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Second Quarter 2002
Groundwater Monitoring Report
Former Glovatorium Facility

3815 Broadway

Oakland, California

May 16, 2002

Project 01-2511

Prepared for

Smiland and Khachigian

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Los Angeles, California 90071

Prepared by

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May 16, 2002

MAY 21 2002

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

Project: 01-2510

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

Dear Mr. Seery:

A copy of SOMA's "Second 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

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

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

Certification

MAY 2 1 2002

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 Second 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 Second Quarter 2002 groundwater monitoring event conducted at the Site on April 16 and 17, 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 third 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 three USTs owned by Earl Thompson, Sr., under the sidewalk on 38th Street, see Figure 2.

The surrounding properties are primarily commercial, businesses and residential housing. 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 ~~in~~ 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 Second 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 in Figure 2. 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 Geolsolv, and in off-site wells MW-8, MW-9 and MW-11 owned by TOSCO. Groundwater samples were collected from the temporary sampling points

installed by LFR and from the off-site well MW-11.

In July and August 2000, LFR installed four groundwater monitoring wells, namely LFR-1 through LFR-4, and conducted the Third Quarter 2000 groundwater monitoring event. This was the first sampling event in which bioattenuation parameters were collected. The measured bioattenuation parameters included: dissolved oxygen (DO), nitrate (NO_3^{-1}), sulfate (SO_4^{-2}) ferrous iron (Fe^{+2}), total iron, methane, oxidation reduction potential (ORP), alkalinity, chloride, carbon dioxide, nitrite, sulfide, ethene, and ethane. The bioattenuation parameters provided a baseline for these parameters and a means to compare their concentrations at locations within the apparent source area against surrounding upgradient, 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.

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 permeable 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 permeable 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 April 16 and 17, 2002, during which eleven groundwater monitoring wells were sampled and water levels and product thickness were measured in 25 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 April 16, 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 April 16 and 17, 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 Second 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 April 16-17, 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 67.60 feet above msl in LFR-3 to 77.97 feet above msl in MW-8; the watertable elevations were about 1 to 2 feet higher than those in the First Quarter 2002, particularly for the wells located inside the building. The higher water level elevation during this monitoring event can be attributed to the excessive rainfall amounts during recent months. In evaluating the groundwater flow direction and gradient, water level data from GW-4, B-7, B-8, B-9, 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.

5. 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 second time that groundwater was encountered in SOMA-5. Again, this could be attributed to the excessive rainfall amounts during recent months. 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 3.98°C to 18.70°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 5.78 to 6.30 units. The EC measurements ranged from 467 to 1280 µS/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 eight out of eleven groundwater monitoring wells sampled during this monitoring event. TPH-ss was found in six of eleven groundwater 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 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-1 (120 µg/L) and SOMA-3 (420 µg/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 130 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.

For the second 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 higher groundwater elevations, a more precise extent of the floating product thickness was not delineated. It appears that the bulk of free product is present around SOMA-4. SOMA is planning to install a free product removal canister at SOMA-4 as an interim measure for removing free product from the groundwater.

Benzene at a maximum concentration of 53 µg/L was detected in LFR-4. Historically, benzene was reported in LFR-4 at a maximum concentration of 27 µg/L. BTEX were detected in SOMA-2 during the current groundwater monitoring event at 6.7, 46, 12 and 44 µg/L, respectively. BTEX were not detected in any of the remaining monitoring wells. During the previous event 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 2,900 µg/L in SOMA-2, which is a significant increase in comparison with the previous event. During the previous monitoring event, cis-1,2-DCE was detected at 1,800 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). Bouwer (1994) reports that under the influence of biodegradation, cis-1,2-DCE is a more common intermediate compound than trans-1,2-DCE, and that 1,1-DCE is the least prevalent of the three DCE isomers when they are present as daughter products. Trans-1,2-DCE was not found in any of the groundwater monitoring wells during this event. Cis-1,2-DCE was reported in three out of eleven groundwater monitoring wells. Figure 6 shows the distribution of the cis-1,2-DCE concentration in the groundwater.

PCE and TCE were reported in several groundwater samples. PCE was detected in five out of eleven groundwater monitoring wells, while TCE was found in only two of eleven wells. The maximum reported concentrations of PCE and TCE were 380 and 40 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 130 µg/L. This could be attributed to the excess rainfall during the recent months. Figures 7 and 8 show the distribution of PCE and TCE concentrations in the groundwater, respectively.

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 eighth 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 third 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 limited 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-2 through LFR-4, GW-4, SOMA-1, and SOMA-2 were quite low as expected, 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. Low concentrations of nitrate near the apparent source area in SOMA-2 indicate 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-2, GW-3, LFR-2, MW-11, SOMA-3 and SOMA-1, to 1 mg/L in LFR-4.

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 and 88 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, the apparent source area well at 7.4 mg/L, and in LFR-2 at 7.2 mg/L. The minimum concentrations of ferrous iron were detected in GW-3 (ND), MW-11 (ND), GW-2 and SOMA-1. 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 0.00064 mg/L in GW-3 to 16 mg/L in LFR-2. The higher concentration of methane at LFR-4 (12 mg/L) and at the source area, SOMA-2 (14 mg/L) and LFR-2, indicates 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 -69 mV in SOMA-2 to +242 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-1) to 8.7 mg/L (SOMA-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 measurements were not performed on any of the monitoring wells because of the limited value in the interpretation of biodegradation processes.

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 April 16 and 17, 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 0.38 mg/L was detected in LFR-1, which is slightly higher than its previous concentration at this well. PCE was also detected in GW-3 at 0.16 mg/L, which is higher than its concentration in this well during the previous monitoring event. Since PCE was detected at SOMA-3 at only 0.025 mg/L, it is apparent that the vertical extent of PCE is limited. 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 0.130 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 eighth 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 2.9 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 0.053 mg/L in LFR-4 during the current groundwater monitoring event. Elevated levels of MtBE were detected in new groundwater monitoring wells SOMA-1 and SOMA-3. 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 Second 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 SOMA-3 and in 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-4, LFR-3, LFR-2, and GW-4. 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-3, 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, GW-2, GW-3, SOMA-1, SOMA-3 and LFR-2) to 1 mg/L (LFR-4).

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 88 mg/L in the MW-11 and ND in GW-4, LFR-2 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 (SOMA-2) and in the slightly downgradient wells LFR-2 and GW-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 0.00064 mg/L in GW-3 to 16 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 (-69 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. Install a free product canister inside SOMA-4 and remove free product on a weekly basis. After the water level elevations receded, SOMA recommends conducting an additional investigation to delineate the extent of free product around B-8 and SOMA-4. Once the extent of free product is identified, the best free product removal alternative can be employed.

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	
B-3	19-Aug-97	82.6	82.57	18	5 to 18	77.6 to 64.6	1
B-7	20-Aug-97	77.33	76.96	17.5	5 to 17.5	72.3 to 59.8	
B-8	20-Aug-97	82.06	81.82	24	9 to 24	73.1 to 58.1	
B-9	21-Aug-97	77.57	77.37	19.5	4.5 to 19.5	73.1 to 58.1	
B-10	21-Aug-97	81.65	81.5	19	4 to 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	
GW-2	16-Jul-99	79.44	79.14	20	10 to 20	69.4 to 59.4	
GW-3	15-Jul-99	78.48	77.92	20	10 to 20	68.5 to 58.5	
GW-4	16-Jul-99	82.55	82.37	12	7 to 12	75.6 to 70.6	
GW-5	15-Jul-99	81.31	81.01	13	8 to 13	73.3 to 68.3	
GW-6	15-Jul-99	81.91	81.65	13.5	7.5 to 13.5	74.4 to 68.4	2
GW-6A	16-Jul-99	81.93	81.61	15	5 to 15	76.9 to 66.9	
GW-7	15-Jul-99	81.3	NS	20	10 to 20	71.3 to 61.3	2
GW-8	16-Jul-99	80.28	80.1	20	10 to 20	70.3 to 60.3	2
Temporary Sampling Points Installed by TOSCO:							
MW-8	unknown	NS	87.44	unknown	unknown	unknown	
MW-9	unknown	NS	86.56	unknown	unknown	unknown	
MW-11	unknown	NS	84.13	unknown	unknown	unknown	
Groundwater Monitoring Wells Installed by LFR:							
LFR-1	28-Jul-00	NS	79.97	19	9 to 19		
LFR-2	27-Jul-00	NS	81.89	19	9 to 19		
LFR-3	27-Jul-00	NS	77.96	22	12 to 22		
LFR-4	28-Jul-00		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, April 16, 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	6.93	75.16	
B-3	82.57	7.23	75.34	
B-7	76.96	7.55	69.41	
B-8	81.82	8.28	73.54	
B-9	77.37	7.99	69.38	
B-10	81.50	8.29	73.21	
B-13	84.58	dry	NM	
GW-1	79.94	dry	NM	
GW-2	79.14	9.38	69.76	
GW-3	77.92	9.78	68.14	
GW-4	82.37	8.26	74.11	
GW-5	81.01	12.33	68.68	
GW-6A	81.61	13.54	68.07	
MW-8	87.44	9.47	77.97	
MW-9	86.56	NM	NM	
MW-11	84.13	9.15	74.98	
LFR-1	79.97	9.61	70.36	
LFR-2	81.89	10.18	71.71	
LFR-3	77.96	10.36	67.60	
LFR-4	81.65	12.38	69.27	
SOMA-1	81.64	12.79	68.85	
SOMA-2	81.39	8.33	73.06	
SOMA-3	81.42	10.52	70.90	
SOMA-4	81.09	12.53	68.56	3.3
SOMA-5	81.50	22.02	59.48	

Notes:
dry: Monitoring wells GW-1 and B-13 were dry when measured during this monitoring event.
MW-9: not measured during this monitoring event due to a car parked over the well.
Trace amount of free product detected in temporary well B-2.
NM: not measured during this monitoring event.

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	GW-1	GW-2	GW-3	GW-4	GW-5
16-Apr-02	**75.16**	**75.34**	**69.41**	**73.54**	**69.38**	**73.21**	**NM**	**NM**	**69.76**	**68.14**	**74.11**	**68.68**
31-Jan-02	77.35 (FP)	77.16 (FP 0.5')	70.79	75.03 (FP 0.5')	70.43	74.14	77.53 (FP 0.7')	-	69.77	68.28	74.83	68.78
18-Oct-01	73.26 (0.25' FP)	73.24 (1' FP)	67.89	69.51 (2.1' FP)	67.98	71.96	DRY	NM	67.91	67.67	74.22	68.41
26-Jul-01	73.86	73.17	68.69	70.41	68.73	72.61	DRY	NM	68.55	67.84	73.85	68.77
26-Apr-01	75.26	74	69.60	73.19	69.8	73.61		NM	69.41	67.93	74.59	68.43
29-Jan-01	74.63	75.06	69.11	74.23	69.33	73.2		71.99	68.62	67.89	74.92	68.61
2-Nov-00												
31-Oct-00												
30-Oct-00	74.34	74.84 (FP)	69.01	73.32	69.42	73.35	DRY		68.45	67.95	74.55	68.64
10-Aug-00												
9-Aug-00	73.9 (FP)	74.55 (FP)	68.61	72.8 (FP)	68.82	72.65	75.23	DRY	69.11	66.54	DRY	68.71
27-Apr-00	75.41 (FP)	75.86 (FP)	69.85 (FP)	74.14 (FP)	69.96	73.7	75.87	DRY	70.59	68.16	73.97	68.7
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		68.32		74.33	
20-Jan-00										67.93		68.61
19-Jan-00	73.97 (FP)	73.22 (2)	68.6 (FP)	71.81 (FP)	68.91 (FP)	73.02 (FP)	74.18	DRY	68.24	67.86	74.71	68.61
27-Aug-99								DRY	68.46	67.66	NM	68.71
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)					

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.

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 Geosolv, LLC												
B-7	11-Aug-00	760	39	202				<0.0005	<0.0005	6.86	17.55	1279
B-7 field	11-Aug-00					-1	0.049					
B-7	31-Oct-00	760	42	200	14.00	<0.1	<2.0					
B-7 field	31-Oct-00				17.22	-1	-1			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
Temporary Sampling Points Installed by LFR												
GW-2	01-Nov-00									6.31	18.97	1218
GW-2	30-Jan-01			63								
GW-2 field	31-Jan-01									6.82	13.75	846
GW-2	26-Apr-01				0.02					6.80	19.50	874
GW-2	26-Jul-01				0.03	0.024				6.74	20.30	803
GW-2	19-Oct-01	NM	NM	NM	NM	NM	NM	NM	NM	6.84	21.30	786
GW-2	31-Jan-02	NM	NM	NM	1.05	0.013	NM	NM	NM	6.70	17.70	797
GW-2	**16,17-Apr-02**	**NM**	**NM**	**NM**	**0.65**	**0.024**	**NM**	**NM**	**NM**	**6.38**	**17.00**	**707**
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					
GW-3 field	1-Nov-00									6.52	18.83	967
GW-3	1-Feb-01			54								
GW-3 field	29-Jan-01									6.89	17.29	602
GW-3	11-Jun-01				0	0.700				5.68	16.20	673
GW-3	26-Jul-01				0.14	0.004				6.53	22.25	547
GW-3	19-Oct-01	NM	NM	NM	0	NM	NM	NM	NM	6.84	22.56	590
GW-3	31-Jan-02	NM	NM	NM	0.14	0.014	NM	NM	NM	6.70	18.40	593
GW-3	**16,17-Apr-02**	**NM**	**NM**	**NM**	**0.001**	**0**	**NM**	**NM**	**NM**	**6.64**	**16.61**	**526**
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**

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)
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	1210
MW-11	26-Jul-01				0	0.021				6.02	19.85	1120
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	1090
MW-11	**16,17-Apr-02**	**NM**	**NM**	**NM**	**0.00**	**0.000**	**NM**	**NM**	**NM**	**5.87**	**18.70**	**1150**
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	661
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-2	11-Aug-00	590	33	174				<0.0005	0.0017	6.19	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	1308
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					5.64	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	0.048	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-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**	**18.68**	**566**

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)
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**	**5.10**	**0.027**	**NM**	**NM**	**NM**	**6.19**	**18.04**	**925**
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-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**	**8.70**	**0.009**	**NM**	**NM**	**NM**	**6.30**	**15.25**	**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**	**0.000**	**NM**	**NM**	**NM**	**6.23**	**15.83**	**1260**
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 Calorimeter
NM= not measured

Table 5
Analytical Results of Groundwater Samples Analyzed for Petroleum Hydrocarbons
April 16-17, 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)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
GW-2	<50	<50	<2.0	<0.5	<0.5	<0.5	<0.5
GW-3	<50	55 [YZ]	<2.0	<0.5	<0.5	<0.5	<0.5
GW-4	400	670 [HY]	<2.0	<0.5	<0.5	<0.5	<0.5
MW-11	<50	<50	<2.0	<0.5	<0.5	<0.5	<0.5
LFR-1	100 [YZ]	170 [YZ]	< 13	<0.5	<0.5	<0.5	<0.5
LFR-2	1,100	1900 [HY]	<2.0	<0.5	<0.5	<0.5	19 [C]
LFR-3	<50	<50	<2.0	<0.5	<0.5	<0.5	<0.5
LFR-4	400 [Y]	670	< 5.0	53	<0.5	<0.5	<0.5
SOMA-1	<50	52 [Y]	120	0.8	<0.5	<0.5	<0.5
SOMA-2	1300[L]	2200 [H]	< 130	6.7	46	12	44
SOMA-3	610	1000 [HY]	420	0.78	0.68	<0.5	<0.5
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

Anayltical Results of Groundwater Samples Analyzed for Volatile Organic Compounds
April 16-17, 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	160	<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	380	40	<13	<13	<25	<13	<13
LFR-2	<5.0	<5.0	<5.0	<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	5.9	<5.0	6.6	<5.0	<10	<5.0	<5.0
SOMA-2	<130	<130	2,900	<130	<250	<130	<130
SOMA-3	25	18	360	<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 on 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
Temporary Sampling Points Installed by Geosolv, LLC:								
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 HYZ	<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
Temporary Sampling Points Installed by EFR:								
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	0.086 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-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	0.380 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	<.0020	<.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-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**

Table 7
Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE on 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-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	0.064 [YZ]	0.12 [YZ]	0.013	<0.0005	<0.0005	<0.0005	<0.0005
Monitoring Wells Owned by TOSCO:								
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**
Monitoring Wells Installed by LFR:								
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-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-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**

Table 7

Historical Analytical Results for Total Petroleum Hydrocarbon, BTEX, and MtBE on 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-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**
Monitoring Wells Installed by SOMA:								
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-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-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-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**

Notes:

[b] Analysis was carried out npast 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 analzed 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 on 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 Geosolv, LLC:								
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 LFR:								
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-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-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-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	

Table 8

Historical Analytical Results For Volatile Organic Compound (VOC) Analyses on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

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

Location	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-DCP	Notes
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 TOSCO:								
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**	
Monitoring wells installed by LFR:								
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-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-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**	

Table 8

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

at the Former Glovatorium Site

3815 Broadway, Oakland, California

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

Location	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-DCP	Notes
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**	
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-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-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-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**	

[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 on Groundwater Samples at the Former Glovatorium Site 3815 Broadway, Oakland, California

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

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
B-7	11-Aug-00						11.0	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-3	11-Aug-00						< 0.0005	395.00	
GW-3-field	11-Aug-00	0.72		1.00	46				
GW-3	1-Nov-00								
GW-3-field		7.76						81.00	
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-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**	

Table 9

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

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

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
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**	
LFR-1	9-Aug-00							462	
	11-Aug-00						0.0096		
LFR-1-field	9-Aug-00	3.63		5.5	30				1.5
LFR-1	30-Oct-00	2.70	0.03	39	42	< 1.0	0.00038		
FR-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-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-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**	**0.00**	**55**	**0.79**	**0.0096**	**228**	

Table 9

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

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

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane*	ORP (milliVolts)	Hydrogen (nano-Moles)
LFR-4	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**	
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-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-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-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

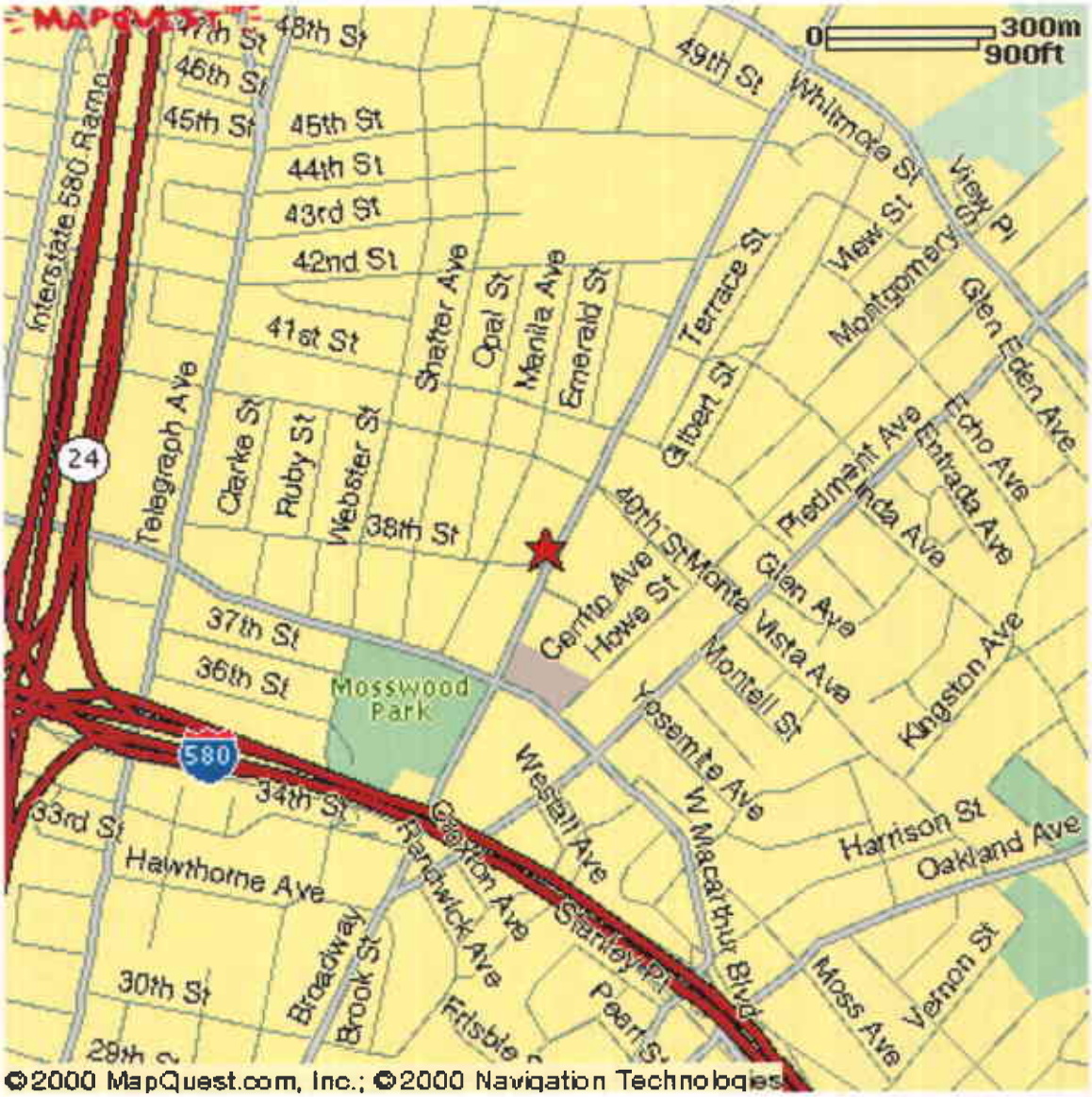


Figure 1: Generalized site location map.

