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First Quarter 2001
Groundwater Monitoring Report
Former Glovatorium Facility

3815 Broadway

Oakland, California

May 7, 2001

Project 01-2510

Prepared for

Smiland and Khachigian

601 West Fifth Street, 7th Floor

Los Angeles, California 90071-2004

Prepared by

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MAY 1 0 2001

May 8, 2001

Project: 01-2510

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

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

Dear Mr. Seery:

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

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

Sincerely,

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

Enclosure

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

Certification

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

MAY 10 2001

Naser Pakrou, Ph.D.
Manager of Field Operations

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 site is the former Glovatorium property located at 3815 Broadway Avenue, Oakland, California (the "Site"), as shown in Figure 1. The Site is located in an area consisting primarily of commercial and residential uses.

This report summarizes the results of the first quarter 2001 groundwater monitoring event conducted on January 29 through February 1, 2001 by LFR Levine.Fricke (LFR) at the Site, including the results of the laboratory analysis of the groundwater samples, which were analyzed for:

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

In addition to the above laboratory analysis, the natural attenuation study which was initiated by LFR in the third quarter of 2000 continued during this monitoring event. The objective of the natural attenuation study was to evaluate whether or not tetrachloroethylene (PCE) and other VOCs found in groundwater are biodegrading. Therefore, the groundwater samples collected during this monitoring event were analyzed for common electron acceptors and other geochemical indicators, and the results are described in this report.

These activities were performed in accordance with the general guidelines of the

Regional Water Quality Control Board (RWQCB) and the Alameda County Environmental Health Services (ACEHS).

This work is needed to determine the nature and extent of environmental contamination, and thus whether contamination is affecting the neighboring Thompson property. This information is needed to defend against the claim that Mr. Thompson brought against the Glovatorium and the Deppers. This work may also provide data that could help determine when releases occurred, which is also significant to defending against the claims brought by a former owner of the property, Ms. Johnson.

1.1 Site Description

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

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

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

underneath the 54-inch storm drain (LFR, January 2001).

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

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

1.2 Background

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

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

investigation at the Site. Geosolv drilled fourteen soil borings to approximate depths of 10 to 24 feet below ground surface (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 investigation by drilling twelve additional soil borings to an approximate depth of 19 to 25 feet bgs. All of the twelve soil borings were converted into temporary groundwater sampling points, and are labeled E-15 through E-26 in Figure 2. After collecting grab groundwater samples from the "E" temporary sampling points, they were abandoned and grouted.

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

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

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

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

1.3 Site Geology and Hydrogeology

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

aligned parallel to the axis of the former stream flow direction (LFR, 2001).

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

According to the results of historical groundwater monitoring activities, groundwater occurs at 4 to 14 feet bgs. Based on the current and the previous groundwater monitoring reports, groundwater flows from northeast to the southwest with an approximate groundwater flow gradient of 0.019 ft/ft to 0.035 ft/ft. Assuming that the water-bearing zone consists of silty sand with an average hydraulic conductivity of 1×10^{-4} cm/sec and porosity of 0.35, it is estimated that the average groundwater flow velocity is approximately 0.022 ft/day (8 feet per year).

2.0 FIELD ACTIVITIES

Field activities were conducted by LFR from January 29 through February 1, 2001, during which ten groundwater monitoring wells were sampled and water levels were measured in 19 groundwater monitoring wells and temporary sampling points. Appendix A presents the site-specific field operation procedure used by LFR in conducting this groundwater monitoring event.

On January 29, 2001, LFR's field crew measured the depths to groundwater in the monitoring wells and temporary groundwater sampling points from the top of casings to the nearest 0.01 feet using an electrical sounder. The depth to groundwater and top of casing elevation data at each groundwater monitoring well were used to calculate the groundwater elevation.

Groundwater sampling was conducted from January 29, 2001 through February 1, 2001. During the groundwater sampling activities, certain biodegradation groundwater parameters such as dissolved oxygen, oxidation reduction potential (ORP), ferrous iron, total iron, nitrate, nitrite, sulfate and manganese were measured by the field crew. After collecting groundwater samples, the samples were placed in an ice chest and delivered to Curtis & Tompkins, Ltd. of Berkeley, California for routine analyses and to Microseeps Analytical Laboratories of Pittsburgh, Pennsylvania (Microseeps) for the bioattenutaion parameter analyses. Additionally, the field crew also measured certain groundwater parameters such as pH, temperature, electrical conductivity and turbidity in-situ during the groundwater monitoring event.

2.1 Laboratory Analysis

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

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

As discussed above, the groundwater constituents related to bio-degradation

activities were measured by Microseeps. The analyses conducted by Microseeps included alkalinity, chloride, ferrous iron, nitrate, nitrite, sulfate, sulfide, total iron, total manganese and dissolved manganese, and permanent gases such as carbon dioxide, hydrogen, methane, nitrogen and dissolved oxygen. As explained earlier, certain parameters such as dissolved oxygen, redox potential, turbidity, pH, nitrate, nitrite, ferrous iron, total iron and sulfate, and manganese were also analyzed in some selected wells in the field by LFR's field crew.

3.0 Results

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

3.1 Groundwater Flow Condition

Table 2 presents the measured groundwater elevations at different groundwater monitoring wells and temporary groundwater sampling points. At each location, depth to watertable and the elevation of the top of casing were used to calculate the watertable elevation relative to the assumed datum. Appendix B presents the field notes. Table 3 shows the historical water level elevations at different groundwater monitoring wells.

As Table 2 shows, the watertable elevations ranged from 66.96 feet to 78.14 feet above mean sea level. In evaluating the groundwater flow direction and gradient, water level data from GW-4, B-7 and B-9 were not utilized for the following reasons:

1. No accurate information about the construction details of the "B" wells installed by Geosolve is available, therefore water level data from these wells are questionable;

2. GW-4 was installed adjacent to the storm drain system in order to evaluate whether or not the storm drain system is leaking. This well was installed in the shallow formation, and may partially penetrate into the underlying water-bearing zone. Therefore, the water level elevation recorded inside GW-4 may not be representative of the underlying water bearing zone.

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 conducted by LFR.

During the recent monitoring event, the water level elevations rose slightly (about 0.5 to 1.0 foot) since the previous monitoring event. The increase in watertable elevations can be attributed to the rainy season during the month of January.

The field measurements of some physical and chemical parameters of the groundwater samples are presented in detail in the field notes in Appendix A, and are summarized in Table 4, along with their historical values. Water temperatures ranged from 12.73 °C to 17.29°C. The variation in temperature may reflect the changes in air temperature during sampling. The temperature measurements allowed the field crew to make corrections to the pH, Electrical Conductivity (EC), and dissolved oxygen measurements. pH measurements ranged from 6.35 to 6.89 units. The EC measurements ranged from 0.479 to 1.424 mS/cm.

3.2 Groundwater Quality

The groundwater samples were analyzed for petroleum hydrocarbons and volatile organic compounds using EPA Method 8015M and 8021B. Table 5 displays the results of the laboratory analyses for TPH-ss, TPH-g, benzene,

toluene, ethylbenzene, and total xylenes. As Table-5 shows, TPH-g and TPH-ss were found at high concentrations beneath the Site. The maximum concentration of TPH-g and TPH-ss were found in B-7, which is located inside the former Glovatorium building. As Table 5 shows, TPH-g and TPH-ss were found in six of the ten groundwater monitoring wells sampled during this monitoring event. In comparison with the fourth quarter 2000 groundwater monitoring event, the concentrations of TPH-g and TPH-ss showed a significant reduction. Figures 4 and 5 show the concentration contour maps of TPH-g and TPH-ss in groundwater, respectively.

As was the case during previous groundwater monitoring events, minor concentrations of MtBE and BTEX were found at various groundwater monitoring wells. The reported concentrations of MtBE, however, are highly questionable since similar concentrations were detected in trip blank samples prepared during each sampling day (see Table-5). The maximum reported concentration of benzene during this monitoring event was 8.9 µg/L in well B-7. In the previous monitoring event, benzene was detected at 9.1 µg/L in B-7. The maximum concentrations of toluene, ethylbenzene and xylenes were detected in well B-7, with concentrations of 59, 9.7 and 87 µg/L, respectively.

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

Table 6 shows the concentration of volatile organic compounds in groundwater during this monitoring event. As Table 6 shows, cis-1,2-dichloroethene (cis-1,2-DCE) was found most frequently. Cis-1,2-DCE was detected at a maximum concentration of 6,600 µg/L in B-10, which represents a slight decrease in this well compared to the previous groundwater monitoring event. Cis-1,2-DCE is produced during the reductive dechlorination of tetrachloroethene (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 than trans-1,2-DCE, and that 1,1-DCE is the least prevalent of the three DCE isomers when they are present as daughter products. Trans-1,2-DCE was found less frequently and at lower concentrations than cis-1,2-DCE. Cis-1,2-DCE was reported in eight out of ten groundwater monitoring wells, while trans-1,2-DCE was only detected in B-10 and B-7. Figure 6 shows the distribution of cis-1,2-DCE concentration in groundwater.

PCE and TCE were reported at relatively high concentrations and frequencies in the groundwater samples. PCE and TCE were detected in five out of ten groundwater monitoring wells. The maximum reported concentration of PCE and TCE were 2,100 and 1,600 µg/L, respectively, both in well B-10. This represents a slight decrease from the values reported during the previous groundwater monitoring event. Figures 7 and 8 show the distribution of PCE and TCE concentrations in groundwater.

VC was only detected in LFR-2, at a concentration of 1.6 µg/L. During the previous groundwater monitoring event, VC was found at a concentration of 4.5 µg/L in LFR-2. This may indicate that the reductive dechlorination process of PCE and TCE is strongly occurring beneath the Site. The strong occurrence of bioattenuation process in subsurface is further evident by depletion of the PCE and TCE in some of the source area wells which used to contain elevated levels of PCE. Table 8 shows the historical concentration of volatile organic compounds in groundwater.

3.3 Bioattenuation Parameter Analysis Results

This is the third time during groundwater quarterly monitoring events 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 result of this study will reveal whether or not PCE and other dissolved organic compounds are biodegrading beneath the Site. During the degradation process, the indigenous bacteria that exist in the subsurface consume electron acceptors such as dissolved oxygen. After the dissolved oxygen 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 how chlorinated and aliphatic hydrocarbon biodegradation is occurring. The by-products of biodegradation processes are ferrous iron, alkalinity, methane, and carbon dioxide. For evaluation of bioattenuation process, groundwater samples were collected during the first quarter 2001 groundwater monitoring event and analyzed for electron acceptors as well as the by-products of biodegradation activities, as described below:

Dissolved Oxygen. Dissolved oxygen (DO) is the most favored electron acceptor used by microbes for the biodegradation of organic compounds. A concentration of DO less than 0.5 mg/L indicates anaerobic conditions. It is our experience that down-hole measurements of DO (i.e., in-situ measurements) yield more realistic results than ex-situ (laboratory) measurements. Significant differences in DO concentrations using in-situ and ex-situ measurements (conducted by Microseep) can be attributed to cross contamination by atmospheric air during ex-situ measurement (R. Borden, 1998, M. Sepehr 1999). Therefore, the DO data gathered by LFR's field crew were used primarily in this report, in preference to the data from Microseep. Figure 9 presents the DO concentration contour map in groundwater using in-situ measurements. Figure 9 shows that the low DO concentration areas coincide with the higher levels of contamination in the groundwater. Table 9 presents the current and historical DO

concentrations in groundwater.

Nitrate. After DO has been depleted, nitrate may be used as an electron acceptor for anaerobic biodegradation. Nitrate concentrations less than 1.0 mg/L may indicate that reductive dechlorination is occurring. Nitrate concentrations less than 1.0 mg/L occurred near the apparent source area in B-7 and B-10, in the downgradient well LFR-2, and in well LFR-1, indicating conditions that are conducive to anaerobic biodegradation. High concentrations of nitrate were observed in upgradient monitoring well MW-11, which indicates a low likelihood of anaerobic biodegradation in this well. In contrast to the DO data, the laboratory analysis of nitrate is more reliable than the field-measured values. Figure 10 shows the nitrate concentration contour map using the laboratory 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 1.3 mg/L (B-10) to 8.9 mg/L (LFR-2) in the apparent source area indicating conditions that are conducive to anaerobic biodegradation. Manganese concentrations were reported to be less than 0.010 mg/L in upgradient well MW- 11, less than 0.010 mg/L in downgradient well LFR-3, and also less than 0.010 mg/L in the primary and split sample from well LFR-1.

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 less than 2.0 mg/L in the apparent source area locations B-7 and B-10. Sulfate concentration around well MW-11 and LFR-3 were greater than 20 mg/L, suggesting aerobic conditions upgradient and further downgradient from the groundwater contaminant plume. Figure 11 shows a sulfate concentration contour map in groundwater using the laboratory's data.

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

The highest ferrous iron concentrations were in the apparent source area (the laboratory reported 15 mg/L in B-7). The minimum concentrations of ferrous iron were detected in MW-11 and LFR-3, where conditions are aerobic. Figure 12 shows a ferrous iron concentration contour map using the laboratory data. These results are very similar to the results from the fourth quarter 2000 groundwater monitoring event.

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 0.0011 mg/L in LFR-1 to 13 mg/L in B-7. The higher concentration of methane at B-7 indicates conditions that are conducive to anaerobic biodegradation. Figure 13 shows a methane concentration contour map during the recent groundwater monitoring event, using the laboratory data. In general, these results are similar to the results from the fourth quarter 2000 groundwater monitoring event.

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 +28 mV in B-7 to +383 mV in LFR-1. The highest values were found in downgradient locations (LFR-1 and LFR-3), and upgradient locations (MW-11). The lowest values were found in the apparent source area (B-7 and B-10).These results indicate that conditions in and near the apparent source area are

conducive to anaerobic biodegradation.

Hydrogen. Hydrogen concentrations are useful indicators of the terminal electron accepting processes (TEAPs) involved in reductive dechlorination. Groundwater samples for hydrogen analysis were collected using the bubble strip method, as described in EPA 1998. This is the second quarterly groundwater monitoring event during which hydrogen was sampled at selected groundwater monitoring wells.

Sampling and analysis for hydrogen were not conducted in the third quarter 2000 groundwater monitoring event because that event occurred approximately two weeks after installation of wells LFR-1 through LFR-4. Standard hydrogen sampling procedures suggest that at least 30 to 90 days should elapse after well installation before hydrogen sampling and analysis are conducted, because of the influence of ground disturbance and exposure of fresh mineral surfaces in the soil, which results in reaction of anaerobic groundwater with iron in the soil to produce hydrogen. This disturbance and exposure has been found to result in elevated hydrogen concentrations in the groundwater; however, these concentrations have been observed to dissipate over a period of about 90 days (Microseeps 2000).

Hydrogen concentrations ranged from 0.32 nanomoles (nM) in LFR-1 to 1.5 nM in well LFR-4. Due to the low variability of hydrogen levels from well to well, it is not clear whether the hydrogen data is useful for understanding the occurrence of bioattenuation beneath the Site.

Other Parameters

Alkalinity. Alkalinity is a general water quality parameter. Increases in alkalinity result from interaction between carbon dioxide (a product of several biodegradation processes) and aquifer minerals. The background alkalinity in the vicinity of the Site can be assumed to be approximately equal to the value of 330 mg/L in well MW-11, because this well is upgradient of the Site. However, the

alkalinity level in well LFR-1 (150 mg/L) was less than the alkalinity level in well MW-11. The remaining alkalinity concentrations were generally greater than 330 mg/L, with the maximum concentration of 720 mg/L detected in temporary sampling point B-7.

These results are very similar to the results from the fourth quarter 2000 groundwater monitoring event and are considered inconclusive regarding the occurrence of reductive dechlorination. Alkalinity results are included in Table 4.

Chloride. Chloride is the final product of the reduction of chlorinated solvents, and is also a general water quality parameter. The concentrations of chloride in wells LFR-4 (25 mg/L), LFR-2 (21 mg/L), and temporary sampling point B-7 (43 mg/L) were lower than those in well LFR-1 (76 mg/L), temporary sampling point B-10 (81 mg/L), and well MW- 11 (130 mg/L).

These results are very similar to the results from the fourth quarter 2000 groundwater monitoring event, with the exception of well LFR-3 (31 mg/L), which is slightly less than half of the concentration measured in the fourth quarter 2000 (66 mg/L). As was the case in the fourth quarter 2000 event, these results are inconclusive regarding the occurrence of reductive dechlorination. Chloride results are included in Table 4.

Carbon Dioxide. Carbon dioxide is a product of several biodegradation processes. Concentrations of carbon dioxide ranged from 28 mg/L (LFR-1) to 170 mg/L (B-7). These results are somewhat inconclusive regarding the occurrence of reductive dechlorination. Carbon dioxide results are included in Table 4.

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 0.0 mg/L (well LFR- 1 field result) to 17 mg/L (B-7

laboratory result). The highest concentrations were found in temporary sampling point B-7 (12 mg/L laboratory result), temporary sampling point B-10 (6.1 mg/L laboratory result), and well LFR-2 (4.6 mg/L laboratory result). These may be indicative of reductive dechlorination processes. Table 4 presents the results of total iron analyses, and Table 9 presents the results of the ferrous iron analyses.

Nitrite. Nitrate may reduce to nitrite during the process of anaerobic biodegradation. Nitrite concentrations ranged from less than 0.10 mg/L (MW-11 laboratory result) to 0.073 mg/L (B-10 field result). As was the case in the fourth quarter 2000 event, these results are inconclusive regarding the occurrence of reductive dechlorination. Nitrite results are included in Table 4.

Sulfide. When sulfate is used as an electron acceptor for anaerobic biodegradation, it is reduced to sulfide. Sulfide concentrations were generally less than 2 mg/L. As was the case in the fourth quarter 2000 groundwater monitoring event, these results are inconclusive. Sulfide results are included in Table 4.

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

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following is a summary of the work performed on January 29, 2001 through February 1, 2001 and the results of this work.

Groundwater samples were collected from monitoring wells LFR-1 through LFR-4, temporary sampling points B-7, B-10, GW-2 through GW-4, and from well

MW-11. The samples were analyzed for TPH-ss, TPH-g, MtBE, BTEX, and VOCs.

The PCE concentrations of 0.77 mg/L (primary sample result) and 0.83 mg/L (split sample result) detected in well LFR-1 are approximately less than one-third of the PCE concentration present in this well in August 2000 (2.8 mg/L).

This was the third time during quarterly monitoring events in which bioattenuation parameters were analyzed. Selected samples were analyzed for the following: DO, nitrate, manganese, sulfate, ferrous iron, methane, ORP, hydrogen, alkalinity, chloride, carbon dioxide, total iron, nitrite, and sulfide.

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

Vinyl chloride was only detected in well LFR-2 at a concentration of 0.016 mg/L. The presence of vinyl chloride, a breakdown product of PCE, indicates reductive dechlorination is likely occurring. Benzene was not detected in GW-2, GW-3, GW-4, LFR-1, LFR-3, or MW- 11, but was detected in B-7, B- 10, LFR-2, and LFR-4 at concentrations up to 0.0089 mg/L (in B-7). The presence of MtBE in several on-site and off-site wells and sampling points is believed to be originated at the upgradient TOSCO site.

The maximum concentrations of the petroleum hydrocarbons were found in groundwater monitoring well B-7, as shown in Table-6. The maximum concentration of volatile organic compounds was found in B-10, as shown in Table 6.

4.1 Conclusions

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

The farthest downgradient well, LFR-3, did not contain VOCs or petroleum hydrocarbons at concentrations above their respective analytical detection limits, except MtBE at 3.6 µg/L, which is questionable due to its detection at similar levels in the field and trip blanks. (These compounds also have not been detected in LFR-3 since it was installed). These results indicate that these compounds have not reached the most downgradient monitoring well.

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

The analysis of DO, nitrate, manganese, sulfate, ferrous iron, methane, ORP, and hydrogen indicates that conditions in the apparent source area are conducive to reductive dechlorination processes, because of their concentration distributions across the Site.

DO concentrations of less than approximately 0.5 mg/L in groundwater are

indicative of anaerobic biodegradation conditions. In general, results indicate that conditions in the apparent source area are anaerobic and conducive to anaerobic biodegradation processes, because the lowest DO concentrations occurred in the apparent source area (B-7 and B-10) and in wells LFR-2, GW-2 and LFR-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 ion can be an effective electron acceptor in anaerobic biodegradation. Nitrate concentrations less than 1.0 mg/L occurred near the apparent source area in temporary sampling points B-7 and B-10, in the downgradient well LFR-2, and in well LFR-4, indicating conditions that are conducive to anaerobic biodegradation.

Increased dissolved manganese concentrations are indicative of reductive dechlorination condition. Manganese concentrations ranged from 1.3 mg/L (B-10) to 9.1 mg/L (LFR-2) in the apparent source area, indicating conditions that are conducive to anaerobic biodegradation.

Relatively low concentrations of sulfate (e.g. less than 20 mg/L) are anticipated in locations where the oxygen has been depleted, because sulfate ion can be used as an effective electron acceptor in anaerobic biodegradation. Sulfate concentrations were less than 1.0 mg/L in the apparent source area locations (B-7, B-10), indicating conditions that are conducive to anaerobic biodegradation.

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

A relatively high concentration of methane is anticipated in locations where biodegradation occurs because methane is indicative of strongly reducing conditions and suggests reductive dechlorination by the process of

methanogenesis. Methane concentrations ranged from 2.4 mg/L to 13 mg/L in the apparent source area (B-10 and B-7), 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 concentrations were found in and near the apparent source area (B-7, B-10, and LFR-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 ACEHS and the RWQCB.

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

3. The evaluation of the following parameters is recommended in order to characterize biodegradation at the Site:

    - In-Situ dissolved oxygen measurement;
    - No laboratory measurements of dissolved oxygen, hydrogen, nitrogen, or carbon dioxide are needed;
    - Groundwater samples should be analyzed both in field and in the

laboratory for ferrous iron, total iron, nitrate, sulfate, total manganese and dissolved manganese.

4. Continue to evaluate PCE and potential breakdown product concentrations on-site using mass flux calculations. Develop site conceptual model.

5. Conduct Risk Based Corrective Action (RBCA) in order to identify human health risk and groundwater clean up levels.

6. Conduct fate and transport modeling using the results of the bioattenuation study in order to identify whether monitored natural attenuation (MNA) will be sufficient to achieve the groundwater remediation goals recommended in the RBCA within a reasonable time frame. Use the model to assess plume stability, the progress of reductive dechlorination, and any potential migration issues.

5.0 References

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TABLES

Table 1

Construction Data for Temporary Sampling Points and Monitoring Wells

Former Glovatorium Site

3815 Broadway, Oakland, California

Location	Date Installed	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Total Depth (ft)	Screen Interval Depth (ft)	Screen Interval Elevation (ft)	Notes
Temporary Sampling Points Installed by Geosolv, LLC:							
B-2	19-Aug-97	82.2	82.09	21	5 to 21	77.2 to 61.2	
B-3	19-Aug-97	82.6	82.57	18	5 to 18	77.6 to 64.6	(1)
B-7	20-Aug-97	77.33	76.96	17.5	5 to 17.5	72.3 to 59.8	
B-8	20-Aug-97	82.06	81.82	24	9 to 24	73.1 to 58.1	
B-9	21-Aug-97	77.57	77.37	19.5	4.5 to 19.5	73.1 to 58.1	
B-10	21-Aug-97	81.65	81.5	19	4 to 9	77.7 to 62.7	
B-113	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		

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, First Quarter 2001

Groundwater Monitoring Event

Former Glovatorium Site

3815 Broadway, Oakland, California

Well Name	Date	Casing Elev. (ft.)	DTW (ft.)	GW Elev. (ft.)
B-2	1/29/01	82.09	7.46	74.63
B-3	1/29/01	82.57	7.51	75.06
B-7	1/29/01	76.96	7.85	69.11
B-8	1/29/01	81.82	7.59	74.23
B-9	1/29/01	77.37	8.04	69.33
B-10	1/29/01	81.5	8.3	73.2
GW-1	1/29/01	79.94	7.95	71.99
GW-2	1/29/01	79.14	10.52	68.62
GW-3	1/29/01	77.92	10.03	67.89
GW-4	1/29/01	82.37	7.45	74.92
GW-5	1/29/01	81.01	12.4	68.61
GW-6A	1/29/01	81.61	13.71	67.9
LFR-1	1/29/01	79.97	9.53	70.44
LFR-2	1/29/01	81.89	9.85	72.04
LFR-3	1/29/01	77.96	11	66.96
LFR-4	1/29/01	81.65	13.73	67.92
MW-8	1/29/01	87.44	9.3	78.14
MW-9	1/29/01	86.56	8.61	77.95
MW-11	1/29/01	84.21	10.42	73.79

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

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
Temporary Sampling Points Installed by Geosolv, LLC:					
B-2	**29-Jan-01**	**82.09**	**7.46**	**74.63**	
	30-Oct-00		7.75	74.34	
	9-Aug-00		8.19	73.9	P
	27-Apr-00		6.68	75.41	P
	24-Jan-00		6.16	75.93	P
	19-Jan-00	82.09	8.12	73.97	P
	18-Feb-98		4.04	78.16	1
	26-Oct-97		9.54	72.66	1
B-3	**29-Jan-01**	**82.57**	**7.51**	**75.06**	
	30-Oct-00		7.73	74.84	P
	9-Aug-00		8.02	74.55	P
	27-Apr-00		6.71	75.86	P
	24-Jan-00		6.74	75.83	
	19-Jan-00	82.57	9.35	73.22	2
	18-Feb-98		4.53	78.04	1
	26-Oct-97		8.93	73.64	1
B-7	**29-Jan-01**	**76.96**	7.85	69.11	
	30-Oct-00		7.95	69.01	
	9-Aug-00		8.35	68.61	
	27-Apr-00		7.11	69.85	P
	24-Jan-00		7.3	69.66	P
	19-Jan-00	76.96	8.36	68.6	P
	18-Feb-98		5.76	71.57	1
	26-Oct-97	77.33	9.24	68.09	1
B-8	**29-Jan-01**	**81.82**	**7.59**	74.23	
	30-Oct-00		8.5	73.32	
	9-Aug-00		9.02	72.8	P
	27-Apr-00		7.68	74.14	P
	24-Jan-00		8.98	72.84	P
	19-Jan-00	81.82	10.01	71.81	P
	18-Feb-98		5.42	76.4	1
	26-Oct-97	82.06	10.95	71.11	1
B-9	**29-Jan-01**	**77.37**	**8.04**	**69.33**	
	30-Oct-00		7.95	69.42	
	9-Aug-00		8.55	68.82	
	27-Apr-00		7.41	69.96	
	24-Jan-00		7.12	70.25	P
	19-Jan-00	77.37	8.46	68.91	P
	18-Feb-98		6.13	71.24	1
	26-Oct-97	77.57	9.18	68.39	1
B-10	**29-Jan-01**	**81.5**	**8.3**	**73.2**	
	30-Oct-00		8.15	73.35	

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

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
	9-Aug-00		8.85	72.65	
	27-Apr-00		7.8	73.7	
	24-Jan-00		7.35	74.15	P
	19-Jan-00	81.5	8.48	73.02	P
	18-Feb-98	81.65	6.52	75.13	1
	26-Oct-97		9.39	72.26	1
B-13	30-Oct-00	84.58	DRY	DRY	
	9-Aug-00		9.35	75.23	
	27-Apr-00		8.71	75.87	
	24-Jan-00		8.26	76.32	
	19-Jan-00	84.58	10.4	74.18	
	18-Feb-98		6.61	77.97	1
	26-Oct-97	85.12	12.1	73.02	1
Temporary Sampling Points Installed by LFR:					
GW-1	**29-Jan-01**	**79.94**	**7.95**	71.99	
	9-Aug-00		DRY	DRY	
	27-Apr-00		DRY	DRY	
	19-Jan-00		DRY	DRY	
	27-Aug-99	79.94	DRY	DRY	
GW-2	**29-Jan-01**	**79.14**	**10.52**	**68.62**	
	30-Oct-00		10.69	68.45	
	9-Aug-00		10.03	69.11	
	27-Apr-00		8.55	70.59	
	21-Jan-00		10.82	68.32	
	19-Jan-00		10.9	68.24	
	27-Aug-99	79.14	10.68	68.46	
GW-3	**29-Jan-01**	**77.92**	**10.03**	**67.89**	
	30-Oct-00		9.97	67.95	
	9-Aug-00		11.38	66.54	
	27-Apr-00		9.76	68.16	
	21-Jan-00		9.99	67.93	
	19-Jan-00		10.06	67.86	
	27-Aug-99	77.92	10.26	67.66	
GW-4	**29-Jan-01**	**82.37**	**7.45**	**74.92**	
	30-Oct-00		7.82	74.55	
	9-Aug-00		DRY	DRY	
	27-Apr-00		8.4	73.97	
	21-Jan-00		8.04	74.33	
	19-Jan-00		7.66	74.71	
	27-Aug-99	82.37	NM	NM	
GW-5	**29-Jan-01**	**81.01**	**12.4**	**68.61**	
	30-Oct-00		12.37	68.64	

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

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes
	9-Aug-00		12.3	68.71	
	27-Apr-00		12.31	68.7	
	20-Jan-00		12.4	68.61	
	19-Jan-00	81.01	12.4	68.61	
	27-Aug-99	81.01	12.3	68.71	
GW-6A	**29-Jan-01**	**81.61**	**13.71**	**67.9**	
	30-Oct-00		13.45	68.16	
	9-Aug-00		13.73	67.88	
	27-Apr-00		13.61	68	
	19-Jan-00		13.98	67.63	
	27-Aug-99		13.9	67.71	
GW-8	27-Apr-00	80.1	8.76	71.34	
	20-Jan-00		9.68	70.42	
	19-Jan-00		9.66	70.44	
	27-Aug-99	80.1	9.5	70.6	
Monitoring Wells Owned by TOSCO:					
MW-8	**29-Jan-01**	**87.44**	**9.3**	**78.14**	
	2-Nov-00		9.06	78.38	
	10-Aug-00		10.18	77.26	
	27-Apr-00	87.44	8.29	79.15	
MW-9	**29-Jan-01**	**86.56**	**8.61**	**77.95**	
	2-Nov-00		8.25	78.31	
	10-Aug-00		9.42	77.14	
	27-Apr-00	86.56	9.31	77.25	
MW-11	**29-Jan-01**	**84.21**	**10.42**	**73.79**	
	Oct-30-00		10.59	73.62	
	9-Aug-00		10.09	74.12	
	27-Apr-00		8.86	75.35	
	25-Jan-00	84.21	10.73	73.48	
Monitoring Wells Installed by LFR:					
LFR-1	**29-Jan-01**	**79.97**	**9.53**	**70.44**	
	30-Oct-00		9.75	70.22	
	9-Aug-00		9.81	70.16	
LFR-2	**29-Jan-01**	**81.89**	**9.85**	**72.04**	
	30-Oct-00		10.27	71.62	
	9-Aug-00		11.9	69.99	
LFR-3	**29-Jan-01**	**77.96**	**11**	**66.96**	
	30-Oct-00		10.97	66.99	
	9-Aug-00		11.2	66.76	
LFR-4	**29-Jan-01**	**81.65**	**13.73**	**67.92**	
	30-Oct-00		13.51	68.14	
	9-Aug-00		13.26	68.39	

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

Well Name	Date Measured	Top of Casing Elevation (ft)	Depth to Water (ft.)	Groundwater Elevation (ft.)	Notes

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

Table 4
Historical Analytical Results and Field Measurements for Dissolved Anions, Cations, Gases, pH, Temperature, and Electrical Conductivity in Groundwater Samples
Former Glovatorium Site
3815 Broadway, Oakland, California
(Concentrations are in milligram per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Alkalinity	Cloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
B-7	11-Aug-00	760	39	202				<0.0005	<0.0005	6.86	17.55	1.279
B-7 field	11-Aug-00					(1)	0.049					
B-7	31-Oct-00	760	42	200	14	<0.1	<2.0					
B-7 field	31-Oct-00				17.22	(1)	(1)			6.16	16.05	1.454
B-7	31-Jan-00	720	43	170	12	<0.1	<2.0					
B-7 field	31-Jan-00									6.79	13.9	1.424
B-10	10-Aug-01	520	74	145	6	<0.05	<0.04	<0.0005	0.00057	6.86	16.8	1.13
B-10 field	10-Aug-00					0.023	0.06					
B-10	31-Oct-00	500	76	120	6.6	<0.1	<2.0					
B-10 field	31-Oct-00				8.35	0.001	0.004			6.21	16.62	1.051
B-10	31-Jan-01	480	81	72	6.1	<0.1	<2.0					
B-10 field	31-Jan-01				1.44	0.073						
GW-2	1-Nov-00									6.81	14.66	1.117
GW-2	30-Jan-01			63						6.31	18.97	1.218
GW-2 field	31-Jan-01											
GW-3	11-Aug-00	340	25	54.3						6.82	13.75	0.846
GW-3 field	11-Aug-00							<0.0005	<0.0005	7.05	21.43	0.86
GW-3 field	1-Nov-00					0.046	(1)					
GW-3	1-Feb-01			54						6.52	18.83	0.967
GW-3 field	29-Jan-01											
GW-4	30-Jan-01									6.89	17.29	0.602
MW-11	10-Aug-00	360	110	216	0.13	<0.05	<0.04	<0.0005	<0.0005	6.6	13.48	0.479
MW-11field	10-Aug-00					0.036	0.002			6.47	21	1.089
MW-11	1-Nov-00	300	120	190	<0.05	<0.1	<2.0					
MW-11field	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-11field	31-Jan-01									6.35	13.67	1.098

Table 4

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

Former Glovatorium Site

3815 Broadway, Oakland, California

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

Well ID	Date Sampled	Alkalinity	Cloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
LFR-1	11-Aug-00	250	110					<0.0005	<0.0005	6.97	19.73	0.936
LFR-1 field	9-Aug-00			51.1		0.02	(1)					
LFR-1	30-Oct-00	240	100	25	<0.05	<0.1	<2					
FR-1 field/s	30-Oct-00				0.01/0.01	0.031/0.036	0.001/0.001			6.38	17.94	0.697
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	0.87
LFR-1 Dup	29-Jan-01	150	75	26	<0.05	<0.1	<2					
LFR-2	11-Aug-00	590	33	174				<0.0005	0.0017	6.8	19.87	1.088
LFR-2 field	11-Aug-00				2.95	(1)	0.005					
LFR-2	2-Nov-00	550	40	180	6.2	<0.1	<2					
LFR-2 field	2-Nov-00				7.45	0.007	0.003			6.19	19.67	1.306
LFR-2	30-Jan-01	480	21	130	4.6	<0.1	<2					
LFR-2 field	30-Jan-01				1.04	0.007				6.6	12.73	0.945
LFR-3	10-Aug-00	310	85	162	<0.1	0.15	0.04	<0.0005	<0.0005	6.57	19.92	0.951
LFR-3 split	10-Aug-00	300	85	152				<0.0005	<0.0005			
LFR-3 field	10-Aug-00					0.058	(1)					
LFR-3	1-Nov-00	350	66	160	<0.05	<0.1	<2					
LFR-3 field	1-Nov-00				0.01	0.011	0.002			6.16	17.71	1.164
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	0.541
LFR-4	11-Aug-00	630	71	161				<0.0005	<0.0005	6.9	20.11	1.24
LFR-4 field	11-Aug-00				0.22	0.018	0.002					
LFR-4	31-Oct-00	490	28	130	1	<0.1	<2					
LFR-4 field	31-Oct-00				0.67	0.022	0			6.21	18.11	0.83
B-10 FB	10-Aug-00							<0.0005	<0.0005			
LFR-4	1-Feb-01	460	25	120	1.3	<0.1	<2					

Table 4
Historical Analytical Results and Field Measurements for Dissolved Anions, Cations, Gases, pH, Temperature, and Electrical Conductivity in Groundwater Samples
Former Glovatorium Site
3815 Broadway, Oakland, California
(Concentrations are in milligram per liter [mg/L] unless otherwise noted)

Well ID	Date Sampled	Alkalinity	Cloride	Carbon Dioxide	Iron	Nitrite	Sulfide	Ethane	Ethene	pH Standard Unit	Temp. Celcius	Electrical Cond. (mS/cm)
LFR-4 field	1-Feb-01				1.43	0.017				6.55	15.28	0.916

Notes
Samples with "field" in the well ID indicate that theresults are from field measurements obtained using a Hach spectrometer or a Hydrolab Quanta flow-through instrument.
(1) Sample concentration was too dilute to be reproducibly measured using the Hach spectrometer.

