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

Third Quarter 2001
Groundwater Monitoring Report
Former Glovatorium Facility

3815 Broadway
Oakland, California

September 13, 2001

Project 01-2510

Prepared for
Smiland and Khachigian
601 West Fifth Street, 7th Floor
Los Angeles, California 90071-2004

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

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

SEP 19 2001

September 14, 2001

Mr. Scott Seery, CHMM
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Project: 01-2510

Subject: Site Located at 3815 Broadway, Oakland, California
Former Glovatorium Facility

Dear Mr. Seery:

A copy of SOMA's "Third Quarter 2001 Groundwater Monitoring Report" for the subject property is enclosed.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 244-6600, if you have any questions or comments.

Sincerely,

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

REGISTERED PROFESSIONAL ENGINEER
MANSOUR SEPEHR
No. C042928
Exp. 3-31-04
CIVIL
STATE OF CALIFORNIA

Enclosure

cc: Mr. Stuart Depper, Clean Tech Machinery
Mr. Albert M. Cohen, Smiland & Khachigian
Ms. Betty Graham, Regional Water Quality Control Board
Dr. Bruce Page, Bruce W. Page Consulting

Certification

This report has been prepared by SOMA Environmental Engineering, Inc. for Smiland & Khachigian, to comply with Alameda County Department of Environmental Health's requirements for the Third Quarter 2001 groundwater monitoring event.

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

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) for the Law Offices of Smiland and Khachigian on behalf of their client, the owners of the former Glovatorium. The site is the former Glovatorium property located at 3815 Broadway Avenue, Oakland, California (the "Site"), as illistrated in Figure 1. The Site is located in an area consisting primarily of commercial and residential uses.

This report summarizes the results of the third quarter 2001 groundwater monitoring event conducted on July 26 and 27, 2001 by SOMA at the Site, including the results of the laboratory analyses of the groundwater samples, which were analyzed for:

- Total petroleum hydrocarbons as gasoline (TPH-g), and as Stoddard solvents (TPH-ss) using modified 8015
- Volatile organic compounds (VOCs) using EPA Method 8260B (with the listing of compounds from the 8010 analytical method)
- Benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX) and methyl tertiary butyl ether (MtBE) using EPA Method 8021B.

In addition to the above laboratory analysis, the natural attenuation study which was initiated by Levine•Fricke•Recon (LFR) in the third quarter of 2000 continued during this monitoring event. The objective of the natural attenuation study was to evaluate whether or not tetrachloroethylene (PCE) and other VOCs found in groundwater are biodegrading. Therefore, the groundwater samples collected during this monitoring event were analyzed for common electron acceptors and other geochemical indicators, and the results are 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 work is needed to determine the nature and extent of environmental contamination, and thus whether contamination is affecting the neighboring Thompson property. This information is needed to defend against the claim that Mr. Thompson brought against Glovatorium and the Deppers. This work may also provide data that could help determine when releases occurred, which is also significant to defending against the claims brought by a former owner of the property, Ms. Johnson.

1.1 Site Description

The Site is located between Manila Avenue and Broadway, near the intersection of 38th Street in Oakland, California. The ground surface at the Site is covered with concrete and asphalt and slopes gently southwest, with surface elevations ranging from approximately 78 to 84 feet above mean sea level (msl).

A 54-inch inside-diameter storm drain culvert passes under the property, from Manila Avenue on the west to 38th Street on the south (see Figure 2). The depth of the storm drain invert is approximately 8.5 feet under the sidewalk on the eastern side of Manila Avenue and approximately 13.2 feet below ground surface (bgs) at the far end approximately 60 feet south of GW-4.

In addition to a storm drain system, a 10-inch diameter cast iron sanitary sewer conduit runs in a westerly direction from the on-site building and discharges into the sanitary sewer line, which runs north to south along Manila Avenue. The floor drain inside the building is less than 2 feet bgs. However, the depth of the sanitary sewer line inside the building gradually increases and then slopes more

steeply downward near the western wall of the building, where it plunges underneath the 54-inch storm drain (LFR, January 2001).

Reportedly, there were six underground storage tanks (USTs) at the Site. Two USTs were located under the sidewalk on 38th Street and four USTs were located inside the building. The volumes of the USTs have been variously reported as ranging from 800 gallons up to 5,000 gallons. They reportedly contained Stoddard solvent, fuel oil and possibly waste oil. In August 1997, the six USTs were abandoned in-place by backfilling with either cement-sand slurry or pea gravel. In addition, there are three USTs owned by Earl Thompson, Sr., under the sidewalk on 38th Street, see Figure 2.

The surrounding properties are primarily commercial, businesses and residential housing. A TOSCO Marketing Company (TOSCO) site is located north and upgradient of the Site, at 40th Street and Broadway and contains a number of groundwater monitoring wells. Figure 2 shows the location of the main building, fuel tank areas, and the on-site and off-site groundwater monitoring wells. The groundwater monitoring wells are currently monitored on a quarterly basis. Past groundwater monitoring events have indicated the presence of VOCs and petroleum hydrocarbons in the groundwater beneath the Site. The source of VOCs and Stoddard Solvent is believed to be the former USTs, which were used to store Stoddard solvents and VOCs at the Site. The source of petroleum hydrocarbons in the groundwater is believed to be the upgradient TOSCO facility. This report includes both the results of historical groundwater monitoring events and the results of the third quarter 2001 groundwater monitoring event.

1.2 Background

The following is a brief description of previous Site investigations conducted by different environmental firms:

In August 1997, Geosolv, LLC (Geosolv) initiated the first soil and groundwater

investigation at the Site. Geosolv drilled fourteen soil borings to approximate depths of 10 to 24 feet bgs using the direct push method. Seven of the soil borings (B-2, B-3, B-7 through B-10 and B-13; see Figure 2) were converted into temporary groundwater monitoring wells where grab groundwater samples were collected. In September 1998, Geosolv conducted further soil and groundwater investigations by drilling twelve additional soil borings to an approximate depth of 19 to 25 feet bgs. All of the twelve soil borings were converted into temporary groundwater sampling points, and are labeled E-15 through E-26 in Figure 2. After collecting grab groundwater samples from the "E" temporary sampling points, they were abandoned and grouted.

In July 1999, based on the request of ACEHS, an investigation of potential groundwater preferential flow paths was initiated by LFR. LFR drilled ten soil borings (GW-1 through GW-8, GW-5A, and GW-6A) primarily along the 54-inch diameter storm drain and sanitary sewer systems to depths ranging from 8 to 20 feet bgs using a direct push drilling method. During drilling operations, soil samples were collected from various depth intervals. In August 1999, LFR collected grab groundwater samples from seven of the nine "GW" wells.

In January and April 2000, LFR conducted quarterly groundwater monitoring events at the Site. During the groundwater monitoring events, groundwater elevations were measured in the temporary sampling points installed by LFR and Geolsolv, and in off-site wells MW-8, MW-9 and MW-11 owned by TOSCO. Groundwater samples were collected from the temporary sampling points installed by LFR and from the off-site well MW-11.

In July and August 2000, LFR installed four groundwater monitoring wells, namely LFR-1 through LFR-4, and conducted the third quarter 2000 groundwater monitoring event. This was the first sampling event in which bioattenuation parameters were collected. The measured bioattenuation parameters included:

dissolved oxygen (DO), nitrate (NO_3^{-1}), sulfate (SO_4^{-2}) ferrous iron (Fe^{+2}), total iron, methane, oxidation reduction potential (ORP), alkalinity, chloride, carbon dioxide, nitrite, sulfide, ethene, and ethane. The bioattenuation parameters provided a baseline for these parameters and a means to compare their concentrations at locations within the apparent source area against surrounding upgradient, down-gradient, and cross-gradient locations. During this monitoring event, groundwater elevations were measured and groundwater samples were collected from the newly installed groundwater monitoring wells LFR-1 through LFR-4, from the temporary sampling points installed by LFR and Geosolv, and from off-site monitoring wells MW-8, MW-9, and MW-11 owned by TOSCO. No groundwater samples were collected from MW-8 or MW-9.

In late October and early November 2000, LFR conducted the fourth quarter 2000 groundwater monitoring event, including another bioattenuation study. During the fourth quarter monitoring event, LFR sampled nine groundwater monitoring wells and temporary groundwater sampling points and measured groundwater elevations in nineteen groundwater monitoring wells and temporary sampling points (LFR, January 2001).

Well completion details for the LFR wells and the Geosolv sampling points are presented in Table 1.

In late January LFR conducted the first quarter 2001 groundwater monitoring event. However, SOMA prepared the first quarter 2001 monitoring report (SOMA, May 2001). The results of the first quarter 2001 groundwater monitoring event suggested the occurrence of strong anaerobic biodegradation activities and dechlorination of PCE beneath the Site.

The second quarter 2001 groundwater monitoring event was conducted by SOMA on April 26 and 27, 2001 and reported on July 5, 2001. During this period

certain bioattenuation data, which were proved to be less useful were not collected. The results of the second quarter 2001 monitoring event indicated a strong occurrence of the dechlorination process of PCE in subsurface.

1.3 Site Geology and Hydrogeology

The Site is located on the alluvial plain between the San Francisco Bay shoreline and the Oakland hills. Surface sediments in the Site vicinity consist of Holocene alluvial deposits that are representative of an alluvial fan depositional environment. These deposits consist of brown, medium dense sand that fines upward to sandy or silty clay. The pattern of stream channel deposition results in a three-dimensional network of coarse-grained sediments interspersed with finer grained silts and clays. The individual units tend to be discontinuous lenses aligned parallel to the axis of the former stream flow direction (LFR, 2001).

According to LFR, sediments encountered in soil borings at the Site are typical of those encountered in an alluvial fan depositional environment. The sediments are predominantly fine-grained, consisting of clay, silty clay, sandy clay, gravelly clay and clayey silt. Discontinuous layers of coarse-grained sediments (clayey sand, silty sand, and clayey gravel) generally also contain relatively high percentages of silt and clay, which tend to reduce their permeability. Based on LFR (2001), during previous investigations conducted by Geosolv and LFR, a relatively coarse-grained layer of silty sand, clayey sand, and clayey gravel was encountered in soil borings E-23, E-25, E-26, GW-2, GW-3, GW-7, and GW-8 at depths of approximately 4.5 to 14 feet bgs. A discontinuous layer of silty to clayey sand was encountered at depths of 17 to 21 bgs in borings B-11, E-23, E-25, GW-7 and GW-8.

According to the results of historical groundwater monitoring activities, groundwater occurs at 4 to 14 feet bgs. Based on the current and the previous groundwater monitoring reports, groundwater flows from northeast to the

southwest with an approximate groundwater flow gradient of 0.019 ft/ft to 0.035 ft/ft. Assuming that the water-bearing zone consists of silty sand with an average hydraulic conductivity of 1 x 10^{-4} cm/sec and porosity of 0.35, it is estimated that the average groundwater flow velocity is approximately 0.022 ft/day (8 feet per year).

2.0 FIELD ACTIVITIES

Field activities were conducted on July 26 and 27, 2001, during which ten groundwater monitoring wells were sampled and water levels were measured in 20 groundwater monitoring wells and temporary sampling points. Figure 2 shows the location of the groundwater monitoring wells and temporary sampling points. Appendix A includes SOMA's site-specific field activities during the current groundwater monitoring event.

On July 26, 2001, SOMA's field crew measured the depths to groundwater in the monitoring wells and temporary groundwater sampling points from the top of casings to the nearest 0.01 feet using an electrical sounder. The depth to groundwater and top of casing elevation data at each groundwater monitoring well were used to calculate the groundwater elevation.

Groundwater sampling was conducted on July 26 and 27, 2001. During the groundwater sampling activities, certain biodegradation groundwater parameters such as DO, ORP, ferrous iron, total iron, nitrate, nitrite, sulfate and manganese were measured by the field crew. After collecting the groundwater samples, they were placed in an ice chest and delivered to Curtis & Tompkins, Ltd. of Berkeley, California for routine analyses and to Microseeps Analytical Laboratories of Pittsburgh, Pennsylvania (Microseeps) for methane analyses only. Additionally, the field crew measured certain groundwater parameters such as pH, temperature, electrical conductivity and turbidity in-situ during the groundwater monitoring event.

2.1 Laboratory Analysis

Curtis & Tompkins, Ltd. of Berkeley, California analyzed the groundwater samples. The measured constituents included TPH-g, TPH-ss, BTEX , MtBE and VOCs.

TPH-g and TPH-ss were measured using EPA Method 8015M. EPA Method 8021B was used to measure BTEX and MtBE. EPA Method 8260B was used to measure VOCs.

Most of the groundwater constituents related to bio-degradation activities were measured by SOMA's field crew except dissolved methane, which was performed by Microseeps. The analyses conducted by the field crew included ferrous iron, total iron, nitrate, nitrite, sulfate, dissolved manganese, and dissolved oxygen.

3.0 Results

This section describes the results of the third quarter 2001 groundwater monitoring event, and it includes groundwater flow conditions, the status of groundwater contamination, and the occurrence of bioattenuation in the subsurface.

3.1 Groundwater Flow Condition

Table 2 presents the measured groundwater elevations at different groundwater monitoring wells and temporary groundwater sampling points. At each location, depth to watertable and the elevation of the top of casing were used to calculate

the watertable elevation relative to the assumed datum. Appendix B presents the field notes. Table 3 shows the historical water level elevations at different groundwater monitoring wells.

As Table 2 shows, the watertable elevations ranged from 66.56 feet in LFR-3 to 77.40 feet above msl in MW-8; the watertable elevations were between 0.1 and 2 feet lower than those in the second quarter. The drop in the water level elevation since the previous monitoring event can be attributed to the continuous lack of rainfall during this monitoring event. In evaluating the groundwater flow direction and gradient, water level data from GW-4, B-7, B-8 and B-9 were not utilized for the following reasons:

1. No accurate information about the construction details of the "B" wells installed by Geosolve is available, therefore water level data from these wells are questionable;
2. GW-4 was installed adjacent to the storm drain system in order to evaluate whether or not the storm drain system is leaking. This well was installed in the shallow formation, and may partially penetrate into the underlying water-bearing zone. Therefore, the water level elevation recorded inside GW-4 may not be representative of the underlying water-bearing zone.

Table 1 suggests otherwise

Figure 3 displays the groundwater elevation contour map. As Figure 3 shows, during the recent monitoring event, the groundwater was found to flow from the northeast to southwest. This is consistent with the findings of the previous monitoring events. It should be noted that our knowledge in regard to groundwater flow direction does not extend beyond LFR-3, the most downgradient groundwater monitoring well.

The field measurements of some physical and chemical parameters of the groundwater samples are presented in detail in the field notes in Appendix B, and are summarized in Table 4, along with their historical values. Water temperatures

ranged from 15.97 °C to 22.25 °C. The variation in temperature may reflect the changes in air temperature during sampling. The temperature measurements allowed the field crew to make corrections to the pH, Electrical Conductivity (EC), and DO measurements. pH measurements ranged from 6.02 to 6.74 units. The EC measurements ranged from 0.55 to 1.40 µS/cm.

The significant difference between the EC values at different wells may suggest that the groundwater monitoring wells may have been completed in different water-bearing zones.

3.2 Groundwater Quality

The groundwater samples were analyzed for petroleum hydrocarbons and VOCs using EPA Methods 8015M, 8021B, and 8260B. Table 5 displays the results of the laboratory analyses for TPH-ss, TPH-g, MtBE, benzene, toluene, ethylbenzene, and total xylenes. As Table-5 shows, TPH-g and TPH-ss were found at high concentrations beneath the Site. Like the previous monitoring event, the maximum concentrations of TPH-g and TPH-ss were found in B-7, which is located inside the former Glovatorium building. Also, TPH-g and TPH-ss were found in six out of ten groundwater monitoring wells sampled during this monitoring event. In comparison with the second quarter 2001 groundwater's monitoring event, the concentrations of TPH-g and TPH-ss decreased considerably in B-7 and B-10 but did not show a significant change for the rest of the wells sampled. Figures 4 and 5 show the concentration contour maps of TPH-g and TPH-ss in groundwater, respectively.

As was the case during previous groundwater monitoring events, minor concentrations of MtBE and BTEX were found at various groundwater monitoring wells. The maximum concentration of MtBE was detected in LFR-4 at 11 µg/L (see Table-5). The maximum concentrations of benzene, toluene, ethylbenzene and xylenes were detected in well B-7, with concentrations of 7, 51, 8.2 and 74

µg/L, respectively. Compared with the previous monitoring event, concentrations of benzene, toluene, ethylbenzene and xylenes were decreased during this monitoring event.

Table 7 shows the historical TPH-ss, TPH-g, TPH-d, MtBE and BTEX concentrations measured at different groundwater monitoring wells and groundwater sampling points.

Table 6 shows the concentration of VOCs in the groundwater during this monitoring event. As Table 6 shows, cis-1,2-dichloroethene (cis-1,2-DCE) was found most frequently. Cis-1,2-DCE was detected at a maximum concentration of 6,600 µg/L in B-10, which indicates a slight decrease in this well compared to the previous groundwater monitoring event. Cis-1,2-DCE is produced during the reductive dechlorination of PCE. In general, the reductive dechlorination process occurs by sequential dechlorination from PCE to trichloroethene (TCE) to DCE to vinyl chloride (VC). Bouwer (1994) reports that under the influence of biodegradation, cis-1,2-DCE is a more common intermediate compound than trans-1,2-DCE, and that 1,1-DCE is the least prevalent of the three DCE isomers when they are present as daughter products. Trans-1,2-DCE was found less frequently and at much lower concentrations than cis-1,2-DCE. Cis-1,2-DCE was reported in eight out of ten groundwater monitoring wells, while trans-1,2-DCE was only detected in B-10 and B-7. Figure 6 shows the distribution of cis-1,2-DCE concentration in groundwater.

PCE and TCE were reported at relatively high concentrations and frequencies in the groundwater samples. PCE and TCE were detected in seven out of ten groundwater monitoring wells. The maximum reported concentration of PCE and TCE were 870 and 810 µg/L, respectively, both in well B-10. This represents a considerable decrease from the values reported during the previous groundwater monitoring event. Figures 7 and 8 show the distribution of PCE and TCE

concentrations in the groundwater.

VC was detected in GW-4, LFR-2, and its duplicate sample LFR-5 at concentrations of 0.6, 2.1, and 3.6 µg/L, respectively. During the previous groundwater monitoring event, VC was found at a concentration of 1.3 µg/L in LFR-2. As mentioned before, the reductive dechlorination process in general occurs by sequential dechlorination from PCE to TCE to DCE to VC. The depletion of PCE and TCE coupled with slight increase of VC may indicate that the reductive dechlorination process of PCE and TCE is strongly occurring beneath the Site. Table 8 shows the historical concentration of VOCs in the groundwater.

3.3 Bioattenuation Parameter Analysis Results

This is the fifth groundwater quarterly monitoring event in which the natural attenuation parameters of groundwater were studied. The objective of the bioattenuation study is to evaluate whether or not intrinsic bioremediation processes are active at the Site. The results of this study will reveal whether or not PCE and other dissolved organic compounds are biodegrading beneath the Site.

In the current groundwater monitoring event, certain bioattenuation parameters such as carbon dioxide, hydrogen, chloride, alkalinity, sulfide, and nitrogen were omitted from further analysis. In addition, dissolved oxygen was only measured in-situ by the field crew. This decision was made because of the following reasons:

1. As discussed in the previous monitoring reports, the role of certain parameters such as alkalinity, carbon dioxide, sulfide, hydrogen and nitrogen is hard to define or characterize. For instance the presence of alkalinity in groundwater can be attributed to several different

biodegradation processes in the subsurface and therefore, its distribution may not assist in identifying the occurrence of dechlorination processes in the subsurface.

2. Based on Borden (1998) and Sepehr (1999), the ex-situ measurement of natural gases such as DO may introduce oxygen into the groundwater sample and result in certain errors. Therefore, DO was only measured in the field inside the casing without collecting a groundwater sample.

During the degradation process, the indigenous bacteria that exist in the subsurface consume electron acceptors such as DO. After the DO is consumed, anaerobic microorganisms typically use alternative electron acceptors in the following order of preference: nitrate, ferric iron, oxyhydroxide, sulfate, and, finally, carbon dioxide. Evaluating the distribution of these electron acceptors can provide evidence of where and to what extent chlorinated and aliphatic hydrocarbon biodegradation is occurring. The by-products of biodegradation processes are nitrite, ferrous iron, alkalinity, sulfide, methane, and carbon dioxide. For evaluation of the bioattenuation processes, groundwater samples were collected during the third quarter 2001 groundwater monitoring event and analyzed for selected electron acceptors and the by-products of biodegradation activities, as described below:

Dissolved Oxygen. DO is the most favored electron acceptor used by microbes for the biodegradation of organic compounds. A concentration of DO less than 0.5 mg/L indicates anaerobic conditions. It is our experience that down-hole measurements of DO (i.e., in-situ measurements) yield more realistic results than ex-situ (laboratory) measurements. Significant differences in DO concentrations using in-situ and ex-situ measurements (conducted by Microseep) during the first quarter 2001, can be attributed to cross contamination by atmospheric air during ex-situ measurement (R. Borden, 1998, M. Sepehr 1999). Therefore, during the current monitoring events, the DO measurements were conducted in-situ only by

SOMA's field crew. Figure 9 presents the DO concentration contour map in groundwater using in-situ measurements. While we expected the DO to be lowest around the source area—wells B-7 and B-10, Figure 9 shows only well LFR-2 had a relatively low DO concentration. Therefore, we suspect that the larger drawdown which occurred in those one-inch-diameter wells during purging caused the groundwater entering the borehole to come in contact with ambient air and, as a result, to show a higher oxygen content. Based on our workplan dated June 15, 2001 and ACEHS approval, in early October 2001, SOMA is planning to install 4-inch diameter groundwater monitoring wells and decommission monitoring wells B-7 and B-10. For further information please see SOMA's June 15, 2001 approved workplan. Table 9 presents the current and historical DO concentrations in groundwater.

Nitrate. After DO has been depleted, nitrate may be used as an electron acceptor for anaerobic biodegradation. Nitrate concentrations less than 1.0 mg/L may indicate that reductive dechlorination is occurring. Low concentrations of nitrate near the apparent source area in B-10, and in the downgradient well LFR-2 indicate conditions that are conducive to anaerobic biodegradation. High concentrations of nitrate were observed in upgradient monitoring well MW-11, and downgradient well GW-4 indicating a low likelihood of anaerobic biodegradation in these wells. Figure 10 shows the nitrate concentration contour map using the field data.

Manganese. After DO and nitrate have been depleted, manganese may be used as an electron acceptor for anaerobic biodegradation, and therefore, increased dissolved manganese concentrations are indicative of reductive dechlorination. Manganese concentrations ranged from non-detectable level in GW-2, GW-3, MW-11, LFR-1, LFR-4 to 7.3 mg/L in B-7, in the apparent source area indicating conditions that are conducive to anaerobic biodegradation.

Sulfate. After DO, nitrate, and manganese have been depleted, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is

termed sulfate reduction, and results in the production of sulfide. Sulfate concentrations less than 20 mg/L are indicative of reductive dechlorination (EPA 1998). Sulfate concentrations were 8 mg/L in the apparent source area locations B-7 and 3 mg/L at B-10. Sulfate concentration around well MW-11 and LFR-3 were 77 and 51 mg/L, suggesting aerobic conditions upgradient and further downgradient from the groundwater contaminant plume. Figure 11 shows a sulfate concentration contour map in the groundwater using the field data.

Ferrous Iron. Increased ferrous iron accompanies anaerobic degradation. Ferric iron can be used as an electron acceptor during anaerobic biodegradation. During this process, ferric iron is reduced to ferrous iron, which may be soluble in water. Ferrous iron concentrations can thus be used as an indicator of anaerobic biodegradation.

The highest ferrous iron concentrations were in the apparent source area (11.6 mg/L in B-7). The minimum concentrations of ferrous iron were detected in MW-11, GW-2, and LFR-3, where conditions are aerobic. Figure 12 shows a ferrous iron concentration contour map using the field data.

Methane. The presence of methane in groundwater is indicative of strongly reduced conditions, and suggests reductive dechlorination by the process of methanogenesis. Methane was detected in concentrations ranging from 0.0028 mg/L in GW-4 to 10 mg/L in LFR-2. The higher concentration of methane at LFR-2 and at the source area (B-7 and B-10) indicates conditions that are conducive to anaerobic biodegradation. Figure 13 shows a methane concentration contour map during the recent groundwater monitoring event, using the laboratory data.

Oxygen Reduction Potential. The ORP of groundwater is a measure of electron activity, and is an indicator of the relative tendency of a solution to accept or transfer electrons. ORP may range from greater than 800 milliVolts (mV) to less than -400 mV, with lower values expected in areas where anaerobic processes are occurring. ORP measurements obtained in this sampling event ranged from

-40 mV in B-7 to +238 mV in LFR-1. The highest values were found in downgradient locations (GW-2, LFR-1 and LFR-3) and upgradient locations (MW-11). The lowest values were found in the apparent source area (B-7 and B-10). These results indicate that conditions in and near the apparent source area are conducive to anaerobic biodegradation.

Other Parameters

Alkalinity. Alkalinity is a general water quality parameter. The higher alkalinity levels is due to the interaction between carbon dioxide (a product of several biodegradation processes) and aquifer minerals. Due to the inconclusive nature of data collected during the previous groundwater monitoring events in connection with the bioattenuation process, no alkalinity data was collected during the current and previous groundwater monitoring events.

Chloride. Chloride is the final product of the reduction of chlorinated solvents, and is also a general water quality parameter.

Due to the inconclusive nature of data collected during the previous groundwater monitoring events in connection with the bioattenuation process, no chloride data was collected during the current groundwater monitoring event.

Carbon Dioxide. Carbon dioxide is a product of several biodegradation processes. Due to the inconclusive nature of data collected during the previous groundwater monitoring events in connection with the bioattenuation process, no carbon dioxide data was collected during the current and previous groundwater monitoring events.

Iron. Ferric iron may be used as an electron acceptor during anaerobic biodegradation. During this process, ferric iron is reduced to ferrous iron that may be soluble in water. Ferric iron concentrations may be obtained by subtracting ferrous iron concentrations from total iron concentrations. Total iron concentrations ranged from non-detectable mg/L (well MW-11) to 15.3 mg/L

(B-7). The ferrous iron concentration ranged between non-detectable (GW-2 and MW-11) to 11.6 mg/L (B-7). These may be indicative of the reductive dechlorination processes. Table 4 presents the results of the total iron analyses, and Table 9 presents the results of the ferrous iron analyses.

Nitrite. Nitrate may reduce to nitrite during the process of anaerobic biodegradation. Nitrite measurements were performed on some of the monitoring wells because of the limited amount of groundwater sample. Nitrite concentrations ranged from non-detectable (B-10) to 0.35 mg/L (GW-4). As was the case in the previous groundwater monitoring events, these results are inconclusive regarding the occurrence of reductive dechlorination. Nitrite results are included in Table 4.

Sulfide. When sulfate is used as an electron acceptor for anaerobic biodegradation, it is reduced to sulfide. Due to the inconclusive nature of data collected during the previous groundwater monitoring events in connection with the bioattenuation process, no sulfide data was collected during the current groundwater monitoring event.

pH, Temperature, and Conductivity. The pH of groundwater has an effect on the activity of microbial populations in groundwater, with optimal pH values ranging from 6 to 8 standard units for microbes capable of degrading PCE and other chlorinated aliphatic hydrocarbons. The groundwater temperature affects the metabolic activity of bacteria, and groundwater conductivity is directly related to the concentration of ions in solution. The pH, temperature, and conductivity values are included in Table 4.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following is a summary of the work performed on July 26 and 27, 2001 and the results of this work.

Groundwater samples were collected from monitoring wells LFR-1 through LFR-4, temporary sampling points B-7, B-10, GW-2, GW-3, GW-4, and from well MW-11. The samples were analyzed for TPH-ss, TPH-g, MtBE, BTEX, and VOCs.

The PCE concentration of 0.38 mg/L detected in well LFR-1 is approximately one half of the PCE concentration present in this well in the first quarter's groundwater monitoring event (0.77 mg/L). In August 2000, PCE concentration of 2.8 mg/L was reported in this well.

This was the fifth quarterly groundwater monitoring event in which bioattenuation parameters were analyzed. Selected samples were analyzed for the following: DO, nitrate, manganese, sulfate, ferrous iron, methane, ORP, total iron, and nitrite. Certain parameters such as chloride, carbon dioxide, hydrogen, alkalinity, and sulfide were not measured due to their inconclusive role in the bioattenuation processes at this Site.

Cis-1,2-DCE is one of the breakdown products of PCE. It was detected at concentrations up to 6.6 mg/L (it was detected at 7.3 mg/L during the previous monitoring event) in temporary sampling point B-10 and its presence in groundwater indicates that reductive dechlorination is likely occurring.

