

September 11, 2002

Alameda County
SEP 16 2002
Environmental Health

Project: 01-2510

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

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

Dear Mr. Seery:

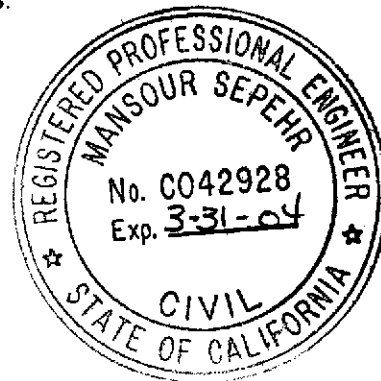
A copy of SOMA's "Third Quarter 2002 Groundwater Monitoring Report" for the subject property is enclosed.

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



Enclosure

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

Third Quarter 2002
Groundwater Monitoring Report
Former Glovatorium Facility

3815 Broadway
Oakland, California

September 10, 2002

Project 01-2511

Prepared for
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Los Angeles, California 90071

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Alameda County

SEP 16 2002

Certification

Environmental Health

This report has been prepared by SOMA Environmental Engineering, Inc. for Smiland & Khachigian, to comply with the Alameda County Department of Environmental Health's requirements for the Third Quarter 2002 groundwater monitoring event and to provide information necessary to defend claims brought against the owners by Earl Thompson and Grace Johnson.



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

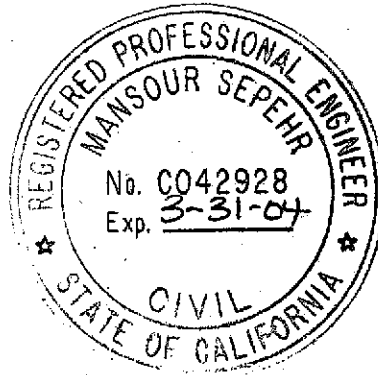


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1.0 INTRODUCTION

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) for the Law Offices of Smiland and Khachigian on behalf of their client, the owners of the former Glovatorium. The property, the former Glovatorium, is located at 3815 Broadway Avenue, Oakland, California (the "Site"), as illustrated 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 2002 groundwater monitoring event conducted at the Site on July 17 and 18, 2002 by SOMA, 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 EPA modified 8015;
- Volatile organic compounds (VOCs) using EPA Method 8260B;
- Benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX) and methyl tertiary butyl ether (MtBE) using EPA Method 8021B.

During this groundwater monitoring event the newly installed groundwater monitoring wells SOMA-1 through SOMA-4 were sampled for the fourth time and analyzed for the above constituents. However, monitoring wells B-7 and B-10 were not sampled.

In addition to the above laboratory analyses, 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 the groundwater were 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 the environmental contamination, and thus whether contamination is affecting the neighboring Thompson property. This information is needed to defend against the claim 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 in 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). Figure 2 shows the location of the storm drain and sanitary sewer system.

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 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 four 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. TOSCO Marketing Company (TOSCO) 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 the VOCs and Stoddard solvent is believed to be the former USTs, which were used to store Stoddard solvent and VOCs at the Site. There also has been testimony in the on-going litigation concerning the Site that there were releases from the piping on the washer system and from washing the floors with Stoddard solvent. This report includes both the results of the historical groundwater monitoring events and the results of the Third Quarter 2002 groundwater monitoring event.

1.2 Background

The following is a brief description of previous Site investigations conducted by other 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 approximate depths 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. After collecting grab groundwater samples from the temporary "E" sampling points, they were abandoned and grouted.

In July 1999, based on the request of the 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 Geosolv, 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, downgradient, 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 temporary sampling points installed by LFR and Geosolv, and from off-site monitoring wells MW-8, MW-9, and MW-11 owned by TOSCO. However, 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 the subsurface.

The Third Quarter 2001 groundwater monitoring event was conducted by SOMA on July 26 and 27, 2001. During this monitoring event ten groundwater monitoring wells were sampled and depths to groundwater were measured in 20 groundwater monitoring wells and temporary sampling points. To better evaluate the bioattenuation parameters including DO, SOMA recommended replacing the existing small diameter monitoring wells B-7 and B-10 with larger diameter wells as proposed in the SOMA June 15, 2001 Workplan.

After receiving approval of the workplan on August 27, 2001, on October 4, 11 and 12, 2001 SOMA installed five groundwater monitoring wells, SOMA-1 through SOMA-5, at the Site. During the installation of the groundwater monitoring wells, boreholes were continuously logged and soil samples were collected at 5-foot depth intervals. The objective of this investigation was to delineate the vertical extent of soil and groundwater contamination and install larger diameter monitoring wells at the suspected chemical source areas in order to collect more reliable bioattenuation parameters (i. e., DO) in the groundwater.

The Fourth Quarter 2001 groundwater monitoring event was conducted by SOMA on October 18 and 19, 2001. During this monitoring event eleven groundwater monitoring wells were sampled and depths to groundwater were measured in 20 groundwater monitoring wells and temporary sampling points.

The First Quarter 2002 groundwater monitoring event was conducted by SOMA on January 30 and 31, 2002. During this monitoring event eleven groundwater monitoring wells were sampled and depths to groundwater and free product were measured in 23 groundwater monitoring wells and temporary sampling points.

The Second Quarter 2002 groundwater monitoring event was conducted by SOMA on April 16 and 17, 2002. During this monitoring event eleven groundwater monitoring wells were sampled and depths to groundwater and free product were measured in 22 groundwater monitoring wells and temporary sampling points.

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's 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.

Based on the October 2001 results of the field investigation conducted by SOMA, no major water-bearing zone at a deeper depth was encountered. However, as the lithological logs of the newly installed groundwater monitoring wells indicate, the water-bearing zone is composed of fine-grained, clayey silt sediments which are separated by very low permeability intervening clay layers, which in some locations are unsaturated. For instance, SOMA-5, which has been screened within a significantly thick clay layer beneath the first water-bearing zone from 21 to 26 feet bgs using the dual tubing method, was a dry well until the First Quarter 2002 sampling event. Due to the presence of unsaturated and low permeability intervening clay layers between the shallow and deep layers, there is a significant vertical downward gradient between the shallow and deep wells.

According to the results of historical groundwater monitoring activities, groundwater occurs at 4 to 14 feet bgs. Based on the current and previous groundwater monitoring reports, groundwater flows from the northeast to the southwest with an approximate groundwater flow gradient of 0.019 ft/ft to 0.035 ft/ft. The results of the slug tests indicated that the hydraulic conductivity of the saturated sediments ranges between 1.2×10^{-4} and 6.9×10^{-4} cm/sec, which is equivalent to 0.34 ft/day to 1.95 ft/day. Using the average groundwater flow gradient of 0.027 and aquifer porosity of 0.32, the groundwater flow velocity ranges between 10.5 and 60.1 ft/year.

2.0 FIELD ACTIVITIES

Field activities were conducted on July 17 and 18, 2002, during which eleven groundwater monitoring wells were sampled and water levels and product thickness were measured in 21 groundwater monitoring wells and temporary

sampling points. Due to the presence of floating product in SOMA-4, this well was not sampled. 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 17, 2002, SOMA's field crew measured the depths to groundwater in the monitoring wells and temporary groundwater sampling points from the top of the casings to the nearest 0.01 feet using an electrical sounder. The depth to groundwater and top of the casing elevation data at each groundwater monitoring well were used to calculate the groundwater elevation.

Groundwater sampling was conducted on July 17 and 18, 2002. 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 (Microseeps) of Pittsburgh, Pennsylvania for methane analyses only. Additionally, the field crew measured certain groundwater parameters such as pH, temperature, EC and turbidity in-situ during the groundwater monitoring event.

2.1 Laboratory Analysis

Curtis & Tompkins, Ltd. 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 including verifying the presence of MtBE.

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 Laboratory. The analyses conducted by the field crew included ferrous iron, total iron, nitrate, nitrite, sulfate, dissolved manganese, ORP and DO.

3.0 Results

This section describes the results of the Third Quarter 2002 groundwater monitoring event. 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 on July 17-18 2002. At each location, depth to watertable and elevation of the top of the casings 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 67.62 feet above msl in SOMA-1 to 77.27 feet above msl in MW-8; the watertable elevations were slightly different than Second Quarter 2002. In evaluating the groundwater flow direction and gradient, water level data from all B wells, GW-4, SOMA-3, SOMA-5, SOMA-1 and SOMA-4 were not utilized for the following reasons:

1. No accurate information about the construction details of the "B" wells installed by Geosolv 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.
3. SOMA-1, SOMA-3 and SOMA-5 have been completed in the deeper zone and due to the strong vertical gradient, the water level elevation in the deeper zone is significantly lower than the shallow water-bearing zone.
4. Due to the presence of a significant amount of free product in SOMA-4, the recorded water level elevation in this well is not representative of the shallow water-bearing zone.

The water level elevation in SOMA-2 closely matches the water level elevation of the other groundwater monitoring well within the source area, therefore, it was used in drawing the water level elevation contour map.

This is the third time that groundwater was encountered in SOMA-5. However, the well could not be sampled due to insufficient groundwater volume. SOMA-5 has been completed within the intervening clay layers below the first water-bearing zone.

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 of the 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 14.19°C to 21.93°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, EC, and DO measurements. Measurements of pH ranged from 5.92 to 6.86 units. The EC measurements ranged from 545 to 1290 $\mu\text{S}/\text{cm}$.

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. The highest concentrations of TPH-g and TPH-ss were found in SOMA-2, SOMA-3, LFR-2, LFR-4 and GW-4. Also, TPH-g was found in six out of eleven groundwater monitoring wells sampled during this monitoring event. TPH-ss was also found in the same six monitoring wells. Historically, the maximum concentrations of TPH-g and TPH-ss occurred in B-7 and B-10. During the current groundwater monitoring event, the detected concentration of TPH-ss and TPH-g in SOMA-2, GW-4 and LFR-2 were comparable with historical concentrations of these chemicals in B-7 and B-10. Figures 4 and 5 show the concentration contour maps of TPH-g and TPH-ss in the groundwater, respectively.

During the current groundwater monitoring event, elevated levels of MtBE were detected in SOMA-3 (380 $\mu\text{g}/\text{L}$) and SOMA-1 (120 $\mu\text{g}/\text{L}$). During the Fourth Quarter 2001 monitoring event, MtBE was detected in SOMA-4 at a

concentration of 650 µg/L. Surprisingly, no MtBE was detected in SOMA-2 (at a detection limit of 63 µg/L), despite its close proximity to SOMA-3. In the past, the maximum concentration of MtBE detected was in LFR-4 at 11 µg/L. Figure 6 shows MtBE concentration contour map in groundwater.

For the third time floating product was reported in SOMA-4. Based on the results of a recent floating product investigation conducted by SOMA, the extent of free product is limited around SOMA-4 and B-8. However, due to high groundwater elevations during the April 2002 investigation a more precise extent of the floating product thickness was not delineated. However, it appears that the bulk of free product is present around SOMA-4. On June 11, 2002, SOMA installed a passive skimmer inside SOMA-4 as an interim measure for removing free product from the groundwater. Since then SOMA has monitored the product thickness inside the surrounding monitoring wells B8, B9, B3 and B2 and has removed over 5 gallons of free product from SOMA-4. Based on the results of our observations, the thickness of the free product in the surrounding wells are increasing. This could be attributed to the lower water level elevations and lack of rainfall events during the recent months. As a result, in a letter dated July 12, 2002, to Mr. Scott Seery of Alameda County Department of Environmental Health (ACDEH) SOMA recommended conducting additional investigation for delineation of the extent of floating product around SOMA-4. To date, the ACDEH has not responded to our recommendation.

Benzene at a maximum concentration of 7 µg/L was detected in LFR-4. Historically, benzene was reported in LFR-4 at a maximum concentration of 53 µg/L. Besides benzene no toluene, ethylbenzene and xylenes were detected during the current groundwater monitoring event. During the previous sampling events, BTEX were sporadically detected at low concentrations in B-7, LFR-2, LFR-4 and MW-11.

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 concentrations of VOCs in the groundwater during this monitoring event. As Table 6 shows, cis-1,2-dichloroethene (cis-1,2-DCE) and PCE were found most frequently. Cis-1,2-DCE was detected at a maximum concentration of 1,600 µg/L in SOMA-2, which is a significant decrease in comparison with the previous event. During the previous monitoring event, cis-1,2-DCE was detected at 2,900 µg/L in this well. However, during the Third Quarter 2001 monitoring event, cis-1,2-DCE was detected at a maximum concentration of 6,600 µg/L in B-10. 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). Bower (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 not found in any of the groundwater monitoring wells during this event. Cis-1,2-DCE was reported in four out of eleven groundwater monitoring wells. Figure 8 shows the distribution of the cis-1,2-DCE concentrations in the groundwater.

PCE and TCE were reported in several groundwater samples. PCE was detected in four out of eleven groundwater monitoring wells, while TCE was found in only one of eleven wells. The maximum reported concentrations of PCE and TCE were 360 and 41 µg/L, respectively, both in well LFR-1. In the previous monitoring event the maximum concentrations of PCE, TCE were also reported in LFR-1. During this monitoring event PCE and TCE concentrations in SOMA-2 were below the detection limit of 63 µg/L. Figures 7 shows the distribution of PCE concentrations in the groundwater.

VC was not detected in any of the wells. 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 the presence of cis-1,2-DCE 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 9th quarterly groundwater 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.

Like the previous monitoring event, most of the bioattenuation parameters were measured in the field. Only dissolved methane was measured in the laboratory. In addition, DO was measured in-situ by the field crew. 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 measured in the field inside the casing without collecting a groundwater sample.

During the degradation process, the indigenous bacteria that exists 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 the biodegradation processes are nitrite, ferrous iron, alkalinity, sulfide, methane, and carbon dioxide. For evaluation of the bioattenuation processes, groundwater samples were collected during the current 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. In our experience 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 recent monitoring events, the DO measurements were conducted in-situ by SOMA's field crew only. Figure 9 presents the DO concentration contour map in the groundwater using in-situ measurements.

For the 4th time, the new wells (SOMA-1 through SOMA-3) were used for DO measurements during this event. Due to the presence of floating product no measurements were made at SOMA-4. It should be noted that due to limitation of the drilling equipment, SOMA-3 still is a ¾ inch diameter well which was installed in the deeper zone within the suspected chemical source area inside the building. Although DO was measured in SOMA-3, the results may not be representative of the subsurface condition due to the small diameter of this well. As the results of field measurements indicate the measured DO in LFR-21 through LFR-3, SOMA-1, and SOMA-2 were non-detectable, which seems to be representative of an anaerobic condition within the chemical source area. Table 9 presents the current and historical DO concentrations in the 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. During this monitoring event non-detectable concentrations of nitrate were detected in a number of wells including the apparent source area wells such as GW-4, LFR-2, SOMA-2 and SOMA-3 and downgradient monitoring wells such as LFR-2 and GW-2 and GW-3. This indicates conditions that are conducive to anaerobic biodegradation. 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 a non-detectable (ND) level in GW-3, LFR-1, MW-11, and SOMA-1, to 13.9 mg/L in LFR-2.

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 ND in the apparent source area location SOMA-2 and first downgradient well GW-4, LFR-2, and LFR-4 and 79 mg/L in MW-11. 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 SOMA-2, SOMA-3, LFR-4, GW-4 and LFR-2 at greater than 3.3 to 7.2 mg/L. The minimum concentrations of

ferrous iron were detected in GW-2 (ND), MW-11 (ND), GW-3 (0.22 mg/L), LFR-1 (0.07 mg/L) LFR-3 (ND) and SOMA-1 (0.05 mg/L). 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 0.0021 mg/L in GW-2 to 9.6 mg/L in LFR-2. The higher concentrations of methane at GW-4 (4.6 mg/L) and at the source area, SOMA-2 (9.4 mg/L) and LFR-2, indicate conditions that are conducive to anaerobic biodegradation. Figure 13 shows the 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 -87 mV in SOMA-2 to +357 mV in MW-11. High values were also found in downgradient locations LFR-1, SOMA-1, GW-3 and LFR-3. The low values were found in the apparent source area (SOMA-2). 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. High alkalinity levels are a result of 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 recent groundwater monitoring events.

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 recent 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 ND (MW-11) to 8.8 mg/L (LFR-2). 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 concentrations were non-detectable in the apparent source area wells such as SOMA-2 and SOMA-3 and downgradient monitoring well LFR-2. The maximum concentration of nitrite was detected in GW-4 and MW-11 at 0.027 and 0.021 mg/L respectively.

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 the 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 17 and 18, 2002 and the results of this work.

Groundwater samples were collected from monitoring wells SOMA-1 through SOMA-3, (SOMA-4 contained floating product and SOMA-5 had insufficient water), LFR-1 through LFR-4 temporary sampling points GW-2, GW-3, GW-4, and from well MW-11. The samples were analyzed for TPH-ss, TPH-g, MtBE, BTEX, and VOCs.

A maximum concentration of PCE at 0.36 mg/L was detected in LFR-1, which is slightly lower than its previous concentration at this well. PCE was also detected in GW-3 at 0.086 mg/L, which is lower than its concentration in this well during the previous monitoring event. PCE was also detected in SOMA-3 and GW-2 at concentrations of 0.027 mg/L and 0.014 mg/L, respectively. The presence of intervening and unsaturated clay layers prevents its movement beyond the sampling depth of SOMA-3. SOMA-3 is a deep monitoring well located adjacent to SOMA-2, where the concentration of PCE was less than 0.063 mg/L. SOMA-3 has been screened from 21 to 26 feet bgs, while SOMA-2 has been screened from 10 to 20 feet bgs. Historically, a maximum concentration of PCE was detected in LFR-1 at 2.8 mg/L during the Third Quarter 2000 groundwater

monitoring event.

This was the 9th 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, and total iron. 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 1.6 mg/L in newly installed monitoring well SOMA-2. Historically, it was detected at 14 mg/L in temporary sampling point B-10 and its presence in the groundwater indicates that reductive dechlorination is likely occurring.

VC was historically detected in wells GW-4 and LFR-2. However, during this current groundwater monitoring event it was not detected in any of the monitoring wells. The presence of VC, a breakdown product of PCE, indicates reductive dechlorination is likely occurring.

Benzene was detected at a maximum concentration of 0.007 mg/L in LFR-4 during the current groundwater monitoring event. Elevated levels of MtBE were detected in new groundwater monitoring wells SOMA-3 and SOMA-1. Since no MtBE was detected in upgradient monitoring well MW-11, the source of the high MtBE concentration in these wells is unknown.

The maximum concentrations of petroleum hydrocarbons were found in groundwater monitoring wells SOMA-2, GW-4 and LFR-2, as shown in Table-5. Table 6 shows the analytical results of groundwater samples analyzed for VOCs.

4.1 Conclusions

Based on the data obtained during the Third Quarter 2002 groundwater monitoring event, our conclusions are as follows:

The farthest downgradient well, LFR-3, contained no detectable concentrations of VOCs, TPH-g, TPH-ss and BTEX.

The data collected to date regarding the distribution of PCE and other VOCs in the 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 the 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 well LFR-1 during the current sampling event indicates that PCE degradation is occurring. The presence of relatively high concentrations of cis-1,2-DCE in SOMA-2 and its presence in other wells such as SOMA-1 and SOMA-3 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 for the first time in Fourth Quarter 2001 monitoring event. 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 the reductive dechlorination processes.

DO concentrations of approximately less than 1.0 mg/L in the groundwater are

indicative of anaerobic biodegradation conditions. During the recent groundwater monitoring event, anaerobic conditions were detected in SOMA-1, SOMA-2, LFR-1, LFR-2, and LFR-3. In the past several monitoring events, results indicated that conditions in the apparent source area were conducive to the anaerobic biodegradation processes. It appears that in-situ DO measurements in the newly installed monitoring wells SOMA-2 and SOMA-4 within the chemical source are more representative of actual anaerobic conditions in this area. This improvement over the previous monitoring event was due to the replacement of B-7 and B-10 with the newly installed monitoring wells SOMA-2, and SOMA-4.

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 ions can be an effective electron acceptor in anaerobic biodegradation processes. Low concentrations of nitrate occurred near the apparent source area in monitoring wells LFR-2, LFR-4, SOMA-1, SOMA-2 and SOMA-3, indicating conditions that are conducive to anaerobic biodegradation.

Increased dissolved manganese concentrations are indicative of reductive dechlorination conditions. Manganese concentrations ranged from ND (MW-11, LFR-1, and GW-3) to 13.9 mg/L (LFR-2).

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 79 mg/L in the MW-11 and ND in GW-4, LFR-2, LFR-4 and SOMA-2, indicating conditions that are conducive to anaerobic biodegradation.

The reducing conditions conducive to the 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 LFR-2,

SOMA-2, SOMA-3 and LFR-4, 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 0.0021 mg/L in GW-2 to 9.6 mg/L in LFR-2 the apparent source area well, 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 value (-87 millivolts) was found in and near the apparent source area (SOMA-2). 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 the ACEHS and RWQCB.
2. Continue quarterly groundwater monitoring in the newly installed monitoring wells SOMA-1 through SOMA-5 (installed in October 2001), LFR-1 through LFR-4, (installed in July 2000), in the upgradient well MW-11, and in selected previously installed temporary sampling points.
3. Continue to evaluate PCE and potential breakdown product concentrations in on- and off-site wells.

4. Conduct additional field investigation for delineation of extent of free product around SOMA-4 and B-8 and continue removing the free product from SOMA-4 on a weekly basis.

5. Once the extent of free product is defined, implement the second phase of SOMA's approved Workplan (dated June 15, 2001) in order to define the Site's regulatory status in the near future. 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 the ACEHS.

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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 (feet)	Top of Casing Elevation (feet)	Total Depth (feet)	Screen Interval Depth (feet)	Screen Interval Elevation (feet)	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	1
B-3	19-Aug-97	82.6	82.57	18	5 to 18	77.6 to 64.6	
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 9	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	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	
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	
GW-8	16-Jul-99	80.28	80.1	20	10 to 20	70.3 to 60.3	
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		81.65	19	9 to 19		
Groundwater Monitoring Wells Installed by SOMA:							
SOMA-1	4-Oct-01	82.31	81.64	40	25 to 40	42.31 to 57.71	
SOMA-2	11-Oct-01	81.62	81.39	20	10 to 20	61.62 to 71.62	
SOMA-3	11-Oct-01	81.65	81.42	30	21 to 26	60.65 to 71.51	
SOMA-4	12-Oct-01	81.51	81.09	20	10 to 20	61.51 to 71.51	
SOMA-5	12-Oct-01	61.68	81.5	26	21 to 26	55.68 to 60.68	

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, July 17-18, 2002
3815 Broadway, Oakland, California

Monitoring Well	Top of Casing Elevation (feet)	Depth to Water (feet)	Water Elevation (feet)	Free Product (feet)
B-2	82.09	8.07	74.02	
B-3	82.57	8.75	73.82	0.85
B-7	76.96	NM	NM	
B-8	81.82	9.45	72.37	0.35
B-9	77.37	8.78	68.59	
B-10	81.50	8.99	72.51	
B-13	84.58	dry	NM	
GW-1	79.94	dry	NM	
GW-2	79.14	10.53	68.61	
GW-3	77.92	10.14	67.78	
GW-4	82.37	9.72	72.65	
GW-5	81.01	12.25	68.76	
GW-6A	81.61	13.66	67.95	
MW-8	87.44	10.17	77.27	
MW-9	86.56	9.44	77.12	
MW-11	84.13	10.23	73.90	
LFR-1	79.97	9.79	70.18	
LFR-2	81.89	10.91	70.98	
LFR-3	77.96	10.29	67.67	
LFR-4	81.65	13.32	68.33	
SOMA-1	81.64	14.02	67.62	
SOMA-2	81.39	8.99	72.40	
SOMA-3	81.42	11.78	69.64	
SOMA-4	81.09	NM	NM	
SOMA-5	81.50	21.97	59.53	

Notes:

dry: Monitoring wells GW-1 and B-13 were dry when measured during this monitoring event.

Trace amounts of free product were detected in temporary wells B-3 and B-8.

* SOMA-4 was not monitored due to the presence of free product.

0.25 gallons of free product were removed from the skimmer in this well.