Table 5

Anayltical Results of Groundwater Samples Analyzed for Petroleum Hydrocarbons

Former Glovatorium Site

3815 Broadway, Oakland, California

Sample ID	Date	Stoddard Solvent C7-C12 (µg/L)	Gasoline C7-C12 (µg/L)	MtBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)
B-10	1/31/01	2,400	3,600	ND	3.1	10	0.76	19.7
B-7	1/31/01	5,300	7,900	10	8.9	59	9.7	87
GW-2	2/1/01	ND	ND	ND	ND	ND	ND	ND
GW-3	2/1/01	ND	ND	2.3	ND	ND	ND	ND
GW-4	1/30/01	390	580	ND	ND	ND	ND	1.6
LFR-1	1/29/01	210	310	3.3	ND	ND	ND	ND
LFR-101	1/29/01	210	310	3.9	ND	ND	ND	ND
LFR-2	1/30/01	360	540	3.4	0.57	ND	ND	4.1
LFR-3	1/30/01	ND	ND	3.6	ND	ND	ND	ND
LFR-4	2/1/01	160	220	9.7	3.3	ND	ND	ND
LFR-4 FB	2/1/01	NA	NA	ND	ND	ND	ND	ND
MW-11	1/31/01	ND	ND	8.7	ND	ND	ND	ND
TB-012901	1/29/01	NA	NA	2.5	ND	ND	ND	ND
TB-013001	1/30/01	NA	NA	3.8	ND	ND	ND	ND
TB-0131D1	1/31/01	NA	NA	3.3	ND	ND	ND	ND
TB-020101	2/1/01	NA	NA	5.1	ND	ND	ND	ND

ND: Not Detected

NA: Not Analyzed

Table 6

Anayltical Results of Groundwater Samples Analyzed for Volatile Organic Compounds

Former Glovatorium Site

3815 Broadway, Oakland, California

Sample ID	Date	1,1,1-Trichloroethane (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	1,1,2-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	1,2-Dichlorobenzene (µg/L)	1,2-Dichloroethane (µg/L)	1,2-Dichloropropane (µg/L)	1,3-Dichlorobenzene (µg/L)	1,4-Dichlorobenzene (µg/L)	Bromodichloromethane (µg/L)
B-10	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-7	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-2	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-3	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-4	1/30/01	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND
LFR-1	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-101	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-2	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-3	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-4	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-4 FB	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-012901	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-013001	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-0131D1	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-020101	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND: Not Detected

NA: Not Analyzed

Table 6

Anayltical Results of Groundwater Samples Analyzed for Volatile Organic Compounds

at the Former Glovatorium Site

3815 Broadway, Oakland, California

Sample ID	Date	Bromoform (µg/L)	Bromo methane (µg/L)	Carbon Tetra chloride (µg/L)	Chloro benzene (µg/L)	Chloro ethane (µg/L)	Chloroform (µg/L)	Chloro methane (µg/L)	cis-1,2-Dichloro ethene (µg/L)	cis-1,3-Dichloro propene (µg/L)	Dibromo chloro methane (µg/L)
B-10	1/31/01	ND	ND	ND	ND	ND	ND	ND	6,600	ND	ND
B-7	1/31/01	ND	ND	ND	ND	ND	ND	ND	920	ND	ND
GW-2	2/1/01	ND	ND	ND	ND	ND	ND	ND	2.8	ND	ND
GW-3	2/1/01	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND
GW-4	1/30/01	ND	ND	ND	ND	ND	ND	ND	2.4	ND	ND
LFR-1	1/29/01	ND	ND	ND	ND	ND	ND	ND	7.3	ND	ND
LFR-101	1/29/01	ND	ND	ND	ND	ND	ND	ND	7.4	ND	ND
LFR-2	1/30/01	ND	ND	ND	ND	ND	ND	ND	5.6	ND	ND
LFR-3	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-4	2/1/01	ND	ND	ND	ND	ND	ND	ND	0.6	ND	ND
LFR-4 FB	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-012901	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-013001	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-0131D1	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-020101	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND: Not Detected

NA: Not Analyzed

Table 6

Anayltical Results of Groundwater Samples Analyzed for Volatile Organic Compounds

at the Former Glovatorium Site

3815 Broadway, Oakland, California

Sample ID	Date	Freon 113 (µg/L)	Freon 12 (µg/L)	Methylene Chloride (µg/L)	Tetra chloro ethene (µg/L)	trans-1,2-Dichloro ethene (µg/L)	trans-1,3-Dichloro propene (µg/L)	Trichloro ethene (µg/L)	Trichloro fluoro methane (µg/L)	Vinyl Chloride (µg/L)
B-10	1/31/01	ND	ND	ND	2,100	44	ND	1,600	ND	ND
B-7	1/31/01	ND	ND	ND	ND	4.8	ND	ND	ND	ND
GW-2	2/1/01	ND	ND	ND	7.7	ND	ND	0.6	ND	ND
GW-3	2/1/01	ND	ND	ND	46	ND	ND	0.6	ND	ND
GW-4	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-1	1/29/01	ND	ND	ND	770	ND	ND	26	ND	ND
LFR-101	1/29/01	ND	ND	ND	830	ND	ND	31	ND	ND
LFR-2	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	1.6
LFR-3	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-4	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
LFR-4 FB	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-012901	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-013001	1/30/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-0131D1	1/31/01	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-020101	2/1/01	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND: Not Detected
NA: Not Analyzed

Table 7

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

Former Glovatorium Site

3815 Boadway, Oakland, California

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

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
Temporary Sampling Points Installed by Geosolv, LLC:											
B-2	24-Jan-00	5 to 21	NA	20 J	NA	31 YJ	<0.05	<0.013	<0.013	0.11 C	0.22 C
B-3	24-Jan-00	5 to 18	NA	4.9 J	NA	8.8 YJ	<0.01	0.0048	<0.0025	<0.0025	0.0714
B-7	24-Jan-00	5 to 17.5	NA	19	NA	30 J	<0.05	<0.013	0.062	<0.013	0.207
b-7	11-Aug-00		NA	3.7 J	NA	6.8 YHJ	0.02	0.0077 J	0.047 J	0.007 J	0.065 CJ
B-7	31-Oct-00		NA	62 J	NA	98 YHJ	0.01 J	0.0091 J	0.061 J	<0.0005	0.237 J
B-7	**Jan-31-01**		**NA**	**5.3**	**NA**	**7.9**	**0.01**	**0.0089**	**0.059**	**0.0097**	**0.087**
B-8	24-Jan-00	9 to 24	NA	11 J	NA	19 YJ	<0.01	<0.0025	<0.0025	<0.0025	0.17 C
B-9	24-Jan-00	4.5 to 19.5	NA	1 YJ	NA	1.8 YHJ	<0.002	<0.0005	<0.0005	0.01 C	0.0089 C
B-10	24-Jan-00	4 to 19	NA	2.4 Y	NA	4.2	0.014 c	0.0072	0.027	0.025 C	0.032
B-10	10-Aug-00		NA	2.8 Y	NA	6.1 Y	0.16	0.0073	0.012	<0.005	0.0241
B-10	31-Oct-00		NA	2.2 YZ	NA	3.5 Z	<0.002	0.0038	0.011	<0.0005	0.0182
B-10	**Jan-31-01**		**NA**	**2.4 Z**	**NA**	**3.6 HYZ**	**<0.002**	**0.0031**	**0.01**	**0.00076 c**	**0.0197**
B-13	24-Jan-00	5 to 20	NA	1.7 J	NA	3 YJ	<0.01	<0.0025	<0.0025	<0.0025	0.02
Temporary Sampling Points Installed by LFR:											
GW-2	19-Jul-99	10 to 20	NA	<0.05	NA	<0.05	0.0025	<0.0005	0.00071	<0.0005	0.00074
GW-2	20-Jan-00		NA	0.15	NA	0.25 Y	0.0044	<0.0005	<0.0005	0.00097 C	0.0013
GW-2	28-Apr-00		NA	<0.05	NA	0.095 YZ	<0.0021	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	2-Nov-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-2	**1-Feb-01**		**NA**	**<0.05**	**NA**	**ND**	**<0.002**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
GW-3	19-Jul-99	10 to 20	NA	0.07 Z	NA	0.1 Z	<0.002	<0.0005	<0.0005	<0.0005	0.00064
GW-3	20-Jan-00		NA	0.15	NA	0.26 Y	<0.002	<0.0005	<0.0005	<0.0005	0.0013 C
GW-3	27-Apr-00		NA	0.2 YZ	NA	0.38 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	27-Apr-00	10 to 20	NA	0.3 Z	NA	0.57 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	11-Aug-00		NA	<0.05	NA	0.077 YZ	<0.002	<0.0005	<0.0005	<0.0005	0.00051
GW-3	2-Nov-00		NA	<0.05	NA	0.05 YZ	0.0026	<0.0005	<0.0005	<0.0005	<0.0005
GW-3	**1-Feb-01**		**NA**	**<.05**	**NA**	**<0.05**	**<.002**	**<.0005**	**<.0005**	**<.0005**	**<.0005**

Table 7

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

Former Glovatorium Site

3815 Boadway, Oakland, California

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

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
GW-4	21-Jul-99	7 to 12	NA	6.8 J	NA	10 YHJ	0.0022	<0.0005	<0.0005	<0.0005	0.0029 J
GW-4	20-Jan-00		NA	0.97 J	NA	1.6 YJ	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00		NA	0.85 J	NA	1.5 YJ	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
GW-4	27-Apr-00		NA	0.31	NA	0.6 Y	<0.002	<0.0005	<0.0005	<0.0005	0.0027
GW-5	27-Aug-99	8 to 13	NA	<0.05	NA	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001
GW-5	20-Jan-00		NA	<0.05	NA	0.057 Y	0.0007	<0.0005	<0.0005	<0.0005	<0.0005
GW-5	27-Apr-00		NA	0.05 Y	NA	0.096 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Aug-99	9 to 15	NA	<0.05	NA	0.054 Y	0.0089	<0.0005	<0.0005	<0.0005	<0.0005
Split	27-Aug-99		NA	<0.05	NA	0.057 Y	0.0087	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	25-Jan-00		NA	<0.05	NA	<0.05	0.0022	<0.0005	<0.0005	<0.0005	<0.0005
GW-6A	27-Apr-00		NA	<0.05	NA	0.087 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
GW-7	15-Jul-99	10 to 20	0.697 BJ	NA	1.79 AJ	NA	<0.0025	0.05 J	<0.0005	0.000727	0.00313 J
Split	15-Jul-99		1.42 BJ	NA	3.1 AJ	NA	NA	NA	NA	NA	NA
GW-7	15-Jul-99		NA	NA	NA	NA	NA	0.0567 J	<0.002	<0.002	<0.002
Split	15-Jul-99		NA	NA	NA	NA	NA	0.0755 J	<0.002	<0.002	<0.002
GW-8	19-Jul-99	10 to 20	NA	<0.05	NA	<0.05	0.0078	<0.0005	0.00064	<0.0005	0.00151
GW-8	20-Jan-00		NA	0.19	NA	0.33 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	20-Jan-00	10 to 20	NA	0.2	NA	0.37 Y	<0.002	0.00058	<0.0005	<0.0005	<0.0005
GW-8	28-Apr-00		NA	0.064 YZ	NA	0.12 YZ	0.013	<0.0005	<0.0005	<0.0005	<0.0005
Monitoring Wells Owned by TOSCO:											
MW-11	25-Jan-00	Unknown	NA	<0.05	NA	<0.05	0.009	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	28-Apr-00		NA	<0.05	NA	<0.05	<0.0087	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	10-Aug-00		NA	<0.05	NA	<0.05	0.011	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	1-Nov-00		NA	<0.05	NA	<0.05	0.0068	<0.0005	<0.0005	<0.0005	<0.0005
MW-11	**31-Jan-01**		**NA**	**<.05**	**NA**	**<.05**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Monitoring Wells Installed by LFR:											
LFR-1	9-Aug-00	9 to 19	NA	0.53	NA	1.2	0.0095	<0.0005	<0.0005	<0.0005	<0.0005

Table 7

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

Former Glovatorium Site

3815 Boadway, Oakland, California

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

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
LFR-1	30-Oct-00		NA	0.24 YZ	NA	0.37 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-1	**29-Jan-01**		**NA**	**0.21 YZ**	**NA**	**0.31 YZ**	**0.0033**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Split	30-Oct-00		NA	0.24 YZ	NA	0.37 YZ	0.0043	<0.0005	<0.0005	<0.0005	<0.0005
LFR-2	11-Aug-00	9 to 19	NA	0.59	NA	1.1 YH	0.0022	0.0018	<0.0005	<0.0005	0.0013 C
LFR-2	2-Nov-00		NA	0.38	NA	0.7 YH	0.003	0.0035	0.0011	0.0042	0.01184 C
LFR-2	**30-Jan-01**		**NA**	**0.36**	**NA**	**0.54 HY**	**0.0034**	**0.00057**	**<0.0005**	**<0.0005**	**<0.0005**
LFR-3	10-Aug-00	12 to 22	NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Split	10-Aug-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	1-Nov-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
LFR-3	**30-Jan-01**		**NA**	**<.05**	**NA**	**<.05**	**0.0036**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
LFR-4	11-Aug-00	9 to 19	NA	0.22 Y	NA	0.41 Y	0.0051	0.011	<0.0005	<0.0005	0.00162 C
LFR-4	31-Oct-00		NA	0.17 Y	NA	0.27	0.0065	0.00084	<0.0005	<0.0005	<0.0005
LFR-4	**1-Feb-01**		**NA**	**0.16Y**	**NA**	**0.22**	**0.0097**	**0.0033**	**<0.0005**	**<0.0005**	**<0.0005**
Blanks											
Trip Blank	**1-Feb-01**		**NA**	**<.05**	**NA**	**<.05**	**0.0051**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Trip Blank	**31-Jan-01**		**NA**	**<.05**	**NA**	**<.05**	**0.0033**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Trip Blank	**29-Jan-01**		**NA**	**<.05**	**NA**	**<.05**	**0.0025**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Trip Blank	**30-Jan-01**		**NA**	**<.05**	**NA**	**<.05**	**0.0038**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Field Blank	**1-Feb-01**		**NA**	**NA**	**NA**	**NA**	**<.002**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Trip Blank	19-Jul-99		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	20-Jan-00		NA	<0.05	NA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	27-Apr-00		NA	<0.05	NA	<0.05	0.0024	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	30-Oct-00		NA	NA	NA	<0.05	0.0024	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	31-Oct-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	1-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	2-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Field Blank	27-Apr-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	0.00054	<0.0005	<0.0005

Table 7

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

Former Glovatorium Site

3815 Boadway, Oakland, California

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

Location	Date Sampled	Sreened Interval Depth (ft)	TPH, Ext. Stoddard	TPH, Purgable Stoddard	TPH, Ext. Diesel	TPH, Purgable Gasoline	MtBE	Benzene	Toluene	Ethyl benzene	Xylenes
Field Blank	10-Aug-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Field Blank	1-Nov-00		NA	NA	NA	NA	<0.002	<0.0005	<0.0005	<0.0005	<0.0005

Notes:

A = Chromotogram pattern: unidentified hydrocarbons C9-C24

B = Chromotogram pattern: unidentified hydrocarbons C9-C13

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

J = Result is estimated.

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

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

Z = Sample exhibits unknown single peak or peaks.

NA = Not analyzed

TPH, ext. = Total petroleum htdrocarbons (extractable)

TPH, purge = Total petroleum htdrocarbons (purgeable)

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

Table 8

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

at the Former Glovatorium Site

3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloropropane	Notes
Temporary Sampling Points Installed by Geosolv, LLC:										
B-2	24-Jan-00	5 to 21	NA	<0.0013	<0.0013	0.27	0.0014	< 0.0013	< 0.0013	
B-3	24-Jan-00	5 to 18	NA	< 0.002	< 0.002	0.61	< 0.002	< 0.002	< 0.002	
B-7	24-Jan-00	5 to 17.5	NA	< 0.0036	< 0.0036	0.92	0.0043	< 0.0036	< 0.0036	
B-7	11-Aug-00		NA	< 0.0031	< 0.0031	0.86	0.0048	< 0.0031	< 0.0031	
B-7	31-Oct-00		NA	< 0.0042	< 0.0042	0.91	0.0042	< 0.0042	< 0.0042	
B-7	**31-Jan-01**		**NA**	**< 0.0042**	**< 0.0042**	**0.92**	**0.0048**	**< 0.0042**	**< 0.0042**	
B-8	24-Jan-00	9 to 24	NA	< 0.0005	< 0.0005	0.035	< 0.0005	< 0.0005	< 0.0005	
B-9	24-Jan-00	4.5 to 19.5	NA	< 0.0005	0.0006	0.0032	< 0.0005	< 0.0005	< 0.0005	
B-10	24-Jan-00	4 to 19	NA	1.2	2.4	14	0.09	< 0.063	< 0.063	
B-10	10-Aug-00		NA	2.9	1.6	6.5	0.05	< 0.025	< 0.025	
B-10	31-Oct-00		NA	2.4	1.9	7.1	0.061	< 0.025	< 0.025	
B-10	**31-Jan-01**		**NA**	**2.1**	**1.6**	**6.6**	**0.044**	**< 0.025**	**< 0.025**	
B-13	24-Jan-00	5 to 20	NA	0.02	0.029	0.13	0.0049	< 0.0005	< 0.0005	
Temporary Sampling Points Installed by LFR:										
GW-2	19-Jul-99	10 to 20	NA	0.014	0.0014	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-2	20-Jan-00		NA	0.13	0.019	0.0055	< 0.0005	< 0.0005	< 0.0005	
GW-2	28-Apr-00		NA	0.12	0.016	0.0033	< 0.0005	< 0.0005	< 0.0005	
GW-2	2-Nov-00		NA	0.0078	0.0008	0.0032	< 0.0005	< 0.0005	< 0.0005	
GW-2	**1-Feb-01**		**NA**	**0.0077**	**0.0006**	**0.0028**	**< 0.0005**	**< 0.0005**	**< 0.0005**	
GW-3	19-Jul-99	10 to 20	NA	0.22	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	
GW-3	20-Jan-00	10 to 20	NA	0.055	0.001	0.02	< 0.0005	< 0.0005	< 0.0005	
GW-3	27-Apr-00		NA	0.35	0.0023	0.0056	< 0.0005	< 0.0005	< 0.0005	
Split	27-Apr-00		NA	0.27	0.0015	0.0023	< 0.0013	< 0.0013	< 0.0013	
GW-3	11-Aug-00		NA	0.068	0.0028	0.012	< 0.0005	< 0.0005	< 0.0005	
GW-3	2-Nov-00		NA	0.059	0.0008	0.0024	< 0.0005	< 0.0005	< 0.0005	
GW-3	**1-Feb-01**		**NA**	**0.046**	**0.0006**	**0.0011**	**< 0.0005**	**< 0.0005**	**< 0.0005**	

Table 8

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

at the Former Glovatorium Site

3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloropropane	Notes
GW-4	19-Jul-99	7 to 12	NA	< 0.0005	< 0.0005	0.0035	< 0.0005	< 0.0005	0.0017	
GW-4	20-Jan-00		< 0.01	0.0008	< 0.0005	0.0036	< 0.0005	< 0.0005	0.0015	(1)
Split	20-Jan-00		< 0.01	0.0006	< 0.0005	0.0044	< 0.0005	< 0.0005	0.0021	(2)
GW-4	27-Apr-00		NA	0.0017	< 0.0005	0.001	< 0.0005	< 0.0005	0.0006	
GW-4	**30-Jan-01**		**NA**	**< 0.0005**	**< 0.0005**	**0.0024**	**< 0.0005**	**< 0.0005**	**0.0014**	
GW-5	27-Aug-99	8 to 13	0.24	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
GW-5	20-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-5	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Aug-99	5 to 15	0.19	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	27-Aug-99		0.11	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	25-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-6A	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
GW-7	15-Jul-99	10 to 20	NA	< 0.0005	< 0.0005	0.00358	< 0.0005	< 0.0005	0.000632	
GW-7	15-Jul-99		NA	< 0.002	< 0.002	0.00398	< 0.002	< 0.002	< 0.002	(3)
Split	15-Jul-99	10 to 20	NA	< 0.002	< 0.002	0.00383	< 0.002	< 0.002	< 0.002	(4)
GW-8	19-Jul-99	10 to 20	NA	0.024	0.015	0.0038	0.0017	0.0012	< 0.0005	
GW-8	20-Jan-00		NA	0.15	0.19	0.053	0.012	0.0045	< 0.0007	
Split	20-Jan-00		NA	0.15	0.18	0.052	0.011	0.0046	< 0.0005	
GW-8	28-Apr-00		NA	0.12	0.11	0.029	0.0053	0.0023	< 0.0005	
Monitoring wells owned by TOSCO:										
MW-11	25-Jan-00	Unknown	< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	28-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	(5)
MW-11	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
MW-11	**31-Jan-01**		**NA**	**< 0.0005**	**< 0.0005**	**< 0.0005**	**< 0.0005**	**< 0.0005**	**< 0.0005**	
Monitoring wells installed by LFR:										
LFR-1	9-Aug-00	9 to 19	NA	2.8	0.064	0.041	< 0.0083	< 0.0083	< 0.0083	

Table 8

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

at the Former Glovatorium Site

3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloropropane	Notes
LFR-1	30-Oct-00		NA	0.82	0.034	0.01	< 0.0031	< 0.0031	< 0.0031	
Split	30-Oct-00		NA	0.87	0.035	0.014	< 0.0031	< 0.0031	< 0.0031	
LFR-1	**29-Jan-01**		**NA**	**0.77**	**0.026**	**0.0073**	**<0.0025**	**<0.0025**	**<0.0025**	
LFR-2	11-Aug-00	9 to 19	NA	< 0.0005	< 0.0005	0.035	< 0.0005	0.0045	< 0.0005	
LFR-2	2-Nov-00		NA	< 0.0005	< 0.0005	0.13	0.001	0.015	0.0006	
LFR-2			**NA**	**<0.0005**	**<0.0005**	**0.0056**	**<0.0005**	**0.0016**	**<0.0005**	
LFR-3	10-Aug-00	12 to 22	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Split	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	1-Nov-00	12 to 22	NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
LFR-3	**30-Jan-01**		**NA**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
LFR-4	11-Aug-00	9 to 19	NA	< 0.0005	< 0.0005	0.0012	< 0.0005	< 0.0005	< 0.0005	
LFR-4	31-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Blanks										
Trip Blank	19-Jul-99		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	20-Jan-00		< 0.01	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	30-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	31-Oct-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	2-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Field Blank	27-Apr-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Field Blank	10-Aug-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	(6)
Field Blank	1-Nov-00		NA	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Trip Blank	**30-Jan-01**		**NA**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
Trip Blank	**29-Jan-01**		**NA**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
Trip Blank	**31-Jan-01**		**NA**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	

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

Location	Date Sampled	Screened Interval (ft-bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloropropane	Notes
Trip Blank	1-Feb-01		NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	

Notes:

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

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

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

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

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

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

ft bgs = Feet below ground surface

NA = Not analyzed

mg/L = milligrams per liter

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

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

PCE = Tetrachloroethene

TCE = Trichloroethene

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

Table 9

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

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

Well ID	Date Sampled	Dissolved Oxygen	Manganese (dissolved)	Nitrate	Sulfate	Ferrous Iron (Fe + 2)	Methane	ORP (milliVolts)	Hydrogen (nano-Moles)
B-7	11-Aug-00						11	193	
B-7-field	11-Aug-00	0.63		(1)	3				
B-7	31-Oct-00	0.62	2.6	< 0.10	< 1.0	11	2.4		(3)
B-7-field	31-Oct-00	0.25		0.4	(1)	15.85		-62.5	
B-7	**1-Feb-01**	**0.78**	**2.2**	**0.78**	**<1.0**	**15**	**13**		
B-7-field	**31-Jan-01**	**0.48**						**28**	
B-8 field	**31-Jan-01**	**0.45**						**58**	
B-10	10-Aug-00			< 0.05	< 0.05	5.7	10	213	
B-10-field	10-Aug-00	0.44		(1)	(2)				
B-10	31-Oct-00	2.4	1.4	< 0.10	< 1.0	5.9	6.7		0.81
B-10-field	31-Oct-00	0.44		0	0	7.6		-22.2	
B-10	**31-Jan-01**	**6.4**	**1.3**	**< 0.10**	**<2.0**	**7.7**	**24**		**1.3**
B-10-field	**31-Jan-01**	**0.46**						**64**	
GW-2-field	1-Nov-00	2.32						77	
GW-2	**1-Feb-01**	**3.8**					**0.041**		
GW-2-field		**0.58**						**159**	
GW-3	11-Aug-00						< 0.0005	395	
GW-3-field	11-Aug-00	0.72		1	46				
GW-3	1-Nov-00								
GW-3-field		7.76						81	
GW-3	**29-Jan-01**	**8.8**					**0.012**		
GW-3-field	**1-Feb-01**	**8.99**						**235**	
GW-4-field	**30-Jan-01**	**0.83**						**67**	
MW-11	10-Aug-00			2.8	63	< 0.1	< 0.0005	476	
MW-11-field	10-Aug-00	2.52		4.1	67				

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	1-Nov-00	4.1	< 0.010	15	90	< 0.1	0.00004		130
MW-11-field	1-Nov-00	4.01		3.3	73	0		87.4	
MW-11	**31-Jan-01**	**6.3**	**< 0.010**	**15**	**94**	**< 1.0**	**0.00005**		**1.1**
MW-11-field	**1-Nov-00**	**3.97**		**27.3**	**74**	**0**		**319**	
LFR-1	9-Aug-00							462	
	11-Aug-00						0.0096		
LFR-1-field	9-Aug-00	3.63		5.5	30				1.5
LFR-1	30-Oct-00	2.7	0.03	39	42	< 1.0	0.00038		
LFR-1-field/spli	30-Oct-00	2.95		10.3/10.0	29/29	0.01/0.01		77.4	1
LFR-1 split	30-Oct-00	3.4	0.03	40	43	< 1.0	0.00069		
LFR-1	**29-Jan-01**	**5.1**	**<0.01**	**<0.10**	**51**	**<1.0**	**0.00012**		**0.43**
LFR-1-field	**29-Jan-01**	**3.78**	**0**		**36**	**0**		**383**	
LFR-1 Dup	**29-Jan-01**	**4.6**	**<0.01**	**<0.10**	**50**	**<1.0**	**0.000011**		**0.32**
LFR-2	11-Aug-00						6.6	270	
LFR-2-field	11-Aug-00	0.48		1.5	(1)	2.7			1200
LFR-2	2-Nov-00	2.2	8.8	0.33	5.4	5.3	8.5		
LFR-2-field	2-Nov-00	0.47		0.5	(1)	6.05		-23.7	
LFR-2	**30-Jan-01**	**4.4**	**8.9**	**1**	**8.3**	**4.6**	**4.6**		**1.1**
LFR-2-field	**30-Jan-01**	**0.61**	**10.7**	**2.9**		**1.02**		**210**	
LFR-3	10-Aug-00			2.4	64	< 0.1	0.00051	464	
LFR-3 split	10-Aug-00							< 0.0005	
LFR-3-field	10-Aug-00	1.3		2.4	64				850
LFR-3	1-Nov-00	4.7	0.022	8.8	74	< 1.0	0.00028		
LFR-3-field	1-Nov-00	0.58		1.8	57	0		75.2	
LFR-3	**31-Jan-01**	**4.1**	**<0.01**	**1.2**	**58**	**< 1.0**	**0.00038**		

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-3-field	**30-Jan-01**	**1.75**		**0.023**	**44**	**0**		**195**	
LFR-4	11-Aug-00						0.062	402	
LFR-4-field	11-Aug-00	1.13		0.7	1	0.14			1.1
LFR-4	31-Oct-00	1.9	2.2	< 0.10	2.9	1.1	3.2		
LFR-4-field	31-Oct-00	0.64		1		0.61		-80	
LFR-4	**1-Feb-01**	**3.2**	**2.8**	**1.5**	**2.8**	**1.8**	**2.2**		**1.5**
LFR-4-field	**1-Feb-01**	**0.55**	**4.5**	**8**	**0**	**1.5**		**59**	

Notes:

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

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

(2) Field measurement was not recorded.