Vinyl chloride was only detected in well GW-4, LFR-2 and its duplicate sample at concentrations of 0.6, 2.1 and 3.6 µg/L, respectively. The presence of vinyl chloride, a breakdown product of PCE, indicates reductive dechlorination is likely occurring.

Benzene was not detected in B-10, GW-2, GW-3, LFR-1, LFR-3, or MW- 11, but was detected in B-7 (7 µg/L), LFR-2 (1.3 µg/L) and LFR-4 (0.9 µg/L). The presence of MtBE in several on-site and off-site wells and sampling points is believed to originate at the upgradient TOSCO site.

The maximum concentrations of the petroleum hydrocarbons found in groundwater monitoring well B-7, are shown in Table-5. The maximum concentration of VOCs was found in B-10, are shown in Table 6.

4.1 Conclusions

Our conclusions, based on the data obtained during the third quarter 2001 groundwater monitoring event, are as follows:

The farthest downgradient well, LFR-3, contained minor concentration of VOCs with 2.2. µg/L PCE and no detectable BTEX.

The data collected to date regarding the distribution of PCE and other VOCs in groundwater indicates that PCE has been degraded into some of its breakdown products. PCE typically degrades into TCE, then cis-1,2-DCE, and trans-1,2-DCE (at much lower concentrations than cis-1,2-DCE), then to VC, ethane and ethene and finally carbon dioxide, water, and chloride. This sequence of degradation would be anticipated where biological reductive dehalogenation of PCE is occurring. These breakdown products and relative concentrations are present at the Site. The presence of TCE in the apparent source area near temporary sampling point B-10 in January, August, October/November 2000, January/February 2001 as well as April and July 2001 indicates that PCE degradation is occurring. The presence of relatively high concentrations of cis-1,2-DCE in B-10 and in nearby B-7, and the relatively low concentrations of trans-1,2-DCE in these temporary sampling points is also indicative of biodegradation. Historical data from temporary sampling point GW-8 indicates the presence of VC between July 1999 and April 2000. VC was also detected in LFR-2 since the October/November 2000 groundwater monitoring event and most recently in GW-4, for the first time. We expect to detect VC in the other groundwater monitoring wells in the future due to the progression of the dechlorination process of PCE in the subsurface.

The results of DO, nitrate, manganese, sulfate, ferrous iron, methane, and ORP measurements indicate that conditions in the apparent source area are conducive to reductive dechlorination processes.

DO concentrations of less than approximately 1.0 mg/L in the groundwater are indicative of anaerobic biodegradation conditions. In the past several monitoring events, results indicated that conditions in the apparent source area were anaerobic and conducive to the anaerobic biodegradation processes. Only LFR-2 has DO less than 1.0 mg/L in this monitoring event while B-7 and B-10 have DO slightly higher than 1.0 mg/L. However, as it was explained earlier the in-situ DO measurements inside one-inch diameter source area wells (B-7 and B-10) are not representative of the actual conditions due to the occurrence of excess drawdown inside these wells during the DO field measurements. Based on our workplan dated June 15, 2001 and the ACEHS's approval, in early October 2001, SOMA is planning to install 4-inch diameter groundwater monitoring wells and decommission monitoring wells B-7 and B-10. Therefore, during the fourth quarter groundwater monitoring event, the newly installed 4-inch diameter groundwater monitoring wells will be utilized to assess the DO content of the saturated sediments.

Relatively low concentrations of nitrate (e.g. less than 1.0 mg/L) are anticipated in locations where the oxygen has been depleted, because nitrate ion can be an effective electron acceptor in anaerobic biodegradation processes. Low concentrations of nitrate occurred near the apparent source area in temporary sampling points B-7 and B-10, indicating conditions that are conducive to anaerobic biodegradation.

Increased dissolved manganese concentrations are indicative of reductive dechlorination condition. Manganese concentrations ranged from non-detectable (GW-2, GW-3, MW-11, LFR-1, LFR-4) to 7.3 mg/L (B-7) in the apparent source area indicating conditions that are conducive to anaerobic biodegradation.

Relatively low concentrations of sulfate (e.g. less than 20 mg/L) are anticipated in locations where the oxygen has been depleted, because sulfate ion can be used as an effective electron acceptor in the anaerobic biodegradation processes. Sulfate concentrations were 8 mg/L in the apparent source area locations B-7 and 3 mg/L at B-10, indicating conditions that are conducive to anaerobic biodegradation.

The reducing conditions conducive to dehalogenation of VOCs can also reduce iron to the soluble ferrous state. Therefore, a relatively high concentration of ferrous iron is anticipated in locations where biodegradation occurs. The highest ferrous iron concentrations were in the apparent source area (B-7 and B-10) and in the slightly downgradient location LFR-2, indicating conditions that are conducive to anaerobic biodegradation.

A relatively high concentration of methane is anticipated in locations where biodegradation occurs because methane is indicative of strongly reducing conditions and suggests reductive dechlorination by the process of methanogenesis. Methane concentrations ranged from 5.6 mg/L to 7 mg/L in the apparent source area (B-7 and B-10) and were 10 mg/L in the slightly downgradient location LFR-2, indicating conditions that are conducive to anaerobic biodegradation.

The ORP of groundwater is a measure of electron activity and is an indicator of the relative tendency of a solution to accept or transfer electrons. ORP may range from greater than 800 milliVolts (mV) to less than -400 mV, with negative values expected in areas where anaerobic processes are occurring. The lowest values (-40 and –22) were found in and near the apparent source area (B-7, B-10). These results indicate that conditions in and near the apparent source area are conducive to anaerobic biodegradation.

4.2 Recommendations

SOMA's recommendations for future work at the Site are as follows:

1. Continue implementing the sampling and analysis plan for the routine parameters and natural bioattenuation parameters established through discussion with representatives of ACEHS and the RWQCB.

2. Continue quarterly groundwater monitoring in the four wells, LFR-1 through LFR-4, installed in July 2000, in the upgradient well MW- 11, and in selected previously installed temporary sampling points. Groundwater levels will be measured in LFR-1 through LFR-4, MW-8, MW-9, and MW-11, and in temporary sampling points.

3. Continue to evaluate PCE and potential breakdown product concentrations in on- and off-site wells.

SOMA's Workplan dated June 15, 2001 includes our proposed action for collecting additional data and defining the Site's regulatory status. During the fourth quarter 2001 groundwater monitoring event, the newly installed 4-inch diameter groundwater monitoring wells, as discussed in SOMA's workplan will be utilized to better assess the biodegradation parameters including DO. The biodegradation data along with our existing information will be utilized to define the Site's regulatory status. Once the Site's regulatory status in terms of "Low Risk" or "High Risk" chemical release site is known, the most appropriate corrective action can be proposed to ACEHS.

5.0 REFERENCES

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TABLES

Table 1

Construction Data for Temporary Sampling Points and Monitoring Wells

Former Glovatorium Site

3815 Broadway, Oakland, California

Location	Date Installed	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Total Depth (ft)	Screen Interval Depth (ft)	Screen Interval Elevation (ft)	Notes
Temporary Sampling Points Installed by Geosolv, LLC:							
B-2	19-Aug-97	82.2	82.09	21	5 to 21	77.2 to 61.2	
B-3	19-Aug-97	82.6	82.57	18	5 to 18	77.6 to 64.6	(1)
B-7	20-Aug-97	77.33	76.96	17.5	5 to 17.5	72.3 to 59.8	
B-8	20-Aug-97	82.06	81.82	24	9 to 24	73.1 to 58.1	
B-9	21-Aug-97	77.57	77.37	19.5	4.5 to 19.5	73.1 to 58.1	
B-10	21-Aug-97	81.65	81.5	19	4 to 19	77.7 to 62.7	
B-13	22-Aug-97	85.12	84.58	20	5 to 20	80.1 to 65.1	
Temporary Sampling Points Installed by LFR:							
GW-1	16-Jul-99	80.24	79.94	8	3 to 8	77.2 to 72.2	
GW-2	16-Jul-99	79.44	79.14	20	10 to 20	69.4 to 59.4	
GW-3	15-Jul-99	78.48	77.92	20	10 to 20	68.5 to 58.5	
GW-4	16-Jul-99	82.55	82.37	12	7 to 12	75.6 to 70.6	
GW-5	15-Jul-99	81.31	81.01	13	8 to 13	73.3 to 68.3	
GW-6	15-Jul-99	81.91	81.65	13.5	7.5 to 13.5	74.4 to 68.4	(2)
GW-6A	16-Jul-99	81.93	81.61	15	5 to 15	76.9 to 66.9	
GW-7	15-Jul-99	81.3	NS	20	10 to 20	71.3 to 61.3	(2)
GW-8	16-Jul-99	80.28	80.1	20	10 to 20	70.3 to 60.3	(2)
Temporary Sampling Points Installed by TOSCO:							
MW-8	unknown	NS	87.44	unknown	unknown	unknown	
MW-9	unknown	NS	86.56	unknown	unknown	unknown	
MW-11	unknown	NS	84.13	unknown	unknown	unknown	
Groundwater Monitoring Wells Installed by LFR:							
LFR-1	28-Jul-00	NS	79.97	19	9 to 19		
LFR-2	27-Jul-00	NS	81.89	19	9 to 19		
LFR-3	27-Jul-00	NS	77.96	22	12 to 22		
LFR-4	28-Jul-00	NS	81.65	19	9 to 19		

Notes:

(1) Top of casing surveyed on south side on January 21, 2000, because the casing was broken.

(2) GW-7 was abandoned on July 15, 1999, in accordance with LFR's workplan dated May 6, 1999. GW-6 and GW-8 were abandoned on July 26, 2000, in accordance with LFR's workplan dated June 14, 2000.

NS = Not surveyed.

Table 2
Groundwater Elevation Data, Third Quarter 2001
Groundwater Monitoring Event
Former Glovatorium Site
3815 Broadway, Oakland, California

Well Name	Date	Casing Elev. (ft.)	DTW (ft.)	GW Elev. (ft.)
B-2	7/26/01	82.09	8.23	73.86
B-3	7/26/01	82.57	9.40	73.17
B-7	7/26/01	76.96	8.27	68.69
B-8	7/26/01	81.82	11.41	70.41
B-9	7/26/01	77.37	8.64	68.73
B-10	7/26/01	81.50	8.89	72.61
B-13	7/26/01	84.58	dry	dry
GW-1	7/26/01	79.94	dry	dry
GW-2	7/26/01	79.14	10.59	68.55
GW-3	7/26/01	77.92	10.08	67.84
GW-4	7/26/01	82.37	8.52	73.85
GW-5	7/26/01	81.01	12.24	68.77
GW-6A	7/26/01	81.61	13.61	68.00
LFR-1	7/26/01	79.97	9.81	70.16
LFR-2	7/26/01	81.89	10.97	70.92
LFR-3	7/26/01	77.96	11.40	66.56
LFR-4	7/26/01	81.65	13.32	68.33
MW-8	7/26/01	87.44	10.04	77.40
MW-9	7/26/01	86.56	9.53	77.03
MW-11	7/26/01	84.21	10.48	73.73

Table 3
Historical Groundwater Elevations at Different Wells
Former Glovatorium Site
3815 Broadway, Oakland, California

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
Temporary Sampling Points Installed by Geosolv, LLC:					
B-2	**26-Jul-01**		**8.23**	**73.86**	
	26-Apr-01		6.83	75.26	
	29-Jan-01	82.09	7.46	74.63	
	30-Oct-00		7.75	74.34	
	9-Aug-00		8.19	73.90	P
	27-Apr-00		6.68	75.41	P
	24-Jan-00		6.16	75.93	P
	19-Jan-00	82.09	8.12	73.97	P
	18-Feb-98		4.04	78.16	1
	26-Oct-97	82.20	9.54	72.66	1
B-3	**26-Jul-01**		**9.40**	**73.17**	
	26-Apr-01		8.57	74.00	
	29-Jan-01	82.57	7.51	75.06	
	30-Oct-00		7.73	74.84	P
	9-Aug-00		8.02	74.55	P
	27-Apr-00		6.71	75.86	P
	24-Jan-00		6.74	75.83	
	19-Jan-00	82.57	9.35	73.22	2
	18-Feb-98		4.53	78.04	1
	26-Oct-97		8.93	73.64	1
B-7	**26-Jul-01**		**8.27**	**68.69**	
	26-Apr-01		7.36	69.60	
	29-Jan-01	76.96	7.85	69.11	
	30-Oct-00		7.95	69.01	
	9-Aug-00		8.35	68.61	
	27-Apr-00		7.11	69.85	P
	24-Jan-00		7.30	69.66	P
	19-Jan-00	76.96	8.36	68.60	P
	18-Feb-98		5.76	71.57	1
	26-Oct-97	77.33	9.24	68.09	1
B-8	**26-Jul-01**		**11.41**	**70.41**	
	26-Apr-01		8.63	73.19	
	29-Jan-01	81.82	7.59	74.23	
	30-Oct-00		8.50	73.32	
	9-Aug-00		9.02	72.80	P
	27-Apr-00		7.68	74.14	P
	24-Jan-00		8.98	72.84	P
	19-Jan-00	81.82	10.01	71.81	P
	18-Feb-98		5.42	76.64	1
	26-Oct-97	82.06	10.95	71.11	1
B-9	**26-Jul-01**		**8.64**	**68.73**	
	26-Apr-01		7.57	69.80	

Table 3
Historical Groundwater Elevations at Different Wells
Former Glovatorium Site
3815 Broadway, Oakland, California

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
	29-Jan-01	77.37	8.04	69.33	
	30-Oct-00		7.95	69.42	
	9-Aug-00		8.55	68.82	
	27-Apr-00		7.41	69.96	
	24-Jan-00		7.12	70.25	P
	19-Jan-00	77.37	8.46	68.91	P
	18-Feb-98	77.57	6.13	71.44	1
	26-Oct-97		9.18	68.39	1
B-10	**26-Jul-01**		**8.89**	**72.61**	
	26-Apr-01		7.89	73.61	
	29-Jan-01	81.50	8.30	73.20	
	30-Oct-00		8.15	73.35	
	9-Aug-00		8.85	72.65	
	27-Apr-00		7.80	73.70	
	24-Jan-00		7.35	74.15	P
	19-Jan-00	81.50	8.48	73.02	P
	18-Feb-98	81.65	6.52	75.13	1
	26-Oct-97		9.39	72.26	1
B-13	**26-Jul-01**	**81.65**	**DRY**	**DRY**	
	30-Oct-00	81.65	DRY	DRY	
	9-Aug-00		9.35	75.23	
	27-Apr-00		8.71	75.87	
	24-Jan-00		8.26	76.32	
	19-Jan-00	84.58	10.40	74.18	
	18-Feb-98		6.61	78.51	1
	26-Oct-97	85.12	12.10	73.02	1
Temporary Sampling Points Installed by LFR:					
GW-1	**26-Jul-01**		**DRY**	**NA**	
	26-Apr-01		DRY	NA	
	29-Jan-01	79.94	7.95	71.99	
	9-Aug-00		**DRY**	**DRY**	
	27-Apr-00		DRY	DRY	
	19-Jan-00		DRY	DRY	
	27-Aug-99	79.94	DRY	DRY	
GW-2	**26-Jul-01**		**10.59**	**68.55**	
	26-Apr-01		9.73	69.41	
	29-Jan-01	79.14	10.52	68.62	
	30-Oct-00		10.69	68.45	
	9-Aug-00		10.03	69.11	
	27-Apr-00		8.55	70.59	
	21-Jan-00		10.82	68.32	
	19-Jan-00		10.90	68.24	
	27-Aug-99	79.14	10.68	68.46	
GW-3	**26-Jul-01**		**10.08**	**67.84**	
	26-Apr-01		9.99	67.93	

Table 3
Historical Groundwater Elevations at Different Wells
Former Glovatorium Site
3815 Broadway, Oakland, California

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
	29-Jan-01	77.92	10.03	67.89	
	30-Oct-00		9.97	67.95	
	9-Aug-00		11.38	66.54	
	27-Apr-00		9.76	68.16	
	20-Jan-00		9.99	67.93	
	19-Jan-00		10.06	67.86	
	27-Aug-99	77.92	10.26	67.66	
GW-4	**26-Jul-01**		**8.52**	**73.85**	
	26-Apr-01		7.78	74.59	
	29-Jan-01	82.37	7.45	74.92	
	30-Oct-00		7.82	74.55	
	9-Aug-00		DRY	DRY	
	27-Apr-00		8.40	73.97	
	21-Jan-00		8.04	74.33	
	19-Jan-00		7.66	74.71	
	27-Aug-99	82.37	NM	NM	
GW-5	**26-Jul-01**		**12.24**	**68.77**	
	26-Apr-01		12.58	68.43	
	29-Jan-01	81.01	12.40	68.61	
	30-Oct-00		12.37	68.64	
	9-Aug-00		12.30	68.71	
	27-Apr-00		12.31	68.70	
	20-Jan-00		12.40	68.61	
	19-Jan-00	81.01	12.40	68.61	
	27-Aug-99	81.01	12.30	68.71	
GW-6A	**26-Jul-01**		**13.61**	**68.00**	
	26-Apr-01		13.18	68.43	
	29-Jan-01	81.61	13.71	67.90	
	30-Oct-00		13.45	68.16	
	9-Aug-00		13.73	67.88	
	27-Apr-00		13.61	68.00	
	19-Jan-00		13.98	67.63	
	27-Aug-99		13.90	67.71	
GW-8	27-Apr-00	81.61	8.76	71.34	
	20-Jan-00		9.68	70.42	
	19-Jan-00		9.66	70.44	
	27-Aug-99	80.10	9.50	70.60	
Monitoring Wells Owned by TOSCO:					
MW-8	**26-Jul-01**		**10.04**	**77.40**	

Table 3
Historical Groundwater Elevations at Different Wells
Former Glovatorium Site
3815 Broadway, Oakland, California

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
	29-Jan-01	87.44	9.30	78.14	
	2-Nov-00		9.06	78.38	
	10-Aug-00		10.18	77.26	
	27-Apr-00	87.44	8.29	79.15	
MW-9	**26-Jul-01**		**9.53**	**77.03**	
	29-Jan-01	86.56	8.61	77.95	
	2-Nov-00		8.25	78.31	
	10-Aug-00		9.42	77.14	
	27-Apr-00	86.56	9.31	77.25	
MW-11	**26-Jul-01**		**10.48**	**73.73**	
	26-Apr-01		9.40	74.81	
	29-Jan-01	84.21	10.42	73.79	
	30-Oct-00		10.59	73.62	
	9-Aug-00		10.09	74.12	
	27-Apr-00		8.86	75.35	
	25-Jan-00	84.21	10.73	73.48	
Monitoring Wells Installed by LFR:					
LFR-1	**26-Jul-01**		**9.81**	**70.16**	
	26-Apr-01		9.74	70.23	
	29-Jan-01	79.97	9.53	70.44	
	30-Oct-00		9.75	70.22	
	9-Aug-00	79.97	9.81	70.16	
LFR-2	**26-Jul-01**		**10.97**	**70.92**	
	26-Apr-01		9.99	71.90	
	29-Jan-01	81.89	9.85	72.04	
	30-Oct-00		10.27	71.62	
	9-Aug-00	81.89	11.90	69.99	
LFR-3	**26-Jul-01**		**11.40**	**66.56**	
	26-Apr-01		10.34	67.62	
	29-Jan-01	77.96	11.00	66.96	
	30-Oct-00		10.97	66.99	
	9-Aug-00	77.96	11.20	66.76	
LFR-4	**26-Jul-01**		**13.32**	**68.33**	
	26-Apr-01		12.78	68.87	
	29-Jan-01	81.65	13.73	67.92	
	31-Oct-00		13.51	68.14	
	9-Aug-00	81.65	13.26	68.39	

Notes:
1= Survey elevation and water-level measurement taken at concrete surface. Elevations and water levels without a "1" in Notes Column were measured from top of casing.
2= Top of the casing was re-surveyed because it was broken.
NM = not measured
P= Floating product or sheen was observed.

Table 4

Historical Analytical Results and Field Measurements for Dissolved Anions, Cations, Gases, pH, Temperature, and Electrical Conductivity in Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

(Concentrations are in milligram per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Alkalinity	Chloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
B-7	8/11/00	760	39	202				<0.0005	<0.0005	6.86	17.55	1.279
B-7 field	8/11/00					(1)	0.049					
B-7	10/31/00	760	42	200	14	<0.1	<2.0					
B-7 field	10/31/00				17.22	(1)	(1)			6.16	16.05	1.454
B-7	1/31/00	720	43	170	12	<0.1	<2.0					
B-7 field	1/31/00									6.79	13.9	1.424
B-7 field	Apr-26-01				>3.3	.0.243				6.59	16.3	1.34
B-7 field	**Jul-26-01**				**15.3**	**0.024**				**6.39**	**15.97**	**1.40**
B-10	8/10/01	520	74	145	6	<0.05	<0.04	<0.0005	0.00057	6.86	16.8	1.13
B-10 field	8/10/00					0.023	0.06					
B-10	10/31/00	500	76	120	6.6	<0.1	<2.0					
B-10 field	10/31/00				8.35	0.001	0.004			6.21	16.62	1.051
B-10	1/31/01	480	81	72	6.1	<0.1	<2.0					
B-10 field	1/31/01				1.44	0.073				6.81	14.66	1.117
B-10 field	Jun-11-01				1.31					6.65	16.7	1.09
B-10 field	**Jul-26-01**				**6.5**	**0**				**6.38**	**16.09**	**1.16**
GW-2	11/1/00									6.31	18.97	1.218
GW-2	1/30/01			63								
GW-2 field	1/31/01									6.82	13.75	0.846
GW-2 field	Apr-26-01				0.02					6.8	19.5	0.874
GW-2 field	**Jul-26-01**				**0.03**	**0.024**				**6.74**	**20.3**	**0.803**
GW-3	8/11/00	340	25	54.3				<0.0005	<0.0005	7.05	21.43	0.86
GW-3 field	8/11/00					0.046	(1)					
GW-3 field	11/1/00									6.52	18.83	0.967
GW-3	2/1/01			54								
GW-3 field	1/29/01									6.89	17.29	0.602
GW-3 field	Jun-11-01				0	0.7				5.68	16.2	0.673
GW-3 field	**Jul-26-01**				**0.14**	**0.004**				**6.53**	**22.25**	**0.547**

Table 4

Historical Analytical Results and Field Measurements for Dissolved Anions, Cations, Gases, pH, Temperature, and Electrical Conductivity in Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

(Concentrations are in milligram per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Alkalinity	Chloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
GW-4	1/30/01									6.6	13.48	0.479
GW-4	**Jul-26-01**				**2**	**0.035**				**6.45**	**19.44**	**0.827**
MW-11	8/10/00	360	110	216	0.13	<0.05	<0.04	<0.0005	<0.0005	6.47	21	1.089
MW-11field	8/10/00					0.036	0.002					
MW-11	11/1/00	300	120	190	<0.05	<0.1	<2.0					
MW-11field	11/1/00				0.01	0.003	(1)			5.83	20.13	1.264
MW-11	1/31/01	330	130	150	<0.05	<0.1	<2.0					
MW-11field	1/31/01									6.35	13.67	1.098
MW-11 field	Apr-26-01				0.01					5.67	18	1.21
MW-11 field	**Jul-26-01**				**0**	**0.021**				**6.02**	**19.85**	**1.12**
LFR-1	8/11/00	250	110					<0.0005	<0.0005	6.97	19.73	0.936
LFR-1 field	8/9/00			51.1		0.02	(1)					
LFR-1	10/30/00	240	100	25	<0.05	<0.1	<2					
LFR-1 field/sp	10/30/00				0.01/0.01	0.031/0.036	0.001/0.001			6.38	17.94	0.697
LFR-1-spl	10/30/00	220	100	40	<0.05	<0.1	<2					
LFR-1	1/29/01	150	76	28	<0.05	<0.1	<2					
LFR-1 field	1/29/01				0	0.037				6.82	15	0.87
LFR-1 Dup	1/29/01	150	75	26	<0.05	<0.1	<2					
LFR-1 field	Apr-26-01				0.004					5.76	16.8	0.98
LFR-1 field	**Jul-26-01**				**0.05**	**0.008**				**6.48**	**19.38**	**0.772**
LFR-2	8/11/00	590	33	174				<0.0005	0.0017	6.8	19.87	1.088
LFR-2 field	8/11/00				2.95	(1)	0.005					
LFR-2	11/2/00	550	40	180	6.2	<0.1	<2					
LFR-2 field	11/2/00				7.45	0.007	0.003			6.19	19.67	1.306
LFR-2	1/30/01	480	21	130	4.6	<0.1	<2					
LFR-2 field	1/30/01				1.04	0.007				6.6	12.73	0.945
LFR-2 field	Apr-27-01				2.97					5.64	16.4	0.921
LFR-2 field	**Jul-26-01**				**4.6**	**0.011**				**6.31**	**18.66**	**0.97**
LFR-3	8/10/00	310	85	162	<0.1	0.15	0.04	<0.0005	<0.0005	6.57	19.92	0.951
LFR-3 split	8/10/00	300	85	152				<0.0005	<0.0005			
LFR-3 field	8/10/00					0.058	(1)					

Table 4

Historical Analytical Results and Field Measurements for Dissolved Anions, Cations, Gases, pH, Temperature, and Electrical Conductivity in Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

(Concentrations are in milligram per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Alkalinity	Chloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
LFR-3	11/1/00	350	66	160	<0.05	<0.1	<2					
LFR-3 field	11/1/00				0.01	0.011	0.002			6.16	17.71	1.164
LFR-3	1/30/01	250	31	71	<0.05	<0.1	<2					
LFR-3 field	1/30/01				0.03					6.64	17.29	0.541
LFR-3 field	Jun-11-01				0.01					5.43	18	0.613
LFR-3 field	**Jul-26-01**				**0.7**	**0.027**				**6.25**	**20.5**	**0.602**
LFR-4	8/11/00	630	71	161				<0.0005	<0.0005	6.9	20.11	1.24
LFR-4 field	8/11/00				0.22	0.018	0.002					
LFR-4	10/31/00	490	28	130	1	<0.1	<2					
LFR-4 field	10/31/00				0.67	0.022	0			6.21	18.11	0.83
B-10 FB	8/10/00							<0.0005	<0.0005			
LFR-4	2/1/01	460	25	120	1.3	<0.1	<2					
LFR-4 field	2/1/01				1.43	0.017				6.55	15.28	0.916
LFR-4 field	Apr-27-01				1.44					5.79	18.3	1.06
LFR-4 field	**Jul-26-01**				**0.95**	**0**				**6.26**	**19.23**	**0.866**

Notes

Samples with "field" in the well ID indicate that the results are from field measurements obtained using a Hach spectrometer or a Hydrolab Quanta flow-through instrument.

(1) Sample concentration was too dilute to be reproducibly measured using the Hach spectrometer.