Table 3
Historical Groundwater Elevation Data
Former Glovatorium Site
3815 Broadway, Oakland, California

Date	B-2	B-3	B-7	B-8	B-9	B-10	B-13
17-Jul-02	74.02	73.82	NM	72.37	68.59	72.51	NM
16-Apr-02	75.16	75.34	69.41	73.54	69.38	73.21	NM
31-Jan-02	77.35 ^(FP)	77.16 ^(FP 0.6)	70.79	75.03 ^(FP 0.6)	70.43	74.14	77.53 ^(FP 0.7)
18-Oct-01	73.26 ^(0.25' FP)	73.24 ^(1' FP)	67.89	69.51 ^(2.1' FP)	67.98	71.96	DRY
26-Jul-01	73.86	73.17	68.69	70.41	68.73	72.61	DRY
26-Apr-01	75.26	74	69.60	73.19	69.8	73.61	
29-Jan-01	74.63	75.06	69.11	74.23	69.33	73.2	
2-Nov-00							
31-Oct-00							
30-Oct-00	74.34	74.84 ^(FP)	69.01	73.32	69.42	73.35	DRY
10-Aug-00							
9-Aug-00	73.9 ^(FP)	74.55 ^(FP)	68.61	72.8 ^(FP)	68.82	72.65	75.23
27-Apr-00	75.41 ^(FP)	75.86 ^(FP)	69.85 ^(FP)	74.14 ^(FP)	69.96	73.7	75.87
25-Jan-00							
24-Jan-00	75.93 ^(FP)	75.83	69.66 ^(FP)	72.84	70.25 ^(FP)	74.15 ^(FP)	
21-Jan-00							76.32
20-Jan-00							
19-Jan-00	73.97 ^(FP)	73.22 ⁽²⁾	68.6 ^(FP)	71.81 ^(FP)	68.91 ^(FP)	73.02 ^(FP)	74.18
27-Aug-99							
18-Feb-98	78.16 ⁽¹⁾	78.04 ⁽¹⁾	71.57 ⁽¹⁾	76.64 ⁽¹⁾	71.44 ⁽¹⁾	75.13 ⁽¹⁾	78.51 ⁽¹⁾
26-Oct-97	72.66 ⁽¹⁾	73.64 ⁽¹⁾	68.09 ⁽¹⁾	71.11 ⁽¹⁾	68.39 ⁽¹⁾	72.26 ⁽¹⁾	73.02 ⁽¹⁾

Table 3
Historical Groundwater Elevation Data
Former Glovatorium Site
3815 Broadway, Oakland, California

Date	GW-1	GW-2	GW-3	GW-4	GW-5	GW-6A	GW-8	MW-8	MW-9	MW-11
17-Jul-02	NM*	68.61	67.78	72.65	68.76	67.95	NM	77.27	77.12	73.90
16-Apr-02	NM	69.76	68.14	74.11	68.68	68.07	NM	77.97	NM	74.98
31-Jan-02	-	69.77	68.28	74.83	68.78	68.06		78.86	79.41	75.48
18-Oct-01	NM	67.91	67.67	74.22	68.41	67.81		76.81	76.46	72.97
26-Jul-01	NM	68.55	67.84	73.85	68.77	68		77.4	77.03	73.73
26-Apr-01	NM	69.41	67.93	74.59	68.43	68.43				74.81
29-Jan-01	71.99	68.62	67.89	74.92	68.61	67.9		78.14	77.95	73.79
2-Nov-00								78.38	78.31	
31-Oct-00										
30-Oct-00		68.45	67.95	74.55	68.64	68.16				73.62
10-Aug-00								77.26	77.14	
9-Aug-00	DRY	69.11	66.54	DRY	68.71	67.88				74.12
27-Apr-00	DRY	70.59	68.16	73.97	68.7	68	71.34	79.15	77.25	75.35
25-Jan-00										73.48
24-Jan-00										
21-Jan-00		68.32		74.33						
20-Jan-00			67.93		68.61		70.42			
19-Jan-00	DRY	68.24	67.86	74.71	68.61	67.63	70.44			
27-Aug-99	DRY	68.46	67.66	NM	68.71	67.71	70.6			
18-Feb-98										
26-Oct-97										

Table 3
Historical Groundwater Elevation Data
Former Glovatorium Site
3815 Broadway, Oakland, California

Date	LFR-1	LFR-2	LFR-3	LFR-4	SOMA-1	SOMA-2	SOMA-3	SOMA-4	SOMA-5
17-Jul-02	70.18	70.98	67.67	68.33	67.62	72.40	69.64	NM	59.53
16-Apr-02	70.36	71.71	67.60	69.27	68.85	73.06	70.90	68.56	59.48
31-Jan-02	70.56	71.92	67.72	NM	69.36	73.98	71.46	69.79 ^(FP 2.5)	57.38
18-Oct-01	70.04	70.53	66.09	67.74	67.89	71.86	68.32	69.77	NM
26-Jul-01	70.16	70.92	66.56	68.33					
26-Apr-01	70.23	71.9	67.62	68.87					
29-Jan-01	70.44	72.04	66.96	67.92					
2-Nov-00									
31-Oct-00				68.14					
30-Oct-00	70.22	71.62	66.99						
10-Aug-00									
9-Aug-00	70.16	69.99	66.76	68.39					
27-Apr-00									
25-Jan-00									
24-Jan-00									
21-Jan-00									
20-Jan-00									
19-Jan-00									
27-Aug-99									
18-Feb-98									
26-Oct-97									

Notes:

1= Survey elevation and water-level measurement taken at concrete surface. Elevations and water levels without a "1" were measured from top of casing.

2= Top of the casing was re-surveyed because it was broken.

NM: not measured

FP= Floating product or sheen was observed.

* Monitoring well GW-1 was dry

Table 4
Historical Analytical Results and Field Measurements for
Dissolved Anions, Cations, Methane Gas, 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	Total Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (uS/cm)
Temporary Sampling Points installed by Geosoly, LLC												
B-7	11-Aug-00	760	39	202		-1		<0.0005	<0.0005	6.86	17.55	1279
B-7 field	11-Aug-00											
B-7	31-Oct-00	760	42	200	14.00	<0.1	0.049					
B-7 field	31-Oct-00				17.22	-1	<2.0			6.16	16.05	1454
B-7	31-Jan-00	720	43	170	12.00	<0.1	<2.0					
B-7 field	31-Jan-00									6.79	13.90	1424
B-7	26-Apr-01				>3.3	0.243				6.59	16.30	1340
B-7	26-Jul-01				15.30	0.024				6.39	15.97	1400
B-10 field	10-Aug-00					0.023	0.060					
B-10	31-Oct-00	500	76	120	6.60	<0.1	<2.0					
B-10	31-Oct-00				8.35	0.001	0.004			6.21	16.62	1051
B-10	31-Jan-01	480	81	72	6.10	<0.1	<2.0					
B-10	31-Jan-01				1.44	0.073				6.81	14.66	1117
B-10	11-Jun-01				1.31					6.65	16.70	1090
B-10	26-Jul-01				6.50	0				6.38	16.09	1160
B-10	10-Aug-01	520	74	145	6.00	<0.05	<0.04	<0.0005	0.00057	6.86	16.80	1130

Table 4
Historical Analytical Results and Field Measurements for
Dissolved Anions, Cations, Methane Gas, 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	Total Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (uS/cm)
Temporary Sampling Points Installed by LFR												
GW-2	01-Nov-00			63						6.31	18.97	1218
GW-2	30-Jan-01									6.82	13.75	846
GW-2 field	31-Jan-01									6.80	19.50	874
GW-2	26-Apr-01				0.02					6.74	20.30	803
GW-2	26-Jul-01				0.03	0.024				6.84	21.30	786
GW-2	19-Oct-01	NM	NM	NM	NM	NM	NM	NM	NM	6.70	17.70	797
GW-2	31-Jan-02	NM	NM	NM	1.05	0.013	NM	NM	NM	6.38	17.00	707
GW-2	16,17-Apr-02	NM	NM	NM	0.65	0.024	NM	NM	NM	6.35	17.75	798
GW-2	17,18-Jul-02	NM	NM	NM	1.39	0.000	NM	NM	NM			
GW-3	11-Aug-00	340	25	54.3				<0.0005	<0.0005	7.05	21.43	860
GW-3 field	11-Aug-00					0.046	-1			6.52	18.83	967
GW-3 field	1-Nov-00											
GW-3	1-Feb-01			54						6.89	17.29	602
GW-3 field	29-Jan-01									5.68	16.20	873
GW-3	11-Jun-01				0	0.700				6.53	22.25	547
GW-3	28-Jul-01				0.14	0.004				6.84	22.56	590
GW-3	19-Oct-01	NM	NM	NM	0	NM	NM	NM	NM	6.70	18.40	593
GW-3	31-Jan-02	NM	NM	NM	0.14	0.014	NM	NM	NM	6.64	16.61	526
GW-3	16,17-Apr-02	NM	NM	NM	0.001	0	NM	NM	NM	6.32	17.10	545
GW-3	17,18-Jul-02	NM	NM	NM	1.08	0.008	NM	NM	NM			
GW-4	30-Jan-01									6.60	13.48	479
GW-4	26-Jul-01				2.00	0.035				6.45	19.44	827
GW-4	19-Oct-01	NM	NM	NM	11.00	NM	NM	NM	NM	6.79	18.36	732
GW-4	31-Jan-02	NM	NM	NM	12.70	0.010	NM	NM	NM	6.50	12.00	414
GW-4	16,17-Apr-02	NM	NM	NM	6.40	0.033	NM	NM	NM	6.34	13.98	467
GW-4	17,18-Jul-02	NM	NM	NM	>3.3	0.027	NM	NM	NM	6.49	21.93	572
Monitoring Wells Owned by TOSCO												
MW-11	10-Aug-00	360	110	216	0.13	<0.05	<0.04	<0.0005	<0.0005	6.47	21.00	1,089
MW-11 field	10-Aug-00					0.036	0.002					
MW-11	1-Nov-00	300	120	190	<0.05	<0.1	<2.0					
MW-11 field	1-Nov-00				0.01	0.003	-1			5.83	20.13	1,264
MW-11	31-Jan-01	330	130	150	<0.05	<0.1	<2.0					
MW-11 field	31-Jan-01									6.35	13.67	1,098
MW-11	26-Apr-01				0.01					5.67	18.00	1,210
MW-11	26-Jul-01				0	0.021				6.02	19.85	1,120
MW-11	19-Oct-01	NM	NM	NM	0	NM	NM	NM	NM	6.41	21.25	130
MW-11	31-Jan-02	NM	NM	NM	0.05	0.036	NM	NM	NM	6.60	18.50	1,090
MW-11	16,17-Apr-02	NM	NM	NM	0.00	0.000	NM	NM	NM	5.87	18.70	1,150
MW-11	17,18-Jul-02	NM	NM	NM	0.00	0.021	NM	NM	NM	6.27	19.37	1,180

Table 4
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Dissolved Anions, Cations, Methane Gas, 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	Total Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (uS/cm)
Monitoring Wells installed by LFR												
LFR-1	11-Aug-00	250	110					<0.0005	<0.0005	6.97	19.73	936
LFR-1 field	09-Aug-00			51.1		0.020	-1					
LFR-1	30-Oct-00	240	100	25	<0.05	<0.1	<2					
LFR-1 field/sp	30-Oct-00				0.01/0.01	0.031/0.036	0.001/0.001			6.38	17.94	697
LFR-1-spl	30-Oct-00	220	100	40	<0.05	<0.1	<2					
LFR-1	29-Jan-01	150	76	28	<0.05	<0.1	<2					
LFR-1 field	29-Jan-01				0	0.037				6.82	15.00	870
LFR-1 Dup	29-Jan-01	150	75	26	<0.05	<0.1	<2					
LFR-1	26-Apr-01				0.004					5.76	16.80	980
LFR-1	26-Jul-01				0.05	0.008				6.48	19.38	772
LFR-1	26-Jul-01	NM	NM	NM	0.42	NM	NM	NM	NM	6.73	20.83	561
LFR-1	31-Jan-02	NM	NM	NM	0.03	0.011	NM	NM	NM	6.50	16.50	879
LFR-1	16,17-Apr-02	NM	NM	NM	0.75	0.023	NM	NM	NM	5.88	16.37	1120
LFR-1	17,18-Jul-02	NM	NM	NM	0.22	0.006	NM	NM	NM	6.40	17.02	832
LFR-2	11-Aug-00	590	33	174				<0.0005	0.0017	6.52	19.87	1088
LFR-2 field	11-Aug-00				2.95	-1	0.005					
LFR-2	02-Nov-00	550	40	180	6.20	<0.1	<2					
LFR-2 field	02-Nov-00				7.45	0.007	0.003			6.19	19.67	1306
LFR-2	30-Jan-01	480	21	130	4.60	<0.1	<2					
LFR-2 field	30-Jan-01				1.04	0.007				6.60	12.73	945
LFR-2	27-Apr-01				2.97					5.84	16.40	921
LFR-2	26-Jul-01				4.60	0.011				6.31	18.66	970
LFR-2	18-Oct-01	NM	NM	NM	8.20	NM	NM	NM	NM	6.78	19.56	109
LFR-2	31-Jan-02	NM	NM	NM	1.97	0.046	NM	NM	NM	6.5	16.60	644
LFR-2	16,17-Apr-02	NM	NM	NM	7.60	0.063	NM	NM	NM	6.19	16.43	845
LFR-2	17,18-Jul-02	NM	NM	NM	8.80	0.000	NM	NM	NM	6.52	16.24	986
LFR-3	10-Aug-00	310	85	162	<0.1	0.150	0.040	<0.0005	<0.0005	6.57	19.92	951
LFR-3 split	10-Aug-00	300	85	152				<0.0005	<0.0005			
LFR-3 field	10-Aug-00					0.058	-1					
LFR-3	01-Nov-00	350	66	160	<0.05	<0.1	<2					
LFR-3 field	01-Nov-00				0.01	0.011	0.002			6.16	17.71	1164
LFR-3	30-Jan-01	250	31	71	<0.05	<0.1	<2					
LFR-3 field	30-Jan-01				0.03					6.64	17.29	541
LFR-3	11-Jun-01				0.01					5.43	18.00	613
LFR-3	26-Jul-01				0.70	0.027				6.25	20.50	602
LFR-3	18-Oct-01	NM	NM	NM	0.12	NM	NM	NM	NM	6.50	21.39	645
LFR-3	31-Jan-02	NM	NM	NM	0.06	0.024	NM	NM	NM	6.30	19.10	566
LFR-3	16,17-Apr-02	NM	NM	NM	1.20	0.041	NM	NM	NM	5.78	18.88	566
LFR-3	17,18-Jul-02	NM	NM	NM	0.08	0.010	NM	NM	NM	6.17	18.42	585
LFR-4	11-Aug-00	630	71	161				<0.0005	<0.0005	6.90	20.11	1240
LFR-4 field	11-Aug-00				0.22	0.018	0.002					
LFR-4	31-Oct-00	490	28	130	1.00	<0.1	<2					
LFR-4 field	31-Oct-00				0.67	0.022	0			6.21	18.11	830
B-10 FB	10-Aug-00							<0.0005	<0.0005			
LFR-4	01-Feb-01	460	25	120	1.30	<0.1	<2					
LFR-4 field	01-Feb-01				1.43	0.017				6.55	15.28	916
LFR-4	27-Apr-01				1.44					5.79	18.30	1060
LFR-4	26-Jul-01				0.95	0				6.26	19.23	866
LFR-4	16,17-Apr-02	NM	NM	NM	5.1	0.027	NM	NM	NM	6.19	18.04	925
LFR-4	17,18-Jul-02	NM	NM	NM	>3.3	0.008	NM	NM	NM	5.92	17.28	878

Table 4
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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	Total Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (uS/cm)
Monitoring Wells Installed by SOMA												
SOMA-1	19-Oct-01	NM	NM	NM	0.75	NM	NM	NM	NM	6.77	18.15	146
SOMA-1	31-Jan-02	NM	NM	NM	0	0	NM	NM	NM	6.70	17.50	1160
SOMA-1	16,17-Apr-02	NM	NM	NM	0.17	0.032	NM	NM	NM	6.01	17.98	1280
SOMA-1	17,18-Jul-02	NM	NM	NM	0.11	0.013	NM	NM	NM	6.52	16.21	1270
SOMA-2	19-Oct-01	NM	NM	NM	44.00	NM	NM	NM	NM	6.87	16.93	122
SOMA-2	31-Jan-02	NM	NM	NM	10.50	0.344	NM	NM	NM	6.90	15.20	1140
SOMA-2	16,17-Apr-02	NM	NM	NM	6.70	0.009	NM	NM	NM	6.30	15.25	1170
SOMA-2	17,18-Jul-02	NM	NM	NM	>3.3	0.060	NM	NM	NM	6.86	14.19	1170
SOMA-3	19-Oct-01	NM	NM	NM	0.40	NM	NM	NM	NM	6.91	17.09	158
SOMA-3	31-Jan-02	NM	NM	NM	0.78	0.375	NM	NM	NM	6.50	14.90	1320
SOMA-3	16,17-Apr-02	NM	NM	NM	1.03	0	NM	NM	NM	6.23	15.83	1260
SOMA-3	17,18-Jul-02	NM	NM	NM	>3.3	0.060	NM	NM	NM	6.77	15.03	1290
SOMA-4	Oct-19-01	NM	NM	NM	0.26	NM	NM	NM	NM	6.53	16.88	145

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.
since April 2001, field measurements have been performed using a Hach Colorimeter
NM= not measured

Table 5
Analytical Results of Groundwater Samples Analyzed for Petroleum Hydrocarbons
July 17-18, 2002
Former Glovatorium Site
3815 Broadway, Oakland, California

Well	Stoddard Solvent C7-C12 (ug/L)	Gasoline C7-C12 (ug/L)	MTBE ¹ (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW-2	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
GW-3	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	970	1700 H Y	<5.0	<5.0	<5.0	<5.0	<5.0
MW-11	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
LFR-1	84 Y Z	140 Y Z	<13	<13	<13	<13	<13
LFR-2	970	1700 H Y	<5.0	<5.0	<5.0	<5.0	<5.0
LFR-3	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
LFR-4	210 Y	360 Y	7.5	7.0	<5.0	<5.0	<5.0
SOMA-1	<50	<50	120	<5.0	<5.0	<5.0	<5.0
SOMA-2	2,600	4400 H Y	<63	<63	<63	<63	<63
SOMA-3	410	690 H Y	380	<17	<17	<17	<17
SOMA-4	FP	FP	FP	FP	FP	FP	FP

< : not detected above the laboratory reporting limits

¹ MTBE confirmed by EPA 8260B.

c Presence confirmed, but confirmation concentration differed by more than a factor of two.

H Heavier hydrocarbons contributed to the quantitation.

L Lighter hydrocarbons contributed to the quantitation.

Y Sample exhibits fuel pattern which does not resemble standard.

Z Sample exhibits unknown single peak or peaks.

FP: Free product was observed in the well, and no analysis was performed on sample.

Table 6**Analytical Results of Groundwater Samples Analyzed for Volatile Organic Compounds**

July 17-18, 2002

Former Glovatorium Site

3815 Broadway, Oakland, California

Sample ID	Tetra Chloro ethene (ug/L)	Trichloro ethene (ug/L)	cis-1,2 Dichloro ethene (ug/L)	trans-1,2 Dichloro ethene (ug/L)	Vinyl Chloride (ug/L)	1,2 Dichloro propane (ug/L)	1,1-Dichloro ethene (ug/L)
GW-2	14	<5.0	<5.0	<5.0	<10	<5.0	<5.0
GW-3	86	<5.0	<5.0	<5.0	<10	<5.0	<5.0
GW-4	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0
MW-11	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0
LFR-1	360	41	<13	<13	<25	<13	<13
LFR-2	<5.0	<5.0	12	<5.0	<10	<5.0	<5.0
LFR-3	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0
LFR-4	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0
SOMA-1	<5.0	<5.0	16	<5.0	<10	<5.0	<5.0
SOMA-2	<63	<63	1,600	<63	<130	<63	<63
SOMA-3	27	<17	440	<17	<33	<17	<17
SOMA-4	FP	FP	FP	FP	FP	FP	FP

FP: Free Product observed in well SOMA-4

< : not detected above laboratory reporting limits

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

Location	Date Sampled	TPH, Purgable Stoddard	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Total Xylenes
Jan 24, 2000 Samples								
B-2	24-Jan-00	20 ^J	31 ^{YJ}	<0.05	<0.013	<0.013	0.11 ^C	0.22 ^C
B-3	24-Jan-00	4.9 ^J	8.8 ^{YJ}	<0.01	0.0048	<0.0025	<0.0025	0.0714
B-7	27-Jul-01	2.5	5.2 ^{HY}	0.0057	0.0070	0.051	0.0082	0.0740
B-7	31-Jan-01	5.3	7.9	0.0100	0.0089	0.059	0.0097	0.0870
B-7	26-Apr-01	4.5	8.9 ^H	0.0069	0.0110	0.071	0.077 ^C	0.2080
B-7	31-Oct-00	62 ^J	98 ^{YHJ}	0.01 ^J	0.0091 ^J	0.061 ^J	<0.0005	0.237 ^J
B-7	11-Aug-00	3.7 ^J	6.8 ^{YHJ}	0.0200	0.0077 ^J	0.047 ^J	<0.007 ^J	0.065 ^{CJ}
B-7	24-Jan-00	19	30 ^J	<0.05	<0.013	0.062	<0.013	0.2070
B-8	24-Jan-00	11 ^J	19 ^{YJ}	<0.01	<0.0025	<0.0025	<0.0025	0.17 ^C
B-9	24-Jan-00	1 ^{YJ}	1.8 ^{YHJ}	<0.002	<0.0005	<0.0005	0.01 ^C	0.0089 ^C
B-10	27-Jul-01	1.7	3.6 ^H	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
B-10	31-Jan-01	2.4 ^Z	3.6 ^{HVZ}	<0.002	0.0031	0.010	0.00076 ^C	0.0197
B-10	26-Apr-01	2.4 ^Z	4.7 ^Z	0.0025	0.0041	0.013	ND	0.0290
B-10	31-Oct-00	2.2 ^{YZ}	3.5 ^Z	<0.002	0.0038	0.011	<0.0005	0.0182
B-10	10-Aug-00	2.8 ^Y	6.1 ^Y	0.1600	0.0073	0.012	<0.005	0.0241
B-10	24-Jan-00	2.4 ^Y	4.2	0.0140 ^C	0.0072	0.027	0.025 ^C	0.0320
B-13	24-Jan-00	1.7 ^J	3 ^{YJ}	<0.01	<0.0025	<0.0025	<0.0025	0.0200
Jan 16, 2002 Samples								
GW-2	19-Jul-99	<0.05	<0.05	0.0025	<0.0005	0.00071	<0.0005	0.00074
GW-2	20-Jan-00	0.15	0.25 ^Y	0.0044	<0.0005	<0.0005	0.00097 ^C	0.0013
GW-2	28-Apr-00	<0.05	0.095 ^{YZ}	<0.0021	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	2-Nov-00	<0.05	<0.05	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	1-Feb-01	<0.05	ND	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	27-Apr-01	<0.05	0.066 ^{YZ}	0.0022	<0.0005	0.0240	<0.0005	<0.0005
GW-2	27-Jul-01	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	19-Oct-01	<0.05	<0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
GW2	31-Jan-02	<0.05	<0.050	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b
GW-2	16,17-Apr-02	<0.05	<0.05	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	17,18-Jul-02	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Jan 17, 2002 Samples								
GW-3	19-Jul-99	0.070 ^Z	0.100 ^Z	<0.0020	<0.0005	<0.0005	<0.0005	0.00064
GW-3	20-Jan-00	0.150	0.260 ^Y	<0.0020	<0.0005	<0.0005	<0.0005	0.00130 ^C
GW-3	27-Apr-00	0.200 ^{YZ}	0.360 ^{YZ}	<0.0020	<0.0005	<0.0005	<0.0005	<0.00050
Split	27-Apr-00	0.300 ^Z	0.570 ^{YZ}	<0.0020	<0.0005	<0.0005	<0.0005	<0.00050
GW-3	11-Aug-00	<0.050	0.077 ^{YZ}	<0.0020	<0.0005	<0.0005	<0.0005	0.00051
GW-3	2-Nov-00	<0.050	0.050 ^{YZ}	0.0026	<0.0005	<0.0005	<0.0005	<0.00050
GW-3	1-Feb-01	<0.050	<0.050	<0.0020	<0.0005	<0.0005	<0.0005	<0.00050
GW-3	27-Apr-01	<0.050	0.062 ^{YZ}	0.0056	<0.0005	<0.0005	<0.0005	<0.00050
GW-3	27-Jul-01	<0.050	<0.050	0.0008	<0.0005	<0.0005	<0.0005	<0.00050
GW-3	19-Oct-01	0.054	0.11	<0.0100	<0.0100	<0.0100	<0.0100	<0.02000
GW-3	31-Jan-02	<0.050	0.070 ^{YZ}	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.00500 ^b
GW-3	16,17-Apr-02	<0.050	0.055 ^{YZ}	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	17,18-Jul-02	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005

Table 7
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in Groundwater Samples
Former Glovatorium Site
3815 Broadway, Oakland, California
All results are expressed in milligrams per liter (mg/L)