FIGURES

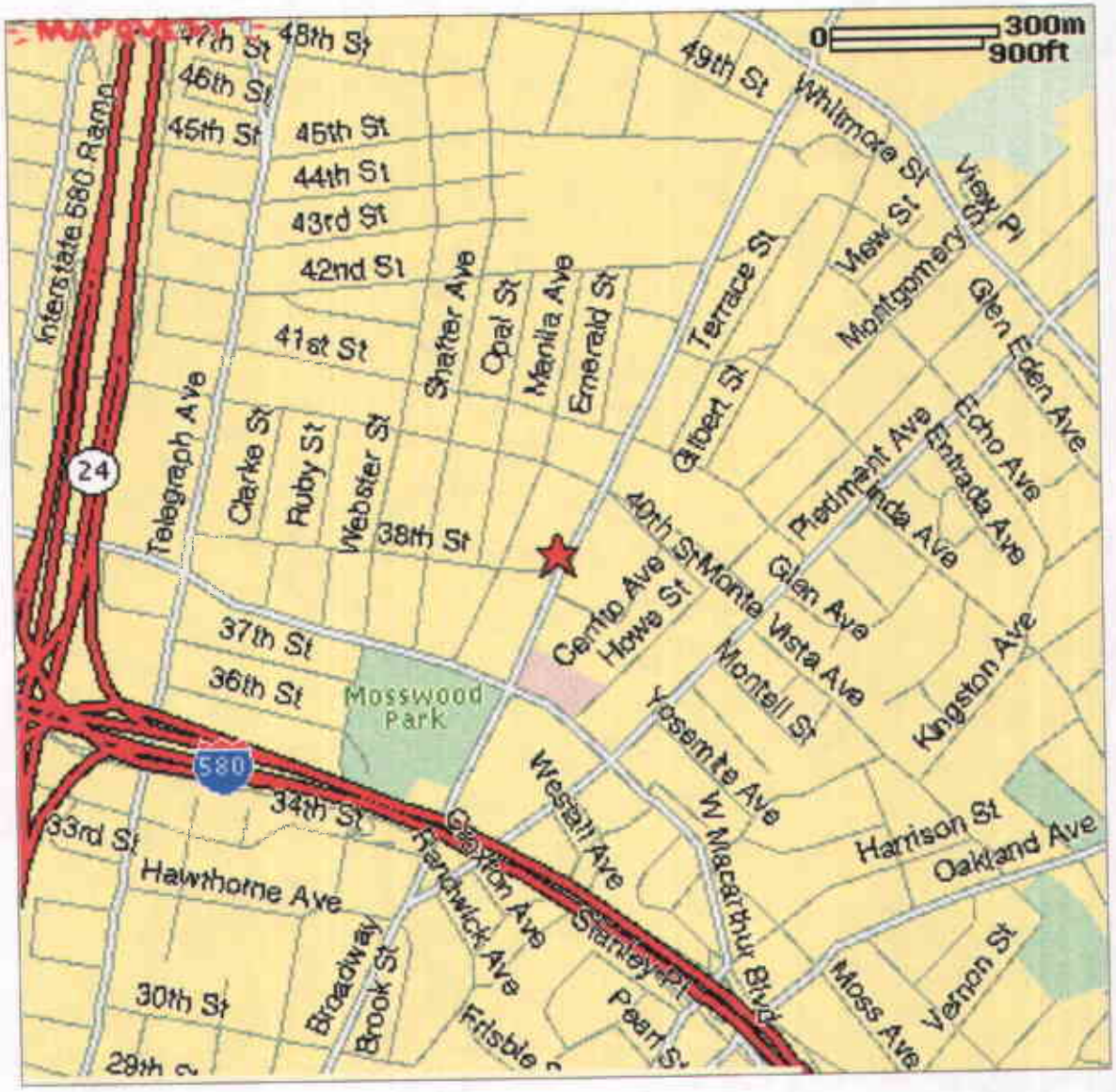


Figure 1: Site Location Map

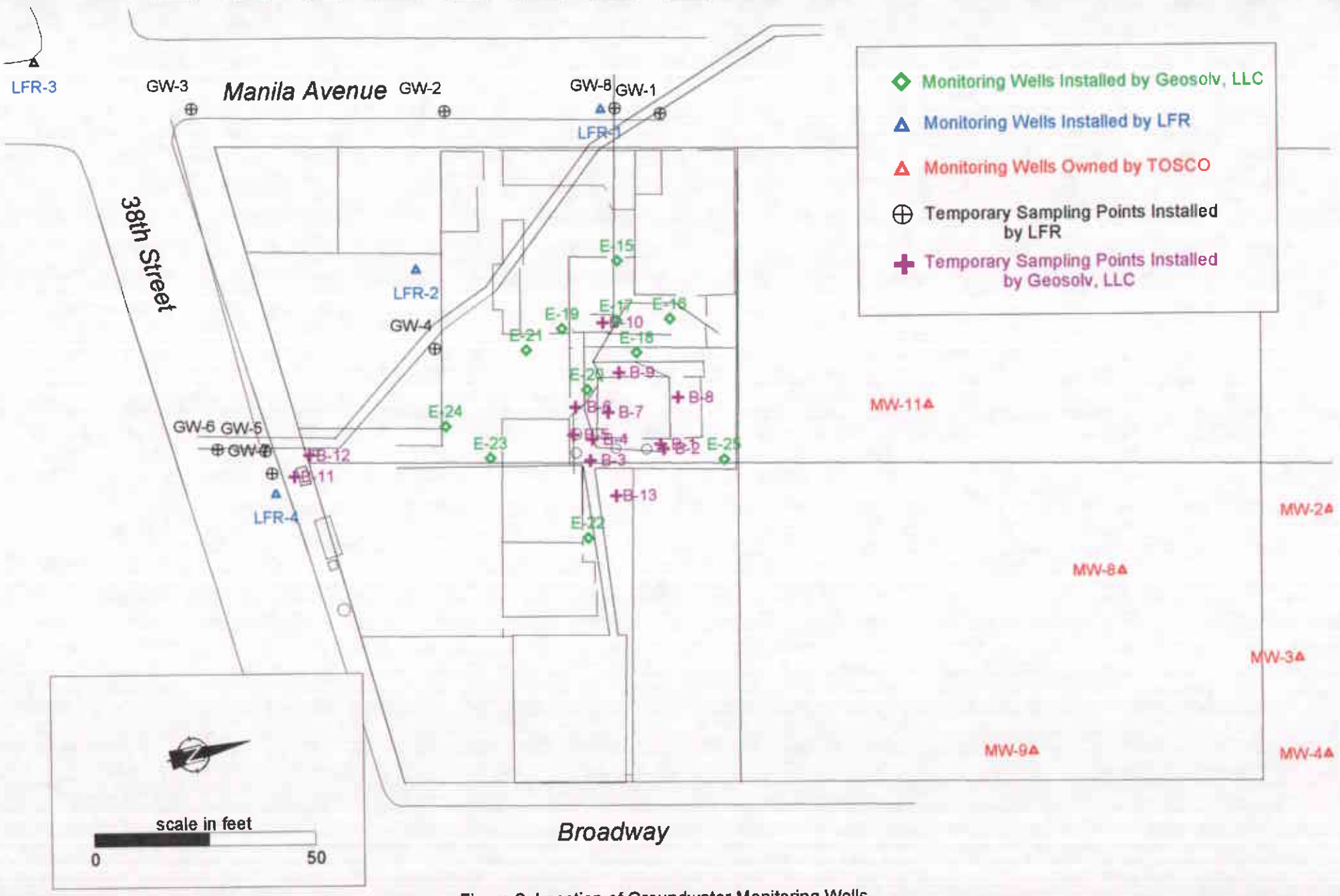


Figure 2: Location of Groundwater Monitoring Wells

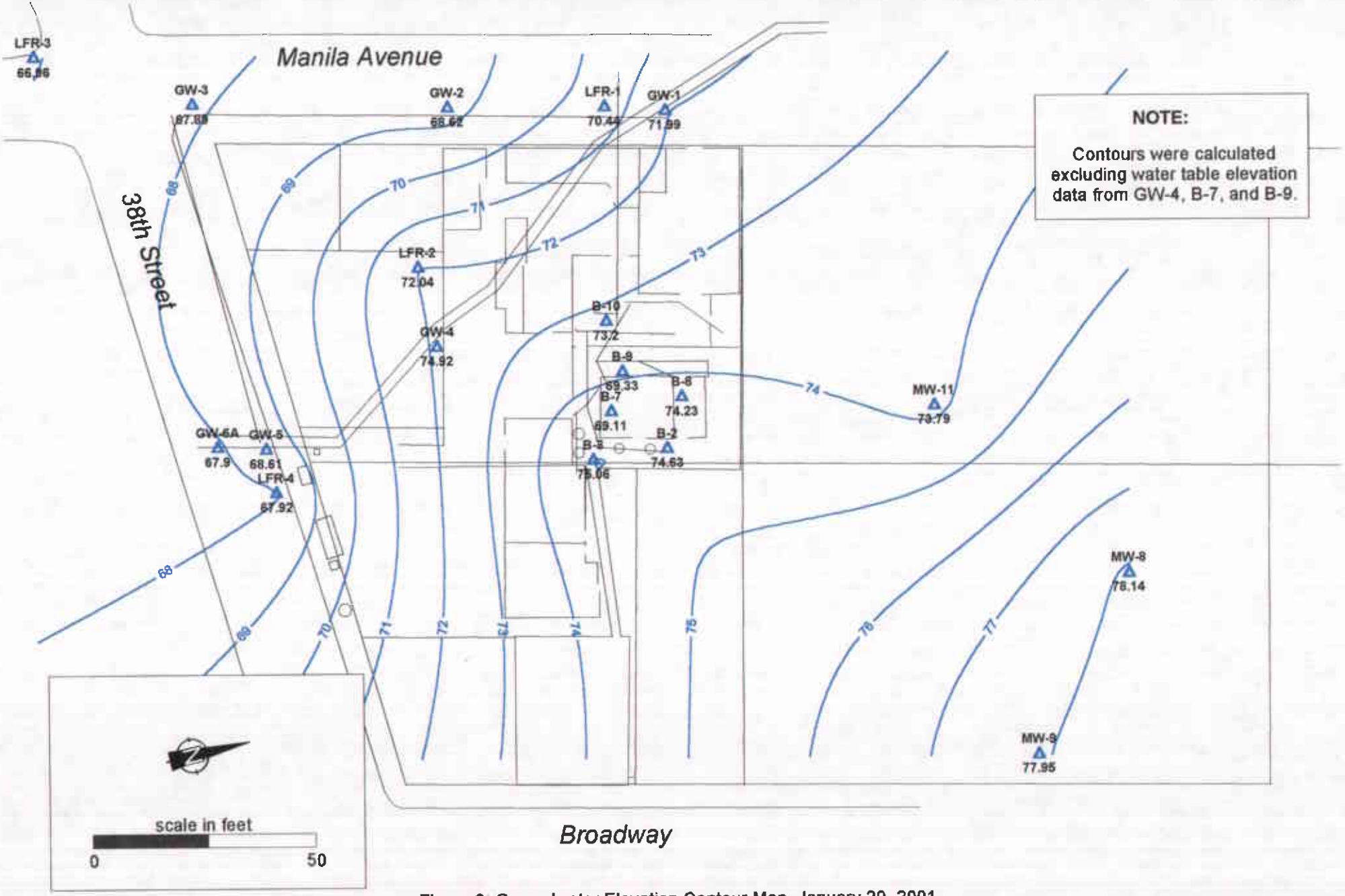


Figure 3: Groundwater Elevation Contour Map, January 29, 2001

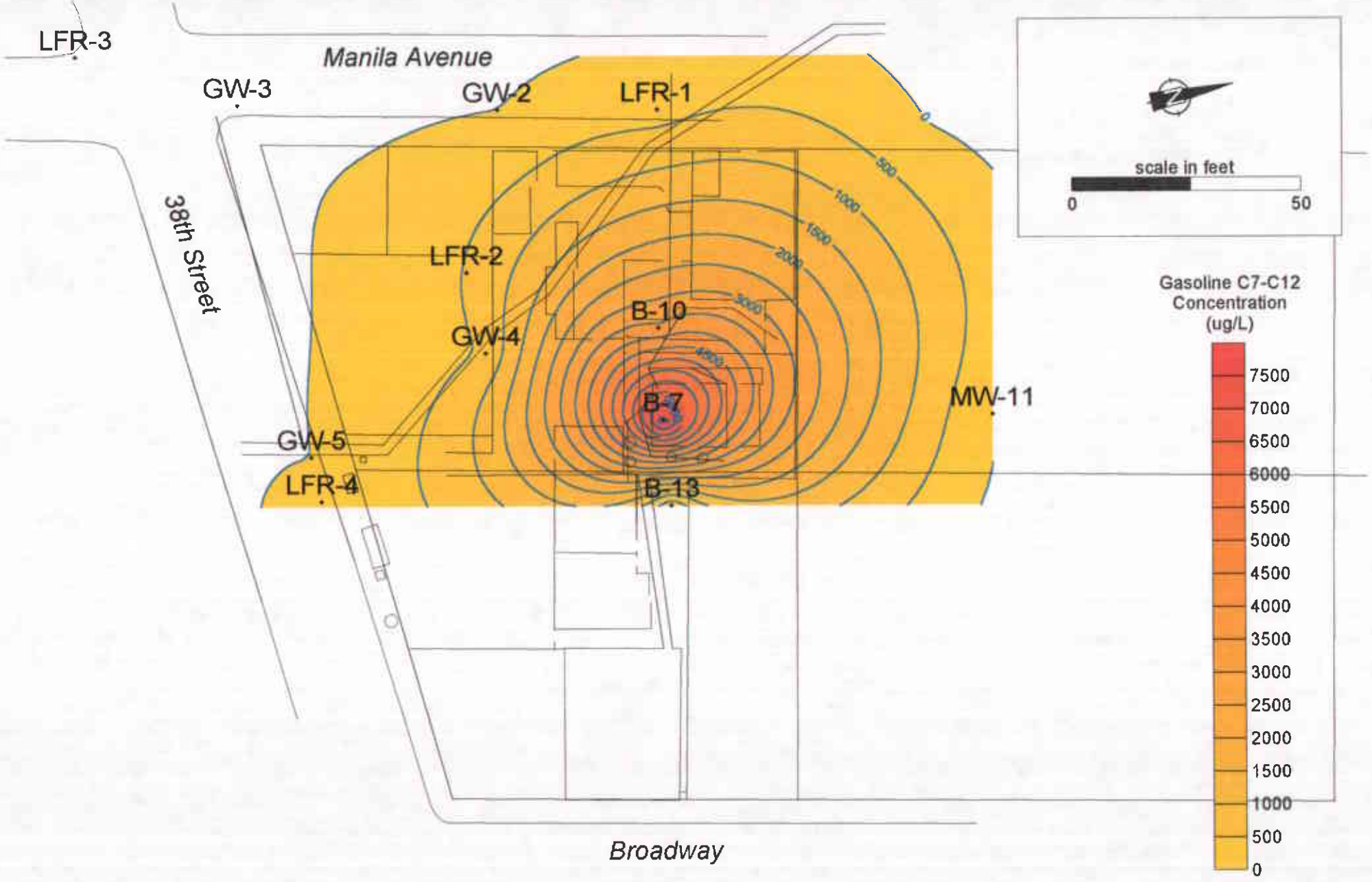


Figure 4: TPH-g Concentration Contour Map in Groundwater, First Quarter, 2001

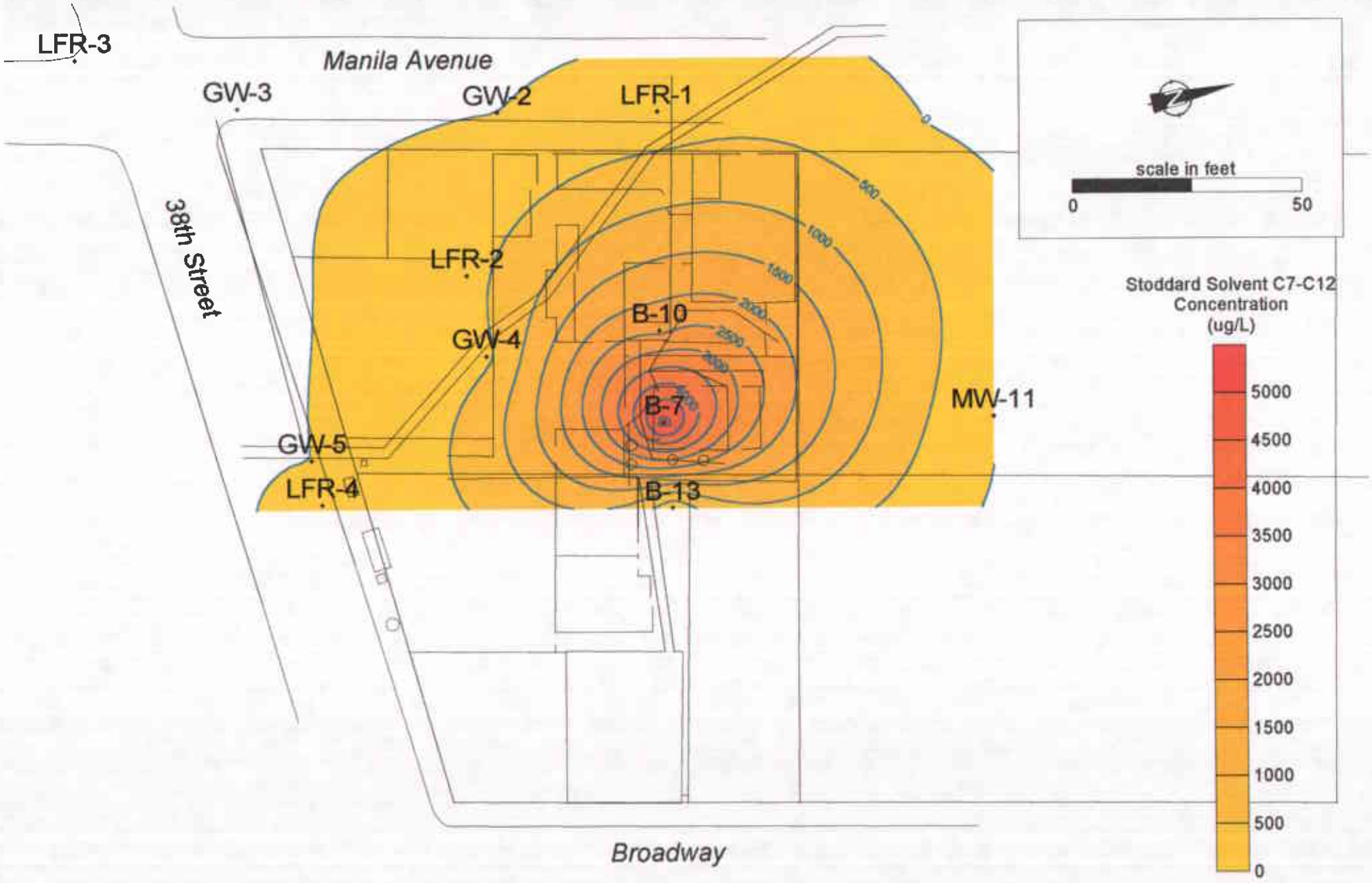


Figure 5: TPH-ss Concentration Contour Map in Groundwater, First Quarter, 2001

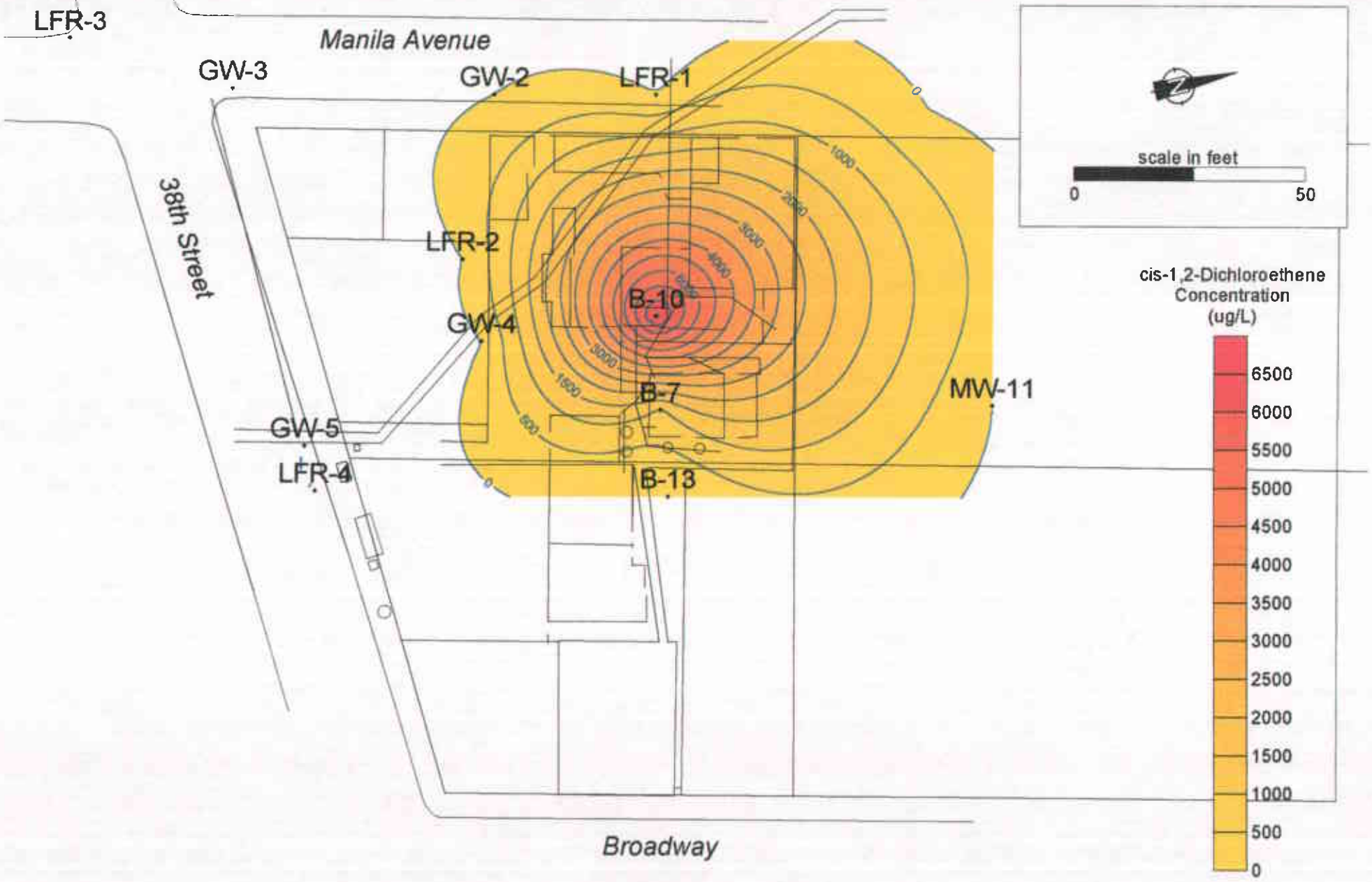


Figure 6: Cis-1,2-DCE Concentration Contour Map in Groundwater, First Quarter, 2001

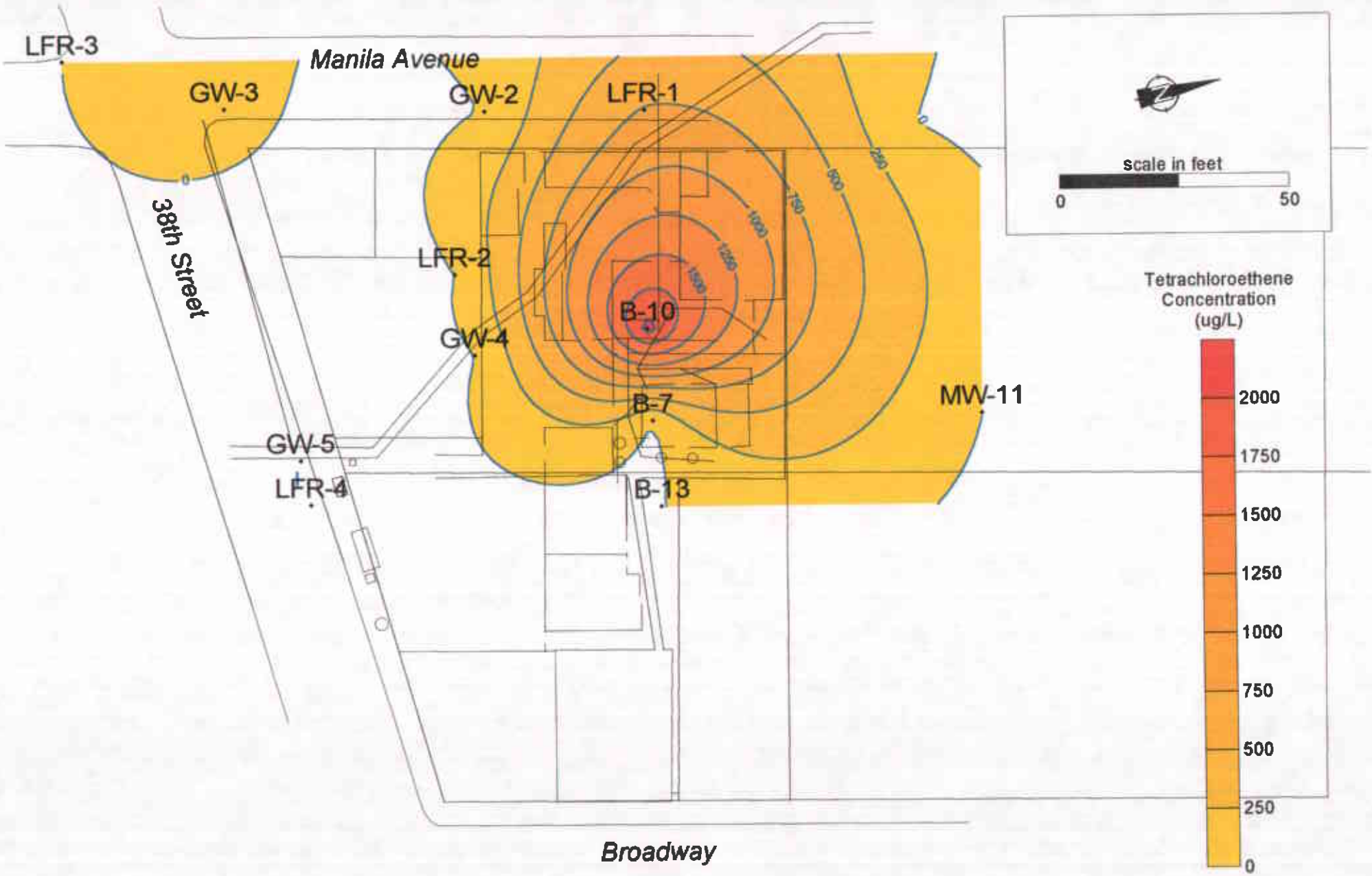


Figure 7: Tetrachloroethene Concentration Contour Map in Groundwater, First Quarter, 2001

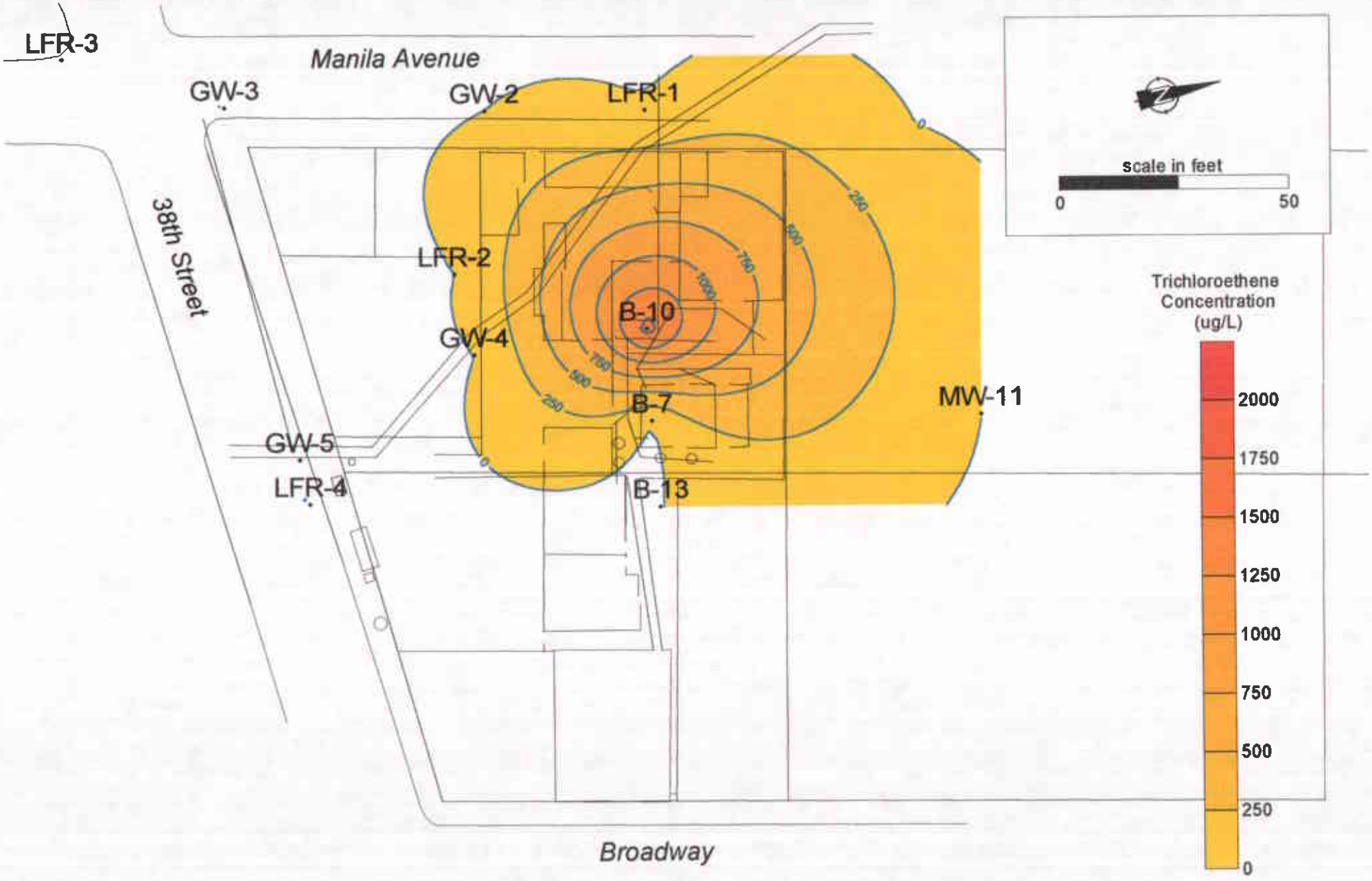


Figure 8: Trichloroethene Concentration Contour Map in Groundwater, First Quarter, 2001

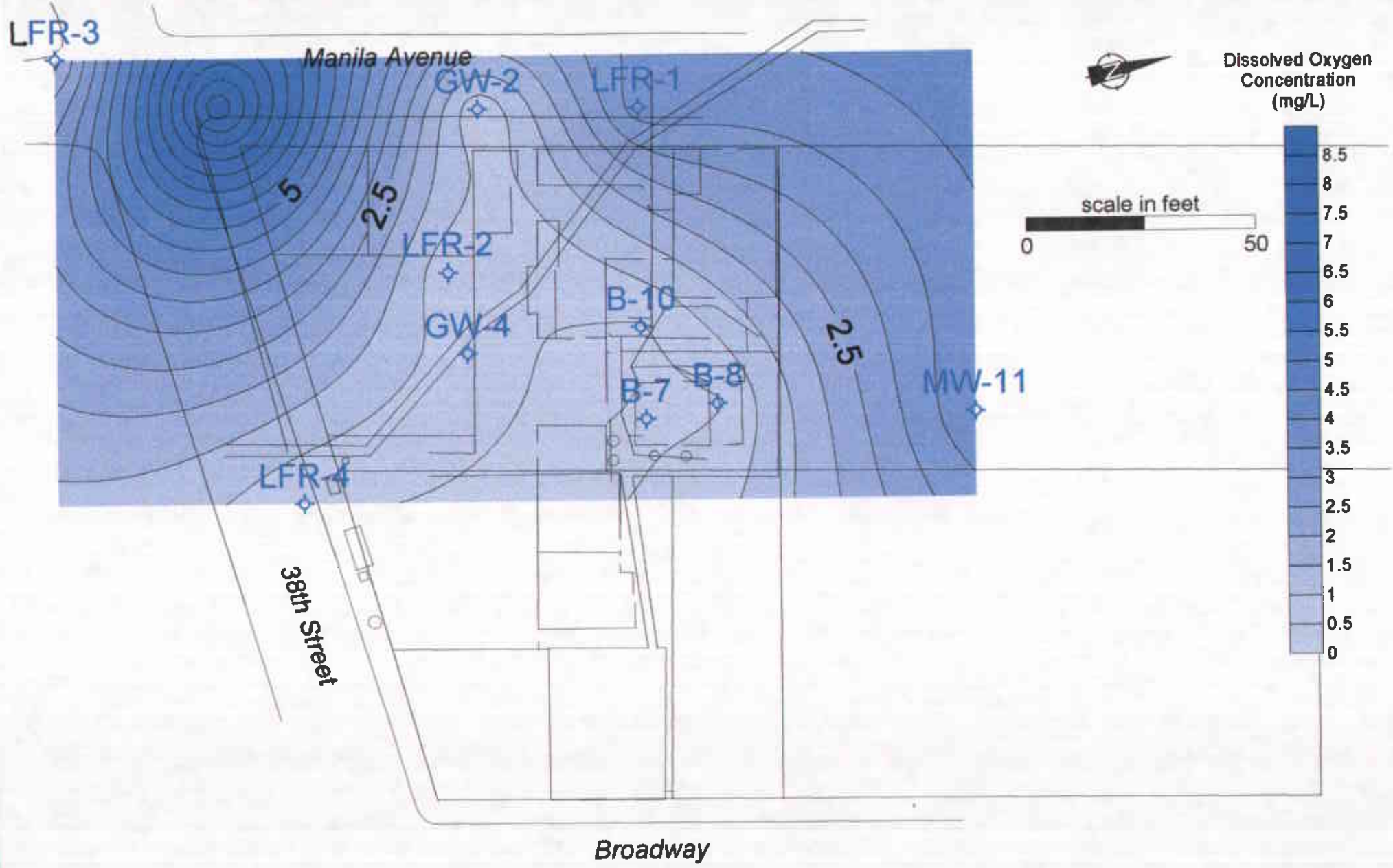


Figure 9: Dissolved Oxygen Concentration Contour Map in Groundwater, First Quarter, 2001