*)Methane measured by Microseep Laboratory, Pittsburgh, PA

Table 5

Anayltical Results of Groundwater Samples Analyzed for Petroleum Hydrocarbons

Former Glovatorium Site
3815 Broadway, Oakland, California

Sample ID	Date	Stoddard Solvent C7-C12 (µg/L)	Gasoline C7-C12 (µg/L)	MtBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)
B-7	7/27/01	2,500	5,200	5.7	7.0	51	8.2	74
B-10	7/27/01	1,700	3,600	ND	ND	ND	ND	ND
GW-2	7/27/01	ND	ND	ND	ND	ND	ND	ND
GW-3	7/27/01	ND	ND	0.8	ND	ND	ND	ND
GW-4	7/27/01	420	860	ND	ND	ND	ND	ND
LFR-1	7/27/01	86	180	ND	ND	ND	ND	ND
LFR-2	7/27/01	370	760	ND	1.3	ND	ND	0.6
LFR-3	7/27/01	ND	ND	ND	ND	ND	ND	ND
LFR-4	7/27/01	91	190	11	0.9	ND	ND	ND
LFR-5*	7/27/01	450	910	0.6	2.2	ND	ND	ND
MW-11	7/27/01	ND	100	1.0	ND	ND	ND	0.7
Trip Blank	7/27/01	ND	ND	ND	ND	ND	ND	ND

ND: Not Detected
NA: Not Analyzed
NS: Not Surveyed
*: LFR-5 was a duplicated sample of LFR-2

Table 6

Anayltical Results of Groundwater Samples Analyzed for Volative Organic Compound

at the Former Glovatorium Site
3815 Broadway, Oakland, California

Sample ID	Date	Tetra chloro ethene (µg/L)	Tri chloro ethene (µg/L)	cis-1,2-Dichloro ethene (µg/L)	trans-1,2-Dichloro ethene (µg/L)	Vinyl Chloride (µg/L)	1,2-Dichloro propane (µg/L)	1,1-Dichloro ethene (µg/L)
B-7	7/27/01	9.8	17	860	5.0	ND	ND	ND
B-10	7/27/01	870	810	6,600	41	ND	ND	ND
GW-2	7/27/01	33	4.3	2.4	ND	ND	ND	ND
GW-3	7/27/01	90	0.9	ND	ND	ND	ND	ND
GW-4	7/27/01	ND	ND	3	ND	0.6	1.9	NA
LFR-1	7/27/01	380	31	9.8	ND	ND	ND	ND
LFR-2	7/27/01	1.4	0.7	19	ND	2.1	ND	ND
LFR-3	7/27/01	2.2	ND	ND	ND	ND	ND	ND
LFR-4	7/27/01	0.5	ND	2.1	ND	ND	ND	ND
MW-11	7/27/01	1.7	1.0	6.2	ND	ND	ND	ND
LFR-5*	7/27/01	1.3	0.8	29	ND	3.6	ND	ND
Trip Blank	7/27/01	ND	ND	ND	ND	ND	ND	ND
Blank	1/29/01	ND	ND	ND	ND	ND	ND	ND
Blank	1/30/01	ND	ND	ND	ND	ND	ND	ND
Blank	1/31/01	ND	ND	ND	ND	ND	ND	ND

ND: Not Detected

NA: Not Analyzed

*: LFR-5 was a duplicated sample of LFR-2

Table 7

Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE Analyses on Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

All results are expressed in milligram per liter (mg/L)

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
Temporary Sampling Points Installed by Geosolv, LLC:											
B-2	24-Jan-00	5 to 21	NA	20 J	NA	31 YJ	<0.05	<0.013	<0.013	0.11 C	0.22 C
B-3	24-Jan-00	5 to 18	NA	4.9 J	NA	8.8 YJ	<0.01	0.0048	<0.0025	<0.0025	0.0714
B-7	24-Jan-00	5 to 17.5	NA	19	NA	30 J	<0.05	<0.013	0.062	<0.013	0.207
B-7	11-Aug-00		NA	3.7 J	NA	6.8 YHJ	0.02	0.0077 J	0.047 J	0.007 J	0.065 CJ
B-7	31-Oct-00		NA	62 J	NA	98 YHJ	0.01 J	0.0091 J	0.061 J	<0.0005	0.237 J
B-7	Jan-31-01		NA	5.3	NA	7.9	0.01	0.0089	0.059	0.0097	0.087
B-7	Apr-26-01		NA	4.5	NA	8.9 H	0.0069	0.011	0.071	.077 C	0.208
B-7	**Jul-27-01**		**NA**	**2.5**	**NA**	**5.2 HY**	**0.0057**	**0.007**	**0.051**	**0.0082**	**0.074**
B-8	24-Jan-00	9 to 24	NA	11 J	NA	19 YJ	<0.01	<0.0025	<0.0025	<0.0025	0.17 C
B-9	24-Jan-00	4.5 to 19.5	NA	1 YJ	NA	1.8 YHJ	<0.002	<0.0005	<0.0005	0.01 C	0.0089 C
B-10	24-Jan-00	4 to 19	NA	2.4 Y	NA	4.2	0.014 c	0.0072	0.027	0.025 C	0.032
B-10	10-Aug-00		NA	2.8 Y	NA	6.1 Y	0.16	0.0073	0.012	<0.005	0.0241
B-10	31-Oct-00		NA	2.2 YZ	NA	3.5 Z	<0.002	0.0038	0.011	<0.0005	0.0182
B-10	Jan-31-01		NA	2.4 Z	NA	3.6 HYZ	<0.002	0.0031	0.01	0.00076 c	0.0197
B-10	Apr-26-01		NA	2.4 Z	NA	4.7 Z	0.0025	0.0041	0.013	ND	0.029
B-10	**Jul-27-01**		**NA**	**1.7**	**NA**	**3.6 H**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
B-13	24-Jan-00	5 to 20	NA	1.7 J	NA	3 YJ	<0.01	<0.0025	<0.0025	<0.0025	0.02
Temporary Sampling Points Installed by LFR:											
GW-2	19-Jul-99	10 to 20	NA	<0.05	NA	<0.05	0.0025	<0.0005	0.00071	<0.0005	0.00074
GW-2	20-Jan-00		NA	0.15	NA	0.25 Y	0.0044	<0.0005	<0.0005	0.00097 C	0.0013
GW-2	28-Apr-00		NA	<0.05	NA	0.095 YZ	<0.0021	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	2-Nov-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	1-Feb-01		NA	<0.05	NA	ND	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	Apr-27-01		NA	<0.05	NA	0.086 YZ	0.0022	<0.0005	0.024	<0.0005	<0.0005
GW-2	**Jul-27-01**		**NA**	**<0.05**	**NA**	**<0.05**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
GW-3	19-Jul-99	10 to 20	NA	0.07 Z	NA	0.1 Z	<0.002	<0.0005	<0.0005	<0.0005	0.00064
GW-3	20-Jan-00		NA	0.15	NA	0.26 Y	<0.002	<0.0005	<0.0005	<0.0005	0.0013 C

Table 7

Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE Analyses on Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

All results are expressed in milligram per liter (mg/L)

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
GW-3	27-Apr-00		NA	0.2 YZ	NA	0.38 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	27-Apr-00	10 to 20	NA	0.3 Z	NA	0.57 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	11-Aug-00		NA	<0.05	NA	0.077 YZ	<0.002	<0.0005	<0.0005	<0.0005	0.00051
GW-3	2-Nov-00		NA	<0.05	NA	0.05 YZ	0.0026	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	1-Feb-01		NA	<.05	NA	<0.05	<.002	<.0005	<.0005	<.0005	<.0005
GW-3	27-Apr-01		NA	<.05	NA	0.062 YZ	0.0056	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	**Jul-27-01**		**NA**	**<.05**	**NA**	**<0.05**	**0.0008**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
GW-4	21-Jul-99	7 to 12	NA	6.8 J	NA	10 YHJ	0.0022	<0.0005	<0.0005	<0.0005	0.0029 J
GW-4	20-Jan-00		NA	0.97 J	NA	1.6 YJ	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00		NA	0.85 J	NA	1.5 YJ	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	27-Apr-00		NA	0.31	NA	0.6 Y	<0.002	<0.0005	<0.0005	<0.0005	0.0027
GW-4	Jan-30-01		NA	0.39	NA	0.58 HY	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	**Jul-27-01**		**NA**	**0.42**	**NA**	**0.86 HY**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
GW-5	27-Aug-99	8 to 13	NA	<0.05	NA	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001
GW-5	20-Jan-00		NA	<0.05	NA	0.057 Y	0.0007	<0.0005	<0.0005	<0.0005	<0.0005
GW-5	27-Apr-00		NA	0.05 Y	NA	0.096 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Aug-99	5 to 15	NA	<0.05	NA	0.054 Y	0.0089	<0.0005	<0.0005	<0.0005	<0.0005
Split	27-Aug-99		NA	<0.05	NA	0.057 Y	0.0087	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	25-Jan-00		NA	<0.05	NA	<0.05	0.0022	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Apr-00		NA	<0.05	NA	0.087 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-7	15-Jul-99	10 to 20	0.697 BJ	NA	1.79 AJ	NA	<0.0025	0.05 J	<0.0005	0.000727	0.00313 J
Split	15-Jul-99		1.42 BJ	NA	3.1 AJ	NA	NA	NA	NA	NA	NA
GW-7	15-Jul-99		NA	NA	NA	NA	NA	0.0567 J	<0.002	<0.002	<0.002
Split	15-Jul-99		NA	NA	NA	NA	NA	0.0755 J	<0.002	<0.002	<0.002
GW-8	19-Jul-99	10 to 20	NA	<0.05	NA	<0.05	0.0078	<0.0005	0.00064	<0.0005	0.00151
GW-8	20-Jan-00		NA	0.19	NA	0.33 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00	10 to 20	NA	0.2	NA	0.37 Y	<0.002	0.00058	<0.0005	<0.0005	<0.0005
GW-8	28-Apr-00		NA	0.064 YZ	NA	0.12 YZ	0.013	<0.0005	<0.0005	<0.0005	<0.0005

Table 7
Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE Analyses on Groundwater Samples
Former Glovatorium Site
3815 Broadway, Oakland, California
All results are expressed in milligram per liter (mg/L)

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
Monitoring Wells Owned by TOSCO:											
MW-11	25-Jan-00	Unknown	NA	<0.05	NA	<0.05	0.009	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	28-Apr-00		NA	<0.05	NA	<0.05	<0.0087	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	10-Aug-00		NA	<0.05	NA	<0.05	0.011	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	1-Nov-00		NA	<0.05	NA	<0.05	0.0068	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	31-Jan-01		NA	<.05	NA	<.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	**Jul-27-01**		**NA**	**<0.05**	**NA**	**.1 HY**	**0.001**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0007**
Monitoring Wells Installed by LFR:											
LFR-1	9-Aug-00	9 to 19	NA	0.53	NA	1.2	0.0095	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	30-Oct-00		NA	0.24 YZ	NA	0.37 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	29-Jan-01		NA	0.21 YZ	NA	0.31 YZ	0.0033	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	Apr-26-01		NA	0.092	NA	0.18 YZ	0.0044	<0.0005	0.002	<0.0005	<0.0005
LFR-1	**Jul-27-01**		**NA**	**0.086**	**NA**	**0.18 YZ**	**<0.0013**	**<0.0013**	**<0.0013**	**<0.0013**	**<0.0013**
Split	30-Oct-00		NA	0.24 YZ	NA	0.37 YZ	0.0043	<0.0005	<0.0005	<0.0005	<0.0005
LFR-2	11-Aug-00	9 to 19	NA	0.59	NA	1.1 YH	0.0022	0.0018	<0.0005	<0.0005	0.0013 C
LFR-2	2-Nov-00		NA	0.38	NA	0.7 YH	0.003	0.0035	0.0011	0.0042	0.01184 C
LFR-2	30-Jan-01		NA	0.36	NA	0.54 HY	0.0034	0.00057	<0.0005	<0.0005	<0.0005
LFR-2	Apr-27-01		NA	0.33	NA	0.66 HY	<0.002	<0.0005	0.0013	<0.0005	<0.0005
LFR-2-2	Apr-27-01		NA	0.36	NA	0.72 HY	<0.002	0.00059	0.0019	<0.0005	0.013
LFR-2	**Jul-27-01**		**NA**	**0.33**	**NA**	**0.76 HY**	**<0.0005**	**0.0013**	**<0.0005**	**<0.0005**	**0.0006**
LFR-3	10-Aug-00	12 to 22	NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	10-Aug-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	1-Nov-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	30-Jan-01		NA	<.05	NA	<.05	0.0036	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	Apr-27-01		NA	<0.05	NA	<0.05	0.0024	<0.0005	0.0054	<0.0005	<0.0005
LFR-3	**Jul-27-01**		**NA**	**<0.05**	**NA**	**<0.05**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
LFR-4	11-Aug-00	9 to 19	NA	0.22 Y	NA	0.41 Y	0.0051	0.011	<0.0005	<0.0005	0.00162 C
LFR-4	31-Oct-00		NA	0.17 Y	NA	0.27	0.0065	0.00084	<0.0005	<0.0005	<0.0005
LFR-4	1-Feb-01		NA	0.16Y	NA	0.22	0.0097	0.0033	<0.0005	<0.0005	<0.0005
LFR-4	Apr-27-01		NA	0.22 Y	NA	0.44	0.0058	0.027	0.0036	<0.0005	<0.0005
LFR-4	**Jul-27-01**		**NA**	**0.091 Y**	**NA**	**0.19**	**0.011**	**0.0009**	**<0.0005**	**<0.0005**	**<0.0005**

Table 7

Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE Analyses on Groundwater Samples

Former Glovatorium Site

3815 Broadway, Oakland, California

All results are expressed in milligram per liter (mg/L)

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
Blanks											
Trip Blank	1-Feb-01		NA	<.05	NA	<.05	0.0051	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	31-Jan-01		NA	<.05	NA	<.05	0.0033	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	29-Jan-01		NA	<.05	NA	<.05	0.0025	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	30-Jan-01		NA	<.05	NA	<.05	0.0038	<0.0005	<0.0005	<0.0005	<0.0005
Field Blank	1-Feb-01		NA	NA	NA	NA	<.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	Apr-26-01		NA	<0.05	NA	<0.05	<.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	**Jul-27-01**		**NA**	**<0.05**	**NA**	**<0.05**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Trip Blank	19-Jul-99		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	20-Jan-00		NA	<0.05	NA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	27-Apr-00		NA	<0.05	NA	<0.05	0.0024	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	30-Oct-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	31-Oct-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	1-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	2-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Field Blank	27-Apr-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	0.00054	<0.0005	<0.0005
Field Blank	10-Aug-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Field Blank	1-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005

Notes:

A = Chromatogram pattern: unidentified hydrocarbons C9-C24

B = Chromatogram pattern: unidentified hydrocarbons C9-C13

C = Presence of this compound confirmed by second column, however, the confirmation concentration different from reported results by more than a factor of two.

J = Result is estimated.

Y = Sample exhibits fuel pattern which does not resemble standard.

H = Heavier hydrocarbons than the standard are present in the sample.

Z = Sample exhibits unknown single peak or peaks.

NA = Not analyzed

TPH, ext. = Total petroleum hydrocarbons (extractable)

TPH, purge = Total petroleum hydrocarbons (purgeable)

Groundwater samples collected from the temporary sampling points are considered grab samples, therefore, the results should be considered estimates of groundwater quality.

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples

at the Former Glovatorium Site

3815 Broadway, Oakland, California

All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
Temporary Sampling Points Installed by Geosolv, LLC:										
B-2	24-Jan-00	5 to 21	NA	<0.0013	<0.0013	0.27	0.0014	< 0.0013	< 0.0013	
B-3	24-Jan-00	5 to 18	NA	< 0.002	< 0.002	0.61	< 0.002	< 0.002	< 0.002	
B-7	24-Jan-00	5 to 17.5	NA	< 0.0036	< 0.0036	0.92	0.0043	< 0.0036	< 0.0036	
B-7	11-Aug-00		NA	< 0.0031	< 0.0031	0.86	0.0048	< 0.0031	< 0.0031	
B-7	31-Oct-00		NA	< 0.0042	< 0.0042	0.91	0.0042	< 0.0042	< 0.0042	
B-7	31-Jan-01		NA	< 0.0042	< 0.0042	0.92	0.0048	< 0.0042	< 0.0042	
B-7	Apr-27-01		NA	<0.0031	<0.0031	1.1	0.0069	<0.0031	<0.0031	
B-7	**Jul-27-01**		**NA**	**0.0098**	**0.017**	**0.86**	**0.005**	**<0.0031**	**<0.0031**	
B-8	24-Jan-00	9 to 24	NA	< 0.0005	< 0.0005	0.035	< 0.0005	< 0.0005	< 0.0005	
B-9	24-Jan-00	4.5 to 19.5	NA	< 0.0005	0.0006	0.0032	< 0.0005	< 0.0005	< 0.0005	
B-10	24-Jan-00	4 to 19	NA	1.2	2.4	14	0.09	< 0.063	< 0.063	
B-10	10-Aug-00		NA	2.9	1.6	6.5	0.05	< 0.025	< 0.025	
B-10	31-Oct-00		NA	2.4	1.9	7.1	0.061	< 0.025	< 0.025	
B-10	31-Jan-01		NA	2.1	1.6	6.6	0.044	< 0.025	< 0.025	
B-10	Jul-27-01		NA	1.7	1.4	7.3	0.043	<0.025	<0.025	
B-10	**Jul-27-01**		**NA**	**0.87**	**0.81**	**6.6**	**0.041**	**<0.025**	**<0.025**	
B-13	24-Jan-00	5 to 20	NA	0.02	0.029	0.13	0.0049	< 0.0005	< 0.0005	
Temporary Sampling Points Installed by LFR:										
GW-2	19-Jul-99	10 to 20	NA	0.014	0.0014	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-2	20-Jan-00		NA	0.13	0.019	0.0055	< 0.0005	< 0.0005	< 0.0005	
GW-2	28-Apr-00		NA	0.12	0.016	0.0033	< 0.0005	< 0.0005	< 0.0005	
GW-2	2-Nov-00		NA	0.0078	0.0008	0.0032	< 0.0005	< 0.0005	< 0.0005	
GW-2	1-Feb-01		NA	0.0077	0.0006	0.0028	< 0.0005	< 0.0005	< 0.0005	
GW-2	Apr-27-01		NA	0.0096	0.0018	0.0024	<0.0005	<0.0005	<0.0005	
GW-2	**Jul-27-01**		**NA**	**0.033**	**0.0043**	**0.0024**	**<0.0005**	**<0.0005**	**<0.0005**	
GW-3	19-Jul-99	10 to 20	NA	0.22	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples

at the Former Glovatorium Site

3815 Broadway, Oakland, California

All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
GW-3	20-Jan-00	10 to 20	NA	0.055	0.001	0.02	< 0.0005	< 0.0005	< 0.0005	
GW-3	27-Apr-00		NA	0.35	0.0023	0.0056	< 0.0005	< 0.0005	< 0.0005	
Split	27-Apr-00		NA	0.27	0.0015	0.0023	< 0.0013	< 0.0013	< 0.0013	
GW-3	11-Aug-00		NA	0.068	0.0028	0.012	< 0.0005	< 0.0005	< 0.0005	
GW-3	2-Nov-00		NA	0.059	0.0008	0.0024	< 0.0005	< 0.0005	< 0.0005	
GW-3	1-Feb-01		NA	0.046	0.0006	0.0011	< 0.0005	< 0.0005	< 0.0005	
GW-3	Apr-27-01		NA	0.079	0.0007	0.0015	<0.0005	<0.0005	<0.0005	
GW-3	**Jul-27-01**		**NA**	**0.09**	**0.0009**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
GW-4	19-Jul-99	7 to 12	NA	< 0.0005	< 0.0005	0.0035	< 0.0005	< 0.0005	0.0017	
GW-4	20-Jan-00		< 0.01	0.0008	< 0.0005	0.0036	< 0.0005	< 0.0005	0.0015	(1)
Split	20-Jan-00		< 0.01	0.0006	< 0.0005	0.0044	< 0.0005	< 0.0005	0.0021	(2)
GW-4	27-Apr-00		NA	0.0017	< 0.0005	0.001	< 0.0005	< 0.0005	0.0006	
GW-4	30-Jan-01		NA	< 0.0005	< 0.0005	0.0024	< 0.0005	< 0.0005	0.0014	
GW-4	**Jul-27-01**		**NA**	**< 0.0005**	**< 0.0005**	**0.003**	**< 0.0005**	**0.0006**	**0.0019**	
GW-5	27-Aug-99	8 to 13	0.24	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
GW-5	20-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-5	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Aug-99	5 to 15	0.19	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	27-Aug-99		0.11	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	25-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-7	15-Jul-99	10 to 20	NA	< 0.0005	< 0.0005	0.00358	< 0.0005	< 0.0005	0.000632	
GW-7	15-Jul-99		NA	< 0.002	< 0.002	0.00398	< 0.002	< 0.002	< 0.002	(3)
Split	15-Jul-99	10 to 20	NA	< 0.002	< 0.002	0.00383	< 0.002	< 0.002	< 0.002	(4)
GW-8	19-Jul-99	10 to 20	NA	0.024	0.015	0.0038	0.0017	0.0012	< 0.0005	
GW-8	20-Jan-00		NA	0.15	0.19	0.053	0.012	0.0045	< 0.0007	
Split	20-Jan-00		NA	0.15	0.18	0.052	0.011	0.0046	< 0.0005	

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples

at the Former Glovatorium Site

3815 Broadway, Oakland, California

All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	Screened Interval (ft-bgs)	Aceton	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
GW-8	28-Apr-00		NA	0.12	0.11	0.029	0.0053	0.0023	< 0.0005	
Monitoring wells owned by TOSCO:										
MW-11	25-Jan-00	Unknown	< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	(5)
MW-11	28-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	31-Jan-01		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	Apr-27-01		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	**Jul-27-01**		**NA**	**0.0017**	**0.001**	**0.0062**	**< 0.0005**	**< 0.0005**	**< 0.0005**	
Monitoring wells installed by LFR:										
LFR-1	9-Aug-00	9 to 19	NA	2.8	0.064	0.041	< 0.0083	< 0.0083	< 0.0083	
LFR-1	30-Oct-00		NA	0.82	0.034	0.01	< 0.0031	< 0.0031	< 0.0031	
Split	30-Oct-00		NA	0.87	0.035	0.014	< 0.0031	< 0.0031	< 0.0031	
LFR-1	29-Jan-01		NA	0.77	0.026	0.0073	<0.0025	<0.0025	<0.0025	
LFR-1	Apr-26-01		NA	0.44	0.013	0.005	<0.0013	<0.0013	<0.0013	
LFR-1	**Jul-27-01**		**NA**	**0.38**	**0.031**	**0.0098**	**<0.0013**	**<0.0013**	**<0.0013**	
LFR-2	11-Aug-00	9 to 19	NA	< 0.0005	< 0.0005	0.035	< 0.0005	0.0045	< 0.0005	
LFR-2	2-Nov-00		NA	< 0.0005	< 0.0005	0.13	0.001	0.015	0.0006	
LFR-2	29-Jan-01		NA	<0.0005	<0.0005	0.0056	<0.0005	0.0016	<0.0005	
LFR-2	Apr-27-01		NA	0.0007	<0.0005	0.0056	<0.0005	0.0013	<0.0005	
LFR-2	**Jul-27-01**		**NA**	**0.0014**	**0.0007**	**0.019**	**<0.0005**	**<0.0005**	**<0.0005**	
LFR-2-2	Apr-27-01		NA	0.0007	<0.0005	0.0065	<0.0005	0.0019	<0.0005	
LFR-3	10-Aug-00	12 to 22	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	1-Nov-00	12 to 22	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	30-Jan-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
LFR-3	Apr-27-01		NA	0.0019	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples

at the Former Glovatorium Site

3815 Broadway, Oakland, California

All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	Screened Interval (ft-bgs)	Aceton	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
LFR-3	**Jul-27-01**	9 to 19	**NA**	**0.0022**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
LFR-4	11-Aug-00		NA	< 0.0005	< 0.0005	0.0012	< 0.0005	< 0.0005	< 0.0005	
LFR-4	31-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-4	30-Jan-01		NA	<0.0005	<0.0005	0.0006	<0.0005	< 0.0005	< 0.0005	
LFR-4	Apr-27-01		NA	<0.0005	<0.0005	0.0016	<0.0005	<0.0005	<0.0005	
LFR-4	**Jul-27-01**		**NA**	**0.0005**	**<0.0005**	**0.0021**	**<0.0005**	**<0.0005**	**<0.0005**	
Blanks										
Trip Blank	19-Jul-99		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	20-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	30-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	31-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	2-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Field Blank	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	(6)
Field Blank	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Field Blank	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	30-Jan-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	29-Jan-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	31-Jan-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	1-Feb-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	Apr-26-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	**Jul-27-01**		**NA**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples

at the Former Glovatorium Site

3815 Broadway, Oakland, California

All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes

Notes:

(1) = 1,2,4- Trimethylbenzene was detected at 0.0034 mg/L; 1,3,5-trimethylbenzene was detected at 0.0009 mg/L; isopropylbenzene was detected at 0.0055 mg/L; n-butylbenzene was detected at 0.0041 mg/L; para-isopropyl toluene was detected at 0.0009 mg/L; propylbenzene was detected at 0.0094 mg/L; sec-butylbenzene was detected at 0.017 mg/L; tert-butylbenzene was detected at 0.0027 mg/L; 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, para-isopropyl toluene, and n-butylbenzene results are estimated due to FD RPD > 50%.

(2) = 1,2,4-Trimethylbenzene was detected at 0.0083 mg/L; 1,3,5-trimethylbenzene was detected at 0.0022 mg/L; isopropylbenzene was detected at 0.0078 mg/L; n-butylbenzene was detected at 0.0067 mg/L; para-isopropyl toluene was detected at 0.0021 mg/L; propylbenzene was detected at 0.014 mg/L; sec-butylbenzene was detected at 0.024 mg/L; tert-butylbenzene was detected at 0.0034 mg/L; 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, para-isopropyl toluene, and n-butylbenzene results are estimated due to FD RPD > 50%.

(3) = tert-Butylbenzene was detected at 0.00307 mg/L. Results are estimated because EPA-recommended hold time was exceeded.

(4) = sec-Butylbenzene was detected at 0.00206 mg/L; tert-butylbenzene was detected at 0.0031 mg/L; carbon tetrachloride was detected at 0.00786 mg/L. Results are estimated because EPA-recommended hold time was exceeded.

(5) = 1,3-Dichlorobenzene was detected at 0.0005 mg/L.

(6) = Chloroform was detected at 0.0088 mg/L.

ft bgs = Feet below ground surface

NA = Not analyzed

mg/L = milligrams per liter

cis-1,2-DCE = cis-1,2-dichloroethene

trans-1,2-DCE = trans-1,2-dichloroethene

PCE = Tetrachloroethene

TCE = Trichloroethene

Groundwater samples collected from the temporary sampling points are considered grab sample; therefore the results should be considered estimates of groundwater quality.

Table 9

Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
B-7	11-Aug-00						11	193	
B-7-field	11-Aug-00	0.63		(1)	3				(3)
B-7	31-Oct-00	0.62	2.6	< 0.10	< 1.0	11	2.4		
B-7-field	31-Oct-00	0.25		0.4	(1)	15.85		-62.5	
B-7	1-Feb-01	0.78	2.2	0.78	<1.0	15	13		
B-7-field	31-Jan-01	0.48						28	
B-7 Field	Apr-26-01	0.6	1.7	2.5	5	>3.3	7.6	-28	
B-7 Field	**Jul-26-01**	**1.98**	**7.3**	**0**	**8**	**11.6**	**7.0**	**-40**	
B-8 field	31-Jan-01	0.45						58	
B-10	10-Aug-00			< 0.05	< 0.05	5.7	10	213	
B-10-field	10-Aug-00	0.44		(1)	(2)				0.81
B-10	31-Oct-00	2.4	1.4	< 0.10	< 1.0	5.9	6.7		
B-10-field	31-Oct-00	0.44		0	0	7.6		-22.2	
B-10	31-Jan-01	6.4	1.3	< 0.10	<2.0	7.7	24		1.3
B-10-field	31-Jan-01	0.46						64	
B-10 Field	Jun-11-01	0.9	0	0	0	1.25	3.9	-8	NM
B-10 Field	**Jul-26-01**	**1.87**	**1.3**	**0**	**3**	**6.2**	**5.6**	**-22**	
GW-2-field	1-Nov-00	2.32						77	
GW-2	1-Feb-01	3.8					0.041		
GW-2-field	1-Feb-01	0.58						159	
GW-2	Apr-26-01	4	1	7.1	36	0.015	0.00022	152	NM
GW-2	**Jul-26-01**	**1.93**	**0**	**3.9**	**60**	**0**	**0.016**	**233**	
GW-3	11-Aug-00						< 0.0005	395	
GW-3-field	11-Aug-00	0.72		1	46				
GW-3	1-Nov-00								

Table 9

Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
GW-3-field		7.76						81	
GW-3	29-Jan-01	8.8					0.012		
GW-3-field	1-Feb-01	8.99						235	
GW-3	Apr-27-01	2.9	0	0.7	30	0	0.015	212	NM
GW-3	**Jul-26-01**	**2.48**	**0**	**2.4**	**52**	**0.12**	**0.0083**	**214**	
GW-4-field	30-Jan-01	0.83						67	
GW-4-field	**Jul-26-01**	**2.59**	**0.2**	**10.5**	**25**	**1.29**	**0.0028**	**-3**	
MW-11	10-Aug-00			2.8	63	< 0.1	< 0.0005	476	
MW-11-field	10-Aug-00	2.52		4.1	67				
MW-11	1-Nov-00	4.1	< 0.010	15	90	< 0.1	0.00004		130
MW-11-field	1-Nov-00	4.01		3.3	73	0		87.4	
MW-11	31-Jan-01	6.3	< 0.010	15	94	< 1.0	0.00005		1.1
MW-11-field	1-Nov-00	3.97		27.3	74	0		319	
MW-11 Field	Apr-26-01	7.4	0	6.8	52	0	0.0014	229	NM
MW-11 Field	**Jul-26-01**	**1.85**	**0**	**5.2**	**77**	**0**	**0.0049**	**233**	
LFR-1	9-Aug-00							462	
	11-Aug-00						0.0096		
LFR-1-field	9-Aug-00	3.63		5.5	30				1.5
LFR-1	30-Oct-00	2.7	0.03	39	42	< 1.0	0.00038		
LFR-1-field/split	30-Oct-00	2.95		10.3/10.0	29/29	0.01/0.01		77.4	1
LFR-1 split	30-Oct-00	3.4	0.03	40	43	< 1.0	0.00069		
LFR-1	29-Jan-01	5.1	<0.01	<0.10	51	<1.0	0.00012		0.43
LFR-1-field	29-Jan-01	3.78	0		36	0		383	
LFR-1 Dup	29-Jan-01	4.6	<0.01	<0.10	50	<1.0	0.000011		0.32
LFR-1	Apr-26-01	3.2	0.02	12.9	16	0	0.0003	224	NM

Table 9

Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
LFR-1	**Jul-26-01**	**1.07**	**0**	**8**	**25**	**0.01**	**0.0084**	**238**	
LFR-2	11-Aug-00						6.6	270	
LFR-2-field	11-Aug-00	0.48		1.5	(1)	2.7			1200
LFR-2	2-Nov-00	2.2	8.8	0.33	5.4	5.3	8.5		
LFR-2-field	2-Nov-00	0.47		0.5	(1)	6.05		-23.7	
LFR-2	30-Jan-01	4.4	8.9	1	8.3	4.6	4.6		1.1
LFR-2-field	30-Jan-01	0.61	10.7	2.9		1.02		210	
LFR-2	Apr-27-01	1.4	0.4	1.6	1	2.66	14	9	NM
LFR-2	**Jul-26-01**	**0.55**	**0.2**	**0**	**0**	**4.5**	**10**	**-20**	
LFR-3	10-Aug-00			2.4	64	< 0.1	0.00051	464	
LFR-3 split	10-Aug-00							< 0.0005	
LFR-3-field	10-Aug-00	1.3		2.4	64				850
LFR-3	1-Nov-00	4.7	0.022	8.8	74	< 1.0	0.00028		
LFR-3-field	1-Nov-00	0.58		1.8	57	0		75.2	
LFR-3	31-Jan-01	4.1	<0.01	1.2	58	< 1.0	0.00038		
LFR-3-field	30-Jan-01	1.75		0.023	44	0		195	
LFR-3 Field	Jun-11-01	1	0	0.8	28	0	0.0086	201	NM
LFR-3 Field	**Jul-26-01**	**1.29**	**0.4**	**0**	**51**	**0.6**	**0.0035**	**228**	
LFR-4	11-Aug-00						0.062	402	
LFR-4-field	11-Aug-00	1.13		0.7	1	0.14			1.1
LFR-4	31-Oct-00	1.9	2.2	< 0.10	2.9	1.1	3.2		
LFR-4-field	31-Oct-00	0.64		1		0.61		-80	
LFR-4	1-Feb-01	3.2	2.8	1.5	2.8	1.8	2.2		1.5
LFR-4-field	1-Feb-01	0.55	4.5	8	0	1.5		59	
LFR-4 Field	Apr-27-01	5.6	0	1.7	0	1.37	7	14	NM

Table 9

Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
LFR-4 Field	Jul-26-01	1.65	0	0	0	0.84	1.2	18	

Notes:

Samples with "field" in the well number indicate that the results are from field measurements obtained using a Hach spectrophotometer or a Hydrolab Quanta flow-through instrument.