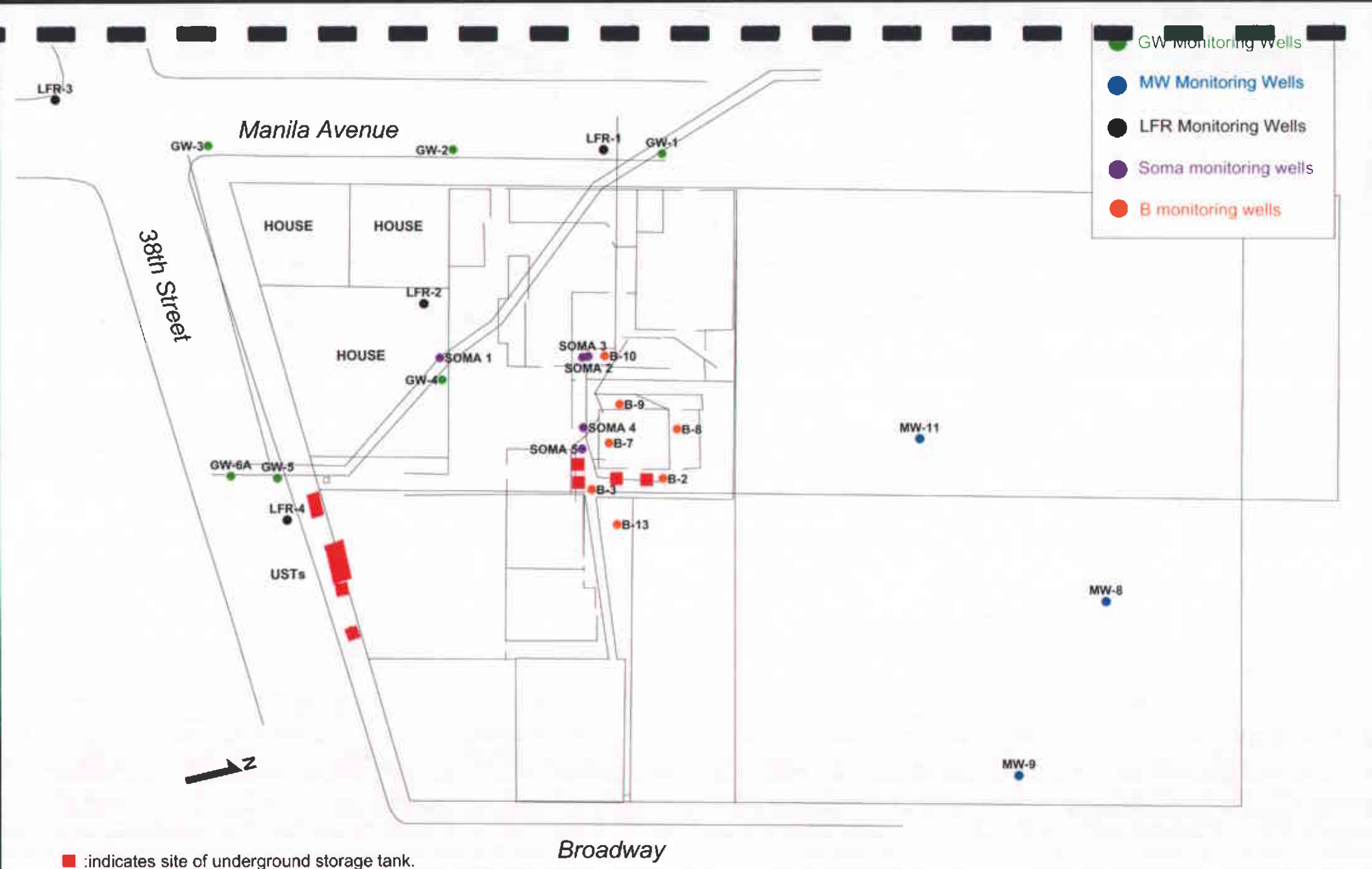
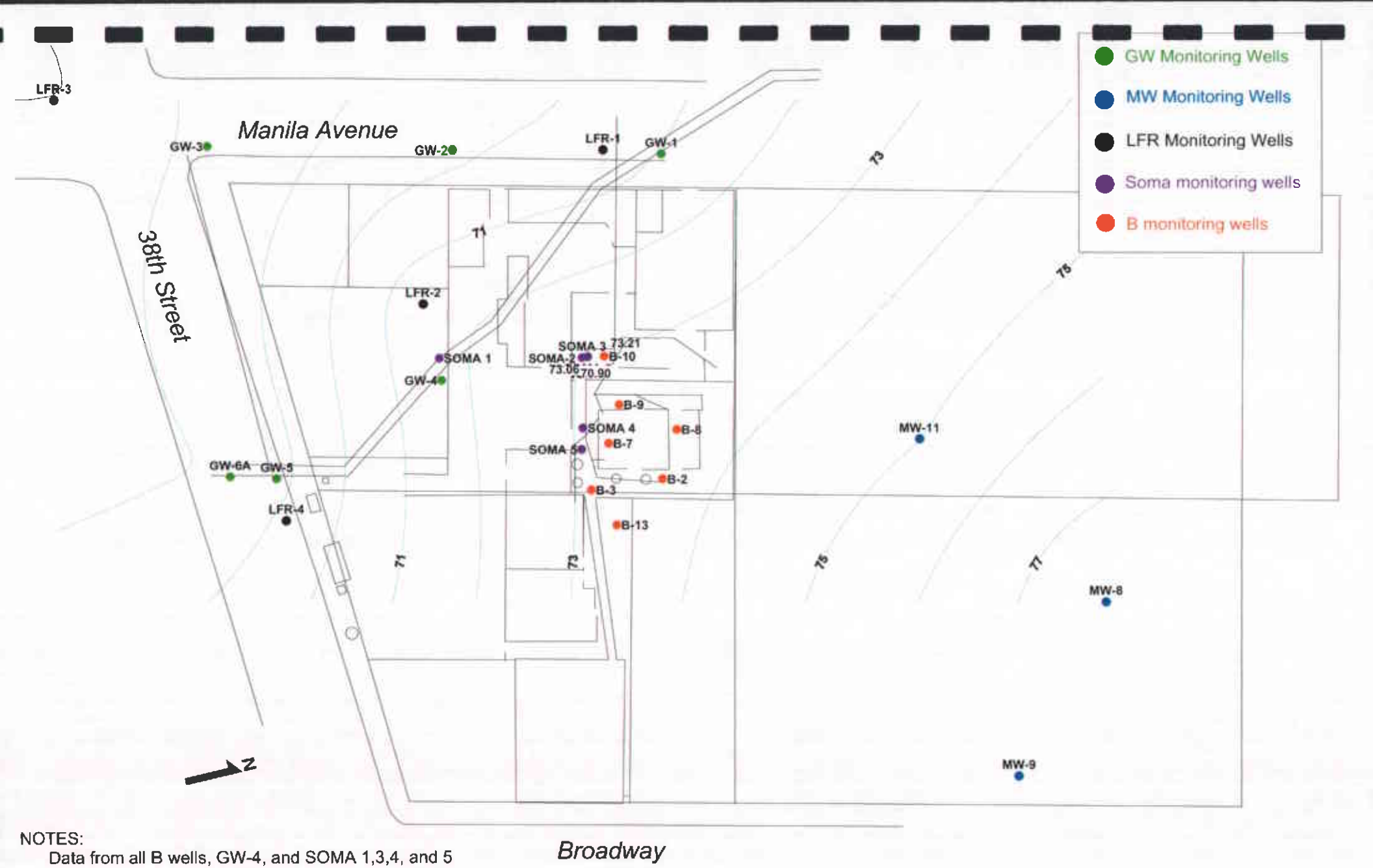


Figure 2: Location of Groundwater Monitoring Wells

scale in feet

0 25 50



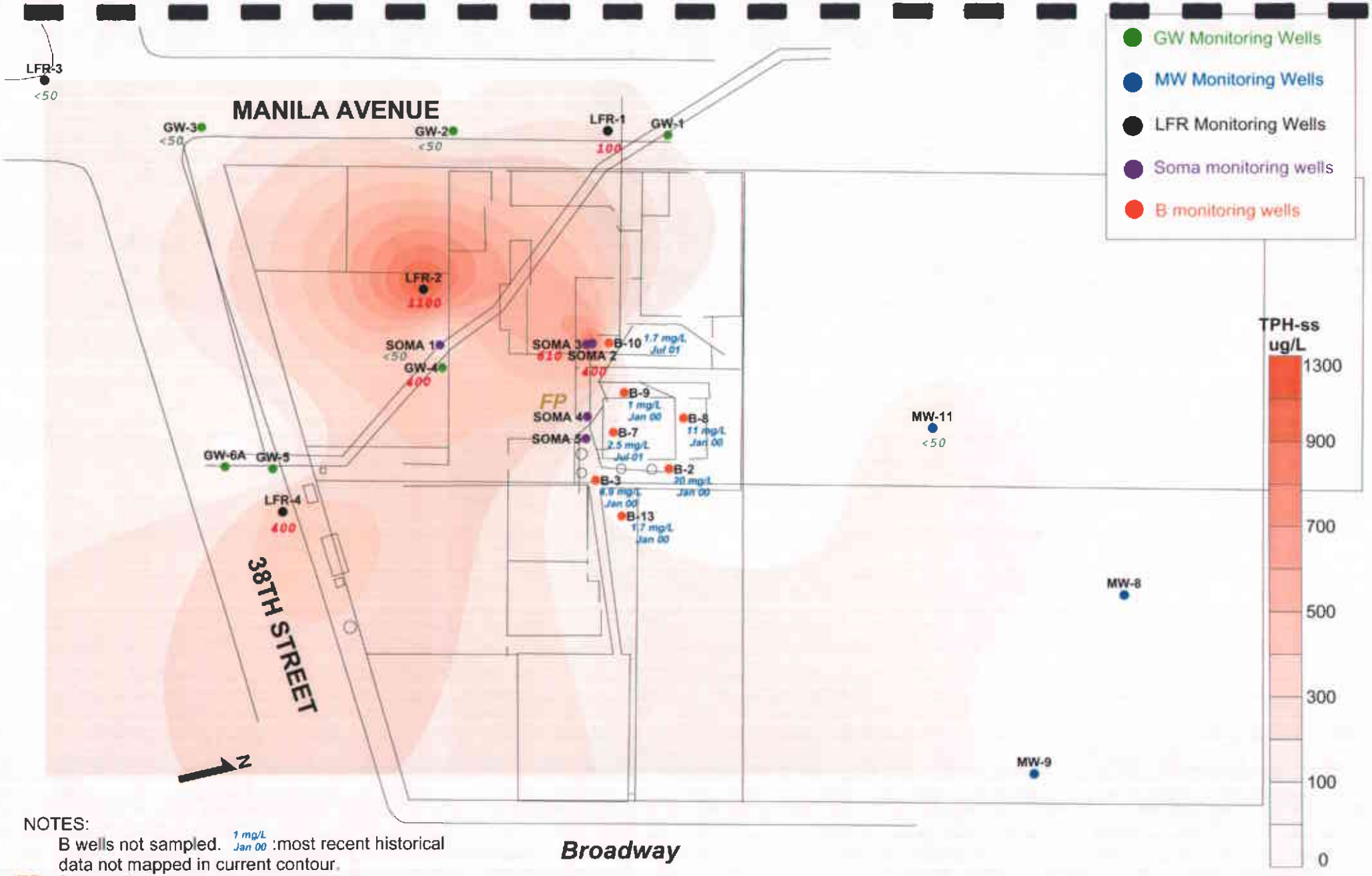
NOTES:

Data from all B wells, GW-4, and SOMA 1,3,4, and 5 were discarded in mapping the groundwater elevation contour.

Figure 3: Groundwater Elevation Contour Map, April 2002

scale in feet

0 25 50



NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

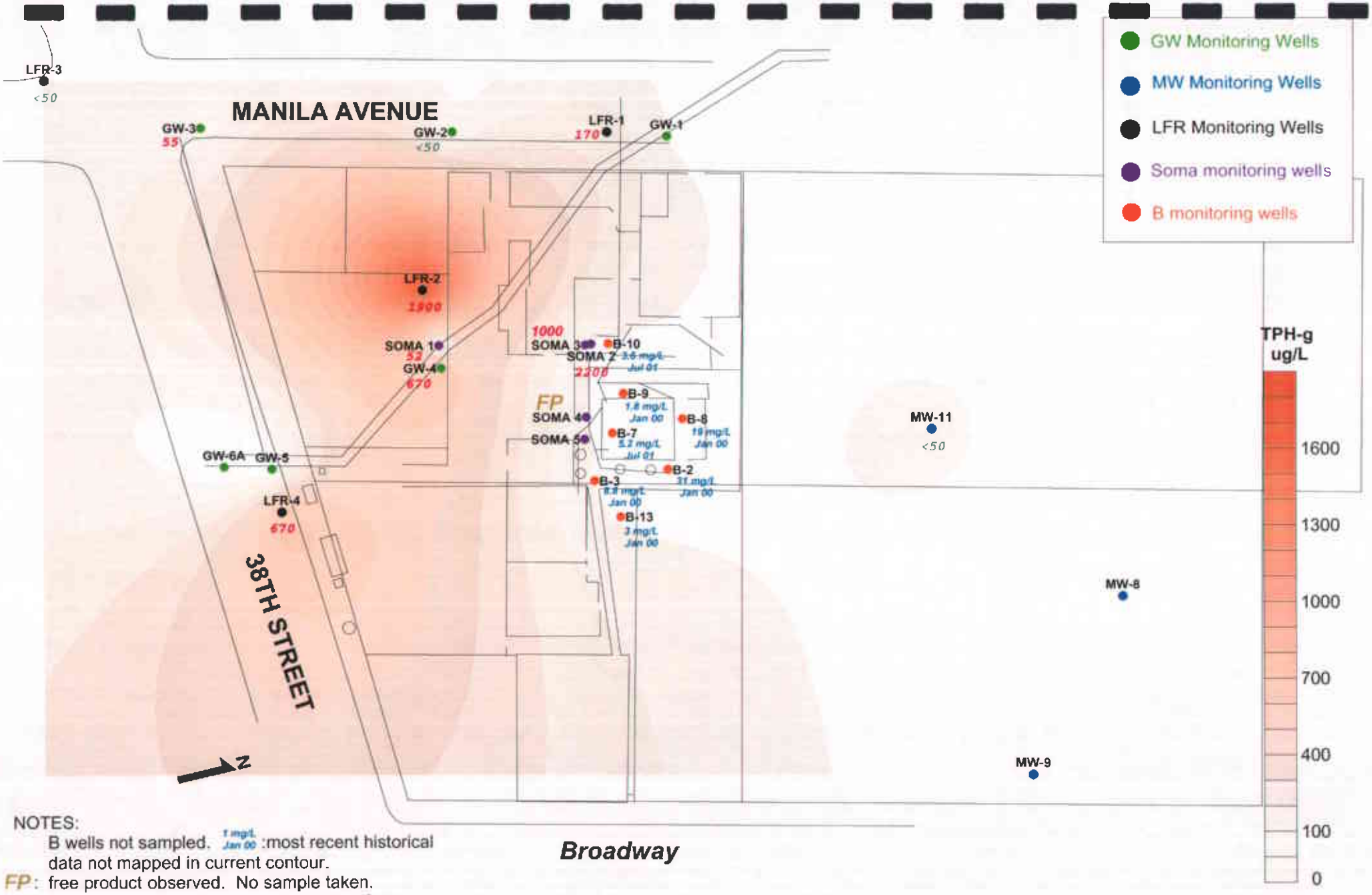
FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

Figure 4: Contour map of TPH-ss concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50



NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

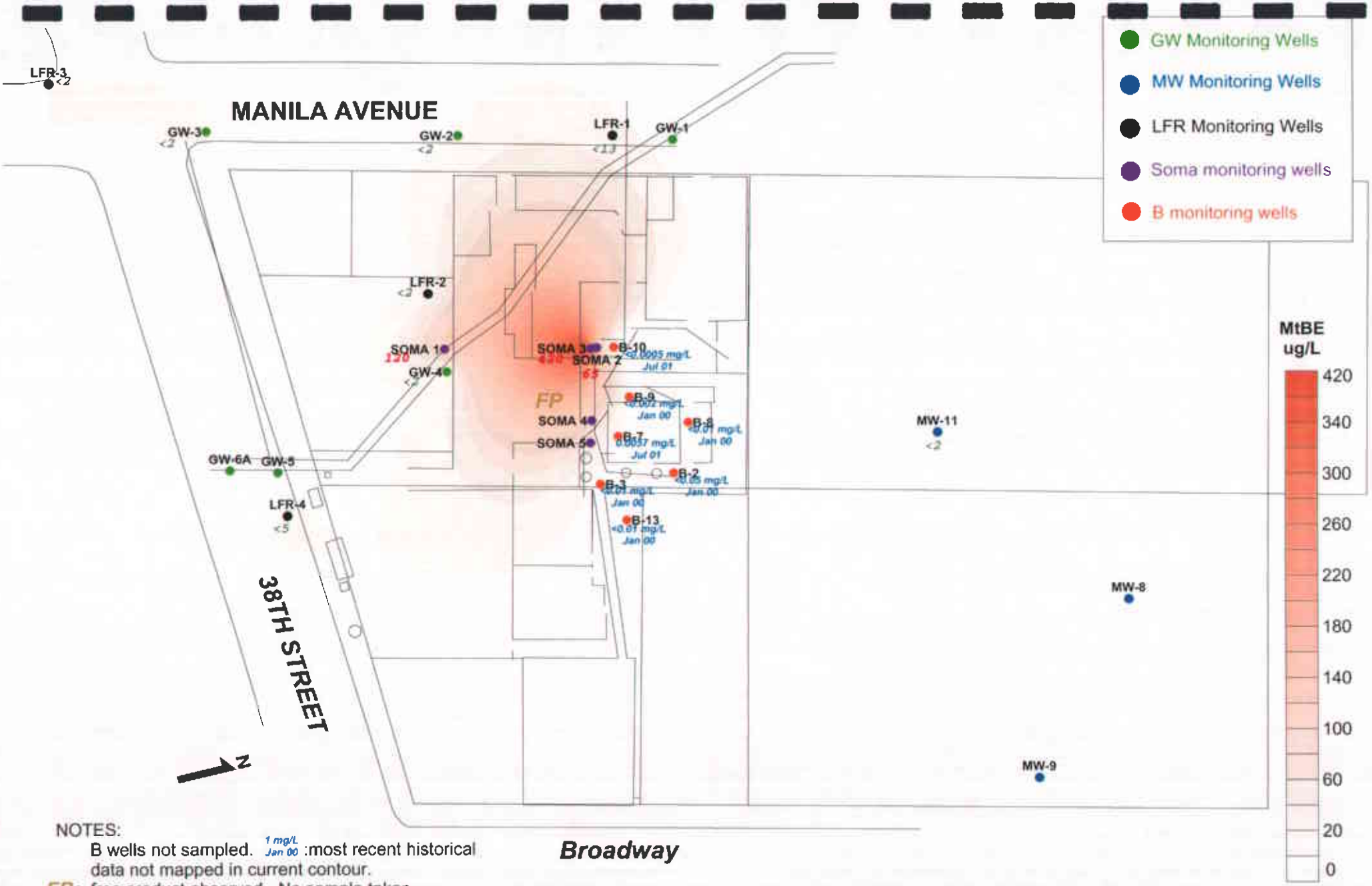
FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