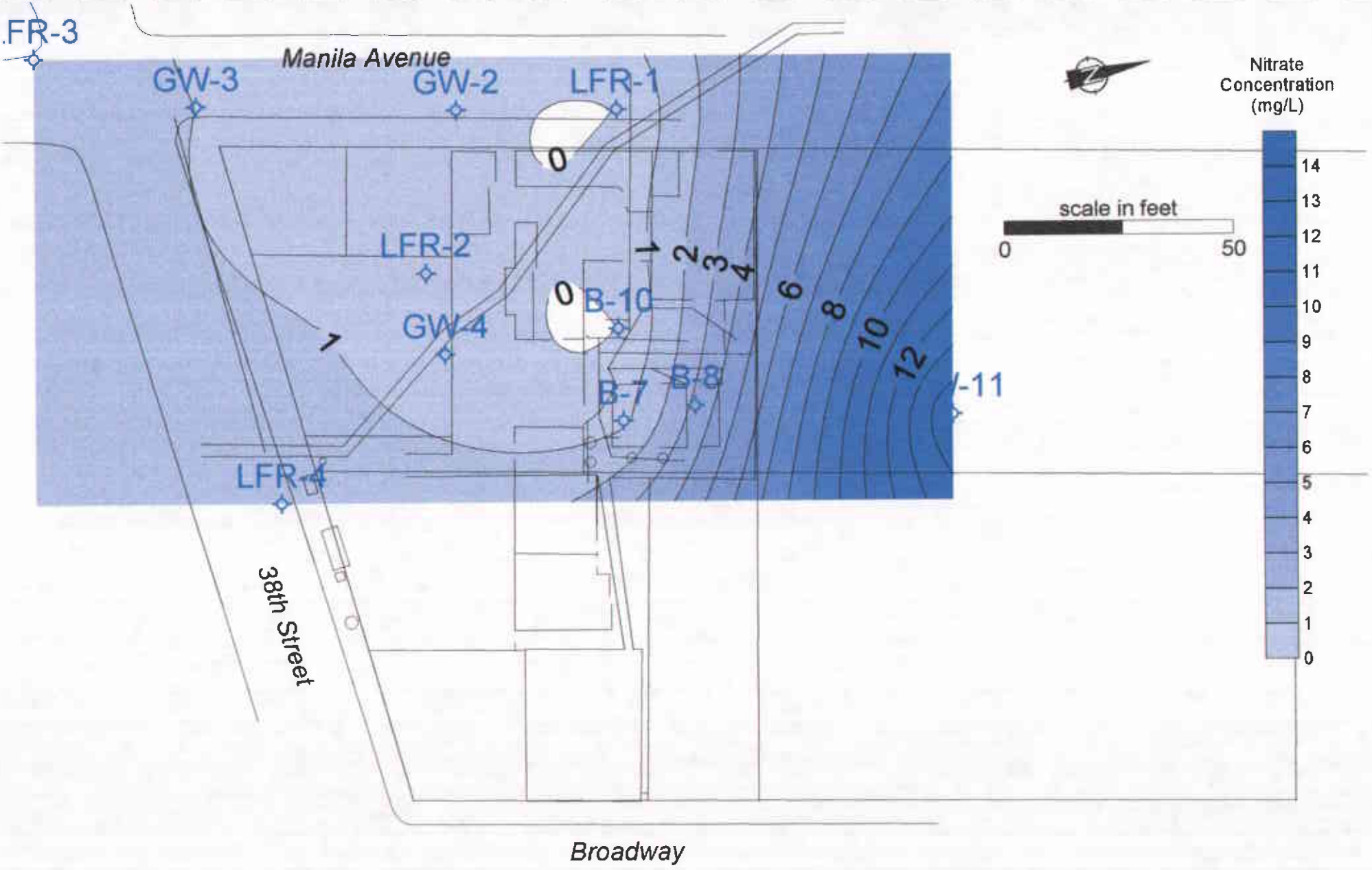


Figure 10: Nitrate Concentration Contour Map in Groundwater, First Quarter, 2001

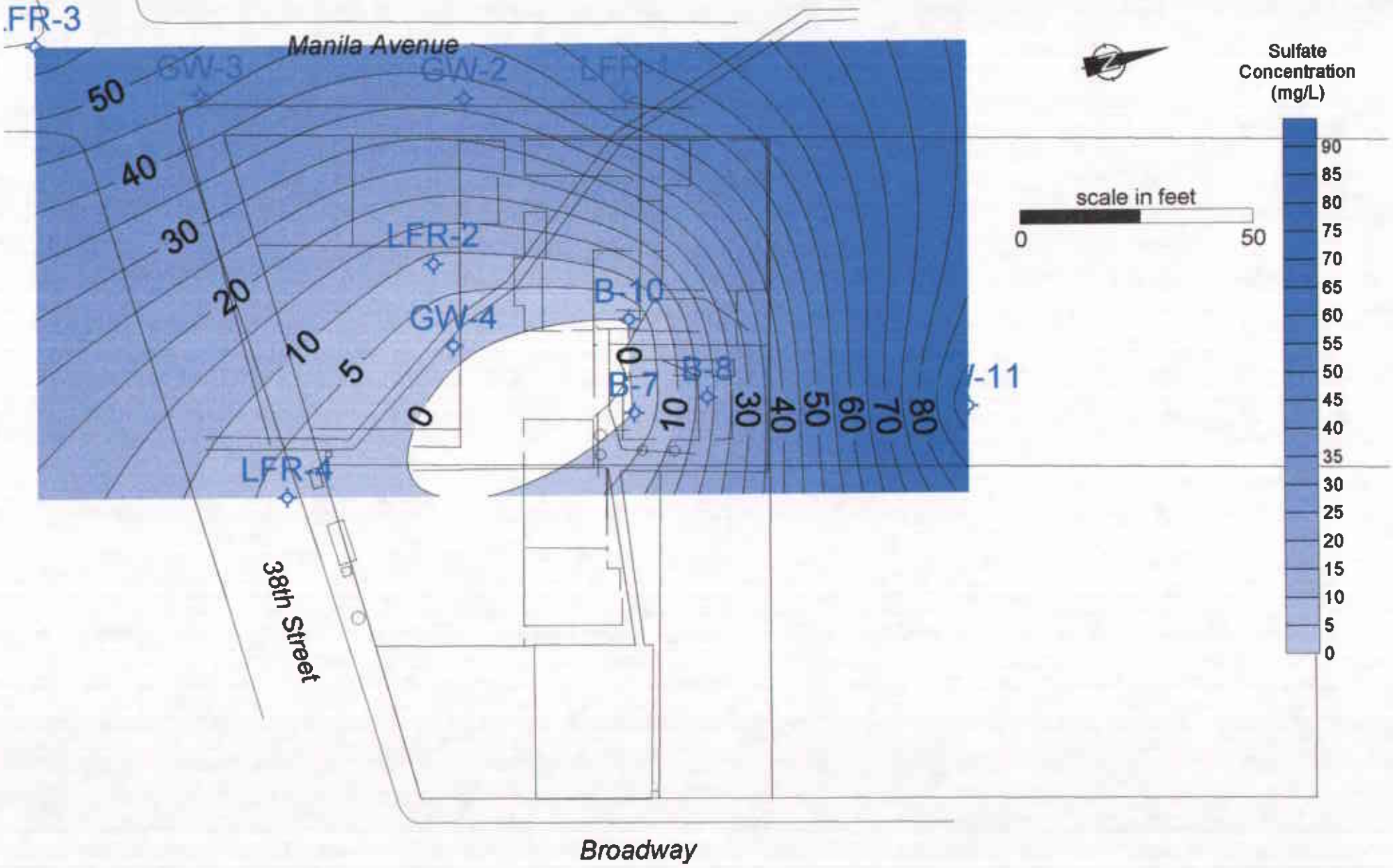


Figure 11: Sulfate Concentration Contour Map in Groundwater, First Quarter, 2001

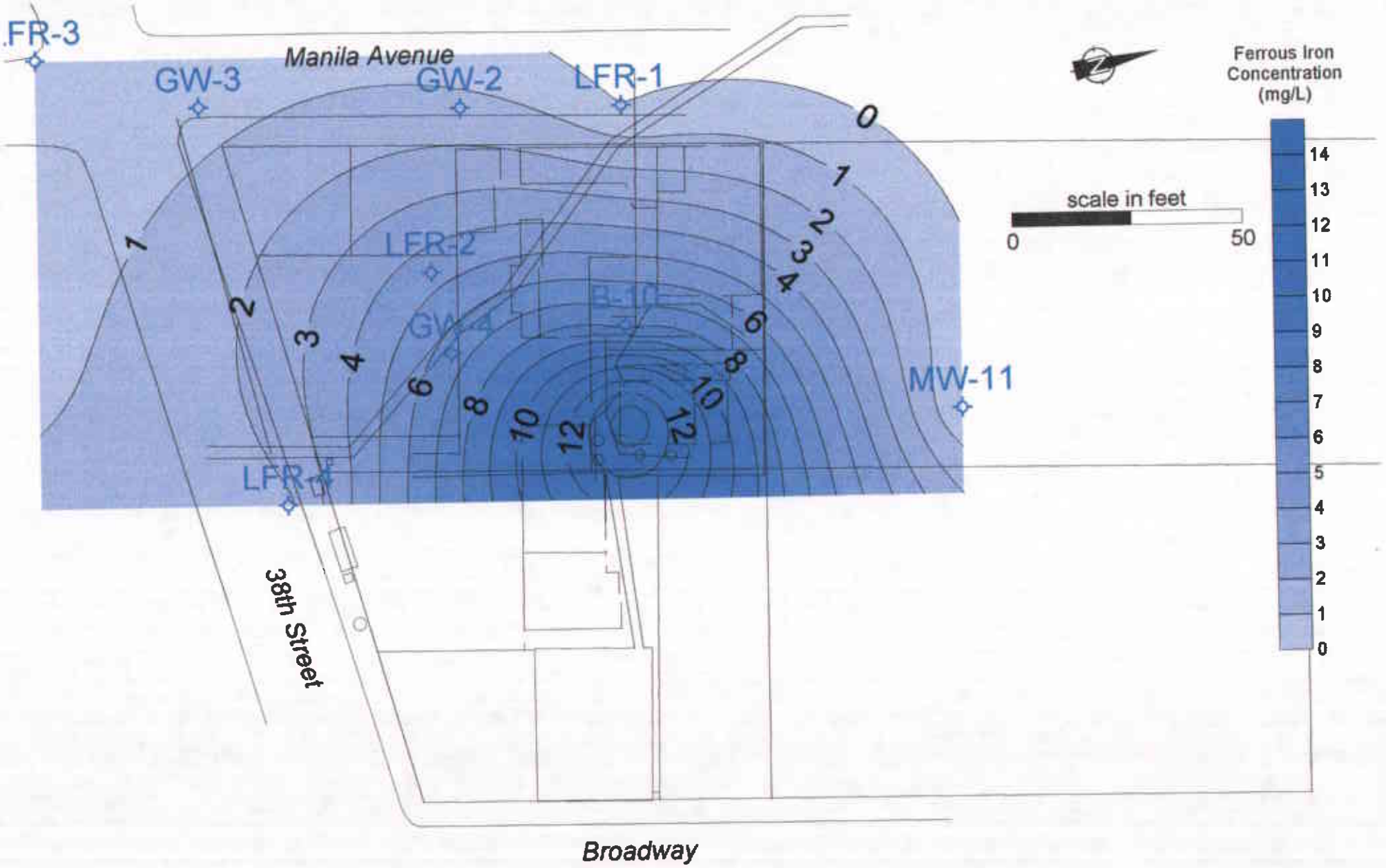


Figure 12: Ferrous Iron Concentration Contour Map in Groundwater, First Quarter, 2001

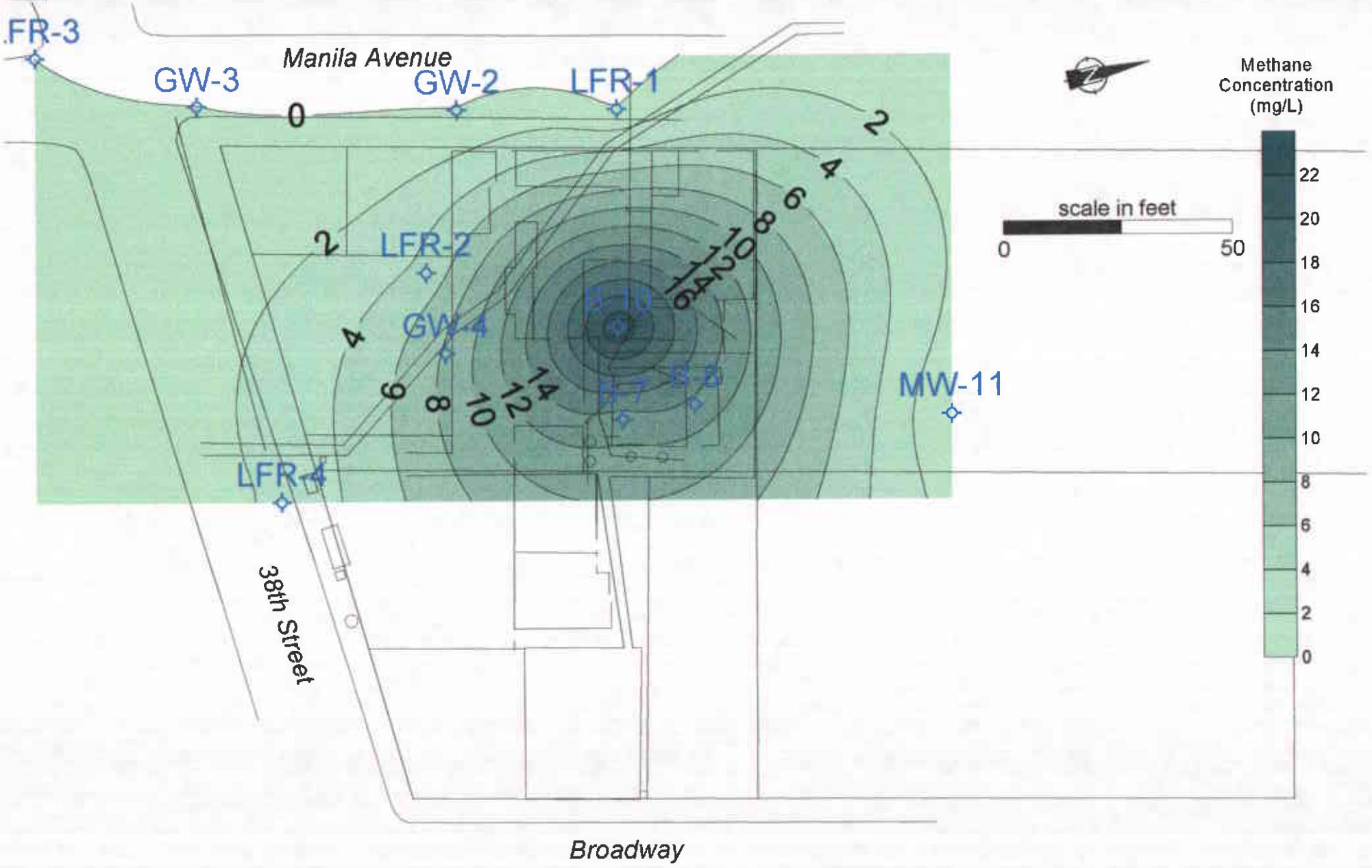


Figure 13: Methane Concentration Contour Map in Groundwater, First Quarter, 2001

APPENDIX A

Site-Specific Field Operation Procedure Used by LFR During the First Quarter 2001 Groundwater Monitoring Event

INTRODUCTION

Field activities were performed under the direct supervision of a California-registered geologist and/or a registered engineer. Before use, all downhole equipment used for groundwater sampling was new or decontaminated by washing with high-pressure, hot water (steam cleaned) and/or a solution of laboratory-grade detergent and tap water, followed by rinsing with tap water. Water generated from decontaminating the sampling equipment, and development and purge water were stored at the Site in 55-gallon drums pending selection of an appropriate disposal alternative.

GROUNDWATER PURGING AND SAMPLING

To optimize representative sample collection, monitoring wells and temporary sampling points were purged using a low-flow peristaltic pump (i.e., the "low-flow" or "micro-purge" technique) before sampling. The wells and temporary sampling points were micro-purged to minimize cascading of the groundwater down the casing during purging, whenever possible. The pump intake hose was typically located in approximately the middle of the screened interval in the wells and temporary sampling points in which the screen interval was known. The wells and temporary sampling points were purged at a rate that maintained approximately 90% of the water column.

Measurements of depth to groundwater, pH, temperature, conductivity, ORP, DO, and turbidity were read and recorded approximately every 5 minutes. (Samples were collected from wells and temporary sampling points that produced water. The temporary sampling points GW-2 and GW-3 did not produce enough water for all of the bioattenuation parameter analyses.) When these parameters had stabilized to within the approximate respective amounts listed; pH (+/- 0. 1 standard units), conductivity (+ /- 3 %), ORP (+ /- 10 mV), DO (+ /- 10 %), and turbidity (+ /- 10 %) for three successive readings, samples were

collected from the discharge tube to be used for the bioattenuation parameter indicator tests. (The reading taken just before sampling is the reading presented in Tables 5 and A-1.)

Groundwater samples were collected using a peristaltic pump with new polyethylene and PVC tubing. The groundwater samples were pumped directly through the tubing into laboratory-supplied, 40-milliliter (ml) volatile organic analysis (VOA) vials with Teflon septa and/or laboratory-supplied plastic bottles. The VOA vials were filled to eliminate headspace after the vials were sealed. Samples for the analysis of metals were filtered through a new QED' 0.45-micron water filter before filling the sampling bottles.

The VOA vials and plastic bottles were capped, labeled, and placed in a chilled cooler for transport to the analytical laboratory under standard chain-of-custody protocol. Laboratory-prepared trip blanks were placed in the coolers with the samples to check for possible contamination of the samples during shipment. Duplicate and field blank (equipment rinse) samples were also submitted for analysis. These field QC samples were collected and analyzed in addition to the QA/QC procedures that are part of the standard program followed by certified laboratories.

Hydrogen sampling was conducted using the bubble strip method, so named because during the sampling process, a bubble strips hydrogen out of the water. Sampling was conducted per Microseep's instructions. The principle is to continuously pump groundwater through a gas-sampling cell containing an air bubble, so that hydrogen can partition between the gas and liquid phases until the concentration of hydrogen in the bubble comes into equilibrium with the concentration of hydrogen in the groundwater. The concentration in groundwater is calculated using the Ideal Gas Law and Henry's Law.

After the well or temporary sampling point was appropriately purged, the outlet of

the peristaltic pump was connected to the inlet tubing of the cell, and the cell discharge was affixed beneath the purge water to create a sealed system in which air could not infiltrate back into the sampling cell. The cell was clamped to a ring stand to secure it during the sampling process. The equilibrium time needed for the hydrogen stripping process was determined based on the flow rate calculated during micropurging, using a table provided by Microseeps in its instructions. The typical flow rate was approximately 0.1 liter/minute, with corresponding sampling time of approximately 30 minutes. The cell assembly was inverted, then ambient air was injected into the cell. Groundwater was then pumped through the cell for approximately 30 minutes, after which the cell was turned to its upright position. A sample of gas was then withdrawn from the cell and injected into a sample vial.

The sample vial was sent to Microseeps, who analyzed the bubble for hydrogen. Results of the hydrogen testing are presented in Table A-1.

GROUNDWATER LEVEL MEASUREMENT

Groundwater levels were measured in temporary sampling points or monitoring wells B-2, B-3, B-7, B-8, B-9, B-10, B-13, GW-2, GW-3, GW-4, GW-5, GW-6A, MW-8, MW-9, MW11, and LFR- 1 through LFR-4. The groundwater levels were measured to approximately the nearest 0.01-foot using an electric water-level probe graduated in 0.01-foot increments. Floating product was observed in B-3. Groundwater level data and elevations are summarized in Table 2.

GROUNDWATER FIELD SCREENING

The following parameters-iron, ferrous iron, sulfide, sulfate, nitrite and nitrate nitrogen-were screened in the field using a Hach ISO 9001 Certified spectrophotometer. Each parameter has a corresponding wavelength, which was entered into the spectrophotometer before the testing began. Testing was

conducted per the manufacturer's specifications. Typically, as samples were collected, a portion of the sample was poured into a clean 150-ml beaker. An AcuVac™ ampul containing a reagent corresponding to the parameter being measured was then placed at the bottom of the beaker and the tip broken off under the groundwater sample, allowing the groundwater to enter the ampul with minimal air contact. The sample would then react with the reagent to form a color in proportion to the parameter's concentration. After the sample had reacted with the reagent, the ampul was placed into the spectrophotometer, and the concentration was measured and recorded. Dilutions were performed as necessary, and correction factors were applied per manufacturer's specifications. Results of the field parameter testing are presented in Table 5 and Table A-1.

The pH, temperature, conductivity, ORP, and DO were measured using a Hydrolab Quanta™ flow-through instrument which measured each parameter from sensors housed in the flow-through cell. Turbidity measurements were recorded using a LaMotte™ Model 2008 turbidity meter.

APPENDIX B

FIELD NOTES, LABORATORY REPORTS, CHAIN OF CUSTODY FORMS

WATER-LEVEL MEASUREMENTS

Project Name: Stonestown
Project No.: 1895.00-022
Field Personnel: MKB MWB
Date: 1-29-01
General Observations: Sunny

WELL NO.	WELL ELEVATION	DEPTH TO WATER MEASUREMENTS 1	2	WATER ELEVATION	REMARKS (UNITS = FEET)
LFR-1		9.53	9.53		9:07 No product
GW-1		7.95	7.95		9:09 no product
GW-2		10.52	10.52		9:12 no product
GW-3		10.03	10.03		9:14 no product
LFR-3		11.00	11.00		9:16 no product
GW-6A		13.71	13.71		9:19 no product
GW-5		12.40	12.40		9:21 no product
LFR-4		—	—		covered Trench Plate
—		—	—		until Feb 17
GW-4		7.45	7.45		9:24 No Product
LFR-2		9.85	9.85		9:26 Odor (petro)
—		—	—		no product
MW-11		10.42	10.42		9:32 no product
MW-8		—	—		gate locked no
MW-9		—	—		acces (big dogs)
B-10		8.30	8.30		9:45 no product
B-9		8.04	8.04		9:49 no product
B-7		7.85	7.85		9:51 no product
B-2		7.46	7.46		9:52 no product
B-8		7.59	7.59		9:54 ✓ 0.3 product
B-3		7.51	7.51		9:56 ✓ 2' Product
B-13		dry	dry ± 9'		10:00 8.71 TD
MW-9		8.61	8.61		1408
MW-8		9.30	9.30		1414
LFR-4		13.73			

* Able to force tubing down to 60.2 FT but unable to get solinst past 9.00 FT w/ the large probe

water deeper than 9' ? MWD don't know

> 9' bgs

There is water, but it's deeper than 9'

waterlevelmsr27oct89

LEVINE·FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

ID of "B" wells is 0.68"

Project #:	6895.00.032	**Date:** 1\30 \01 (mb)	**Well #:** B-7
Project Name:	Glovatorium	**Sample ID:** B-7	
Location:	Oakland, CA	**Blank:** /	**Dup:** /
Sampling Plan:	JCS	**DTW:** 7.72	**Inlet:** Bottom
Field Staff:	MXD, MWD	**Purge Method:** Peristaltic Pump w/ New tubing	

Laboratory:	Microsweeps & Curtis and Tompkins	**Analysis:**	
Delivery:	Courier	Dissolved H_2:	1 Septum Vial
Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Dissolved Perm Gases:	2 Unpres VOAs
Alk, Cl-, Sulfate:	1 unpres poly L	Ferrous Iron:	1 HCl Pres Poly
Total Iron, Manganese:	1 HNO_3 pres Poly		
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME Stabilization if 3 successive parameters are within	DTW	VOLUME	TEMP (C) +\-3%	COND (ms/cm) +\-3%	DO (mg/L) +\-10%	ORP (mv) +\- 10 mv	Turbidity (NTU) +\-10%	pH (+/- 0.1)	COMMENTS
1039	7.72	0							start purge
1045	NA	0.1	13.66	1.462	0.55	108	>200	6.77	cloudy
1050	Probe won't	0.2	13.66	1.468	0.47	92	NA	6.77	clear
1055	fit in well	0.3	13.75	1.465	0.50	59	Mud/silt accumulating in flow through cell causing bad read	6.76	clear
1100	w/ tube	0.4	13.91	1.409	0.50	36		6.81	clear
1105		0.5	13.87	1.412	0.50	30		6.80	clear
1110		0.6	13.90	1.424	0.48	28		6.79	clear - sample
1119		≈ 0.75							off DWTF
1260		Restart and try to get additional lab samples							only able to fill
1230		well Dewaters but just enough H_2O to fill the rest of the bottles. Move to B-8 per JCS							CPT VOAs

Project #: 6895.00.032

Well #: B-7

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

HACH KIT RESULTS FOR WELL B-7 AT SAMPLE TIME 1230 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)		NA	NA	NA	NA		Well Dewaters
Total Iron (Filtered)		NA	NA	NA	NA		insufficient H2O to get HACH kit.
Nitrate				NA	NA		move to B-8
Nitrite		NO_2^-		$NaNO_2$			
Sulfate		NA	NA	NA	NA		
Manganese							

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032 **Date:** 11/31/01 **Well #:** B-8

Project Name: Glovatorium **Sample ID:** B-8

Location: Oakland, CA **Blank:** / **Dup:** /

Sampling Plan: JCS **DTW:** 7.55 **Inlet:** Bottom

Field Staff: MXD, MWD **Purge Method:** Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins

Delivery: Courier

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Analysis:	
Alk, Cl-, Sulfate:	1 unpres poly L	Dissolved H_2:	1 Septum Vial
Total Iron, Manganese:	.1 HNO_3 pres Poly	Dissolved Perm Gases:	2 Unpres VOAs
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Ferrous Iron:	1 HCl Pres Poly
		Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1242	7.55	0							Start Purge
1247	Probe w/out Tube	0.1	14.79	1.124	0.49	123	>200	6.84	cloudy
1252		0.2	14.75	1.118	0.61	119	7200	6.84	"
1257		0.3	14.85	1.117	0.62	99	>200	6.84	"
1302	"	0.4	15.30	1.128	0.51	78	>200	6.79	"
1307	"	0.5	15.38	1.147	0.49	66	7200	6.79	"
1312	"	0.6	15.59	1.099	0.45	58	>200	6.80	"
1317 (MW)									Decon Product

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #:	6895.00.032	**Date:**	1\30\01
Project Name:	Glovatorium	**Well #:**	B-10
Location:	Oakland, CA	**Sample ID:**	B-10
Sampling Plan:	JCS	**Blank:**	/
Field Staff:	MXD, MWD	**Dup:**	/
		DTW:	8.25
		Inlet:	Bottom
		Purge Method:	Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins

Delivery: Courier

Analysis:

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Dissolved H_2:	1 Septum Vial
Alk, Cl-, Sulfate:	~~1 unpres poly L~~	Dissolved Perm Gases:	2 Unpres VOAs
Total Iron, Manganese:	2x 1 HNO_3 pres Poly	Ferrous Iron:	1 HCl Pres Poly
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
0930	8.25	0							start
0940	NA	0.1	14.13	1.174	0.72	166	>200	6.83	cloudy solvent odor
0945	Probe	0.2	14.16	1.147	0.62	153	>200	6.82	"
0950	won't Fit w/	0.3	14.27	1.139	0.53	134	>200	6.82	
0955	Tubing	0.4	14.43	1.135	0.54	123	>200	6.81	"
1000	"	0.5	14.45	1.134	0.53	110	>200	6.81	"
1005	"	0.6	14.43	1.130	0.54	102	>200	6.81	"
1010	"	0.7	14.53	1.126	0.50	92	>200	6.81	"
1015	"	0.8	14.51	1.127	0.51	86	>200	6.81	"
1020	"	0.9	14.64	1.126	0.49	80	>200	6.81	"

Project #: 6895.00.032

Well #: B-10

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1025	NA	1.0	14.66	1.123	0.48	73	7200	6.81	Cloudy solvent odor
1030	Broke weir fit on	1.1	14.66	1.121	0.46	69	7200	6.81	"
1035	Tubing	1.2	14.66	1.117	0.46	64	7200	6.81	"
1038									start H2
1108									sample

HACH KIT RESULTS FOR WELL B-10 AT SAMPLE TIME 1130 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	1.30	NA	NA	NA	NA	10mL sample to 10mL	
Total Iron (Filtered)	1.44	NA	NA	NA	NA	Diluted sample to 10mL to 40mL DI	
Nitrate	-0.6	NO_3	-1.5 ~~6.7~~ mg/L	NA	NA	with correction factor	
Nitrite	0.015	NO_2-	0.049	$NaNO_2$	0.073		
Sulfate	3	NA	NA	NA	NA		
Manganese	1.5	MnO_4	3.3	$KMnO_4$	4.4		

Notes:

Project #: 6895.00.032 **Date:** 1\30\01 **Well #:** GW-2

Project Name: Glovatorium **Sample ID:** GW-2

Location: Oakland, CA **Blank:** — **Dup:** —

Sampling Plan: JCS **DTW:** 11.57 **Inlet:** 18 → Bottom

Field Staff: MXD, MWD **Purge Method:** Peristaltic Pump w/ New tubing

Laboratory:	Microsweeps & Curtis and Tompkins	**Analysis:**	
Delivery:	Courier	Dissolved H_2:	1 Septum Vial
Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Dissolved Perm Gases:	2 Unpres VOAs
Alk, Cl-, Sulfate:	1 unpres poly L	Ferrous Iron:	1 HCl Pres Poly
Total Iron, Manganese:	1 HNO_3 pres Poly		
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1127	11.57	0	—					—	Start
1131	13.87	.1	13.90	0.774	1.41	148	2.19	6.90	clear
1137	14.80	0.2	13.03	0.781	1.20	155	3.21	6.90	clear 2 Bottom
1142	16.41	0.3	13.25	0.783	0.90	157	2.05	6.89	clear
1147	17.48	0.4	13.88	0.816	0.65	158	1.82	6.89	clear
1150	Inlet	0.45	13.75	0.846	0.58	159	1.63	6.82	stop DWTR
1/31/01 1341	15.39	0.45		restart purge					
1345		0.5		stop DEWATER					

2/1/01

Project #: 6895.00.032

Well #: GW-2

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1055	14.28		16.39	1.033	4.60	204	1.09	6.78	Sample
									DWTR
									GWATS
									~~diss.gas~~

HACH KIT RESULTS FOR WELL GW-2 AT SAMPLE TIME (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)		NA	NA	NA	NA		
Total Iron (Filtered)		NA	Insufficient NA	H2O to NA	Sample NA		
Nitrate				NA	NA		
Nitrite		NO_2^-		$NaNO_2$			
Sulfate		NA	NA	NA	NA		
Manganese							

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032
Project Name: Glovatorium
Location: Oakland, CA
Sampling Plan: JCS
Field Staff: MXD, MWD

Date: 11/29+30/01 Well #: GW-3
Sample ID: GW-3
Blank: Dup:
DTW: 10.03 Inlet: well Dewaters (at Bottom)
Purge Method: Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins
Delivery: Courier

Analysis:

~~Dissolved H_2:~~	~~1 Septum Vial~~		
Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Dissolved Perm Gases:	2 Unpres VOAs
Alk, Cl-, Sulfate:	1 unpres poly L	Ferrous Iron:	1 HCl Pres Poly
Total Iron, Manganese:	1 HNO_3 pres Poly		
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1330	10.03	0							start purge
1340	14.02	0.25	17.42	0.587	3.41	213	4.37	6.64	clear
1345	18.38	.50	17.50	0.685	2.50	201	3.12	6.78	clear
1350	Inlet	0.7	18.06	0.751	2.11	200	3.16	6.84	clear - stop DWTR
1245/1.30	14.47	DTW on 11/30/01							
1400	14.24	0.7							restart purge
1405	16.50	0.8	17.03	0.630	5.71	227	8.58	6.90	clear
1410	19.31	1.0	17.29	0.602	6.31	235	5.51	6.89	
1411									stop DWTR
V31 1323	16.06	10		Restart purge.					

V31 1329 12 STOP DEWATER

2/1/01

Project #: 6895.00.032

Well #: GW-3

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1035	15.62		16.72	0.9100	8.99	210	0.79	6.63	Sample VOCs + dup SW
									DWTK.