Location	Date Sampled	TPH, Purgable Stoddard	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Total Xylenes
GW-4	21-Jul-99	6.80 ^J	10 ^{YHJ}	0.0022	<0.0005	<0.0005	<0.0005	0.0029 ^J
GW-4	20-Jan-00	0.97 ^J	1.60 ^{YJ}	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00	0.85 ^J	1.50 ^{YJ}	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	27-Apr-00	0.31	0.60 ^Y	<0.0020	<0.0005	<0.0005	<0.0005	0.0027
GW-4	30-Jan-01	0.39	0.58 ^{HY}	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	27-Jul-01	0.42	0.86 ^{HY}	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	19-Oct-01	0.83	1.60	<0.0050	<0.0050	<0.0050	<0.0050	<0.0100
GW-4	31-Jan-02	0.92	1.70 ^{HY}	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b
GW-4	16,17-Apr-02	0.40	0.67 ^{HY}	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	17,18-Jul-02	0.97	1.7 ^{HY}	<0.005	<0.005	<0.005	<0.005	<0.005
GW-5	27-Aug-99	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001
GW-5	20-Jan-00	<0.05	0.057 ^Y	0.0007	<0.0005	<0.0005	<0.0005	<0.0005
GW-5	27-Apr-00	0.05 ^Y	0.096 ^Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Aug-99	<0.05	0.054 ^Y	0.0089	<0.0005	<0.0005	<0.0005	<0.0005
Split	27-Aug-99	<0.05	0.057 ^Y	0.0087	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	25-Jan-00	<0.05	<0.05	0.0022	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Apr-00	<0.05	0.087 ^Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-7	15-Jul-99	NA	NA	<0.0025	0.05 ^J	<0.0005	0.000727	0.00313 ^J
Split	15-Jul-99	NA	NA	NA	NA	NA	NA	NA
GW-7	15-Jul-99	NA	NA	NA	0.0567 ^J	<0.002	<0.002	<0.002
Split	15-Jul-99	NA	NA	NA	0.0755 ^J	<0.002	<0.002	<0.002
GW-8	19-Jul-99	<0.05	<0.05	0.0078	<0.0005	0.00064	<0.0005	0.00151
GW-8	20-Jan-00	0.19	0.33 ^Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00	0.20	0.37 ^Y	<0.002	0.00058	<0.0005	<0.0005	<0.0005
GW-8	28-Apr-00	0.084 ^{YZ}	0.12 ^{YZ}	0.013	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	25-Jan-00	<0.050	<0.05	0.0090	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	28-Apr-00	<0.050	<0.05	<0.0087	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	10-Aug-00	<0.050	<0.05	0.0110	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	1-Nov-00	<0.050	<0.05	0.0068	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	31-Jan-01	<0.050	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	Jul-27-01	<0.050	0.10 ^{HY}	0.0010	<0.0005	<0.0005	<0.0005	0.0007
MW-11	Oct-19-01	<0.050	<0.05	<0.0050	<0.0050	<0.005	<0.005	<0.010
MW-11	Jan-31-02	<0.050	0.071 ^Y	<0.0050 ^b	<0.0050 ^b	<0.005 ^b	<0.005 ^b	<0.005 ^b
MW-11	Apr-16-17-02	<0.050	<0.050	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	17,18-Jul-02	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
LFR-1	9-Aug-00	0.53	1.2	0.0095	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	30-Oct-00	0.24 ^{YZ}	0.37 ^{YZ}	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	30-Oct-00	0.24 ^{YZ}	0.37 ^{YZ}	0.0043	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	29-Jan-01	0.21 ^{YZ}	0.31 ^{YZ}	0.0033	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	Apr-26-01	0.092	0.18 ^{YZ}	0.0044	<0.0005	0.002	<0.0005	<0.0005
LFR-1	Jul-27-01	0.086	0.18 ^{YZ}	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013
LFR-1	Oct-18-01	0.19	0.38	<0.031	<0.031	<0.031	<0.031	<0.062
LFR-1	Jan-31-02	0.15 ^{YZ}	0.27 ^{YZ}	<0.013 ^b	<0.013 ^b	<0.013 ^b	<0.013 ^b	<0.013 ^b
LFR-1	Apr-16-17-02	0.10 ^{YZ}	0.17 ^{YZ}	<0.013	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	17,18-Jul-02	0.084 ^{YZ}	0.14 ^{YZ}	<0.013	<0.013	<0.013	<0.013	<0.013

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

Location	Date Sampled	TPH, Purgable Stoddard	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Total Xylenes
LFR-2	11-Aug-00	0.59	1.10 ^{YH}	0.0022	0.0018	<0.0005	<0.0005	0.0013 ^C
LFR-2	2-Nov-00	0.38	0.70 ^{YH}	0.003	0.0035	0.0011	0.0042	0.01184 ^C
LFR-2	30-Jan-01	0.36	0.54 ^{HY}	0.0034	0.00057	<0.0005	<0.0005	<0.0005
LFR-2	Apr-27-01	0.33	0.66 ^{HY}	<0.002	<0.0005	0.0013	<0.0005	<0.0005
LFR-2-2	Apr-27-01	0.36	0.72 ^{HY}	<0.002	0.00059	0.0019	<0.0005	0.013
LFR-2	Jul-27-01	0.33	0.76 ^{HY}	<0.0005	0.0013	<0.0005	<0.0005	0.0006
LFR-2	Oct-18-01	0.73	1.50	<0.0071	<0.0071	<0.0071	<0.0071	<0.0142
LFR-2	Jan-31-02	0.76	1.40 ^{HY}	<0.005 ^b	<0.005 ^b	<0.005 ^b	<0.005 ^b	<0.005 ^b
LFR-2	Apr-16-17-02	1.10	1.90 ^{HY}	<0.002	<0.0005	<0.0005	<0.0005	0.019 ^C
LFR-2	17,18-Jul-02	0.97	1.7 ^{HY}	<0.005	<0.005	<0.005	<0.005	<0.005
LFR-3	10-Aug-00	<0.05	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	10-Aug-00	<0.05	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	1-Nov-00	<0.05	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	30-Jan-01	<0.05	<0.05	0.0036	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	Apr-27-01	<0.05	<0.05	0.0024	<0.0005	0.0054	<0.0005	<0.0005
LFR-3	Jul-27-01	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	Oct-18-01	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.01
LFR-3	Jan-31-02	<0.05	0.067 ^Y	<0.005 ^b	<0.005 ^b	<0.005 ^b	<0.005 ^b	<0.005 ^b
LFR-3	Apr-16-17-02	<0.05	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	17,18-Jul-02	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
LFR-4	11-Aug-00	0.22 ^Y	0.41 ^Y	0.0051	0.01100	<0.0005	<0.0005	0.00162 ^C
LFR-4	31-Oct-00	0.17 ^Y	0.27	0.0065	0.00084	<0.0005	<0.0005	<0.0005
LFR-4	1-Feb-01	0.16 ^Y	0.22	0.0097	0.00330	<0.0005	<0.0005	<0.0005
LFR-4	Apr-27-01	0.22 ^Y	0.44	0.0058	0.02700	0.0036	<0.0005	<0.0005
LFR-4	Jul-27-01	0.091 ^Y	0.19	0.011	0.00090	<0.0005	<0.0005	<0.0005
LFR-4	Jan-31-02	NA	NA	NA	NA	NA	NA	NA
LFR-4	Apr-16-17-02	0.40 ^Y	0.67	<0.005	0.05300	<0.0005	<0.0005	<0.0005
LFR-4	17,18-Jul-02	0.21 ^Y	0.36 ^Y	0.0075	0.007	<0.005	<0.005	<0.005

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

Location	Date Sampled	TPH, Purgable Stoddard	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Total Xylenes
SOMA-1								
SOMA-1	Oct-19-01	0.22	0.440	0.034	<0.0050	<0.0050	<0.0050	<0.0100
SOMA-1	Jan-31-02	0.058	0.100 ^{HY}	0.110 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b
SOMA-1	Apr-16-17-02	<0.050	0.052 ^Y	0.120	0.0008	<0.0005	<0.0005	<0.0005
SOMA-1	Jul-17-18-02	<0.05	<0.05	0.120	<0.005	<0.005	<0.005	<0.005
SOMA-2								
SOMA-2	Oct-19-01	1.4	2.8	<0.250	<0.2500	<0.250	<0.250	<0.500
SOMA-2	Jan-31-02	1.3	2.4 ^{HY}	<0.071 ^b	<0.0710 ^b	<0.071 ^b	<0.071 ^b	<0.071 ^b
SOMA-2	Apr-16-17-02	1.3 ^L	2.2 ^H	< 0.130	0.0067	0.046	0.012	0.044
SOMA-2	17,18-Jul-02	2.6	4.4 ^{HY}	<0.063	<0.063	<0.063	<0.063	<0.063
SOMA-3								
SOMA-3	Oct-19-01	0.420	0.83	0.65	<0.02500	<0.02500	<0.0250	<0.0500
SOMA-3	Jan-31-02	0.230	0.41 ^{HY}	0.31 ^b	<0.01300 ^b	<0.01300 ^b	<0.0130 ^b	<0.0130 ^b
SOMA-3	Apr-16-17-02	0.610	1.00 ^{HY}	0.42	0.00078	0.00068	<0.0005	<0.0005
SOMA-3	17,18-Jul-02	0.41	0.69 ^{HY}	0.38	<0.017	<0.017	<0.017	<0.017
SOMA-4								
SOMA-4	Oct-19-01	2.5	5	0.63	<0.13	<0.13	<0.13	<0.26
SOMA-4	Jan-31-02	FP	FP	FP	FP	FP	FP	FP
SOMA-4	Apr-16-17-02	FP	FP	FP	FP	FP	FP	FP
SOMA-4	17,18-Jul-02	FP	FP	FP	FP	FP	FP	FP

Notes:

- ^b Analysis was carried out in past the hold date, no analytical problems were encountered
 - ^c Presence of this compound confirmed by second column, however, the confirmation concentration different from reported results by more than a factor of two.
 - ^H Heavier hydrocarbons than the standard are present in the sample.
 - ^J Result is estimated.
 - ^L Lighter hydrocarbons contributed to the quantitation
 - ^Y Sample exhibits fuel pattern which does not resemble standard.
 - ^Z Sample exhibits unknown single peak or peaks.
- FP: Free product detected in SOMA 4.
 NA = Not analyzed, LFR-4 was not analyzed during the Second Quarter 2002 due to the well being inaccessible.
 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 in
Groundwater Samples
at the Former Glovatorium Site
3815 Broadway, Oakland, California
All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-DCP	Notes
Temporary Sampling Points Installed by GRS								
B-2	24-Jan-00	<0.0013	<0.0013	0.27	0.0014	<0.0013	<0.0013	
B-3	24-Jan-00	<0.0020	<0.002	0.61	<0.002	<0.002	<0.002	
B-7	27-Jul-01	0.0098	0.017	0.86	0.005	<0.0031	<0.0031	
B-7	27-Apr-01	<0.0031	<0.0031	1.1	0.0069	<0.0031	<0.0031	
B-7	31-Jan-01	<0.0042	<0.0042	0.92	0.0048	<0.0042	<0.0042	
B-7	31-Oct-00	<0.0042	<0.0042	0.91	0.0042	<0.0042	<0.0042	
B-7	11-Aug-00	<0.0031	<0.0031	0.86	0.0048	<0.0031	<0.0031	
B-7	24-Jan-00	<0.0036	<0.0036	0.92	0.0043	<0.0036	<0.0036	
B-8	24-Jan-00	<0.0005	<0.0005	0.035	<0.0005	<0.0005	<0.0005	
B-9	24-Jan-00	<0.0005	0.0006	0.0032	<0.0005	<0.0005	<0.0005	
B-10	27-Jul-01	1.7000	1.4	7.3	0.043	<0.025	<0.025	
B-10	27-Jul-01	0.8700	0.81	6.6	0.041	<0.025	<0.025	
B-10	31-Jan-01	2.1000	1.6	6.6	0.044	<0.025	<0.025	
B-10	31-Oct-00	2.4000	1.9	7.1	0.061	<0.025	<0.025	
B-10	10-Aug-00	2.9000	1.6	6.5	0.05	<0.025	<0.025	
B-10	24-Jan-00	1.2000	2.4	14	0.09	<0.063	<0.063	
B-13	24-Jan-00	0.0200	0.029	0.13	0.0049	<0.0005	<0.0005	
Temporary Sampling Points Installed by EPA								
GW-2	19-Jul-99	0.0140	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	
GW-2	20-Jan-00	0.1300	0.0190	0.0055	<0.0005	<0.0005	<0.0005	
GW-2	28-Apr-00	0.1200	0.0160	0.0033	<0.0005	<0.0005	<0.0005	
GW-2	2-Nov-00	0.0078	0.0008	0.0032	<0.0005	<0.0005	<0.0005	
GW-2	1-Feb-01	0.0077	0.0006	0.0028	<0.0005	<0.0005	<0.0005	
GW-2	27-Apr-01	0.0096	0.0018	0.0024	<0.0005	<0.0005	<0.0005	
GW-2	27-Jul-01	0.0330	0.0043	0.0024	<0.0005	<0.0005	<0.0005	
GW-2	19-Oct-01	0.0190	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	
GW-2	31-Jan-02	0.0092 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0100 ^b	<0.0050 ^b	
GW-2	16,17-Apr-02	0.0140	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	
GW-2	17,18-Jul-02	0.014	<0.005	<0.005	<0.005	<0.01	<0.005	
GW-3	19-Jul-99	0.2200	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	
GW-3	20-Jan-00	0.0550	0.0010	0.0200	<0.0005	<0.0005	<0.0005	
GW-3	27-Apr-00	0.3500	0.0023	0.0056	<0.0005	<0.0005	<0.0005	
Split	27-Apr-00	0.2700	0.0015	0.0023	<0.0013	<0.0013	<0.0013	
GW-3	11-Aug-00	0.0680	0.0028	0.0120	<0.0005	<0.0005	<0.0005	
GW-3	2-Nov-00	0.0590	0.0008	0.0024	<0.0005	<0.0005	<0.0005	
GW-3	1-Feb-01	0.0460	0.0006	0.0011	<0.0005	<0.0005	<0.0005	
GW-3	27-Apr-01	0.0790	0.0007	0.0015	<0.0005	<0.0005	<0.0005	
GW-3	27-Jul-01	0.0900	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	
GW-3	19-Oct-01	0.1800	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	
GW-3	31-Jan-02	0.0960 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0100 ^b	<0.0050 ^b	
GW-3	16,17-Apr-02	0.1600	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	
GW-3	17,18-Jul-02	0.086	<0.005	<0.005	<0.005	<0.01	<0.005	
GW-4	19-Jul-99	<0.0005	<0.0005	0.0035	<0.0005	<0.0005	0.0017	
GW-4	20-Jan-00	0.0008	<0.0005	0.0036	<0.0005	<0.0005	0.0015	
Split	20-Jan-00	0.0006	<0.0005	0.0044	<0.0005	<0.0005	0.0021	
GW-4	27-Apr-00	0.0017	<0.0005	0.0010	<0.0005	<0.0005	0.0006	
GW-4	30-Jan-01	<0.0005	<0.0005	0.0024	<0.0005	<0.0005	0.0014	
GW-4	27-Jul-01	<0.0005	<0.0005	0.0030	<0.0005	0.0006	0.0019	
GW-4	19-Oct-01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	
GW-4	31-Jan-02	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0050 ^b	<0.0100 ^b	<0.0050 ^b	
GW-4	16,17-Apr-02	<0.0050	<0.0050	<0.0050	<0.0050	<0.0100	<0.0050	
GW-4	17,18-Jul-02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	

Table 8
Historical Analytical Results For Volatile Organic Compound (VOC) Analyses in
Groundwater Samples
at the Former Glovatorium Site
3815 Broadway, Oakland, California
All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-DCP	Notes
GW-5	27-Aug-99	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	
GW-5	20-Jan-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-5	27-Apr-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Aug-99	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	27-Aug-99	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	25-Jan-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Apr-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-7	15-Jul-99	< 0.0005	< 0.0005	0.00358	< 0.0005	< 0.0005	0.000632	
GW-7	15-Jul-99	< 0.0020	< 0.0020	0.00398	< 0.0020	< 0.0020	< 0.0020	
Split	15-Jul-99	< 0.0020	< 0.0020	0.00383	< 0.0020	< 0.0020	< 0.0020	
GW-8	19-Jul-99	0.0240	0.0150	0.0038	0.0017	0.0012	< 0.0005	
GW-8	20-Jan-00	0.1500	0.1900	0.0530	0.0120	0.0045	< 0.0007	
Split	20-Jan-00	0.1500	0.1800	0.0520	0.0110	0.0046	< 0.0005	
GW-8	28-Apr-00	0.1200	0.1100	0.0290	0.0053	0.0023	< 0.0005	
Monitoring wells owned by COPICO:								
MW-11	25-Jan-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	28-Apr-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	10-Aug-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	1-Nov-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	31-Jan-01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	27-Apr-01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	27-Jul-01	0.0017	0.0010	0.0062	< 0.0005	< 0.0005	< 0.0005	
MW-11	19-Oct-01	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0100	< 0.0050	
MW-11	31-Jan-02	< 0.0050 ^b	< 0.0050 ^b	< 0.0050 ^b	< 0.0050 ^b	< 0.0100 ^b	< 0.0050 ^b	
MW-11	16,17-Apr-02	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.010	< 0.0050	
MW-11	17,18-Jul-02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.005	
Monitoring wells maintained by EPA:								
LFR-1	9-Aug-00	2.80	0.064	0.0410	< 0.0083	< 0.0083	< 0.0083	
LFR-1	30-Oct-00	0.82	0.034	0.0100	< 0.0031	< 0.0031	< 0.0031	
Split	30-Oct-00	0.87	0.035	0.0140	< 0.0031	< 0.0031	< 0.0031	
LFR-1	29-Jan-01	0.77	0.026	0.0073	< 0.0025	< 0.0025	< 0.0025	
LFR-1	26-Apr-01	0.44	0.013	0.0050	< 0.0013	< 0.0013	< 0.0013	
LFR-1	27-Jul-01	0.38	0.031	0.0098	< 0.0013	< 0.0013	< 0.0013	
LFR-1	18-Oct-01	0.78	0.093	< 0.0310	< 0.0310	< 0.0630	< 0.0310	
LFR-1	31-Jan-02	0.37 ^b	0.035 ^b	< 0.0130 ^b	< 0.0130 ^b	< 0.0250 ^b	< 0.0130 ^b	
LFR-1	16,17-Apr-02	0.38	0.040	< 0.0130	< 0.0130	< 0.0250	< 0.0130	
LFR-1	17,18-Jul-02	0.36	0.041	< 0.013	< 0.013	< 0.025	< 0.013	
LFR-2	11-Aug-00	< 0.0005	< 0.0005	0.0350	< 0.0005	0.0045	< 0.0005	
LFR-2	2-Nov-00	< 0.0005	< 0.0005	0.1300	0.0010	0.0150	0.0006	
LFR-2	29-Jan-01	< 0.0005	< 0.0005	0.0056	< 0.0005	0.0016	< 0.0005	
LFR-2	27-Apr-01	0.0007	< 0.0005	0.0056	< 0.0005	0.0013	< 0.0005	
LFR-2	27-Jul-01	0.0014	0.0007	0.0190	< 0.0005	< 0.0005	< 0.0005	
LFR-2	18-Oct-01	< 0.0071	< 0.0071	0.1600	< 0.0071	< 0.0140	< 0.0071	
LFR-2-2	27-Apr-01	0.0007	< 0.0005	0.0065	< 0.0005	0.0019	< 0.0005	
LFR-2	31-Jan-02	< 0.0050 ^b	< 0.0050 ^b	0.0069 ^b	< 0.0050 ^b	< 0.0100 ^b	< 0.0050 ^b	
LFR-2	16,17-Apr-02	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0100	< 0.0050	
LFR-2	17,18-Jul-02	< 0.005	< 0.005	0.012	< 0.005	< 0.01	< 0.005	

Table 8
Historical Analytical Results For Volatile Organic Compound (VOC) Analyses in
Groundwater Samples
at the Former Glovatorium Site
3815 Broadway, Oakland, California
All results expressed in milligrams per liter (mg/L)

Location	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-DCP	Notes
LFR-3	10-Aug-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	10-Aug-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	1-Nov-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	30-Jan-01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	27-Apr-01	0.0019	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	27-Jul-01	0.0022	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	18-Oct-01	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0100	< 0.0050	
LFR-3	31-Jan-02	< 0.0050 ^b	< 0.0050 ^b	< 0.0050 ^b	< 0.0050 ^b	< 0.0100 ^b	< 0.0050 ^b	
LFR-3	16,17-Apr-02	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0100	< 0.0050	
LFR-3	17,18-Jul-02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.005	
LFR-4	11-Aug-00	< 0.0005	< 0.0005	0.0012	< 0.0005	< 0.0005	< 0.0005	
LFR-4	31-Oct-00	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-4	30-Jan-01	< 0.0005	< 0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005	
LFR-4	27-Apr-01	< 0.0005	< 0.0005	0.0016	< 0.0005	< 0.0005	< 0.0005	
LFR-4	27-Jul-01	0.0005	< 0.0005	0.0021	< 0.0005	< 0.0005	< 0.0005	
LFR-4	16,17-Apr-02	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0100	< 0.0050	
LFR-4	17,18-Jul-02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.005	
Monitoring wells installed by SOMA								
SOMA-1	19-Oct-01	< 0.0050	< 0.0050	0.0140	< 0.0050	< 0.0100	< 0.0050	
SOMA-1	31-Jan-02	0.0056 ^b	< 0.0050 ^b	0.0070 ^b	< 0.0050 ^b	< 0.0100 ^b	0.0057 ^b	
SOMA-1	16,17-Apr-02	0.0059	< 0.0050	0.0066	< 0.0050	< 0.0100	< 0.0050	
SOMA-1	17,18-Jul-02	< 0.005	< 0.005	0.016	< 0.005	< 0.01	< 0.005	
SOMA-2	19-Oct-01	1.400	0.350	5.0	< 0.250	< 0.500	< 0.250	
SOMA-2	31-Jan-02	< 0.071 ^b	< 0.071 ^b	1.8 ^b	< 0.071 ^b	< 0.140 ^b	< 0.071 ^b	
SOMA-2	16,17-Apr-02	< 0.130	< 0.130	2.9	< 0.130	< 0.250	< 0.130	
SOMA-2	17,18-Jul-02	< 0.063	< 0.063	1.6	< 0.063	< 0.13	< 0.063	
SOMA-3	19-Oct-01	0.042	0.057	0.44	< 0.025	< 0.050	< 0.025	
SOMA-3	31-Jan-02	0.018 ^b	0.023 ^b	0.38 ^b	< 0.013 ^b	< 0.025 ^b	< 0.013 ^b	
SOMA-3	16,17-Apr-02	0.025	0.018	0.36	< 0.017	< 0.033	< 0.017	
SOMA-3	17,18-Jul-02	0.027	< 0.017	0.44	< 0.017	< 0.033	< 0.017	
SOMA-4	19-Oct-01	< 0.13	< 0.13	2.6	< 0.13	< 0.25	< 0.13	
SOMA-4	31-Jan-02	FP	FP	FP	FP	FP	FP	
SOMA-4	16,17-Apr-02	FP	FP	FP	FP	FP	FP	
SOMA-4	17,18-Jul-02	FP	FP	FP	FP	FP	FP	

^b analysis was carried out past hold date, no analytical problems were encountered
 FP: Not Analyzed due to Free Product

Table 9
Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters
in 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						11.0	193.00	
B-7-field	11-Aug-00	0.63		-1.0	3				
B-7	31-Oct-00	0.62	2.6	< 0.10	< 1.0	11.000	2.4		-3
B-7-field	31-Oct-00	0.25		0.40	-1	15.850		-62.50	
B-7	1-Feb-01	0.78	2.2	0.78	<1.0	15.000	13.0		
B-7-field	31-Jan-01	0.48						28.00	
B-7 Field	26-Apr-01	0.60	1.7	2.50	5	>3.3	7.6	-28.00	
B-7 Field	26-Jul-01	1.98	7.3	0	8	11.600	7.0	-40.00	
B-8 field	31-Jan-01	0.45						58.00	
B-10	10-Aug-00			< 0.05	< 0.05	5.700	10.0	213.00	
B-10-field	10-Aug-00	0.44		-1.0	-2				
B-10	31-Oct-00	2.40	1.4	< 0.10	< 1.0	5.900	6.7		0.81
B-10-field	31-Oct-00	0.44		0	0	7.600		-22.20	
B-10	31-Jan-01	6.40	1.3	< 0.10	< 2.0	7.700	24.0		1.3
B-10-field	31-Jan-01	0.46						64.00	
B-10 Field	11-Jun-01	0.90	0	0	0	1.250	3.9	-8.00	NM
B-10 Field	26-Jun-01	1.87	1.3	0	3	6.200	5.6	-22.00	
GW-2-field	1-Nov-00	2.32						77.00	
GW-2	1-Feb-01	3.80					0.04100		
GW-2-field	1-Feb-01	0.58						159.00	
GW-2	26-Apr-01	4.00	1.0	7.10	36	0.015	0.00022	152.00	NM
GW-2	26-Jul-01	1.93	0	3.90	60	0.000	0.01600	233.00	
GW-2 field	Not En. Sample						0.00091		
GW-2	31-Jan-02	2.80	0	0.80	45	0.360	0.00690	179.00	NM
GW-2	16,17-Apr-02	1.76	0	4.70	70	0.090	0.00029	198.00	
GW-2	17,18-Jul-02	1.39	0.6	0.00	69	0.00	0.00210	161.00	
GW-3	11-Aug-00						< 0.0005	395.00	
GW-3-field	11-Aug-00	0.72		1.00	46				
GW-3	1-Nov-00							81.00	
GW-3-field		7.76							
GW-3	29-Jan-01	8.80					0.01200		
GW-3-field	1-Feb-01	8.99						235.00	
GW-3	27-Apr-01	2.90	0	0.70	30	0.000	0.01500	212.00	NM
GW-3	26-Jul-01	2.48	0	2.40	52	0.120	0.00830	214.00	
GW-3 field	18-Oct-01	3.76	0	5.20	4.9	0.000	0.00410	131.00	NM
GW-3	31-Jan-02	3.70	0.2	1.30	52	0.000	0.00810	163.00	
GW-3	16,17-Apr-02	7.55	0.0	4.20	59	0.000	0.00064	133.00	
GW-3	17,18-Jul-02	3.50	0.0	0.00	47	0.220	0.01000	155.00	
GW-4-field	30-Jan-01	0.83						67.00	
GW-4-field	26-Jul-01	2.59	0.2	10.50	25	1.290	0.0028	-3.00	
GW-4-field	18-Oct-01	1.00	0.1	0.00	0	4.800	4.8	-84.00	NM
GW-4	31-Jan-02	0.90	0.8	0.00	0.0	8.000	3.5	-91.00	
GW-4	16,17-Apr-02	0.41	0.1	5.20	0.0	5.700	4.7	-2.10	
GW-4	17,18-Jul-02	2.38	3.0	0.00	0.0	>3.3	4.6	-68.00	