Figure 5: Contour map of TPH-g concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50



NOTES:

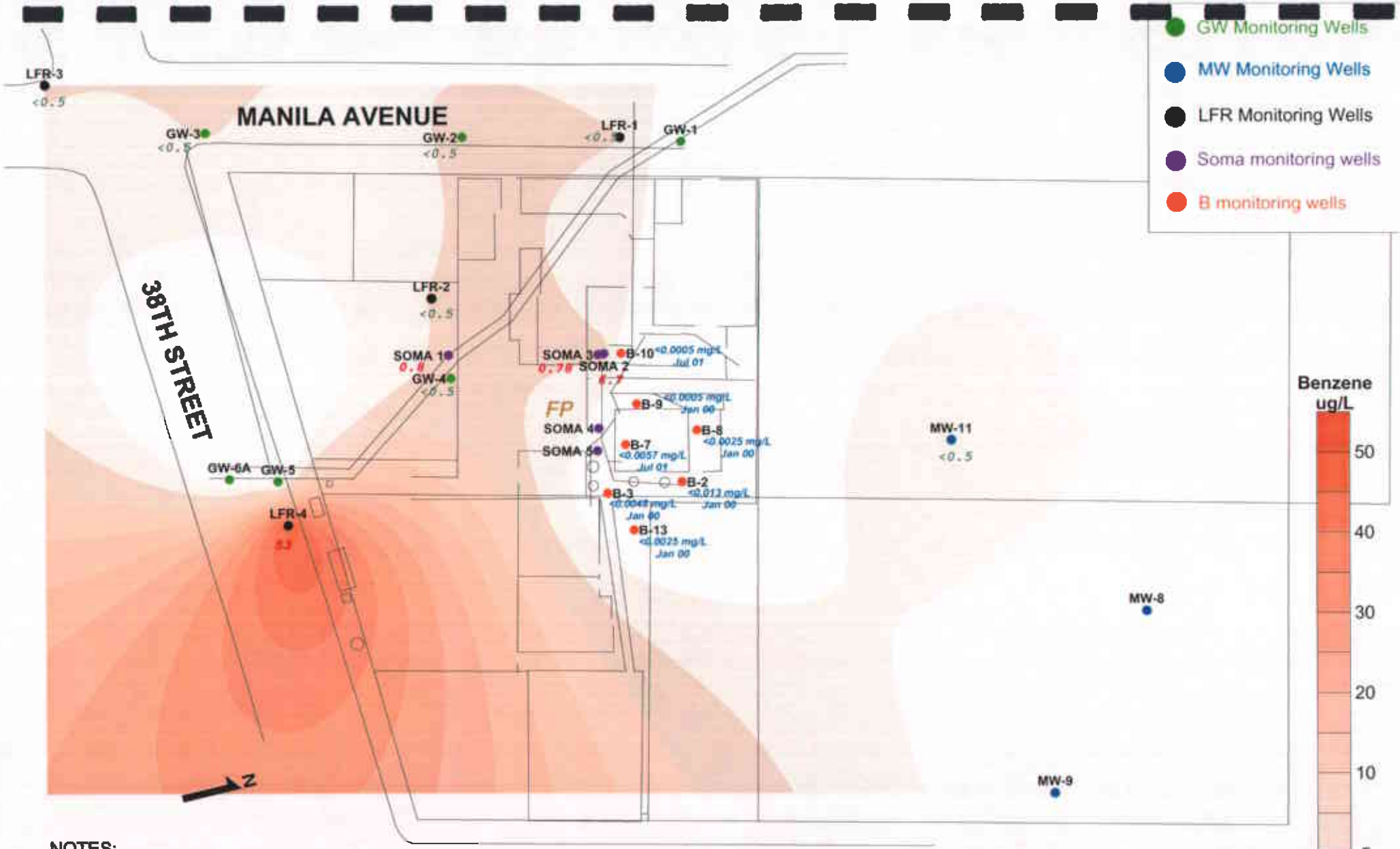
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

FP: free product observed. No sample taken.

<# : not detected above laboratory reporting limits.

scale in feet

Figure 6: Contour map of MtBE concentrations in groundwater.
Sampling date: April 2002



NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

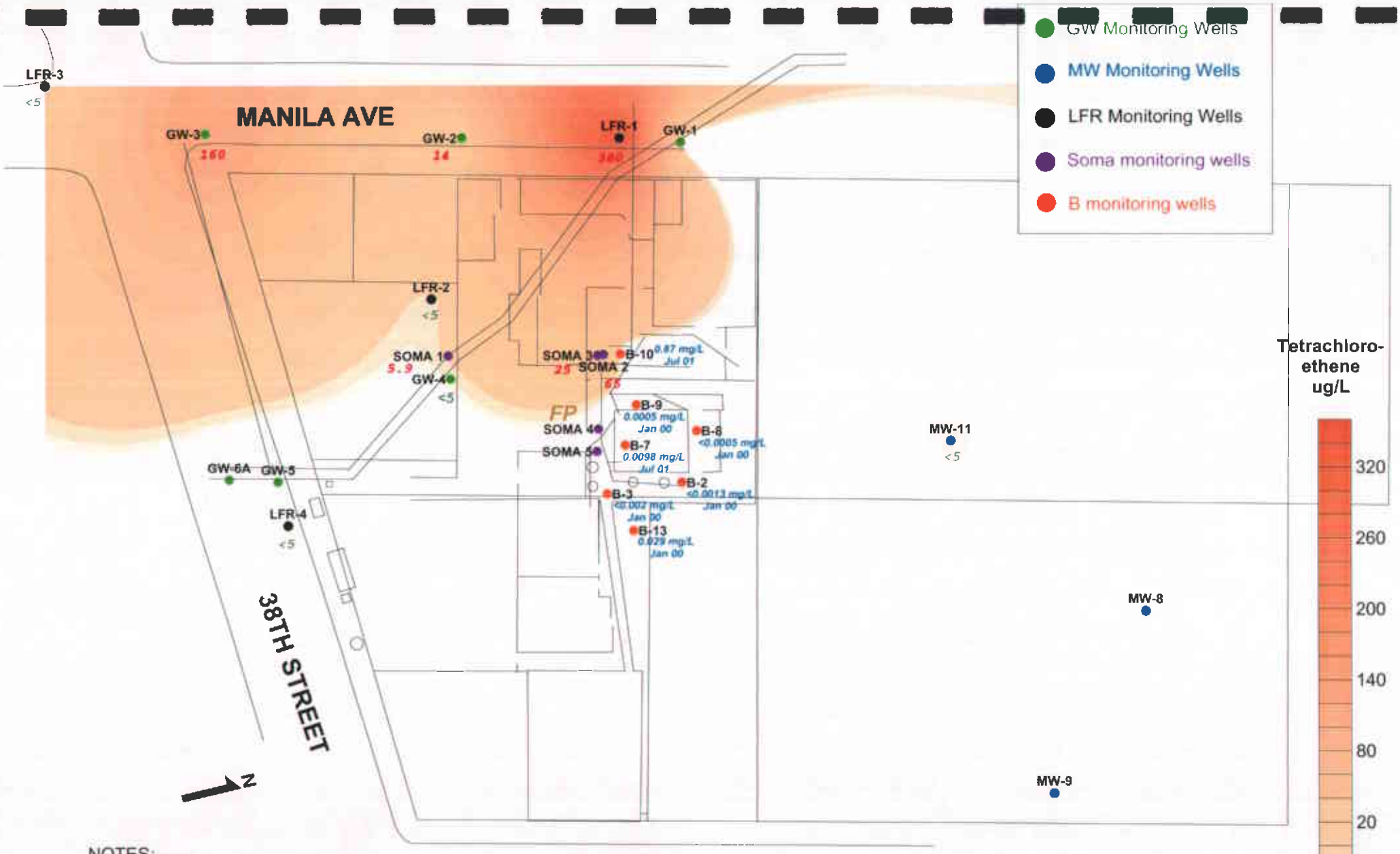
FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

Figure 7: Contour map of Benzene concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50



NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

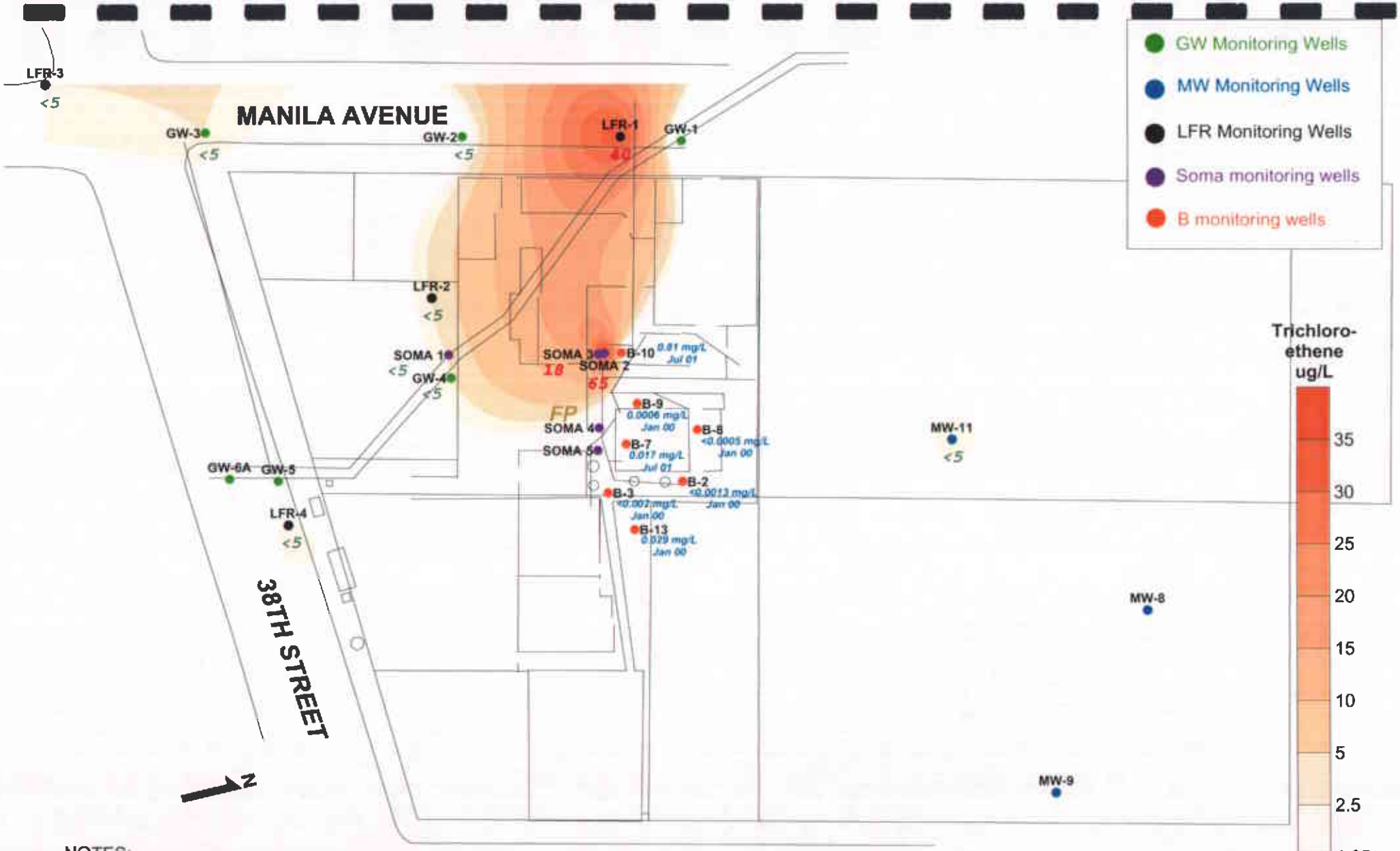
FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

Figure 8: Contour map of Tetrachloroethene concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50



NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

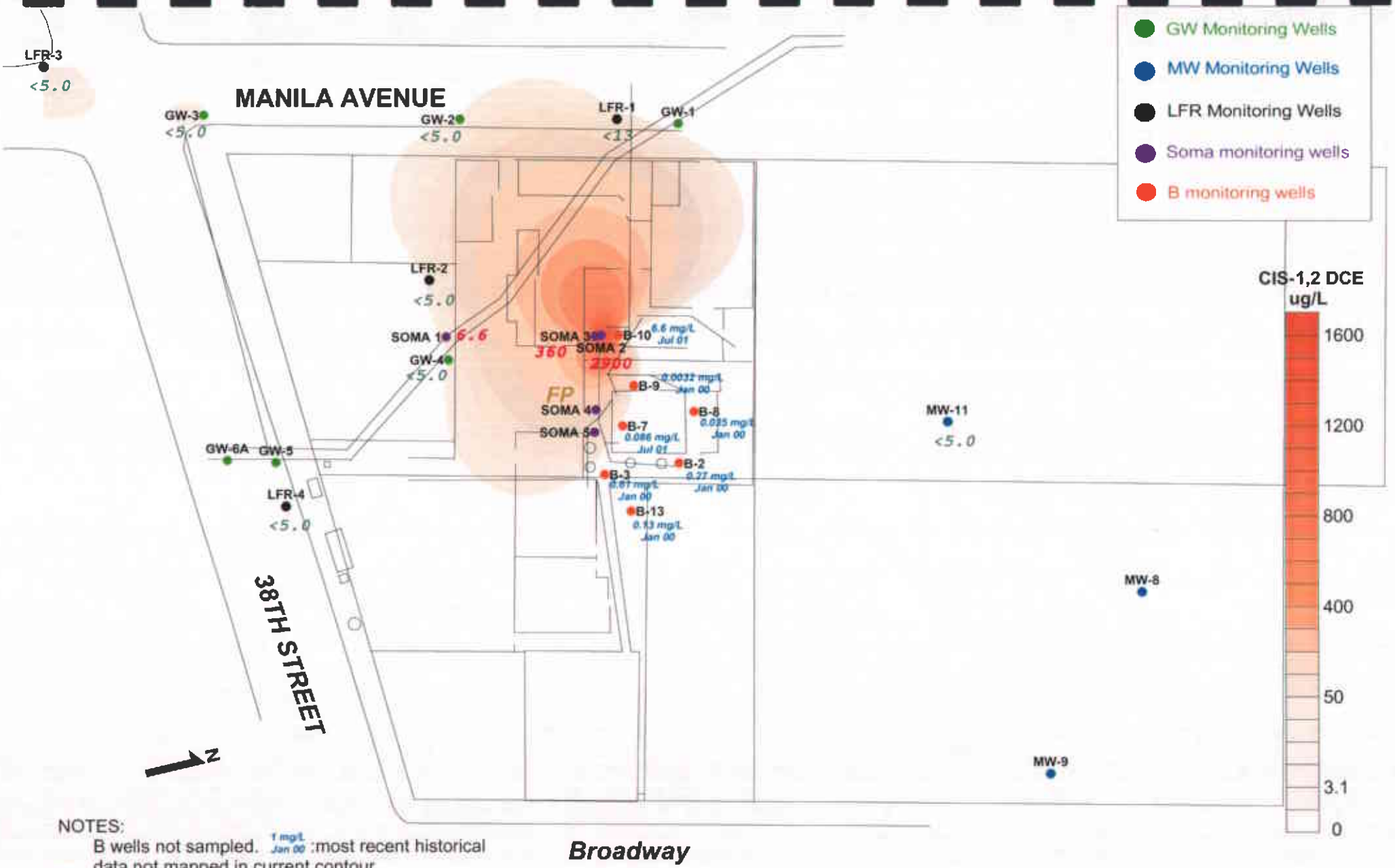
FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

Figure 9: Contour map of Trichloroethene concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50



NOTES:

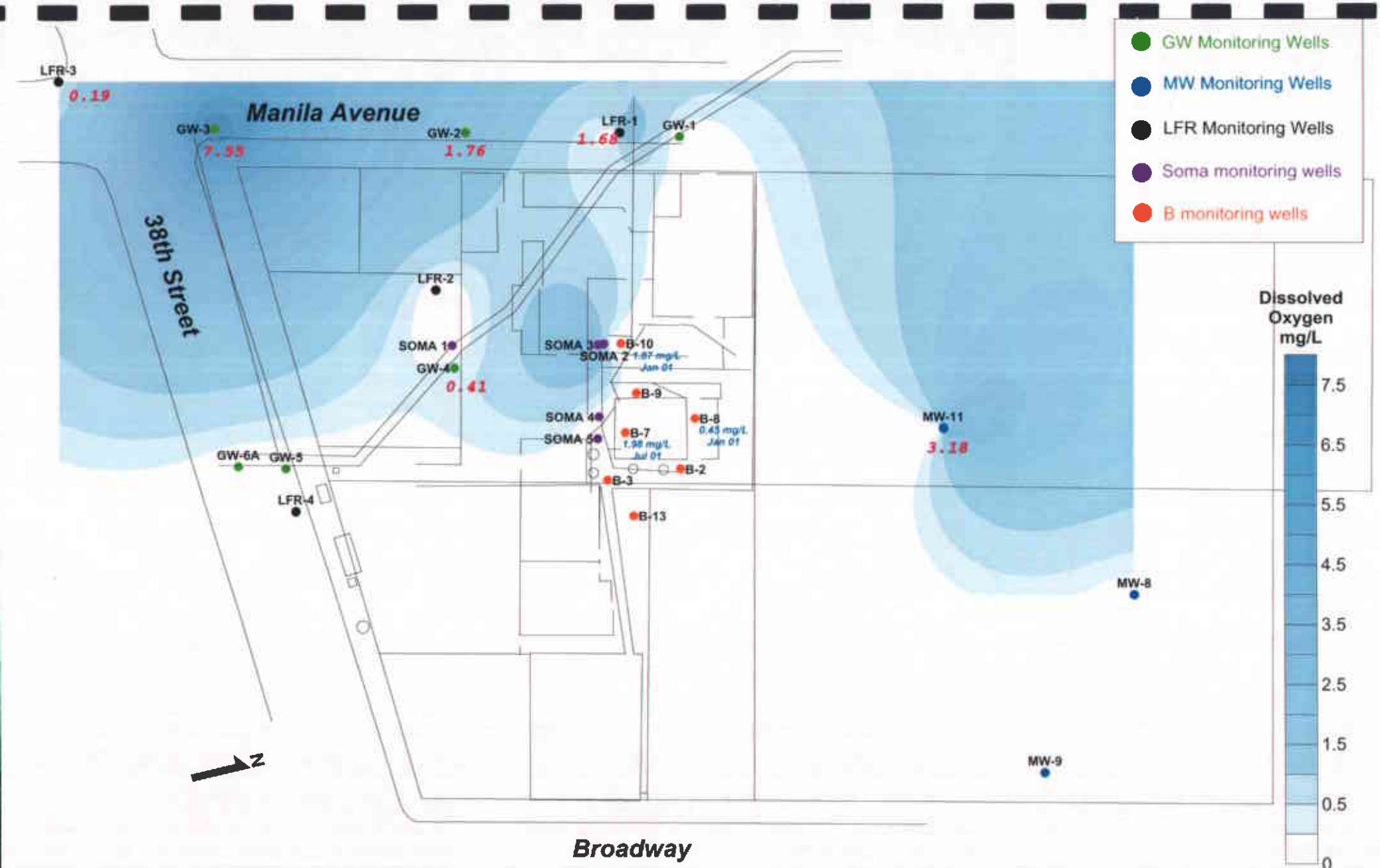
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

FP: free product observed. No sample taken.

