ID:	172088-002	Sampled:	05/04/04
Matrix:	Water	Received:	05/04/04
Units:	ug/L	Analyzed:	05/05/04
Diln Fac:	1.000		

Type: MS Lab ID: QC249993

Analyte	MS Result	Spiked	Result	%REC	Limits
MTBE	<0.1700	50.00	56.24	112	77-120
Surrogate	%REC	Limits			
Dibromofluoromethane	92	80-120			

Type: MSD Lab ID: QC249994

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	50.00	53.72	107	77-120	5	20
Surrogate	%REC	Limits				
Dibromofluoromethane	94	80-120				



## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC250201	Batch#:	90907
Matrix:	Water	Analyzed:	05/06/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limite
MTBE	50.00	56.72	113	76-123

Surrogate	%REC	Limite
Dibromofluoromethane	94	80-120

## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	172032	Location:	3609 Int'l Blvd., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2331	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	90907
MSS Lab ID:	172086-001	Sampled:	05/03/04
Matrix:	Water	Received:	05/04/04
Units:	ug/L	Analyzed:	05/06/04
Diln Fac:	1.000		

Type: MS Lab ID: QC250226

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.1700	50.00	56.07	112	77-120
Surrogate	%REC	Limits			
Dibromofluoromethane	96	80-120			

Type: MSD Lab ID: QC250227

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	50.00	54.66	109	77-120	3	20
Surrogate	%REC	Limits				
Dibromofluoromethane	94	80-120				

# Appendix C

Chain of Custody Forms and Laboratory Reports  
for the  
Groundwater Extraction Treatment System



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

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

A N A L Y T I C A L   R E P O R T

Prepared for:

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

Date: 19-MAY-04

Lab Job Number: 172058

Project ID: 2333

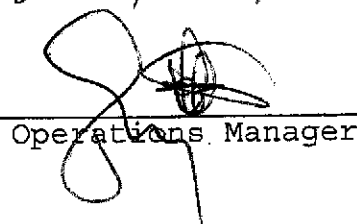
Location: 3609 International Blvd

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of 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.





## Total Volatile Hydrocarbons

Lab #:	172058	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333		
Matrix:	Water	Sampled:	05/03/04
Units:	ug/L	Received:	05/03/04
Batch#:	90780		

Field ID:	INFLUENT	Diln Fac:	5.000
Type:	SAMPLE	Analyzed:	05/04/04
Lab ID:	172058-001		

Analyte	Result	RL	Analysis
Gasoline C7-C12	9,600	250	EPA 8015B
MTBE	1,500	10	EPA 8021B
Benzene	680	2.5	EPA 8021B
Toluene	410	2.5	EPA 8021B
Ethylbenzene	320	2.5	EPA 8021B
m, p-Xylenes	1,200	2.5	EPA 8021B
o-Xylene	600	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	117	74-142	EPA 8015B
Bromofluorobenzene (FID)	127	80-139	EPA 8015B
Trifluorotoluene (PID)	107	55-139	EPA 8021B
Bromofluorobenzene (PID)	115	62-134	EPA 8021B

Field ID:	GAC-1	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	05/04/04
Lab ID:	172058-002		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
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)	89	74-142	EPA 8015B
Bromofluorobenzene (FID)	128	80-139	EPA 8015B
Trifluorotoluene (PID)	78	55-139	EPA 8021B
Bromofluorobenzene (PID)	113	62-134	EPA 8021B