HACH KIT RESULTS FOR WELL GW-3 AT SAMPLE TIME (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)		NA	NA	NA	NA		
Total Iron (Filtered)		NA	NA	NA	NA		
Nitrate		Insufficient		NA H20	NA		
Nitrite		NO_2-		$NaNO_2$			
Sulfate		NA	NA	NA	NA		
Manganese							

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032
Project Name: Glovatorium
Location: Oakland, CA
Sampling Plan: JCS
Field Staff: MXD, MWD

Date: 1\30\01 **Well #:** GW-4
Sample ID: GW-4
Blank: — **Dup:** —
DTW: 7.49 **Inlet:** 11.5 FT
Purge Method: Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins
Delivery: Courier

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Analysis:	
Alk, Cl-, Sulfate:	1 unpres poly L	Dissolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 pres Poly	Dissolved Perm Gases:	2 Unpres VOAs
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl daily	Ferrous Iron:	1 HCl Pres Poly
		Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1018	7.49	0	—	—	—	—	—	—	Start
1023	7.70	0.1	13.25	0.447	2.29	173	16.72	6.66	Clear
1028	7.83	0.2	13.02	0.448	1.03	128	4.47	6.64	clear
1033	8.00	0.3	13.25	0.461	0.79	88	2.28	6.63	clear
1039	8.04	0.4	13.30	0.470	0.75	77	2.24	6.62	clear
1044	8.13	0.5	13.31	0.481	0.80	72	1.64	6.62	clear
1049	8.21	0.6	13.55	0.481	0.82	69	1.54	6.61	Clear
1054	8.29	0.7	13.48	0.479	0.83	67	1.52	6.60	clear
1055									sample

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032
Project Name: Glovatorium
Location: Oakland, CA
Sampling Plan: JCS
Field Staff: MXD, MWD

Date: 11/31/01 **Well #:** MW-11
Sample ID: MW-11
Blank: ~ **Dup:** /
DTW: 10.37 **Inlet:** 2FT off Bottom
Purge Method: Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins
Delivery: Courier

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	**Analysis:**	
Alk, Cl-, Sulfate:	~~1 unpres poly~~	Dissolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 pres Poly	Dissolved Perm Gases:	2 Unpres VOAs
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Ferrous Iron:	1 HCl Pres Poly
		Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
0720	10.37	0							start
0730	10.91	0.1	15.39	1.101	4.93	337	0.76	6.36	clear
0735	11.04	0.2	14.94	1.097	4.24	315	0.92	6.35	clear
0740	11.27	0.3	14.74	1.099	4.28	308	0.89	6.35	clear
0745	11.43	0.4	13.76	1.099	4.07	316	0.68	6.35	clear
0750	11.42	0.5	13.62	1.097	4.06	319	0.65	6.34	clear
0755	11.45	0.6	13.67	1.098	3.97	319	0.66	6.35	clear
0800									start H_2
0830									Sample

Project #: 6895.00.032

Well #: MW-11

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

HACH KIT RESULTS FOR WELL MW-11 AT SAMPLE TIME 0830 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	0.00	NA	NA	NA	NA		
Total Iron (Filtered)	0.01	NA	NA	NA	NA		
Nitrate	3.9 (1.9 correct Fact)	8.2 correct Fact	27.3	NA	NA		
Nitrite	0.094	NO_2-	0.047	$NaNO_2$	0.071		
Sulfate	74	NA	NA	NA	NA		
Manganese	0.0						

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032
Project Name: Glovatorium
Location: Oakland, CA
Sampling Plan: JCS
Field Staff: MXD, MWD

Date: 11 29 01
Well #: LFR-1
Sample ID: LFR-1
Blank: —
Dup: LFR-101
DTW: 9.53
Inlet: 12'
Purge Method: Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins
Delivery: Courier

Analysis		
Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	2x
Alk, Cl-, Sulfate:	1 unpres poly L	
Total Iron, Manganese:	1 HNO_3 pres Poly	
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	
Dissolved H_2:	1 Septum Vial	
Dissolved Perm Gases:	2 Unpres VOAs	2x
Ferrous Iron:	1 HCl Pres Poly	
Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly	

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1015	9.53	0	—					—	start purge
1025	9.86	0.1	14.0	0.908	3.66	392	212	6.56	clear
1030	9.91	0.2	14.40	0.905	3.63	390	2.14	6.58	clear
1035	9.95	0.3	14.69	0.894	3.66	388	2.09	6.59	clear
1040	10.00	0.4	14.48	0.886	3.70	386	1.49	6.60	clear
1045	10.03	0.5	14.85	0.887	3.67	385	1.41	6.61	clear
1050	10.09	0.6	15.00	0.870	3.78	383	1.35	6.62	clear - set up perk.
1100				start perc for 30 min.					
1130									Sample H2
1133	10.31	Restart purge for DUP							

Well #: LFR-1

Project #: 6895.00.032

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1205									sample line for DUP collect HACH
1250	10.60	4.5	—	—	—	—	—	—	complete sampling OFF

HACH KIT RESULTS FOR WELL LFR-1 AT SAMPLE TIME 1205 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	0.0	NA	NA	NA	NA		
Total Iron (Filtered)	0.0	NA	NA	NA	NA		
Nitrate 2.0 correct Filt	15.1 Filtered NO_3^--N	66.7 NO_3-N	9.0 correct FACT Fil	NA	NA		
Nitrite	0.008	NO_2^-	0.025	$NaNO_2$	0.037		
Sulfate	36	NA	NA	NA	NA		
Manganese Filt	0.0	MnO_4^-	0.1	$KMnO_4$	0.1		

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032 **Date:** 1\30\01 **Well #:** LFR-2

Project Name: Glovatorium **Sample ID:** LFR-2

Location: Oakland, CA **Blank:** — **Dup:** — HACH only

Sampling Plan: JCS **DTW:** 9.85 **Inlet:** 15'

Field Staff: MXD, MWD **Purge Method:** Peristaltic Pump w/ New tubing

Laboratory: Microsweeps & Curtis and Tompkins

Delivery: Courier

Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	**Analysis:**	
Alk, Cl-, Sulfate:	1 unpres poly L	Dissolved H_2:	1 Septum Vial
Total Iron, Manganese:	1 HNO_3 pres Poly	Dissolved Perm Gases:	2 Unpres VOAs
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Ferrous Iron:	1 HCl Pres Poly
		Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
0806	9.85	0							start
0815	10.24	0.1	14.22	0.927	1.00	269	14.96	6.63	slight blue tinge
0820	10.39	0.25	14.03	0.950	0.65	249	6.28	6.63	" slow down
0825	10.51	0.30	12.65	0.959	0.67	228	5.46	6.60	sl. turbid tinge
0830		0.4	12.68	0.952	0.65	216	5.18	6.60	"
0835	10.61	0.5	12.73	0.945	0.61	210	5.02	6.60	" start H_2
0843		0.7							start H_2 peak
0915									sample

Project #: 6895.00.032

Well #: LFR-2

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

HACH KIT RESULTS FOR WELL LFR-2 AT SAMPLE TIME 0840 (ALL RESULTS IN mg/L)

ANALYTE	RESULT		FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	1.01	1.02	NA	NA	NA	NA		40mL DI to 10mL Sample
Total Iron (Filtered)	1.04	1.04	NA	NA	NA	NA	40mL to 10mL DI Sample	
Nitrate (2.0 correct factor)	0.7	1	9.0 (correct factor)	2.9	4	NA	NA	Correction Factor Has already been factored in
Nitrite	0.001		NO_2^-	0.004	$NaNO_2$	0.007		DUP: 0.001, 0.004, 0.007
Sulfate	0	-1	NA	NA	NA	NA		
Manganese	3.7	8.0	MnO_4^-	8.1	17.7	$KMnO_4$	10.7	23.0

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #:	6895.00.032	**Date:** 1\30\01	**Well #:** LFR-3
Project Name:	Glovatorium	**Sample ID:** LFR-3	
Location:	Oakland, CA	**Blank:** /	**Dup:** /
Sampling Plan:	JCS	**DTW:** 10.63	**Inlet:** 18'
Field Staff:	MXD, MWD	**Purge Method:** Peristaltic Pump w/ New tubing	

Laboratory:	Microsweeps & Curtis and Tompkins	**Analysis:**	
Delivery:	Courier	Dissolved H_2:	1 Septum Vial
Sulfide:	1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH	Dissolved Perm Gases:	2 Unpres VOAs
Alk, Cl-, Sulfate:	1 unpres poly L	Ferrous Iron:	1 HCl Pres Poly
Total Iron, Manganese:	1 HNO_3 pres Poly		
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss:	6 VOAs w/ HCl	Cation&Anion w/ Nitrate & Nitrite:	1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1204	10.63	0							start
1209	11.19	0.1	17.70	0.574	1.93	180	7200	6.71	cloudy white spot
1214	11.23	0.2	17.50	0.539	1.93	186	NA	clear 6.66	mud in flow through
1219	11.27	0.3	17.65	0.539	1.88	190	NA	clear 6.66	cell will affect
1224	11.30	0.4	17.39	0.539	1.78	193	clear	6.63	
1229	11.29	0.5	17.29	0.541	1.75	195	clear	6.64	
1232									start H_2
1305									sample
1345	11.40		(complete sampling)						

Project #: 6895.00.032

Well #: LFR-3

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

HACH KIT RESULTS FOR WELL LFR-3 AT SAMPLE TIME 1305 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	0.00	NA	NA	NA	NA		
Total Iron (Filtered)	0.03	NA	NA	NA	NA		
Nitrate $^-$	-1.9 -X [illegible]	correct factor	-8.6	NA	NA		
Nitrite	0.005	NO_2-	0.015	$NaNO_2$	0.025		
Sulfate	44	NA	NA	NA	NA		
Manganese	-0.1	MnO_4^-	-0.2	$KMnO_4$	-0.3		

Notes:

LFR Levine Fricke

Micropurge Water Quality Parameters

Project #: 6895.00.032
Project Name: Glovatorium
Location: Oakland, CA
Sampling Plan: JCS
Field Staff: MXD, MWD

Date: 4\ 1 \01
Sample ID: LFR-4
Blank: LFR-4FB
DTW: 13.73
Purge Method: Peristaltic Pump w/ New tubing

Well #: LFR-4
Dup: —
Inlet: 18FT

Laboratory: Microsweeps & Curtis and Tompkins
Delivery: Courier

Sulfide: 1 Poly w/ $Zn(C_2H_3O_2)_2$+NAOH
Alk, Cl-, Sulfate: ~~1 unpres poly L~~
Total Iron, Manganese: 2 x 1 HNO_3 pres Poly
8260 (8010 List) & MTBE& BTEX & TPHg &TPHss: 2 7 6 VOAs w/ HCl

Analysis:
Dissolved H_2: 1 Septum Vial
Dissolved Perm Gases: 2 Unpres VOAs
Ferrous Iron: 1 HCl Pres Poly
Cation&Anion w/ Nitrate & Nitrite: 1 unpres poly and 1 H_2SO_4 poly

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
0840	13.73	0	—	—			—	—	FB + start
0845	13.77	0.1	15.30	0.970	1.06	49	10.13	6.50	clear
0850	13.83	0.2	15.46	0.965	0.82	45	2.41	6.50	clear
0855	13.91	0.3	15.48	0.965	0.70	45	1.07	6.50	"
0900	13.96	0.4	15.31	0.963	0.66	46	0.79	6.50	"
0905	14.04	0.5	15.01	0.946	0.61	51	0.74	6.54	"
0910	14.11	0.6	14.95	0.930	0.57	57	0.76	6.53	"
0915	14.16	0.7	15.28	0.916	0.55	59	0.72	6.55	clear
0918									start H2 Purge
0950									Sample

Project #: 6895.00.032

Well #: LFR-4

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1020	15.21	~3 gal						Complete Sampling	

HACH KIT RESULTS FOR WELL LFR-4 AT SAMPLE TIME 0950 (ALL RESULTS IN mg/L)

ANALYTE	RESULT	FORM 1		FORM 2		Dilution	COMMENTS
Ferrous Iron (Filtered)	1.50	NA	NA	NA	NA		
Total Iron (Filtered)	1.43	NA	NA	NA	NA		
Nitrate	1.8	NO_3	8.0	NA	NA		
Nitrite	0.003	NO_2-	0.011	$NaNO_2$	0.017		
Sulfate	0	NA	NA	NA	NA		
Manganese	1.6	MnO_4	3.41	$KMnO_4$	4.5		

Notes:

✓ FILE

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

ANALYTICAL REPORT

Prepared for:

LFR Levine Fricke
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 13-FEB-01
Lab Job Number: 149980
Project ID: 6895.00.032
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: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Numbers: **149980**
Client: **LFR-Levine Fricke**
Project #: **6895.00.032**
Location: **Glovatorium**
COC#: **7860**

Sampled Date: **01/29/01**
Received Date: **01/29/01**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples, which were received from the site referenced above on January 29, 2001. The samples were received cold and intact. All data was faxed to Julie Sharp on February 05, 2001.

TVH/BTXE:
No analytical problems were encountered.

VOCs (EPA 8260):
No analytical problems were encountered.

149980

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 1/29/01	Serial No. 7860
Project Name: Glenatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature):			Samplers: MXD/mwd

SAMPLE INFORMATION (Print Clearly) — ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	8260 (8010 list) BTEX MTBE	BTEX	8015*				HOLD	RUSH	REMARKS
TB-012901	1/26/01	0830		1	H2O	X	X							BTEX + MTBE by method 8021
LFR-1		1130		6		X	X	X						
LFR-101		1205		6		X	X	X						* For Stoddard Solvent and Gasoline
limited sample														Standard TAT
														Results to Julie Sherry

RELINQUISHED BY: (Signature)	DATE 1/29/01	TIME 4:00	RECEIVED BY: (Signature) Ben Smith	DATE 1-29-01	TIME 4:00
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

Sample Collector: LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory: C+T

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

9999\COCTEMP.CDR 042998

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

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#:_____ Date Received: 29/1/01 Number of Coolers: 1
Client: LFR Project: _____

A. Preliminary Examination Phase
Date Opened: 29/1/01 By (print): ANDREW (sign) [signature]

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

B. Login Phase
Date Logged In: 29/1/01 By (print): ANDREW (sign) [signature]

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

Additional Comments:

_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	01/29/01
Units:	ug/L	Received:	01/29/01
Diln Fac:	1.000	Analyzed:	01/31/01
Batch#:	61184		

Field ID: LFR-1 Lab ID: 149980-002
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	310 Y Z	50
Stoddard Solvent C7-C12	210 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	107	60-140

Field ID: LFR-101 Lab ID: 149980-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	310 Y Z	50
Stoddard Solvent C7-C12	210 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	101	60-140

Type: BLANK Lab ID: QC136326

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

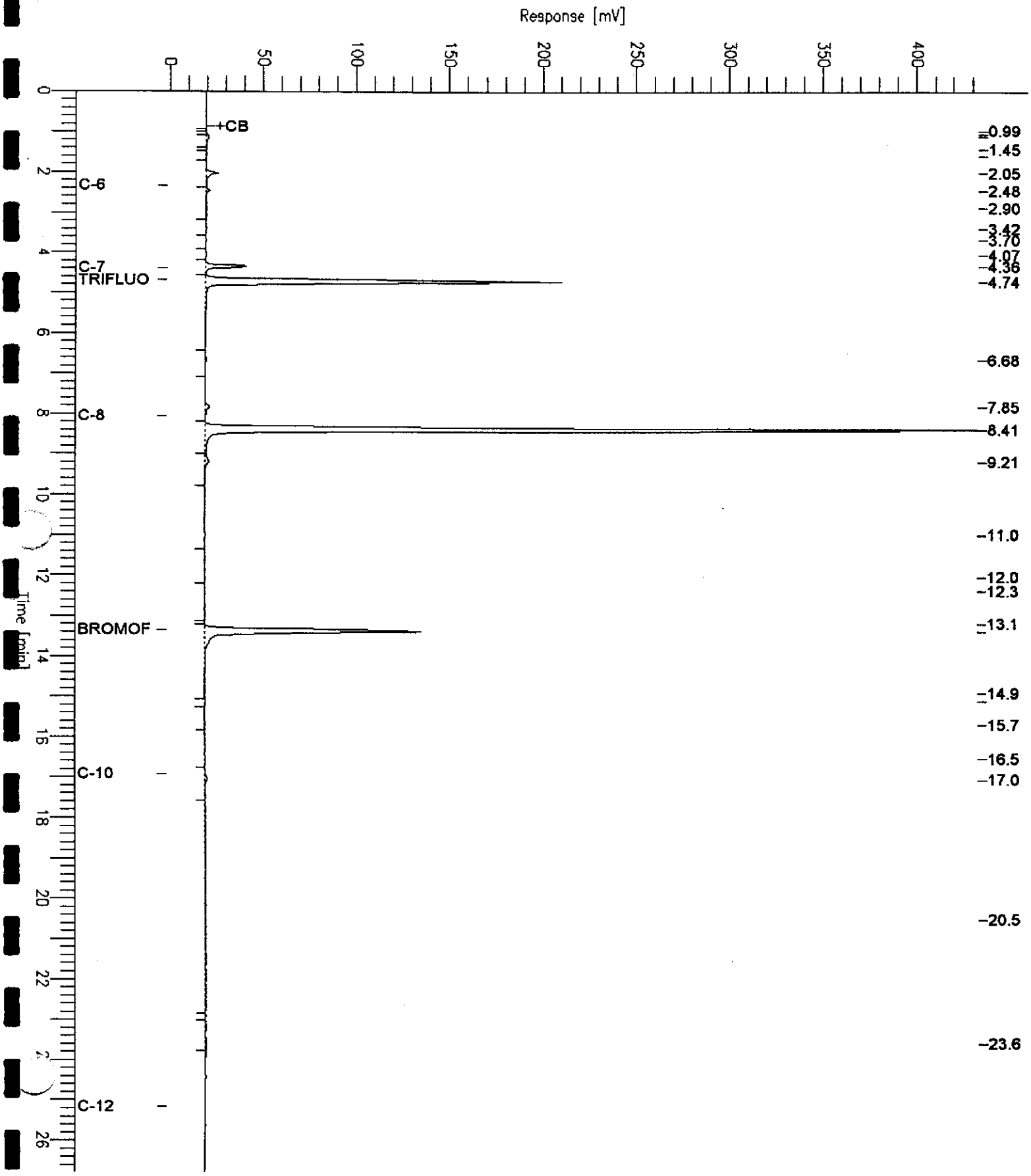
Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	59-135
Bromofluorobenzene (FID)	102	60-140

Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC19 TVH 'X' Data File (FID)

Sample Name : 149980-002,61184
FileName : G:\GC19\DATA\031X008.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -2 mV

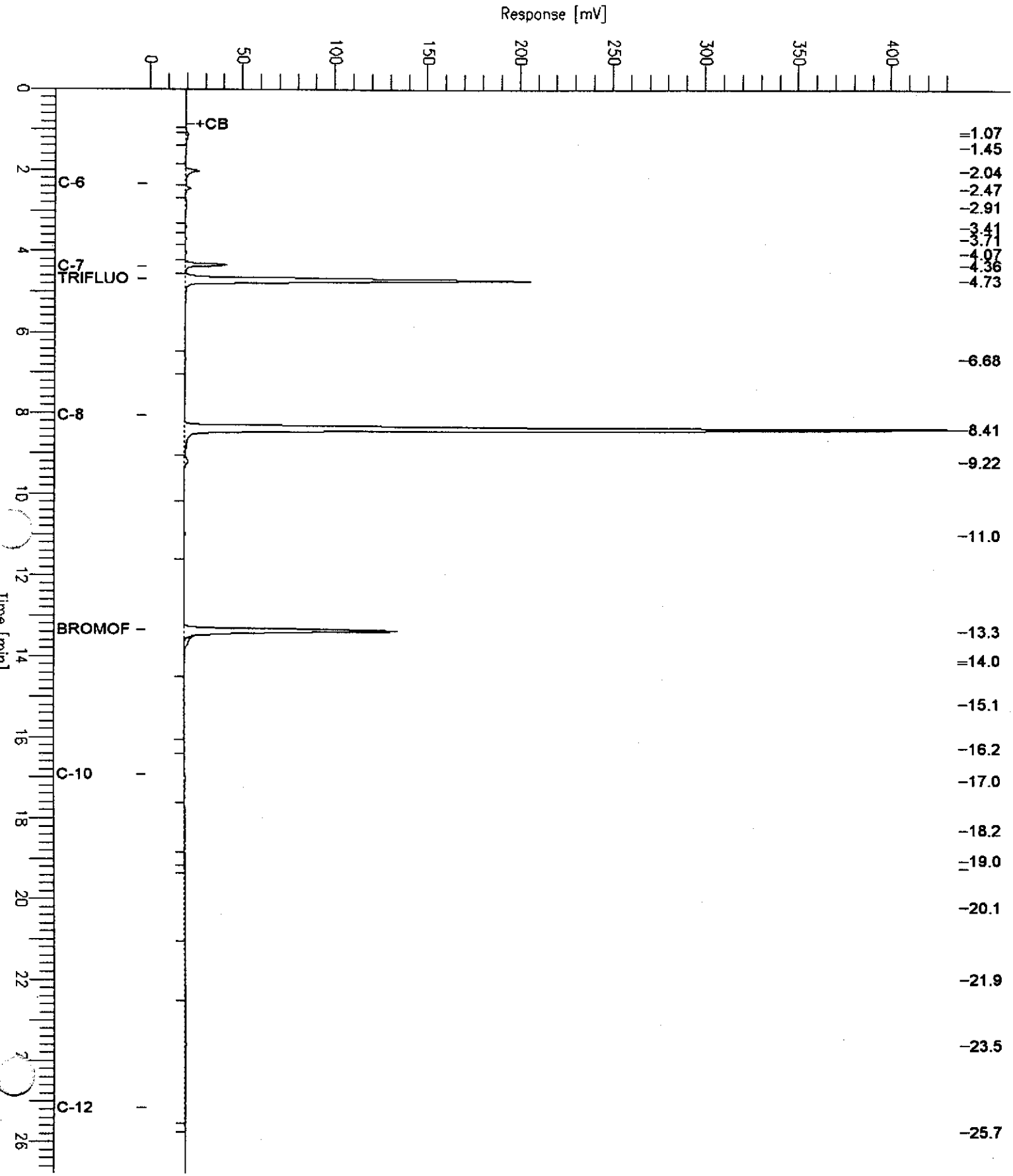
Sample #: C1 Page 1 of 1
Date : 1/31/01 06:47 PM
Time of Injection: 1/31/01 06:20 PM
Low Point : -1.62 mV High Point : 433.23 mV
Plot Scale: 434.8 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 149980-003,61184
FileName : G:\GC19\DATA\031X009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -2 mV

Sample #: C1 Page 1 of 1
Date : 1/31/01 07:26 PM
Time of Injection: 1/31/01 06:59 PM
Low Point : -1.72 mV High Point : 437.19 mV
Plot Scale: 438.9 mV

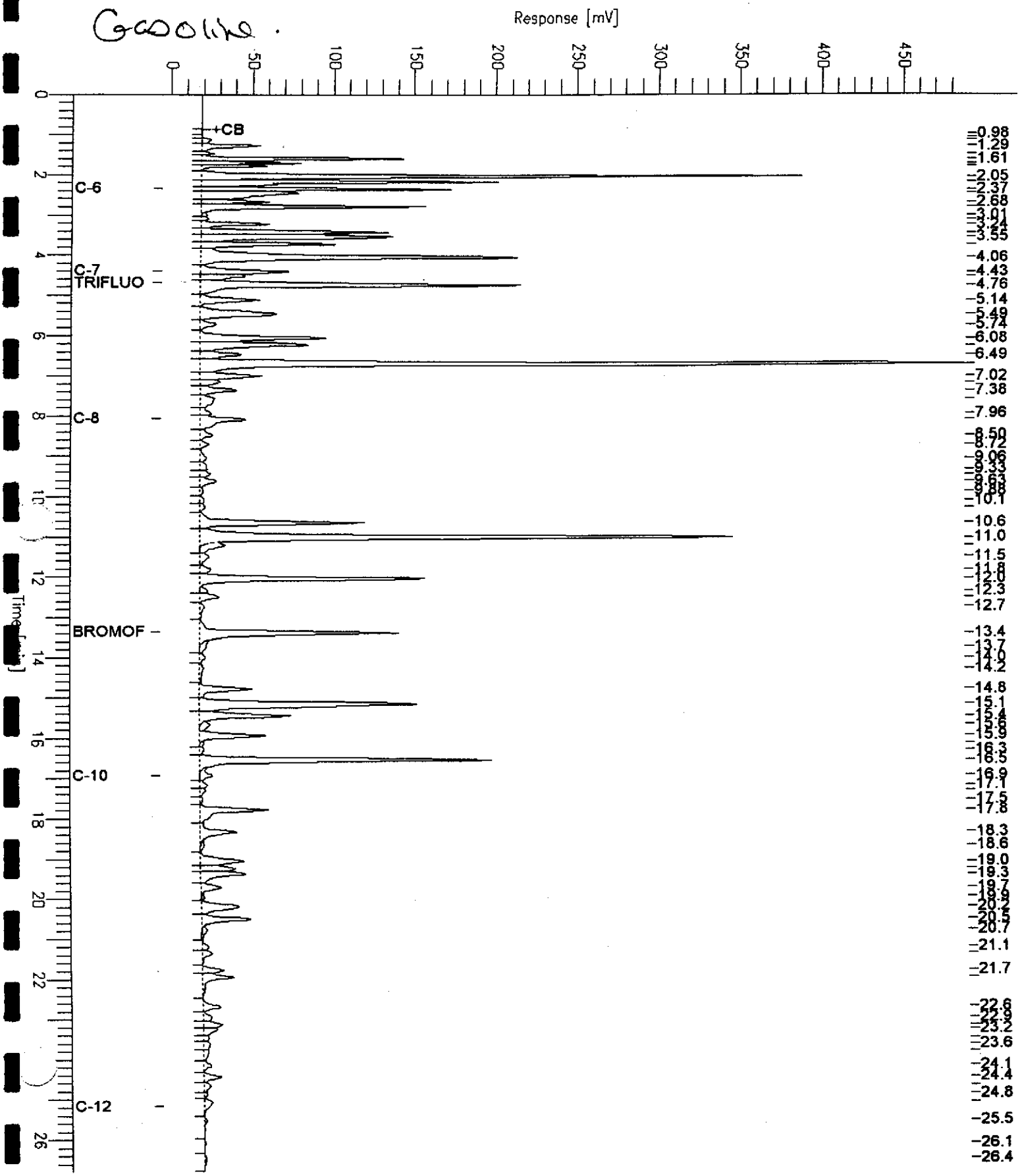


GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC136323,61184,01WS0395,5/5000
FileName : G:\GC19\DATA\031X003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -5 mV

Sample #: Page 1 of 1
Date : 1/31/01 03:33 PM
Time of Injection: 1/31/01 03:06 PM
Low Point : -4.99 mV High Point : 489.78 mV
Plot Scale: 494.8 mV

Gasoline.

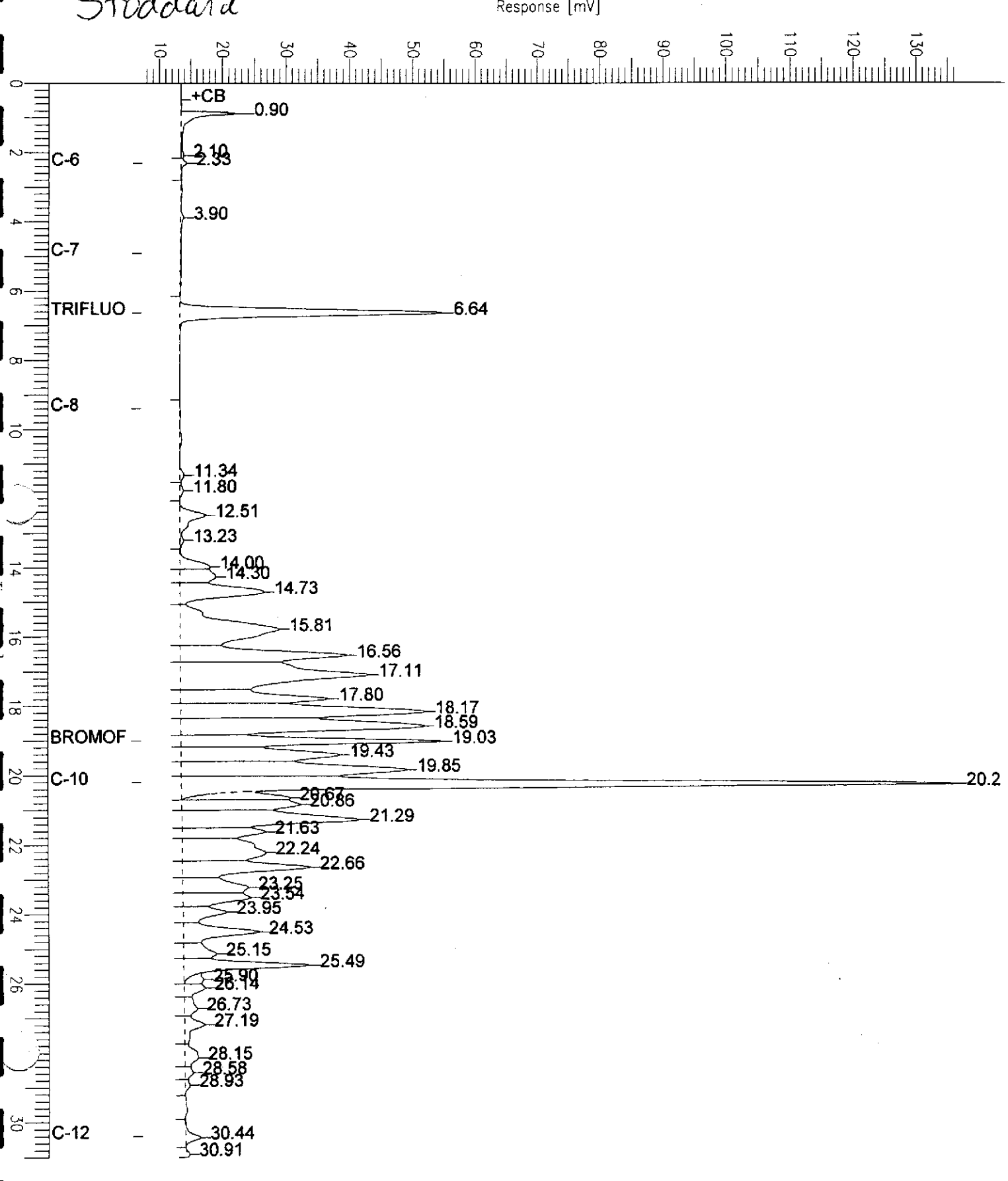


Chromatogram

Sample Name : CCV,STODD,61100,00WS9595,5/5000
leName : G:\GC05\DATA\027G005.raw
thod : TVHBTXE
Sta Time : 0.00 min End Time : 31.00 min
Sc Factor: 1.0 Plot Offset: 7 mV

Sample #: MBTEX Page 1 of 1
Date : 1/27/01 10:56 PM
Time of Injection: 1/27/01 10:25 PM
Low Point : 7.28 mV High Point : 136.27 mV
Plot Scale: 129.0 mV

Stoddard



Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	01/29/01
Units:	ug/L	Received:	01/29/01
Diln Fac:	1.000	Analyzed:	01/31/01
Batch#:	61184		

Field ID: TB-012901 Lab ID: 149980-001
Type: SAMPLE

Analyte	Result	RL
MTBE	2.5	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)	103	56-142
Bromofluorobenzene (PID)	100	55-149

Field ID: LFR-1 Lab ID: 149980-002
Type: SAMPLE

Analyte	Result	RL
MTBE	3.3	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	56-142
Bromofluorobenzene (PID)	105	55-149

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	01/29/01
Units:	ug/L	Received:	01/29/01
Diln Fac:	1.000	Analyzed:	01/31/01
Batch#:	61184		

Field ID: LFR-101 Lab ID: 149980-003
Type: SAMPLE

Analyte	Result	RL
MTBE	3.9	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	56-142
Bromofluorobenzene (PID)	103	55-149

Type: BLANK Lab ID: QC136326

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)	102	56-142
Bromofluorobenzene (PID)	98	55-149

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC136323	Batch#:	61184
Matrix:	Water	Analyzed:	01/31/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,990	100	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	59-135
Bromofluorobenzene (FID)	121	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61184
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136324

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	22.30	112	51-125
Benzene	20.00	19.49	97	67-117
Toluene	20.00	18.55	93	69-117
Ethylbenzene	20.00	18.71	94	68-124
m,p-Xylenes	40.00	40.27	101	70-125
o-Xylene	20.00	19.12	96	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	56-142
Bromofluorobenzene (PID)	103	55-149

Type: BSD Lab ID: QC136325

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	21.49	107	51-125	4	20
Benzene	20.00	19.12	96	67-117	2	20
Toluene	20.00	18.12	91	69-117	2	20
Ethylbenzene	20.00	18.46	92	68-124	1	20
m,p-Xylenes	40.00	39.78	99	70-125	1	20
o-Xylene	20.00	18.87	94	65-129	1	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	103	56-142
Bromofluorobenzene (PID)	101	55-149

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	61184
MSS Lab ID:	150006-001	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	02/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC136327

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,239	2,000	3,884	82	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	126	59-135
Bromofluorobenzene (FID)	136	60-140

Type: MSD Lab ID: QC136328

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	3,853	81	65-131	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	59-135
Bromofluorobenzene (FID)	138	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	TB-012901	Batch#:	61148
Lab ID:	149980-001	Sampled:	01/29/01
Matrix:	Water	Received:	01/29/01
Units:	ug/L	Analyzed:	01/30/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	61169
Lab ID:	149980-002	Sampled:	01/29/01
Matrix:	Water	Received:	01/29/01
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	5.000		

Analyte	Result	RL
Freon 12	ND	5.0
Chloromethane	ND	5.0
Vinyl Chloride	ND	2.5
Bromomethane	ND	10
Chloroethane	ND	5.0
Trichlorofluoromethane	ND	2.5
Freon 113	ND	25
1,1-Dichloroethene	ND	2.5
Methylene Chloride	ND	25
trans-1,2-Dichloroethene	ND	2.5
1,1-Dichloroethane	ND	2.5
cis-1,2-Dichloroethene	7.3	2.5
Chloroform	ND	2.5
1,1,1-Trichloroethane	ND	2.5
Carbon Tetrachloride	ND	2.5
1,2-Dichloroethane	ND	2.5
Trichloroethene	26	2.5
1,2-Dichloropropane	ND	2.5
Bromodichloromethane	ND	2.5
cis-1,3-Dichloropropene	ND	2.5
trans-1,3-Dichloropropene	ND	2.5
1,1,2-Trichloroethane	ND	2.5
Tetrachloroethene	770	2.5
Dibromochloromethane	ND	2.5
Chlorobenzene	ND	2.5
Bromoform	ND	2.5
1,1,2,2-Tetrachloroethane	ND	2.5
1,3-Dichlorobenzene	ND	2.5
1,4-Dichlorobenzene	ND	2.5
1,2-Dichlorobenzene	ND	2.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	103	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-101	Batch#:	61148
Lab ID:	149980-003	Sampled:	01/29/01
Matrix:	Water	Received:	01/29/01
Units:	ug/L	Analyzed:	01/30/01
Diln Fac:	6.250		

Analyte	Result	RL
Freon 12	ND	6.3
Chloromethane	ND	6.3
Vinyl Chloride	ND	3.1
Bromomethane	ND	13
Chloroethane	ND	6.3
Trichlorofluoromethane	ND	3.1
Freon 113	ND	31
1,1-Dichloroethene	ND	3.1
Methylene Chloride	ND	31
trans-1,2-Dichloroethene	ND	3.1
1,1-Dichloroethane	ND	3.1
cis-1,2-Dichloroethene	7.4	3.1
Chloroform	ND	3.1
1,1,1-Trichloroethane	ND	3.1
Carbon Tetrachloride	ND	3.1
1,2-Dichloroethane	ND	3.1
Trichloroethene	31	3.1
1,2-Dichloropropane	ND	3.1
Bromodichloromethane	ND	3.1
cis-1,3-Dichloropropene	ND	3.1
trans-1,3-Dichloropropene	ND	3.1
1,1,2-Trichloroethane	ND	3.1
Tetrachloroethene	830	3.1
Dibromochloromethane	ND	3.1
Chlorobenzene	ND	3.1
Bromoform	ND	3.1
1,1,2,2-Tetrachloroethane	ND	3.1
1,3-Dichlorobenzene	ND	3.1
1,4-Dichlorobenzene	ND	3.1
1,2-Dichlorobenzene	ND	3.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136179	Batch#:	61148
Matrix:	Water	Analyzed:	01/30/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

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

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136267	Batch#:	61169
Matrix:	Water	Analyzed:	01/31/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	103	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61148
Units:	ug/L	Analyzed:	01/30/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136177

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	53.48	107	74-132
Trichloroethene	50.00	49.59	99	80-119
Chlorobenzene	50.00	50.26	101	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	102	80-115

Type: BSD Lab ID: QC136178

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	50.64	101	74-132	5	20
Trichloroethene	50.00	50.55	101	80-119	2	20
Chlorobenzene	50.00	49.73	99	80-117	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	102	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	149980	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61169
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136265

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	54.86	110	74-132
Trichloroethene	50.00	49.93	100	80-119
Chlorobenzene	50.00	49.64	99	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	104	80-115

Type: BSD Lab ID: QC136266

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	51.47	103	74-132	6	20
Trichloroethene	50.00	49.56	99	80-119	1	20
Chlorobenzene	50.00	48.70	97	80-117	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	102	80-115

RPD= Relative Percent Difference

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ# 0895.00 SEC# 032 LABORATORY Curtis & Tompkins METHOD EPA 8021B, 8260, 8015 LAB ID# 149980
SAMPLE DATE(S) 1/29/01 EXTRACTION DATE(S) _____ ANALYSIS DATE(S) _____ PROJECT MANAGER TCS

ITEM	STANDARD	STANDARD MET?
HOLDING TIME	MAX HOLDING TIME	(Y) N
FIELD BLANK RESULTS	DETECTION LIMIT	Y N
TRIP BLANK RESULTS	DETECTION LIMIT	Y (N) (1)
METHOD BLANK RESULTS	DETECTION LIMIT	(Y) N
METHOD SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
METHOD SPIKE RPD RANGE	ACCEPTABLE RANGE	(Y) N
SURROGATE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RPD RANGE	ACCEPTABLE RANGE	(Y) N
LCS SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
LCS SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
FIELD DUPLICATE RPD	ACCEPTABLE RANGE	Y N
ELEVATED DETECTION LIMIT		(Y) N
COC MATCHES LAB DATA		(Y) N

NOTES:

CORRECTIVE ACTION SUGGESTED:
(1) MTBE detected in TB-012901 at 2.5 ug/L. Flag MTBE results in LFR-1 & LFR-101 as ND at reported value (i.e. LFR-1 @ 3.3 ug/L => 3.3 U => <3.3). Concentration detected in field samples were less than 5x conc. detected in TB.