<#: not detected above laboratory reporting limits.

scale in feet

Figure 10: Contour map of CIS-1,2 Dichloroethene concentrations in groundwater.
Sampling date: April, 2002



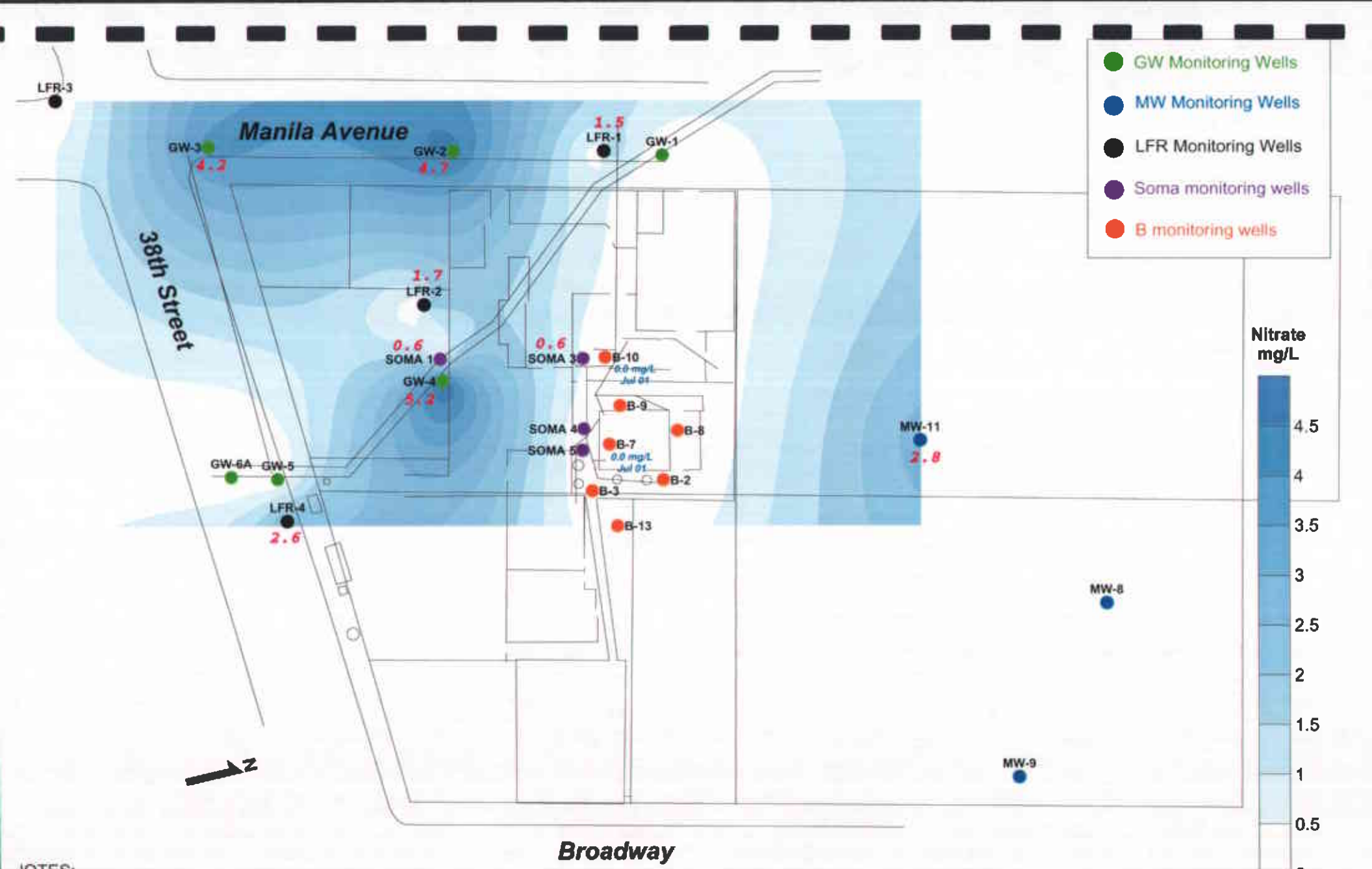
NOTES:

B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

Figure 11: Contour map of dissolved Oxygen concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 25 50

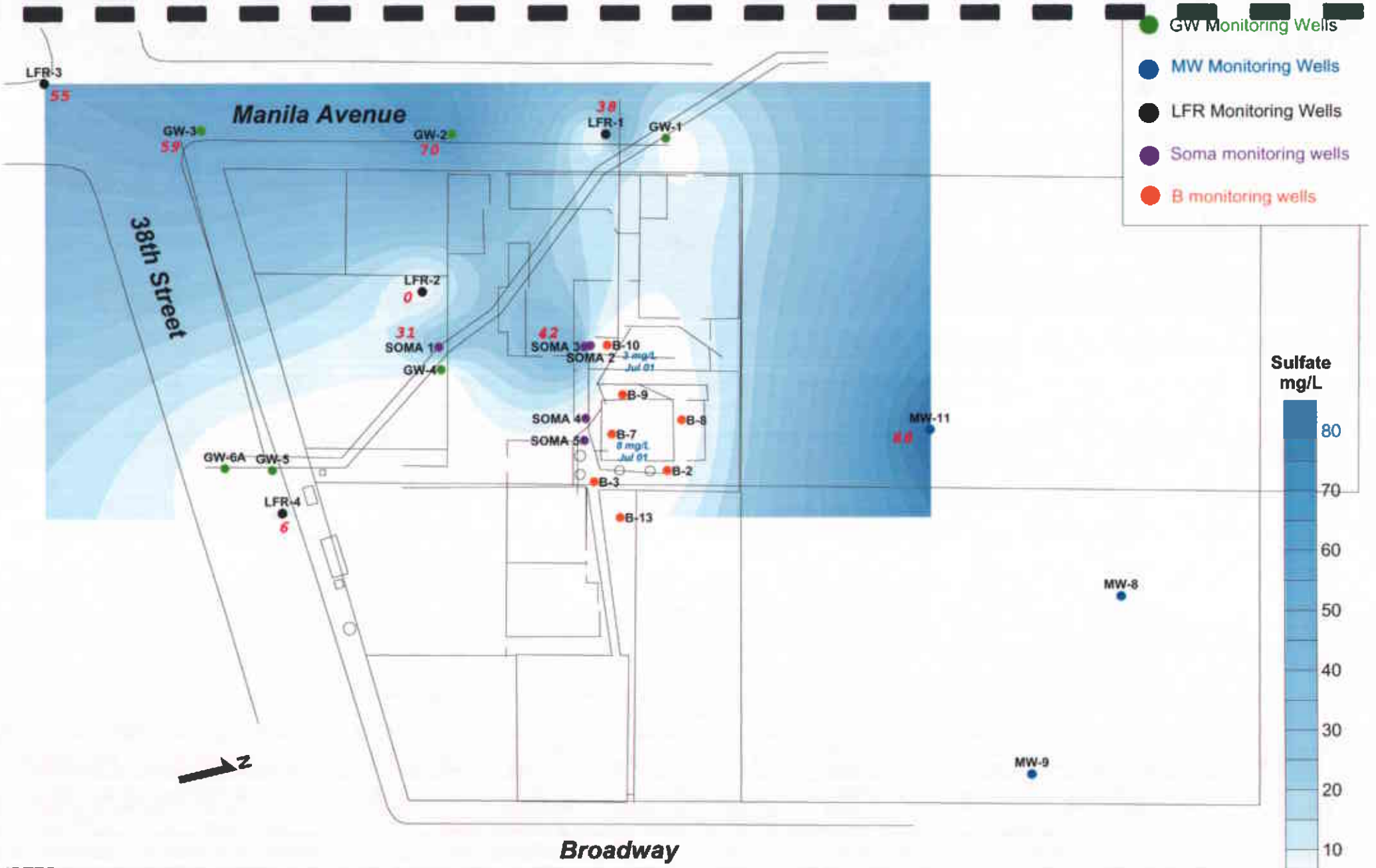


NOTES:
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

Figure 12: Contour map of Nitrate concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 50 100

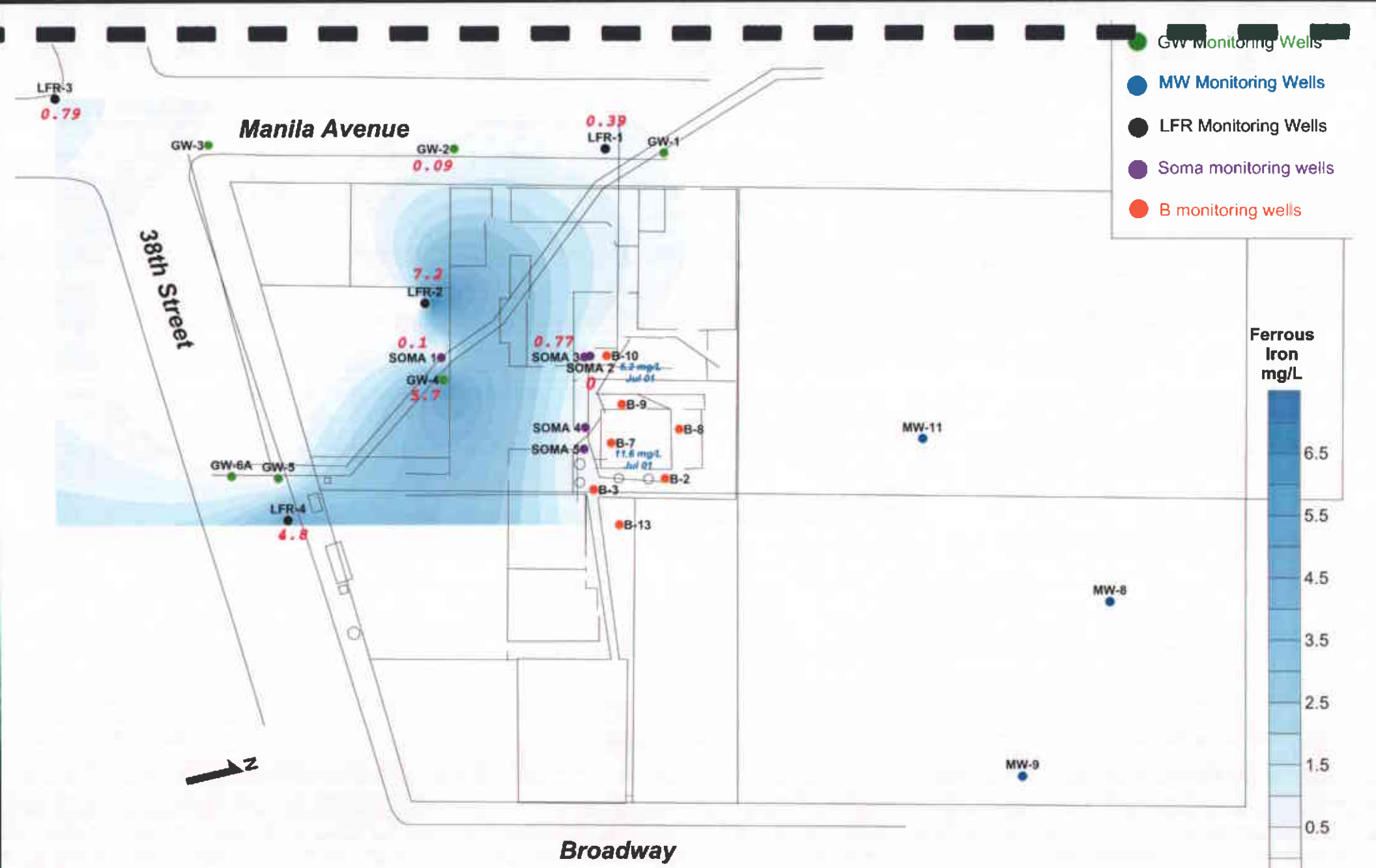


OTES:
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

Figure 13: Contour map of Sulfate concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 50 100

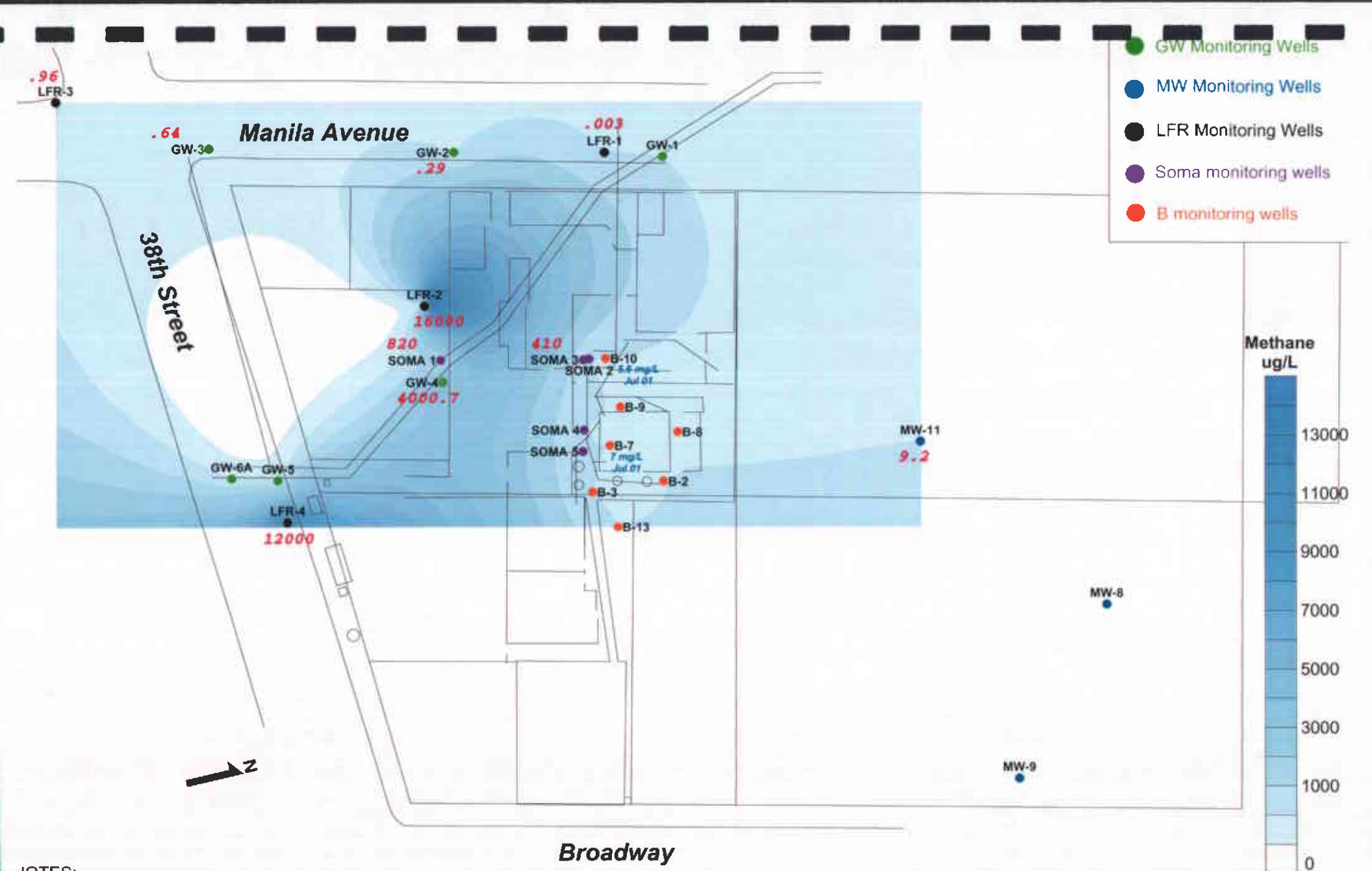


NOTES:
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

Figure 14: Contour map of Ferrous Iron concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 50 100



NOTES:
B wells not sampled. 1 mg/L Jan 00 :most recent historical data not mapped in current contour.

Figure 15: Contour map of Methane (micrograms/Liter) concentrations in groundwater.
Sampling date: April, 2002

scale in feet

0 50 100

APPENDIX A

LABORATORY REPORTS, CHAIN OF CUSTODY FORMS

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

A N A L Y T I C A L R E P O R T

Prepared for:

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

Date: 29-APR-02
Lab Job Number: 158159
Project ID: 2511
Location: Glovatorium

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

Reviewed by: Paul Predergast
Project Manager

Reviewed by:
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Number: **158159**
Client: **Soma Environmental Engineering, Inc.**
Project Name: **Glovatorium**
Project #: **2511**
Receipt Date: **04/18/02**

CASE NARRATIVE

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

Gasoline by GC/FID CA LUFT (EPA 8015B(M)):

The recovery for the bromofluorobenzene surrogate was over the acceptable QC limits for client ID LFR-2 (C&T ID 158159-005) due to coelution of sample hydrocarbons with this surrogate. No other analytical problems were encountered.

BTEX (EPA 8021B):

No analytical problems were encountered.

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

No analytical problems were encountered.