# GC04 TVH 'J' Data File FID

Sample Name : 172058-001.90780

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\124J021.raw

Date : 5/4/04 12:51 PM

Method : TVHBTXE

Time of Injection: 5/4/04 11:29 AM

Start Time : 0.00 min End Time : 26.00 min

Low Point : 28.97 mV

High Point : 670.10 mV

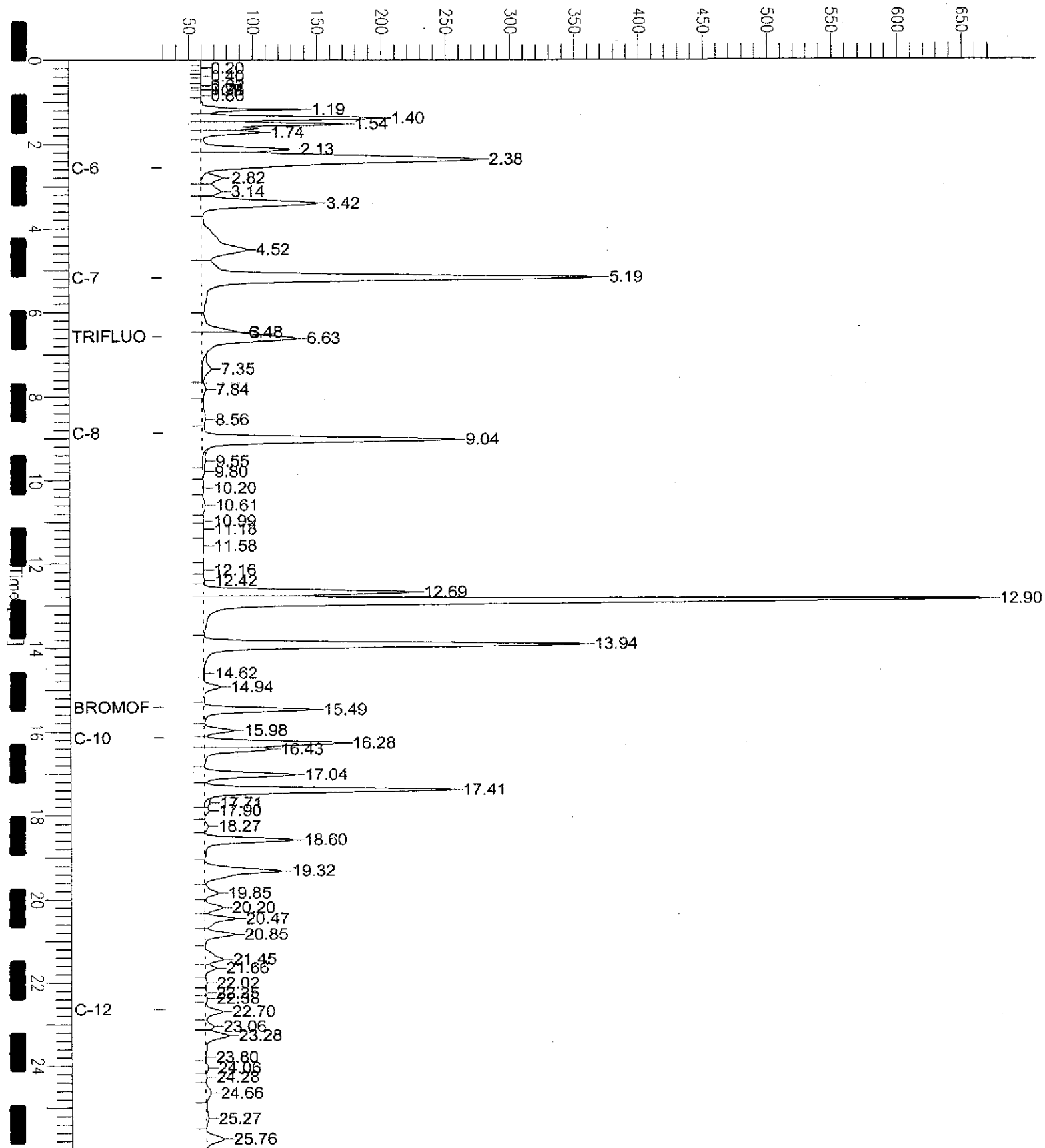
Scale Factor: 1.0

Plot Offset: 29 mV

Plot Scale: 641.1 mV

**INFLUENT**

Response [mV]



**Total Volatile Hydrocarbons**

Lab #: 172058	Location: 3609 International Blvd
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2333	
Matrix: Water	Sampled: 05/03/04
Units: ug/L	Received: 05/03/04
Batch#: 90780	

Field ID: PSP#1	Diln Fac: 1.000
Type: SAMPLE	Analyzed: 05/04/04
Lab ID: 172058-003	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
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)	91	74-142	EPA 8015B
Bromofluorobenzene (FID)	128	80-139	EPA 8015B
Trifluorotoluene (PID)	76	55-139	EPA 8021B
Bromofluorobenzene (PID)	111	62-134	EPA 8021B

Type: BLANK	Diln Fac: 1.000
Lab ID: QC249725	Analyzed: 05/03/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
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)	87	74-142	EPA 8015B
Bromofluorobenzene (FID)	115	80-139	EPA 8015B
Trifluorotoluene (PID)	76	55-139	EPA 8021B
Bromofluorobenzene (PID)	101	62-134	EPA 8021B