Worksheet prepared by: TCS Date 2/13/01 Reviewed by: _____ Date _____ (Project Manager)

Project Manager must also initial QA/QC space on table.
After review, return copy of initialed worksheet to laboratory data coordinator for filing.
If you have additional questions, please ask LFR laboratory manager for assistance.

FILE

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

ANALYTICAL REPORT

Prepared for:

LFR Levine Fricke
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 14-FEB-01
Lab Job Number: 150080
Project ID: 6895.00.032
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: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Numbers: **150080**
Client: **LFR-Levine Fricke**
Project #: **6895.00.032**
Location: **Glovatorium**
COC#: **7899**

Sampled Date: **02/01/01**
Received Date: **02/01/01**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for five water samples, which were received from the site referenced above on February 01, 2001. The samples were received cold and intact. All data was faxed to Julie Sharp on February 09, 2001.

VOCs (EPA 8260):
No analytical problems were encountered.

#15780

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 2/1/01	Serial No: 7899
Project Name: Gloveterium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature):			Samplers: MXD, MWD

SAMPLE INFORMATION (Print Clearly) — ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	8260 (BTEX+MTBE)	TPH-g (8015)	TPH-d (8015)	8021 BTEX+MTBE			HOLD	RUSH	REMARKS
TB-020101	2/1/01	0800		1	H2O	X			X					Standard TAT
LFR-4 FB		0840		6		X			X					
LFR-4		0950		6		X	X	X	X					Results to Julie Sharp
GW-3		1035		6		↓	↓	↓	↓					
GW-2		1055		6		↓	↓	↓	↓					

RELINQUISHED BY: (Signature)	DATE 2/1/01	TIME	RECEIVED BY: (Signature)	DATE 2/1/01	TIME 5:06
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: COURIER	DATE	TIME	LAB COMMENTS:		

Sample Collector: LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory: C+T

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

9999\COCTEMP.CDR 042998

Cold

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

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: L50086 Date Received: 2/1/01 Number of Coolers: 1
Client: LFR Project: Glovatorium

A. **Preliminary Examination Phase**
Date Opened: 2/1/01 By (print): Vince Brumfield (sign)

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

B. **Login Phase**
Date Logged In: 2/2/01 By (print): ANDREW (sign)

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

Additional Comments:

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	02/01/01
Units:	ug/L	Received:	02/02/01
Diln Fac:	1.000	Analyzed:	02/07/01
Batch#:	61362		

Field ID: LFR-4 Lab ID: 150080-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	220	50
Stoddard Solvent C7-C12	160 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	114	59-135
Bromofluorobenzene (FID)	133	60-140

Field ID: GW-3 Lab ID: 150080-004
Type: SAMPLE

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	123	60-140

Field ID: GW-2 Lab ID: 150080-005
Type: SAMPLE

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	59-135
Bromofluorobenzene (FID)	122	60-140

Type: BLANK Lab ID: QC136974

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

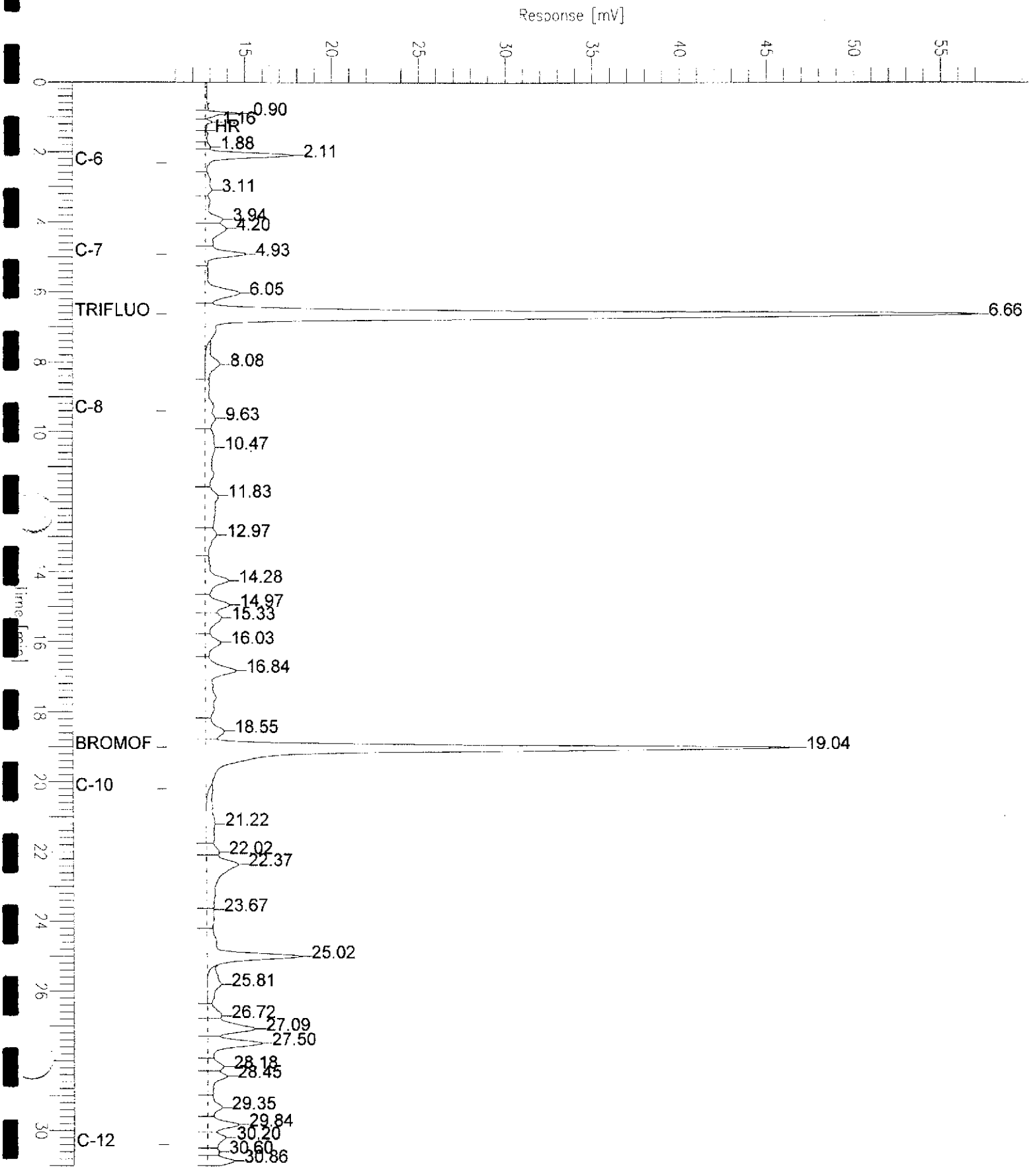
Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	59-135
Bromofluorobenzene (FID)	116	60-140

Y= Sample exhibits fuel pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Chromatogram

Sample Name : 150080-003,61362,TVH/STODD ONLY
FileName : G:\GC05\DATA\038G006.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 31.00 min
Scale Factor: 1.0 Plot Offset: 10 mV

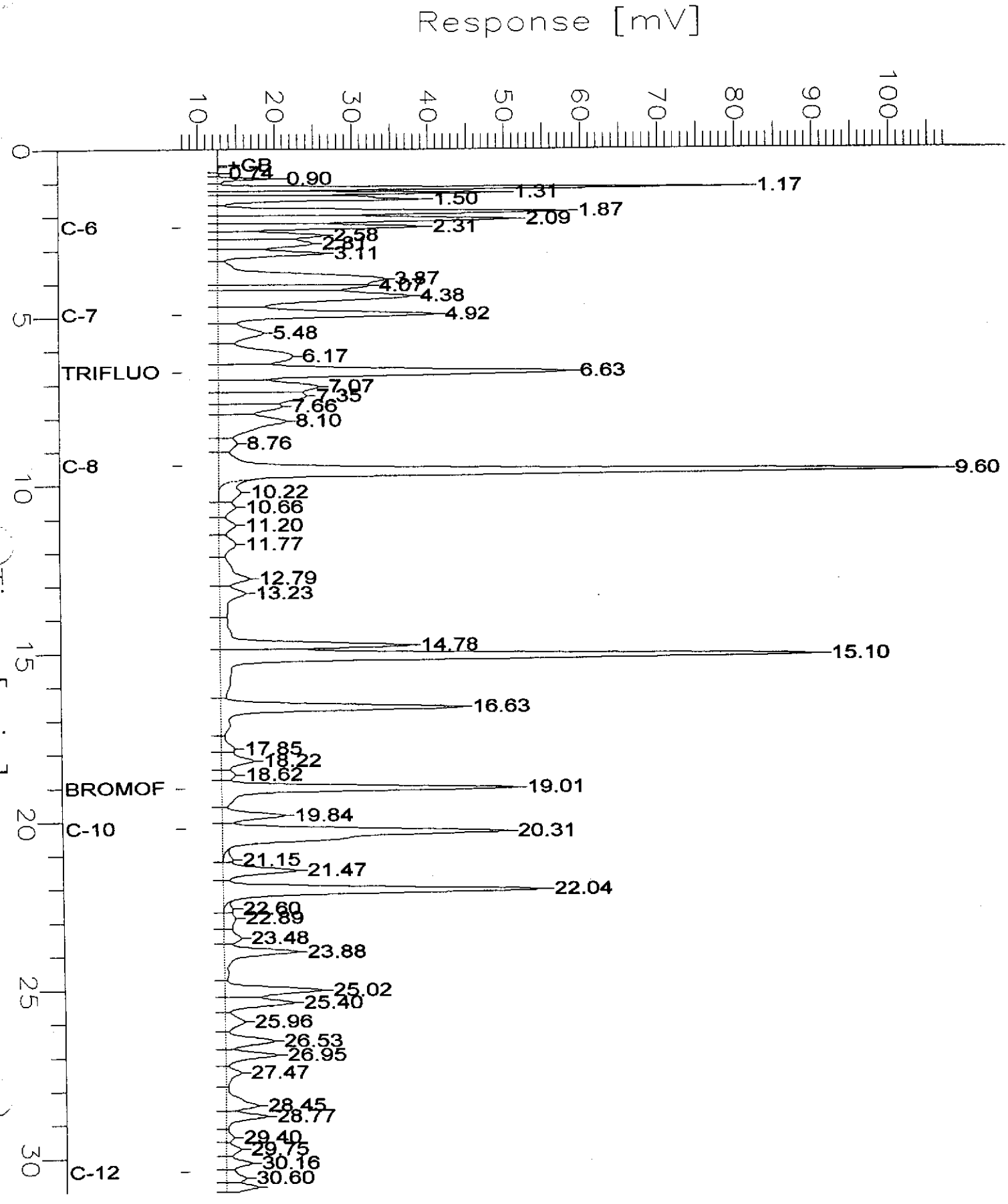
Sample #: B1 Page 1 of 1
Date : 2/8/01 11:09 AM
Time of Injection: 2/7/01 09:06 PM
Low Point : 10.49 mV High Point : 57.20 mV
Plot Scale: 46.7 mV



Chromatogram

Sample Name : CCV/LCS,QC136975,61362,01WS0395,5/5000
FileName : G:\GC05\DATA\038G003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 31.00 min
Scale Factor: 1.0 Plot Offset: 8 mV

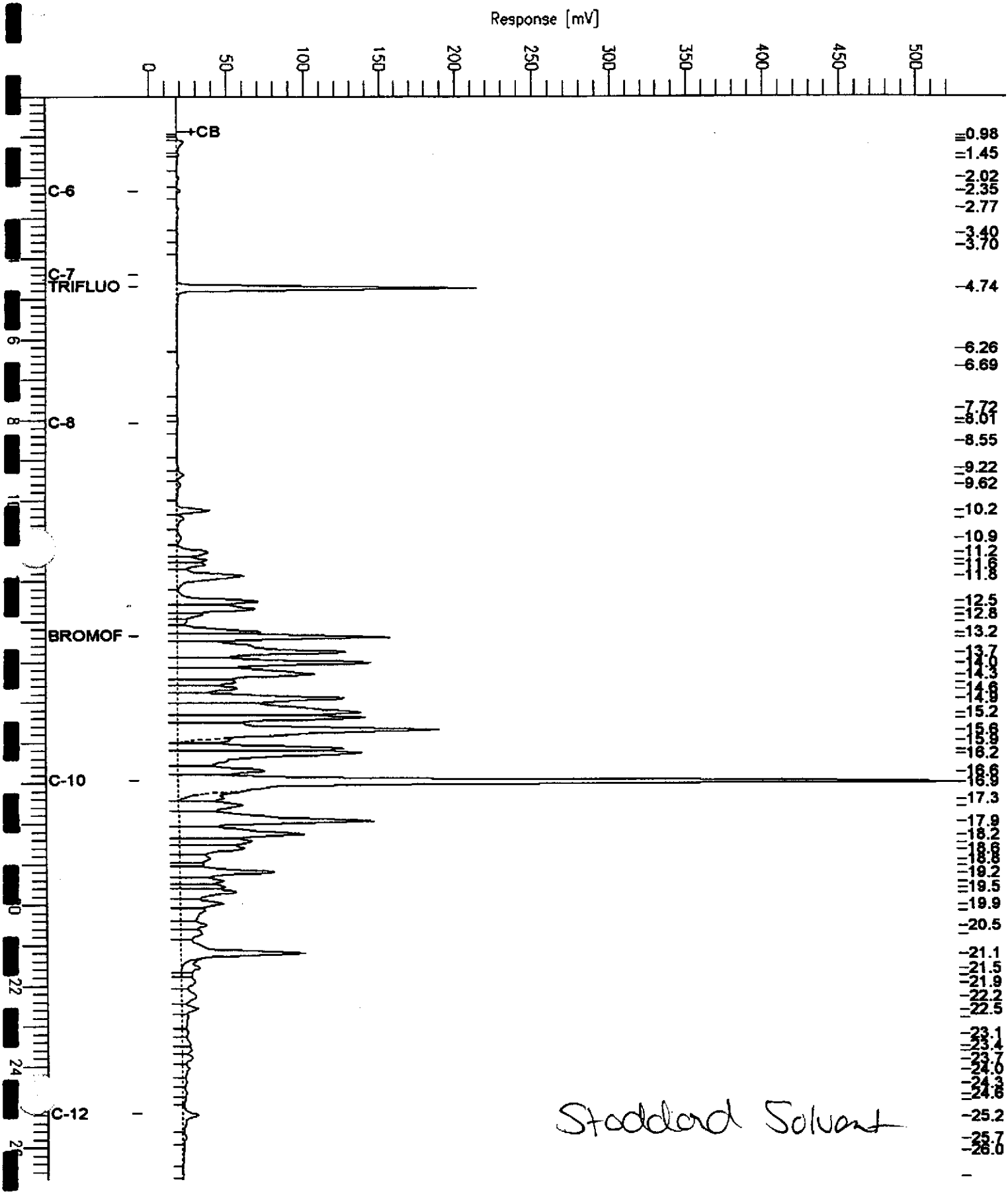
Sample #: GAS
Date : 2/8/01 03:49 PM
Time of Injection: 2/7/01 06:55 PM
Low Point : 7.83 mV High Point : 107.02 mV
Plot Scale: 99.2 mV



GC19 TVH 'X' Data File (FID)

ple Name : CCV,STODD,61209,00WS9595,5/5000
eName : G:\GC19\DATA\032X004.raw
d : TVHBTXE
Time : 0.00 min End Time : 26.80 min
le Factor: 1.0 Plot Offset: -8 mV

Sample #: STODD Page 1 of 1
Date : 2/1/01 04:02 PM
Time of Injection: 2/1/01 03:35 PM
Low Point : -7.90 mV High Point : 526.29 mV
Plot Scale: 534.2 mV



Stoddard Solvent

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	02/01/01
Units:	ug/L	Received:	02/02/01
Diln Fac:	1.000	Analyzed:	02/05/01
Batch#:	61298		

Field ID: TB-020101 Lab ID: 150080-001
Type: SAMPLE

Analyte	Result	RL
MTBE	5.1	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)	108	56-142
Bromofluorobenzene (PID)	107	55-149

Field ID: LFR-4 FB Lab ID: 150080-002
Type: SAMPLE

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)	112	56-142
Bromofluorobenzene (PID)	112	55-149

Field ID: LFR-4 Lab ID: 150080-003
Type: SAMPLE

Analyte	Result	RL
MTBE	9.7	2.0
Benzene	3.3	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)	112	56-142
Bromofluorobenzene (PID)	112	55-149

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	02/01/01
Units:	ug/L	Received:	02/02/01
Diln Fac:	1.000	Analyzed:	02/05/01
Batch#:	61298		

Field ID: GW-3 Lab ID: 150080-004
Type: SAMPLE

Analyte	Result	RL
MTBE	2.3	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)	112	56-142
Bromofluorobenzene (PID)	111	55-149

Field ID: GW-2 Lab ID: 150080-005
Type: SAMPLE

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)	111	56-142
Bromofluorobenzene (PID)	110	55-149

Type: BLANK Lab ID: QC136746

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)	107	56-142
Bromofluorobenzene (PID)	104	55-149

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC136975	Batch#:	61362
Matrix:	Water	Analyzed:	02/07/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,834	92	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	59-135
Bromofluorobenzene (FID)	129	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61298
Units:	ug/L	Analyzed:	02/05/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136744

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.21	96	51-125
Benzene	20.00	18.76	94	67-117
Toluene	20.00	17.87	89	69-117
Ethylbenzene	20.00	19.40	97	68-124
m,p-Xylenes	40.00	40.41	101	70-125
o-Xylene	20.00	19.63	98	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	56-142
Bromofluorobenzene (PID)	105	55-149

Type: BSD Lab ID: QC136745

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	19.19	96	51-125	0	20
Benzene	20.00	18.95	95	67-117	1	20
Toluene	20.00	18.15	91	69-117	2	20
Ethylbenzene	20.00	19.09	95	68-124	2	20
m,p-Xylenes	40.00	40.55	101	70-125	0	20
o-Xylene	20.00	19.56	98	65-129	0	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	108	56-142
Bromofluorobenzene (PID)	105	55-149

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	61362
MSS Lab ID:	150143-001	Sampled:	02/06/01
Matrix:	Water	Received:	02/06/01
Units:	ug/L	Analyzed:	02/08/01
Diln Fac:	1.000		

Type: MS Lab ID: QC136976

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	597.5	2,000	2,387	89	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	59-135
Bromofluorobenzene (FID)	133	60-140

Type: MSD Lab ID: QC136977

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,438	92	65-131	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	123	59-135
Bromofluorobenzene (FID)	130	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	TB-020101	Batch#:	61274
Lab ID:	150080-001	Sampled:	02/01/01
Matrix:	Water	Received:	02/02/01
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	99	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-4 FB	Batch#:	61274
Lab ID:	150080-002	Sampled:	02/01/01
Matrix:	Water	Received:	02/02/01
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	61274
Lab ID:	150080-003	Sampled:	02/01/01
Matrix:	Water	Received:	02/02/01
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	0.6	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	98	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	61274
Lab ID:	150080-004	Sampled:	02/01/01
Matrix:	Water	Received:	02/02/01
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	1.1	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	0.6	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	46	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	101	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	GW-2	Batch#:	61274
Lab ID:	150080-005	Sampled:	02/01/01
Matrix:	Water	Received:	02/02/01
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	2.8	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	0.6	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	7.7	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	118	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	100	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136673	Batch#:	61274
Matrix:	Water	Analyzed:	02/04/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	98	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150080	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61274
Units:	ug/L	Analyzed:	02/04/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136671

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	55.55	111	74-132
Trichloroethene	50.00	50.09	100	80-119
Chlorobenzene	50.00	47.93	96	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	99	80-115

Type: BSD Lab ID: QC136672

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	54.15	108	74-132	3	20
Trichloroethene	50.00	49.16	98	80-119	2	20
Chlorobenzene	50.00	47.99	96	80-117	0	20

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

RPD = Relative Percent Difference

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ# 6895.00 SEC# 032 LABORATORY CAT METHOD 8260, 8021, 8015 LAB ID# 150080
SAMPLE DATE(S) 2/1/01 EXTRACTION DATE(S) _____ ANALYSIS DATE(S) _____ PROJECT MANAGER JCS

ITEM	STANDARD	STANDARD MET?
HOLDING TIME	MAX HOLDING TIME	Y N
FIELD BLANK RESULTS	DETECTION LIMIT	Y N
TRIP BLANK RESULTS	DETECTION LIMIT	Y N (1)
METHOD BLANK RESULTS	DETECTION LIMIT	Y N
METHOD SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	Y N
METHOD SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
SURROGATE RECOVERY RANGE	ACCEPTABLE RANGE	Y N
MATRIX SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	Y N
MATRIX SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
LCS SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	Y N
LCS SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
FIELD DUPLICATE RPD	ACCEPTABLE RANGE	Y N
ELEVATED DETECTION LIMIT		Y N
COC MATCHES LAB DATA		Y N

NOTES:

CORRECTIVE ACTION SUGGESTED:
(1) MTBE was detected in TB-020101 at 5.1 ug/L. Flag MTBE results in LFR-4 and GW-3 as ND. MTBE concentrations detected in field samples was less than 5x conc. detected in TB.

Worksheet prepared by: [illegible] Date 3/8/01 Reviewed by: _____ Date _____ (Project Manager)
Project Manager must also initial QA/QC space on table.
After review, return copy of initialed worksheet to laboratory data coordinator for filing.
If you have additional questions, please ask LFR laboratory manager for assistance.

FILE

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

ANALYTICAL REPORT

Prepared for:

LFR Levine Fricke
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 14-FEB-01
Lab Job Number: 150037
Project ID: 6895.00.032
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: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Numbers: **150037**
Client: **LFR-Levine Fricke**
Project #: **6895.00.032**
Location: **Glovatorium**
COC#: **7881**

Sampled Date: **01/31/01**
Received Date: **01/31/01**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for four water samples, which were received from the site referenced above on January 3, 2001. The samples were received cold and intact. All data was faxed to Julie Sharp on February 07, 2001.

TVH/BTXE:
High Bromofluorobenzene surrogate recoveries were observed for samples B-10 (CT# 150037-003) and B-7 (CT# 150037-004) due to hydrocarbons coeluting with the surrogate peaks. No other analytical problems were encountered.

VOCs (EPA 8260):
No analytical problems were encountered.

150037

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 1/31/01	Serial № 7881
Project Name: Glovatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature): [signature]			Samplers: MXD, MWD

SAMPLE INFORMATION (Print Clearly)

ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	8260 (8010 list)	8021 MTBE + BTEX	8015 TPHg + SS			HOLD	RUSH	REMARKS
TB-013101	1/31/01	0635		1	H_2O	X	X						STANDARD TAT
MW-11	↓	0830		6	↓	X	X	X					
B-10	↓	1108		6	↓	X	X	X					Results to Julie
B-7	↓	1110		6	↓	X	X	X					Sharp

RELINQUISHED BY: (Signature) [signature]	DATE 1/31/01	TIME	RECEIVED BY: (Signature) [signature]	DATE 1/31/01	TIME 4:42
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: COURIER	DATE	TIME	LAB COMMENTS:		

Sample Collector: LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory: C+T

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

9999\COCTEMP.CDR 042998

rec'd cold

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

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#:_____ Date Received: 1/31/01 Number of Coolers: 1
Client: LFR Project: Glovetorium

A. Preliminary Examination Phase
Date Opened: 1/31/01 By (print): James Armistead (sign) _____

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

B. Login Phase
Date Logged In: 31/1/00 By (print): ANDREW (sign) _____

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

Additional Comments:

_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	01/31/01
Units:	ug/L	Received:	01/31/01
Diln Fac:	1.000	Analyzed:	02/01/01
Batch#:	61209		

Field ID: MW-11 Lab ID: 150037-002
Type: SAMPLE

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	112	59-135
Bromofluorobenzene (FID)	106	60-140

Field ID: B-10 Lab ID: 150037-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	3,600 H Y Z	50
Stoddard Solvent C7-C12	2,400 Z	50

Surrogate	%REC	Limits
fluorotoluene (FID)	114	59-135
omofluorobenzene (FID)	147 *	60-140

Field ID: B-7 Lab ID: 150037-004
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	7,900 H Y	50
Stoddard Solvent C7-C12	5,300	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	147 *	60-140

Type: BLANK Lab ID: QC136414

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

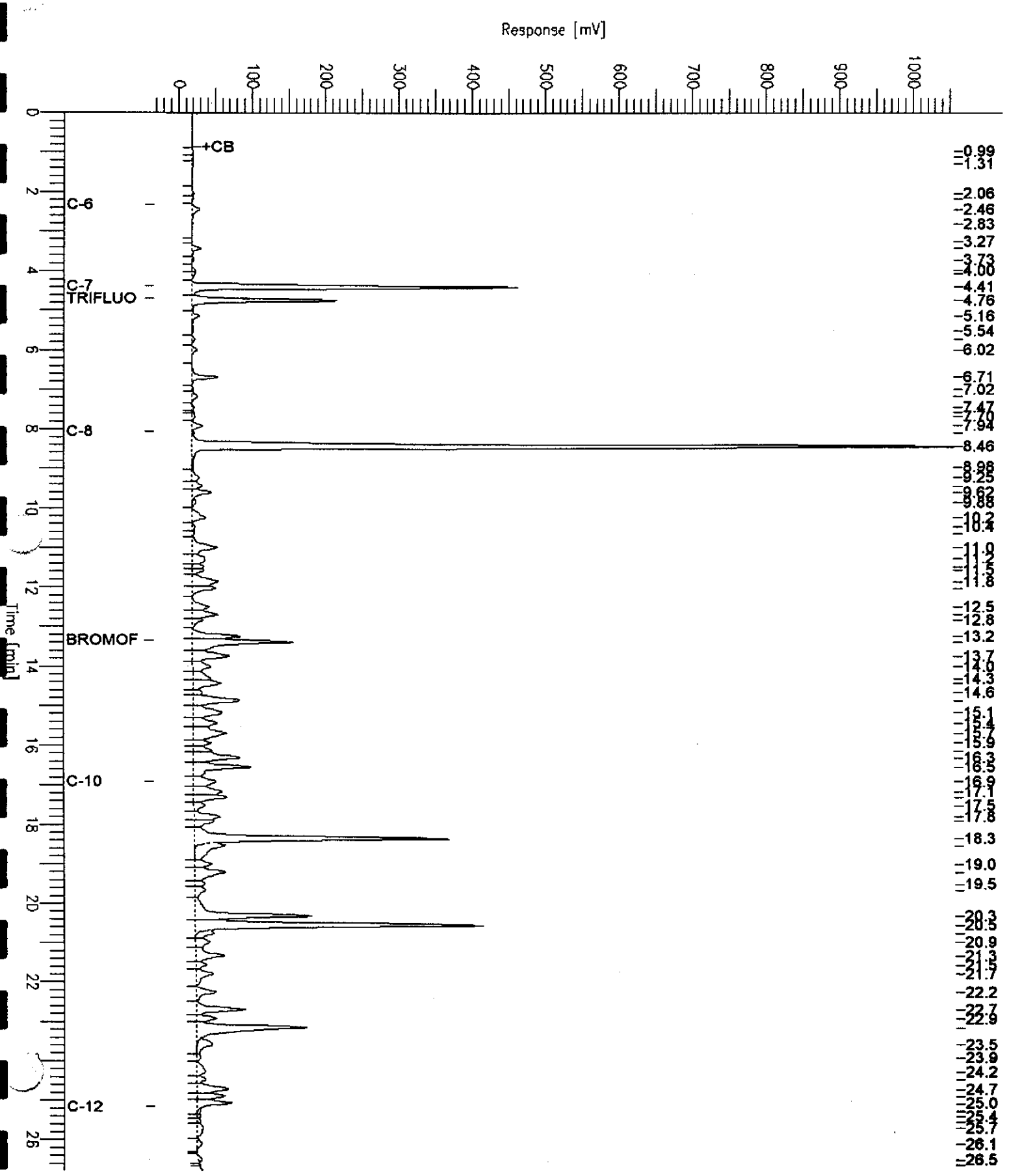
Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	59-135
Bromofluorobenzene (FID)	105	60-140

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

GC19 TVH 'X' Data File (FID)

Sample Name : 150037-003,61209,+MTBE/STODD
FileName : G:\GC19\DATA\032X009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -34 mV

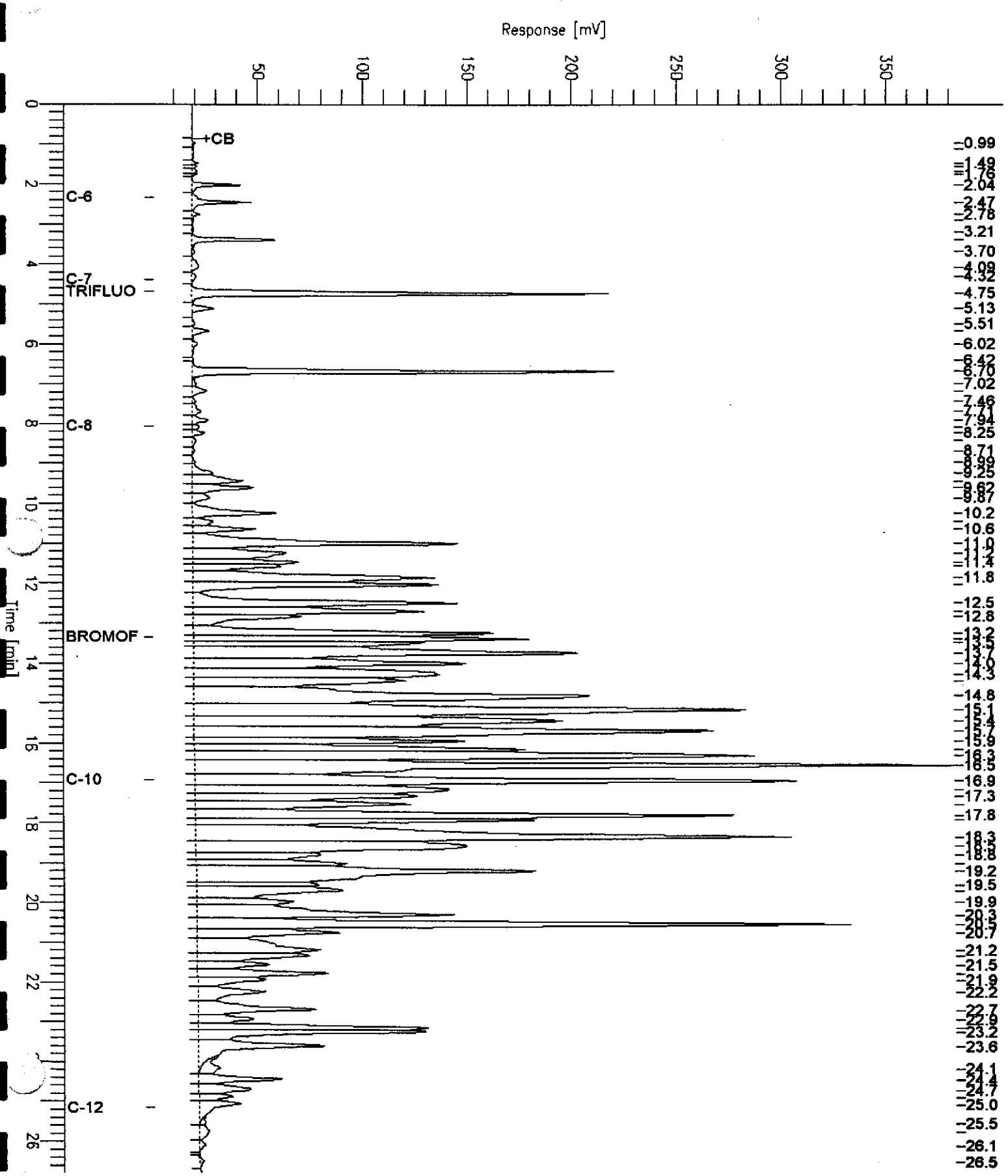
Sample #: A1 Page 1 of 1
Date : 2/1/01 07:16 PM
Time of Injection: 2/1/01 06:49 PM
Low Point : -33.65 mV High Point : 1055.28 mV
Plot Scale: 1088.9 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 150037-004,61209,+MTBE/STODD
FileName : G:\GC19\DATA\032X011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: 0 mV