CHAIN OF CUSTODY FORM

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

C&T LOGIN # 158159

Project No: 2511
Project Name: Page/Oak-Lunatorium
Project P.O.:
Turnaround Time: Standard

Sampler: RW Papler / N. Pakrou
Report To: Mansour Sepher
Company: SOMA Env. Eng.
Telephone: (925) 244-6600
Fax: (925) 244-6601

Analyses: TPH-g & TPH-d 8015; BTEX & MTBE 8021 UL; MTBE confirm 8260 LL MS; VOCs 8260 Full List

Laboratory Number	Sample ID.	Sampling Date Time	Soil	Water	Waste	# of Containers	HCL	H2SO	HNO3	ICE	Field Notes	TPH-g & TPH-d 8015	BTEX & MTBE 8021	MTBE confirm 8260	VOCs 8260 Full list
-1	LW-2	15Apr02 1600		x		4	x			x	Mon. Well LW-2	x	x		x
-2	-3	1720		x		4	x			x	-3	x	x		x
-3	-4	0900		x		4	x			x	-4	x	x		x
-4	LFR-1	1345		x		4	x			x	LFR-1	x	x		x
-5	-2	1025		x		4	x			x	-2	x	x		x
-6	-3	16Apr02/1640		x		4	x			x	-3	x	x		x
-7	-4	16Apr02/1225		x		4	x			x		x	x		x
-8	MW-11	17Apr02/1450		x		4	x			x	MW-11	x	x		x
-9	SOMA-1	1200		x		4	x			x	SOMA-1	x	x	x	x
-10	-2	1620		x		4	x			x	-2	x	x	x	x
-11	-3	1730		x		4	x			x	-3	x	x	x	x
	-4			x						x	-4				
						Total: 44									

"For Laboratory Use" (Laboratory Number column)

Notes: Pls confirm positive MTBE results 8021 w/ 8260
COC time of collection (24hr base) same as spl bottle collection time (24/hr base)

RELINQUISHED BY:		RECEIVED BY:	
RW Papler	18Apr02/1000 DATE/TIME	x George Tompkins	4/18/02 10:00 DATE/TIME
	DATE/TIME		DATE/TIME
x	DATE/TIME		DATE/TIME

Signature

Rec'd in cooler w/Ice

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	GW-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-001		

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	68-145
Bromofluorobenzene (FID)	109	66-143

Field ID:	GW-3	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-002		

Analyte	Result	RL
Gasoline C7-C12	55 Y Z	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	68-145
Bromofluorobenzene (FID)	114	66-143

Field ID:	GW-4	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-003		

Analyte	Result	RL
Gasoline C7-C12	670 H Y	50
Stoddard Solvent C7-C12	400	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	68-145
Bromofluorobenzene (FID)	135	66-143

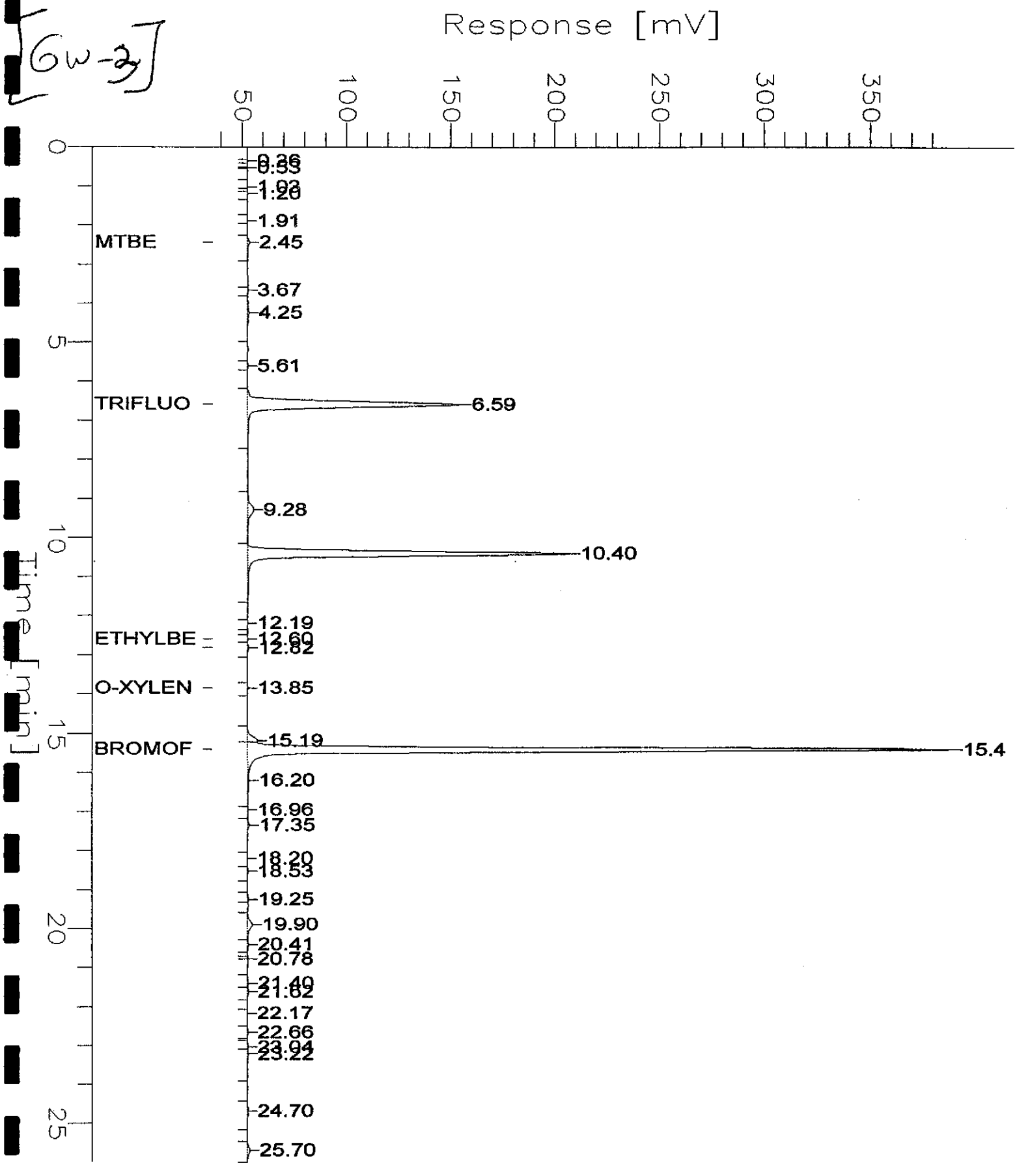
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting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

Chromatogram

Sample Name : 158159-002,71762,+stod
FileName : G:\GC04\DATA\110K010.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 36 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:14 AM
Time of Injection: 4/20/02 06:40 PM
Low Point : 35.71 mV High Point : 389.73 mV
Plot Scale: 354.0 mV

[6w-3]

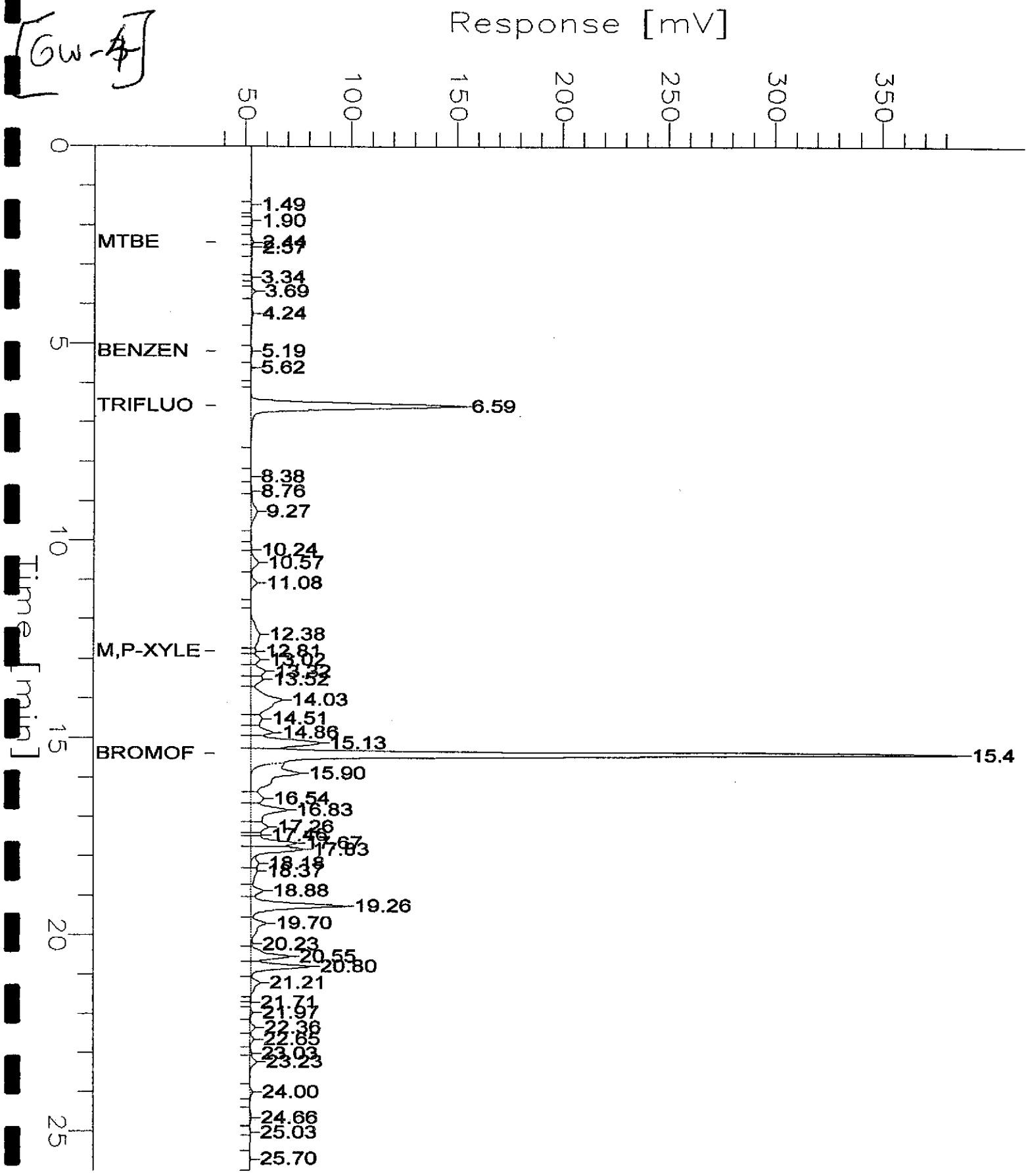


Chromatogram

Sample Name : 158159-003,71762,+stod
FileName : G:\GC04\DATA\110K011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 36 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:15 AM
Time of Injection: 4/20/02 07:15 PM
Low Point : 35.80 mV High Point : 387.80 mV
Plot Scale: 352.0 mV

[GW-4]



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	LFR-1	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-004		

Analyte	Result	RL
Gasoline C7-C12	170 Y Z	50
Stoddard Solvent C7-C12	100 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	68-145
Bromofluorobenzene (FID)	112	66-143

Field ID:	LFR-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-005		

Analyte	Result	RL
Gasoline C7-C12	1,900 H Y	50
Stoddard Solvent C7-C12	1,100	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	68-145
Bromofluorobenzene (FID)	194 *	66-143

Field ID:	LFR-3	Sampled:	04/16/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-006		

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	68-145
Bromofluorobenzene (FID)	112	66-143

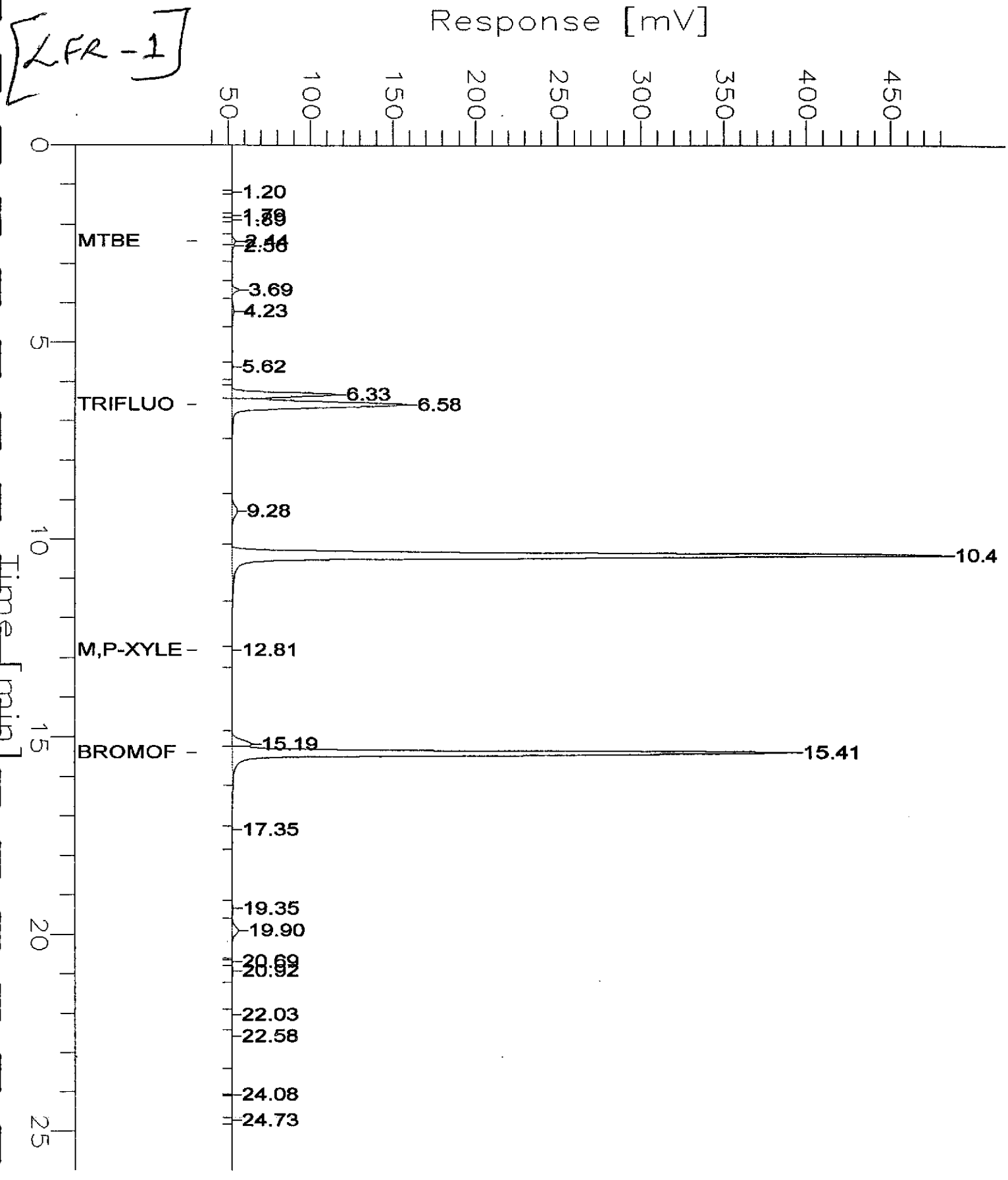
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting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

Chromatogram

Sample Name : 158159-004,71762,+stod
FileName : G:\GC04\DATA\110K019.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 31 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:16 AM
Time of Injection: 4/21/02 12:01 AM
Low Point : 31.07 mV High Point : 482.48 mV
Plot Scale: 451.4 mV

[LFR-1]

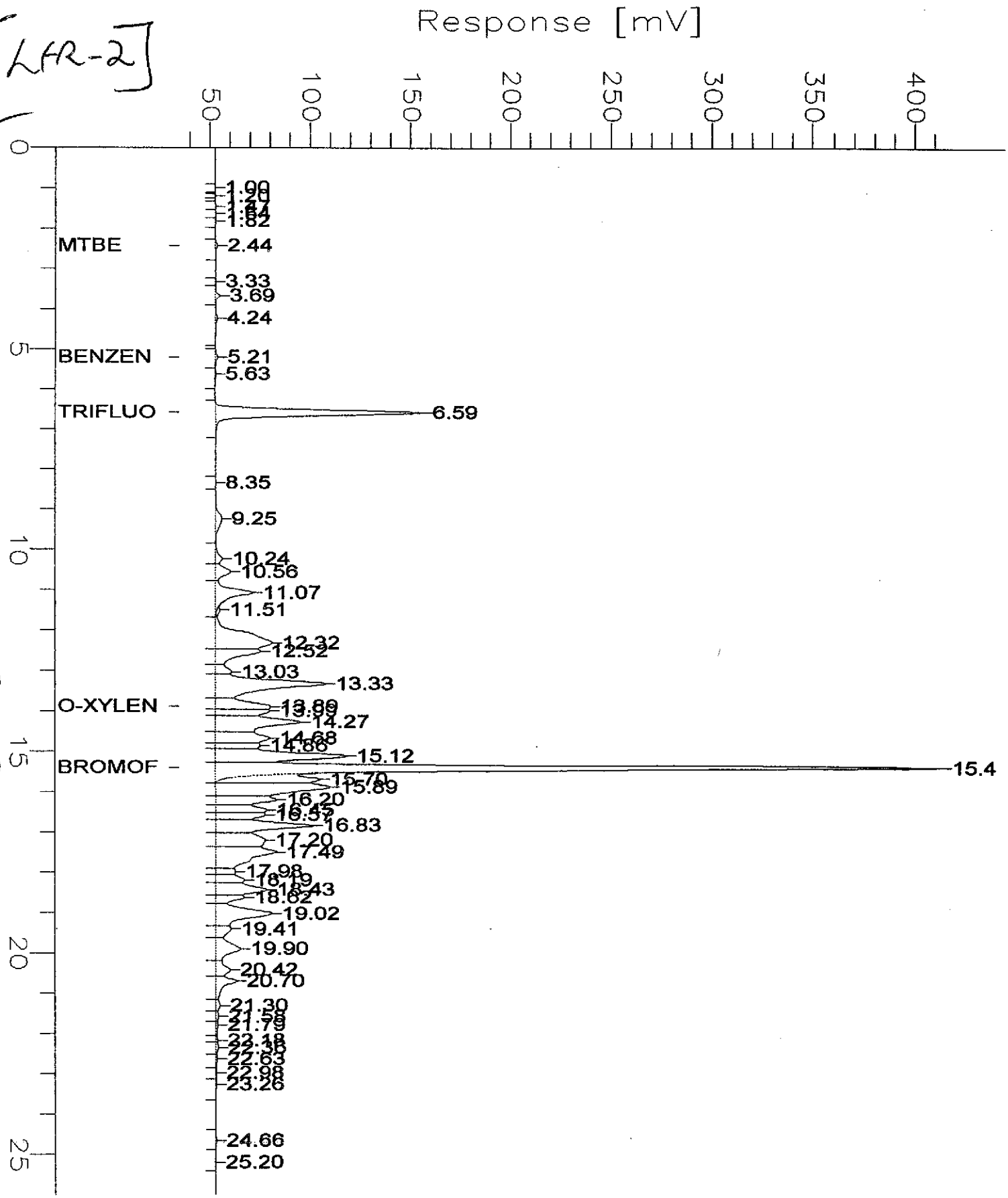


Chromatogram

Sample Name : 158159-005,71762,+stod
FileName : G:\GC04\DATA\110K020.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 35 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:17 AM
Time of Injection: 4/21/02 12:36 AM
Low Point : 34.51 mV High Point : 413.67 mV
Plot Scale: 379.2 mV

LAR-2



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID: LFR-4 Sampled: 04/16/02
Type: SAMPLE Analyzed: 04/21/02
Lab ID: 158159-007

Analyte	Result	RL
Gasoline C7-C12	670	50
Stoddard Solvent C7-C12	400 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	68-145
Bromofluorobenzene (FID)	124	66-143

Field ID: MW-11 Sampled: 04/17/02
Type: SAMPLE Analyzed: 04/21/02
Lab ID: 158159-008

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	68-145
Bromofluorobenzene (FID)	119	66-143

Field ID: SOMA-1 Sampled: 04/17/02
Type: SAMPLE Analyzed: 04/21/02
Lab ID: 158159-009

Analyte	Result	RL
Gasoline C7-C12	52 Y	50
Stoddard Solvent C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	68-145
Bromofluorobenzene (FID)	139	66-143