(1) Sample concentration was too dilute to be reproducibly measured using the Hach spectrophotometer.
(2) Field measurement was not recorded.

FIGURES

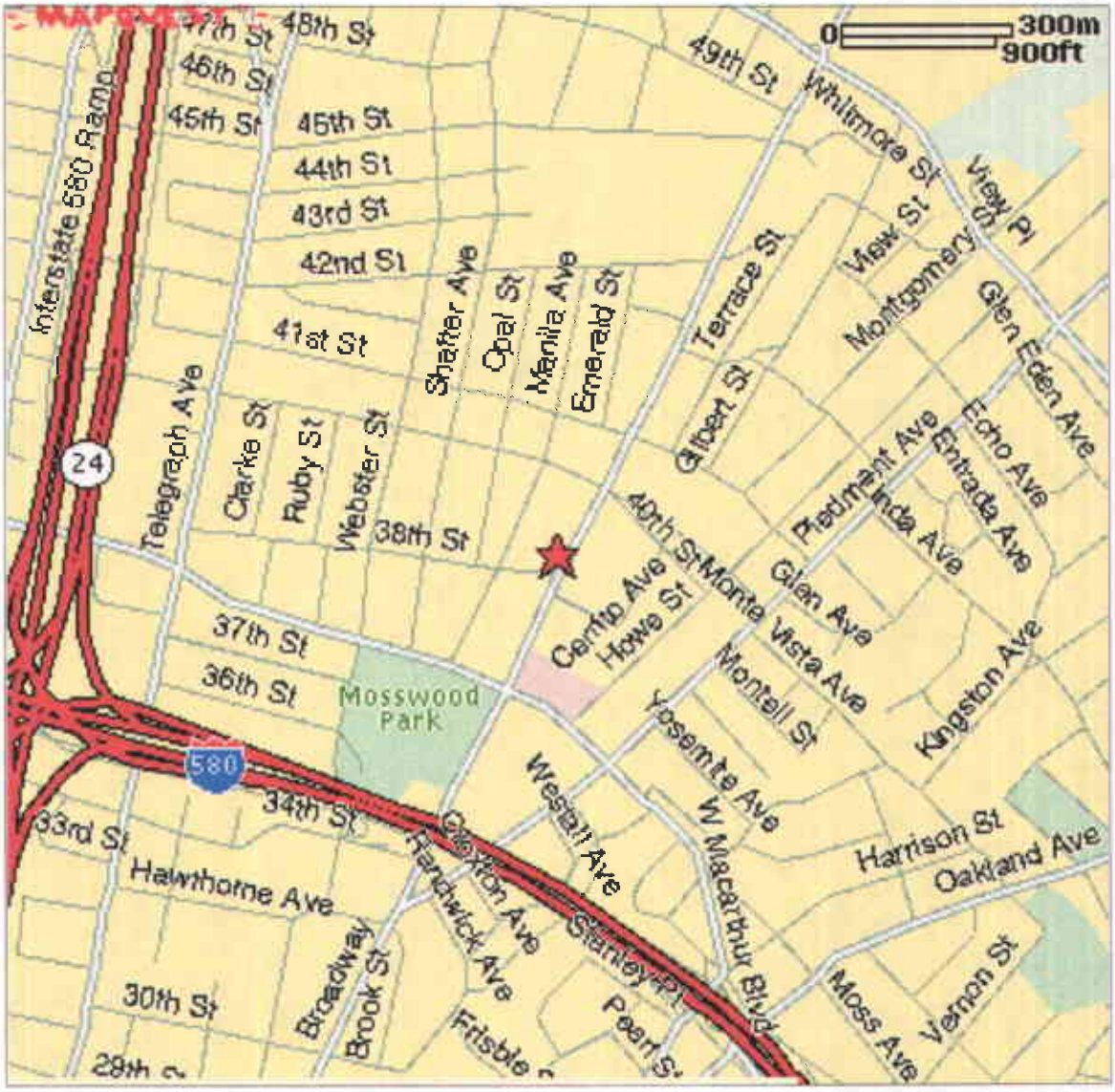


Figure 1: Site Location Map

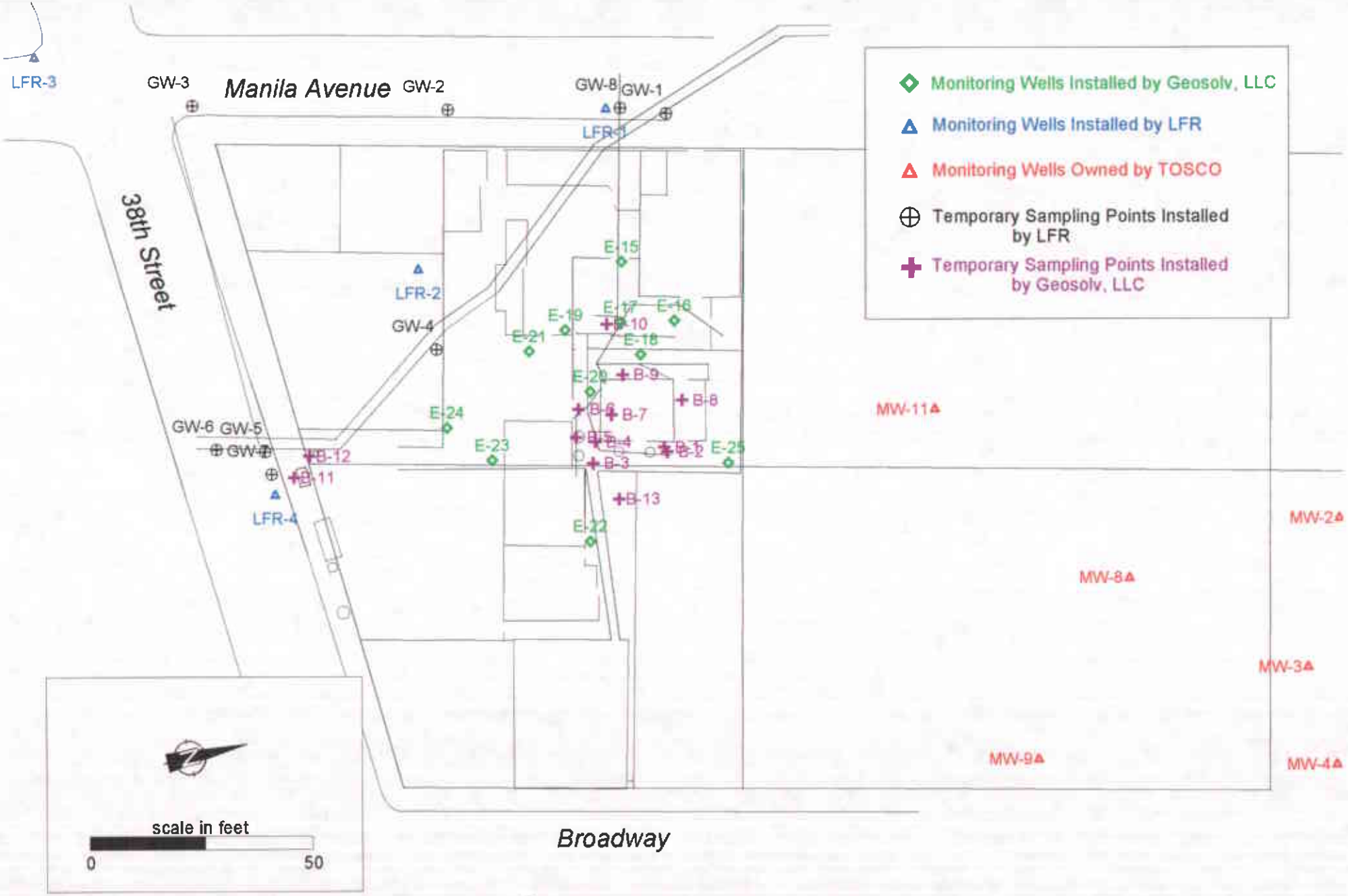


Figure 2: Location of Groundwater Monitoring Wells

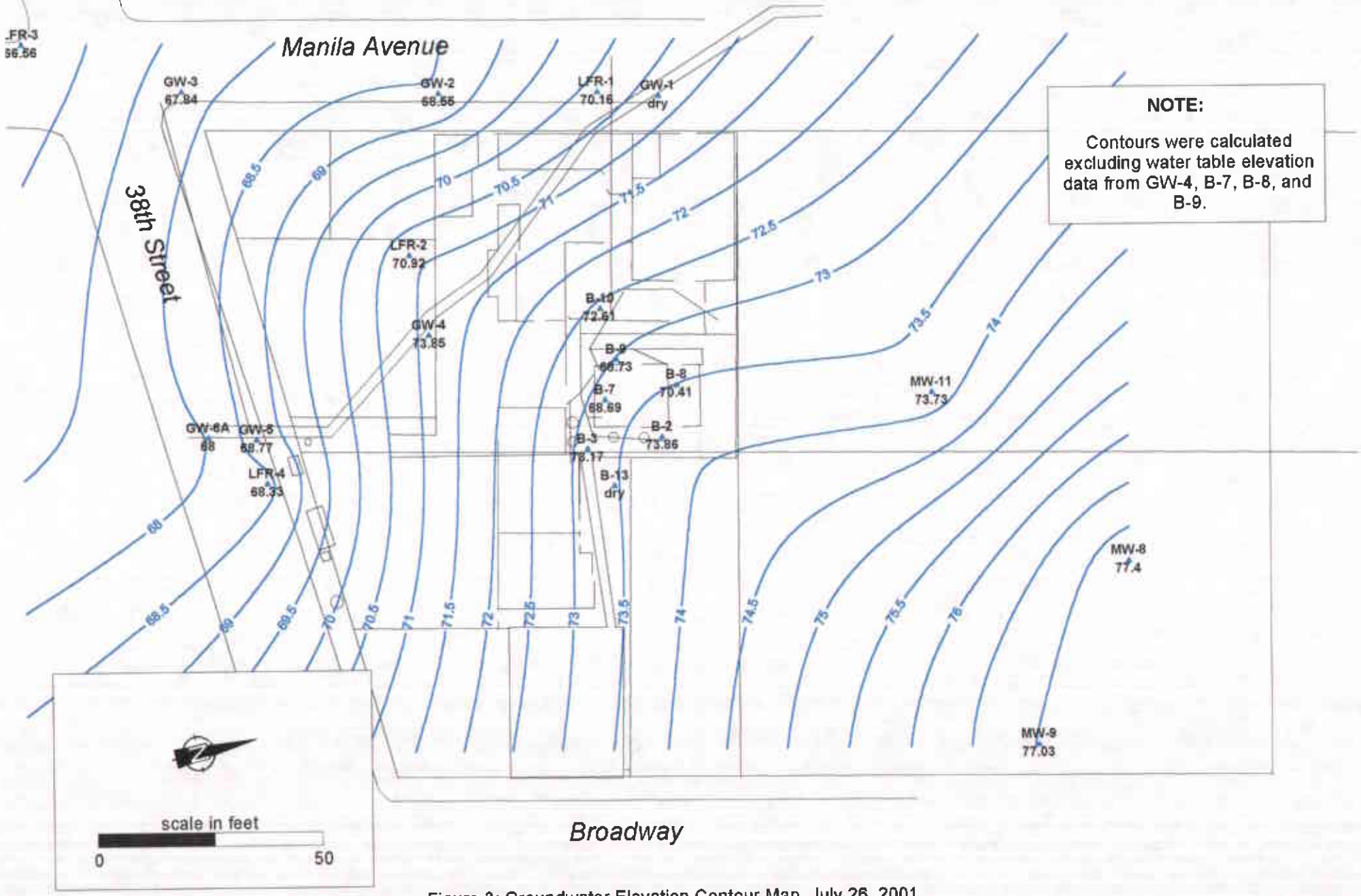


Figure 3: Groundwater Elevation Contour Map, July 26, 2001

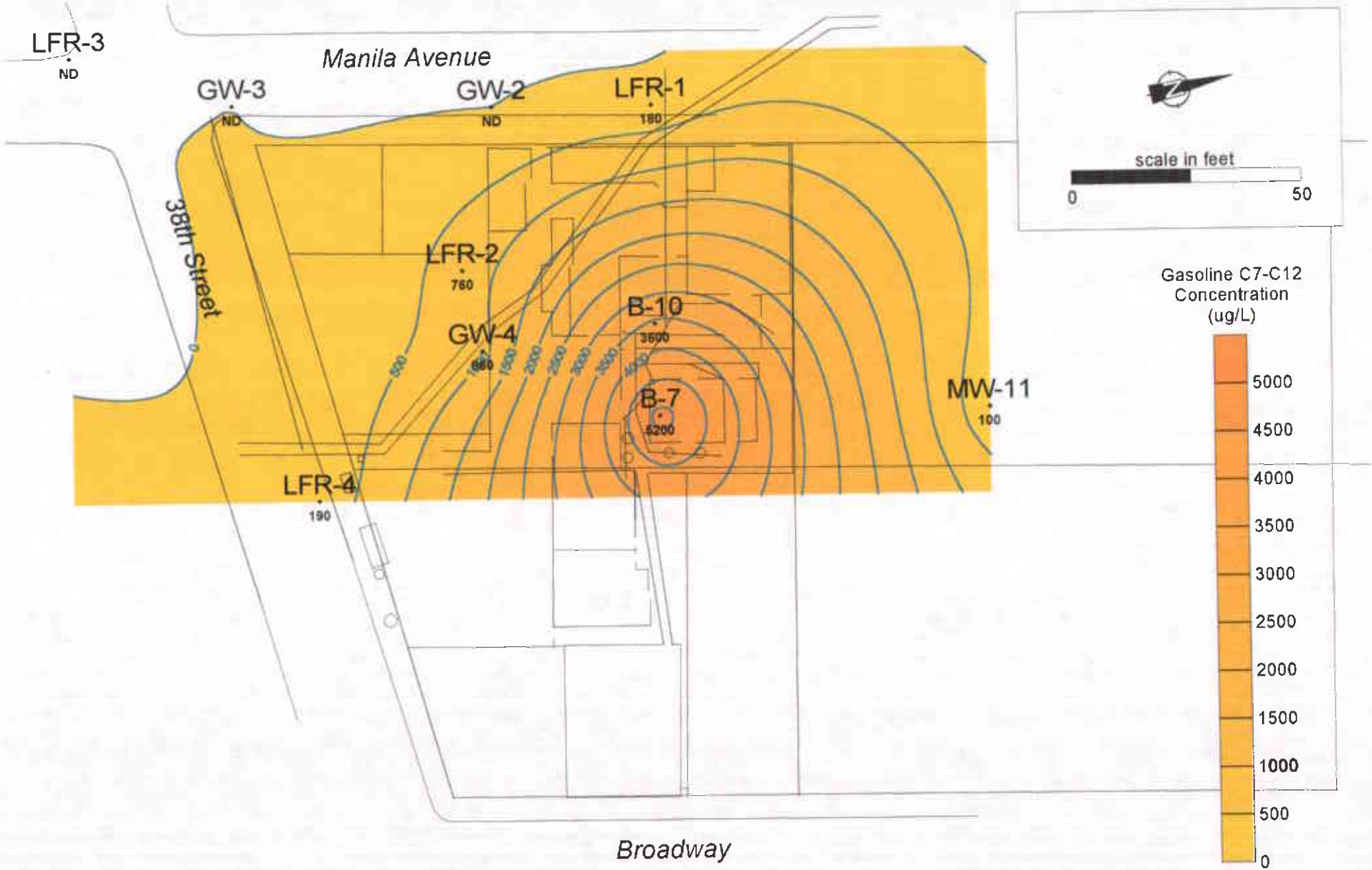


Figure 4: TPH-g Concentration Contour Map in Groundwater, Third Quarter, 2001

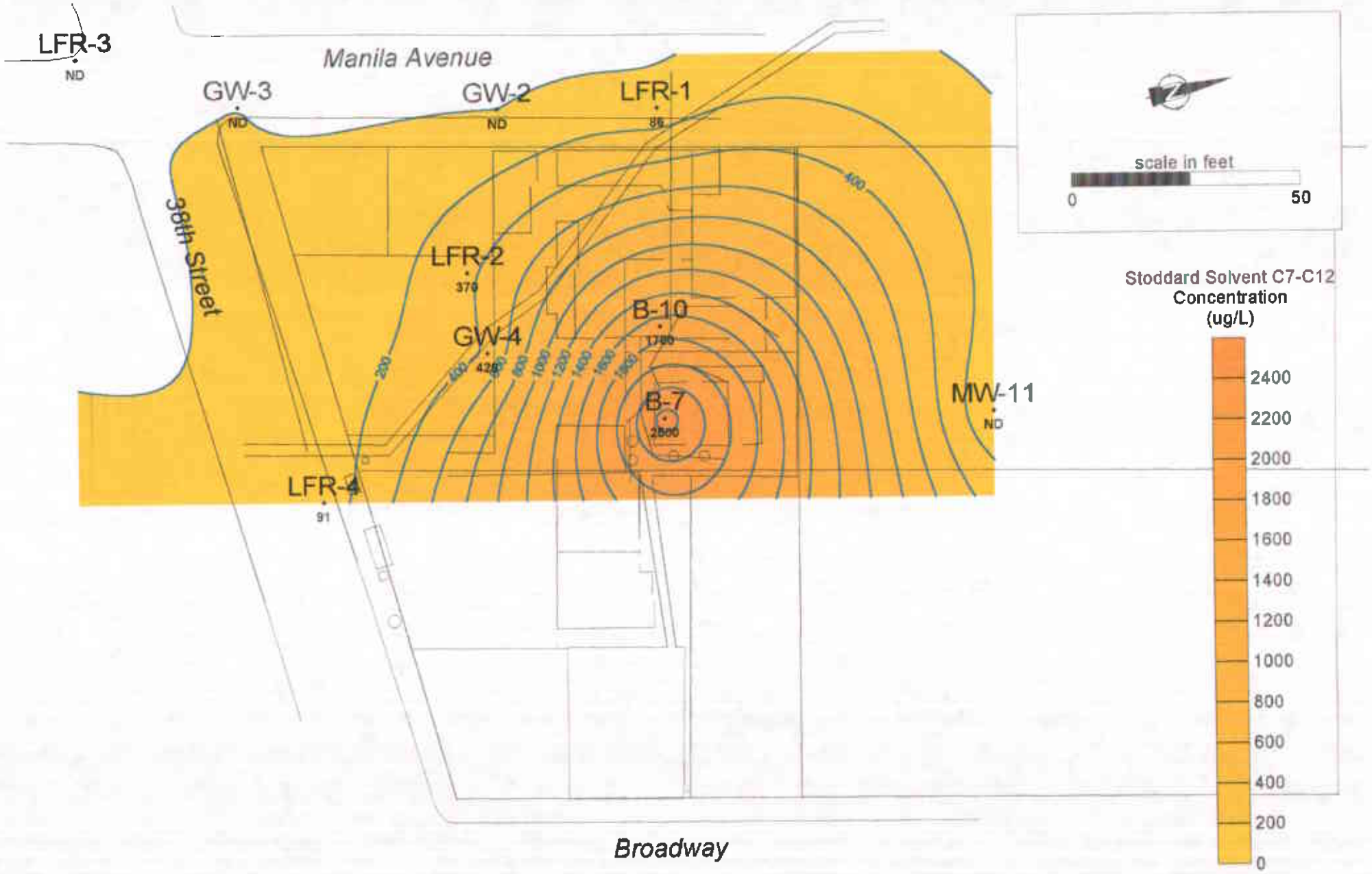


Figure 5: TPH-ss Concentration Contour Map in Groundwater, Third Quarter, 2001

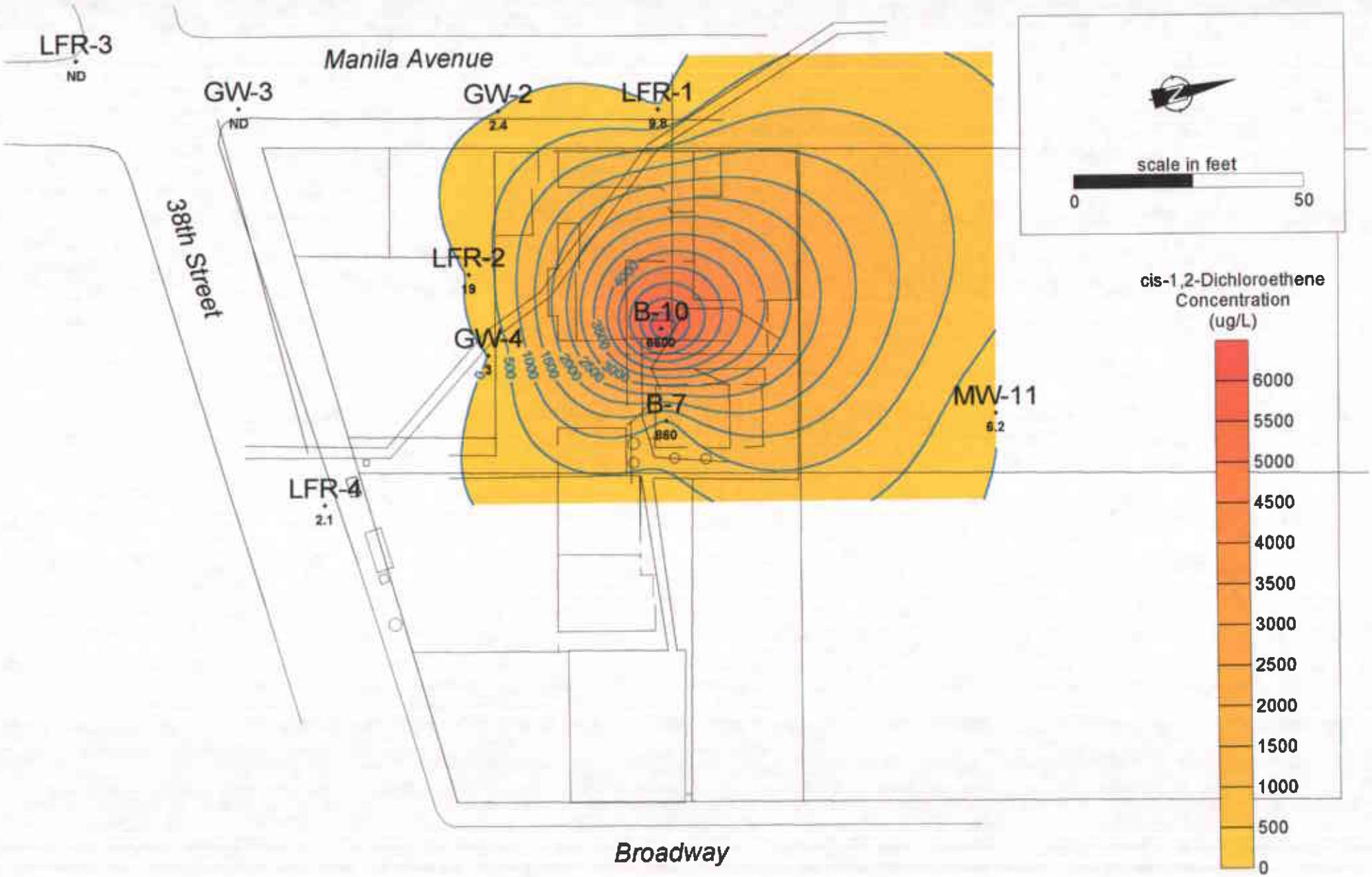


Figure 6: Cis-1,2-DCE Concentration Contour Map in Groundwater, Third Quarter, 2001

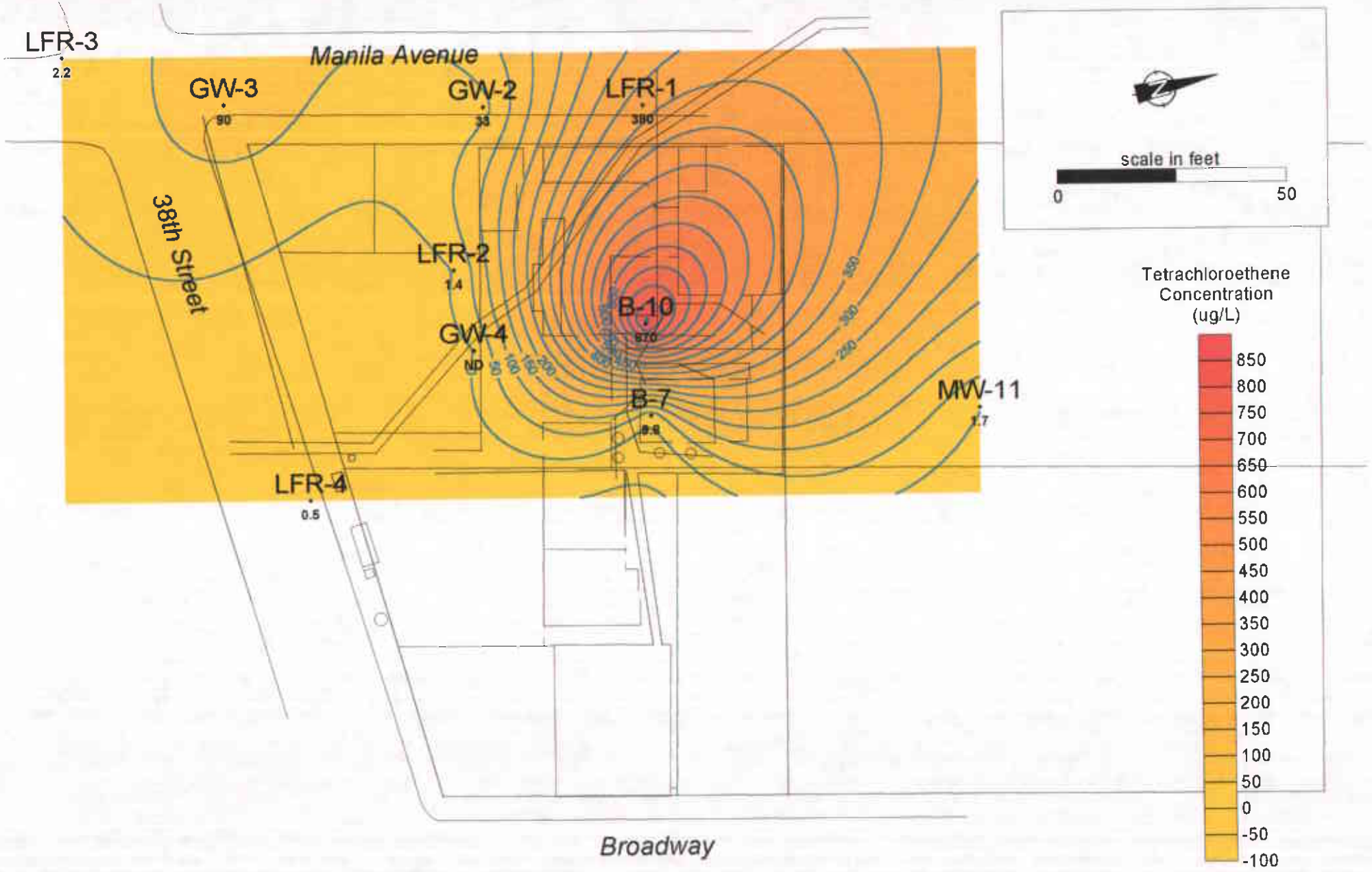


Figure 7: Tetrachloroethene Concentration Contour Map in Groundwater, Third Quarter, 2001