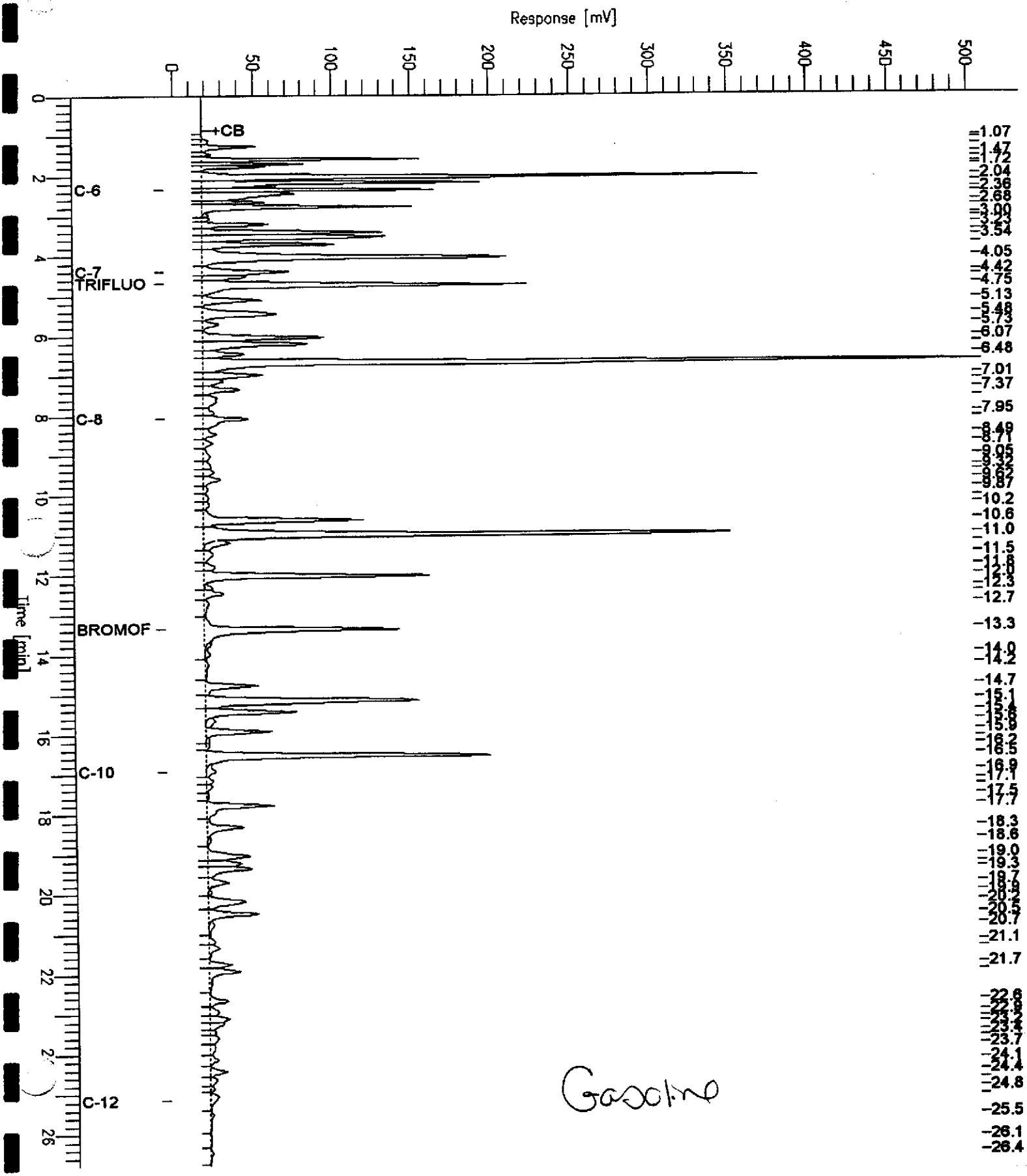
Sample #: A1 Page 1 of 1
Date : 2/1/01 08:33 PM
Time of Injection: 2/1/01 08:06 PM
Low Point : 0.46 mV High Point : 382.95 mV
Plot Scale: 382.5 mV



GC19 TVH 'X' Data File (FID)

Sámple Name : CCV/LCS,QC136415,61209,01WS0395,5/5000
FileName : G:\GC19\DATA\032X002.raw
ethod : TVHBTXE
tart Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -6 mV

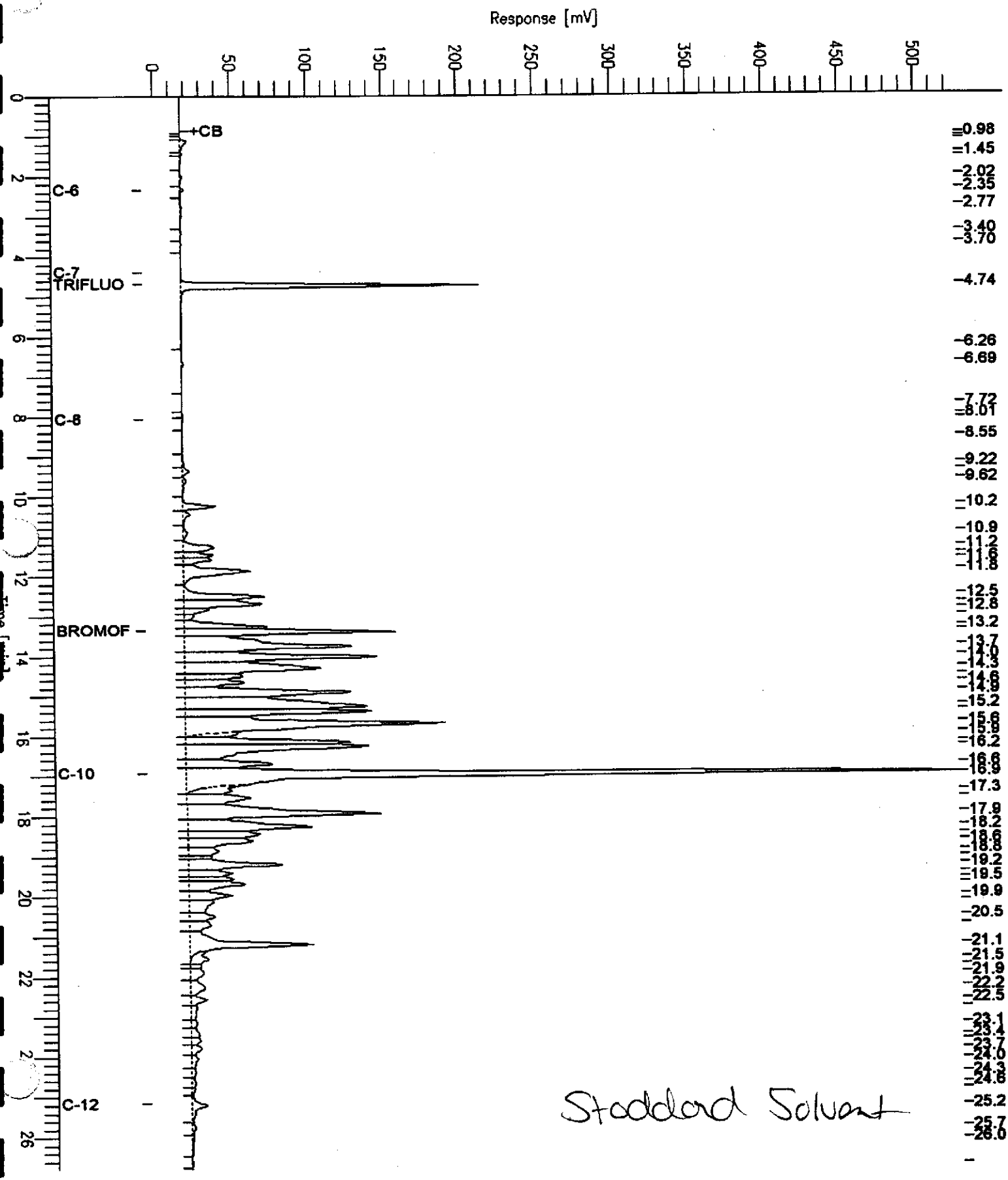
Sample #: GAS Page 1 of 1
Date : 2/1/01 02:45 PM
Time of Injection: 2/1/01 02:18 PM
Low Point : -6.09 mV High Point : 502.59 mV
Plot Scale: 508.7 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV,STODD,61209,00WS9595,5/5000
FileName : G:\GC19\DATA\032X004.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -8 mV

Sample #: STODD Page 1 of 1
Date : 2/1/01 04:02 PM
Time of Injection: 2/1/01 03:35 PM
Low Point : -7.90 mV High Point : 526.29 mV
Plot Scale: 534.2 mV



Stoddard Solvent

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	01/31/01
Units:	ug/L	Received:	01/31/01
Diln Fac:	1.000		

Field ID:	TB-0131D1	Batch#:	61298
Type:	SAMPLE	Analyzed:	02/05/01
Lab ID:	150037-001		

Analyte	Result	RL
MTBE	3.3	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)	108	56-142
Bromofluorobenzene (PID)	107	55-149

Field ID:	MW-11	Batch#:	61209
Type:	SAMPLE	Analyzed:	02/01/01
Lab ID:	150037-002		

Analyte	Result	RL
MTBE	8.7	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)	106	56-142
Bromofluorobenzene (PID)	104	55-149

Field ID:	B-10	Batch#:	61209
Type:	SAMPLE	Analyzed:	02/01/01
Lab ID:	150037-003		

Analyte	Result	RL
MTBE	ND	2.0
Benzene	3.1	0.50
Toluene	10	0.50
Ethylbenzene	0.76 C	0.50
m,p-Xylenes	12	0.50
o-Xylene	7.7	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	114	56-142
Bromofluorobenzene (PID)	128	55-149

*= Value outside of QC limits; see narrative
C = Presence confirmed, but confirmation concentration differed by more than a factor of two
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	01/31/01
Units:	ug/L	Received:	01/31/01
Diln Fac:	1.000		

Field ID:	B-7	Batch#:	61209
Type:	SAMPLE	Analyzed:	02/01/01
Lab ID:	150037-004		

Analyte	Result	RL
MTBE	10	2.0
Benzene	8.9	0.50
Toluene	59	0.50
Ethylbenzene	9.7	0.50
m,p-Xylenes	48	0.50
o-Xylene	39	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	56-142
Bromofluorobenzene (PID)	156 *	55-149

Type:	BLANK	Batch#:	61209
Lab ID:	QC136414	Analyzed:	02/01/01

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)	105	56-142
Bromofluorobenzene (PID)	104	55-149

Type:	BLANK	Batch#:	61298
Lab ID:	QC136746	Analyzed:	02/05/01

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)	107	56-142
Bromofluorobenzene (PID)	104	55-149

*= Value outside of QC limits; see narrative
Presence confirmed, but confirmation concentration differed by more than a factor of two
Not Detected
Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC136415	Batch#:	61209
Matrix:	Water	Analyzed:	02/01/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,985	99	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	128	59-135
Bromofluorobenzene (FID)	127	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61209
Units:	ug/L	Analyzed:	02/01/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136416

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	22.98	115	51-125
Benzene	20.00	20.09	100	67-117
Toluene	20.00	19.30	96	69-117
Ethylbenzene	20.00	19.18	96	68-124
m,p-Xylenes	40.00	41.28	103	70-125
o-Xylene	20.00	19.69	98	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	105	56-142
Bromofluorobenzene (PID)	104	55-149

Type: BSD Lab ID: QC136417

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	23.22	116	51-125	1	20
Benzene	20.00	20.02	100	67-117	0	20
Toluene	20.00	19.29	96	69-117	0	20
Ethylbenzene	20.00	19.23	96	68-124	0	20
m,p-Xylenes	40.00	41.44	104	70-125	0	20
o-Xylene	20.00	19.82	99	65-129	1	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	106	56-142
Bromofluorobenzene (PID)	106	55-149

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61298
Units:	ug/L	Analyzed:	02/05/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136744

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.25	96	51-125
Benzene	20.00	18.76	94	67-117
Toluene	20.00	17.87	89	69-117
Ethylbenzene	20.00	19.40	97	68-124
m,p-Xylenes	40.00	40.41	101	70-125
o-Xylene	20.00	19.63	98	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	56-142
Bromofluorobenzene (PID)	105	55-149

Type: BSD Lab ID: QC136745

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	19.19	96	51-125	0	20
Benzene	20.00	18.95	95	67-117	1	20
Toluene	20.00	18.15	91	69-117	2	20
Ethylbenzene	20.00	19.09	95	68-124	2	20
m,p-Xylenes	40.00	40.55	101	70-125	0	20
o-Xylene	20.00	19.58	98	65-129	0	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	108	56-142
Bromofluorobenzene (PID)	105	55-149

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Field ID:	MW-11	Batch#:	61209
MSS Lab ID:	150037-002	Sampled:	01/31/01
Matrix:	Water	Received:	01/31/01
Units:	ug/L	Analyzed:	02/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC136418

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<33.00	2,000	1,913	96	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	59-135
Bromofluorobenzene (FID)	123	60-140

Type: MSD Lab ID: QC136419

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,949	97	65-131	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	123	59-135
Bromofluorobenzene (FID)	122	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	TB-0131D1	Batch#:	61241
Lab ID:	150037-001	Sampled:	01/31/01
Matrix:	Water	Received:	01/31/01
Units:	ug/L	Analyzed:	02/02/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

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

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	61241
Lab ID:	150037-002	Sampled:	01/31/01
Matrix:	Water	Received:	01/31/01
Units:	ug/L	Analyzed:	02/02/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	101	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	B-10	Batch#:	61241
Lab ID:	150037-003	Sampled:	01/31/01
Matrix:	Water	Received:	01/31/01
Units:	ug/L	Analyzed:	02/02/01
Diln Fac:	50.00		

Analyte	Result	RL
Freon 12	ND	50
Chloromethane	ND	50
Vinyl Chloride	ND	25
Bromomethane	ND	100
Chloroethane	ND	50
Trichlorofluoromethane	ND	25
Freon 113	ND	250
1,1-Dichloroethene	ND	25
Methylene Chloride	ND	250
trans-1,2-Dichloroethene	44	25
1,1-Dichloroethane	ND	25
cis-1,2-Dichloroethene	6,600	25
Chloroform	ND	25
1,1,1-Trichloroethane	ND	25
Carbon Tetrachloride	ND	25
1,2-Dichloroethane	ND	25
Trichloroethene	1,600	25
1,2-Dichloropropane	ND	25
Bromodichloromethane	ND	25
cis-1,3-Dichloropropene	ND	25
trans-1,3-Dichloropropene	ND	25
1,1,2-Trichloroethane	ND	25
Tetrachloroethene	2,100	25
Dibromochloromethane	ND	25
Chlorobenzene	ND	25
Bromoform	ND	25
1,1,2,2-Tetrachloroethane	ND	25
1,3-Dichlorobenzene	ND	25
1,4-Dichlorobenzene	ND	25
1,2-Dichlorobenzene	ND	25

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	103	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	B-7	Batch#:	61241
Lab ID:	150037-004	Sampled:	01/31/01
Matrix:	Water	Received:	01/31/01
Units:	ug/L	Analyzed:	02/02/01
Diln Fac:	8.333		

Analyte	Result	RL
Freon 12	ND	8.3
Chloromethane	ND	8.3
Vinyl Chloride	ND	4.2
Bromomethane	ND	17
Chloroethane	ND	8.3
Trichlorofluoromethane	ND	4.2
Freon 113	ND	42
1,1-Dichloroethene	ND	4.2
Methylene Chloride	ND	42
trans-1,2-Dichloroethene	4.8	4.2
1,1-Dichloroethane	ND	4.2
cis-1,2-Dichloroethene	920	4.2
Chloroform	ND	4.2
1,1,1-Trichloroethane	ND	4.2
Carbon Tetrachloride	ND	4.2
1,2-Dichloroethane	ND	4.2
Trichloroethene	ND	4.2
1,2-Dichloropropane	ND	4.2
Bromodichloromethane	ND	4.2
cis-1,3-Dichloropropene	ND	4.2
trans-1,3-Dichloropropene	ND	4.2
1,1,2-Trichloroethane	ND	4.2
Tetrachloroethene	ND	4.2
Dibromochloromethane	ND	4.2
Chlorobenzene	ND	4.2
Bromoform	ND	4.2
1,1,2,2-Tetrachloroethane	ND	4.2
1,3-Dichlorobenzene	ND	4.2
1,4-Dichlorobenzene	ND	4.2
1,2-Dichlorobenzene	ND	4.2

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

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136546	Batch#:	61241
Matrix:	Water	Analyzed:	02/02/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	102	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136547	Batch#:	61241
Matrix:	Water	Analyzed:	02/02/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150037	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61241
Units:	ug/L	Analyzed:	02/02/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136544

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	45.96	92	74-132
Trichloroethene	50.00	46.58	93	80-119
Chlorobenzene	50.00	50.39	101	80-117

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

Type: BSD Lab ID: QC136545

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	44.53	89	74-132	3	20
Trichloroethene	50.00	45.77	92	80-119	2	20
Chlorobenzene	50.00	48.78	98	80-117	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	98	80-115

RPD= Relative Percent Difference

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ# 6895.00 SEC# 032 LABORATORY C&T METHOD EPA 8015, 8260 & 8021 LAB ID# 150037
SAMPLE DATE(S) 1/31/01 EXTRACTION DATE(S) _____ ANALYSIS DATE(S) _____ PROJECT MANAGER JCS

ITEM	STANDARD	STANDARD MET?
HOLDING TIME	MAX HOLDING TIME	(Y) N
FIELD BLANK RESULTS	DETECTION LIMIT	Y (N) (1)
TRIP BLANK RESULTS	DETECTION LIMIT	(Y) N
METHOD BLANK RESULTS	DETECTION LIMIT	(Y) N
METHOD SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
METHOD SPIKE RPD RANGE	ACCEPTABLE RANGE	Y (N) (2)
SURROGATE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RPD RANGE	ACCEPTABLE RANGE	(Y) N
LCS SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	Y N
LCS SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
FIELD DUPLICATE RPD		(Y) N
ELEVATED DETECTION LIMIT		(Y) N
COC MATCHES LAB DATA		

NOTES:

CORRECTIVE ACTION SUGGESTED:

(1) MTBE was detected in TB-0131D1 at 3.3 ug/L. Flag MTBE results in sample MW-11 & B-7 as ND. MTBE concentration detected in field samples was less than 5x conc detected in TB.

(2) Flag TPH(g) & BTEX results in sample B-10 & B-7 as estimated due to high surrogate recovery. Flag BTEX & MTBE results in sample B-7 as estimated due to high surrogate recovery.

Worksheet prepared by: [illegible] Date 3/13/01 Reviewed by: _____ Date _____ (Project Manager)

Project Manager must also initial QA/QC space on table.
After review, return copy of initialed worksheet to laboratory data coordinator for filing.
If you have additional questions, please ask LFR laboratory manager for assistance.

✓FILE

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

ANALYTICAL REPORT

Prepared for:

LFR Levine Fricke
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 15-FEB-01
Lab Job Number: 150007
Project ID: 6895.00.032
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: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Numbers: **150007**
Client: **LFR-Levine Fricke**
Project #: **6895.00.032**
Location: **Glovatorium**
COC#: **7861**

Sampled Date: **01/30/01**
Received Date: **01/30/01**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for four water samples, which were received from the site referenced above on January 30, 2001. The samples were received cold and intact. All data was faxed to Julie Sharp on February 06, 2001.

TVH/BTXE:
No analytical problems were encountered.

VOCs (EPA 8260):
No analytical problems were encountered.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 1/30/01	Serial No. 7861
Project Name: Glovatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature):			Samplers: MXD / MWD

ANALYSES

SAMPLE INFORMATION (Print Clearly)

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	8260 (Base List)	BTEX 8021	MTBE 8021	8015 TPHG	8015 TPHD	HOLD	RUSH	REMARKS
TB-013001	1/30/01	0830	150007-1	1	H2O	X	X	X					Standard TAT
LFR-2		0915	-2	6		X	X	X	X	X			
GW-4		1055	-3	6									Results to
LFR-3		1305	-4	6									Julie Sharp

RELINQUISHED BY: (Signature)	DATE 1/30/01	TIME 1430	RECEIVED BY: (Signature)	DATE 1/30/01	TIME 2:15
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: COURIER	DATE	TIME	LAB COMMENTS:		

Sample Collector:
LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory: CTT

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

9999\COCTEMP.CDR 042998

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

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 15007 Date Received: 1/30/01 Number of Coolers: 2
Client: LFR Project: ACE / Lincoln Center / Glucotonin

A. Preliminary Examination Phase
Date Opened: 1/30/01 By (print): Jenny Brunner (sign)

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

B. Login Phase
Date Logged In: 1/30/01 By (print): Jenny Brunner (sign)

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

Additional Comments:

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	61184
Units:	ug/L	Sampled:	01/30/01
Diln Fac:	1.000	Received:	01/30/01

Field ID: LFR-2 Lab ID: 150007-002
Type: SAMPLE Analyzed: 02/01/01

Analyte	Result	RL
Gasoline C7-C12	540 H Y	50
Stoddard Solvent C7-C12	360	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	114	60-140

Field ID: GW-4 Lab ID: 150007-003
Type: SAMPLE Analyzed: 02/01/01

Analyte	Result	RL
Gasoline C7-C12	580 H Y	50
Stoddard Solvent C7-C12	390	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	59-135
Bromofluorobenzene (FID)	125	60-140

Field ID: LFR-3 Lab ID: 150007-004
Type: SAMPLE Analyzed: 02/01/01

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	106	60-140

Type: BLANK Analyzed: 01/31/01
Lab ID: QC136326

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

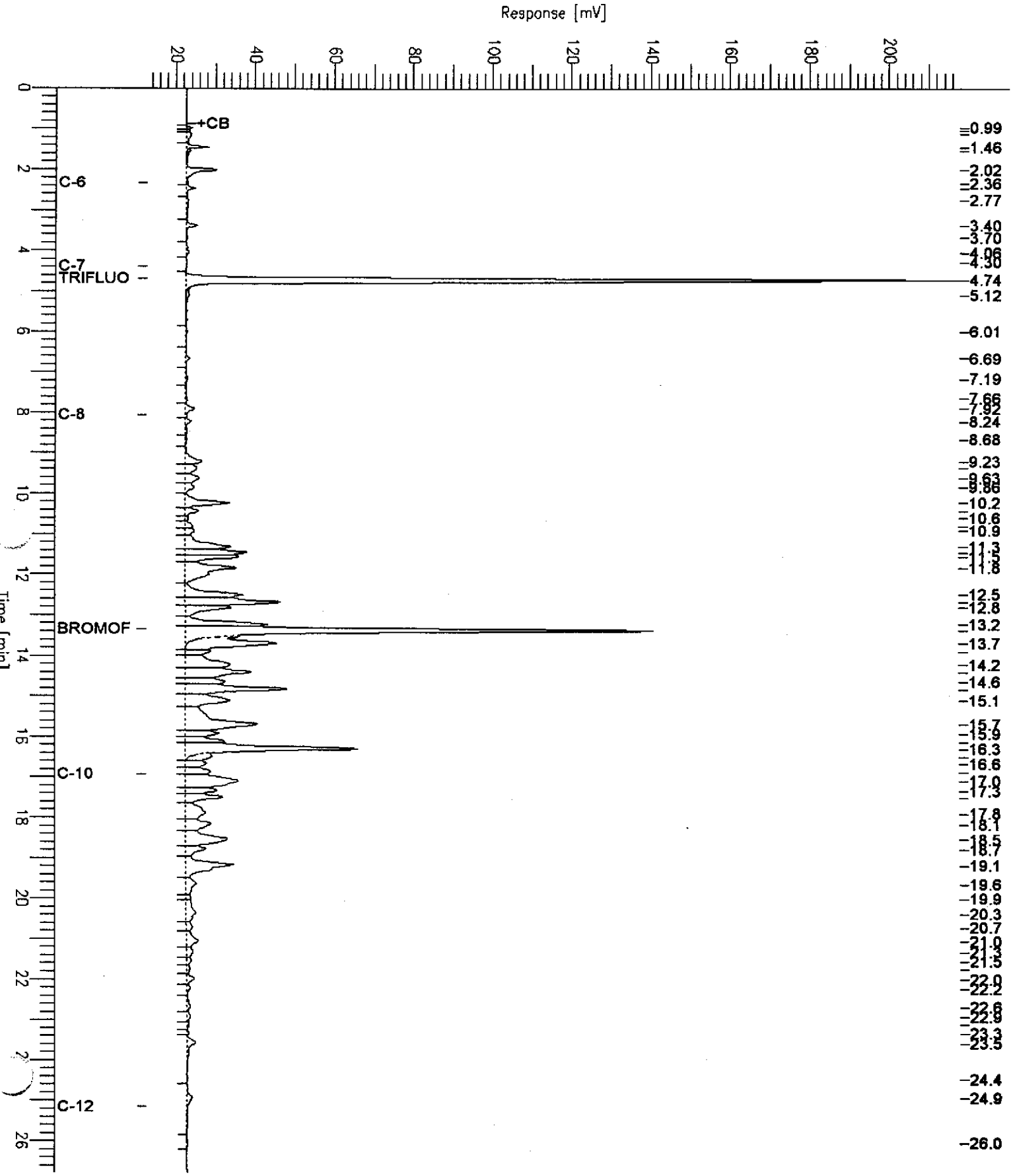
Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	59-135
Bromofluorobenzene (FID)	102	60-140

H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

GC19 TVH 'X' Data File (FID)

Sample Name : 150007-002,61184
FileName : G:\GC19\DATA\031X017.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: 13 mV

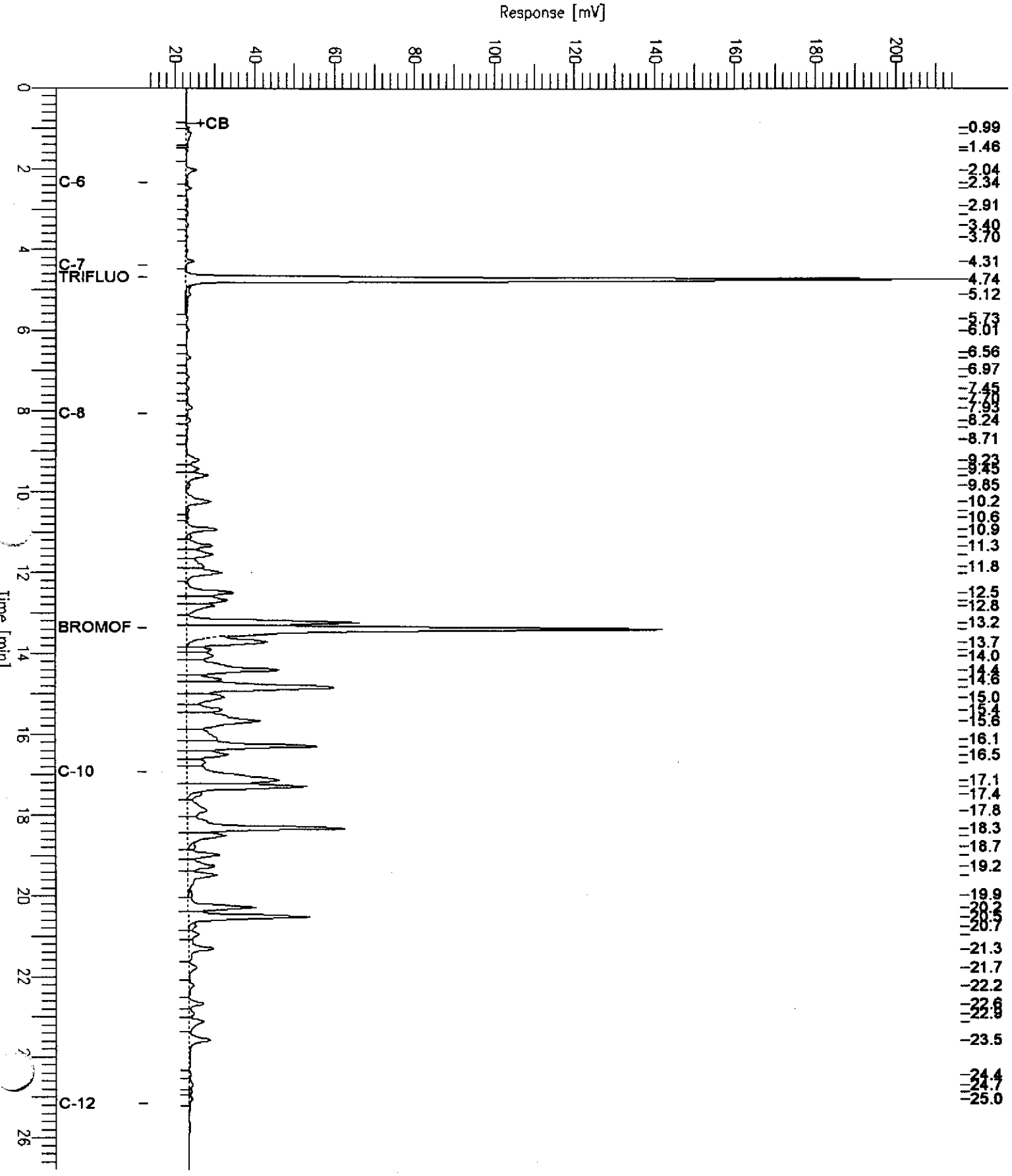
Sample #: B1 Page 1 of 1
Date : 2/1/01 12:55 AM
Time of Injection: 2/1/01 12:28 AM
Low Point : 12.80 mV High Point : 217.82 mV
Plot Scale: 205.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 150007-003,61184
FileName : G:\GC19\DATA\031X018.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: 13 mV