Table 9
Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters
In 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)
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	4.10	< 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	6.30	< 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	26-Apr-01	7.40	0	6.8	52	0	0.0014	229	NM
MW-11 Field	26-Jul-01	1.85	0	5.2	77	0	0.0049	233	
MW-11 Field	18-Oct-01	5.58	0	10.1	NM	0	0.0066	155	NM
MW-11	31-Jan-02	4.90	0	2.8	79	0.0	0.0077	218	
MW-11	16,17-Apr-02	3.18	0	2.8	88	0.0	0.0092	242	
MW-11	17,18-Jul-02	2.82	0	4.1	79	0.0	0.0088	357	
LFR-1	9-Aug-00							462	
LFR-1-field	11-Aug-00						0.0096		
LFR-1	9-Aug-00	3.63		5.5	30				1.5
LFR-1	30-Oct-00	2.70	0.03	39	42	< 1.0	0.00038		
LFR-1-field/sp	30-Oct-00	2.95		10.3/10.0	29/29	0.01/0.01		77.4	1
LFR-1 split	30-Oct-00	3.40	0.03	40	43	< 1.0	0.00069		
LFR-1	29-Jan-01	5.10	< 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	4.60	< 0.01	< 0.10	50	< 1.0	0.000011		0.32
LFR-1	26-Apr-01	3.20	0.02	12.9	16	0	0.0003	224	NM
LFR-1	26-Jul-01	1.07	0	8	25	0.01	0.0084	238	
LFR-1 filed	18-Oct-01	1.03	0	6.9	24	0.18	0.0054	119	NM
LFR-1	31-Jan-02	1.80	0.30	5.50	31	0.00	0.0062	163	
LFR-1	16,17-Apr-02	1.68	0.30	1.50	38	0.39	0.003	240	
LFR-1	17,18-Jul-02	0.00	0.00	6.1	3.0	0.07	0.0047	209	
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	2.20	8.80	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	4.40	8.90	1	8.3	4.6	4.6		1.1
LFR-2-field	30-Jan-01	0.61	10.70	2.9		1.02		210	
LFR-2	27-Apr-01	1.40	0.40	1.6	1	2.66	14	9	NM
LFR-2	26-Jul-01	0.55	0.20	0	0	4.5	10	-20	
LFR-2 field	18-Oct-01	0.43	0	0	0	6.5	11	-75	NM
LFR-2	31-Jan-02	1.00	0.0	2.60	19	1.81	11	-14	
LFR-2	16,17-Apr-02	0.00	0.0	1.70	0	7.20	16	-5.7	
LFR-2	17,18-Jul-02	0.00	13.9	0.00	0	7.20	9.6	-64	
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	1.30		2.4	64				850
LFR-3	1-Nov-00	4.70	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	4.10	< 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	11-Jun-01	1.00	0	0.8	28	0	0.0086	201	NM
LFR-3 Field	26-Jul-01	1.29	0.40	0	51	0.6	0.0035	228	
LFR-3 Field	18-Oct-01	0.54	0	0.8	30	0.11	0.0093	139	NM
LFR-3	31-Jan-02	0.80	0.40	2.60	32	0.00	0.0072	212	
LFR-3	16,17-Apr-02	0.19	0.40	0.0	55	0.79	0.0096	228	
LFR-3	17,18-Jul-02	0.00	0.20	1.7	42	0.00	0.0068	166	

Table 9
Historical In-Situ and Ex-Situ Analyses Results for Bioattenuation Parameters
in 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	11-Aug-00						0.062	402	
LFR-4-field	11-Aug-00	1.13		0.7	1.0	0.14			1.1
LFR-4	31-Oct-00	1.90	2.2	< 0.10	2.9	1.10	3.20		
LFR-4-field	31-Oct-00	0.64		1.0		0.61		-80	
LFR-4	1-Feb-01	3.20	2.8	1.5	2.8	1.80	2.20		1.5
LFR-4-field	1-Feb-01	0.55	4.5	8.0	0.0	1.50		59	
LFR-4 Field	27-Apr-01	5.60	0.0	1.7	0.0	1.37	7.00	14	NM
LFR-4 Field	26-Jul-01	1.65	0.0	0.0	0.0	0.84	1.20	18	
LFR-4	16,17-Apr-02	0.00	1.0	2.6	6.0	4.80	12.00	-4	
LFR-4	17,18-Jul-02	0.79	6.8	0.0	0.0	>3.3	2.80	3	
SOMA-1	18-Oct-01	4.19	0.3	0.2	33.0	0.52	0.120	151	NM
SOMA-1	31-Jan-02	0.40	0.0	0.0	18.0	0.00	0.580	141	NM
SOMA-1	16,17-Apr-02	0.00	0.0	0.6	31.0	0.10	0.820	213	
SOMA-1	17,18-Jul-02	0.00	0.0	1.8	28.0	0.05	0.440	149	
SOMA-2	18-Oct-01	0.57	0.0	0.4	0.0	40.00	6.60	-89	NM
SOMA-2	31-Jan-02	0.70	3.8	0.8	0.0	9.00	13.00	103	NM
SOMA-2	16,17-Apr-02	0.00	0.5	0.1	0.0	7.40	14.00	-69	
SOMA-2	17,18-Jul-02	0.00	5.7	0.0	0.0	>3.3	9.40	-87	
SOMA-3	18-Oct-01	1.32	0.0	0.0	33.0	0.22	1.00	2	NM
SOMA-3	31-Jan-02	1.00	22.0	2.0	54.0	0.62	0.460	-71	NM
SOMA-3	16,17-Apr-02	2.60	0.0	0.6	42.0	0.77	0.410	29	
SOMA-3	17,18-Jul-02	0.97	10.9	0.0	23.0	>3.3	0.940	-51	
SOMA-4	18-Oct-01	0.83	4.0	22.0	17.0	0.22	1.20	88	NM
SOMA-5	Dry	NM	NM	NM	NM	NM	NM	NM	NM

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.

since April 2001, field measurements have been obtained by a Hach Calorimeter

*) Methane was measured by Microseep Laboratory.

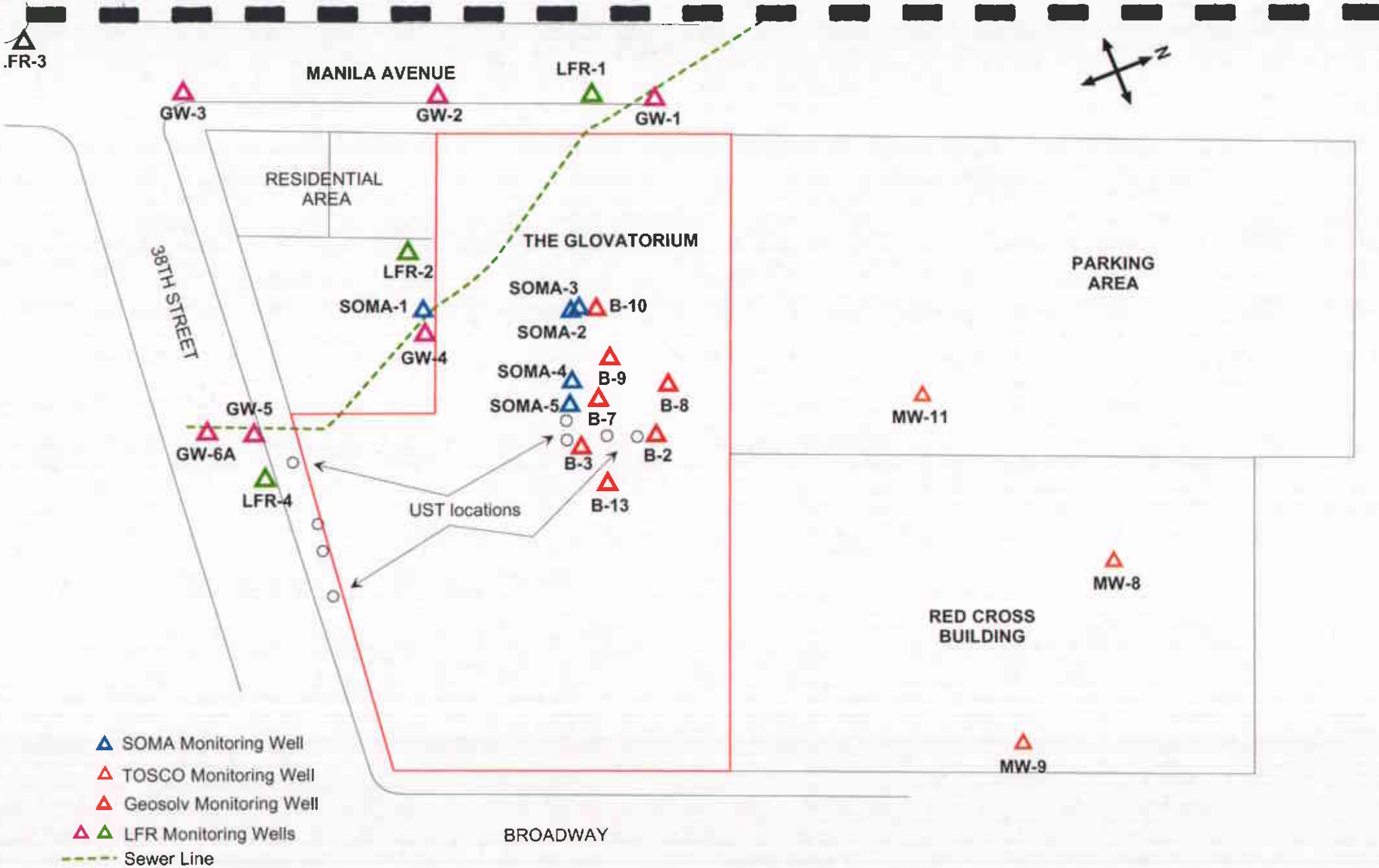
(1) Sample concentration was too dilute to be reproducibly measured using the Hach spectrophotometer.

(2) Field measurement was not recorded.

FIGURES



Figure 1: Site vicinity map.

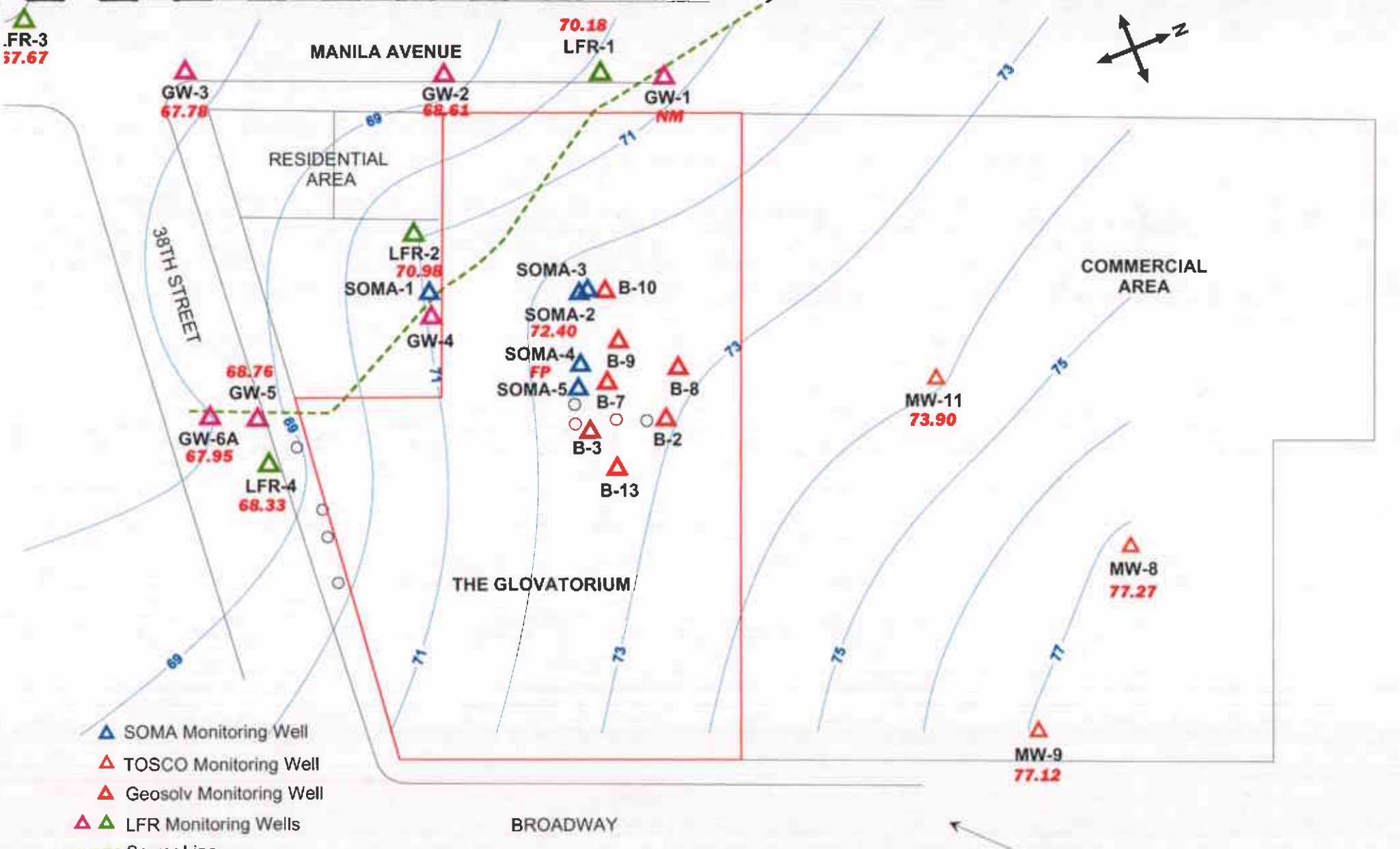


- ▲ SOMA Monitoring Well
- ▲ TOSCO Monitoring Well
- ▲ Geosolv Monitoring Well
- ▲ LFR Monitoring Wells
- Sewer Line

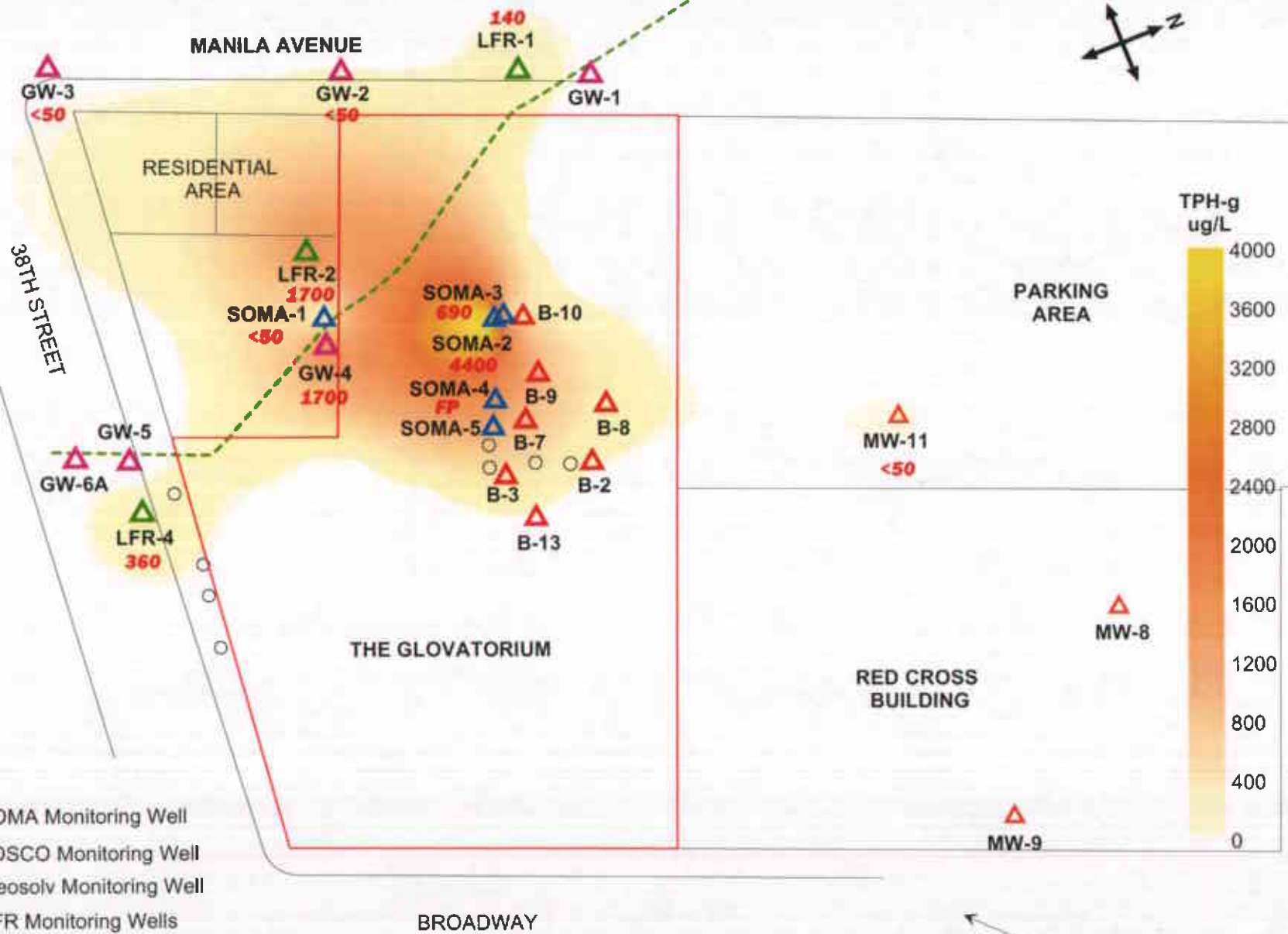
approximate scale in feet



Figure 2: Map Showing the Location of Groundwater Monitoring Wells



LFR-3
<50



GW-3
<50

MANILA AVENUE

GW-2
<50

LFR-1
140

GW-1

RESIDENTIAL AREA

LFR-2
1700

SOMA-1
<50

SOMA-3
690

B-10

SOMA-2
4400

SOMA-4
FP

B-9

GW-4
1700

B-7

B-8

GW-5

GW-6A

LFR-4
360

B-3

B-2

MW-11
<50

B-13

MW-8

RED CROSS BUILDING

MW-9

THE GLOVATORIUM

BROADWAY

approximate groundwater flow direction

- ▲ SOMA Monitoring Well
- ▲ TOSCO Monitoring Well
- ▲ Geosolv Monitoring Well
- ▲ LFR Monitoring Wells
- - - Sewer Line
- FP Free Product Present
- < Less than the Lab reporting limit

approximate scale in feet



Figure 4: Contour Map of TPH-g Concentrations in Groundwater, July 17-18, 2002



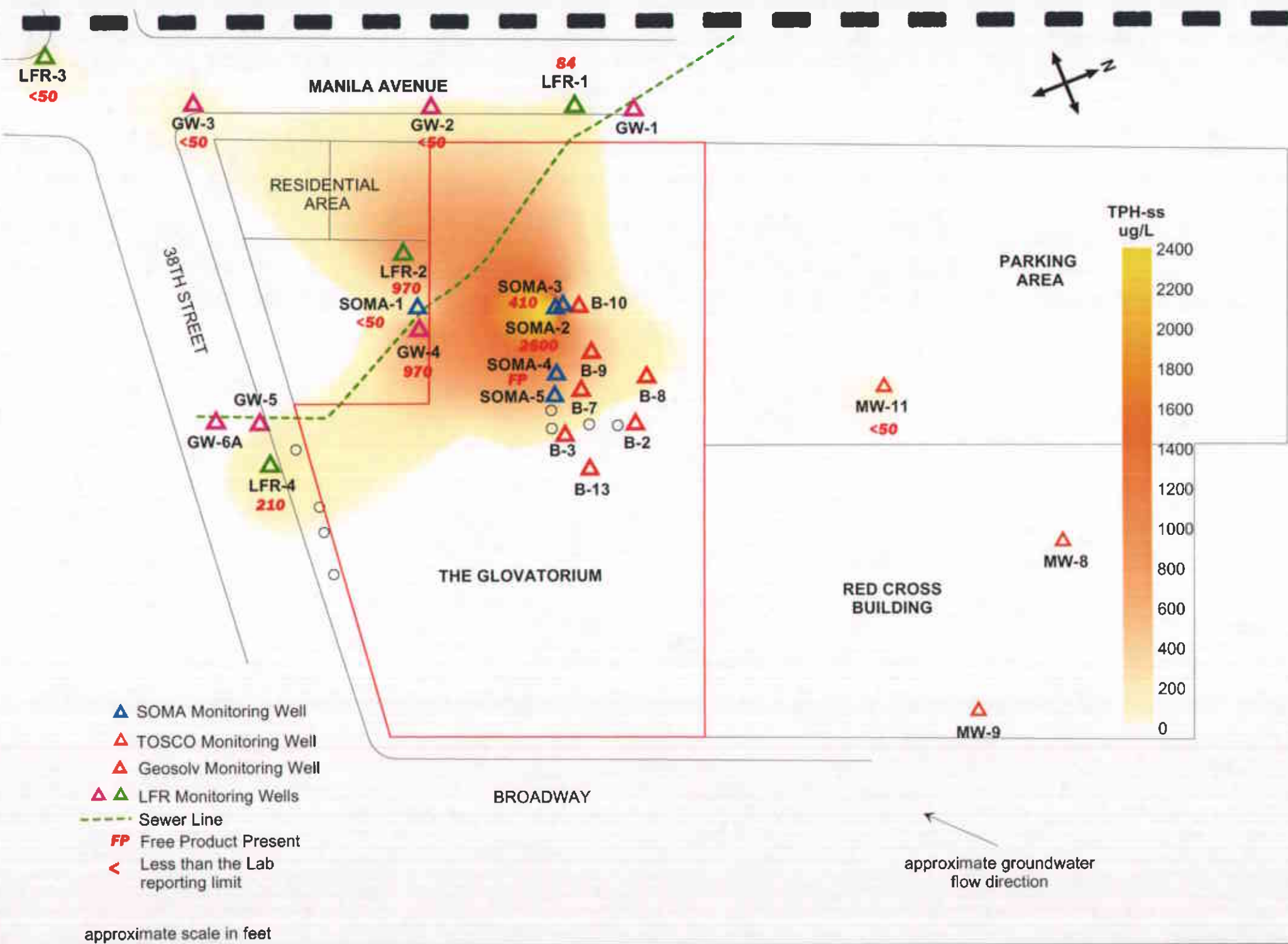
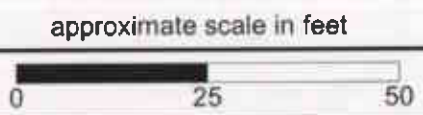
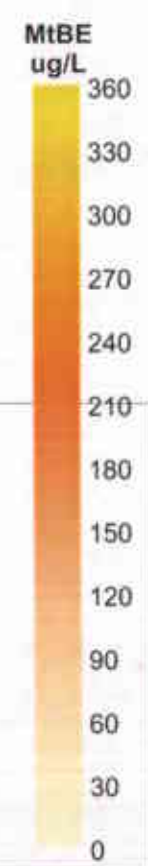
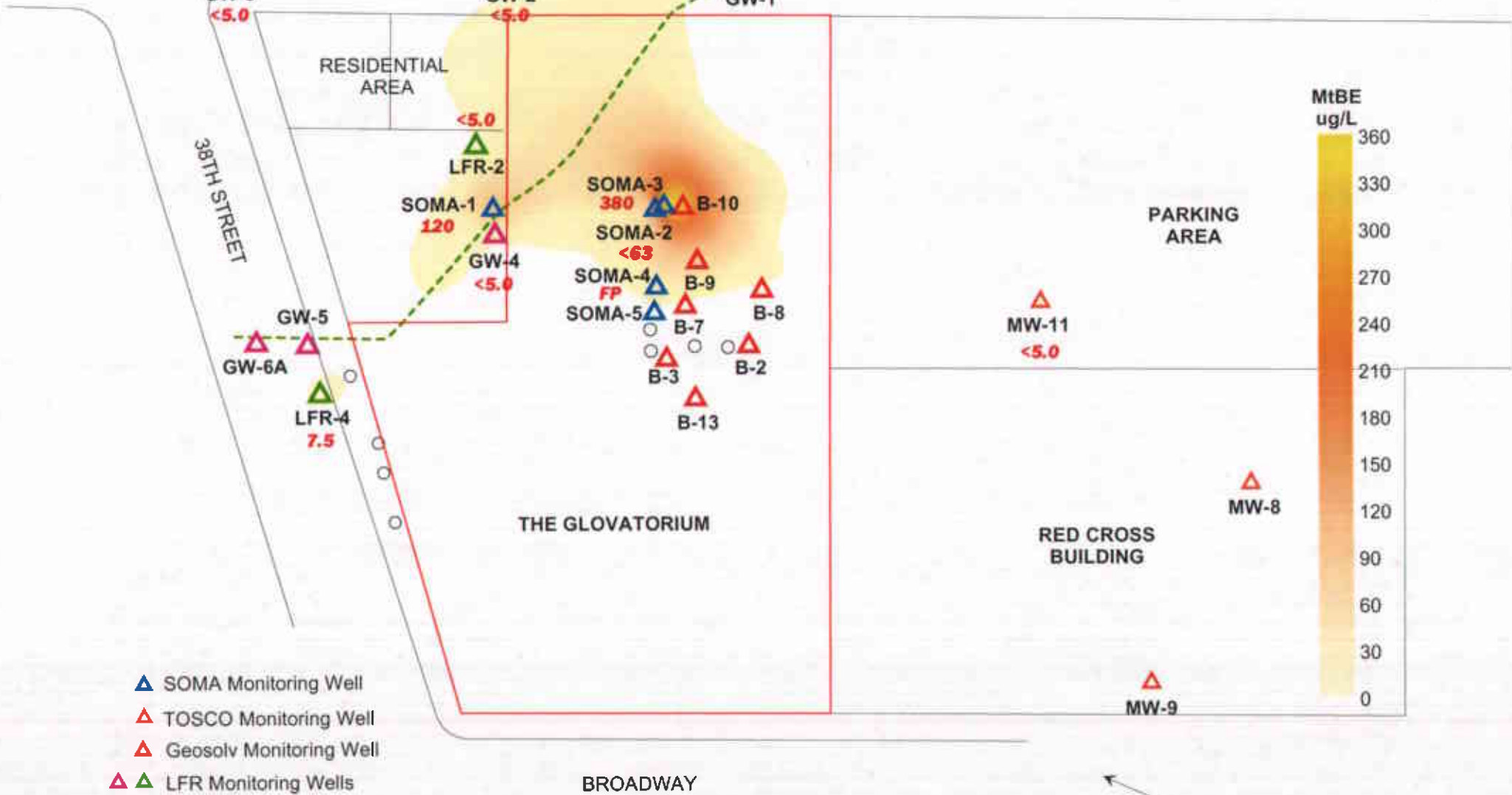