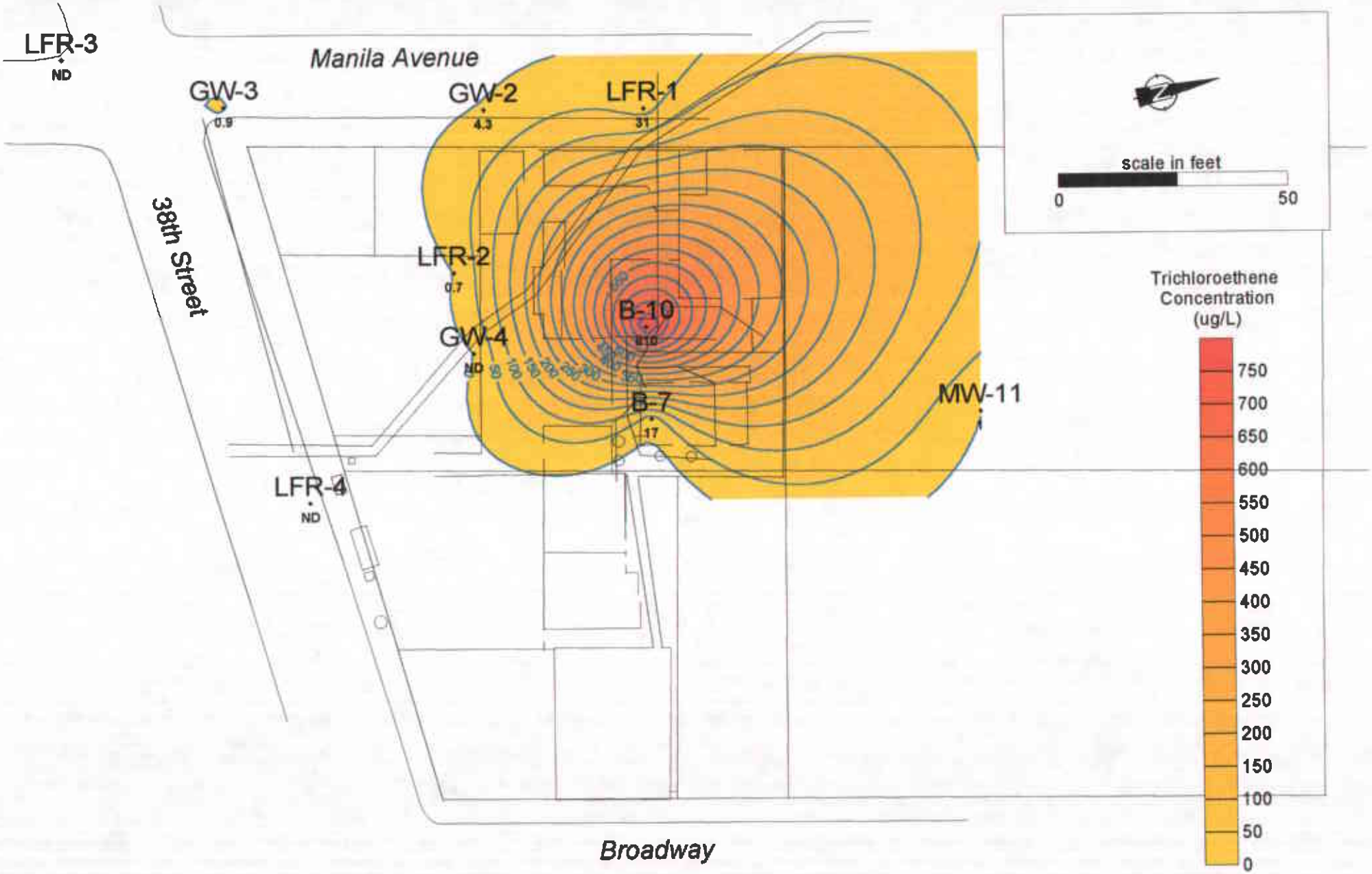


Figure 8: Trichloroethene Concentration Contour Map in Groundwater, Third Quarter, 2001

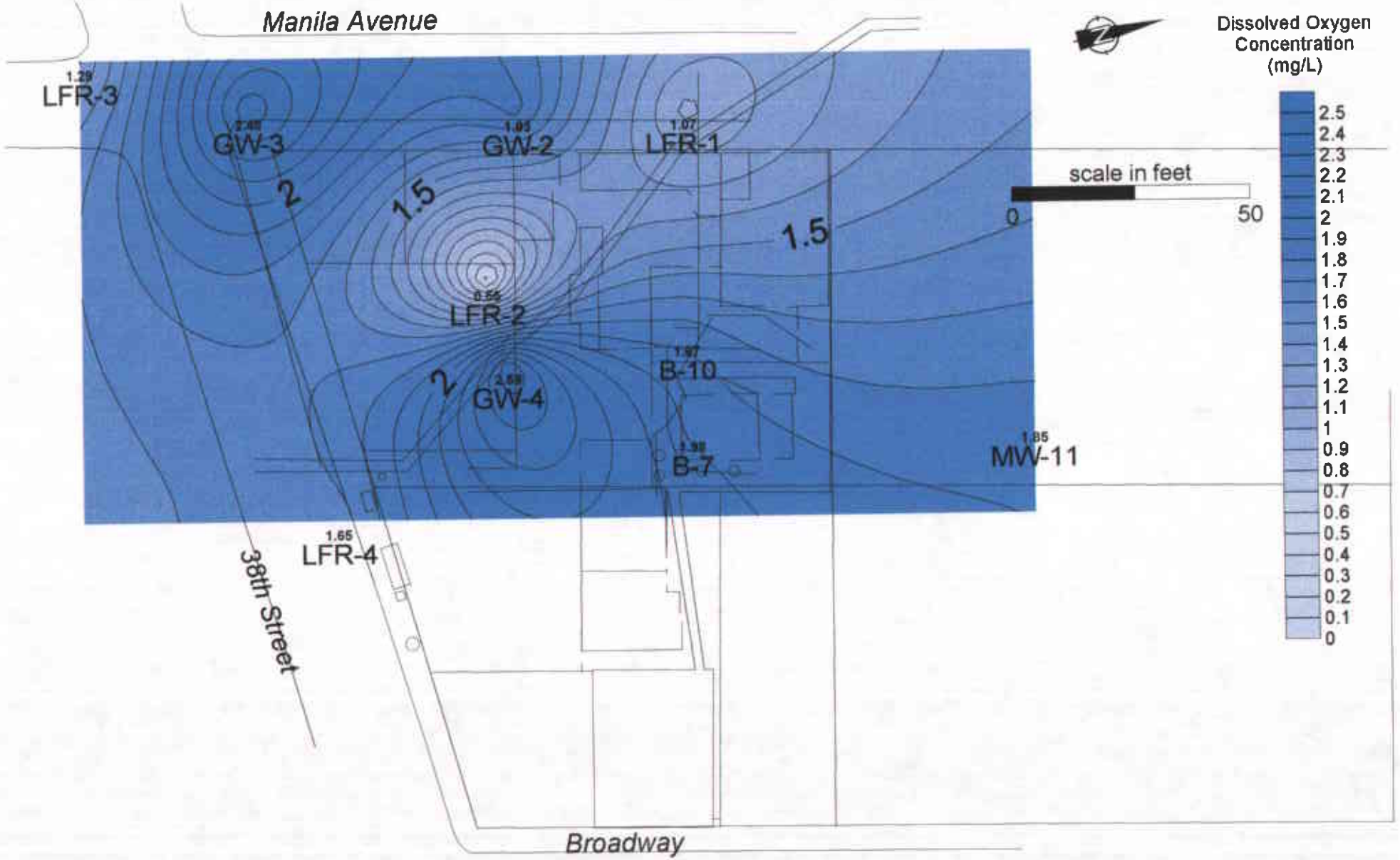


Figure 9: Dissolved Oxygen Concentration Contour Map in Groundwater, Third Quarter, 2001

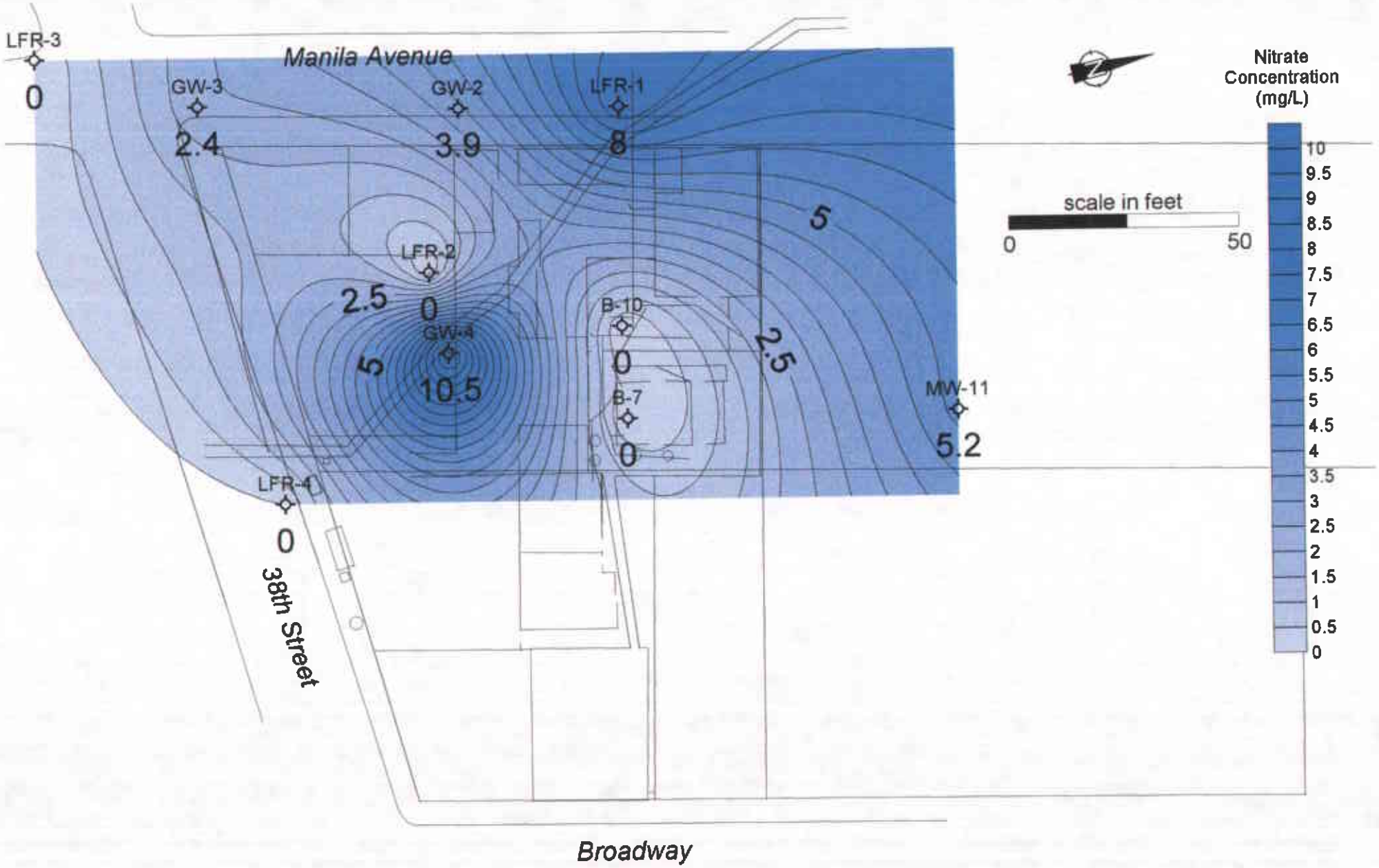


Figure 10: Nitrate Concentration Contour Map in Groundwater, Third Quarter, 2001

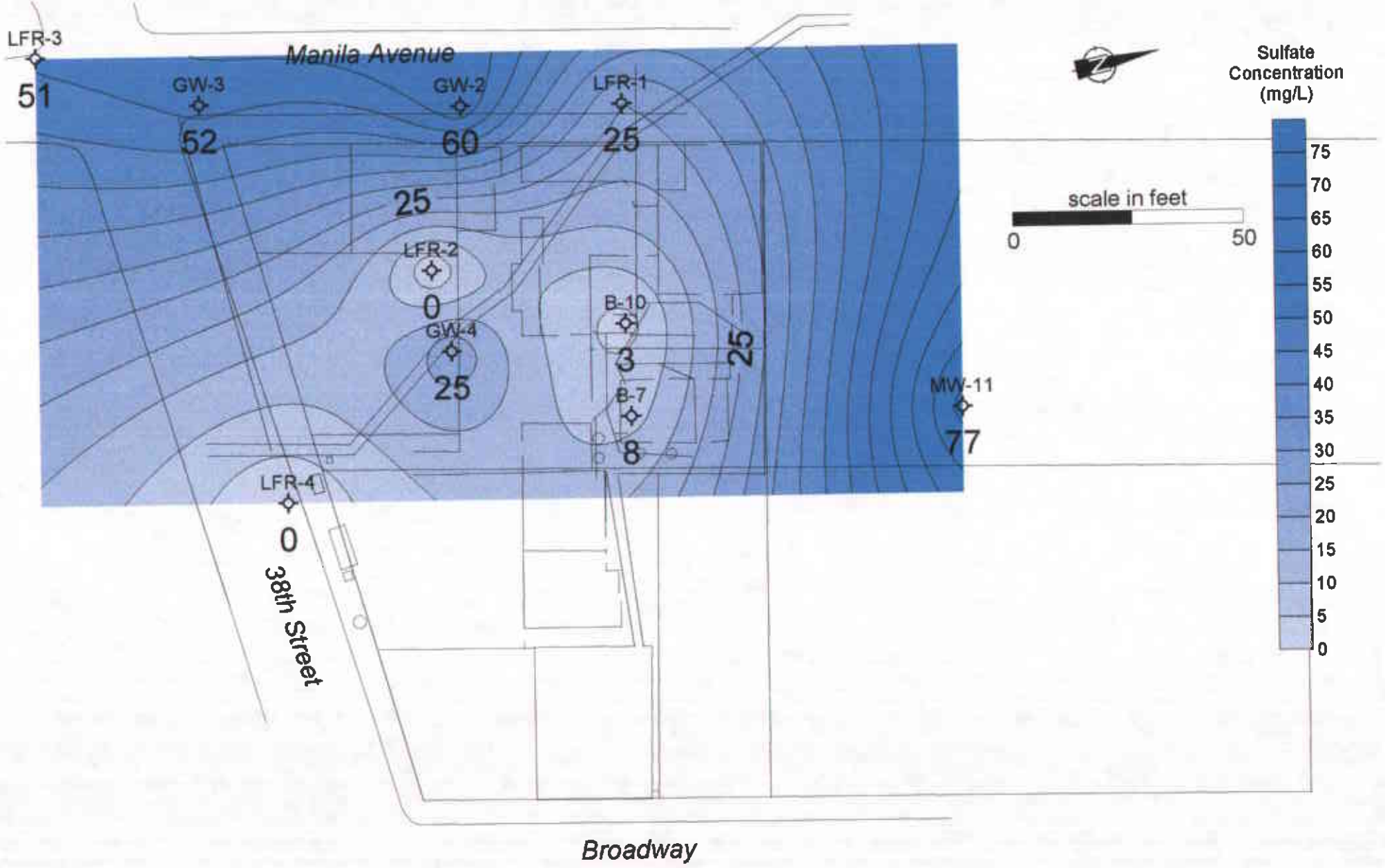


Figure 11: Sulfate Concentration Contour Map in Groundwater, Third Quarter, 2001

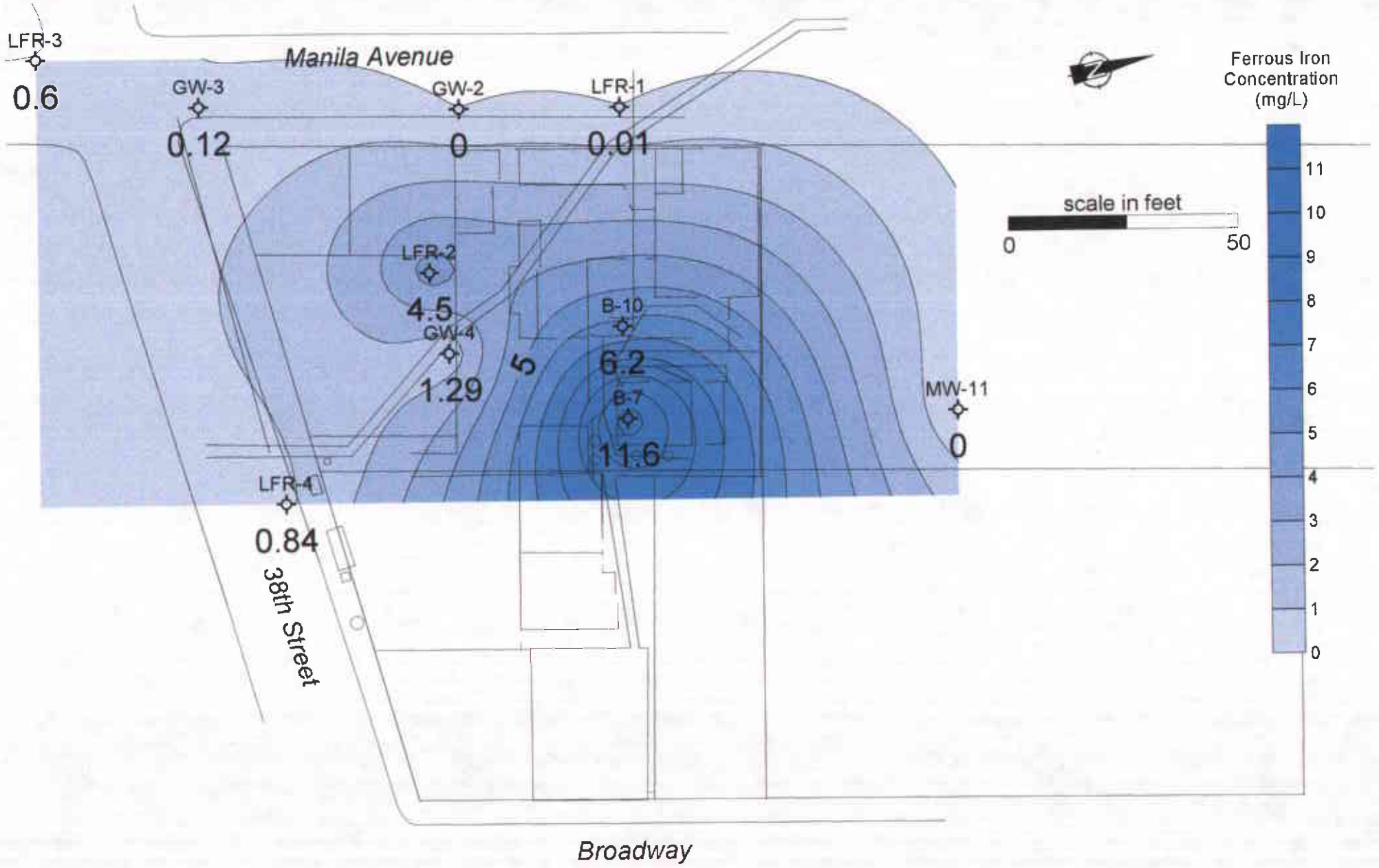


Figure 12: Ferrous Iron Concentration Contour Map in Groundwater, Third Quarter, 2001

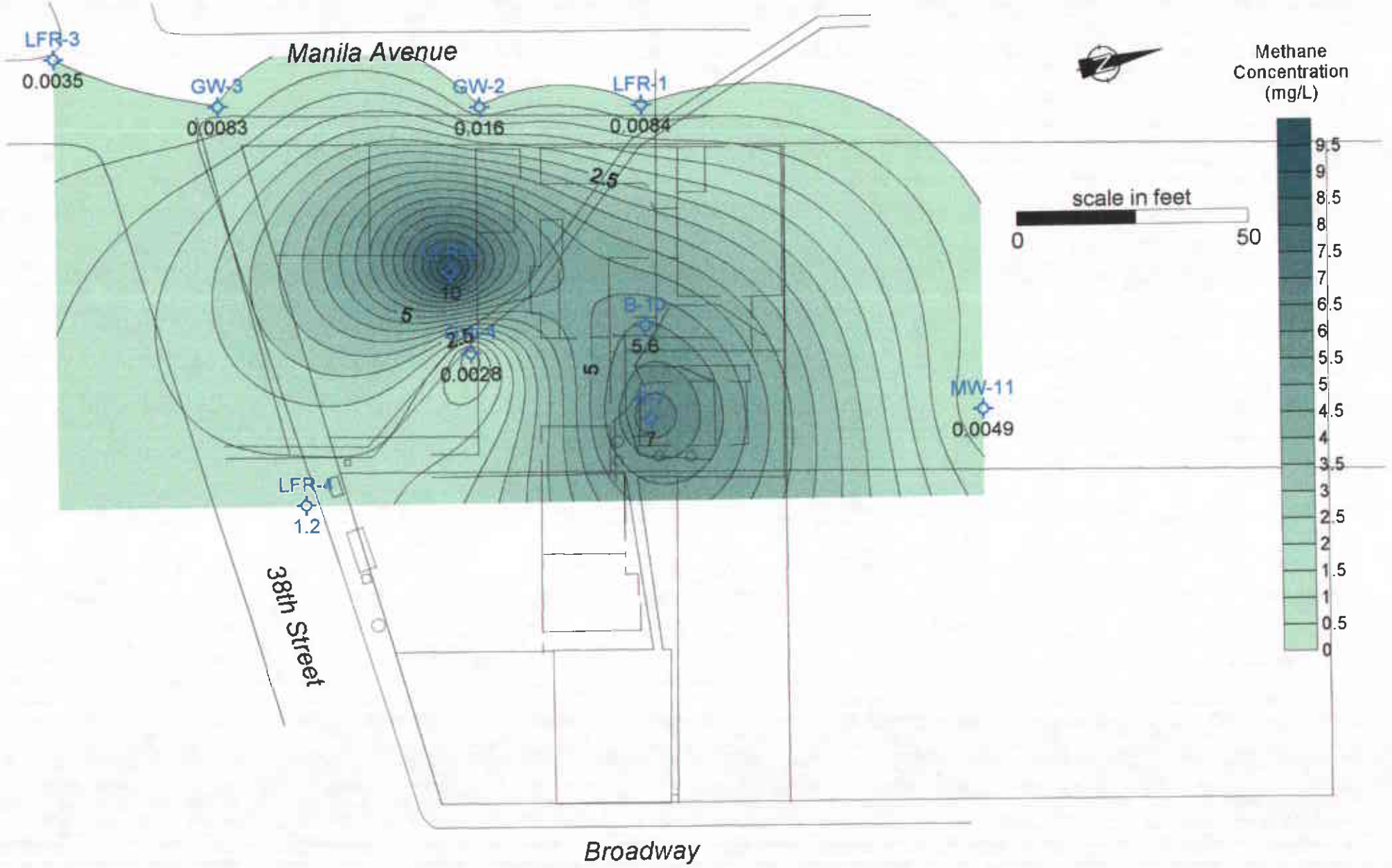


Figure 13: Methane Concentration Contour Map in Groundwater, Third Quarter, 2001

APPENDIX A

LABORATORY REPORTS, CHAIN OF CUSTODY FORMS

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: 20-AUG-01
Lab Job Number: 153284
Project ID: 2511
Location: Glovatorium

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: Paul Prendergast
Project Manager

Reviewed by:
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Number:	**153284**
Client:	**Soma Environmental**
Project Name:	**Glovatorium**
Project #:	**2511**
Receipt Date:	**07/27/01**

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for twelve water samples received from the above referenced project on July 27, 2001. The samples were received cold and intact.

Total Volatile Hydrocarbons (EPA 8015M):

The recoveries for the bromofluorobenzene surrogate were over the acceptable QC limits for several samples due to coelution of sample hydrocarbons with this surrogate. No other analytical problems were encountered.