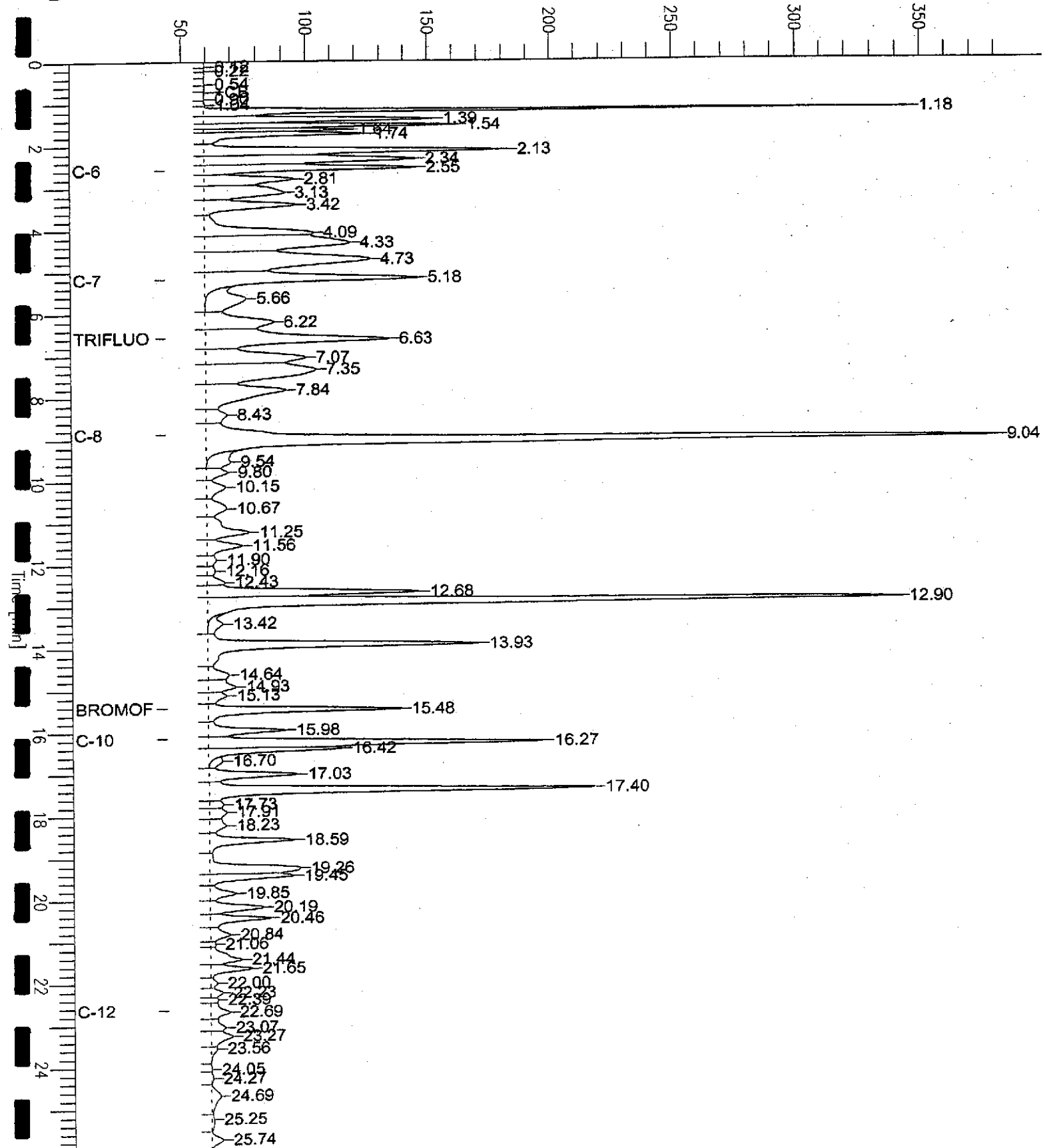
# GC04 TVH 'J' Data File FID

Sample Name : ccv/lcs,qc249727,90780,04ws0672,5/5000  
File Name : G:\GC04\DATA\124J002.raw  
Method : TVHBTXE  
Start Time : 0.00 min End Time : 26.00 min  
Scale Factor : 1.0 Plot Offset : 44 mV

Sample # :  
Date : 5/3/04 01:24 PM  
Time of Injection : 5/3/04 12:58 PM  
Low Point : 43.53 mV High Point : 380.10 mV  
Plot Scale : 336.6 mV

*Gasoline*

Response [mV]



## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	172058	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC249726	Batch#:	90780
Matrix:	Water	Analyzed:	05/03/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
METBE	20.00	17.86	89	59-131
Benzene	20.00	17.27	86	80-120
Toluene	20.00	17.30	87	80-120
Ethylbenzene	20.00	17.63	88	80-120
m,p-Xylenes	20.00	17.34	87	80-120
o-Xylene	20.00	17.46	87	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		68	55-139
Bromofluorobenzene (PID)		87	62-134

## Patch QC Report

## Total Volatile Hydrocarbons

Lab #:	172058	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC249727	Batch#:	90780
Matrix:	Water	Analyzed:	05/03/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,028	101	80-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		129	74-142
Bromofluorobenzene (FID)		122	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	172058	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	90780
MSS Lab ID:	172057-001	Sampled:	05/03/04
Matrix:	Water	Received:	05/03/04
Units:	ug/L	Analyzed:	05/04/04
Diln Fac:	1.000		

Type: MS Lab ID: QC249786

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	21.04	2,000	2,065	102	80-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		132	74-142
Bromofluorobenzene (FID)		136	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC249787

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,096	104	80-120	2	20
MTBE		NA				
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		129	74-142
Bromofluorobenzene (FID)		133	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

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



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: 21-APR-04  
Lab Job Number: 171567  
Project ID: 2333  
Location: 3609 International Blvd

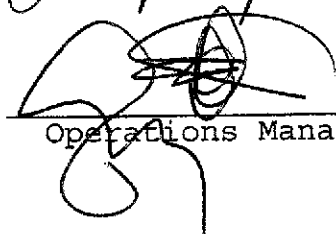
This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to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

Reviewed by:

  
\_\_\_\_\_

Project Manager

Reviewed by:

  
\_\_\_\_\_

Operations Manager

This package may be reproduced only in its entirety.

Laboratory Number: 171567  
Client: SOMA Environmental Engineering Inc.  
Project: 2333  
Request Date: 4/5/2004

#### CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for three water samples requested from the above referenced project on April 5, 2004. The samples were received cold and intact.

#### TVH/BTXE:

The recoveries for the surrogate trifluorotoluene in the spikes exceed control limits due to coelution of the surrogate peak with other hydrocarbon peaks. The associated surrogates are acceptable.

No other analytical problems were encountered.



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	171567	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333		
Matrix:	Water	Sampled:	04/05/04
Units:	ug/L	Received:	04/05/04
Batch#:	90037	Analyzed:	04/06/04

Field ID:	INFLUENT	Lab ID:	171567-001
Type:	SAMPLE	Diln Fac:	5.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	7,100	250	EPA 8015B
TBE	1,700	25	EPA 8021B
Benzene	730	25	EPA 8021B
Toluene	210	25	EPA 8021B
Ethylbenzene	120	25	EPA 8021B
m,p-Xylenes	870	25	EPA 8021B
o-Xylene	550	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	126	74-142	EPA 8015B
Bromofluorobenzene (FID)	109	80-139	EPA 8015B
Trifluorotoluene (PID)	132	55-139	EPA 8021B
Bromofluorobenzene (PID)	114	62-134	EPA 8021B

Field ID:	GAC-1	Lab ID:	171567-002
Type:	SAMPLE	Diln Fac:	1.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
TBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	107	74-142	EPA 8015B
Bromofluorobenzene (FID)	115	80-139	EPA 8015B
Trifluorotoluene (PID)	108	55-139	EPA 8021B
Bromofluorobenzene (PID)	117	62-134	EPA 8021B

ND = Not Detected  
 RL = Reporting Limit  
 Page 1 of 2



### Curtis & Tompkins Laboratories Analytical Report

Lab #: 171567	Location: 3609 International Blvd
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2333	
Matrix: Water	Sampled: 04/05/04
Units: ug/L	Received: 04/05/04
Batch#: 90037	Analyzed: 04/06/04

Field ID: PSP#1	Lab ID: 171567-003
Type: SAMPLE	Diln Fac: 1.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
METBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	100	74-142	EPA 8015B
Bromofluorobenzene (FID)	119	80-139	EPA 8015B
Trifluorotoluene (PID)	101	55-139	EPA 8021B
Bromofluorobenzene (PID)	121	62-134	EPA 8021B

Type: BLANK	Diln Fac: 1.000
Lab ID: QC246889	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
METBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	93	74-142	EPA 8015B
Bromofluorobenzene (FID)	106	80-139	EPA 8015B
Trifluorotoluene (PID)	93	55-139	EPA 8021B
Bromofluorobenzene (PID)	106	62-134	EPA 8021B