Figure 5: Contour Map of TPH-ss Concentrations in Groundwater, July 17-18, 2002



LFR-3
<5.0



- ▲ SOMA Monitoring Well
- ▲ TOSCO Monitoring Well
- ▲ Geosolv Monitoring Well
- ▲ LFR Monitoring Wells
- Sewer Line
- FP Free Product Present
- < Less than Lab detection limit

approximate scale in feet



approximate groundwater flow direction

Figure 6: Contour Map of MtBE Concentrations in Groundwater, July 17-18, 2002



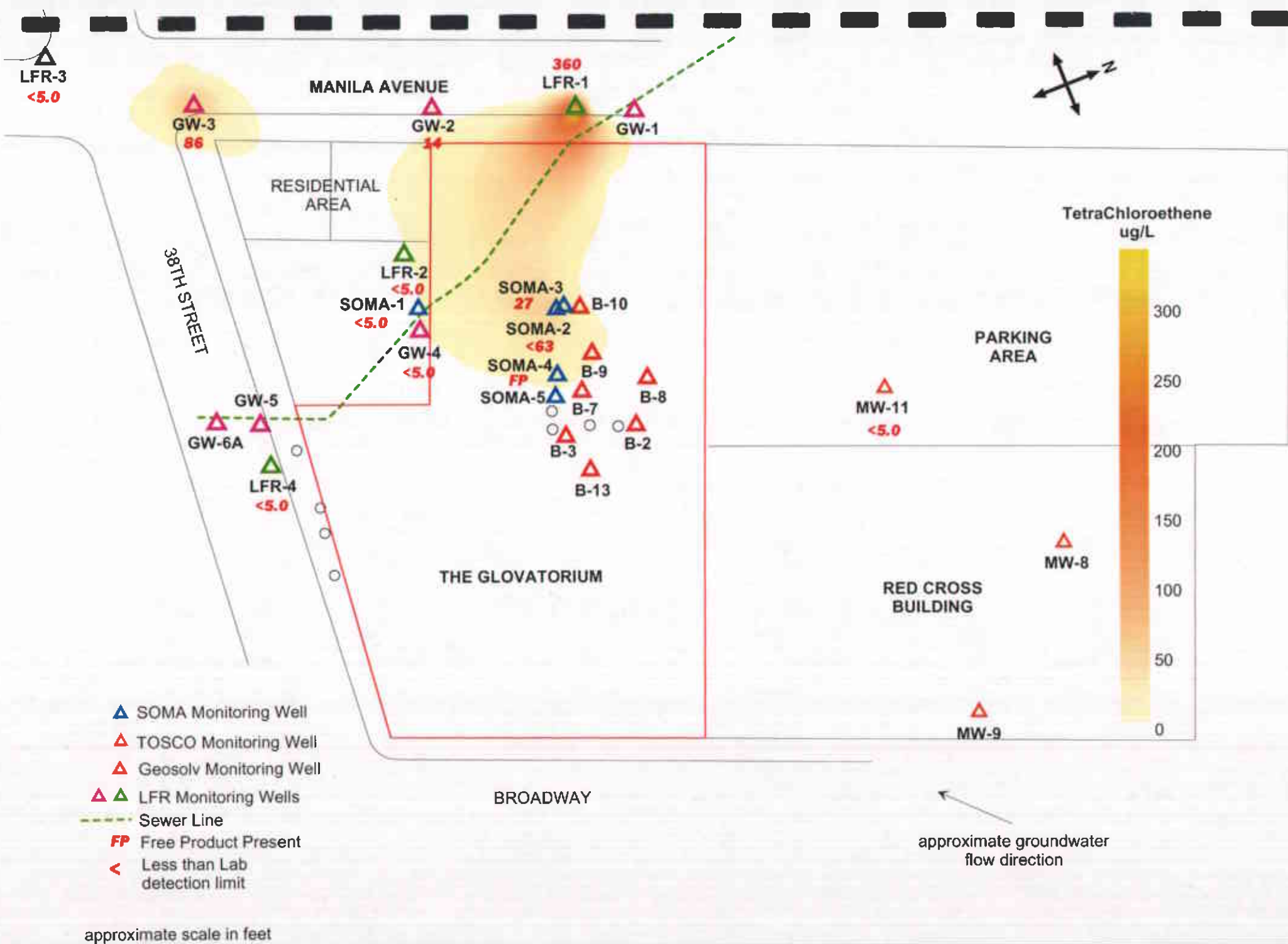


Figure 7: Contour Map of TetraChloroethene Concentrations in Groundwater, July 17-18, 2002

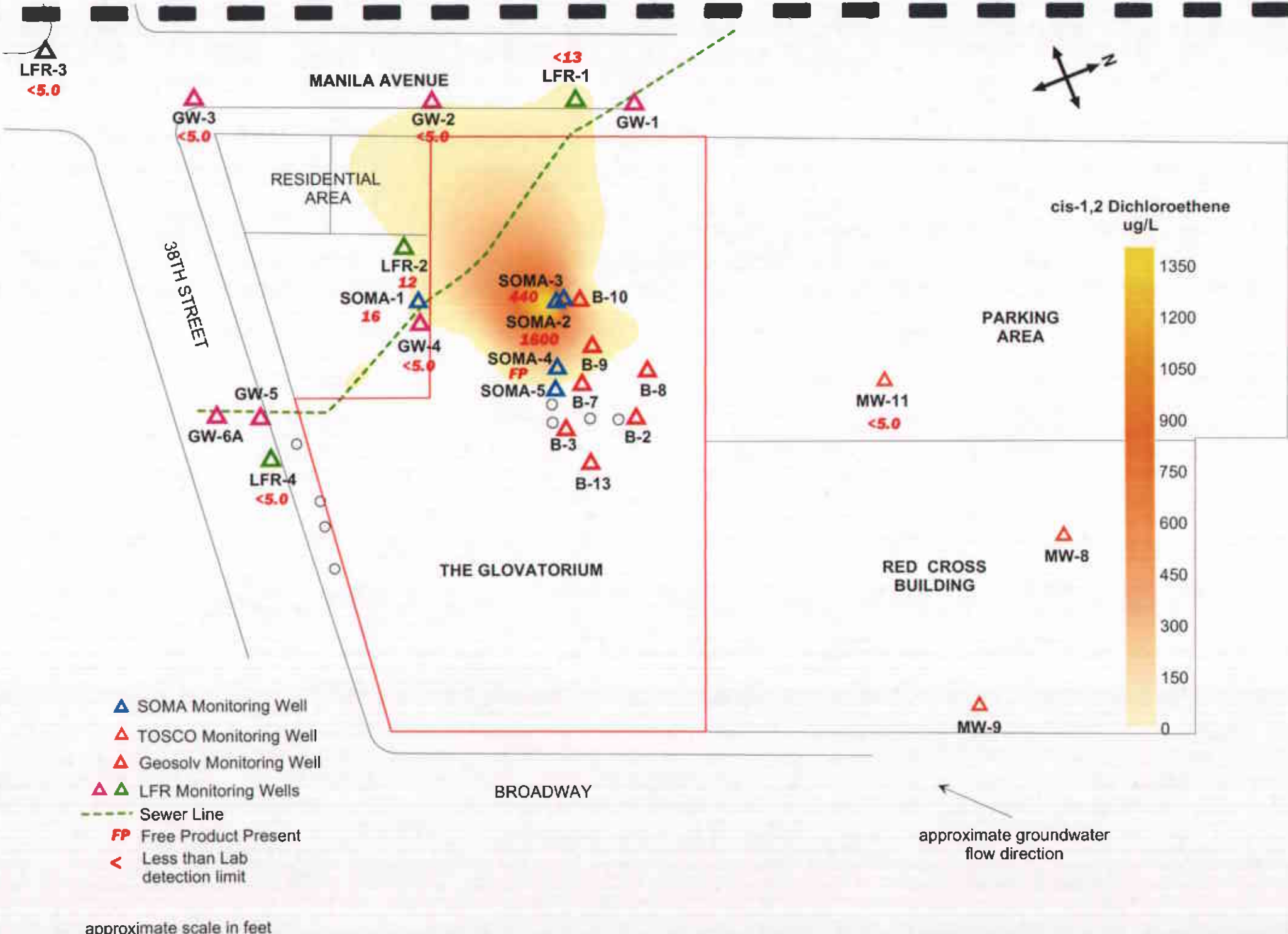


Figure 8: Contour Map of cis-1,2 Dichloroethene Concentrations in Groundwater, July 17-18, 2002

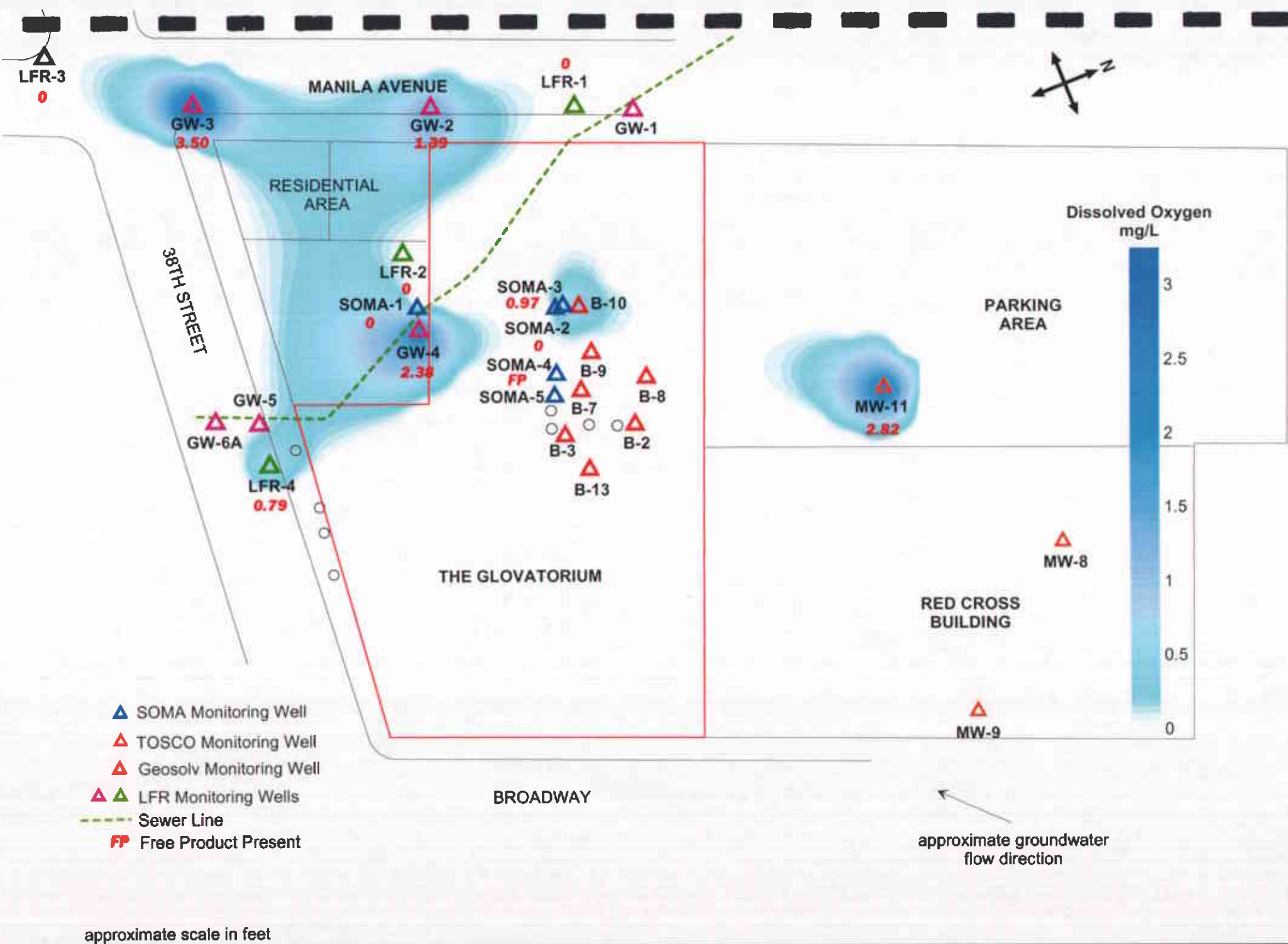
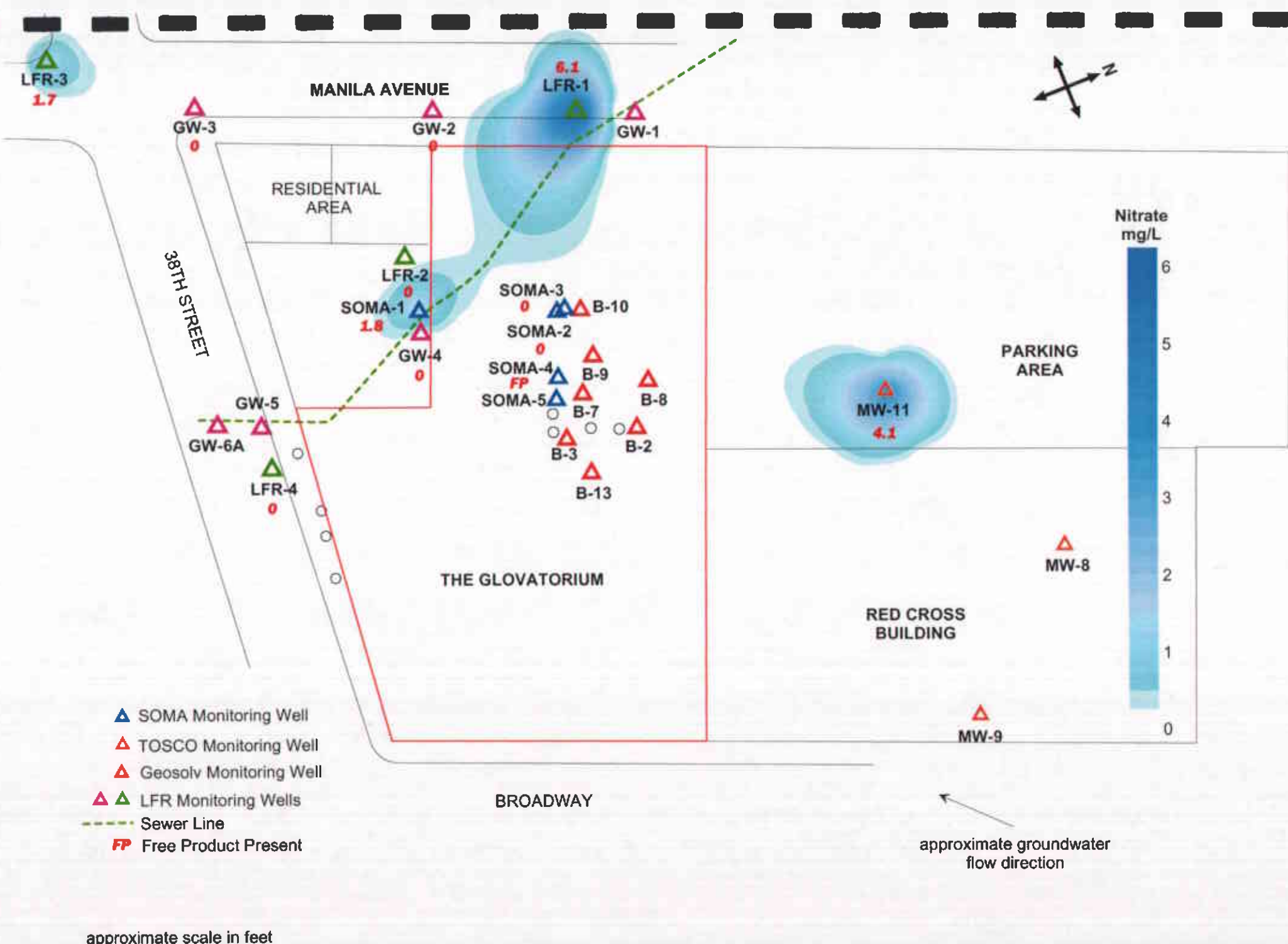


Figure 9: Contour Map of Dissolved Oxygen Concentrations in Groundwater, July 17-18, 2002



approximate scale in feet



Figure 10: Contour Map of Nitrate Concentrations in Groundwater, July 17-18, 2002

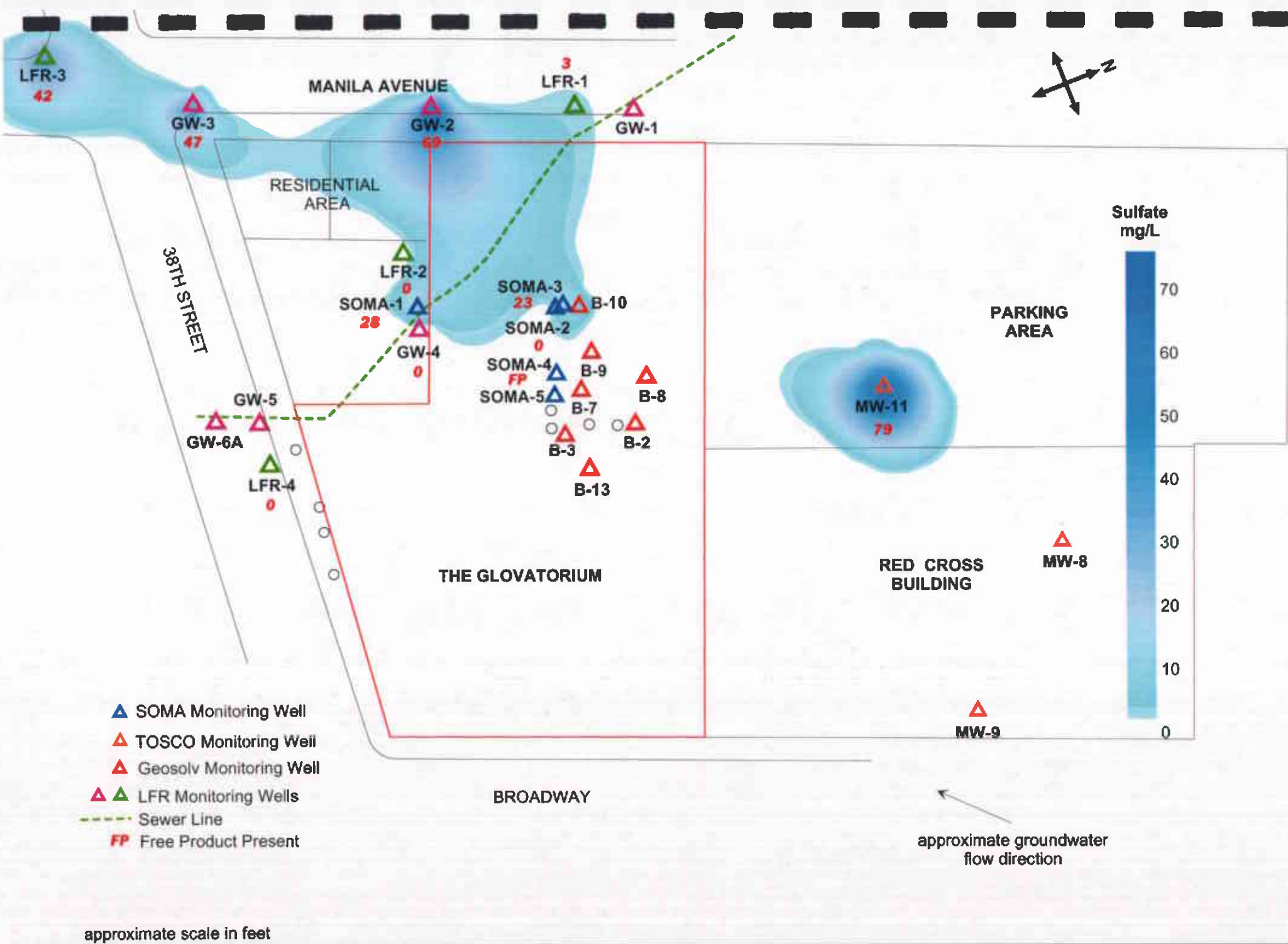
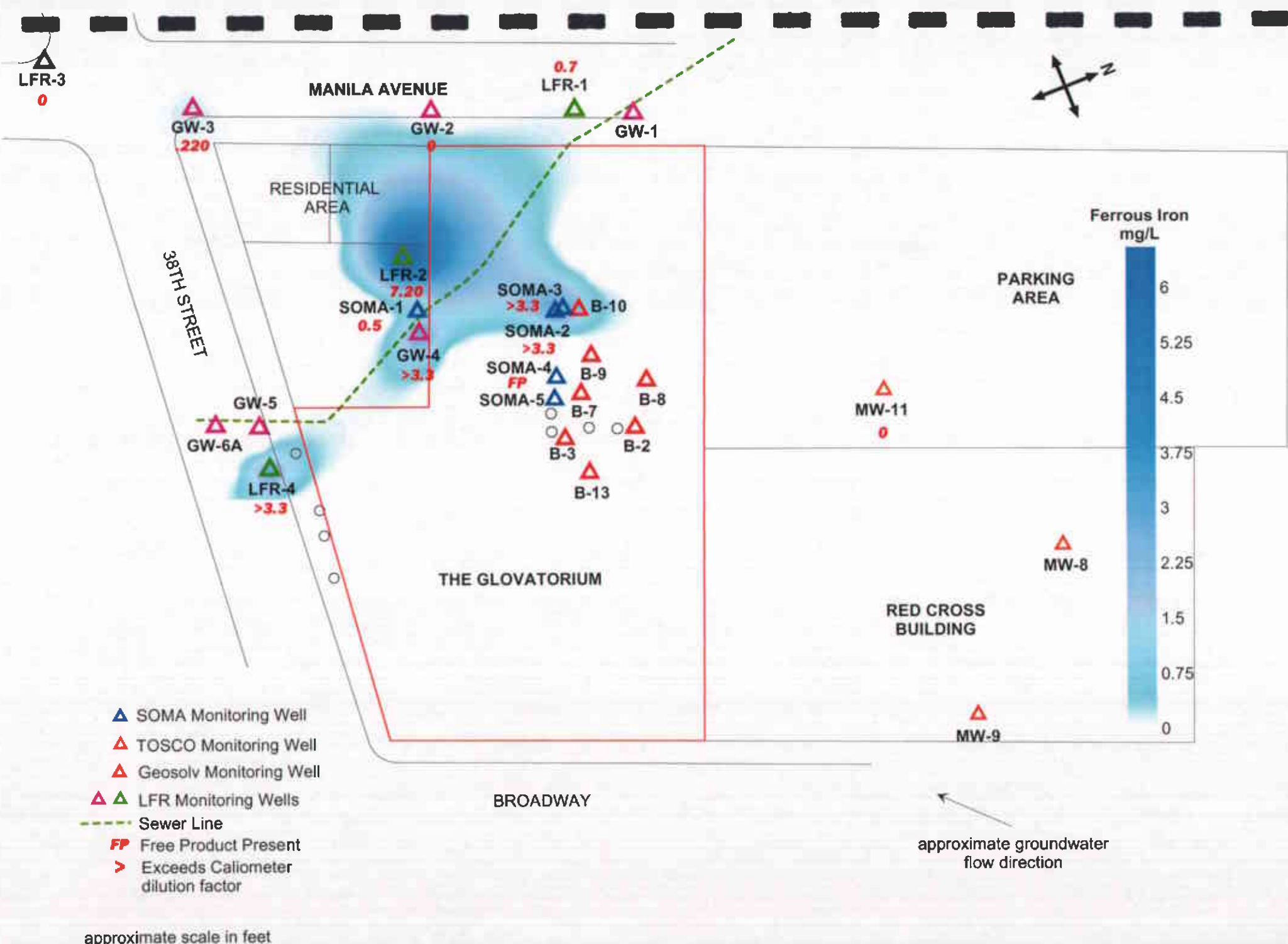


Figure 11: Contour Map of Sulfate Concentrations in Groundwater, July 17-18, 2002



LFR-3
0

GW-3
220

MANILA AVENUE

GW-2

0.7
LFR-1

GW-1

RESIDENTIAL AREA

LFR-2
7.20

SOMA-1
0.5

SOMA-3
>3.3

B-10

SOMA-2
>3.3

SOMA-4
FP

B-9

SOMA-5

B-7

B-8

GW-5

GW-6A

LFR-4
>3.3

B-3

B-13

MW-11
0

PARKING AREA

MW-8

RED CROSS BUILDING

MW-9

THE GLOVATORIUM

BROADWAY

approximate groundwater flow direction

approximate scale in feet

Figure 12: Contour Map of Ferrous Iron Concentrations in Groundwater, July 17-18, 2002