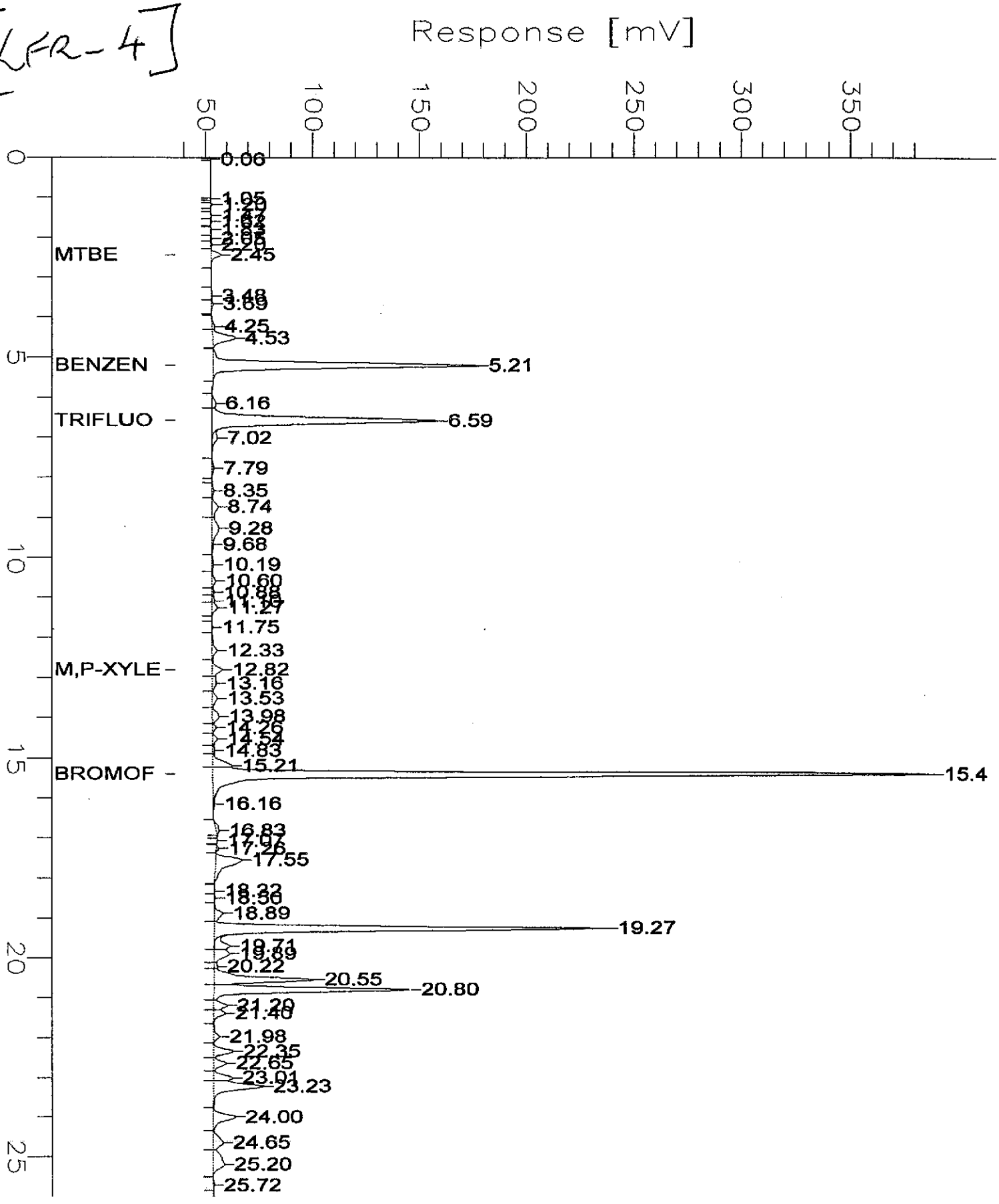
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting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

Chromatogram

Sample Name : 158159-007,71762,+stod
FileName : G:\GC04\DATA\110K022.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 36 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:17 AM
Time of Injection: 4/21/02 01:47 AM
Low Point : 35.75 mV High Point : 388.97 mV
Plot Scale: 353.2 mV

[LFR-4]

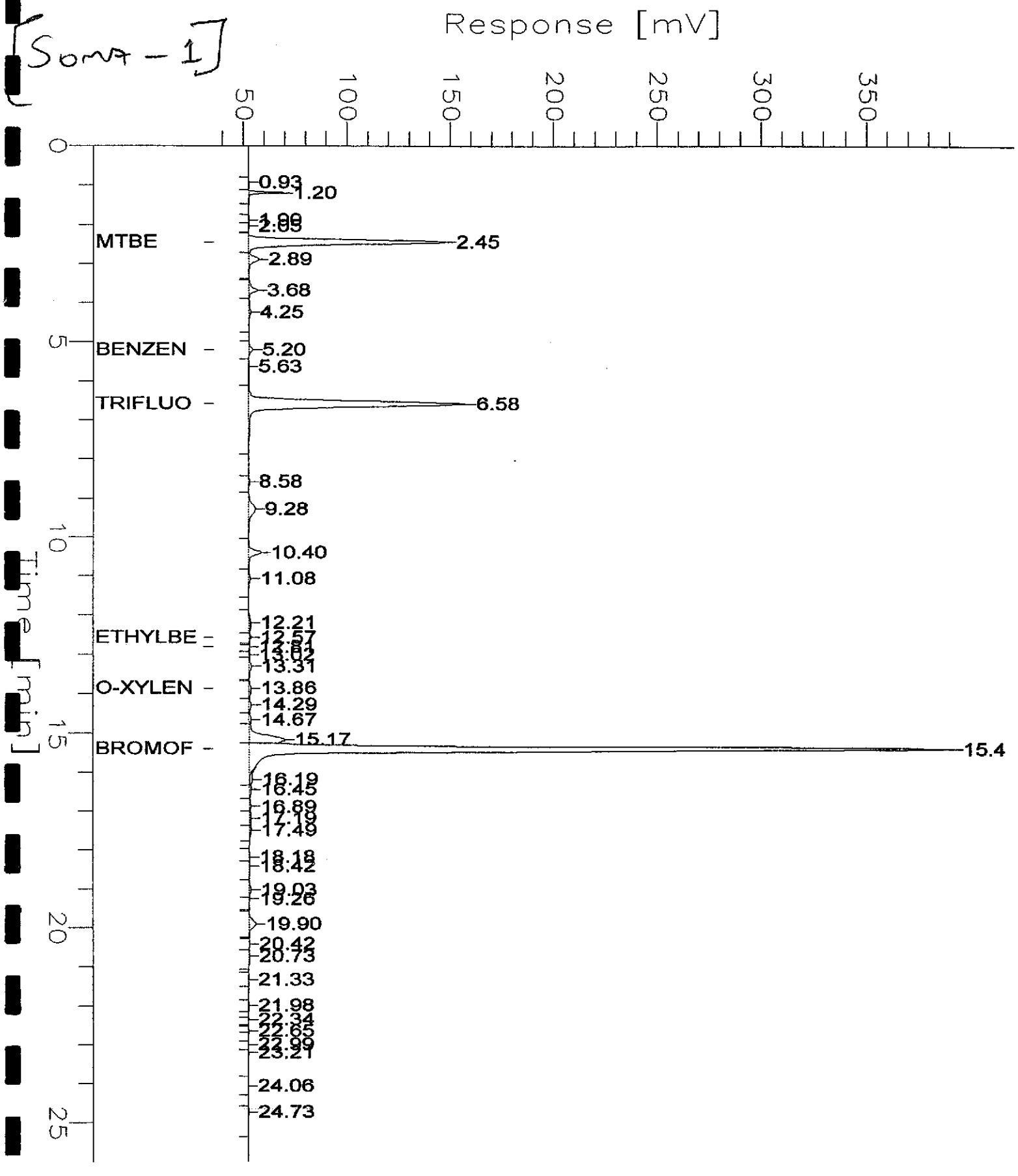


Chromatogram

Sample Name : 158159-009,71762,+stod
FileName : G:\GC04\DATA\110K024.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 36 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:18 AM
Time of Injection: 4/21/02 02:59 AM
Low Point : 35.57 mV High Point : 392.06 mV
Plot Scale: 356.5 mV

[Soil - 1]



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	SOMA-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-010		

Analyte	Result	RL
Gasoline C7-C12	2,200 H	50
Stoddard Solvent C7-C12	1,300 L	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	68-145
Bromofluorobenzene (FID)	137	66-143

Field ID:	SOMA-3	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-011		

Analyte	Result	RL
Gasoline C7-C12	1,000 H Y	50
Stoddard Solvent C7-C12	610	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	68-145
Bromofluorobenzene (FID)	131	66-143

Type:	BLANK	Analyzed:	04/20/02
Lab ID:	QC176404		

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	98	68-145
Bromofluorobenzene (FID)	100	66-143

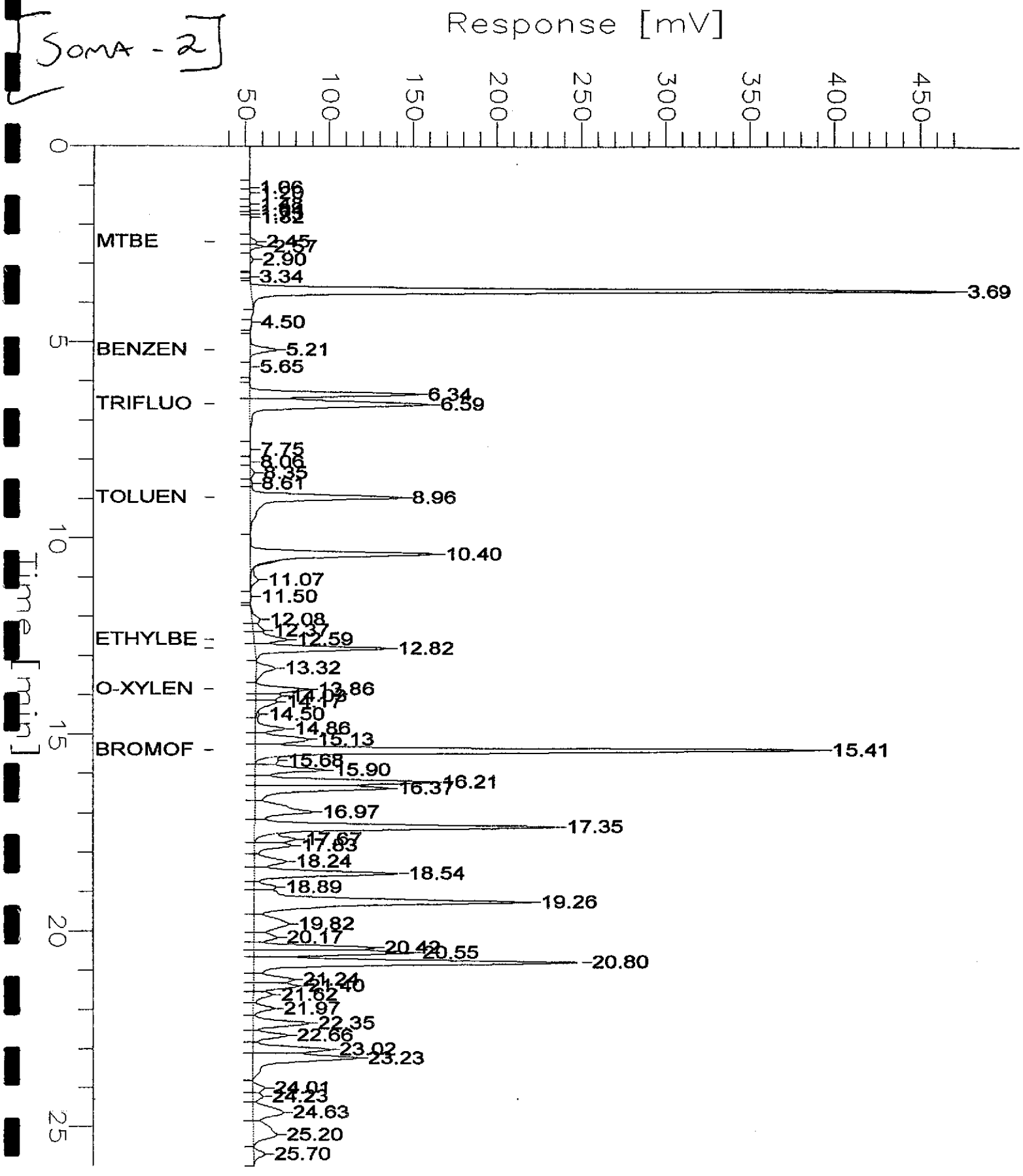
*= Value outside of QC limits; see narrative
H= Heavier hydrocarbons contributed to the quantitation
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting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

Chromatogram

Sample Name : 158159-010,71762,+stod
FileName : G:\GC04\DATA\110K025.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 32 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:18 AM
Time of Injection: 4/21/02 03:34 AM
Low Point : 31.57 mV High Point : 472.54 mV
Plot Scale: 441.0 mV

[SOMA - 2]



Chromatogram

Sample Name : 158159-011,71762,+stod
FileName : G:\GC04\DATA\110K026.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 35 mV

Sample #: a1 Page 1 of 1
Date : 4/22/02 11:18 AM
Time of Injection: 4/21/02 04:10 AM
Low Point : 34.69 mV High Point : 410.13 mV
Plot Scale: 375.4 mV

[Soma-3]

Response [mV]

50 100 150 200 250 300 350 400

Time [min.]

0 5 10 15 20 25

MTBE
BENZEN
TRIFLUO
TOLUEN
ETHYLBE
M,P-XYLE
BROMOF

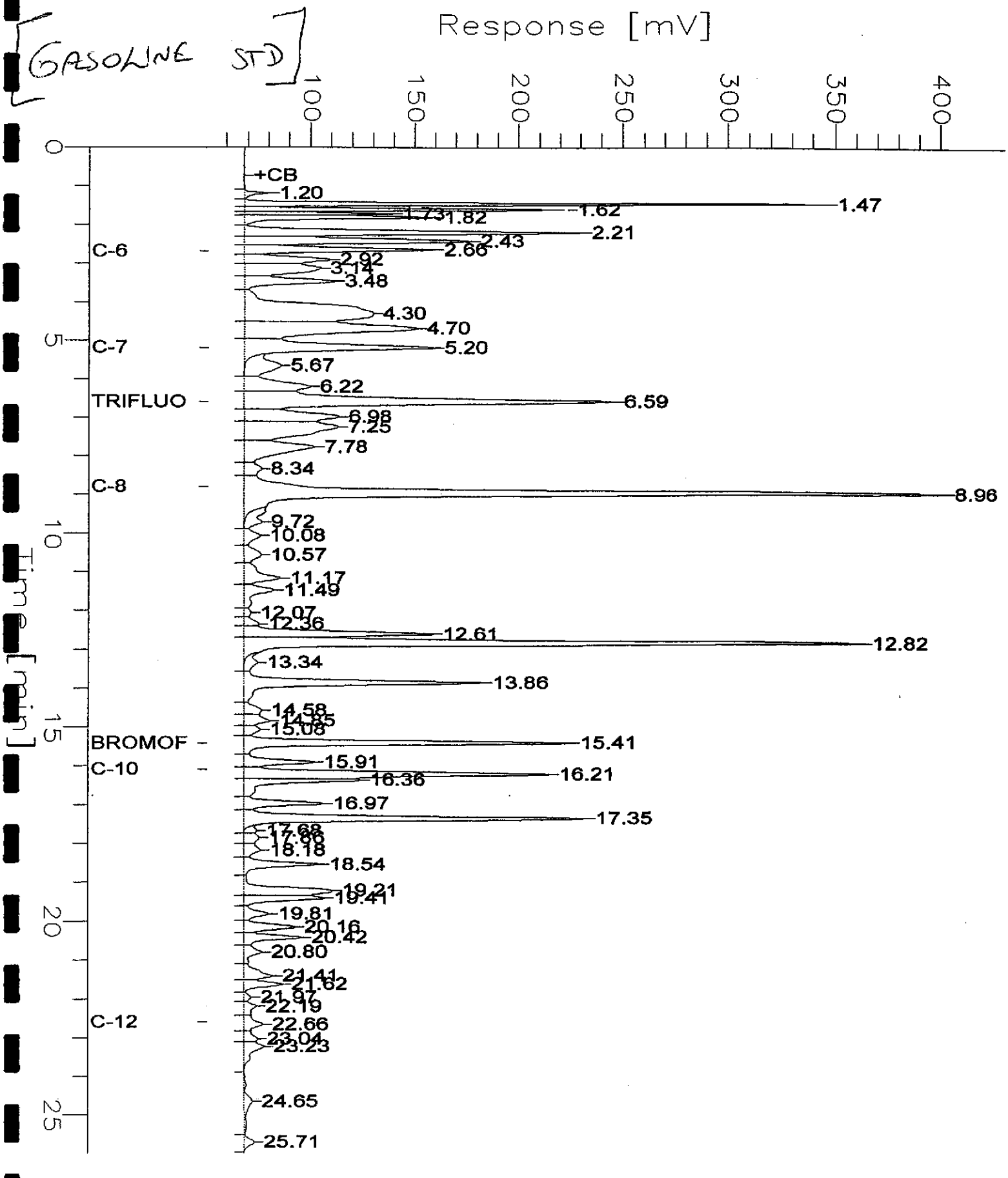
0.97 1.20 1.80 2.45 2.90 3.69 4.23 5.20 5.63 6.34 6.59 7.76 8.35 8.61 8.97 9.26 10.40 11.08 11.49 12.10 12.36 12.81 13.04 13.32 13.99 14.58 14.86 15.41 15.91 16.24 16.37 16.58 16.97 17.34 17.64 17.81 18.05 18.27 18.49 18.88 19.19 19.83 20.21 20.42 20.56 20.80 21.36 21.62 21.97 22.35 22.66 23.03 23.22 24.01 24.64 25.21 25.69

GC04 TVH 'J' Data File FID

Sample Name : ccv/lcs,qc176405,71762,02ws0489,5/5000
FileName : G:\GC04\DATA\110J003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 51 mV

Sample #: Page 1 of 1
Date : 4/22/02 11:13 AM
Time of Injection: 4/20/02 02:31 PM
Low Point : 51.37 mV High Point : 402.05 mV
Plot Scale: 350.7 mV

[GASOLINE STD]

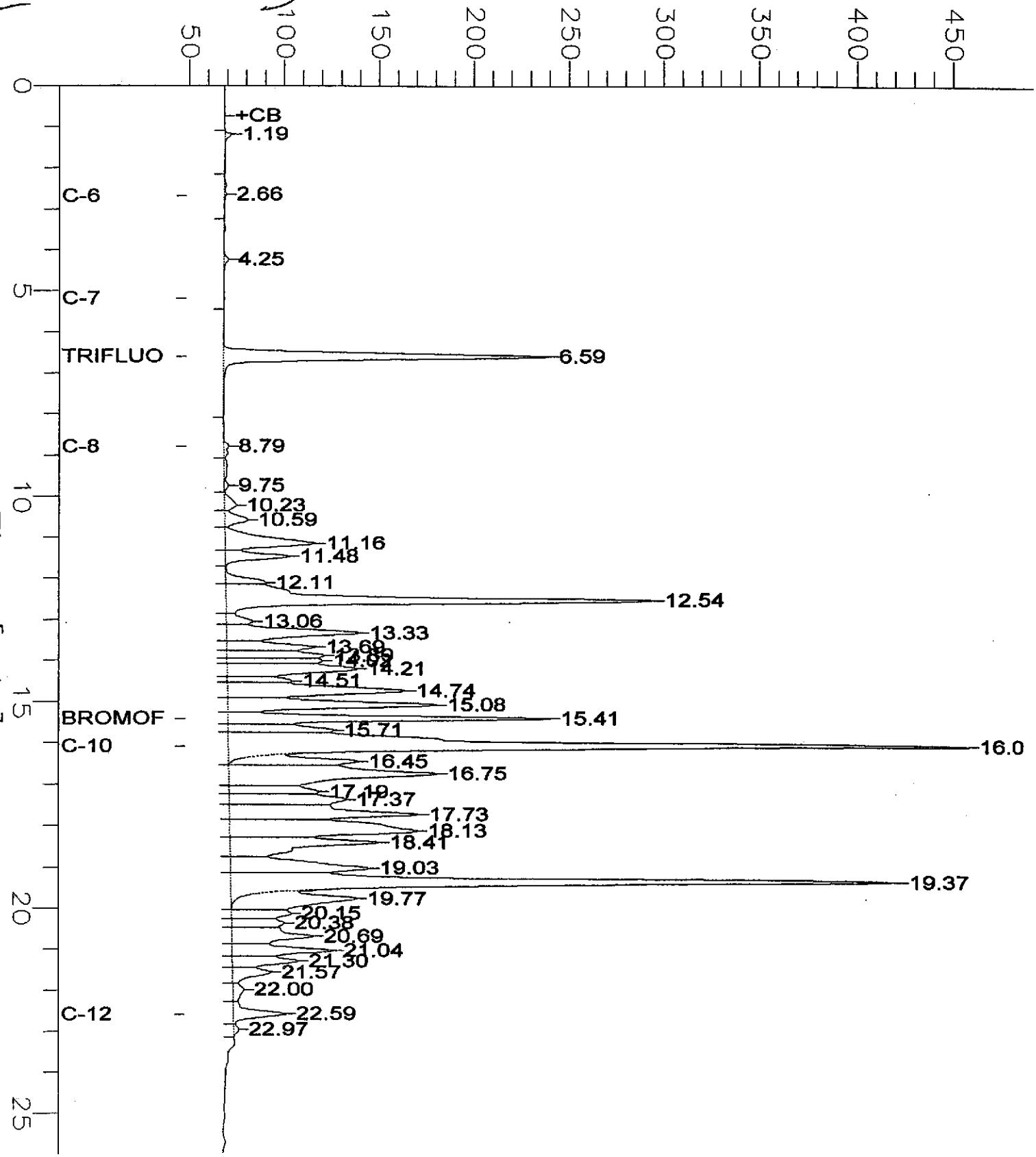


GC04 TVH 'J' Data File FID

Sample Name : ccv,stodd,71762,02ws0650,5/5000
FileName : G:\GC04\DATA\110J004.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 49 mV