Purgeable Halocarbon/Aromatic Compounds (EPA 8260B):

Bromomethane was detected in the method blank for batch number 65414. This analyte was not detected in any of the samples so the quality of the sample data should not be affected. No other analytical problems were encountered

CHAIN OF CUSTODY FORM

Page 1 of 1

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

C&T LOGIN # 153284

Project No: 2511
Project Name: Glovatorium
Project P.O.:
Turnaround Time: Standard

Sampler: Patrick Sullivan
Report To: Patrick Sullivan
Company: SOMA
Telephone: (925) 244-6600
Fax: (925) 244-6601

Analyses

Preservation Correct? ☒ Yes ☐ No ☐ N/A

Received ☒ On Ice ☐ Cold ☒ Ambient ☐ Intact

Laboratory Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO	HNO_3	ICE	Field Notes	TPH ss w/8015m	BTEX + MtBE w/8021 b	VOCs (8010 list) w/8260b
-1		LFR-1	7/26 2:05		X		6	X			X	40ml VOAs w/HCl	X	X	X
-2		LFR-3	7/26 4:15				6					" "			
-3		GW-2	7/26 5:30				6					" "			
-4		GW-3	7/27 8:30AM				6					" "			
-5		B-10	7/27 9:30				6					" "			
-6	For Laboratory Use	B-7	7/27 11:30				6					" "			
-7		MW-11	7/27 1:20				6					" "			
-8		LFR-2	7/27 2:20				6					" "			
-9		LFR-5	7/27 2:30				6					" "			
-10		GW-4	7/27 3:30				6					" "			
-11		LFR-4	7/27 4:30				6					" "			
-12		Trip Blank			X		2			X		40ml VOA (filled by Lt.)	X	X	X

Notes:

RELINQUISHED BY:	RECEIVED BY:
Patrick Sullivan Patrick Sullivan 7/27 5:35 DATE/TIME	Pat Flynn 7/27/01 5:35 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature

SOP Volume: Client Services
Section: 1.1.2
Page: 1 of 1
Effective Date: 10-May-99
Revision: 1 Number 1 of 3
Filename: F:\QC\Forms\QC\Cooler.wpd

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 153289 Date Received: 7/27/01 Number of Coolers: 1
Client: SOMA Project: 2511

A. Preliminary Examination Phase
Date Opened: 7/27/01 By (print): Justin (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc.)? ..... YES ~~NO~~
   If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler? ..... YES ~~NO~~
   How many and where? _____ Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival? ..... YES NO
4. Were custody papers dry and intact when received? ..... YES NO
5. Were custody papers filled out properly (ink, signed, etc.)? ..... YES NO
6. Did you sign the custody papers in the appropriate place? ..... YES NO
7. Was project identifiable from custody papers? ..... YES NO
   If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? Samples should be 2-6 degrees C. ..... YES NO
   Type of ice: N/A Temperature: Chilled

B. Login Phase
Date Logged In: 7/30/01 By (print): Derek Forrest (sign) [signature]

1. Describe type of packing in cooler: In Voa Holder
2. Did all bottles arrive unbroken? ..... YES NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? ..... YES NO
4. Did bottle labels agree with custody papers? ..... YES NO
5. Were appropriate containers used for the tests indicated? ..... YES NO
6. Were correct preservatives added to samples? ..... YES NO
7. Was sufficient amount of sample sent for tests indicated? ..... YES NO
8. Were bubbles absent in VOA samples? If NO, list sample Ids below ..... YES NO
9. Was the client contacted concerning this sample delivery? ..... YES NO
   If YES, give details below.
   Who was called? _____ By whom? _____ Date: _____

Additional Comments:

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	65356
Units:	ug/L	Received:	07/27/01
Diln Fac:	1.000		

Field ID:	LFR-1	Sampled:	07/26/01
Type:	SAMPLE	Analyzed:	07/31/01
Lab ID:	153284-001		

Analyte	Result	RL
Gasoline C7-C12	180 Y Z	50
Stoddard Solvent C7-C12	86 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	103	60-140

Field ID:	LFR-3	Sampled:	07/26/01
Type:	SAMPLE	Analyzed:	07/31/01
Lab ID:	153284-002		

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	104	60-140

Field ID:	GW-2	Sampled:	07/26/01
Type:	SAMPLE	Analyzed:	07/31/01
Lab ID:	153284-003		

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	105	60-140

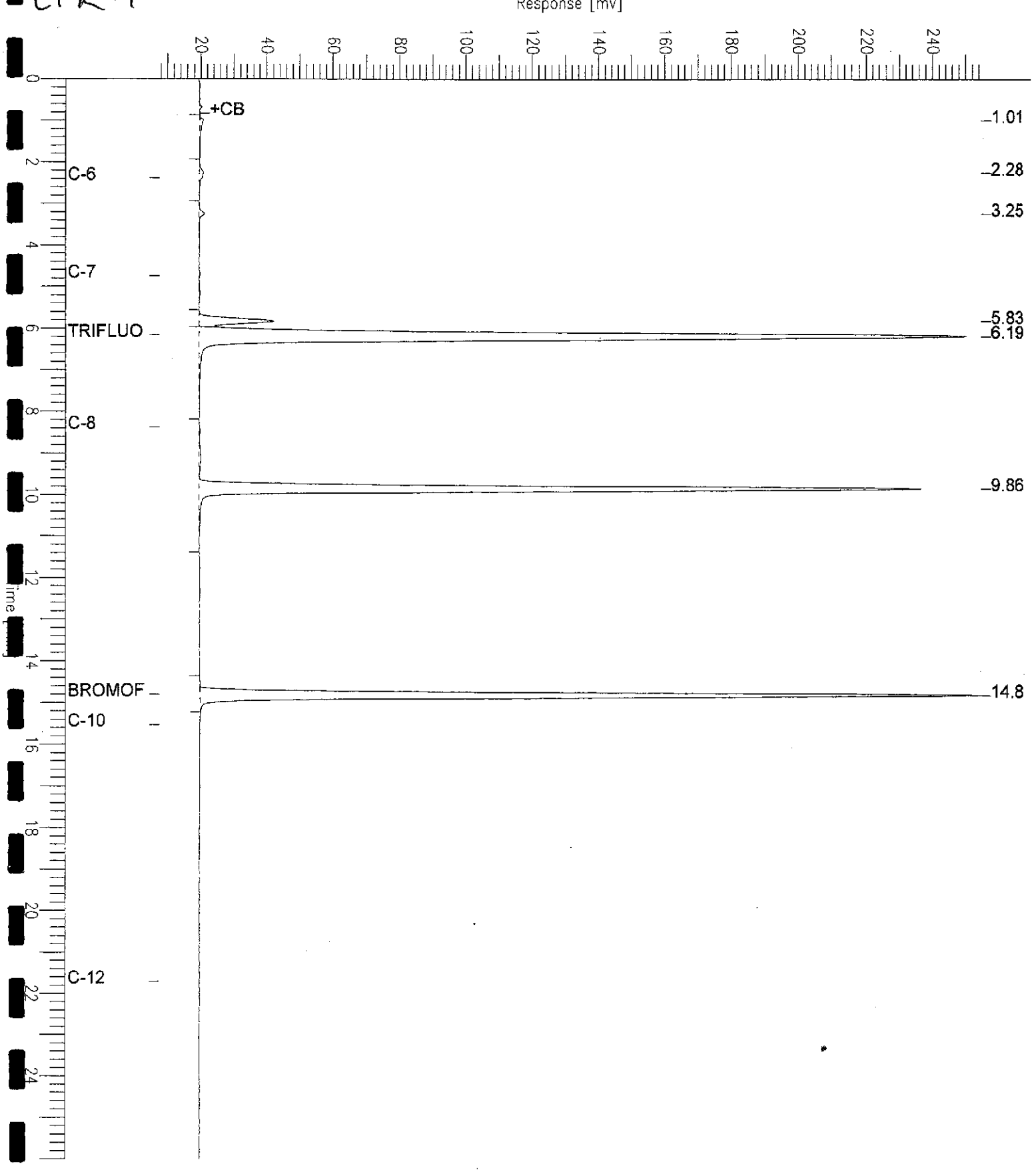
Z= Value outside of QC limits; see narrative
Y= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-001,65356,TVH+STODD
FileName : G:\GC07\DATA\212A011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 8 mV

Sample #: B1 Page 1 of 1
Date : 7/31/01 08:27 PM
Time of Injection: 7/31/01 08:01 PM
Low Point : 7.74 mV High Point : 254.76 mV
Plot Scale: 247.0 mV

LFR-1



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	65356
Units:	ug/L	Received:	07/27/01
Diln Fac:	1.000		

Field ID:	GW-3	Sampled:	07/27/01
Type:	SAMPLE	Analyzed:	07/31/01
Lab ID:	153284-004		

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	108	60-140

Field ID:	B-10	Sampled:	07/27/01
Type:	SAMPLE	Analyzed:	08/01/01
Lab ID:	153284-005		

Analyte	Result	RL
Gasoline C7-C12	3,600 H	50
Stoddard Solvent C7-C12	1,700	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	161 *	60-140

Field ID:	B-7	Sampled:	07/27/01
Type:	SAMPLE	Analyzed:	08/01/01
Lab ID:	153284-006		

Analyte	Result	RL
Gasoline C7-C12	5,200 H Y	50
Stoddard Solvent C7-C12	2,500	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	59-135
Bromofluorobenzene (FID)	177 *	60-140

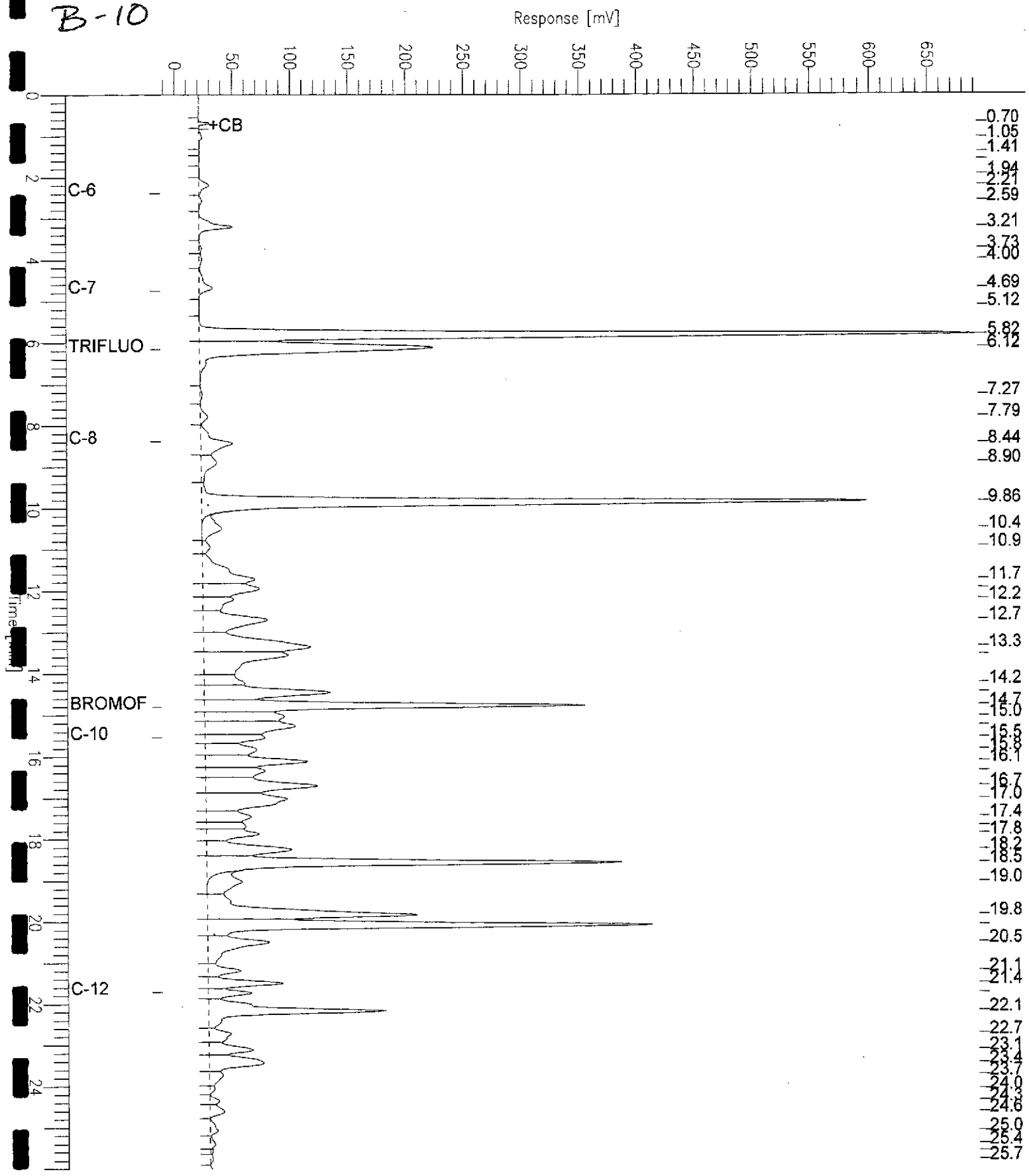
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-005,65356,TVH+STODD
FileName : G:\GC07\DATA\212A026.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -12 mV

Sample #: B1 Page 1 of 1
Date : 8/1/01 05:24 AM
Time of Injection: 8/1/01 04:58 AM
Low Point : -12.42 mV High Point : 693.33 mV
Plot Scale: 705.7 mV

B-10



GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-006,65356,TVH+STODD
FileName : G:\GC07\DATA\212A024.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -6 mV

Sample #: B1 Page 1 of 1
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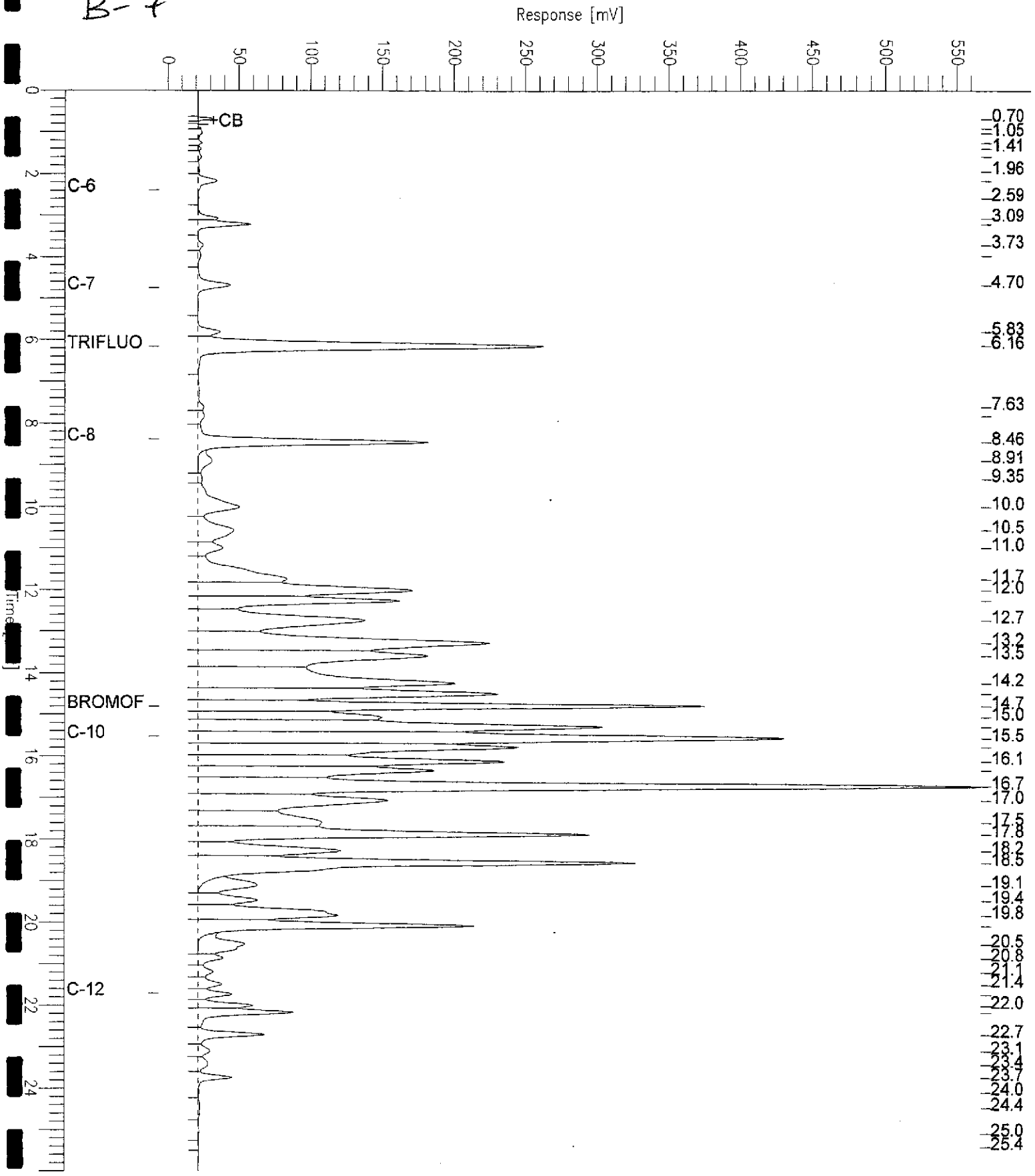
Time of Injection: 8/1/01 03:46 AM
Low Point : -5.95 mV High Point : 567.34 mV
Plot Scale: 573.3 mV

B-7



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	65356
Units:	ug/L	Received:	07/27/01
Diln Fac:	1.000		

Field ID: MW-11 Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-007

Analyte	Result	RL
Gasoline C7-C12	100 H Y	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	110	60-140

Field ID: LFR-2 Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-008

Analyte	Result	RL
Gasoline C7-C12	760 H Y	50
Stoddard Solvent C7-C12	370	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	59-135
Bromofluorobenzene (FID)	149 *	60-140

Field ID: LFR-5 Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-009

Analyte	Result	RL
Gasoline C7-C12	910 H Y	50
Stoddard Solvent C7-C12	450	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	59-135
Bromofluorobenzene (FID)	157 *	60-140

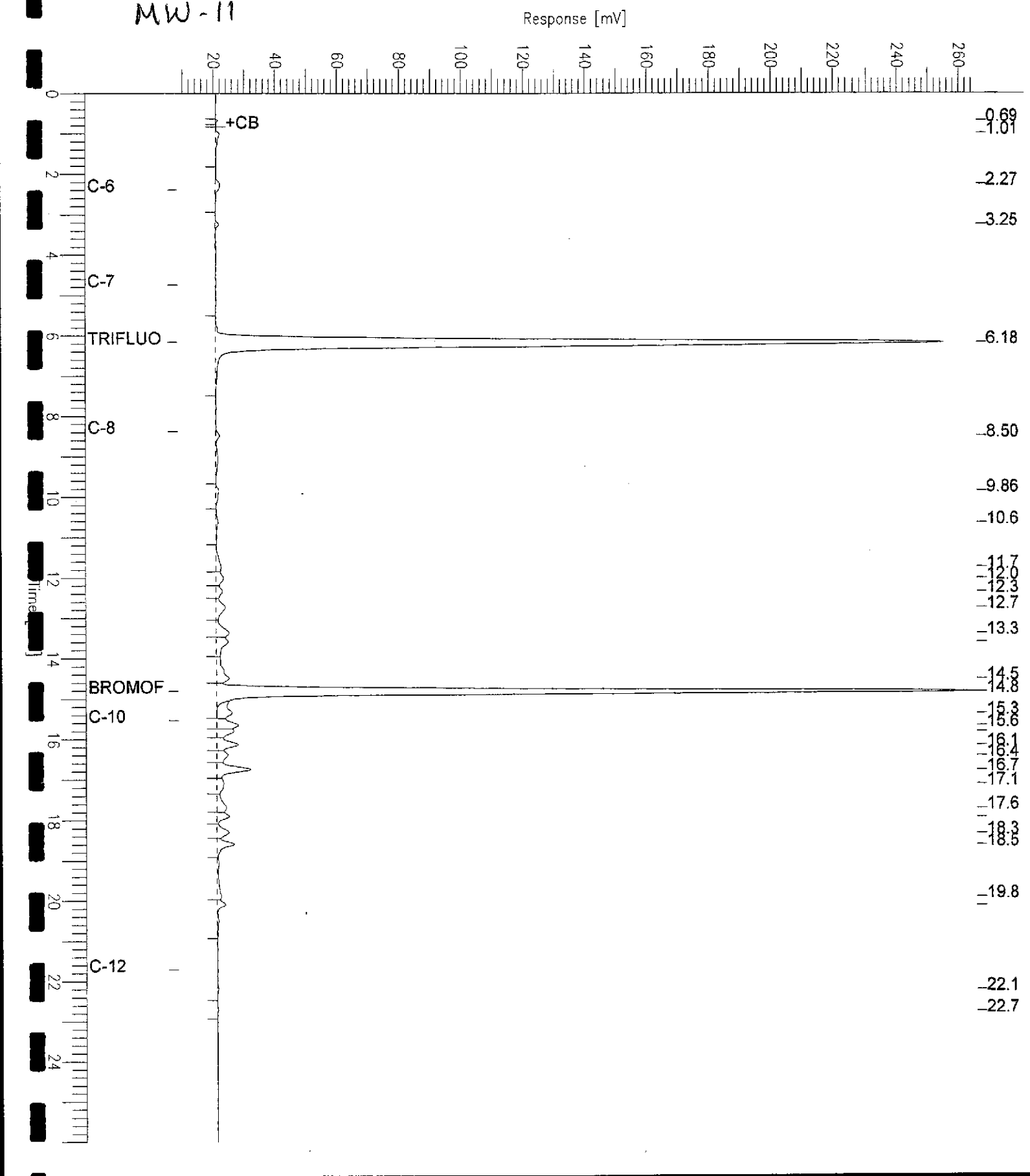
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-007,65356,TVH+STODD
FileName : G:\GC07\DATA\212A018.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 8 mV

Sample #: B1
Date : 8/1/01 12:38 AM
Time of Injection: 8/1/01 12:12 AM
Low Point : 8.43 mV High Point : 265.70 mV
Plot Scale: 257.3 mV

MW-11

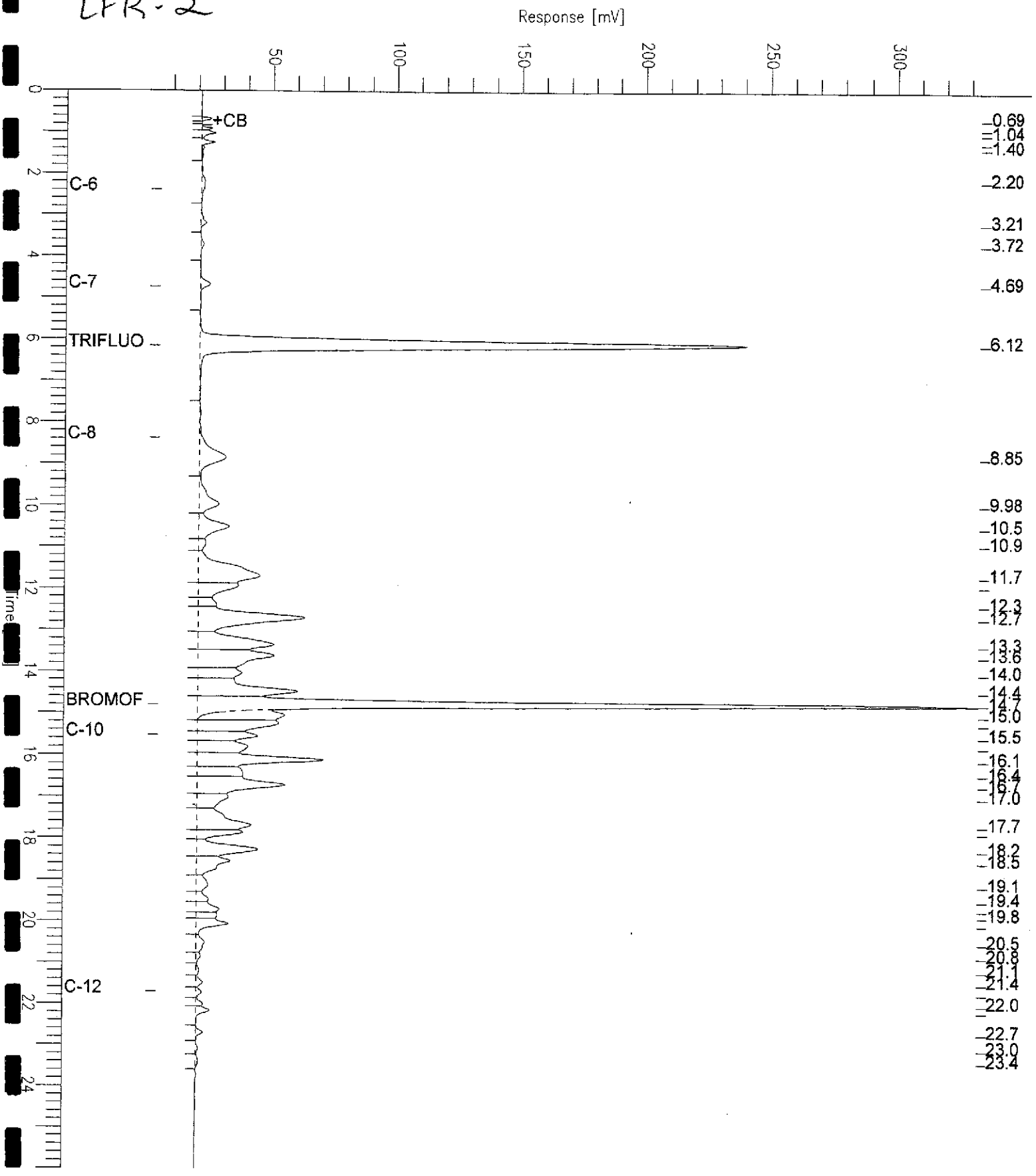


GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-008,65356,TVH+STODD
FileName : G:\GC07\DATA\212A019.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 5 mV

Sample #: B1 Page 1 of 1
Date : 8/1/01 01:14 AM
Time of Injection: 8/1/01 12:48 AM
Low Point : 4.87 mV High Point : 333.60 mV
Plot Scale: 328.7 mV

LFR-2

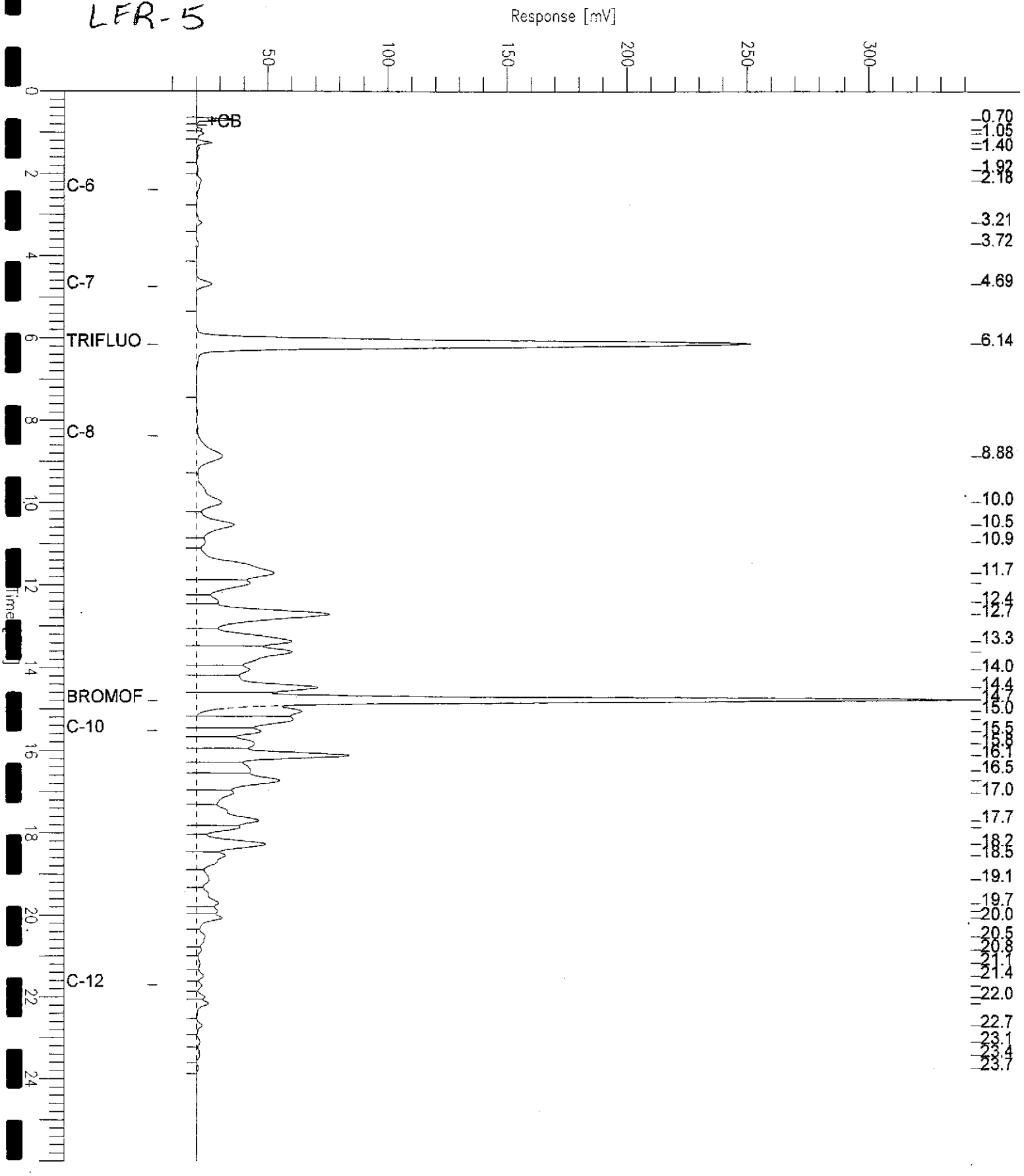


GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-009,65356,TVH+STODD
FileName : G:\GC07\DATA\212A020.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: A1 Page 1 of 1
Date : 8/1/01 01:50 AM
Time of Injection: 8/1/01 01:23 AM
Low Point : 4.08 mV High Point : 342.76 mV
Plot Scale: 338.7 mV

LFR-5



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	65356
Units:	ug/L	Received:	07/27/01
Diln Fac:	1.000		

Field ID: GW-4 Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-010

Analyte	Result	RL
Gasoline C7-C12	860 H Y	50
Stoddard Solvent C7-C12	420	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	59-135
Bromofluorobenzene (FID)	150 *	60-140

Field ID: LFR-4 Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-011

Analyte	Result	RL
Gasoline C7-C12	190	50
Stoddard Solvent C7-C12	91 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	59-135
Bromofluorobenzene (FID)	115	60-140

Field ID: TRIP BLANK Sampled: 07/27/01
Type: SAMPLE Analyzed: 08/01/01
Lab ID: 153284-012

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	59-135
Bromofluorobenzene (FID)	126	60-140

Type: BLANK Analyzed: 07/31/01
Lab ID: QC151920

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	59-135
Bromofluorobenzene (FID)	102	60-140