ND = Not Detected  
 RL = Reporting Limit  
 Page 2 of 2

# GC04 TVH 'J' Data File FID

Sample Name : 171567-001,90037

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\097J009.raw

Date : 4/7/04 12:24 PM

Method : TVHBTXE

Time of Injection: 4/6/04 02:07 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 38.30 mV

High Point : 489.82 mV

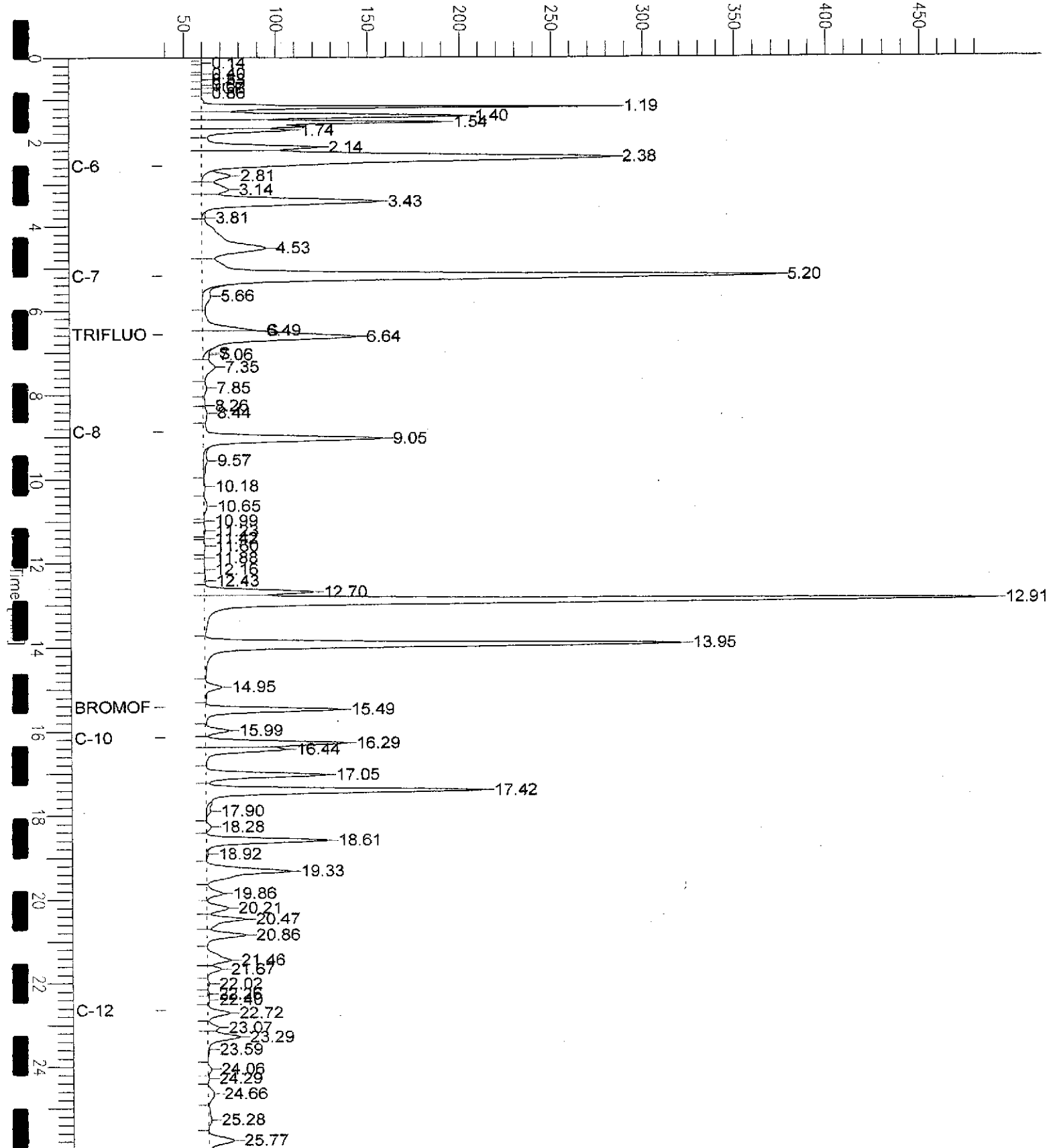
Scale Factor: 1.0

Plot Offset: 38 mV

Plot Scale: 451.5 mV

Influent

Response [mV]