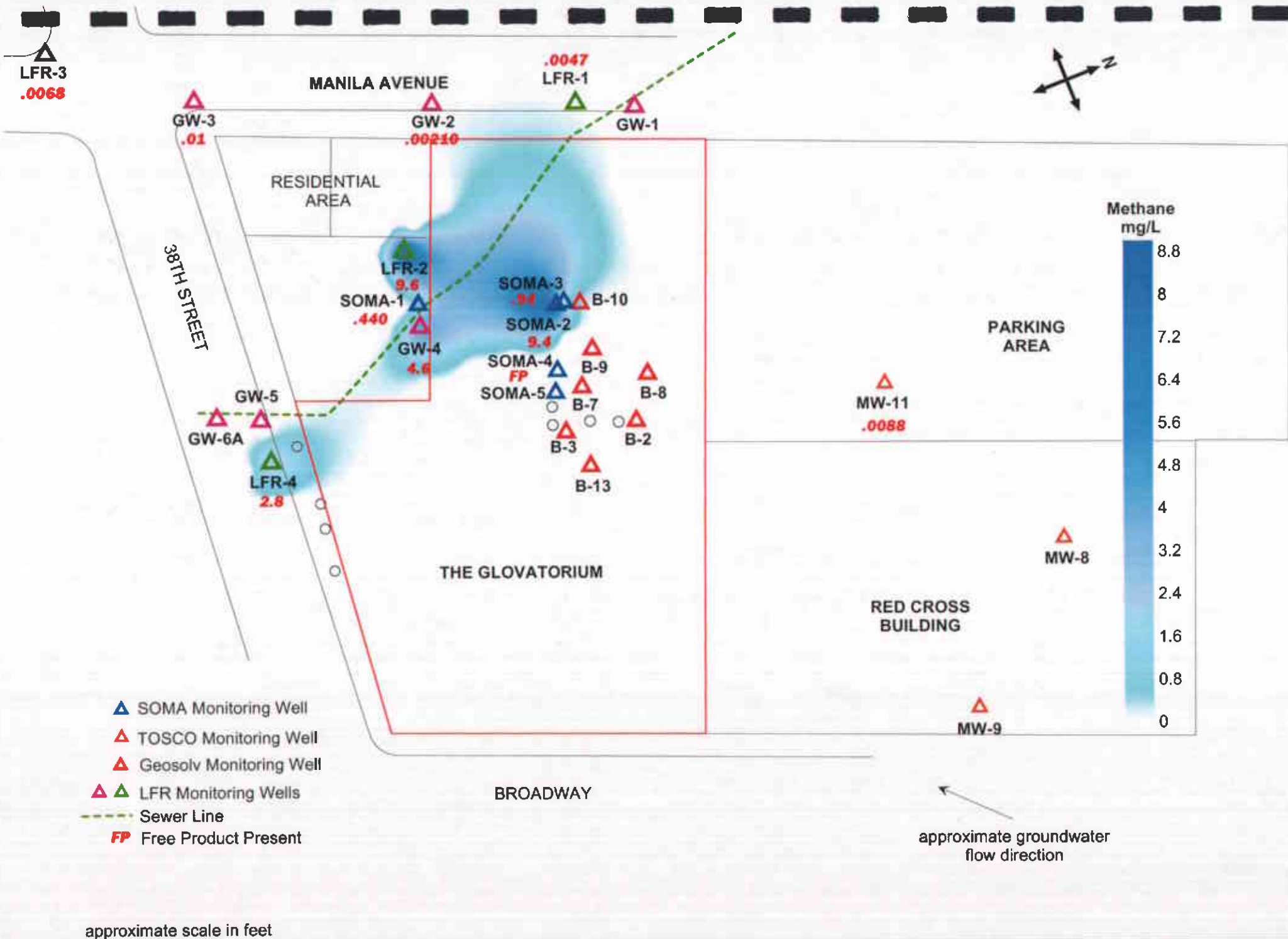


Figure 13: Contour Map of Methane Concentrations in Groundwater, July 17-18, 2002

APPENDIX A

LABORATORY REPORTS, CHAIN OF CUSTODY FORMS

MICROSEEPS

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Page 1 of 12
Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Sample Identification

Lab Sample # Client Sample ID

P0207315-01	SOMA 1
207315-02	SOMA 2
207315-03	SOMA 3
P0207315-04	GW-2
P0207315-05	GW-3
207315-06	GW-4
207315-07	LFR-1
P0207315-08	LFR-2
P0207315-09	LFR-3
207315-10	LFR-4
207315-11	MW-11

Approved By:

Shabir Hullo

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-01

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
SOMA 1	Water	17 Jul. 02 16:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water Methane	440	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-02

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
SOMA 2	Water	18 Jul. 02 14:40	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>Risk Analysis</u>						
Water Methane	9400	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-03

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
SOMA 3	Water	18 Jul. 02 13:30	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u>						
Water						
Methane	940	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
 Report Date: 07/26/02
 Client Proj Name: Oakland CA 2511
 Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
 Contact: Mansour Sepher
 Address: 2680 Bishop Drive
 Suite 203
 San Ramon, CA 94583

Lab Sample #: P0207315-04

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
GW-2	Water	18 Jul. 02 8:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
RiskAnalysis						
Water						
Methane	2.1	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-05

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
GW-3	Water	18 Jul. 02 9:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water Methane	10	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-06

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
GW-4	Water	18 Jul. 02 10:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water Methane	4600	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-07

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
LFR-1	Water	18 Jul. 02 9:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water Methane	4.7	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-08

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
LFR-2	Water	17 Jul. 02 15:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water						
Methane	9600	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-09

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
LFR-3	Water	17 Jul. 02 13:45	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u>						
Water						
Methane	6.8	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-10

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
LFR-4	Water	17 Jul. 02 9:55	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
<u>RiskAnalysis</u> Water Methane	2800	0.015	ug/L	AM20GAX	pd	7/23/02

Order #: P0207315
Report Date: 07/26/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Client Name: Soma Environmental Engineering
Contact: Mansour Sepher
Address: 2680 Bishop Drive
Suite 203
San Ramon, CA 94583

Lab Sample #: P0207315-11

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
MW-11	Water	17 Jul. 02 16:00	20 Jul. 02

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>	<u>Analyst</u>	<u>Analysis Date</u>
RiskAnalysis Water Methane	8.8	0.015	ug/L	AM20GAX	pd	7/23/02



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: 29-JUL-02
Lab Job Number: 159755
Project ID: 2511
Location: 3815 Broadway-Oakland, CA

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

Reviewed by:


Project Manager

Reviewed by:


Operations Manager

This package may be reproduced only in its entirety.



Laboratory Number: 159755
Client: Soma Environmental Engineering, Inc.
Project Name: 3815 Broadway, Oakland
Project #: 2511
Receipt Date: 07/18/02

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for eleven water samples received from the above referenced project on July 18th, 2002. The samples were received cold and intact.

Total Volatile Hydrocarbons (EPA 8015B(M)):

The recoveries for the bromofluorobenzene surrogates were over the acceptable QC limits for client IDs SOMA-2 (C&T ID 159755-002), GW-4 (C&T ID 159755-006) and LFR-2 (C&T ID 159755-008) for batch number 73884 due to coelution of sample hydrocarbons with this surrogate. No other analytical problems were encountered.

Purgeable Organics by GC/MS (EPA 8260B):

No analytical problems were encountered.

CHAIN OF CUSTODY

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

Analyses

C&T LOGIN # 159755

Sampler: KAMRAN JAVANDEL / NASER PARKAN

Project No: 2511
 Project Name: 3815 Broadway, Oakland, CA
 Turnaround Time: STD TAT

Report To: Mansour Sepehr
 Company: SOMA Environmental
 Telephone: 925-244-6600
 Fax: 925-244-6601

Lab No.	Sample ID.	Sampling Date Time	Matrix			# of Containers	Preservative			
			Soil	Water	Waste		HCL	H ₂ SO ₄	HNO ₃	ICE
-1	SOMA-1	7-17-02 4:00 PM		X		4	X			X
-2	SOMA-2	7-18-02 2:40 PM		X		4	X			X
-3	SOMA-3	7-18-02 1:30 PM		X		4	X			X
	GW-1			X			X			X
-4	GW-2	7-18-02 8:00 AM		X		4	X			X
-5	GW-3	7-18-02 9:00 AM		X		4	X			X
-6	GW-4	7-18-02 10:00 AM		X		4	X			X
-7	LFR-1	7-18-02 9:00 AM		X		4	X			X
-8	LFR-2	7-17-02 3:00 PM		X		4	X			X
-9	LFR-3	7-17-02 1:45 PM		X		4	X			X
-10	LFR-4	7-17-02 9:55 AM		X		4	X			X
-11	MW-11	7-17-02 4:00 PM		X		4	X			X

TPHg (including Stoddard Solvent) 8015	BTEX + MBE 8021 GC	8260 (Full List)																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	
X	X	X																	

Notes:

Received On Ice
 Cold Ambient Intact

RELINQUISHED BY:	RECEIVED BY:
<u>Kamran Javandel</u> KAMRAN JAVANDEL	<u>Anna Paganillo</u> Anna Paganillo
<u>7-18-02 8:40</u> DATE/TIME	<u>7/18/02 10:40</u> DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME



Total Volatile Hydrocarbons

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B (M)
Matrix:	Water	Batch#:	73884
Units:	ug/L	Received:	07/18/02

Field ID:	SOMA-1	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/17/02
Lab ID:	159755-001	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	68-145
Bromofluorobenzene (FID)	122	66-143

Field ID:	SOMA-2	Diln Fac:	2.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-002	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	4,400 H Y	100
Stoddard Solvent C7-C12	2,600	100
Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	68-145
Bromofluorobenzene (FID)	147 *	66-143

Field ID:	SOMA-3	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-003	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	690 H Y	50
Stoddard Solvent C7-C12	410	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	68-145
Bromofluorobenzene (FID)	135	66-143

Field ID:	GW-2	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-004	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	68-145
Bromofluorobenzene (FID)	107	66-143

*= 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

Page 1 of 3

GC04 TVH 'J' Data File FID

Sample Name : 159755-002,73884,+STOD
FileName : G:\GC04\DATA\200J038.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor : 1.0

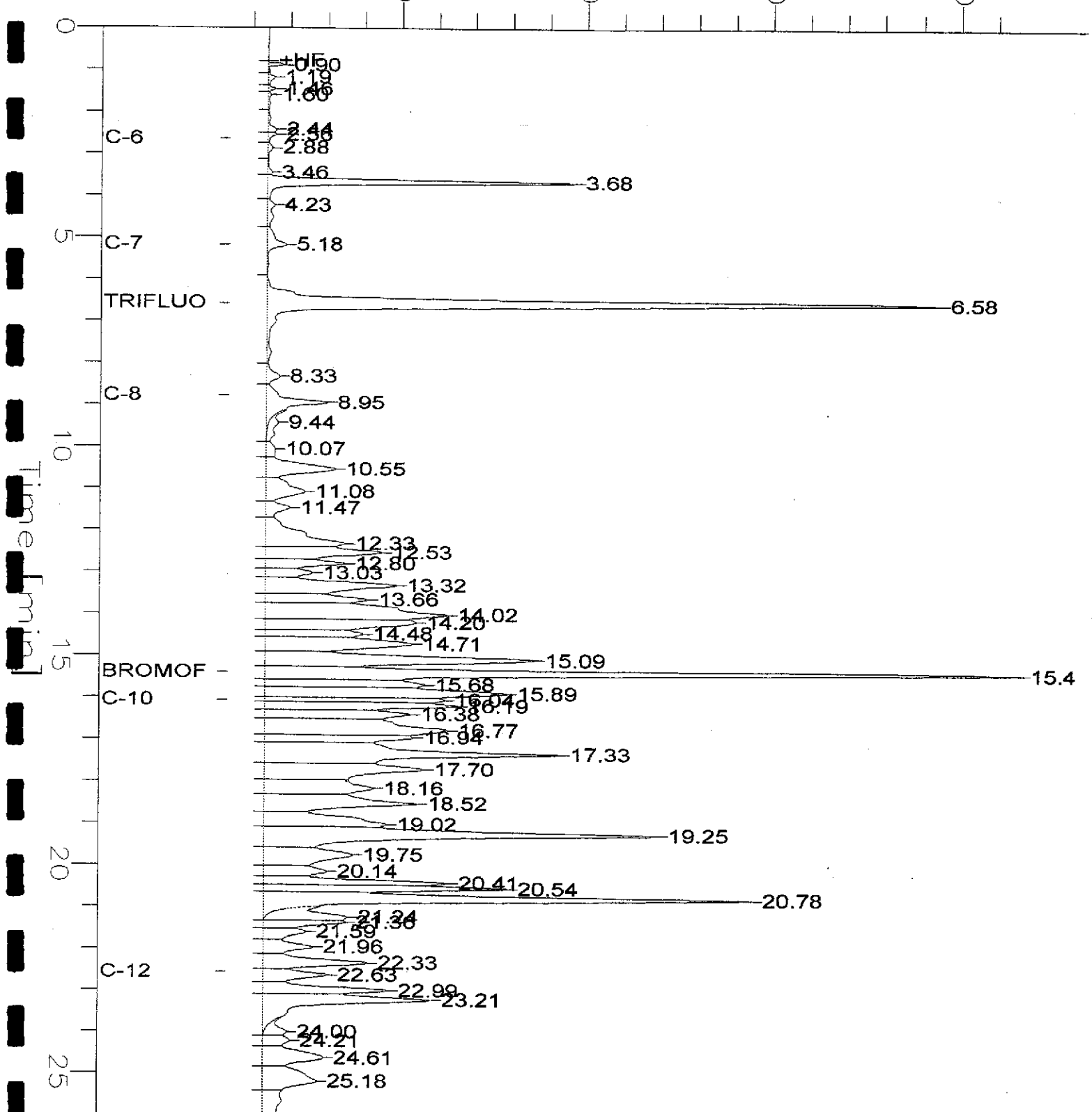
End Time : 26.00 min
Plot Offset : 54 mV

Sample #: A1
Date : 7/22/02 07:06 AM
Time of Injection: 7/20/02 01:14 PM
Low Point : 53.69 mV
High Point : 266.26 mV
Plot Scale: 212.6 mV

Page 1 of 1

Response [mV]

[SOMA-2]



GC04 TVH 'J' Data File FID

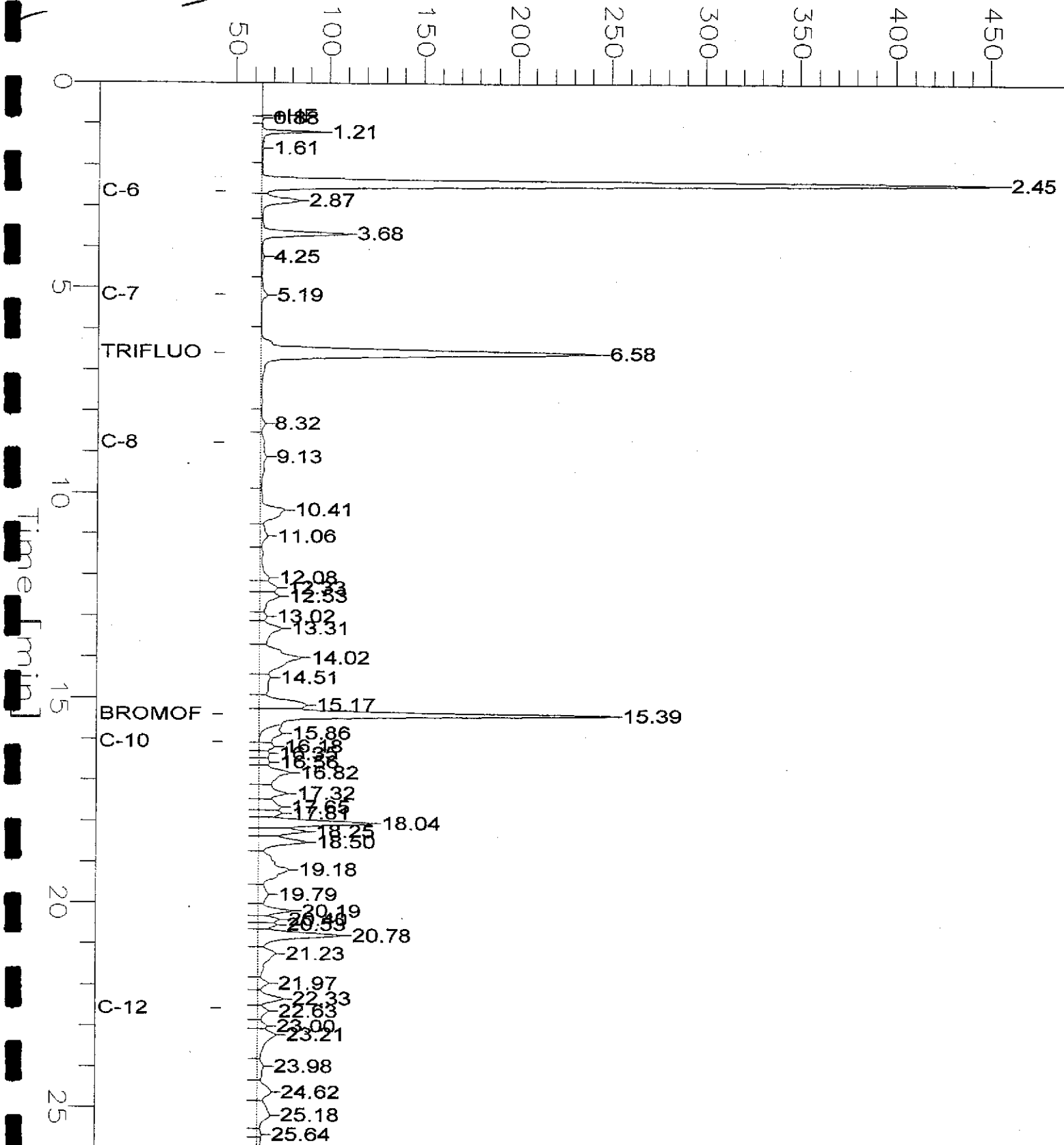
Sample Name : 159755-003,73884,+STOD
 FileName : G:\GC04\DATA\200J037.raw
 Method : TVHBTXE
 Start Time : 0.00 min
 Scale Factor: 1.0

End Time : 26.00 min
 Plot Offset: 44 mV

Sample #: A1
 Date : 7/22/02 07:06 AM
 Time of Injection: 7/20/02 12:38 PM
 Low Point : 44.22 mV
 High Point : 455.72 mV
 Plot Scale: 411.5 mV

Response [mV]

SOMA-3





Total Volatile Hydrocarbons

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B (M)
Matrix:	Water	Batch#:	73884
Units:	ug/L	Received:	07/18/02

Field ID:	GW-3	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-005	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	68-145
Bromofluorobenzene (FID)	111	66-143

Field ID:	GW-4	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-006	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	1,700 H Y	50
Stoddard Solvent C7-C12	970	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	68-145
Bromofluorobenzene (FID)	170 *	66-143

Field ID:	LFR-1	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/18/02
Lab ID:	159755-007	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	140 Y Z	50
Stoddard Solvent C7-C12	84 Y Z	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	68-145
Bromofluorobenzene (FID)	110	66-143

Field ID:	LFR-2	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/17/02
Lab ID:	159755-008	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	1,700 H Y	50
Stoddard Solvent C7-C12	970	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	102	68-145
Bromofluorobenzene (FID)	175 *	66-143

*= 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

Page 2 of 3

GC04 TVH 'J' Data File FID

Sample Name : 159755-006,73884,+STOD
FileName : G:\GC04\DATA\200J023.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor : 1.0

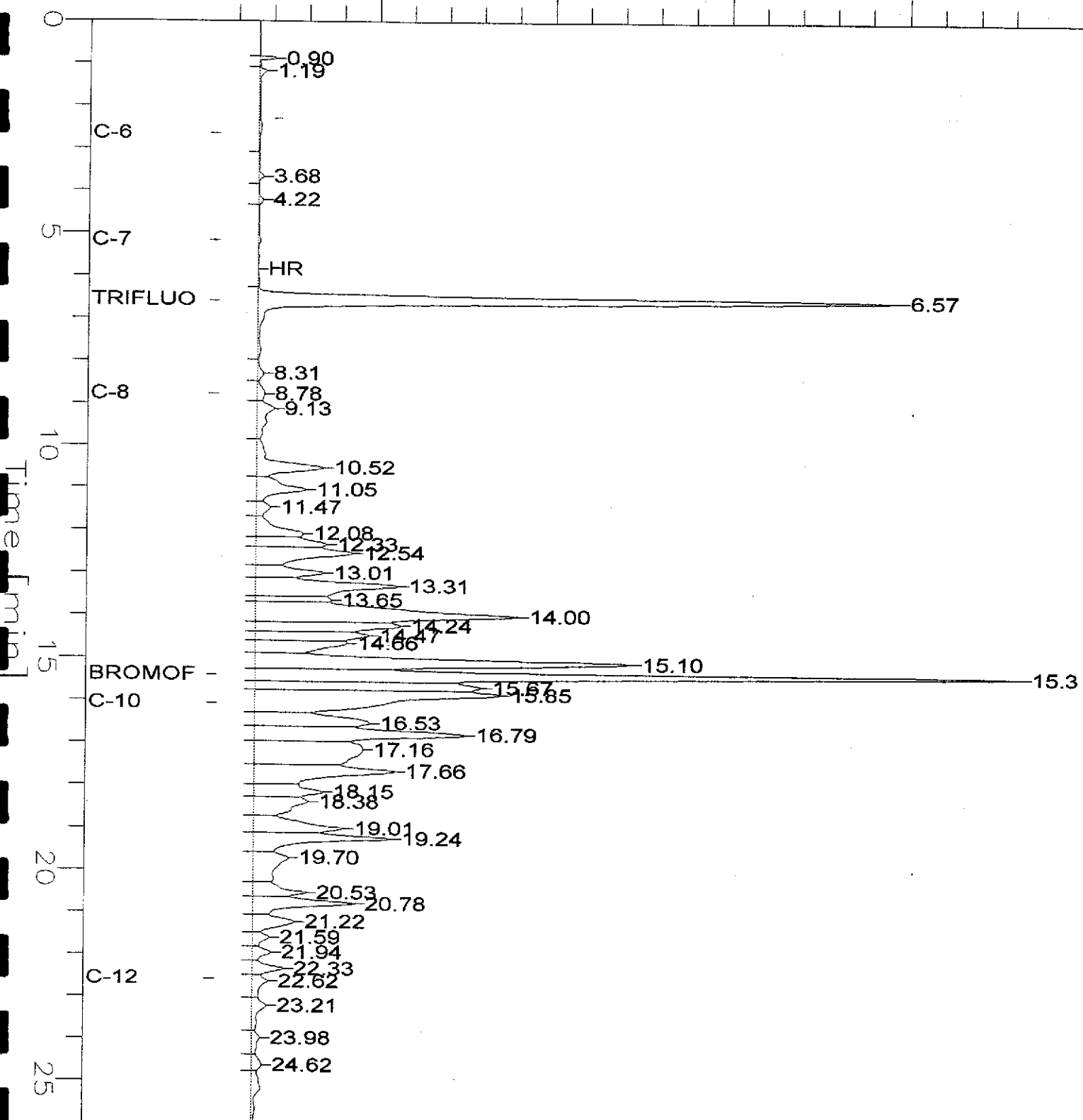
End Time : 26.00 min
Plot Offset : 55 mV

Sample #: A1
Date : 7/22/02 07:05 AM
Time of Injection: 7/20/02 04:19 AM
Low Point : 54.80 mV
Plot Scale : 227.6 mV
High Point : 282.39 mV

Page 1 of 1

Response [mV]

[GW-4]



GC04 TVH 'J' Data File FID

Sample Name : 159755-007,73884,+STOD
FileName : G:\GC04\DATA\200J024.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor: 1.0