Sample #: Page 1 of 1
Date : 4/22/02 11:13 AM
Time of Injection: 4/20/02 03:06 PM
Low Point : 48.66 mV High Point : 458.29 mV
Plot Scale: 409.6 mV

[STODDARD STD]



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC176405	Batch#:	71762
Matrix:	Water	Analyzed:	04/20/02
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,965	98	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	68-145
Bromofluorobenzene (FID)	104	66-143

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	8015B(M)
Field ID:	GW-2	Batch#:	71762
MSS Lab ID:	158159-001	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/20/02
Diln Fac:	1.000		

Type: MS Lab ID: QC176407

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<33.00	2,000	1,855	93	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	68-145
Bromofluorobenzene (FID)	113	66-143

Type: MSD Lab ID: QC176408

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,020	101	67-120	9	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	68-145
Bromofluorobenzene (FID)	113	66-143

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	GW-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-001		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	53-143
Bromofluorobenzene (PID)	107	52-142

Field ID:	GW-3	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-002		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	98	53-143
Bromofluorobenzene (PID)	110	52-142

Field ID:	GW-4	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/20/02
Lab ID:	158159-003		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	95	53-143
Bromofluorobenzene (PID)	116	52-142

C= Presence confirmed, but confirmation concentration differed by more than a factor of two
D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	LFR-1	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-004		

Analyte	Result	RL
MTBE	2.4	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	102	53-143
Bromofluorobenzene (PID)	111	52-142

Field ID:	LFR-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-005		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	19 C	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	53-143
Bromofluorobenzene (PID)	132	52-142

Field ID:	LFR-3	Sampled:	04/16/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-006		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	53-143
Bromofluorobenzene (PID)	110	52-142

C= Presence confirmed, but confirmation concentration differed by more than a factor of two
D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	LFR-4	Sampled:	04/16/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-007		

Analyte	Result	RL
MTBE	6.0	2.0
Benzene	53	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	105	53-143
Bromofluorobenzene (PID)	113	52-142

Field ID:	MW-11	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-008		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	53-143
Bromofluorobenzene (PID)	110	52-142

Field ID:	SOMA-1	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-009		

Analyte	Result	RL
MTBE	120	2.0
Benzene	0.80	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	101	53-143
Bromofluorobenzene (PID)	114	52-142

C= Presence confirmed, but confirmation concentration differed by more than a factor of two
D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	71762
Units:	ug/L	Received:	04/18/02
Diln Fac:	1.000		

Field ID:	SOMA-2	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-010		

Analyte	Result	RL
MTBE	4.4	2.0
Benzene	6.7	0.50
Toluene	46	0.50
Ethylbenzene	12	0.50
m,p-Xylenes	28	0.50
o-Xylene	16	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	53-143
Bromofluorobenzene (PID)	112	52-142

Field ID:	SOMA-3	Sampled:	04/17/02
Type:	SAMPLE	Analyzed:	04/21/02
Lab ID:	158159-011		

Analyte	Result	RL
MTBE	450	2.0
Benzene	0.78	0.50
Toluene	0.68	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	100	53-143
Bromofluorobenzene (PID)	119	52-142

Type:	BLANK	Analyzed:	04/20/02
Lab ID:	QC176404		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	90	53-143
Bromofluorobenzene (PID)	97	52-142

C= Presence confirmed, but confirmation concentration differed by more than a factor of two
D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC176406	Batch#:	71762
Matrix:	Water	Analyzed:	04/20/02
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.51	88	59-135
Benzene	20.00	17.31	87	65-122
Toluene	20.00	18.18	91	67-121
Ethylbenzene	20.00	18.37	92	70-121
m,p-Xylenes	40.00	35.98	90	72-125
o-Xylene	20.00	18.75	94	73-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	93	53-143
Bromofluorobenzene (PID)	101	52-142

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	71763
Lab ID:	158159-001	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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

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ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	71763
Lab ID:	158159-001	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	100	80-121
1,2-Dichloroethane-d4	105	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	113	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	71763
Lab ID:	158159-002	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	160	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	71763
Lab ID:	158159-002	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	101	80-121
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	114	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	71763
Lab ID:	158159-003	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	71763
Lab ID:	158159-003	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	11	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	102	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	104	80-120
Bromofluorobenzene	104	80-120

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	71763
Lab ID:	158159-004	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	40	13
1,2-Dichloropropane	ND	13
Bromodichloromethane	ND	13
Dibromomethane	ND	13
4-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	380	13

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	71763
Lab ID:	158159-004	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	106	80-121
1,2-Dichloroethane-d4	108	77-130
Toluene-d8	100	80-120
Bromofluorobenzene	112	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	71763
Lab ID:	158159-005	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	71763
Lab ID:	158159-005	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	104	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	113	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	71763
Lab ID:	158159-006	Sampled:	04/16/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	71763
Lab ID:	158159-006	Sampled:	04/16/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	102	80-121
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	71793
Lab ID:	158159-007	Sampled:	04/16/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	46	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

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	71793
Lab ID:	158159-007	Sampled:	04/16/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	103	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	107	80-120

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	71763
Lab ID:	158159-008	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	71763
Lab ID:	158159-008	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	105	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	112	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-1	Batch#:	71763
Lab ID:	158159-009	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	6.6	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	5.9	5.0

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-1	Batch#:	71763
Lab ID:	158159-009	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
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	100	80-121
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	103	80-120
Bromofluorobenzene	112	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-2	Batch#:	71768
Lab ID:	158159-010	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
Diln Fac:	25.00		

Analyte	Result	RL
Freon 12	ND	250
Chloromethane	ND	250
Vinyl Chloride	ND	250
Bromomethane	ND	250
Chloroethane	ND	250
Trichlorofluoromethane	ND	130
Acetone	ND	500
Freon 113	ND	130
1,1-Dichloroethene	ND	130
Methylene Chloride	ND	500
Carbon Disulfide	ND	130
MTBE	ND	130
trans-1,2-Dichloroethene	ND	130
Vinyl Acetate	ND	1,300
1,1-Dichloroethane	ND	130
2-Butanone	ND	250
cis-1,2-Dichloroethene	2,900	130
2,2-Dichloropropane	ND	130
Chloroform	ND	130
Bromochloromethane	ND	250
1,1,1-Trichloroethane	ND	130
1,1-Dichloropropene	ND	130
Carbon Tetrachloride	ND	130
1,2-Dichloroethane	ND	130
Benzene	ND	130
Trichloroethene	ND	130
1,2-Dichloropropane	ND	130
Bromodichloromethane	ND	130
Dibromomethane	ND	130
4-Methyl-2-Pentanone	ND	250
cis-1,3-Dichloropropene	ND	130
Toluene	ND	130
trans-1,3-Dichloropropene	ND	130
1,1,2-Trichloroethane	ND	130
2-Hexanone	ND	250
1,3-Dichloropropane	ND	130
Tetrachloroethene	ND	130

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-2	Batch#:	71768
Lab ID:	158159-010	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/22/02
Diln Fac:	25.00		

Analyte	Result	RL
Dibromochloromethane	ND	130
1,2-Dibromoethane	ND	130
Chlorobenzene	ND	130
1,1,1,2-Tetrachloroethane	ND	130
Ethylbenzene	ND	130
m,p-Xylenes	ND	130
o-Xylene	ND	130
Styrene	ND	130
Bromoform	ND	130
Isopropylbenzene	ND	130
1,1,2,2-Tetrachloroethane	ND	130
1,2,3-Trichloropropane	ND	130
Propylbenzene	ND	130
Bromobenzene	ND	130
1,3,5-Trimethylbenzene	ND	130
2-Chlorotoluene	ND	130
4-Chlorotoluene	ND	130
tert-Butylbenzene	ND	130
1,2,4-Trimethylbenzene	ND	130
sec-Butylbenzene	ND	130
para-Isopropyl Toluene	ND	130
1,3-Dichlorobenzene	ND	130
1,4-Dichlorobenzene	ND	130
n-Butylbenzene	ND	130
1,2-Dichlorobenzene	ND	130
1,2-Dibromo-3-Chloropropane	ND	130
1,2,4-Trichlorobenzene	ND	130
Hexachlorobutadiene	ND	130
Naphthalene	ND	130
1,2,3-Trichlorobenzene	ND	130

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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-3	Batch#:	71790
Lab ID:	158159-011	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	420	17
trans-1,2-Dichloroethene	ND	17
Vinyl Acetate	ND	170
1,1-Dichloroethane	ND	17
2-Butanone	ND	33
cis-1,2-Dichloroethene	360	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	18	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	25	17

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Field ID:	SOMA-3	Batch#:	71790
Lab ID:	158159-011	Sampled:	04/17/02
Matrix:	Water	Received:	04/18/02
Units:	ug/L	Analyzed:	04/23/02
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	33	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	102	80-121
1,2-Dichloroethane-d4	97	77-130
Toluene-d8	92	80-120
Bromofluorobenzene	110	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176412	Batch#:	71763
Matrix:	Water	Analyzed:	04/22/02
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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176412	Batch#:	71763
Matrix:	Water	Analyzed:	04/22/02
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	100	80-121
1,2-Dichloroethane-d4	101	77-130
Toluene-d8	105	80-120
Bromofluorobenzene	115	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176423	Batch#:	71768
Matrix:	Water	Analyzed:	04/22/02
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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176423	Batch#:	71768
Matrix:	Water	Analyzed:	04/22/02
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	99	80-121
1,2-Dichloroethane-d4	96	77-130
Toluene-d8	90	80-120
Bromofluorobenzene	97	80-120

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176519	Batch#:	71790
Matrix:	Water	Analyzed:	04/23/02
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

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176519	Batch#:	71790
Matrix:	Water	Analyzed:	04/23/02
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	103	80-121
1,2-Dichloroethane-d4	105	77-130
Toluene-d8	102	80-120
Bromofluorobenzene	116	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176531	Batch#:	71793
Matrix:	Water	Analyzed:	04/23/02
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

D= Not Detected
L= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC176531	Batch#:	71793
Matrix:	Water	Analyzed:	04/23/02
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	103	80-121
1,2-Dichloroethane-d4	107	77-130
Toluene-d8	103	80-120
Bromofluorobenzene	117	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	71763
Units:	ug/L	Analyzed:	04/22/02
Diln Fac:	1.000		

Type: BS Lab ID: QC176409

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	50.08	100	71-131
Benzene	50.00	47.30	95	76-120
Trichloroethene	50.00	50.11	100	78-120
Toluene	50.00	46.86	94	79-120
Chlorobenzene	50.00	48.85	98	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	102	77-130
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC176410

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	46.68	93	71-131	7	20
Benzene	50.00	45.97	92	76-120	3	20
Trichloroethene	50.00	48.99	98	78-120	2	20
Toluene	50.00	46.88	94	79-120	0	20
Chlorobenzene	50.00	45.85	92	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	71768
Units:	ug/L	Analyzed:	04/22/02
Diln Fac:	1.000		

Type: BS Lab ID: QC176421

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	47.87	96	71-131
Benzene	50.00	49.70	99	76-120
Trichloroethene	50.00	49.41	99	78-120
Toluene	50.00	49.04	98	79-120
Chlorobenzene	50.00	44.88	90	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	102	77-130
Toluene-d8	106	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC176422

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	47.47	95	71-131	1	20
Benzene	50.00	50.56	101	76-120	2	20
Trichloroethene	50.00	50.11	100	78-120	1	20
Toluene	50.00	51.50	103	79-120	5	20
Chlorobenzene	50.00	47.58	95	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-121
1,2-Dichloroethane-d4	102	77-130
Toluene-d8	109	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	71790
Units:	ug/L	Analyzed:	04/23/02
Diln Fac:	1.000		

Type: BS Lab ID: QC176517

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	47.36	95	71-131
Benzene	50.00	46.22	92	76-120
Trichloroethene	50.00	46.97	94	78-120
Toluene	50.00	46.90	94	79-120
Chlorobenzene	50.00	44.40	89	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-121
1,2-Dichloroethane-d4	97	77-130
Toluene-d8	106	80-120
Bromofluorobenzene	106	80-120

Type: BSD Lab ID: QC176518

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	45.90	92	71-131	3	20
Benzene	50.00	47.09	94	76-120	2	20
Trichloroethene	50.00	50.45	101	78-120	7	20
Toluene	50.00	46.66	93	79-120	1	20
Chlorobenzene	50.00	46.49	93	80-120	5	20

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-121
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	108	80-120
Bromofluorobenzene	107	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	158159	Location:	Glovatorium
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2511	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	71793
Units:	ug/L	Analyzed:	04/23/02
Diln Fac:	1.000		

Type: BS Lab ID: QC176529

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	51.86	104	71-131
Benzene	50.00	48.07	96	76-120
Trichloroethene	50.00	50.27	101	78-120
Toluene	50.00	49.28	99	79-120
Chlorobenzene	50.00	48.99	98	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-121
1,2-Dichloroethane-d4	105	77-130
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-120

Type: BSD Lab ID: QC176530

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	51.88	104	71-131	0	20
Benzene	50.00	46.66	93	76-120	3	20
Trichloroethene	50.00	46.89	94	78-120	7	20
Toluene	50.00	45.49	91	79-120	8	20
Chlorobenzene	50.00	47.83	96	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-121
1,2-Dichloroethane-d4	102	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-120

RPD= Relative Percent Difference

MICROSEEPS

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

Order #: P0204415
Report Date: 05/01/02
Client Proj Name: Oakland CA 2511
Client Proj #: Oakland CA 2511

Sample Identification

Lab Sample #	Client Sample ID
P0204415-01	GW-2
P0204415-02	GW-3
P0204415-03	GW-4
P0204415-04	LFR-1
P0204415-05	LFR-2
P0204415-06	LFR-3
P0204415-07	LFR-4
P0204415-08	MW-11
P0204415-09	SOMA-1
P0204415-10	SOMA-2
P0204415-11	SOMA-3

Approved By: Rebecca J. Harris

NOTES:SAMPLES REC'D 4/19/02, BUT NOT LOGGED IN UNTIL 4/22/02 DUE TO NON CONFORMANCE. RP

(Customer Service to complete below)

Action Taken:

Microseeps' Project Number:_____

X Client contacted: Date: 4/22 Time: 1:59

Contact Name: MANSOUR

Result: MANSOUR TO CALL BACK.
USE THE TIMES ON THE CHAIN OF CUSTODY.
THE VIAL MARKED GW3 AT 9:05 SHOULD BE
MARKED GW4

__ Attempted Contact: Date:_____ Time:_____

Message:_____

__ Not necessary to contact client, take the following action:_____

Customer Service Initials_____

P0204115

CHAIN - OF - CUSTODY RECORD

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

Company : SOMA Env
Co. Address : 2680 Bishop Dr. Ste 280 / San Ramon, CA
Proj. Manager: Mansour Sepehr
Proj. Location: 3820 Manila / Oak
Proj. Number: 2511
Phone # : (925) 244-6600 Fax # : (925) 244-6601

Sampler's signature : RW Papler

Results to : Mansour Sepehr

Invoice to : SOMA Env

Cooler ID	Cooler Temp.

	Sample ID	Sample Description	Date	Time	Comp.	Grab	# Cont.	Parameters Requested: Leak A: Methane	Remarks
01	MW-2	Water	17 Apr 02	1155		x	2	x	Mon Well MW-2
02	" -3	"	"	1720		x	2	x	" -3
03	" -4	"	"	0900		x	2	x	" -4
04	IFR-1	"	"	1245		x	2	x	IFR-1
05	" -2	"	"	1025		x	2	x	" -2
06	" -3	"	16 Apr 02	1640		x	2	x	" -3
07	" -4	"	16 Apr 02	1225					" -4
08	MW-11	"	17 Apr 02	1450		x			MW-11
09	SOMA-1	"	"	0900		x	2	x	SOMA-1
10	" -2	"	"	1620		x	2	x	" -2
11	" -3	"	"	1730		x	2	x	" -3
	" -4								
							Total 22		

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
	SOMA Env. Eng	18 Apr 02	1030				
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
					Microseeps	4/19/02	1815

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

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-01

Sample Description	Matrix	Sampled Date/Time	Received
GW-2	Water	17 Apr. 02 16:55	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	0.29	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-02

Sample Description	Matrix	Sampled Date/Time	Received
GW-3	Water	17 Apr. 02 17:20	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	0.64	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-03

Sample Description	Matrix	Sampled Date/Time	Received
GW-4	Water	17 Apr. 02 9:00	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	4700	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-04

Sample Description	Matrix	Sampled Date/Time	Received
LFR-1	Water	17 Apr. 02 13:45	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	3.0	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-05

Sample Description	Matrix	Sampled Date/Time	Received
LFR-2	Water	17 Apr. 02 10:25	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	16000	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-06

Sample Description	Matrix	Sampled Date/Time	Received
LFR-3	Water	16 Apr. 02 16:40	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	9.6	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-07

Sample Description	Matrix	Sampled Date/Time	Received
LFR-4	Water	16 Apr. 02 17:25	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	12000	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-08

Sample Description	Matrix	Sampled Date/Time	Received
MW-11	Water	17 Apr. 02 14:50	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	9.2	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-09

Sample Description	Matrix	Sampled Date/Time	Received
SOMA-1	Water	17 Apr. 02 12:00	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	820	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-10

Sample Description	Matrix	Sampled Date/Time	Received
SOMA-2	Water	17 Apr. 02 16:20	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	14000	0.015	ug/L	AM20GAX	pd	4/30/02

Order #: P0204415
Report Date: 05/01/02
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 #: P0204415-11

Sample Description	Matrix	Sampled Date/Time	Received
SOMA-3	Water	17 Apr. 02 17:30	22 Apr. 02

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Water						
Methane	410	0.015	ug/L	AM20GAX	pd	4/30/02

APPENDIX B

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

Project #:	2511	Address:	~~2815 Broadway~~	Date:	4/17/04
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Roger P.

Well/Sample ID:	GW-7	TOC Elevation:	79.14	Purge:	☐ Pump	☐ Bailer	
Dup:		Well Depth:	20	Sample:	☐ Pump	☐ Bailer	
Blank:		DTW:	9.38	Odor:	☐ No	☐ Yes	Describe:
Purge Volume:		Groundwater Elev.:	69.76	Sheen:	☐ No	☐ Yes	Describe:
Well Diameter:		Water Column Height:	10.62	Color:	☐ No	☐ Yes	Describe:

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	DTW	VOLUME (gal.)	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%	
1320 P		0.2	17.17	6.91	4.08	198 ~~140~~	2.0	6.40	
1338 P		0.3	17.02	6.8x	3.40	198	1.4	6.41	
2:45		0.35	17.10	696	2.64	199	0.0	6.38	
2.~~48~~		0.4	17.16	702	2.02	198	0.0	6.38	
2.57		0.45	17.0	707	1.76	198	0.7	6.38	
		Dried	Av ~~Wat~~						

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.09	0.65	4.7	0.024	70.	0.0
Dilution:						
Comments:						

(Results in mg/L)

20 − 17 9.38 = 10.62

0.24 gallon/ft = 0.