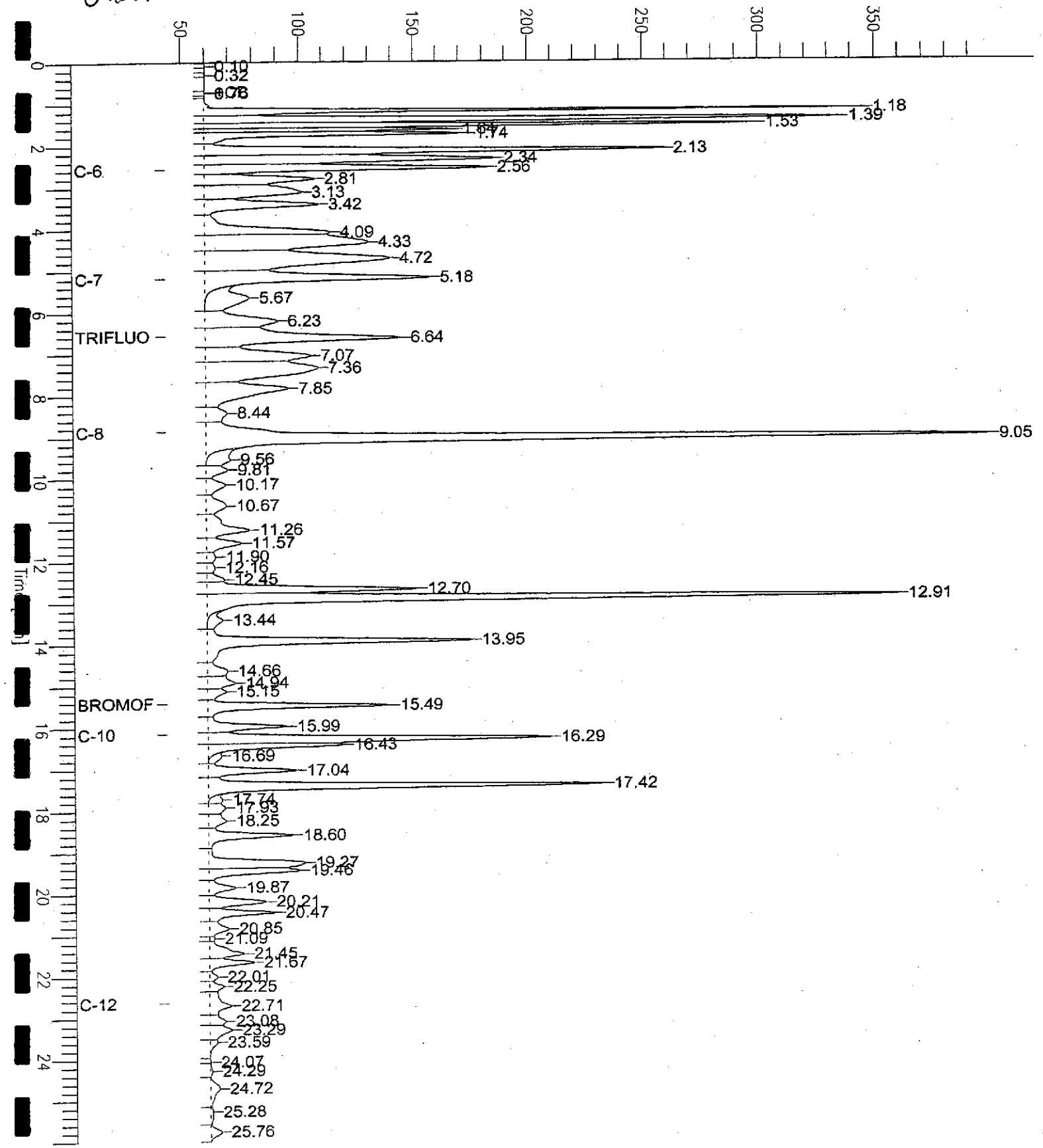
# GC04 TVH 'J' Data File FID

Sample Name : ccv/lcs,gc246891,90037,04ws0672,5/5000  
FileName : G:\GC04\DATA\097J002.raw  
Method : TVHBTXE  
Start Time : 0.00 min  
Scale Factor : 1.0

Sample # :  
Date : 4/6/04 10:15 AM  
Time of Injection : 4/6/04 09:49 AM  
Low Point : 43.42 mV  
Plot Scale : 354.3 mV

*Gasoline*

Response [mV]



## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	171567	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC246890	Batch#:	90037
Matrix:	Water	Analyzed:	04/06/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
MTBE	20.00	19.53	98	59-131
Benzene	20.00	18.45	92	80-120
Toluene	20.00	18.45	92	80-120
Ethylbenzene	20.00	19.19	96	80-120
m,p-Xylenes	40.00	36.94	92	80-120
o-Xylene	20.00	18.07	90	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		91	55-139
Bromofluorobenzene (PID)		107	62-134

## Batch QC Report

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	171567	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC246891	Batch#:	90037
Matrix:	Water	Analyzed:	04/06/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,181	109	80-120
TBE		NA		
Benzene		NA		
Toluene		NA		
ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		148 *	74-142
Bromofluorobenzene (FID)		122	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

\* = Value outside of QC limits; see narrative

NA = Not Analyzed



Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	171567	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	90037
MSS Lab ID:	171571-004	Sampled:	04/02/04
Matrix:	Water	Received:	04/06/04
Units:	ug/L	Analyzed:	04/07/04
Diln Fac:	1.000		

Type: MS Lab ID: QC246915

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	24.88	2,000	2,078	103	80-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		151 *	74-142
Bromofluorobenzene (FID)		120	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC246916

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,086	103	80-120	0	20
MTBE		NA				
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		152 *	74-142
Bromofluorobenzene (FID)		120	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

\*= Value outside of QC limits; see narrative  
 NA= Not Analyzed  
 RPD= Relative Percent Difference  
 Page 1 of 1



A N A L Y T I C A L   R E P O R T

Prepared for:

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

Date: 08-MAR-04

Lab Job Number: 170765

Project ID: 2333

Location: 3609 International Blvd

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of 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 &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333		
Matrix:	Water	Sampled:	02/24/04
Units:	ug/L	Received:	02/24/04

Field ID:	INFLUENT	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	88749
Lab ID:	170765-001	Analyzed:	02/25/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	12,000	250	EPA 8015B
MTBE	1,900	25	EPA 8021B
Benzene	1,000	25	EPA 8021B
Toluene	480	25	EPA 8021B
Ethylbenzene	280	25	EPA 8021B
m,p-Xylenes	1,100	25	EPA 8021B
o-Xylene	630	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	141	74-142	EPA 8015B
Bromofluorobenzene (FID)	106	80-139	EPA 8015B
Trifluorotoluene (PID)	125	55-139	EPA 8021B
Bromofluorobenzene (PID)	117	62-134	EPA 8021B

Field ID:	GAC-1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	88708
Lab ID:	170765-002	Analyzed:	02/24/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	101	74-142	EPA 8015B
Bromofluorobenzene (FID)	115	80-139	EPA 8015B
Trifluorotoluene (PID)	105	55-139	EPA 8021B
Bromofluorobenzene (PID)	119	62-134	EPA 8021B