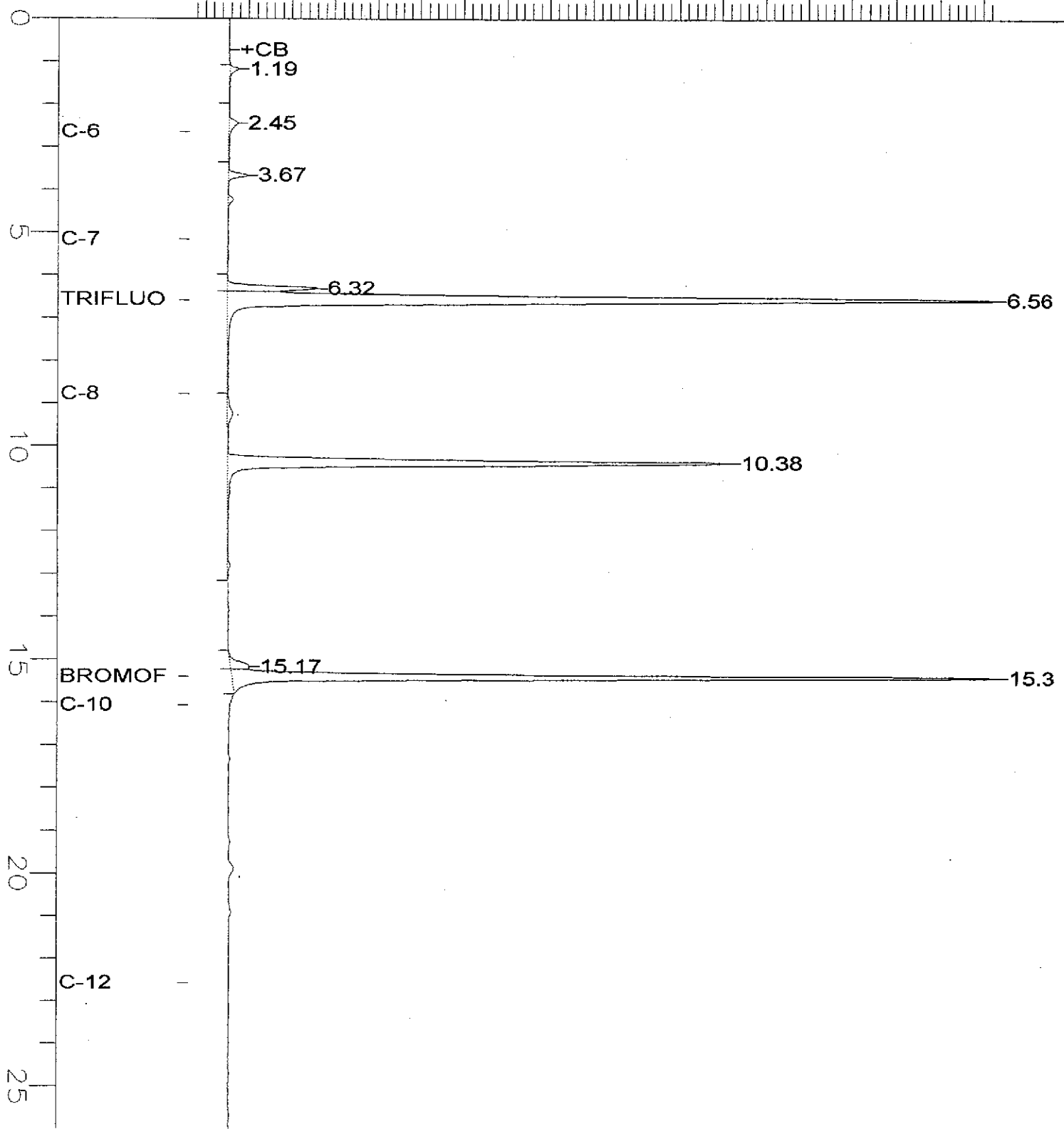
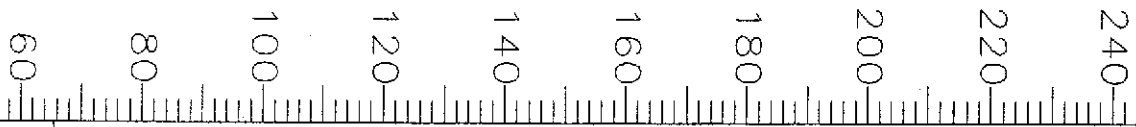
End Time : 26.00 min
Plot Offset: 56 mV

Sample #: A1
Date : 7/20/02 05:21 AM
Time of Injection: 7/20/02 04:55 AM
Low Point : 56.22 mV
High Point : 243.48 mV
Plot Scale: 187.3 mV

Page 1 of 1

[LFR-1]

Response [mV]



GC04 TVH 'J' Data File FID

Sample Name : 159755-008,73884,+STOD
FileName : G:\GC04\DATA\200J025.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor : 1.0

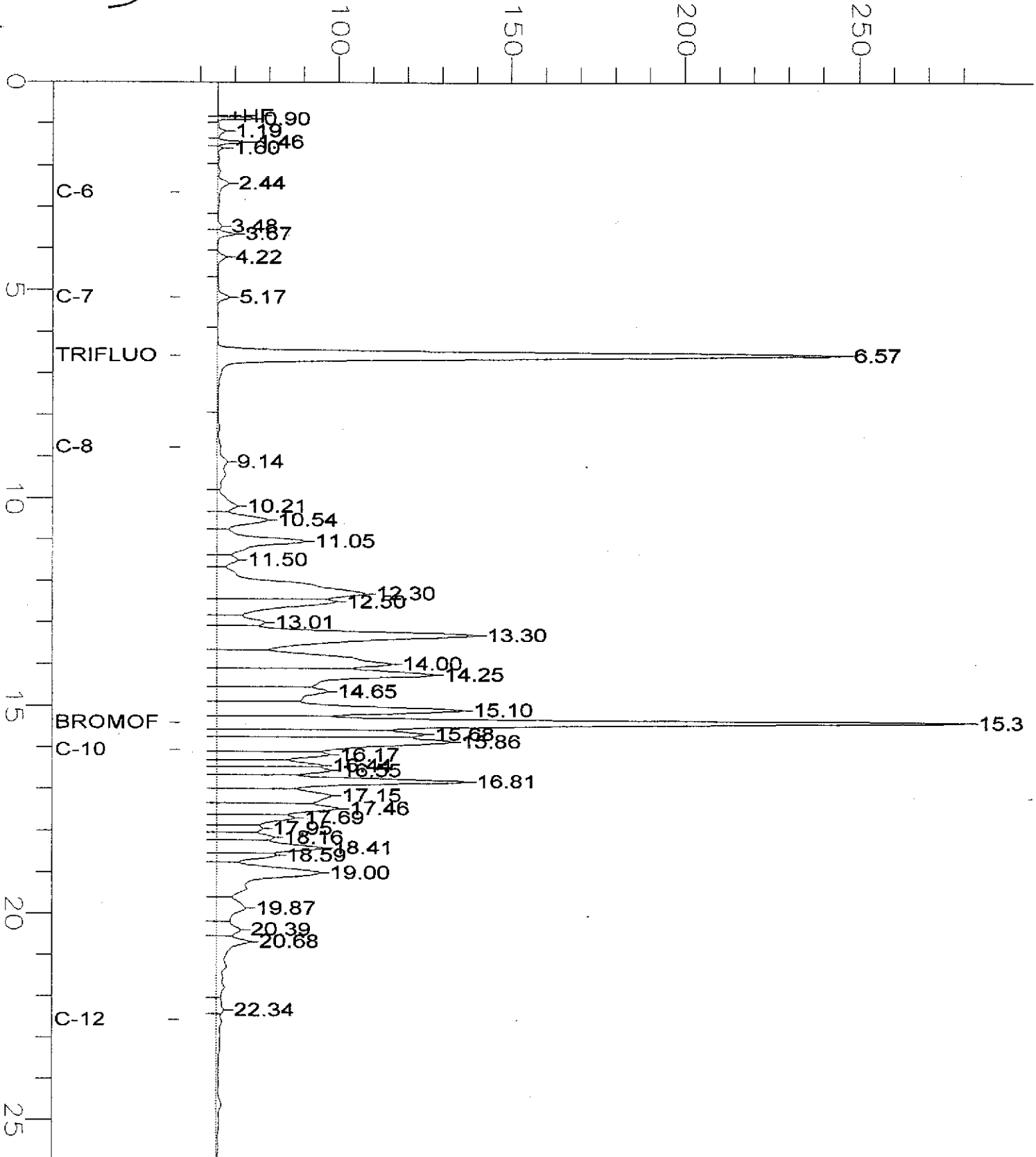
End Time : 26.00 min
Plot Offset: 54 mV

Sample #: A1
Date : 7/22/02 07:05 AM
Time of Injection: 7/20/02 05:30 AM
Low Point : 54.18 mV
High Point : 281.45 mV
Plot Scale: 227.3 mV

Page 1 of 1

[LFR-2]

Response [mV]





Total Volatile Hydrocarbons

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Matrix:	Water	Batch#:	73884
Units:	ug/L	Received:	07/18/02

Field ID:	LFR-3	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/17/02
Lab ID:	159755-009	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	68-145
Bromofluorobenzene (FID)	116	66-143

Field ID:	LFR-4	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/17/02
Lab ID:	159755-010	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	360 Y	50
Stoddard Solvent C7-C12	210 Y	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	68-145
Bromofluorobenzene (FID)	124	66-143

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	07/17/02
Lab ID:	159755-011	Analyzed:	07/20/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	68-145
Bromofluorobenzene (FID)	109	66-143

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184619	Analyzed:	07/19/02

Analyte	Result	RL
Gasoline C7-C12	ND	50
Stoddard Solvent C7-C12	ND	50
Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	68-145
Bromofluorobenzene (FID)	107	66-143

*= 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

GC04 TVH 'J' Data File FID

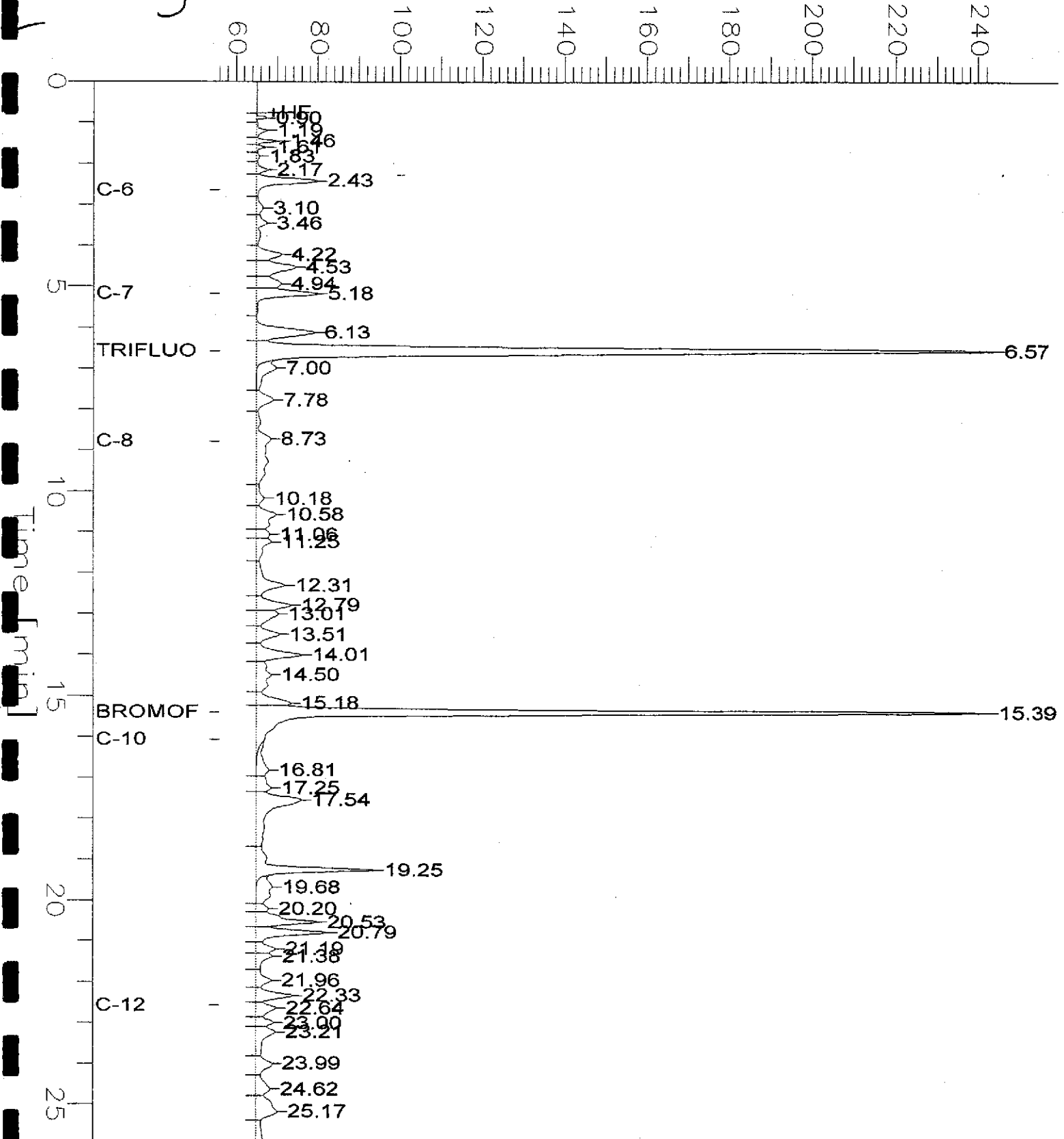
Sample Name : 159755-010,73884,+STOD
FileName : G:\GC04\DATA\200J027.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor: 1.0

End Time : 26.00 min
Plot Offset: 56 mV

Sample #: A1
Date : 7/22/02 07:05 AM
Time of Injection: 7/20/02 06:42 AM
Low Point : 55.98 mV
Plot Scale: 188.0 mV
High Point : 243.95 mV

[LFR-4]

Response [mV]



GC04 TVH 'J' Data File FID

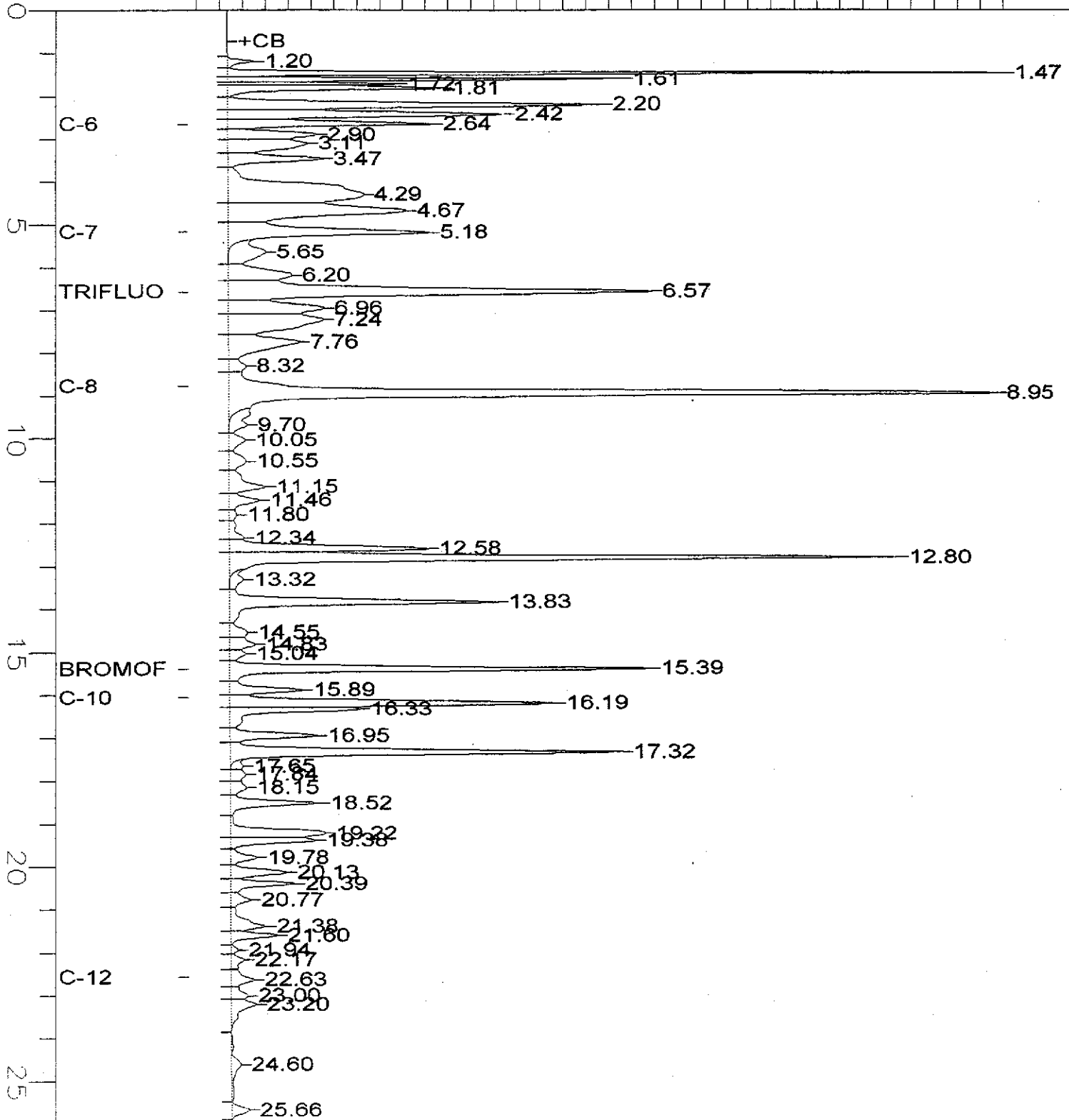
Sample Name : ccv/lcs,qc184620,73884,02wsll19,5/5000
 File Name : G:\GC04\DATA\2003004.raw
 Method : TVHBTXE
 Start Time : 0.00 min End Time : 26.00 min
 Scale Factor : 1.0 Plot Offset : 46 mV

Sample # :
 Date : 7/19/02 05:26 PM
 Time of Injection : 7/19/02 05:00 PM
 Low Point : 46.39 mV High Point : 400.21 mV
 Plot Scale : 353.8 mV

GASOLINE STANDARD

Response [mV]

50 100 150 200 250 300 350 400



GC04 TVH 'J' Data File FID

Sample Name : CCV, STODARD, 73884, 02WS0650, 5/5000

Sample #:

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FileName : G:\GC04\DATA\200J001.raw

Date : 7/20/02 11:25 AM

Method : TVHBTXE

Time of Injection: 7/19/02 02:52 PM

Start Time : 0.00 min

End Time : 26.00 min

Low Point : 46.13 mV

High Point : 405.93 mV

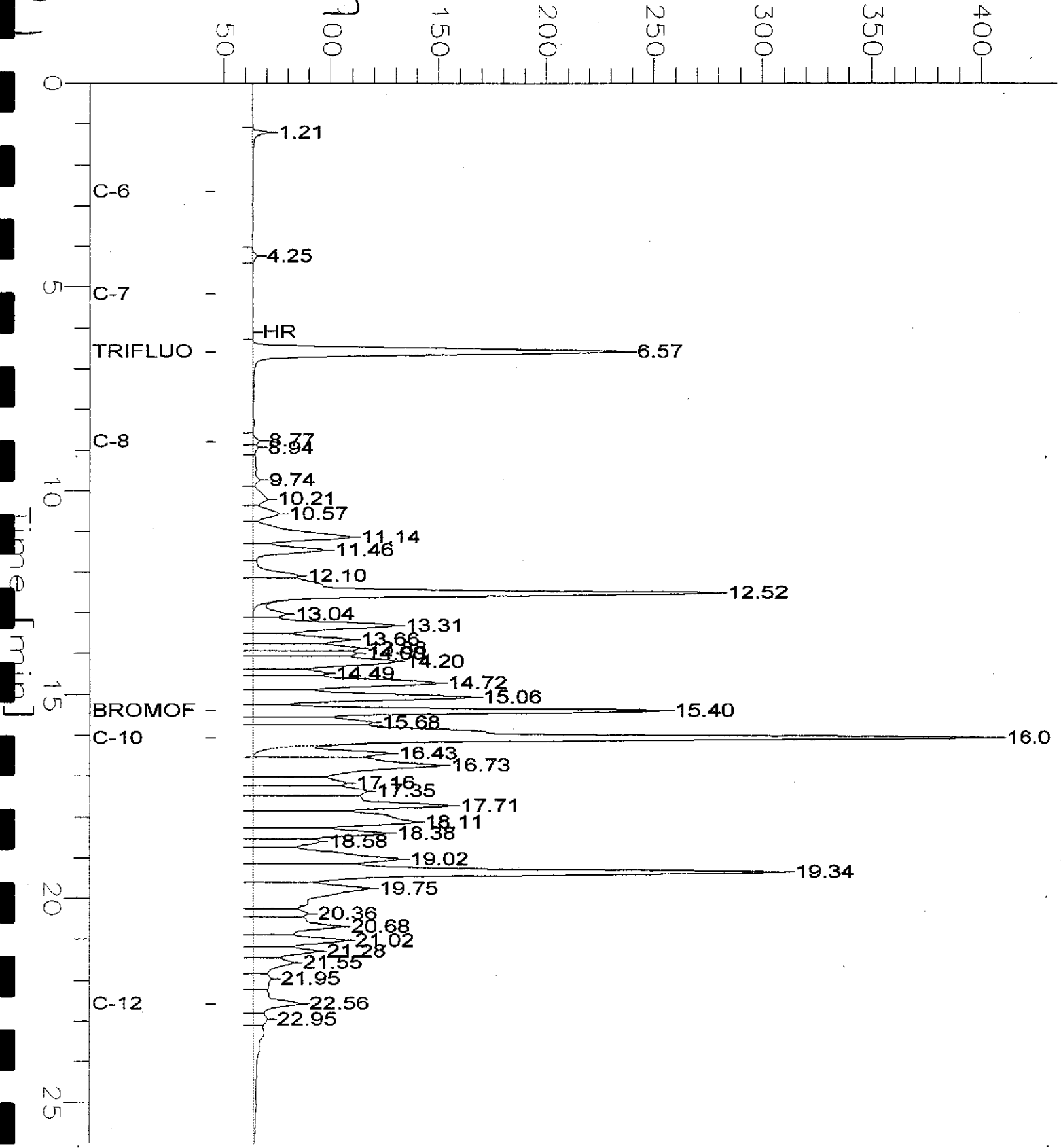
Scale Factor: 1.0

Plot Offset: 46 mV

Plot Scale: 359.8 mV

Response [mV]

STODARD STD.



Total Volatile Hydrocarbons

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B (M)
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC184620	Batch#:	73884
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,204	110	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	115	68-145
Bromofluorobenzene (FID)	114	66-143



Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-1	Batch#:	73910
Lab ID:	159755-001	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	120	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	16	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
2-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

RL = Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-1	Batch#:	73910
Lab ID:	159755-001	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-121
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	103	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-2	Batch#:	73910
Lab ID:	159755-002	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/23/02
Diln Fac:	12.50		

Analyte	Result	RL
Freon 12	ND	130
Chloromethane	ND	130
Vinyl Chloride	ND	130
Bromomethane	ND	130
Chloroethane	ND	130
Trichlorofluoromethane	ND	63
Acetone	ND	250
Freon 113	ND	63
1,1-Dichloroethene	ND	63
Methylene Chloride	ND	250
Carbon Disulfide	ND	63
MTBE	ND	63
trans-1,2-Dichloroethene	ND	63
Vinyl Acetate	ND	630
1,1-Dichloroethane	ND	63
2-Butanone	ND	130
cis-1,2-Dichloroethene	1,600	63
2,2-Dichloropropane	ND	63
Chloroform	ND	63
Bromochloromethane	ND	130
1,1,1-Trichloroethane	ND	63
1,1-Dichloropropene	ND	63
Carbon Tetrachloride	ND	63
1,2-Dichloroethane	ND	63
Benzene	ND	63
Trichloroethene	ND	63
1,2-Dichloropropane	ND	63
Bromodichloromethane	ND	63
Dibromomethane	ND	63
4-Methyl-2-Pentanone	ND	130
cis-1,3-Dichloropropene	ND	63
Toluene	ND	63
trans-1,3-Dichloropropene	ND	63
1,1,2-Trichloroethane	ND	63
2-Hexanone	ND	130
1,3-Dichloropropane	ND	63
Tetrachloroethene	ND	63

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-2	Batch#:	73910
Lab ID:	159755-002	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/23/02
Diln Fac:	12.50		

Analyte	Result	RL
Dibromochloromethane	ND	63
1,2-Dibromoethane	ND	63
Chlorobenzene	ND	63
1,1,1,2-Tetrachloroethane	ND	63
Ethylbenzene	ND	63
m,p-Xylenes	ND	63
o-Xylene	ND	63
Styrene	ND	63
Bromoform	ND	63
Isopropylbenzene	ND	63
1,1,2,2-Tetrachloroethane	ND	63
1,2,3-Trichloropropane	ND	63
Propylbenzene	ND	63
Bromobenzene	ND	63
1,3,5-Trimethylbenzene	ND	63
2-Chlorotoluene	ND	63
1-Chlorotoluene	ND	63
tert-Butylbenzene	ND	63
1,2,4-Trimethylbenzene	ND	63
sec-Butylbenzene	ND	63
para-Isopropyl Toluene	ND	63
1,3-Dichlorobenzene	ND	63
1,4-Dichlorobenzene	ND	63
n-Butylbenzene	ND	63
1,2-Dichlorobenzene	ND	63
1,2-Dibromo-3-Chloropropane	ND	63
1,2,4-Trichlorobenzene	ND	63
Hexachlorobutadiene	ND	63
Naphthalene	ND	63
1,2,3-Trichlorobenzene	ND	63

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	113	77-130
Toluene-d8	104	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-3	Batch#:	73910
Lab ID:	159755-003	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/23/02
Diln Fac:	3.333		

Analyte	Result	RL
Freon 12	ND	33
Chloromethane	ND	33
Vinyl Chloride	ND	33
Bromomethane	ND	33
Chloroethane	ND	33
Trichlorofluoromethane	ND	17
Acetone	ND	67
Freon 113	ND	17
1,1-Dichloroethene	ND	17
Methylene Chloride	ND	67
Carbon Disulfide	ND	17
MTBE	380	17
trans-1,2-Dichloroethene	ND	17
Vinyl Acetate	ND	170
1,1-Dichloroethane	ND	17
2-Butanone	ND	33
cis-1,2-Dichloroethene	440	17
2,2-Dichloropropane	ND	17
Chloroform	ND	17
Bromochloromethane	ND	33
1,1,1-Trichloroethane	ND	17
1,1-Dichloropropene	ND	17
Carbon Tetrachloride	ND	17
1,2-Dichloroethane	ND	17
Benzene	ND	17
Trichloroethene	ND	17
1,2-Dichloropropane	ND	17
Bromodichloromethane	ND	17
Dibromomethane	ND	17
4-Methyl-2-Pentanone	ND	33
cis-1,3-Dichloropropene	ND	17
Toluene	ND	17
trans-1,3-Dichloropropene	ND	17
1,1,2-Trichloroethane	ND	17
2-Hexanone	ND	33
1,3-Dichloropropane	ND	17
Tetrachloroethene	27	17