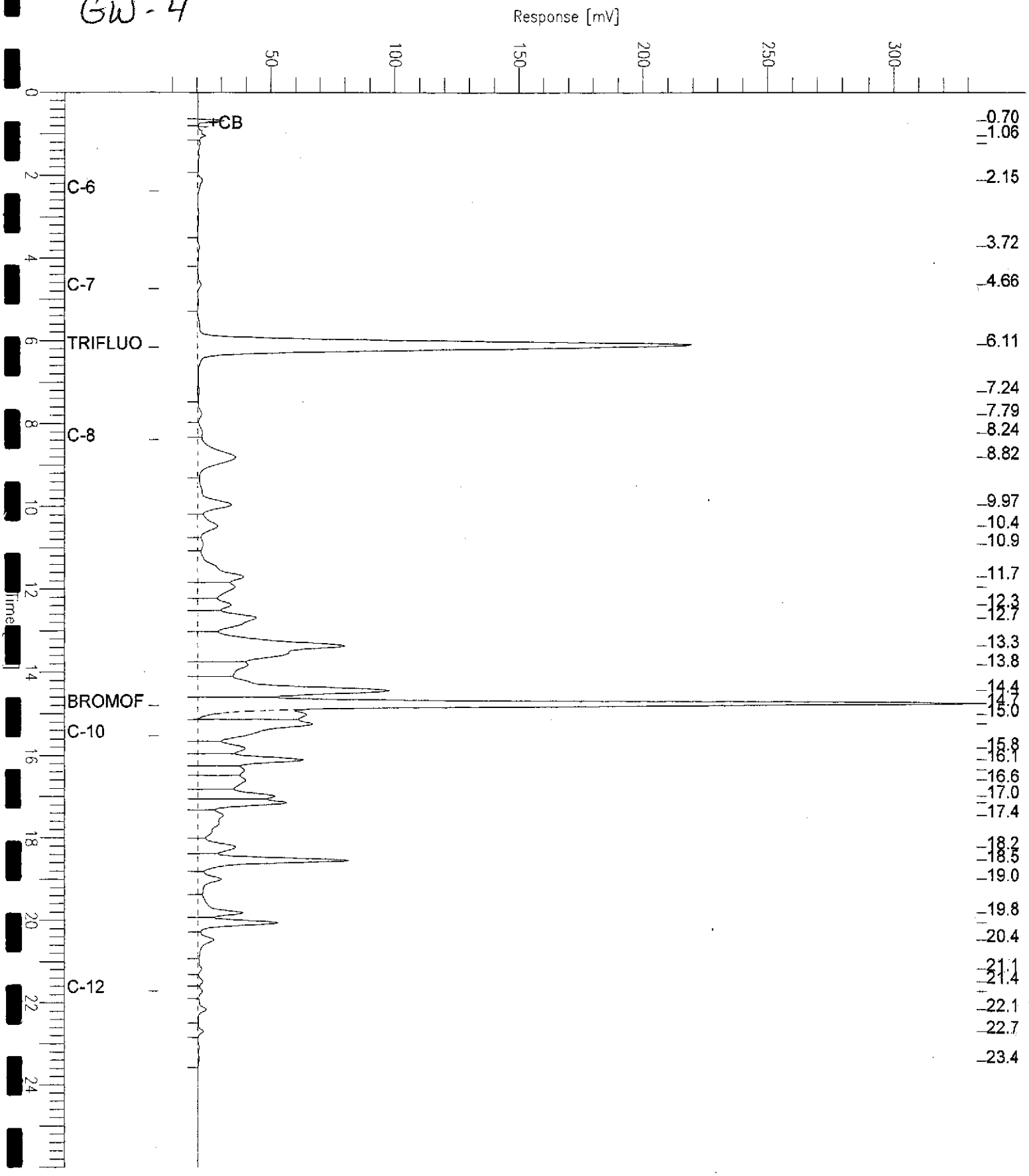
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-010,65356,TVH+STODD
leName : G:\GC07\DATA\212A021.raw
thod : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 5 mV

Sample #: A1 Page 1 of 1
Date : 8/1/01 02:25 AM
Time of Injection: 8/1/01 01:59 AM
Low Point : 4.69 mV High Point : 333.42 mV
Plot Scale: 328.7 mV

GW-4

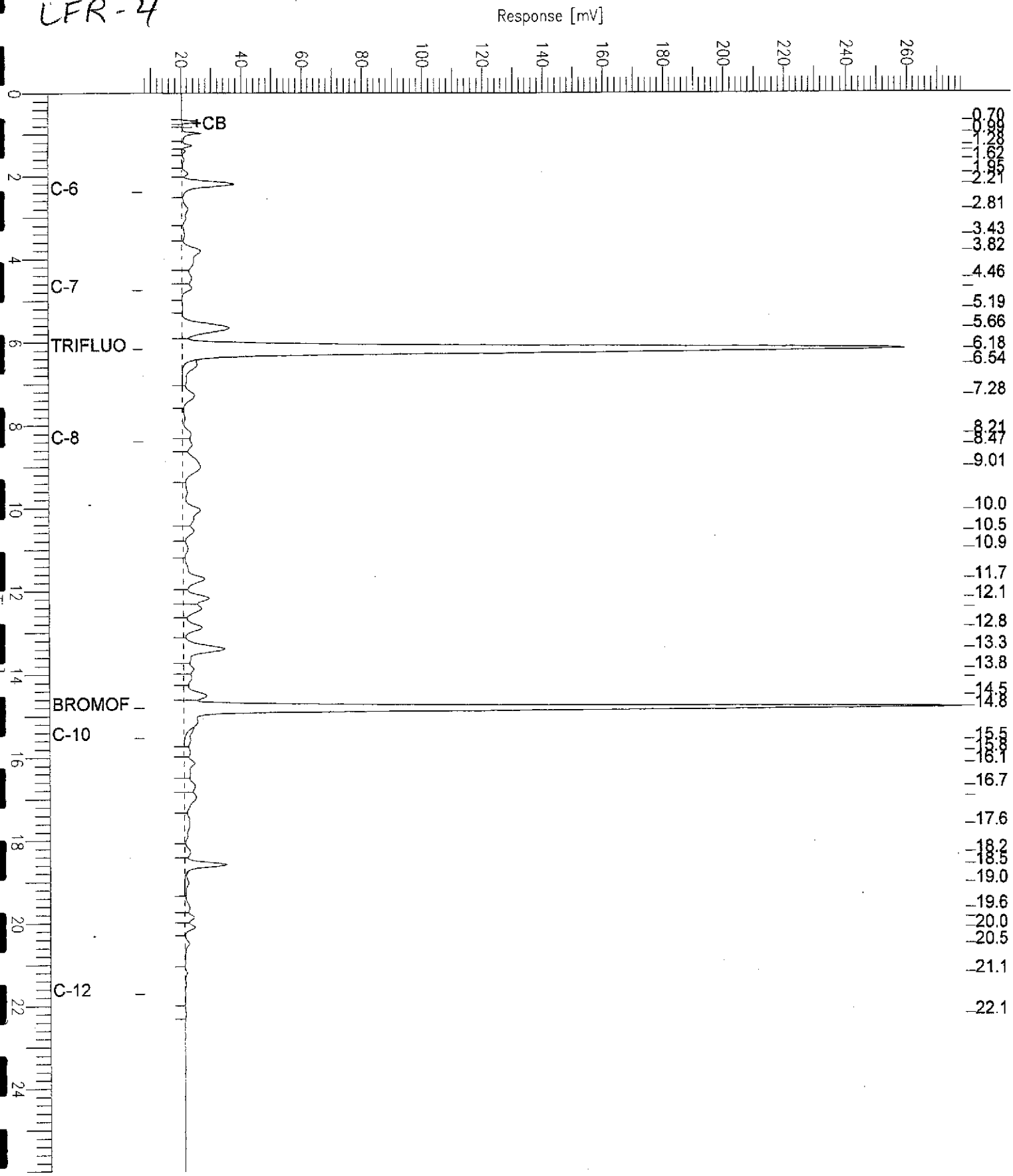


GC07 TVH 'A' Data File RTX 502

Sample Name : 153284-011,65356,TVH+STODD
FileName : G:\GC07\DATA\212A022.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 7 mV

Sample #: B1 Page 1 of 1
Date : 8/1/01 03:01 AM
Time of Injection: 8/1/01 02:35 AM
Low Point : 7.30 mV High Point : 278.48 mV
Plot Scale: 271.2 mV

LFR-4

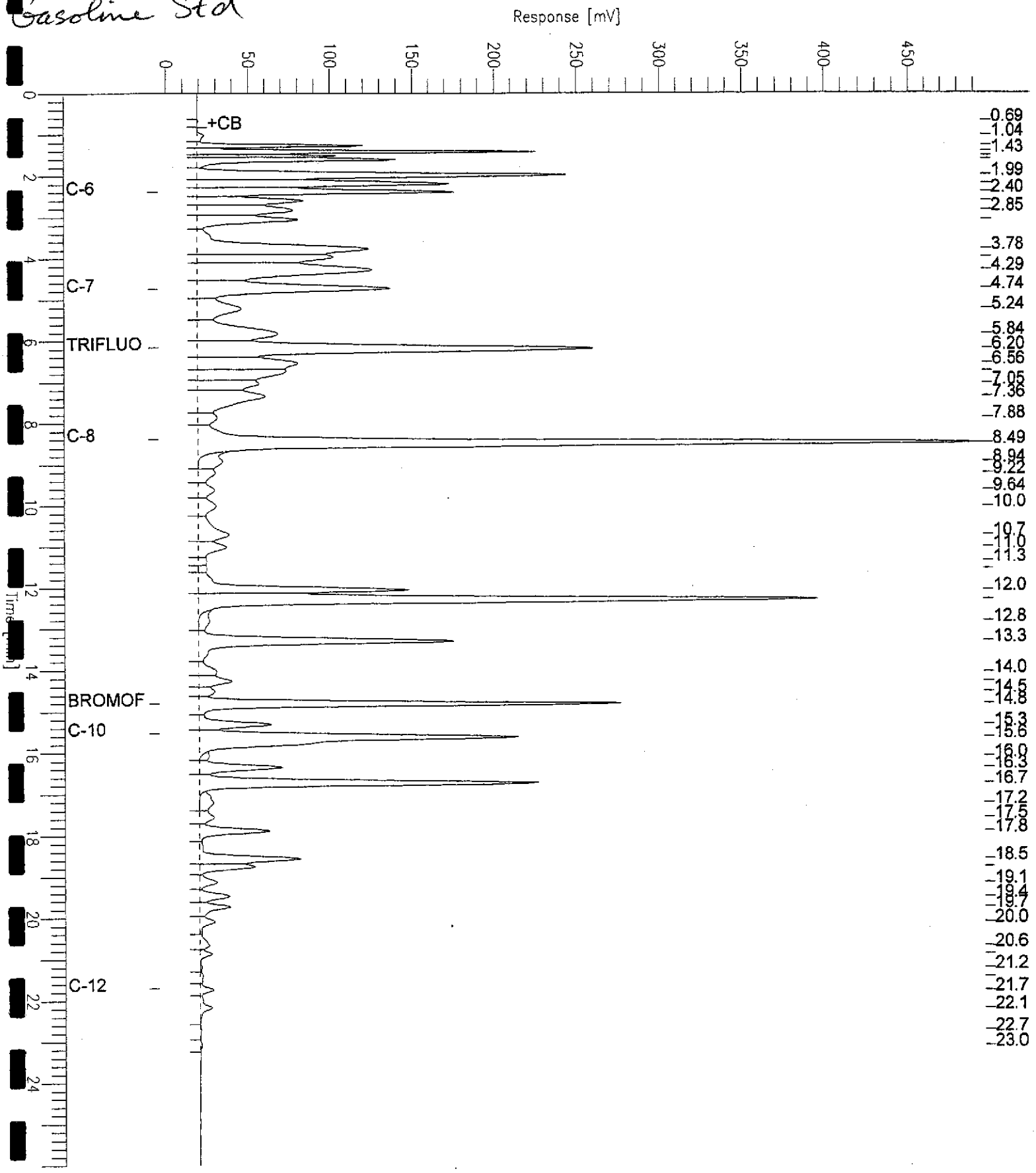


GC07 TVH 'A' Data File RTX 502

Sample Name : CCV/LCS,QC151921,65356,01WS1268,5/5000
FileName : G:\GC07\DATA\212A004.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -5 mV

Sample #:
Date : 7/31/01 04:15 PM
Time of Injection: 7/31/01 03:49 PM
Low Point : -4.58 mV High Point : 494.53 mV
Plot Scale: 499.1 mV

Gasoline Std

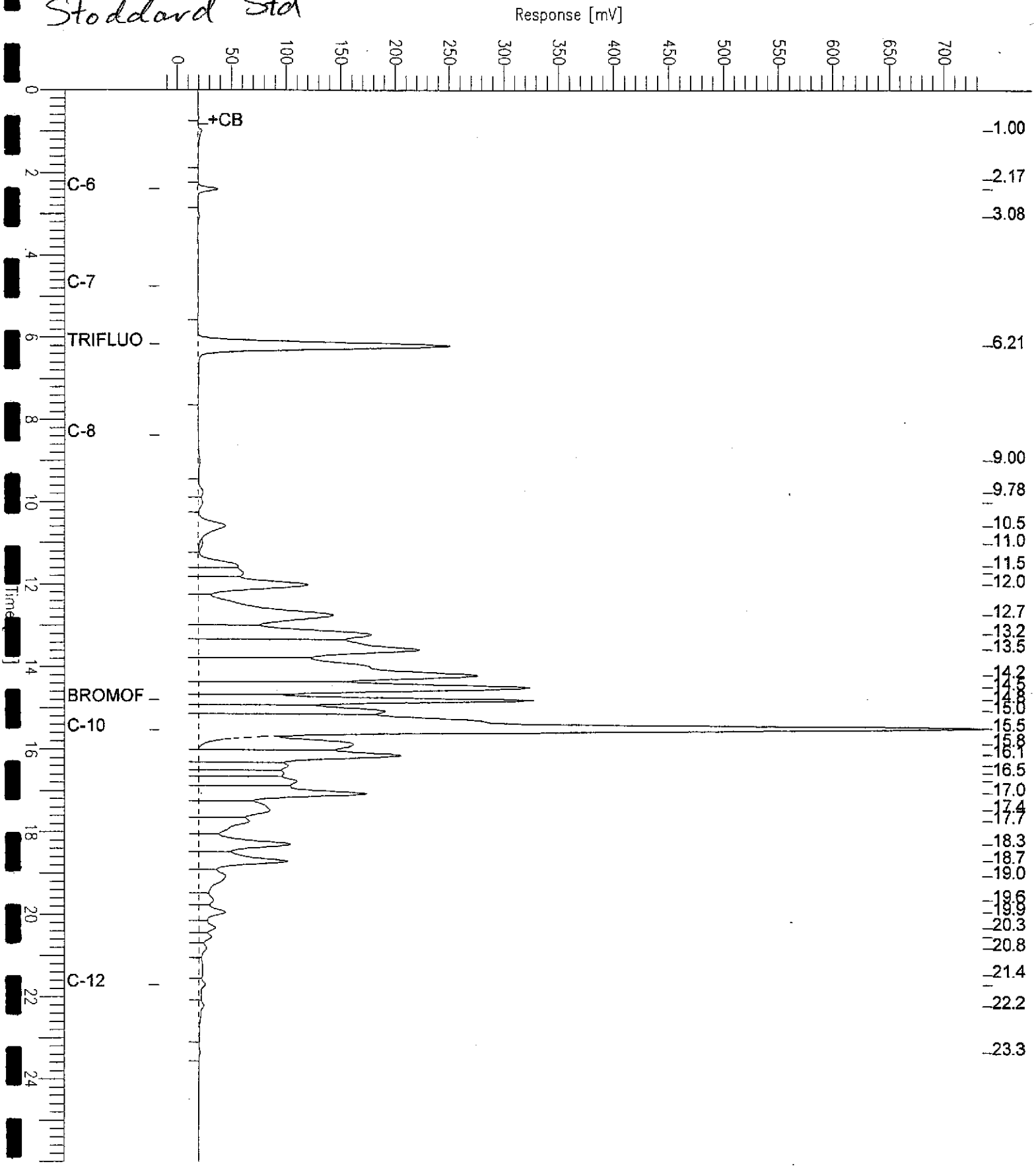


GC07 TVH 'A' Data File RTX 502

Sample Name : CCV,STODDARD,65356,01WS0540,5/5000
leName : G:\GC07\DATA\212A002.raw
thod : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: -16 mV

Sample #: Page 1 of 1
Date : 7/31/01 03:02 PM
Time of Injection: 7/31/01 02:37 PM
Low Point : -16.49 mV High Point : 735.25 mV
Plot Scale: 751.7 mV

Stoddard Std



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC151921	Batch#:	65356
Matrix:	Water	Analyzed:	07/31/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,106	105	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	110	60-140

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	65356
MSS Lab ID:	153310-005	Sampled:	07/30/01
Matrix:	Water	Received:	07/31/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC151922

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<20.00	2,000	2,119	106	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	129	59-135
Bromofluorobenzene (FID)	130	60-140

Type: MSD Lab ID: QC151923

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,165	108	65-131	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	126	59-135
Bromofluorobenzene (FID)	130	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	65350
Lab ID:	153284-001	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	2.500		

Analyte	Result	RL
Chloromethane	ND	2.5
Vinyl Chloride	ND	1.3
Bromomethane	ND	2.5
Chloroethane	ND	2.5
Trichlorofluoromethane	ND	1.3
Freon 113	ND	2.5
1,1-Dichloroethene	ND	1.3
Methylene Chloride	ND	50
trans-1,2-Dichloroethene	ND	1.3
1,1-Dichloroethane	ND	1.3
cis-1,2-Dichloroethene	9.8	1.3
Chloroform	ND	2.5
1,1,1-Trichloroethane	ND	1.3
Carbon Tetrachloride	ND	1.3
1,2-Dichloroethane	ND	1.3
Trichloroethene	31	1.3
1,2-Dichloropropane	ND	1.3
Bromodichloromethane	ND	1.3
cis-1,3-Dichloropropene	ND	1.3
trans-1,3-Dichloropropene	ND	1.3
1,1,2-Trichloroethane	ND	1.3
Tetrachloroethene	380	1.3
Dibromochloromethane	ND	1.3
Chlorobenzene	ND	1.3
Bromoform	ND	1.3
1,1,2,2-Tetrachloroethane	ND	1.3
1,3-Dichlorobenzene	ND	1.3
1,4-Dichlorobenzene	ND	1.3
1,2-Dichlorobenzene	ND	1.3

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	92	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	65350
Lab ID:	153284-001	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	2.500		

Analyte	Result	RL
MTBE	ND	1.3
Benzene	ND	1.3
Toluene	ND	1.3
Chlorobenzene	ND	1.3
Ethylbenzene	ND	1.3
m,p-Xylenes	ND	1.3
o-Xylene	ND	1.3
1,3-Dichlorobenzene	ND	1.3
1,4-Dichlorobenzene	ND	1.3
1,2-Dichlorobenzene	ND	1.3

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	92	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	65350
Lab ID:	153284-002	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	2.2	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	65350
Lab ID:	153284-002	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	101	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	65382
Lab ID:	153284-003	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	2.4	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	4.3	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	33	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	92	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	65382
Lab ID:	153284-003	Sampled:	07/26/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	92	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	65350
Lab ID:	153284-004	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	0.9	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	90	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	65350
Lab ID:	153284-004	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Dil'n Fac:	1.000		

Analyte	Result	RL
MTBE	0.8	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	B-10	Batch#:	65350
Lab ID:	153284-005	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	50.00		

Analyte	Result	RL
Chloromethane	ND	50
Vinyl Chloride	ND	25
Bromomethane	ND	50
Chloroethane	ND	50
Trichlorofluoromethane	ND	25
Freon 113	ND	50
1,1-Dichloroethene	ND	25
Methylene Chloride	ND	1,000
trans-1,2-Dichloroethene	41	25
1,1-Dichloroethane	ND	25
cis-1,2-Dichloroethene	6,600	25
Chloroform	ND	50
1,1,1-Trichloroethane	ND	25
Carbon Tetrachloride	ND	25
1,2-Dichloroethane	ND	25
Trichloroethene	810	25
1,2-Dichloropropane	ND	25
Bromodichloromethane	ND	25
cis-1,3-Dichloropropene	ND	25
trans-1,3-Dichloropropene	ND	25
1,1,2-Trichloroethane	ND	25
Tetrachloroethene	870	25
Dibromochloromethane	ND	25
Chlorobenzene	ND	25
Bromoform	ND	25
1,1,2,2-Tetrachloroethane	ND	25
1,3-Dichlorobenzene	ND	25
1,4-Dichlorobenzene	ND	25
1,2-Dichlorobenzene	ND	25

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	99	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	B-10	Batch#:	65350
Lab ID:	153284-005	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	50.00		

Analyte	Result	RL
MTBE	ND	25
Benzene	ND	25
Toluene	ND	25
Chlorobenzene	ND	25
Ethylbenzene	ND	25
m,p-Xylenes	ND	25
o-Xylene	ND	25
1,3-Dichlorobenzene	ND	25
1,4-Dichlorobenzene	ND	25
1,2-Dichlorobenzene	ND	25

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	99	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	B-7	Batch#:	65382
Lab ID:	153284-006	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	6.250		

Analyte	Result	RL
Chloromethane	ND	6.3
Vinyl Chloride	ND	3.1
Bromomethane	ND	6.3
Chloroethane	ND	6.3
Trichlorofluoromethane	ND	3.1
Freon 113	ND	6.3
1,1-Dichloroethene	ND	3.1
Methylene Chloride	ND	130
trans-1,2-Dichloroethene	5.0	3.1
1,1-Dichloroethane	ND	3.1
cis-1,2-Dichloroethene	860	3.1
Chloroform	ND	6.3
1,1,1-Trichloroethane	ND	3.1
Carbon Tetrachloride	ND	3.1
1,2-Dichloroethane	ND	3.1
Trichloroethene	17	3.1
1,2-Dichloropropane	ND	3.1
Bromodichloromethane	ND	3.1
cis-1,3-Dichloropropene	ND	3.1
trans-1,3-Dichloropropene	ND	3.1
1,1,2-Trichloroethane	ND	3.1
Tetrachloroethene	9.8	3.1
Dibromochloromethane	ND	3.1
Chlorobenzene	ND	3.1
Bromoform	ND	3.1
1,1,2,2-Tetrachloroethane	ND	3.1
1,3-Dichlorobenzene	ND	3.1
1,4-Dichlorobenzene	ND	3.1
1,2-Dichlorobenzene	ND	3.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	90	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	B-7	Batch#:	65382
Lab ID:	153284-006	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	6.250		

Analyte	Result	RL
MTBE	5.7	3.1
Benzene	7.0	3.1
Toluene	51	3.1
Chlorobenzene	ND	3.1
Ethylbenzene	8.2	3.1
m,p-Xylenes	42	3.1
o-Xylene	32	3.1
1,3-Dichlorobenzene	ND	3.1
1,4-Dichlorobenzene	ND	3.1
1,2-Dichlorobenzene	ND	3.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	90	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	65382
Lab ID:	153284-007	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	6.2	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	1.0	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	1.7	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	65382
Lab ID:	153284-007	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	1.0	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	0.7	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	102	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	65350
Lab ID:	153284-008	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	2.1	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	19	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	0.7	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	1.4	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	86	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	105	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	65350
Lab ID:	153284-008	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	1.3	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	0.6	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	86	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	105	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-5	Batch#:	65414
Lab ID:	153284-009	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/03/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	3.6	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	29	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	0.8	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	1.3	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-5	Batch#:	65414
Lab ID:	153284-009	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/03/01
Dil'n Fac:	1.000		

Analyte	Result	RL
MTBE	0.6	0.5
Benzene	2.2	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	65414
Lab ID:	153284-010	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/03/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	0.6	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	3.0	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	1.9	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	106	80-110
Bromofluorobenzene	87	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	65414
Lab ID:	153284-010	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/03/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	106	80-110
Bromofluorobenzene	87	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	65350
Lab ID:	153284-011	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	2.1	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	0.5	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	83	78-123
Toluene-d8	94	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	65350
Lab ID:	153284-011	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	11	0.5
Benzene	0.9	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	83	78-123
Toluene-d8	94	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	65350
Lab ID:	153284-012	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	95	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	65350
Lab ID:	153284-012	Sampled:	07/27/01
Matrix:	Water	Received:	07/27/01
Units:	ug/L	Analyzed:	07/31/01
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	95	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC151898	Batch#:	65350
Matrix:	Water	Analyzed:	07/31/01
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	89	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC151898	Batch#:	65350
Matrix:	Water	Analyzed:	07/31/01
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	89	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152021	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	78-123
Toluene-d8	104	80-110
Bromofluorobenzene	92	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152021	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	78-123
Toluene-d8	104	80-110
Bromofluorobenzene	92	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152022	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152022	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152148	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	87	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	106	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152148	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	87	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	106	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152149	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	1.1	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	92	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC152149	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	92	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	65350
Units:	ug/L	Analyzed:	07/31/01
Dil'n Fac:	1.000		

Type: BS Lab ID: QC151895

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	52.92	106	74-132
Trichloroethene	50.00	48.40	97	80-119
Chlorobenzene	50.00	46.72	93	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	95	80-110
Bromofluorobenzene	93	80-115

Type: BSD Lab ID: QC151896

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	51.89	104	74-132	2	20
Trichloroethene	50.00	49.71	99	80-119	3	20
Chlorobenzene	50.00	48.55	97	80-117	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	89	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	92	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	65350
Units:	ug/L	Analyzed:	07/31/01
Dil'n Fac:	1.000		

Type: BS Lab ID: QC151895

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	48.70	97	80-116
Toluene	50.00	49.38	99	80-120
Chlorobenzene	50.00	46.72	93	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	95	80-110
Bromofluorobenzene	93	80-115

Type: BSD Lab ID: QC151896

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	53.43	107	80-116	9	20
Toluene	50.00	53.73	107	80-120	8	20
Chlorobenzene	50.00	48.55	97	80-117	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	89	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	92	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC152032	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	55.65	111	74-132
Trichloroethene	50.00	47.69	95	80-119
Chlorobenzene	50.00	52.07	104	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	85	78-123
Toluene-d8	92	80-110
Bromofluorobenzene	92	80-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC152032	Batch#:	65382
Matrix:	Water	Analyzed:	08/01/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	50.38	101	80-116
Toluene	50.00	46.16	92	80-120
Chlorobenzene	50.00	52.07	104	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	85	78-123
Toluene-d8	92	80-110
Bromofluorobenzene	92	80-115

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC152147	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	49.62	99	74-132
Trichloroethene	50.00	49.14	98	80-119
Chlorobenzene	50.00	49.55	99	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	94	80-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC152147	Batch#:	65414
Matrix:	Water	Analyzed:	08/02/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Benzene	50.00	47.04	94	80-116
Toluene	50.00	53.74	107	80-120
Chlorobenzene	50.00	49.55	99	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	94	80-115

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	65382
MSS Lab ID:	153271-001	Sampled:	07/25/01
Matrix:	Water	Received:	07/26/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC152033

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.2700	50.00	54.28	109	70-132
Trichloroethene	<0.2600	50.00	48.08	96	62-137
Chlorobenzene	<0.1300	50.00	54.49	109	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	94	80-110
Bromofluorobenzene	90	80-115

Type: MSD Lab ID: QC152034

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	50.86	102	70-132	7	20
Trichloroethene	50.00	50.52	101	62-137	5	20
Chlorobenzene	50.00	53.64	107	80-117	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	88	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	65382
MSS Lab ID:	153271-001	Sampled:	07/25/01
Matrix:	Water	Received:	07/26/01
Units:	ug/L	Analyzed:	08/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC152033

Analyte	MSS Result	Spiked	Result	%REC	Limits
Benzene	<0.2600	50.00	46.57	93	80-114
Toluene	<0.2700	50.00	49.50	99	79-121
Chlorobenzene	<0.1300	50.00	54.49	109	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	78-123
Toluene-d8	94	80-110
Bromofluorobenzene	90	80-115

Type: MSD Lab ID: QC152034

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	48.92	98	80-114	5	20
Toluene	50.00	50.36	101	79-121	2	20
Chlorobenzene	50.00	53.64	107	80-117	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	88	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	65414
MSS Lab ID:	153339-002	Sampled:	07/30/01
Matrix:	Water	Received:	07/31/01
Units:	ug/L	Analyzed:	08/02/01
Diln Fac:	1.000		

Type: MS Lab ID: QC152150

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.2700	50.00	50.95	102	70-132
Trichloroethene	4.652	50.00	53.60	98	62-137
Chlorobenzene	<0.1300	50.00	51.97	104	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	100	80-115

Type: MSD Lab ID: QC152151

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	50.58	101	70-132	1	20
Trichloroethene	50.00	55.81	102	62-137	4	20
Chlorobenzene	50.00	52.12	104	80-117	0	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	94	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	153284	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	65414
MSS Lab ID:	153339-002	Sampled:	07/30/01
Matrix:	Water	Received:	07/31/01
Units:	ug/L	Analyzed:	08/02/01
Diln Fac:	1.000		

Type: MS Lab ID: QC152150

Analyte	MSS Result	Spiked	Result	%REC	Limits
Benzene	<0.2600	50.00	50.35	101	80-114
Toluene	<0.2700	50.00	49.17	98	79-121
Chlorobenzene	<0.1300	50.00	51.97	104	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	100	80-115

Type: MSD Lab ID: QC152151

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	50.00	50.86	102	80-114	1	20
Toluene	50.00	50.34	101	79-121	2	20
Chlorobenzene	50.00	52.12	104	80-117	0	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	94	80-115

RPD= Relative Percent Difference

MICROSEEPS

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203

San Ramon, CA 94583

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Sample Identification

Lab Sample #	Client Sample ID
P0107429-01	B-7
P0107429-02	B-10
P0107429-03	GW-2
P0107429-04	GW-3
P0107429-05	GW-4
P0107429-06	MW-11
P0107429-07	LFR-1
P0107429-08	LFR-2
P0107429-09	LFR-3
P0107429-10	LFR-4
P0107429-11	LFR-5

Approved By: Debbie Hallo

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-01

Sample Description	Matrix	Sampled Date/Time	Received
B-7	Water	27 Jul. 01 11:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	7000	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-02

Sample Description	Matrix	Sampled Date/Time	Received
B-10	Water	27 Jul. 01 9:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	5600	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-03

Sample Description	Matrix	Sampled Date/Time	Received
GW-2	Water	26 Jul. 01 17:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	16	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-04

Sample Description	Matrix	Sampled Date/Time	Received
GW-3	Water	27 Jul. 01 8:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	8.3	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-05

Sample Description	Matrix	Sampled Date/Time	Received
GW-4	Water	27 Jul. 01 15:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	2.8	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-06

Sample Description	Matrix	Sampled Date/Time	Received
MW-11	Water	27 Jul. 01 13:20	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	4.9	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-07

Sample Description	Matrix	Sampled Date/Time	Received
LFR-1	Water	26 Jul. 01 14:05	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	8.4	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-08

Sample Description	Matrix	Sampled Date/Time	Received
LFR-2	Water	27 Jul. 01 14:20	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	10000	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-09

Sample Description	Matrix	Sampled Date/Time	Received
LFR-3	Water	26 Jul. 01 16:15	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	3.5	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-10

Sample Description	Matrix	Sampled Date/Time	Received
FR-4	Water	27 Jul. 01 16:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	1200	0.015	ug/L	AM20GAX	rw	8/15/01

Order #: P0107429
Report Date: 08/16/01
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Naser Pakrou
Address: 2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Lab Sample #: P0107429-11

Sample Description	Matrix	Sampled Date/Time	Received
LFR-5	Water	27 Jul. 01 14:30	31 Jul. 01

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	9500	0.015	ug/L	AM20GAX	rw	8/15/01

P107429

Q0105007

CHAIN - OF - CUSTODY RECORD

Phone: (412) 826-5245 — **Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238** — Fax No. : (412) 826-3433

Company : SOMA
Co. Address : 2680 Bishop Dr. St. 203 San Ramon CA 94583
Proj. Manager: Mansour Sepehr
Proj. Location: Glenstar Lane
Proj. Number: 2511
Phone # : 925-244-6600 **Fax # :** 925-244-6601

Sampler's signature : Robert C. Sullivan

Parameters Requested

Methane Gas

Results to : SOMA

Invoice to : SOMA

Cooler ID	Cooler Temp.