ND= Not Detected  
 RL= Reporting Limit  
 Page 1 of 3



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333		
Matrix:	Water	Sampled:	02/24/04
Units:	ug/L	Received:	02/24/04

Field ID:	PSP#1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	88708
Lab ID:	170765-003	Analyzed:	02/24/04

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	99	74-142	EPA 8015B
Bromofluorobenzene (FID)	113	80-139	EPA 8015B
Trifluorotoluene (PID)	104	55-139	EPA 8021B
Bromofluorobenzene (PID)	117	62-134	EPA 8021B

Type:	BLANK	Batch#:	88708
Lab ID:	QC241859	Analyzed:	02/24/04
Diln Fac:	1.000		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	98	74-142	EPA 8015B
Bromofluorobenzene (FID)	106	80-139	EPA 8015B
Trifluorotoluene (PID)	105	55-139	EPA 8021B
Bromofluorobenzene (PID)	114	62-134	EPA 8021B

ND= Not Detected  
 RL= Reporting Limit  
 Page 2 of 3

## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333		
Matrix:	Water	Sampled:	02/24/04
Units:	ug/L	Received:	02/24/04

Type:	BLANK	Batch#:	88749
Lab ID:	QC242015	Analyzed:	02/25/04
Diln Fac:	1.000		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	5.0	EPA 8021B
Benzene	ND	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	ND	5.0	EPA 8021B
m,p-Xylenes	ND	5.0	EPA 8021B
o-Xylene	ND	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	97	74-142	EPA 8015B
Bromofluorobenzene (FID)	111	80-139	EPA 8015B
Trifluorotoluene (PID)	99	55-139	EPA 8021B
Bromofluorobenzene (PID)	116	62-134	EPA 8021B

# GC04 TVH 'J' Data File FID

Sample Name : 170765-001,88749

Sample #: a1.0

Page 1 of 1

FileName : G:\GC04\DATA\056J012.raw

Date : 2/26/04 12:13 PM

Method : TVHBTXE

Time of Injection: 2/25/04 05:41 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 32.02 mV

High Point : 601.93 mV

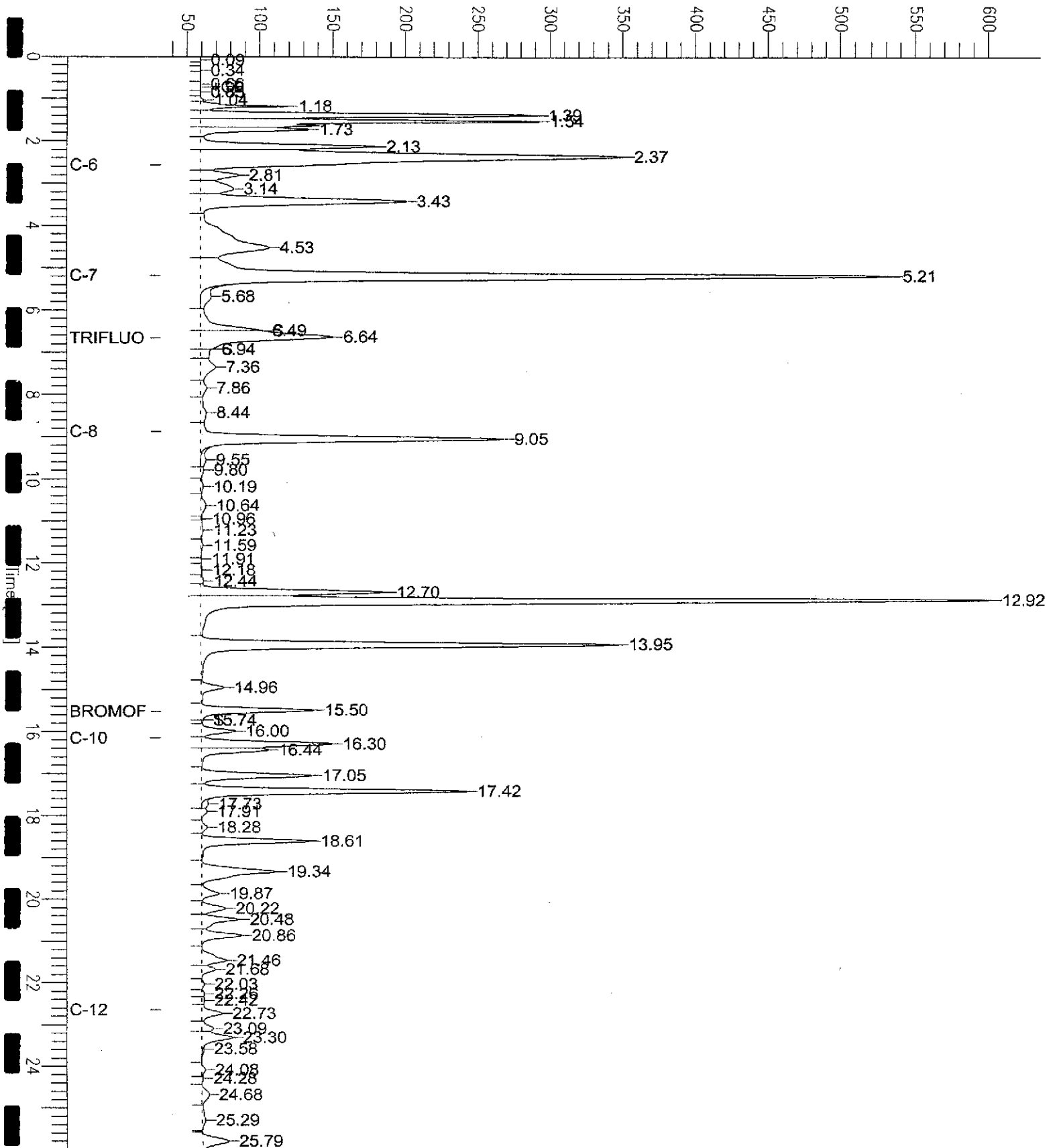
Scale Factor: 1.0

Plot Offset: 32 mV

Plot Scale: 569.9 mV

Influent

Response [mV]