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #: 159755	Location: 3815 Broadway-Oakland, CA
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2511	Analysis: EPA 8260B
Field ID: SOMA-3	Batch#: 73910
Lab ID: 159755-003	Sampled: 07/18/02
Matrix: Water	Received: 07/18/02
Units: ug/L	Analyzed: 07/23/02
Diln Fac: 3.333	

Analyte	Result	RL
Dibromochloromethane	ND	17
1,2-Dibromoethane	ND	17
Chlorobenzene	ND	17
1,1,1,2-Tetrachloroethane	ND	17
Ethylbenzene	ND	17
m,p-Xylenes	ND	17
o-Xylene	ND	17
Styrene	ND	17
Bromoform	ND	17
Isopropylbenzene	ND	17
1,1,2,2-Tetrachloroethane	ND	17
1,2,3-Trichloropropane	ND	17
Propylbenzene	ND	17
Bromobenzene	ND	17
1,3,5-Trimethylbenzene	ND	17
2-Chlorotoluene	ND	17
4-Chlorotoluene	ND	17
tert-Butylbenzene	ND	17
1,2,4-Trimethylbenzene	ND	17
sec-Butylbenzene	ND	17
para-Isopropyl Toluene	ND	17
1,3-Dichlorobenzene	ND	17
1,4-Dichlorobenzene	ND	17
n-Butylbenzene	ND	17
1,2-Dichlorobenzene	ND	17
1,2-Dibromo-3-Chloropropane	ND	17
1,2,4-Trichlorobenzene	ND	17
Hexachlorobutadiene	ND	17
Naphthalene	ND	17
1,2,3-Trichlorobenzene	ND	17

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	110	77-130
Toluene-d8	105	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	73873
Lab ID:	159755-004	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/20/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
2-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	14	5.0



Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	73873
Lab ID:	159755-004	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/20/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-121
1,2-Dichloroethane-d4	113	77-130
Toluene-d8	95	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	73873
Lab ID:	159755-005	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/20/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	86	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	73873
Lab ID:	159755-005	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/20/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-121
1,2-Dichloroethane-d4	115	77-130
Toluene-d8	92	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	73910
Lab ID:	159755-006	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	73910
Lab ID:	159755-006	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
1-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-121
1,2-Dichloroethane-d4	110	77-130
Toluene-d8	104	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	73910
Lab ID:	159755-007	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/23/02
Diln Fac:	2.500		

Analyte	Result	RL
Freon 12	ND	25
Chloromethane	ND	25
Vinyl Chloride	ND	25
Bromomethane	ND	25
Chloroethane	ND	25
Trichlorofluoromethane	ND	13
Acetone	ND	50
Freon 113	ND	13
1,1-Dichloroethene	ND	13
Methylene Chloride	ND	50
Carbon Disulfide	ND	13
MTBE	ND	13
trans-1,2-Dichloroethene	ND	13
Vinyl Acetate	ND	130
1,1-Dichloroethane	ND	13
2-Butanone	ND	25
cis-1,2-Dichloroethene	ND	13
2,2-Dichloropropane	ND	13
Chloroform	ND	13
Bromochloromethane	ND	25
1,1,1-Trichloroethane	ND	13
1,1-Dichloropropene	ND	13
Carbon Tetrachloride	ND	13
1,2-Dichloroethane	ND	13
Benzene	ND	13
Trichloroethene	41	13
1,2-Dichloropropane	ND	13
Bromodichloromethane	ND	13
Dibromomethane	ND	13
2-Methyl-2-Pentanone	ND	25
cis-1,3-Dichloropropene	ND	13
Toluene	ND	13
trans-1,3-Dichloropropene	ND	13
1,1,2-Trichloroethane	ND	13
2-Hexanone	ND	25
1,3-Dichloropropane	ND	13
Tetrachloroethene	360	13

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	73910
Lab ID:	159755-007	Sampled:	07/18/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/23/02
Diln Fac:	2.500		

Analyte	Result	RL
Dibromochloromethane	ND	13
1,2-Dibromoethane	ND	13
Chlorobenzene	ND	13
1,1,1,2-Tetrachloroethane	ND	13
Ethylbenzene	ND	13
m,p-Xylenes	ND	13
o-Xylene	ND	13
Styrene	ND	13
Bromoform	ND	13
Isopropylbenzene	ND	13
1,1,2,2-Tetrachloroethane	ND	13
1,2,3-Trichloropropane	ND	13
Propylbenzene	ND	13
Bromobenzene	ND	13
1,3,5-Trimethylbenzene	ND	13
2-Chlorotoluene	ND	13
4-Chlorotoluene	ND	13
tert-Butylbenzene	ND	13
1,2,4-Trimethylbenzene	ND	13
sec-Butylbenzene	ND	13
para-Isopropyl Toluene	ND	13
1,3-Dichlorobenzene	ND	13
1,4-Dichlorobenzene	ND	13
n-Butylbenzene	ND	13
1,2-Dichlorobenzene	ND	13
1,2-Dibromo-3-Chloropropane	ND	13
1,2,4-Trichlorobenzene	ND	13
Hexachlorobutadiene	ND	13
Naphthalene	ND	13
1,2,3-Trichlorobenzene	ND	13

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	112	77-130
Toluene-d8	104	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	73910
Lab ID:	159755-008	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	12	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

L= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	73910
Lab ID:	159755-008	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	111	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	111	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	73910
Lab ID:	159755-009	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	73910
Lab ID:	159755-009	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-121
1,2-Dichloroethane-d4	103	77-130
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	73910
Lab ID:	159755-010	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	7.5	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	7.0	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

L= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	73910
Lab ID:	159755-010	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	109	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected

RL = Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	73910
Lab ID:	159755-011	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	73910
Lab ID:	159755-011	Sampled:	07/17/02
Matrix:	Water	Received:	07/18/02
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	110	77-130
Toluene-d8	103	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected

RL = Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184587	Batch#:	73873
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184587	Batch#:	73873
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-121
1,2-Dichloroethane-d4	112	77-130
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120



Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184588	Batch#:	73873
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184588	Batch#:	73873
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184729	Batch#:	73910
Matrix:	Water	Analyzed:	07/22/02
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184729	Batch#:	73910
Matrix:	Water	Analyzed:	07/22/02
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-121
1,2-Dichloroethane-d4	110	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184730	Batch#:	73910
Matrix:	Water	Analyzed:	07/22/02
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC184730	Batch#:	73910
Matrix:	Water	Analyzed:	07/22/02
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	#REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	114	77-130
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC184586	Batch#:	73873
Matrix:	Water	Analyzed:	07/19/02
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	46.82	94	71-131
Benzene	50.00	47.89	96	76-120
Trichloroethene	50.00	60.18	120	78-120
Toluene	50.00	47.43	95	79-120
Chlorobenzene	50.00	52.00	104	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-121
1,2-Dichloroethane-d4	112	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	93	80-120



Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	73910
Units:	ug/L	Analyzed:	07/22/02
Diln Fac:	1.000		

Type: BS Lab ID: QC184727

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	54.14	108	71-131
Benzene	50.00	48.58	97	76-120
Trichloroethene	50.00	50.17	100	78-120
Toluene	50.00	49.50	99	79-120
Chlorobenzene	50.00	50.96	102	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-121
1,2-Dichloroethane-d4	98	77-130
Toluene-d8	95	80-120
Bromofluorobenzene	92	80-120

Type: BSD Lab ID: QC184728

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	51.73	103	71-131	5	20
Benzene	50.00	49.28	99	76-120	1	20
Trichloroethene	50.00	51.09	102	78-120	2	20
Toluene	50.00	49.97	100	79-120	1	20
Chlorobenzene	50.00	48.79	98	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-121
1,2-Dichloroethane-d4	109	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

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Purgeable Organics by GC/MS

Lab #:	159755	Location:	3815 Broadway-Oakland, CA
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	73873
MSS Lab ID:	159646-003	Sampled:	07/11/02
Matrix:	Water	Received:	07/11/02
Units:	ug/L	Analyzed:	07/19/02
Diln Fac:	1.429		

Type: MS Lab ID: QC184589

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.3900	71.43	62.17	87	71-134
Benzene	<0.4600	71.43	66.64	93	79-120
Trichloroethene	162.2	71.43	240.4	110	47-141
Toluene	<0.4200	71.43	68.90	96	75-120
Chlorobenzene	<0.3700	71.43	71.55	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-121
1,2-Dichloroethane-d4	119	77-130
Toluene-d8	97	80-120
Bromofluorobenzene	99	80-120

Type: MSD Lab ID: QC184590

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	71.43	60.40	85	71-134	3	20
Benzene	71.43	65.39	92	79-120	2	20
Trichloroethene	71.43	232.7	99	47-141	3	20
Toluene	71.43	66.09	93	75-120	4	20
Chlorobenzene	71.43	69.40	97	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-121
1,2-Dichloroethane-d4	116	77-130
Toluene-d8	100	80-120
Bromofluorobenzene	92	80-120

RPD= Relative Percent Difference

APPENDIX B

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



Project #: 2511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovalorium Address: Oakland, CA Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: GW-2 TOC Elevation: 79.14 ft Purge: Pump Bailer
 Dup: _____ Well Depth: 20 ft Sample: Pump Bailer
 Blank: _____ DTW: 10.53 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 68.61 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 9.47 ft Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ preserved poly Dissolved Perm Gases: 2 Unpreserved VOAs
 8260 (8010 list) & MBE & 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
12:30		0.2	18.22	87.3 mS/m	8.92	170	101.0	6.59	
12:31		0.4	18.13	81.0	8.47	169	27.0	6.52	
12:32		0.5	18.09	70.7	7.73	169	42.6	6.47	
12:33		0.6	18.05	71.4	5.02	164	29.2	6.45	
12:34		0.8	17.93	72.8	2.56	163	24.5	6.41	
12:35		1 gal	17.87	75.4	1.92	162	24.8	6.38	
12:36		1.2	17.75	79.8	1.39	161	28.8	6.35	
DELETED									
Sampled	7/18/02	8:00							

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.0	1.39	0.0	0.0	69	0.6
Dilution:						
Comments:						

(Results in mg/L)



Project #: 3511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovalorium Address: Oakland, CA Sampler: Naser Pakrou
 Kamran Javandel

Well/Sample ID: GW-3 TOC Elevation: 77.92 ft Purge: Pump Bailer
 Dup: Well Depth: 20 ft Sample: Pump Bailer
 Blank: DTW: 10.14 ft Odor: No Yes Describe:
 Purge Volume: Groundwater Elev.: 67.78 ft Sheen: No Yes Describe:
 Well Diameter: Water Column Height: 9.86 ft Color: No Yes Describe:

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ preserved poly Dissolved Perm Gases: 2 Unpreserved VOAs
 8260 (8010 list) & MiBE & 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters within:				± 3%	± 10%	± 10 mV	± 10%	± 0.1%	
12:45		0.1	17.44	60.0	6.35	98	71.9	6.64	
12:46		0.3	17.30	56.6	6.91	117	31.5	6.45	
12:47		0.5	17.32	53.7	6.28	130	25.4	6.36	
12:48		0.6	17.35	51.7	5.92	140	19.0	6.26	
12:49		0.7	17.28	50.9	5.63	145	19.6 19.6	6.22	
12:50		0.8	17.27	50.7	5.31	148	14.0	6.22	
12:51		0.9	17.19	50.9	5.14	150	10.8	6.23	
12:52		1 gal	17.16	51.4	4.92	151	11.0	6.25	
12:53		1.2 gal	17.11	52.3	4.73	152	10.5 9.5	6.26	
		1.4 gal	17.08	57.3	4.59	152	9.4	6.78	
		1.5 gal	17.10	54.5	3.50	155	11.5	6.32	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.22	1.08	0.0	0.008	47.0	0.0
Dilution:						
Comments:						

(Results in mg/L)

Sampled 9:00 7/18/02

11.5
1:55 DRIED



Project #: 2511 Address: 3820 Manila Date: 7/17/02-7/18/02
 Project Name: Glovatorium Address: Oakland, CA Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: MW-11 TOC Elevation: 84.13 ft Purge: Pump Bailer
 Dup: _____ Well Depth: _____ Sample: Pump Bailer
 Blank: _____ DTW: 10.23 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 73.90 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: _____ Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
4:23		1.0 gal	18.98	1170	5.58	481	9.3	6.00	
4:24		2.0 gal	18.77	1160	5.06	454	9.8	6.10	
4:25		3.0 gal	17.93	1210	3.71	431	9.7	6.17	
4:26		4.0 gal	18.05	1220	3.19	421	13.2	6.20	
4:27		5.0 gal	18.35	1210	2.82	406	9.4	6.20	
4:30		6.0 gal	18.37 18.37	1180	3.02	357	15.7	6.27	
sampled 4:30									

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.0	9.0	4.1	0.021	79	0.0
Dilution:						
Comments:						

(Results in mg/L)



Project #: 2511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovatorium Address: Oakland, CA Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: LFR-1 TOC Elevation: 79.97 ft Purge: Pump Bailer
 Dup: _____ Well Depth: 19 ft Sample: Pump Bailer
 Blank: _____ DTW: 9.79 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 70.18 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 9.21 ft Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ preserved poly Dissolved Perm Gases: 2 Unpreserved VOAs
 8260 (8010 list) & MIBE & 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters within:									
				±3%	±10%	±10 mV	±10%	±0.1%	
7:52		0.5	16.27	1450	4.83	218	20.8	6.52	
8:00		1.25	16.75	1250	0.00	203	-5.0	6.31	
8:10		2.0	17.14	78.4 mS/m	0.00	205	-10.0	6.39	
8:15		3.0	17.11	81.5 mS/m	0.00	205	-10.0	6.38	
8:28		5.0	17.07	85.4 mS/m	0.00	205	-10.0	6.37	
8:37		6.5	17.02	87.2 mS/m	0.00	209	-10.0	6.40	
SAMPLED 9:00 AM									

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Disolved Manganese
	0.07	0.22	6.1	0.006	3.0	0.0
Dilution:						
Comments:						

(Results in mg/L)



Project #: 2511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovatorium Address: Oakland, CA Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: LFR-2 TOC Elevation: 81.89 ft Purge: Pump Bailer
 Dup: _____ Well Depth: 19 ft Sample: Pump Bailer
 Blank: _____ DTW: 10.91 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 70.98 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 8.09 ft Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ preserved poly Dissolved Perm Gases: 2 Unpreserved VOAs
 8260 (8010 list) & MBE & 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
2:37		0.5 gal	16.27	96.7ms/cm	0.0	-57	263.0	6.48	
2:38		0.75 gal	16.23	96.5	0.0	-59	141.0	6.50	
2:39		1.0 gal	16.22	95.8	0.0	-60	192.0	6.50	
2:40		1.25 gal	16.22	92.8	0.0	-61	127.0	6.51	
2:41		1.50 gal	16.30	82.0	0.0	-59	48.8	6.54	
2:42		1.75 gal	16.32	80.7	0.0	-53	44.9	6.53	
2:43		2.0 gal	16.36	79.3	0.0	-45	82.8	6.50	
2:44		2.25 gal	16.37	80.2	0.0	-43	73.7	6.49	
3:00		4.0 gal	16.30	89.7	0.0	-62	129.0	6.55	
3:09		5.0 gal	16.24	98.6	0.0	-61	39.9	6.52	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	7.2	8.8	0.0	0.0	0.0	13.9
Dilution:						
Comments:						

(Results in mg/L)

Sampled 3:00 (7-17-02)



Project #: 2511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovatorium Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: LFR-3 TOC Elevation: 77.96 ft Purge: Pump Bailer
 Dup: _____ Well Depth: 22 ft Sample: Pump Bailer
 Blank: _____ DTW: 10.29 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 67.67 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 11.71 ft Color: No Yes Describe: _____

Laboratory: _____
Delivery: _____
Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
1:08		0.2 gal	18.64	61.45/m	2.54	153	999.0	6.19	
1:10		0.5 gal	18.32	54.4	2.76	156	999.0	6.22	
1:15		1.25 gal	18.31	55.2	—	169	187.0	6.16	INFLOW CELL WASHED
1:25		2.5 gal	18.29	55.5	1.08	162	62.2	6.16	
1:30		3.25 gal	18.39	56.8	0.00	163	21.7	6.16	
1:45		4.0 gal	18.38	57.9	0.00	165	86.2	6.15	
		5.0 gal	18.42	58.5	0.00	166	15.6	6.17	
Sampled	1:45								

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.0	0.08	1.7	0.010	4/2	0.2
Dilution:						
Comments:						

(Results in mg/L)



Project #: 2511

2511

Address:

3820 Manilla

Date:

7/17/02-7/18/02

Project Name:

Glovatorium

Oakland, CA

Sampler:

Naser Pakrou

Kamran Javandel

Well/Sample ID: SOMA-1

TOC Elevation:

31.64 ft

Purge:

Pump

Bailer

Dup:

Well Depth:

40 ft

Sample:

Pump

Bailer

Blank:

DTW:

14.02 ft

Odor:

No

Yes

Describe:

Purge Volume:

Groundwater Elev.:

67.62 ft

Sheen:

No

Yes

Describe:

Well Diameter:

Water Column Height:

25.98 ft

Color:

No

Yes

Describe:

Laboratory:

Delivery:

Analysis/preservative:

Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH

Dissolved H₂:

1 Septum Vial

Alk, Cl-, Sulfate: 1 unpreserved poly L

Total Iron, Manganese: 1 HNO₃ preserved poly

Dissolved Perm Gases:

2 Unpreserved VOAs

8260 (8010 list) & MIBE &

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	DTW	VOLUME	TEMP (C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
3:30	Start								
3:36		2.56	16.04	1270	0.0	106	56.2	6.41	
3:33		5.0	15.95	1270	0.0	114	46.6	6.36	
3:36		7.5	15.95	1270	0.0	125	42.3	6.38	
3:42		10.0	16.04	1270	0.0	133	16.2	6.48	
3:47		12.5	16.11	1270	0.0	138	4.4	6.49	
3:55		16.0	16.19	1280	0.0	146	39.1	6.50	
4:00		18.5	16.21	1270	0.0	149	42.6	6.52	
Sampled	4:00								

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.05	0.11	1.8	0.013	28	0.0
Dilution:						
Comments:						

(Results in mg/L)



Project #: 2511 Address: 3820 Manilla Date: 7/17/02-7/18/02
 Project Name: Glovatorium Address: Oakland, CA Sampler: Naser Pakrou
Kamran Javandel

Well/Sample ID: SOMA-2 TOC Elevation: 81.39 ft Purge: Pump Bailer
 Dup: _____ Well Depth: 20 ft Sample: Pump Bailer
 Blank: _____ DTW: 8.99 ft Odor: No Yes Describe: _____
 Purge Volume: _____ Groundwater Elev.: 72.40 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 11.01 ft Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L
 Total Iron, Manganese: 1 HNO₃ preserved poly Dissolved Perm Gases: 2 Unpreserved VOAs
 8260 (8010 list) & MIBE & 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters within:				±3%	±10%	±10 mV	±10%	±0.1%	
1:55		0.2	14.73	1270	4.30	-49	527.0	6.86	
1:59		0.75	14.42	1180	0.00	-70	159.0	6.84	
2:08		1.50	14.30	1170	0.00	-77	6.1	6.84	
2:15		2.25	14.20	1170	0.00	-82	15.1	6.85	
2:21		3.0	14.22	1170	0.00	-84	-10.0	6.83	
2:28		4.0	14.19	1170	0.00	-84	-8.9	6.84	
2:35		4.5	14.19	1170	0.00	-87	24.2	6.86	
Sampled 2:40 PM									

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	73.3	73.3	0.0	0.000	0.0	5.70
Dilution:						
Comments:						

(Results in mg/L)



Project #: 2511 Address: 3820 Manila Date: 7/17/02-7/18/02
 Project Name: Glovatorium Sampler: Oakland, CA
Naser Pakrou
Kamran Javandel

Well/Sample ID: SOMA-3 FOC Elevation: 81.42 ft Purge: Pump Bailer
 Dup: 30 ft Well Depth: 30 ft Sample: Pump Bailer
 Blank: 11.78 ft DTW: 11.78 ft Odor: No Yes Describe: _____
 Purge Volume: 69.64 ft Groundwater Elev.: 69.64 ft Sheen: No Yes Describe: _____
 Well Diameter: _____ Water Column Height: 18.22 ft Color: No Yes Describe: _____

Laboratory: _____
 Delivery: _____
 Analysis/preservative:
 Sulfide: 1 Poly w/ Zn(C₂H₃O₂)₂ + NaOH Dissolved H₂: 1 Septum Vial Alk, Cl-, Sulfate: 1 unpreserved poly L.
 Total Iron, Manganese: 1 HNO₃ 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	DTW	VOLUME	TEMP (°C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
1:07		0.20	15.34	1230	6.59	-17	50.3	6.63	
1:09		0.50	15.23	1260	4.32	-52	204.0	6.68	
1:11		0.75	14.94	1260	3.16	-53	202.0	6.71	
1:15		1.0	14.90	1280	0.97	-60	353.0	6.70	
1:17		1.2	14.99	1300	2.974	-56	582.0	6.71	
1:19		1.5	15.05	1290	0.97	-51	565.0	6.77	
Sampled 1:30									

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	73.3	73.3	0.0	0.00	23.0	10.9
Dilution:						
Comments:						

(Results in mg/L)

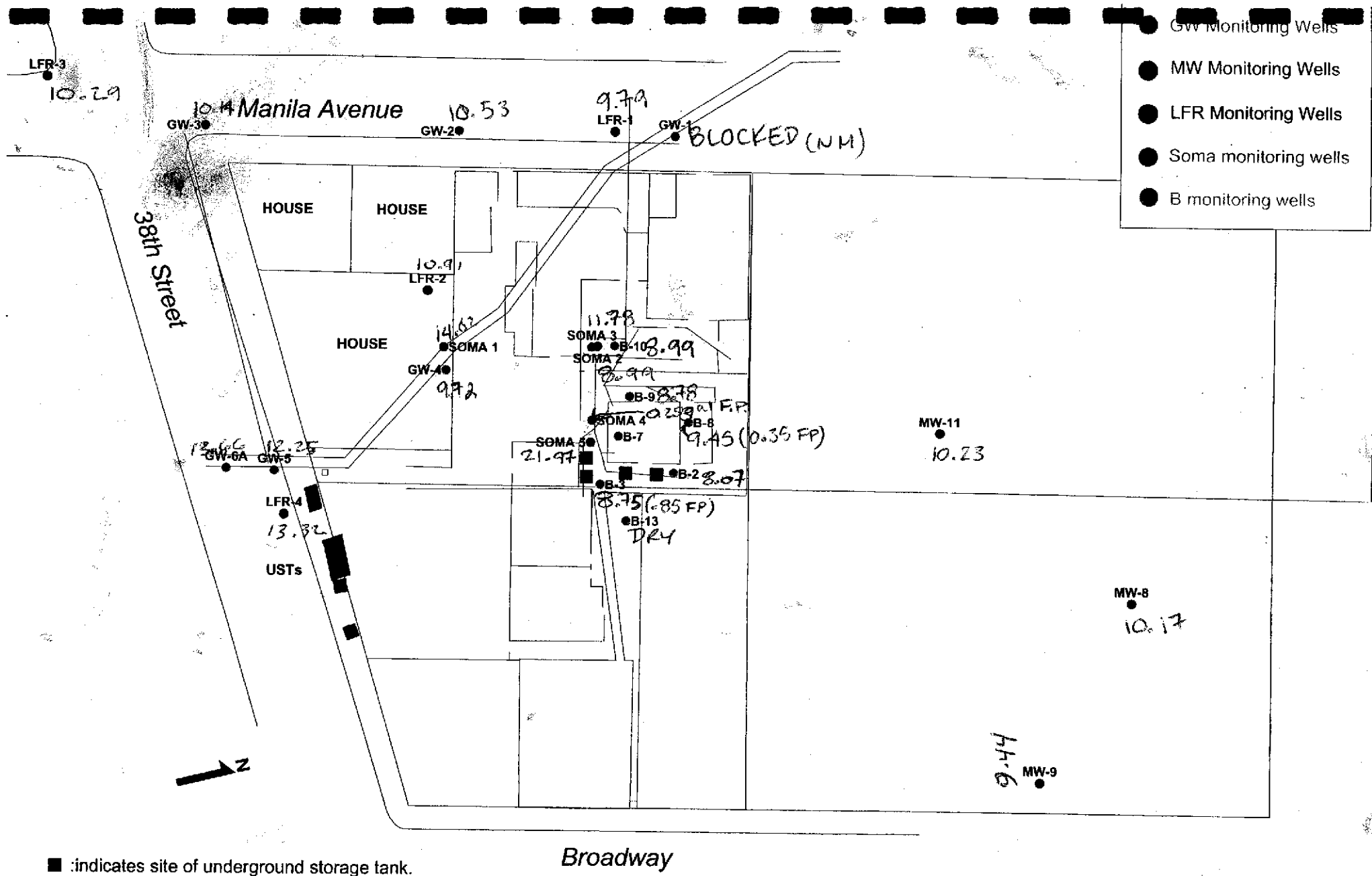
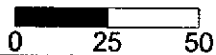


Figure 2: Location of Groundwater Monitoring Wells

scale in feet



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