	Sample ID	Sample Description	Date	Time	Comp.	Grab	# Cont.	Remarks
01	B-7	Groundwater	7/27	11:30		H2O	12	2 40ml VOA's, No pres.
02	B-10		7/27	9:30				
03	GW-2		7/26	5:30				
04	GW-3		7/27	8:30				
05	GW-4		7/27	3:30				
06	MW-11		7/27	1:20				
07	LFR-1		7/26	2:05				
08	LFR-2		7/27	2:20				
09	LFR-3		7/26	4:15				
10	LFR-4		7/27	4:30				
11	LFR-5		7/27	2:30				

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Robert C. Sullivan	SOMA	7/27	6pm	Wadelark	Microseeps	7/31	01
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW COPY : Laboratory File PINK COPY : Submitter

APPENDIX B

Field Notes, the Field Measured Physical and Chemical Parameter Values and DO Correction Tables

7/27/01

SOMA

Project #:	2511	Address:	2815 Broadway	Date:	~~7/20/01~~
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Patrick Sullivan

Well/Sample ID:	B-7	Well Depth:	1"	Purge:	☒ Pump	☐ Bailer		
Dup:	–	DTW:	8.27	Sample:	☒ Pump	☐ Bailer		
Blank:	–	Water Table Elev.:	58.69	Odor:	☐ No	☒ Yes	Describe:	Strong solvent(?)
		Height of Water:		Sheen:	☒ No	☐ Yes	Describe:	
				Color:	☐ No	☒ Yes	Describe:	cloudy & grey

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial	Alk, Cl-, Sulfate:	1 unpreserved poly L
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs		
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly		
		Ferrous Iron:	1 HCl Pres. Poly		

TIME	DTW	VOLUME	TEMP (°C)	COND (mS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters within:				+/- 3%	+/- 10%	+/- 10 mV	+/- 10%	+/- 0.1%	
10:40	8.27	0							Start
10:45		.2	16.08	1.430	No read	-20	850	6.16	cloudy grey water
10:50		.4	16.02	1.440	2.52	-30	310	6.26	water clearing
10:55		.5	15.99	1.410	2.40	-40	210	6.38	
11:00		.7	15.97	1.400	1.98	-40	560	6.39	- pump off -
11:30									SAMPLED

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	>3.3	>3.3	0.0	0.024	8.0	7.3
Dilution:	10	10				
Comments:	1.16	1.53				
	11.6	15.3	(Results in mg/L)			

h π r² 8

8.3 ⅛ ... ⅓ x 1 (1g)

Tom Donahue 925.960.7004

Project #:	2511	Address:	2815 Broadway	Date:	7/27/01 ~~7/26/01~~
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou, Patrick Sullivan

1"

Well/Sample ID:	B-10	Well Depth:		Purge:	☒ Pump	☐ Bailer	
Dup:	—	DTW:	8.89'	Sample:	☒ Pump	☐ Bailer	
Blank:	—	Water Table Elev.:	72.61	Odor:	☐ No	☒ Yes	Describe: Solvent (?)
		Height of Water:		Sheen:	☒ No	☐ Yes	Describe:
				Color:	☒ No	☐ Yes	Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	~~1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH~~	Disolved H_2:	1 ~~Septum Vial~~
Total Iron, Manganese:	~~1 HNO_3 preserved poly~~	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	~~1 Unpres. Poly and 1 H2SO4 Poly~~
		Ferrous Iron:	1 ~~HCl Pres. Poly~~
		Alk, Cl-, Sulfate:	~~1 unpreserved poly L~~

TIME (Stabilization if 3 successive parameters within)	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
9:03		Ø							grey, cloudy water
9:08		.2	16.12	1.280	No reading	-25	over limit	6.36	
9:13		.4	16.11	1.230	2.54	-26	O.L.	6.32	reduce pump rate
9:18		.5	16.05	1.220	2.36	-25	830	6.30	~~Odor~~
9:23		.6	16.04	1.210	2.18	-23	~~560~~ 580	6.30	
9:30		.7	16.07	1.180	2.11	-22	260	6.33	
9:35		.8	16.09	1.170	1.97	-22	220	6.34	~~Sheen~~
9:40		.9	16.09	1.160	1.90	-20	190	6.37	
9:45		1.0	16.11	1.160	1.86	-22	110	6.38	
9:50		1.1	16.09	1.160	1.87	-22	110	6.38	SAMPLED

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	>3.3	73.3	Ø	0	3	1.3
	0.62	0.65				
Dilution:	10	10				
Comments:	6.2	6.5				

(Results in mg/L)

Project #:	2511	Address:	2815 Broadway	Date:	7/26/01
Project Name:	Giovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Patrick Sullivan

Well/Sample ID:	GW-2	Well Depth:	1" 19.80'	Purge:	☒ Pump	☐ Bailer	
Dup:		DTW:	10.59'	Sample:	☒ Pump	☐ Bailer	
Blank:		Water Table Elev.:	68.55	Odor:	☒ No	☐ Yes	Describe:
		Height of Water:	9.21'	Sheen:	☒ No	☐ Yes	Describe:
				Color:	☒ No	☐ Yes	Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly
		Ferrous Iron:	1 HCl Pres. Poly

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
Stabilization if 3 successive parameters within:									- begin -
4:50	10.59	∅							
4:55		0.3	20.57	0.960	No read	247	22	6.67	clear water
5pm	14.1	0.6	20.66	0.790	2.93	235	17	6.77	
5:05		1.0	20.53	0.773	2.86	236	18	6.79	
5:10	17.2	1.3	20.18	0.784	2.44	236	15	6.77	
5:15			20.29	0.806	2.04	239	14	6.71	
5:20	18.3		20.32	0.801	1.93	233	16	6.75	- sampling -
5:25									

h×8×r²×8g/ft³ ÷3

10' × 8/2 × 1/20 × 1/20 × 8/3

1.2g = 300L

.4g = 100L

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	0.0	0.03	3.9	0.024	60	0.0
Dilution:						
Comments:						

(Results in mg/L)

Project #:	2511	**Address:**	2815 Broadway	**Date:** 7/26/01
Project Name:	Glovatorium		Oakland, CA	**Sampler:** Naser Pakrou, Patrick Sullivan

Well/Sample ID:	GW-3	**Well Depth:**	19.70	1" diameter	**Purge:**	☒ Pump ☐ Bailer
Dup:		**DTW:**	10.08'		**Sample:**	☒ Pump ☐ Bailer
Blank:		**Water Table Elev.:**	67.84		**Odor:**	☐ No ☐ Yes **Describe:**
		Height of Water:	9.62		**Sheen:**	☐ No ☐ Yes **Describe:**
					Color:	☐ No ☐ Yes **Describe:**

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly
		Ferrous Iron:	1 HCl Pres. Poly

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
Stabilization if 3 successive parameters within:									
2:37	10.03	0							
2:40		0.1	20.24	0.612	No read	151	8	6.69	clear water
2:47		0.2	20.35	0.496	3.31	198	9	6.43	
2:53	17.7	0.4	20.99	0.537	2.96	209	6	6.50	decrease rate
2:58		0.5	22.25	0.547	2.48	214	5	6.56	pump off
									sampled
8:30 AM									

7/26

NO SAMPLE (well dry)

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	0.12	0.14	2.4	0.004	52	0.0
Dilution:						
Comments:						

(Results in mg/L)

$10' \times 3.2 \times 2^2 \times 8 \text{ gal/ft}^3$

$\frac{1}{24}$ $\frac{1}{24}$

$\approx \frac{12}{24} \approx .5$ gal 1 casing

1.5 gal 3 casing

Project #:	2511	**Address:**	2815 Broadway	**Date:**	7/27/01 ~~7/26/01~~
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou Patrick Sullivan

Well/Sample ID:	GW-4	**Well Depth:**	1"	**Purge:**	☒ Pump	☐ Bailer	
Dup:		**DTW:**	8.52	**Sample:**	☒ Pump	☐ Bailer	
Blank:		**Water Table Elev.:**	73.85	**Odor:**	☐ No	☒ Yes	**Describe:** Solvent (?)
		Height of Water:		**Sheen:**	☒ No	☐ Yes	**Describe:**
				Color:	☒ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial	Alk, Cl-, Sulfate: 1 unpreserved poly L
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs	
8260 (8010 list) & MtBE &		Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly	
BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Ferrous Iron:	1 HCl Pres. Poly	

TIME Stabilization if 3 successive parameters within:	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
2:55	8.52	0							start
3pm		0.1	20.37	0.881	No reading	132	280	6.28	clear water
3:05		0.2	19.74	0.903	3.15	115	77	6.43	
3:10		0.3	19.44	0.827	2.59	-3	18	6.47	pump stopped
3:30									SAMPLING

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	~~0.97~~	~~2.0~~	10.5	0.035	25	0.2
(Repeated)	1.29	2.0				
Dilution:						
Comments:						

(Results in mg/L)

Project #: 2511 Address: 2815 Broadway Date: ~~7/26/04~~ 7/27/04

Project Name: Glovatorium Oakland, CA Sampler: Naser Pakrou

Patrick Sullivan

Well/Sample ID: MW-11 Well Depth: Purge: ☑ Pump ☐ Bailer

Dup: / DTW: 10.48 Sample: ☑ Pump ☐ Bailer

Blank: / Water Table Elev.: 73.73 Odor: ☒ No ☐ Yes Describe:

Height of Water: Sheen: ☒ No ☐ Yes Describe:

Color: ☒ No ☐ Yes Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Dissolved H_2:	1 Septum Vial	Alk, Cl-, Sulfate:	1 unpreserved poly L
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs		
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly		
		Ferrous Iron:	1 HCl Pres. Poly		

TIME	DTW	VOLUME	TEMP (°C)	COND (ms/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
Stabilization if 3 successive parameters within									
12:23		0.05	19.3	1.15	4.12	172	0	6.08	
12:28		0.2	19.59	1.13	3.69	194	0	5.97	
12:33		0.4	20.02	1.13	4.07	206	10	5.99	
12:43		1.0	20.33	1.13	3.99	229	10	6.02	
12:48		1.5	20.28	1.12	3.69	232	16	6.02	
12:53		2.00	20.11	1.11	3.14	233	16	6.02	
12:58		2.5	20.13	1.11	2.60	232	15	6.01	
1:03		3	19.92	1.11	2.26	231	15	6.02	
1:08		3.5	19.82	1.13	1.82	232	15	6.04	
1:15		4	19.85	1.12	1.85	233	14	6.02	SAMPLED

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	∅	∅	5.2	0.021	77	0.0
Dilution:						
Comments:						

(Results in mg/L)

Project #:	2511	Address:	2815 Broadway	Date:	7/26/01
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou, Patrick Sullivan

2" diameter

Well/Sample ID:	LFR-1	Well Depth:	18.85'	Purge:	☒ Pump	☐ Bailer	
Dup:	—	DTW:	9.81'	Sample:	☒ Pump	☐ Bailer	
Blank:	—	Water Table Elev.:	70.16	Odor:	☒ No	☐ Yes	Describe:
		Height of Water:	9.04'	Sheen:	☒ No	☐ Yes	Describe:
				Color:	☒ No	☐ Yes	Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial	Alk, Cl-, Sulfate: 1 unpreserved poly L
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs	
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly	
		Ferrous Iron:	1 HCl Pres. Poly	

TIME Stabilization if 3 successive parameters within	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/-10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/-0.1%	COMMENTS
12:45	~~9.81~~	0.1	19.56	1.33	1.38	310	48	6.14	
12:50		0.3	18.99	1.18	1.38	286	53	6.31	
12:55		0.5	19.40	0.93	1.68	271	67	6.48	
1:00		1.0	19.42	0.771	1.84	265	55	6.57	
1:08		2.5	19.48	0.789	1.41	255	62	6.48	
~~1:13~~ 1:13	11.50'	3	19.52	0.781	1.29	253	66	6.49	pumping clear
1:17		3.5	19.39	0.805	1.11	246	70	6.48	
1:20		4	19.37	0.783	1.09	243	75	6.48	
1:24			19.38	0.772	1.07	238	77	6.48	SAMPLED

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	0.01	0.05	8.	0.008	25	0.0~~48~~
Dilution:						
Comments:						

(Results in mg/L)

7/27/01

Project #: 2511 Address: 2815 Broadway Date: ~~7/26/01~~
Project Name: Glovatorium Oakland, CA Sampler: Naser Pakrou
Patrick Sullivan

Well/Sample ID: LFR-2 Well Depth: Purge: ☒ Pump ☐ Bailer
Dup: LFR-5 DTW: 10.97 Sample: ☒ Pump ☐ Bailer
Blank: Water Table Elev.: 70.92 Odor: ☐ No ☒ Yes Describe: Strong Solvents (?)
Height of Water: Sheen: ☒ No ☐ Yes Describe:
Color: ☒ No ☐ Yes Describe:

Laboratory:
Delivery:
Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly
		Ferrous Iron:	1 HCl Pres. Poly

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
Stabilization if 3 successive parameters within									
1:37	10.97	0							Start
1:42		.5	18.82	1.03	2.47	-21	26	6.33	slightly cloudy
1:47		.7	18.70	1.03	1.30	-28	21	6.36	clearing
1:52		1	18.68	.97	1.07	-25	18	6.37	
1:57		1.3	18.70	0.97	0.79	-23	9	6.35	
2:02		1.5	18.59	0.97	0.64	-20	10	6.32	
2:07		2	18.63	0.97	0.60	-20	7	6.31	
2:12		2.5	18.66	0.97	0.55	-20	6	6.31	SAMPLING

Duplicate named LFR-5

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	>3.3	>3.3	0.0	0.011	0.0	0.2
Dilution:	10					
Comments:	0.45	0.46				
	4.5	4.6	(Results in mg/L)			

Project #:	2511	Address:	2815 Broadway	Date:	7/26/01
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou, Patrick Sullivan

2" diam.

Well/Sample ID:	LFR-3	Well Depth:	21.80'	Purge:	☒ Pump	☐ Bailer		
Dup:	—	DTW:	11.40'	Sample:	☒ Pump	☐ Bailer		
Blank:	—	Water Table Elev.:	66.56	Odor:	☒ No	☐ Yes	Describe:	
		Height of Water:	10.40'	Sheen:	☒ No	☐ Yes	Describe:	
				Color:	☐ No	☒ Yes	Describe:	H. brown

209 772 3570

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial	Alk, Cl-, Sulfate: 1 unpreserved poly L
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs	
8260 (8010 list) & MtBE &		Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly	
BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Ferrous Iron:	1 HCl Pres. Poly	

TIME (Stabilization if 3 successive parameters within)	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
3:25 pm	11.40	Ø							pump on – cloudy water
3:30 pm	11.70	0.3	22.50	0.604	No reading	251	over limit	6.38	less cloudy
3:35 pm		0.5	22.15	0.618	3.43	252	over limit	6.34	
3:40 pm	12.10	0.8	20.55	0.591	2.47	248	O.L.	6.31	increase rate
3:45			20.52	0.574	1.94	247	430	6.28	
3:50	12.20	1.2	20.50	0.581	1.57	241	240	6.28	clear water
3:55	12.30	1.8	20.52	0.592	1.46	235	~~250~~ 250	6.27	
4:00	12.30	2.3	20.52	0.599	1.33	230	330	6.27	
4:05	12.40	2.8	20.50	0.602	1.29	228	280	6.25	SAMPLING

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	0.6	0.7	0.0	0.027	51	0.4
Dilution:						
Comments:						

(Results in mg/L)

$h \pi r^2$

$10' \times 3/2 \times \left(\frac{1}{12}\right)^2 \times \frac{7}{8} \times 8$

$\frac{1}{2} \times \frac{1}{2}$

6 gal = 3 vol
2 gal = 1 vol

7/27/01

Project #:	2511	Address:	2815 Broadway	Date:	~~7/26/01~~
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Patrick Sullivan

Well/Sample ID:	LFR-4	Well Depth:	19.30 (2")	Purge:	☒ Pump	☐ Bailer	
Dup:		DTW:	13.32	Sample:	☒ Pump	☐ Bailer	
Blank:		Water Table Elev.:	68.33	Odor:	☒ No	☐ Yes	Describe:
		Height of Water:	5.98	Sheen:	☒ No	☐ Yes	Describe:
				Color:	☒ No	☐ Yes	Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE & BTEX & TPH-g & TPH-ss:	6 VOAs w/ HCL	Cation & Anion w/ Nitrate & Nitrite:	1 Unpres. Poly and 1 H2SO4 Poly
		Ferrous Iron:	1 HCl Pres. Poly

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME Stabilization if 3 successive parameters within:	DTW	VOLUME	TEMP (°C)	COND (mS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1	COMMENTS
3:45	13.32	Ø							Start
3:50		0.3	19.33	0.937	4.50	42	Ø	6.18	clear water
3:55	14.2	0.5	19.37	0.824	3.79	36	Ø	6.29	increase rate
4:00		1.0	19.33	0.783	3.25	29	Ø	6.27	
4:05		1.4	19.32	0.758	2.74	35	Ø	6.26	
4:10		1.8	19.31	0.791	2.23	32	Ø	6.25	
4:15		2.1	19.22	0.825	2.21	24	Ø	6.25	
4:20		2.3	19.22	0.839	1.91	22	Ø	6.25	
4:25		2.5	19.22	0.849	1.73	20	Ø	6.25	
4:30		2.7	19.23	0.866	1.65	18	Ø	6.26	Sampling

	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
Result:	0.84	0.95	Ø		Ø	Ø
Dilution:						
Comments:						

(Results in mg/L)

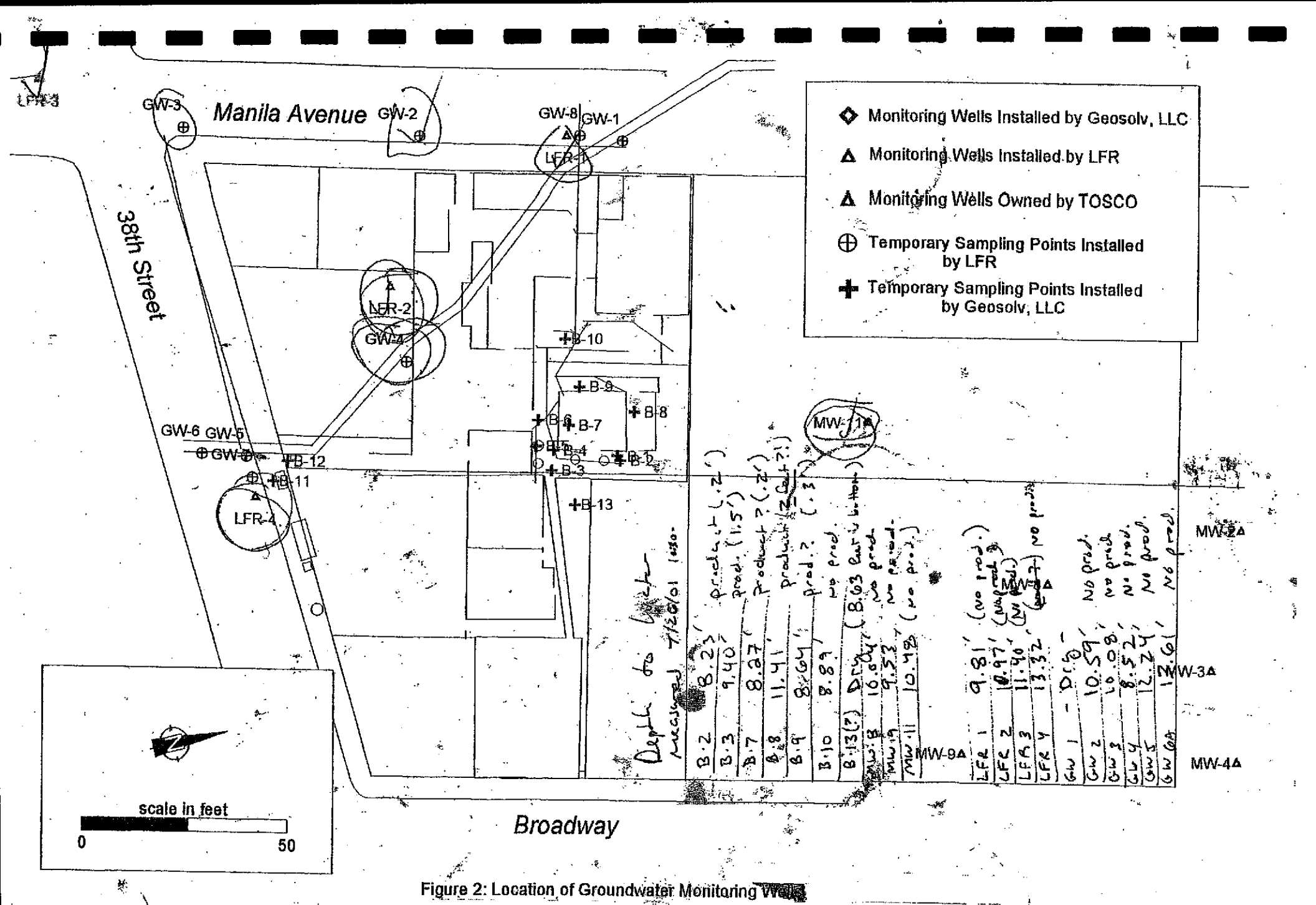


Figure 2: Location of Groundwater Monitoring Wells

TABLE B — Calibration Values for Various Atmospheric Pressures and Altitudes

PRESSURE		ALTITUDE			CORRECTION
in. Hg	mm Hg	kPa	Feet	m	FACTOR (%)
30.23	768	102.3	-276	-84	101
29.92	760	101.3	0	0	100
29.61	752	100.3	278	85	99
29.33	745	99.3	558	170	98
29.02	737	98.3	841	256	97
28.74	730	97.3	1126	343	96
28.43	722	96.3	1413	431	95
28.11	714	95.2	1703	519	94
27.83	707	94.2	1995	608	93
27.52	699	93.2	2290	698	92
27.24	692	92.2	2587	789	91
26.93	684	91.2	2887	880	90
26.61	676	90.2	3190	972	89
26.34	669	89.2	3496	1066	88
26.02	661	88.2	3804	1160	87
25.75	654	87.1	4115	1254	86
25.43	646	86.1	4430	1350	85
25.12	638	85.1	4747	1447	84
24.84	631	84.1	5067	1544	83
24.53	623	83.1	5391	1643	82
24.25	616	82.1	5717	1743	81
23.94	608	81.1	6047	1843	80
23.62	600	80.0	6381	1945	79
23.35	593	79.0	6717	2047	78
23.03	585	78.0	7058	2151	77
22.76	578	77.0	7401	2256	76
22.44	570	76.0	7749	2362	75
22.13	562	75.0	8100	2469	74
21.85	555	74.0	8455	2577	73
21.54	547	73.0	8815	2687	72
21.26	540	71.9	9178	2797	71
20.94	532	70.9	9545	2909	70
20.63	524	69.9	9917	3023	69
20.35	517	68.9	10293	3137	68
20.04	509	67.9	10673	3253	67
19.76	502	66.9	11058	3371	66

OXYGEN SOLUBILITY AND CALIBRATION VALUE TABLES

TABLE A — Solubility of Oxygen in mg/L in Water Exposed to Air at 760 mm Hg Pressure

Temp °C	Chlorinity: 0 Salinity: 0	5.0 9.0	10.0 18.1	15.0 27.1	20.0 36.1	25.0 45.2
0.0	14.62	13.73	12.89	12.10	11.36	10.66
1.0	14.22	13.36	12.55	11.78	11.07	10.39
2.0	13.83	13.00	12.22	11.48	10.79	10.14
3.0	13.46	12.66	11.91	11.20	10.53	9.90
4.0	13.11	12.34	11.61	10.92	10.27	9.66
5.0	12.77	12.02	11.32	10.66	10.03	9.44
6.0	12.45	11.73	11.05	10.40	9.80	9.23
7.0	12.14	11.44	10.78	10.16	9.58	9.02
8.0	11.84	11.17	10.53	9.93	9.36	8.83
9.0	11.56	10.91	10.29	9.71	9.16	8.64
10.0	11.29	10.66	10.06	9.49	8.96	8.45
11.0	11.03	10.42	9.84	9.29	8.77	8.28
12.0	10.78	10.18	9.62	9.09	8.59	8.11
13.0	10.54	9.96	9.42	8.90	8.41	7.95
14.0	10.31	9.75	9.22	8.72	8.24	7.79
15.0	10.08	9.54	9.03	8.54	8.08	7.64
16.0	9.87	9.34	8.84	8.37	7.92	7.50
17.0	9.67	9.15	8.67	8.21	7.77	7.36
18.0	9.47	8.97	8.50	8.05	7.62	7.22
19.0	9.28	8.79	8.33	7.90	7.48	7.09
20.0	9.09	8.62	8.17	7.75	7.35	6.96
21.0	8.92	8.46	8.02	7.61	7.21	6.84
22.0	8.74	8.30	7.87	7.47	7.09	6.72
23.0	8.58	8.14	7.73	7.34	6.96	6.61
24.0	8.42	7.99	7.59	7.21	6.84	6.50
25.0	8.26	7.85	7.46	7.08	6.73	6.39
26.0	8.11	7.71	7.33	6.96	6.62	6.29
27.0	7.97	7.58	7.20	6.85	6.51	6.18
28.0	7.83	7.44	7.08	6.73	6.40	6.09
29.0	7.69	7.32	6.96	6.62	6.30	5.99
30.0	7.56	7.19	6.85	6.51	6.20	5.90
31.0	7.43	7.07	6.73	6.41	6.10	5.81
32.0	7.31	6.96	6.62	6.31	6.01	5.72
33.0	7.18	6.84	6.52	6.21	5.91	5.63
34.0	7.07	6.73	6.42	6.11	5.82	5.55
35.0	6.95	6.62	6.31	6.02	5.73	5.46
36.0	6.84	6.52	6.22	5.93	5.65	5.38
37.0	6.73	6.42	6.12	5.84	5.56	5.31
38.0	6.62	6.32	6.03	5.75	5.48	5.23
39.0	6.52	6.22	5.93	5.66	5.40	5.15
40.0	6.41	6.12	5.84	5.58	5.32	5.08
41.0	6.31	6.03	5.75	5.49	5.24	5.01
42.0	6.21	5.93	5.67	5.41	5.17	4.93
43.0	6.12	5.84	5.58	5.33	5.09	4.86
44.0	6.02	5.75	5.50	5.25	5.02	4.79
45.0	5.93	5.67	5.41	5.17	4.94	4.72