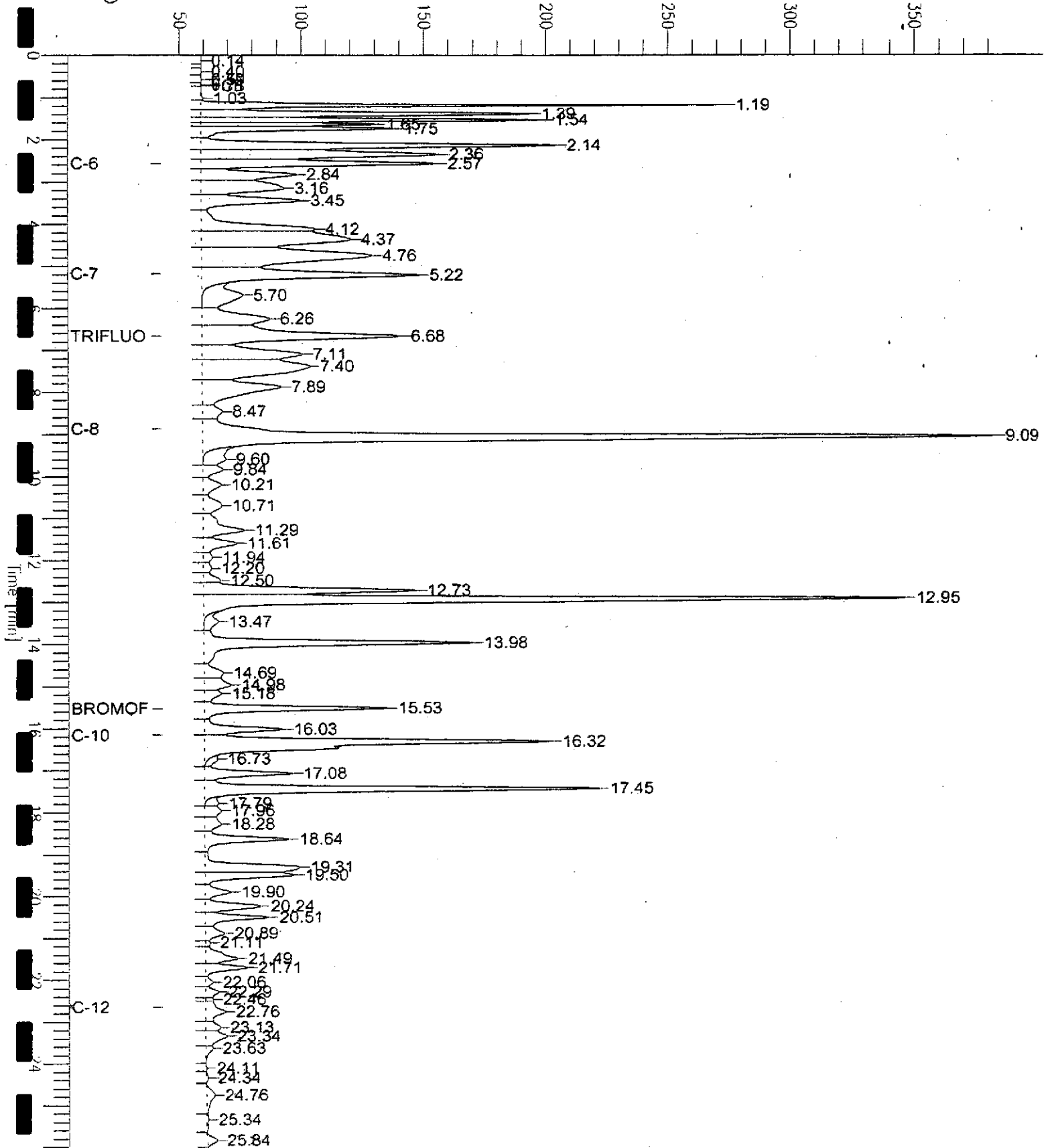
# GC04 TVH 'J' Data File FID

Sample Name : ccv/lcs\_gc241861\_88708\_04ws0146\_5/5000  
File Name : G:\GC04\DATA\055J003.raw  
Method : TVHBTXE  
Start Time : 0.00 min End Time : 26.00 min  
Scale Factor : 1.0 Plot Offset : 43 mV

Sample # :  
Date : 2/24/04 10:49 AM  
Time of Injection : 2/24/04 10:23 AM  
Low Point : 42.83 mV High Point : 382.47 mV  
Plot Scale : 339.6 mV

*Gasoline*

Response [mV]



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC241860	Batch#:	88708
Matrix:	Water	Analyzed:	02/24/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
MTBE	20.00	19.77	99	59-131
Benzene	20.00	19.74	99	80-120
Toluene	20.00	19.77	99	80-120
Ethylbenzene	20.00	20.63	103	80-120
m,p-Xylenes	40.00	39.09	98	80-120
o-Xylene	20.00	19.14	96	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		98	55-139
Bromofluorobenzene (PID)		105	62-134



### Curtis & Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC241861	Batch#:	88708
Matrix:	Water	Analyzed:	02/24/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,157	108	80-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		133	74-142
Bromofluorobenzene (FID)		106	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC242016	Batch#:	88749
Matrix:	Water	Analyzed:	02/25/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
MTBE	20.00	17.63	88	59-131
Benzene	20.00	18.73	94	80-120
Toluene	20.00	19.03	95	80-120
Ethylbenzene	20.00	19.90	100	80-120
m,p-Xylenes	40.00	39.06	98	80-120
o-Xylene	20.00	19.12	96	80-120

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		94	55-139
Bromofluorobenzene (PID)		112	62-134



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC242017	Batch#:	88749
Matrix:	Water	Analyzed:	02/25/04
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,253	113	80-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		136	74-142
Bromofluorobenzene (FID)		114	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		