Project #:	2511	Address:	3820 Manilla	Date:	04/16/02-04/17/02
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Roger

Well/Sample ID:	MW-3	TOC Elevation:	77.92	Purge:	☐ Pump	☐ Bailer		
Dup:		Well Depth:	20'	Sample:	☐ Pump	☐ Bailer		
Blank:		DTW:	9.78'	Odor:	☐ No	☐ Yes	Describe:	
Purge Volume:		Groundwater Elev.:	68.14	Sheen:	☐ No	☐ Yes	Describe:	
Well Diameter:		Water Column Height:	10.22'	Color:	☐ No	☐ Yes	Describe:	

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	DTW	VOLUME (gal)	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%	
1:25p	~~0.2~~	0.2	17.44	522	5.98	112	78.2	6.64	
1:42		0.4	17.62	522	2.57	162	~~162~~ 94	6.32	
2:00		0.7	16.61	526	7.55	132	29.9	6.44	
2:15	Purged dry after purging 0.75 gal								

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.0	0.001	4.2	0.0	59	0.0
Dilution:						
Comments:						

(Results in mg/L)

20 - 9.78 = 10.22' water col. ht.

10.22 × 0.024 gal/ft = 0.25 gal

0.25 gal/wcv × 3 = 0.75

Project #:	2511	**Address:**	2815 Broadway	**Date:**	[redacted]
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	GW4	**TOC Elevation:**	82.37 Ft	**Purge:**	☐ Pump	☐ Bailer	
Dup:		**Well Depth:**	12. Ft	**Sample:**	☐ Pump	☐ Bailer	
Blank:		**DTW:**	8.26 Ft	**Odor:**	☐ No	☐ Yes	**Describe:**
Purge Volume:		**Groundwater Elev.:**	74.11	**Sheen:**	☐ No	☐ Yes	**Describe:**
Well Diameter:		**Water Column Height:**	3.74	**Color:**	☐ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	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%	
815		0.6	13.55	533	3.26	5	47	6.04	
820		0.2	14.24	472	1.41	16	-10	6.17	
825		~~0.5~~ 0.4	14.15	468	0.71	5	-10	6.25	
830		~~0.4~~ 0.3	14.07	468	0.62	-2	~~-3~~ -10	6.26	
835		0.6	14.04	468	0.47	-7	-10	6.30	
840		0.7	13.98	467	0.41	-2.1	-10	6.34	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	>33	>33.3	5.2	0.033	0.0	0.1
	DF 10	DF 10				
Dilution:	0.57	0.64				
Comments:	5.7	6.4				
(Results in mg/L)						

$12 - 8.26 = 3.74 \times 0.04 = 0.15$

$0.15 \times 3 = 0.45$

Project #:	2511	**Address:**	~~2815 Broadway~~	**Date:**	~~[illegible]~~
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	LFR-1	**TOC Elevation:**	79.97 ft	**Purge:**	☐ Pump	☐ Bailer		
Dup:		**Well Depth:**	19 ft	**Sample:**	☐ Pump	☐ Bailer		
Blank:		**DTW:**	9.61 ft	**Odor:**	☐ No	☐ Yes	**Describe:**	
Purge Volume:		**Groundwater Elev.:**	70.36	**Sheen:**	☐ No	☐ Yes	**Describe:**	
Well Diameter:		**Water Column Height:**	9.39	**Color:**	☐ No	☐ Yes	**Describe:**	

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE &		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

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME Stabilization if 3 successive parameters within	DTW	VOLUME (gal.)	TEMP (°C)	COND (µS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
1100		0.1	17.61	1320	5.70	221	0.9	5.92	
1110		1.0	17.01	1000	1.36	226	0.9	5.89	
1114		2.0	16.75	930	1.67	224	5.7	5.96	
1124		3.0	16.69	1030	1.52	227	-10.0	5.91	
1128		4.0	16.52	1080	1.34	234	-10.0	5.88	
1135		5.0	16.37	1120	1.68	240	-4.3	5.88	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.39	0.75	1.5	0.023	38	0.3
Dilution:						
Comments:						

(Results in mg/L)

$19 - 9.61 = 9.39$

$9.39 \times 0.17 = 1.6$

$1.6 \times 3 = 4.8$

Project #:	2511	**Address:**	3820 Manilla	**Date:**	04/16/02-04/17/02
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID: LFR-2	**TOC Elevation:**	81.89	**Purge:**	☐ Pump	☐ Bailer		
Dup:	**Well Depth:**	19	**Sample:**	☐ Pump	☐ Bailer		
Blank:	**DTW:**	10.18	**Odor:**	☐ No	☐ Yes	**Describe:**	
Purge Volume:	**Groundwater Elev.:**	71.71	**Sheen:**	☐ No	☐ Yes	**Describe:**	
Well Diameter:	**Water Column Height:**	8.82	**Color:**	☐ No	☐ Yes	**Describe:**	

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	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%	
9 25		0.1	15.74	625	2.03	-2.2	-10	6.45	
9 35		1.0	16.05	493	0.00	26	-10	6.22	
9 40		2.0	16.11	513	0.00	23	-10	6.25	
9 50		3.0	16.22	654	0.00	-13	-10	6.41	
9 53	Pump turned to recalibrate due to successive DO rdgs of 0.0								
9 59		35	16.33	752	0.06	~~0.44~~ -17	-4.5	6.08	
10 02		4.0	16.37	748	0.00	-26	-3.1	6.15	
10 07		45	16.41	824	0.00	-39	-5.0	6.18	
10 11		50	16.43	845	0.00	-57	.57	6.19	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
>3.3	~~>3.3~~	>3.3	1.7	0.063	0.0	0.0
	DF: 10	DF: 10				
Dilution:	0.72	0.76				
Comments:	7.2	7.6				

(Results in mg/L)

19 - 10.18 = 8.82 feet

8.82 x 0.17 = 1.5 g

Project #:	2511	**Address:**	2815 Broadway	**Date:**	[redacted]
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	LFR-A3	**TOC Elevation:**	77.96	**Purge:**	☐ Pump	☐ Bailer	
Dup:		**Well Depth:**	22'	**Sample:**	☐ Pump	☐ Bailer	
Blank:		**DTW:**	10.30	**Odor:**	☐ No	☐ Yes	**Describe:**
Purge Volume:		**Groundwater Elev.:**	67.6	**Sheen:**	☐ No	☐ Yes	**Describe:**
Well Diameter:		**Water Column Height:**	11.64	**Color:**	☐ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	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	
3:15		0.5	18.49	557	5.63	241	48	6.00	
3:30		2.0	18.49	563	5.25	240	-4.3	5.97	
3:45		3.0	18.54	437	0.61	255	-0.5	5.59	V2 Collected
3.55		4	18.55	616	0.16	237	53.6	5.65	
4.05		5	18.39	590	0.0	237	66.2	5.65	
4.20		6	18.38	573	0.0	239	60.0	5.66	
Down hole			18.68	566	0.19	228	79	5.78	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.79	1.2	0.0	0.041	55	0.4
Dilution:						
Comments:						

(Results in mg/L)

22' × 10.30 = 11.7

11.64 × 0.17 = 1.98 gal/vol

2 × 3 = 6 gal

Project #:	2511	**Address:**	2815 Broadway	**Date:**	~~10/18/01 10/19/01~~ 4/15/02
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou / Roger

Well/Sample ID:	LFR4	**TOC Elevation:**	81.65	**Purge:**	☑ Pump	☐ Bailer	
Dup:		**Well Depth:**	19	**Sample:**	☐ Pump	☑ Bailer	
Blank:		**DTW:**	12.38	**Odor:**	☐ No	☐ Yes	**Describe:**
Purge Volume:		**Groundwater Elev.:**	69.27	**Sheen:**	☑ No	☐ Yes	**Describe:**
Well Diameter:		**Water Column Height:**	6.62	**Color:**	☑ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	DTW	VOLUME (~~gal.~~)	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%	
1135									
1137		0.1	18.17	914	7.21	50	5.9	6.00	
1145		1.0	18.03	900	0.55	18	-10	6.12	
1150		2.0	17.99	878	0.26	34	2.2	6.15	
1156		3.0	17.94	897	0.0	26	-3.7	6.16	
1201		4.0	18.02	904	0.0	17	-10.0	6.17	
1214		5.0	18.04	925	0.0	-4	11.4	6.19	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	>3.3	>3.3	2.6	0.027	6.0	1.0
	DF=10	DF=10				
Dilution:	0.48	0.51				
Comments:	4.8	5.1				

(Results in mg/L)

19 - 12.38 = 6.62 ft.

6.62 × 0.17 = 1.13 g

Project #:	2511	**Address:**	2818 Broadway	**Date:**	~~10/18/21~~ 10/20/21
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	MW-11	**TOC Elevation:**	84.13	**Purge:**	☐ Pump	☐ Bailer	
Dup:		**Well Depth:**	20	**Sample:**	☐ Pump	☐ Bailer	
Blank:		**DTW:**	~~9.67~~ 9.15	**Odor:**	☐ No	☐ Yes	**Describe:**
Purge Volume:		**Groundwater Elev.:**	74.98	**Sheen:**	☐ No	☐ Yes	**Describe:**
Well Diameter:		**Water Column Height:**	~~10.33~~ ~~11.83~~ 10.85	**Color:**	☐ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	DTW	VOLUME (gal.)	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%	
12:10 p	0.	0.1	18.23	1180	6.10	246	-10	5.92	
215		1.0	18.37	1180	6.31	242	-10	5.91	
220		2.0	18.28	1180	6.22	258	-10	5.90	
225		3.0	18.19	1170	5.58	281	-10	5.91	
230		4.0	18.34	1150	5.62	279	-10	5.87	
235		5.0	18.54	1160	4.10	251	-10	5.86	
241		6.0	18.70	1150	3.18	242	-10	5.87	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.0	0.0	2.8	0.0	780	0.0
					88	
Dilution:						
Comments:						
(Results in mg/L)						

20 - 9.15 = 11.85' water col
11.85 x 0.17 = 2 gal/well
2 x 3 = 6 gal

Project #:	2511	**Address:**	3820 Manilla	**Date:**	04/16/02-04/17/02
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	SOMA-1	**TOC Elevation:**	81.64	**Purge:**	☐ Pump	☐ Bailer		
Dup:		**Well Depth:**	40	**Sample:**	☐ Pump	☐ Bailer		
Blank:		**DTW:**	12.79	**Odor:**	☐ No	☐ Yes	**Describe:**	
Purge Volume:		**Groundwater Elev.:**	68.85	**Sheen:**	☐ No	☐ Yes	**Describe:**	
Well Diameter:		**Water Column Height:**	27.21	**Color:**	☐ No	☐ Yes	**Describe:**	

Laboratory:

Delivery:

Analysis/preservative:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$ + NAOH	Disolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 preserved poly	Dissolved Perm Gases:	2 Unpreserved VOAs
8260 (8010 list) & MtBE &		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

Alk, Cl-, Sulfate: 1 unpreserved poly L

TIME	DTW	VOLUME (gal.)	TEMP (C)	COND (µS/cm)	DO (mg/L)	ORP (mV)	TURBIDITY (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters within:				+/- 5%	+/- 10%	+/- 10 mV	+/- 10%	+/- 0.1%	
1110		0.1	18.04	1250	4.24	147	45.7	6.21	
1116		2.5	17.46	1250	1.44	162	142	6.04	
1120		5.0	17.44	1250	0.58	167	217	6.05	
1124		7.5	17.27	12.60	0.27	182	92	6.05	
1128		10.0	17.20	12.60	0.04	181	113	6.06	
1131		12.5	17.29	12.60	0.00	183	87.4	6.05	
1132-1141	Recalibrated U200		Horiba Meter due to suspect DO rdg of 0.0						
			17.80	12.80	0.27	217	116	6.01	
			17.98	12.80	0.00	213	28.2	6.01	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.1	0.17	0.6	0.052	31	0.0
Dilution:						
Comments:						
(Results in mg/L)						

calib: 1132-1141

DO: 8.87 mg/L

T: 21.07 °C

40 - 12.79 = 27.21 ft.

27.21 * 0.64 = 17.8 g

Project #:	2511	Address:	2815 Broadway	Date:	~~10/16/01 10/19/01~~
Project Name:	Glovatorium		Oakland, CA	Sampler:	Naser Pakrou
					Roger

Well/Sample ID:	~~SOMW-1~~	TOC Elevation:	81.39	Purge:	☐ Pump	☐ Bailer		
Dup:		Well Depth:	20	Sample:	☐ Pump	☐ Bailer		
Blank:		DTW:	8.33	Odor:	☐ No	☐ Yes	Describe:	
Purge Volume:		Groundwater Elev.:	73.06	Sheen:	☐ No	☐ Yes	Describe:	
Well Diameter:		Water Column Height:	11.67	Color:	☐ No	☐ Yes	Describe:	

Laboratory:

Delivery:

Analysis/preservative:

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

TIME Stabilization if 3 successive parameters within	DTW	VOLUME (gal.)	TEMP (°C) +/- 3%	COND (µS/cm) +/- 3%	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	TURBIDITY (NTU) +/- 10%	pH +/- 0.1%	COMMENTS
1335 P		0.1	15.75	1190	3.34	-45	273	6.32	
1342 P		1	15.31	1180	0.40	5.9	192	6.30	
1350 P		2	15.29	1170	0.00	-6.3	139	6.30	
1357 P		3	15.25	1170	0.00	-6.6	107	6.31	
1402 P		4	15.26	1160	0.00	-6.8	411	6.31	
1409 P		5	15.24	1160	0.00	-6.8	485	6.30	
1416		6	15.25	1170	0.00	-6.9	440	6.30	

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	73.3	73.3	0.1	0.009	0.0	0.5
	DF 10	DF 10				
Dilution:	0.74	0.87				
Comments:	7.4	8.7				
(Results in mg/L)						

20 - 8.33 = 11.67 / water col.
11.67 x 0.17 = 1.98 x 2
= 2 gal

Project #:	2511	**Address:**	2815 Broadway	**Date:**	~~10/19/01~~ 10/29/01
Project Name:	Glovatorium		Oakland, CA	**Sampler:**	Naser Pakrou
					Roger

Well/Sample ID:	~~SOMA-3~~	**TOC Elevation:**	81.42	**Purge:**	☐ Pump	☐ Bailer	
Dup:		**Well Depth:**	30'	**Sample:**	☐ Pump	☐ Bailer	
Blank:		**DTW:**	10.52	**Odor:**	☐ No	☐ Yes	**Describe:**
Purge Volume:		**Groundwater Elev.:**	70.9	**Sheen:**	☐ No	☐ Yes	**Describe:**
Well Diameter:		**Water Column Height:**	19.48	**Color:**	☐ No	☐ Yes	**Describe:**

Laboratory:

Delivery:

Analysis/preservative:

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

TIME	DTW	VOLUME (gal.)	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%	
4:35p		0.1	16.22	1490	4.10	-32	384	6.38	
4:42		0.25	15.91	1370	0.35	-80	275	6.35	
4:49		0.50	16.07	1310	0.00	-63	311	6.28	
4:56		0.75	15.94	1300	5.11	-17	368	6.30	
5:03		1.0	15.90	1270	5.58	10	309	6.27	
5:10		1.25	15.97	1290	4.65	23	447	6.24	
5:17		1.50	15.83	1260	5.20	29	579	6.23	
5:35p → After re-calibration DO acting →					2.4				

Result	Ferrous Iron	Total Iron	Nitrate	Nitrite	Sulfate	Dissolved Manganese
	0.77	1.03	0.6	0.0	42	0.0
Dilution:						
Comments:						
(Results in mg/L)						

30' − 10.52 = 19.48'

19.48 × ~~0.17~~ 0.23 = ~~0.45~~ 0.45

0.45 × 3 = 1.35

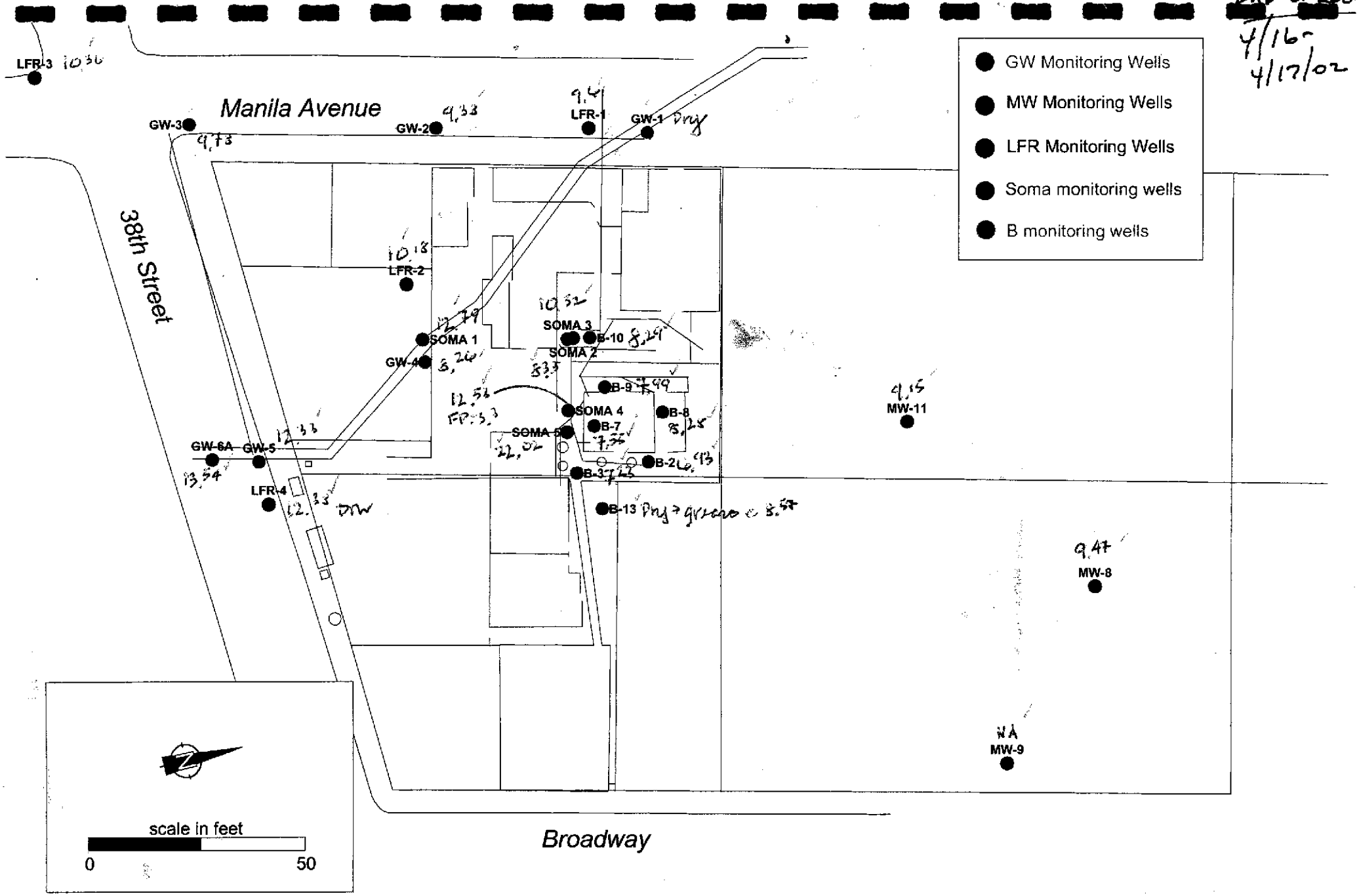

Figure 2: Location of Groundwater Monitoring Wells

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