## Curtis &amp; Tompkins Laboratories Analytical Report

Lab #:	170765	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2333	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	88749
MSS Lab ID:	170787-002	Sampled:	02/25/04
Matrix:	Water	Received:	02/25/04
Units:	ug/L	Analyzed:	02/25/04
Diln Fac:	1.000		

Type: MS Lab ID: QC242109

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	23.65	2,000	2,272	112	80-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		130	74-142
Bromofluorobenzene (FID)		113	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC242110

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,264	112	80-120	0	20
MTBE			NA			
Benzene			NA			
Toluene			NA			
Ethylbenzene			NA			
m,p-Xylenes			NA			
o-Xylene			NA			

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		129	74-142
Bromofluorobenzene (FID)		112	80-139
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

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

# Appendix D

Chain of Custody Form and Laboratory Report  
for the  
Soil Vapor Extraction System

0405185

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

Project Number: 172213  
Site: Oakland-International

Subcontract Laboratory:  
Air Toxics  
180 Blue Ravine Road  
Suite B  
Folsom, CA 95630  
(800) 985-5955  
ATTN: Taryn Badalx1039

Results due: Report Level: II

Please send report to: Lisa Brooker  
\*\*\* Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
EFFLUENT	05/10	Air	BTXE	172213-001	
EFFLUENT	05/10	Air	TVH	172213-001	
INFLUENT	05/10	Air	BTXE	172213-002	
INFLUENT	05/10	Air	TVH	172213-002	

CUSTODY SEAL INTACT?  
Y N NONE TEMP

Notes	Relinquished By:	Received By:
955 385 253 CALIFORNIA OVERNIGHT	<i>Ruby L...</i> Date/Time: 5/11/04 15:50	<i>[Signature]</i> Date/Time: 5/12/04 8:30



**AIR TOXICS LTD.**

AN ENVIRONMENTAL ANALYTICAL LABORATORY

---

### **Air Toxics Ltd. Introduces the Electronic Report**

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020

Hours 8:00 A.M to 6:00 P.M. Pacific

E-mail to: [samplereceiving@airtoxics.com](mailto:samplereceiving@airtoxics.com)

# @ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

**WORK ORDER #: 0405185**

## Work Order Summary

**CLIENT:** Ms. Lisa Brooker  
Curtis & Tompkins, Ltd.  
2323 Fifth Street  
Berkeley, CA 94710

**BILL TO:** Ms. Lisa Brooker  
Curtis & Tompkins, Ltd.  
2323 Fifth Street  
Berkeley, CA 94710

**PHONE:** 510-486-0925

**P.O. #**

**FAX:** 510-486-0532

**PROJECT #** 172213

**DATE RECEIVED:** 5/12/04

**CONTACT:** Taryn Badal

**DATE COMPLETED:** 5/24/04

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC/PRES.</u>
01A	Effluent	Modified TO-3	Tedlar Bag
02A	Influent	Modified TO-3	Tedlar Bag
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA
04B	LCS	Modified TO-3	NA

CERTIFIED BY:

*Linda J. Furrer*

Laboratory Director

DATE: 05/25/04

Certification numbers: AR DEQ - 03-084-0, CA NELAP - 02110CA, LA NELAP/LELAP - AI 30763, NJ NELAP - CA004  
NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
Accreditation number: E87680, Effective date: 07/01/04, Expiration date: 06/30/05

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

## LABORATORY NARRATIVE

### Modified TO-3

Curtis & Tompkins, Ltd.

Workorder# 0405185

Two 1 Liter Tedlar Bag samples were received on May 12, 2004. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

<i>Requirement</i>	<i>TO-3</i>	<i>ATL Modifications</i>
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch $\leq$ 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation $DL = A + 3.3S$ , where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

### Receiving Notes

There were no receiving discrepancies.

### Analytical Notes

There were no analytical discrepancies.

### Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.



U - Compound analyzed for but not detected above the detection limit.  
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

# AIR TOXICS LTD.

SAMPLE NAME: Effluent

ID#: 0405185-01A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name	0405185-01A	Date of Collection	5/13/04
Dil. Factor	1000	Date of Analysis	5/13/04 08:51 AM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	0.0015	0.0058
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	0.0011 M	0.0048 M
TPH (Gasoline Range)	0.025	0.10	0.13	0.54

M = Reported value may be biased due to apparent matrix interferences.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	96	75-150
Fluorobenzene (PID)	96	75-125

# AIR TOXICS LTD.

SAMPLE NAME: Influent

ID#: 0405185-02A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name	0405185	Date of Collection	5/10/04
Lab Number	0405	Date of Analysis	5/10/04 8:17 AM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	0.020 M	0.065 M
Toluene	0.0010	0.0038	0.0072	0.028
Ethyl Benzene	0.0010	0.0044	0.0014	0.0063
Total Xylenes	0.0010	0.0044	0.0052	0.023
TPH (Gasoline Range)	0.025	0.10	1.4	5.7

M = Reported value may be biased due to apparent matrix interferences.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	101	75-150
Fluorobenzene (PID)	100	75-125

# AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0405185-03A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	05051805	Date of Collection:	NA
File Factor:	1000	Date of Analysis:	5/13/04 09:49 AM

Compound	Rot. Limit (ppmv)	Rot. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	94	75-150
Fluorobenzene (PID)	95	75-125

# AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0405185-04A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name	0405185-04A	Date of Collection	NA
File Factor	1.000	Date of Analysis	05/20/2010

Compound	%Recovery
Benzene	95
Toluene	85
Ethyl Benzene	86
Total Xylenes	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (PID)	98	75-125

# AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0405185-04B

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	6051304	Date of Collection:	NA
Dil Factor:	1.00	Date of Analysis:	5/15/01 03:31 AM

Compound	%Recovery	
TPH (Gasoline Range)	124	
Container Type: NA - Not Applicable		
Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	121	75-150