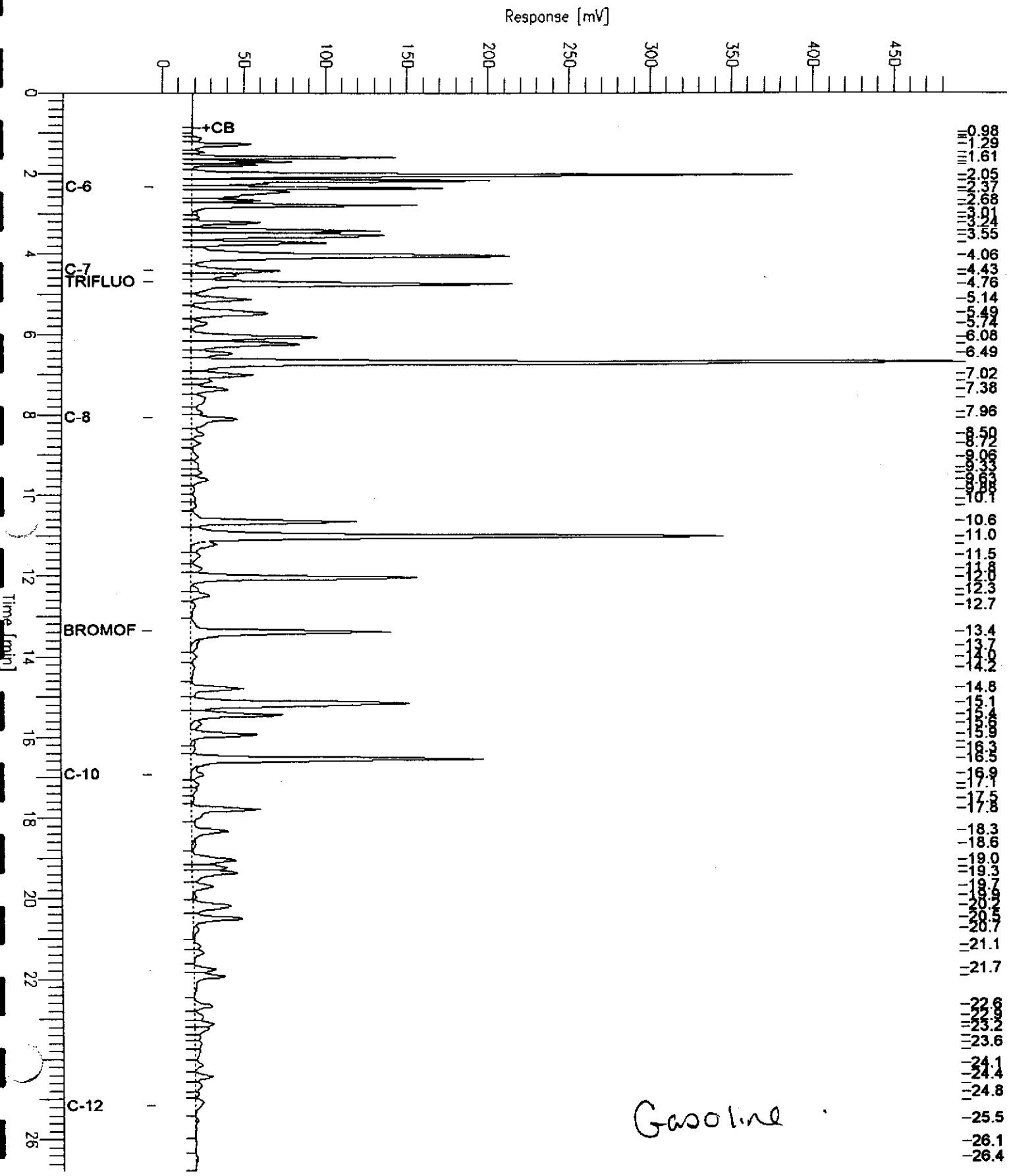
Sample #: B1 Page 1 of 1
Date : 2/1/01 01:33 AM
Time of Injection: 2/1/01 01:06 AM
Low Point : 13.17 mV High Point : 215.89 mV
Plot Scale: 202.7 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC136323,61184,01WS0395,5/5000
FileName : G:\GC19\DATA\031X003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Factor: 1.0 Plot Offset: -5 mV

Sample #: Page 1 of 1
Date : 1/31/01 03:33 PM
Time of Injection: 1/31/01 03:06 PM
Low Point : -4.99 mV High Point : 489.78 mV
Plot Scale: 494.8 mV

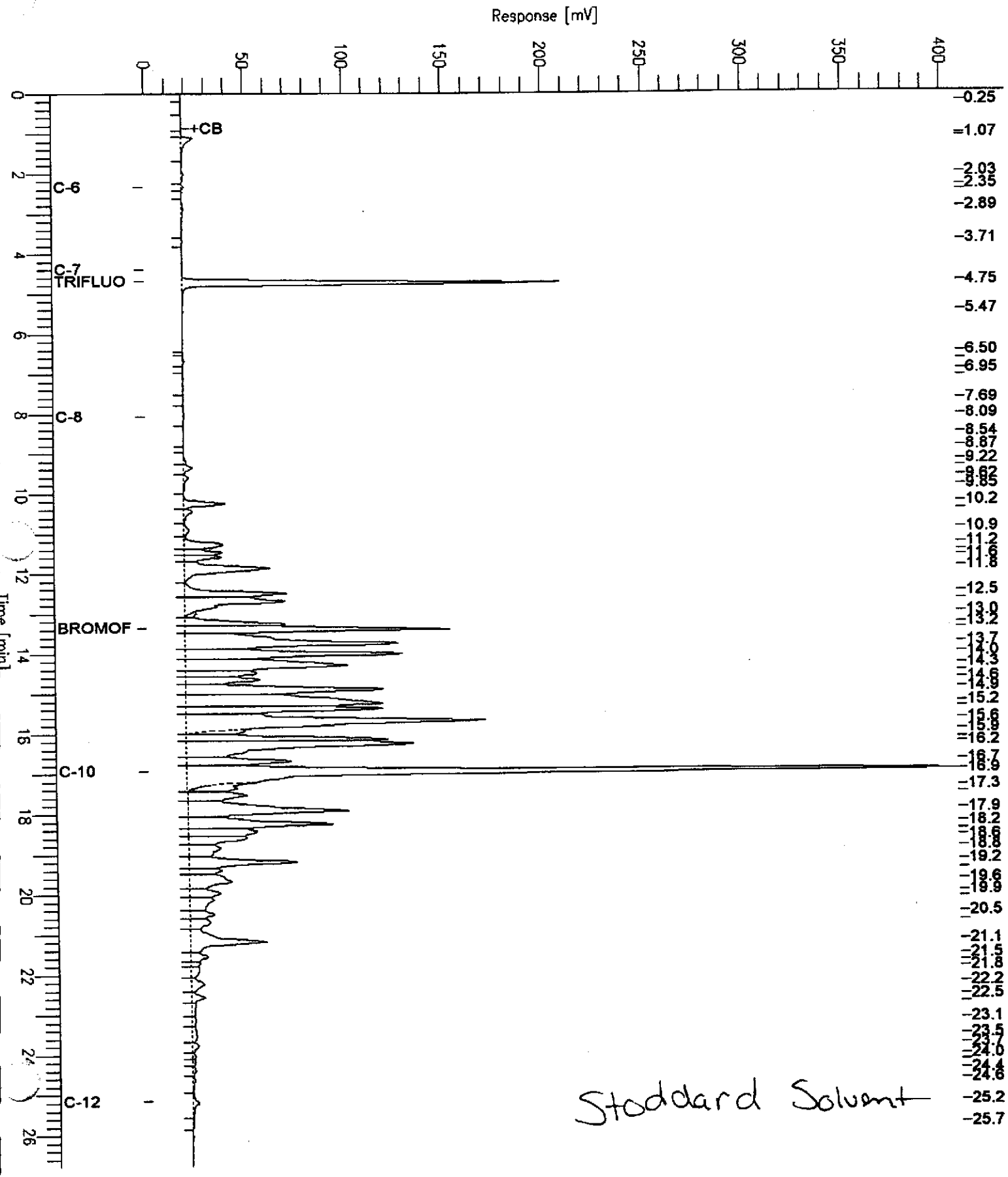


Gasoline

GC19 TVH 'X' Data File (FID)

Sample Name : CCV,STODDARD MID,61184,00WS9595,5/5000
FileName : G:\GC19\DATA\031X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: 1.0 Plot Offset: -1 mV

Sample #:
Date : 1/31/01 02:54 PM
Time of Injection: 1/31/01 02:27 PM
Low Point : -0.88 mV High Point : 407.75 mV
Plot Scale: 408.6 mV



Stoddard Solvent

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61184
Units:	ug/L	Sampled:	01/30/01
Diln Fac:	1.000	Received:	01/30/01

Field ID:	TB-013001	Lab ID:	150007-001
Type:	SAMPLE	Analyzed:	01/31/01

Analyte	Result	RL
MTBE	3.8	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)	104	56-142
Bromofluorobenzene (PID)	104	55-149

Field ID:	LFR-2	Lab ID:	150007-002
Type:	SAMPLE	Analyzed:	02/01/01

Analyte	Result	RL
MTBE	3.4	2.0
Benzene	0.57	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	4.1	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	105	56-142
Bromofluorobenzene (PID)	106	55-149

Field ID:	GW-4	Lab ID:	150007-003
Type:	SAMPLE	Analyzed:	02/01/01

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	1.6	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	105	56-142
Bromofluorobenzene (PID)	108	55-149

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61184
Units:	ug/L	Sampled:	01/30/01
Diln Fac:	1.000	Received:	01/30/01

Field ID:	LFR-3	Lab ID:	150007-004
Type:	SAMPLE	Analyzed:	02/01/01

Analyte	Result	RL
MTBE	3.6	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)	104	56-142
Bromofluorobenzene (PID)	104	55-149

Type:	BLANK	Analyzed:	01/31/01
Lab ID:	QC136326		

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)	102	56-142
Bromofluorobenzene (PID)	98	55-149

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC136323	Batch#:	61184
Matrix:	Water	Analyzed:	01/31/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,990	100	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	59-135
Bromofluorobenzene (FID)	121	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	61184
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136324

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	22.30	112	51-125
Benzene	20.00	19.49	97	67-117
Toluene	20.00	18.55	93	69-117
Ethylbenzene	20.00	18.71	94	68-124
m,p-Xylenes	40.00	40.27	101	70-125
o-Xylene	20.00	19.12	96	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	56-142
Bromofluorobenzene (PID)	103	55-149

Type: BSD Lab ID: QC136325

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	21.49	107	51-125	4	20
Benzene	20.00	19.12	96	67-117	2	20
Toluene	20.00	18.12	91	69-117	2	20
Ethylbenzene	20.00	18.46	92	68-124	1	20
m,p-Xylenes	40.00	39.78	99	70-125	1	20
o-Xylene	20.00	18.87	94	65-129	1	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	103	56-142
Bromofluorobenzene (PID)	101	55-149

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150007	Location:	Clovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	61184
MSS Lab ID:	150006-001	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	02/01/01
Diln Fac:	1.000		

Type: MS Lab ID: QC136327

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,239	2,000	3,884	82	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	126	59-135
Bromofluorobenzene (FID)	136	60-140

: MSD Lab ID: QC136328

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	3,853	81	65-131	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	59-135
Bromofluorobenzene (FID)	138	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	TB-013001	Batch#:	61169
Lab ID:	150007-001	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
loroform	ND	0.5
1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	101	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	61169
Lab ID:	150007-002	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	1.6	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	5.6	0.5
loroform	ND	0.5
1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	117	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	102	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	GW-4	Batch#:	61169
Lab ID:	150007-003	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	2.4	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	1.4	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	103	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	61169
Lab ID:	150007-004	Sampled:	01/30/01
Matrix:	Water	Received:	01/30/01
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
loroform	ND	0.5
1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	118	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	104	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136267	Batch#:	61169
Matrix:	Water	Analyzed:	01/31/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	103	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC136348	Batch#:	61169
Matrix:	Water	Analyzed:	01/31/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	2.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	5.0
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	103	80-115

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	150007	Location:	Glovatorium
Client:	LFR Levine Fricke	Prep:	EPA 5030
Project#:	6895.00.032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61169
Units:	ug/L	Analyzed:	01/31/01
Diln Fac:	1.000		

Type: BS Lab ID: QC136265

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	54.86	110	74-132
Trichloroethene	50.00	49.93	100	80-119
Chlorobenzene	50.00	49.64	99	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	104	80-115

Type: BSD Lab ID: QC136266

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	51.47	103	74-132	6	20
Trichloroethene	50.00	49.56	99	80-119	1	20
Chlorobenzene	50.00	48.70	97	80-117	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	102	80-115

RPD= Relative Percent Difference

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ# 10895.00 SEC# 032 LABORATORY C&T METHOD EPA 8260B, 8021, 8015 LAB ID# 150007
SAMPLE DATE(S) 1/30/01 EXTRACTION DATE(S) _____ ANALYSIS DATE(S) _____ PROJECT MANAGER JCS

ITEM	STANDARD	STANDARD MET?
HOLDING TIME	MAX HOLDING TIME	(Y) N
FIELD BLANK RESULTS	DETECTION LIMIT	Y N
TRIP BLANK RESULTS	DETECTION LIMIT	Y (N) (1)
METHOD BLANK RESULTS	DETECTION LIMIT	(Y) N
METHOD SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
METHOD SPIKE RPD RANGE	ACCEPTABLE RANGE	(Y) N
SURROGATE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
MATRIX SPIKE RPD RANGE	ACCEPTABLE RANGE	(Y) N
LCS SPIKE RECOVERY RANGE	ACCEPTABLE RANGE	(Y) N
LCS SPIKE RPD RANGE	ACCEPTABLE RANGE	Y N
FIELD DUPLICATE RPD	ACCEPTABLE RANGE	Y N
ELEVATED DETECTION LIMIT		(Y) N
COC MATCHES LAB DATA		(Y) N

NOTES:

CORRECTIVE ACTION SUGGESTED:
(1) MTBE was detected in TB-013001 at 3.8 ug/L. Flag MTBE results in sample LRF-2 & LRF-3 as ND. MTBE concentrations detected in field samples are less than 5x conc. detected in TB.

Worksheet prepared by: BDS Date 3/13/01 Reviewed by: _____ Date _____ (Project Manager)
Project Manager must also initial QA/QC space on table.
After review, return copy of initialed worksheet to laboratory data coordinator for filing.
If you have additional questions, please ask LFR laboratory manager for assistance.

MICROSEEPS

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street

Emeryville, CA 94608

Page: Page 1 of 3
Order #: P0101280
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Sample Identification

Lab Sample #	Client Sample ID
P0101280-01	LFR-1
P0101280-02	LFR-101

Approved By: Rebecca J. Stone

220 William Pitt Way, Pittsburgh, PA 15238 • Phone (412) 826-5245, Fax (412) 826-3433

Order #: P0101280
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0101280-01

Sample Description	Matrix	Sampled Date/Time	Received
LFR-1	Water	29 Jan. 01 11:30	30 Jan. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	150	4.0	mg/L	310.1
Chloride	76	1.0	mg/L	9056
Ferrous Iron	< 1.0	1.0	mg/L	SM3500Fe
Nitrate	76	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	51	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	<0.050	0.050	mg/L	6010B
Manganese	<0.010	0.010	mg/L	
Manganese-dissolved	<0.010	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	28	0.60	mg/L	AM20GAX
Hydrogen	0.43	0.030	nM	
Methane	1.2	0.02	ug/L	
Nitrogen	14	0.40	mg/L	
Oxygen	5.1	0.15	mg/L	

Order #: P0101280
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0101280-02

Sample Description	Matrix	Sampled Date/Time	Received
LFR-101	Water	29 Jan. 01 12:05	30 Jan. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	150	4.0	mg/L	310.1
Chloride	75	1.0	mg/L	9056
Ferrous Iron	< 1.0	1.0	mg/L	SM3500Fe
Nitrate	76	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	50	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	< 0.050	0.050	mg/L	6010B
Manganese	<0.010	0.010	mg/L	
Manganese-dissolved	<0.010	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	26	0.60	mg/L	AM20GAX
Hydrogen	0.32	0.030	nM	
Methane	1.1	0.02	ug/L	
Nitrogen	16	0.40	mg/L	
Oxygen	4.6	0.15	mg/L	

P101280

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 1/29/01	Serial No.: 7859
Project Name: Bloxatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature):			Samplers: MXD, MWD

SAMPLE INFORMATION (Print Clearly) — ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	TEMP check	Dissolved PG*	Dissolved Fe	Total Iron Fe+3	Anions+Cations*	HOLD	RUSH	REMARKS
		~~1200~~			H2O								Standard TAT
TB-012901	1/29/01	0800		1		X							Results to Julie Sherf
LFR-1		1130		9			X	X	X	X			
LFR-101		1205											* PG = CH4, CO2, N2, O2
													• iron samples were filtered in the field
													* nitrate/nitrite combo and Alk, Chloride, manganese, sulfate, sulfide
													Need Data Package

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
Fedex	1/29/01	1500		1/30/01	
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: FedEx	DATE	TIME	LAB COMMENTS:		

Sample Collector:
LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory: MicroSeeps

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

9999\COCTEMP.CDR 042998

MICROSEEPS

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200

Emeryville, CA 94608

Page: Page 1 of 3
Order #: P0101293
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Sample Identification

Lab Sample #	Client Sample ID
P0101293-01	LFR-2
P0101293-02	LFR-3

Approved By: Rebecca J. Adams

Order #: P0101293
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0101293-01

Sample Description	Matrix	Sampled Date/Time	Received
FR-2	Water	30 Jan. 01 9:15	31 Jan. 01

Analyte(s)	Result	PQL	Units	Method #
etChem				
ater				
Alkalinity as CaCO3	480	4.0	mg/L	310.1
hloride	21	1.0	mg/L	9056
errous Iron	4.6	1.0	mg/L	SM3500Fe
Nitrate	1.0	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
lfate	8.3	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
ater				
n	4.6	0.050	mg/L	6010B
Manganese	9.1	0.010	mg/L	
anganese-dissolved	8.9	0.010	mg/L	
skAnalysis				
Vapor				
arbon dioxide	130	0.60	mg/L	AM20GAX
ydrogen	1.1	0.030	nM	
Methane	4600	0.02	ug/L	
Nitrogen	11	0.40	mg/L	
xygen	4.4	0.15	mg/L	

Order #: P0101293
Report Date: 02/07/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0101293-02

Sample Description	Matrix	Sampled Date/Time	Received
FR-3	Water	30 Jan. 01 13:05	31 Jan. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	250	4.0	mg/L	310.1
Chloride	31	1.0	mg/L	9056
Ferrous Iron	< 1.0	1.0	mg/L	SM3500Fe
Nitrate	1.2	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	58	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	< 0.050	0.050	mg/L	6010B
Manganese	<0.010	0.010	mg/L	
Manganese-dissolved	<0.010	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	71	0.60	mg/L	AM20GAX
Hydrogen	0.57	0.030	nM	
Methane	0.38	0.02	ug/L	
Nitrogen	16	0.40	mg/L	
Oxygen	4.1	0.15	mg/L	

MICROSEEPS

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200

Emeryville, CA 94608

Page: Page 1 of 4
Order #: P0102008
Report Date: 02/14/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Sample Identification

Lab Sample #	Client Sample ID
P0102008-01	MW-11
P0102008-02	B-10
P0102008-03	B-7

Approved By: Rebecca Stevens

Order #: P0102008
Report Date: 02/14/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102008-01

Sample Description	Matrix	Sampled Date/Time	Received
MW-11	Water	31 Jan. 01 8:30	01 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	330	4.0	mg/L	310.1
Chloride	130	1.0	mg/L	9056
Ferrous Iron	< 1.0	1.0	mg/L	SM3500Fe
Nitrate	15	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	94	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	< 0.050	0.050	mg/L	6010B
Manganese	<0.010	0.010	mg/L	
Manganese-dissolved	<0.010	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	150	0.60	mg/L	AM20GAX
Hydrogen	1.1	0.030	nM	
Methane	0.05	0.02	ug/L	
Nitrogen	14	0.40	mg/L	
Oxygen	6.3	0.15	mg/L	

Order #: P0102008
Report Date: 02/14/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102008-02

Sample Description	Matrix	Sampled Date/Time	Received
B-10	Water	31 Jan. 01 11:08	01 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	480	4.0	mg/L	310.1
Chloride	81	1.0	mg/L	9056
Ferrous Iron	7.7	1.0	mg/L	SM3500Fe
Nitrate	0.16	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	< 1.0	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	6.1	0.050	mg/L	6010B
Manganese	1.3	0.010	mg/L	
Manganese-dissolved	1.3	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	72	0.60	mg/L	AM20GAX
Hydrogen	1.3	0.030	nM	
Methane	2400	0.02	ug/L	
Nitrogen	13	0.40	mg/L	
Oxygen	6.4	0.15	mg/L	

Order #: P0102008
Report Date: 02/14/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102008-03

Sample Description	Matrix	Sampled Date/Time	Received
B-7	Water	31 Jan. 01 12:10	01 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	720	4.0	mg/L	310.1
Chloride	43	1.0	mg/L	9056
Ferrous Iron	15	1.0	mg/L	SM3500Fe
Nitrate	0.78	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	< 1.0	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	12	0.050	mg/L	6010B
Manganese	2.2	0.010	mg/L	
Manganese-dissolved	2.1	0.010	mg/L	
RiskAnalysis				
Water				
Carbon dioxide	170	0.60	mg/L	AM15
Carbon monoxide	< 0.40	0.40	mg/L	
Methane	13000	0.015	ug/L	AM18
Nitrogen	12	0.40	mg/L	AM15
Oxygen	0.78	0.15	mg/L	

P102008

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 1/31/01	Serial No.: 7822
Project Name: Glovatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature):			Samplers: MXD, MWO

SAMPLE INFORMATION (Print Clearly) — ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	TEMP Blank	Hydrogen	Dissolved PG	Total Iron + Ferrous Iron	Methane	Calcium Sweep *	HOLD	RUSH	REMARKS
TB-013101	1/31/01	0635		1	H2O	X								Standard TAT
01 MW-11		0830		9			X	X	X	X				
02 B-10		1108		9			X	X	X	X				Provide Data package
03 B-7		1210		8				X	X	X				TO Julie Sharp
														• metals were filtered in the field
														& include Nitrate/ Nitrite combo with
														alk, Chloride, manganese,
														Sulfate, Sulfide
														PG = CH_4, CO_2, N_2, O_2

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
to Fedex	1/31/01	1500		2/1/01	14:00
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: FedEx	DATE	TIME	LAB COMMENTS:		

Sample Collector:
LEVINE•FRICKE•RECON
1900 Powell Street, 12th Floor
Emeryville, California 94608-1827
(510) 652-4500

Analytical Laboratory:
MicroSeeps

Please Return cooler to
LFR
6250 Overland Ave
Emeryville, CA 94608

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

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MICROSEEPS

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200

Emeryville, CA 94608

Order #: P0102021
Report Date: 02/21/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Sample Identification

Lab Sample #	Client Sample ID
P0102021-01	LFR-4
P0102021-02	GW-3
P0102021-03	GW-2

Approved By: Rebecca J Horn

Order #: P0102021
Report Date: 02/21/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102021-01

Sample Description	Matrix	Sampled Date/Time	Received
LFR-4	Water	01 Feb. 01 9:50	02 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
WetChem				
Water				
Alkalinity as CaCO3	460	4.0	mg/L	310.1
Chloride	25	1.0	mg/L	9056
Ferrous Iron	1.8	1.0	mg/L	Mod._7199
Nitrate	1.5	0.10	mg/L	9056
Nitrite	< 0.10	0.10	mg/L	
Sulfate	2.8	1.0	mg/L	
Sulfide	< 2.0	2.0	mg/L	376.1
Metals				
Water				
Iron	1.3	0.050	mg/L	6010B
Manganese	2.8	0.010	mg/L	
Manganese-dissolved	2.8	0.010	mg/L	
RiskAnalysis				
Vapor				
Carbon dioxide	120	0.60	mg/L	AM20GAX
Hydrogen	1.5	0.030	nM	
Methane	2200	0.02	ug/L	
Nitrogen	13	0.40	mg/L	
Oxygen	3.2	0.15	mg/L	

Order #: P0102021
Report Date: 02/21/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102021-02

Sample Description	Matrix	Sampled Date/Time	Received
GW-3	Water	01 Feb. 01 10:35	02 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
RiskAnalysis				
Water				
Carbon dioxide	54	0.60	mg/L	AM15
Methane	12	0.015	ug/L	AM18
Nitrogen	17	0.40	mg/L	AM15
Oxygen	8.8	0.15	mg/L	

Order #: P0102021
Report Date: 02/21/01
Client Proj Name: Glovetorium
Client Proj #: 6895.00.032

Client Name: Levine Fricke
Contact: Julie Sharp
Address: 1900 Powell Street
Suite 1200
Emeryville, CA 94608

Lab Sample #: P0102021-03

Sample Description	Matrix	Sampled Date/Time	Received
GW-2	Water	01 Feb. 01 10:55	02 Feb. 01

Analyte(s)	Result	PQL	Units	Method #
RiskAnalysis				
Water				
Carbon dioxide	63	0.60	mg/L	AM15
Methane	41	0.015	ug/L	AM18
Nitrogen	22	0.40	mg/L	AM15
Oxygen	3.8	0.15	mg/L	

P102021

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.032	Project Location: Oakland, CA	Date: 2/1/01	Serial 7900
Project Name: Glovatorium	Field Logbook No.: MXD-4	Sample Event Name: Q1	
Sampler (Signature): [signature]			Samplers: MXD, MWD

ANALYSES

SAMPLE INFORMATION (Print Clearly)

	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	TEMP BLANK	Dissolved PG*	Hydrogen	Total Fe, Fe+2 •	Anion/cation list**		HOLD	RUSH	REMARKS
	TB-020101	2/1/01	0800		1	H2O	✓								* PG = CH4 + CO2 + N2 + O2
01	LFR-4	↓	0950		9	↓		X	X	X	X				• Metals samples
02	GW-3	↓	1035		2	↓		X							filtered in field
03	GW-2	↓	1055		2	↓		X							** = Alk, chloride,
															manganese, sulfate,
															sulfide, nitrate +
															nitrite combo
															STANDARD TAT
															Send Data Package
															to Julie Sharp.

RELINQUISHED BY: (Signature) [signature] To Fedex	DATE 2/1/01	TIME 1230	RECEIVED BY: (Signature) [signature]	DATE 2/2/01	TIME 10:30
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: FedEX	DATE	TIME	LAB COMMENTS:		

Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500	Analytical Laboratory: Microseeps

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

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MICROSEEPS

QA/QC Report for Alkalinity

Blank Information

Analysis Date	Result
2/3/01	<4.0 mg/L
2/11/01	<4.0 mg/L

Laboratory Duplicate Sample Information

Analysis Date	Sample Result (mg/L)	Duplicate Result (mg/L)	% Difference
2/3/01	146	146	0
2/11/01	588	596	1

220 William Pitt Way, Pittsburgh, PA 15238 • Phone (412) 826-5245, Fax (412) 826-3433

QA/QC Report for Sulfide

Blank Information

Analysis Date	Result
2/2/01	<2.0 mg/L
2/6/01	<2.0 mg/L

Laboratory Control Sample Information

Analysis Date	True Value (mg/L)	Result (mg/L)	% Recovery
2/2/01	34	19.7	58
2/6/01	34	22.3	65

Laboratory Duplicate Sample Information

Analysis Date	Sample Result (mg/L)	Duplicate Result (mg/L)	% Difference
2/2/01	<2.0	<2.0	0
2/2/01	<2.0	<2.0	0

Laboratory Matrix Spike Information

Analysis Date	Sample Result(mg/L)	MS Result(mg/L)	% Recovery
2/2/01	<2.0	20.5	60
2/6/01	<2.0	2.7	65

QA/QC Report for Ferrous Iron

Blank Information

Analysis Date	Result
2/2/01	<1.0 mg/L
2/2/01	<1.0 mg/L

Laboratory Control Sample Information

Analysis Date	True Value (mg/L)	Result (mg/L)	% Recovery
2/2/01	5	4.99	99
2/2/01	5	3.99	80

Laboratory Duplicate Sample Information

Analysis Date	Sample Result (mg/L)	Duplicate Result (mg/L)	% Difference
2/2/01	<1.0	<1.0	0

Laboratory Matrix Spike/Spike Duplicate Information

Analysis Date	Sample Result(mg/L)	MS Result(mg/L)	% Recovery
2/2/01	<1.0	2.14	43

QA/QC Report for Anions by IC

Blank Information

Analysis Date	Chloride	Nitrate	Nitrite	Sulfate
1/30/01	<1.0 mg/L	<0.1mg/L	<0.1mg/L	<1.0mg/L
1/31/01	<1.0 mg/L	<0.1mg/L	<0.1mg/L	<1.0mg/L
2/1/01	<1.0 mg/L	<0.1mg/L	<0.1mg/L	<1.0mg/L
2/2/01	<1.0 mg/L	<0.1mg/L	<0.1mg/L	<1.0mg/L

Laboratory Control Sample Information

Analysis Date	Chloride	Nitrate	Nitrite	Sulfate
1/30/01				
True Value mg/L	10	10	10	10
Sample Result	10.6	10.2	10.7	11.1
% Recovery	106	102	107	111
1/31/01				
True Value mg/L	10	10	10	10
Sample Result	10.6	10.3	10.8	10.6
% Recovery	106	103	108	106
2/1/01				
True Value mg/L	10	10	10	10
Sample Result	10.7	10.4	10.7	10.8
% Recovery	107	104	107	108
2/2/01				
True Value mg/L	10	10	10	10
Sample Result	10.7	10.3	10.8	11.4
% Recovery	107	103	108	114

Laboratory Duplicate Sample Information

Analysis Date	Chloride	Nitrate	Nitrite	Sulfate
1/30/01				
Sample Result	76.1	75.8	<0.10	50.6
Dup Result mg/L	76.3	76.3	<0.10	51.0
% Difference	0.2	1	0	1
1/31/01				
Sample Result	21.2	1.0	<0.10	8.3
Dup Result mg/L	20.6	1	<0.10	8.1
% Difference	3	0	0	2

QA/QC Report for Anions by IC continued

2/1/01				
Sample Result	130	15	<0.10	94
Dup Result mg/L	130	15	<0.10	94
% Difference	0	0	0	0
2/2/01				
Sample Result	26	1.5	<0.10	2.8
Dup Result mg/L	25	1	<0.10	2.8
% Difference	4	28	0	0

Laboratory Matrix Spike/Spike Duplicate Information

Analysis Date	**Nitrite**
1/30/01	
Sample Result	<0.1
MS Result	10.8
% Recovery	108
MSD Result	10.7
% Recovery	107
% Difference	9

Analysis Date	**Nitrate**	**Nitrite**	**Sulfate**
1/31/01			
Sample Result	1.0	<0.1	8.3
MS Result	9.6	10.8	18.3
% Recovery	86	108	100
MSD Result	9.1	109	18.2
% Recovery	81	109	98
% Difference	6	1	2

Analysis Date	**Nitrate**	**Nitrite**
2/1/01		
Sample Result	15	<0.1
MS Result	24	10.5
% Recovery	87	105
MSD Result	23	10.6
% Recovery	84	106
% Difference	4	1

Analysis Date	**Nitrate**	**Nitrite**
2/2/01		
Sample Result	1.5	<0.1
MS Result	10.5	10.4
% Recovery	90	104
MSD Result	10.7	10.6
% Recovery	92	106
% Difference	2	2

QA/QC Report for
Total/Dissolved Metals

Blank Information

Analysis Date	Iron	Total Manganese	Dissolved Manganese
2/2/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/2/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/1/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/1/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/1/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/1/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/7/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/7/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/7/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L
2/7/01	<0.050 mg/L	<0.010 mg/L	<0.010 mg/L

Laboratory Control Sample Information

Analysis Date	Iron	Total Manganese
2/2/01		
True Value mg/L	5.0	2.50
Sample Result	4.92	2.35
% Recovery	98	94

Analysis Date	Iron	Total Manganese
2/1/01		
True Value mg/L	5.0	2.50
Sample Result	5.2	2.50
% Recovery	104	100

Analysis Date	Iron	Total Manganese
2/7/01		
True Value mg/L	5.0	2.50
Sample Result	5.15	2.45
% Recovery	103	98

Laboratory Duplicate Sample Information

Analysis Date	Iron	Total Manganese
2/2/01		
Sample Result	<0.050	<0.010
Dup Result mg/L	<0.050	<0.010
% Difference	0	0

QA/QC Report for Metals continued

Laboratory Matrix Spike Information

Analysis Date	Iron	Manganese
2/1/01		
Sample Result	0.057	<0.010
MS Result	1.01	0.48
% Recovery	95	96

Microseeps

BOIREM 1

***** QUALITY CONTROL *****

P101280

CONTINUING CALIBRATION STANDARDS 01/31/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 166	30.00	32.98	9.93
CARBON DIOXIDE	T43 169	7.50	7.26	3.20
OXYGEN	T43 169	3.50	3.39	3.14
NITROGEN	T43 169	33.25	31.94	3.94
METHANE (TCD)	T43 169	2.25	2.16	4.00
HYDROGEN	T43 167	25.00	25.16	0.64

HE IN LOOP 01/31/01

COMPOUND	FILE ID	DET. LIMIT	MEASURED
METHANE (FID)	T43 170	0.015ug/l	ND
CARBON DIOXIDE	T43 170	0.60mg/l	ND
OXYGEN	T43 170	0.15mg/l	ND
NITROGEN	T43 170	0.40mg/l	ND
METHANE (TCD)	T43 170	0.07mg/l	ND
HYDROGEN	T43 170	0.03nM	ND

LABORATORY CONTROL SAMPLE 01/31/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 168	300.00	312.58	4.19
CARBON DIOXIDE	T43 167	1.00	1.01	1.00
OXYGEN	T43 167	2.00	2.01	0.50
HYDROGEN	T43 168	25.00	24.60	1.60

ANALYST INITIALS

REVIEW

Microseeps

BOIREM 1

***** QUALITY CONTROL *****

P101293

CONTINUING CALIBRATION STANDARDS 02/01/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 184	30.00	32.20	7.33
CARBON DIOXIDE	T43 187	7.50	7.37	1.73
OXYGEN	T43 187	3.50	3.42	2.29
NITROGEN	T43 187	33.25	32.31	2.83
METHANE (TCD)	T43 187	2.25	2.17	3.56
HYDROGEN	T43 185	25.00	24.86	0.56

HE IN LOOP 02/01/01

COMPOUND	FILE ID	DET. LIMIT	MEASURED
METHANE (FID)	T43 188	0.015ug/l	ND
CARBON DIOXIDE	T43 188	0.60mg/l	ND
OXYGEN	T43 188	0.15mg/l	ND
NITROGEN	T43 188	0.40mg/l	ND
METHANE (TCD)	T43 188	0.07mg/l	ND
HYDROGEN	T43 188	0.03nM	ND

LABORATORY CONTROL SAMPLE 01/31/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 186	300.00	310.13	3.38
CARBON DIOXIDE	T43 185	1.00	1.03	3.00
OXYGEN	T43 185	2.00	2.03	1.50
HYDROGEN	T43 186	25.00	24.64	1.44

ANALYST INITIALS

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Microseeps

BOIREM 1

***** QUALITY CONTROL *****

(P102008/P102021)

CONTINUING CALIBRATION STANDARDS 02/06/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 222	30.00	32.08	6.93
CARBON DIOXIDE	T43 223	7.50	7.36	1.87
OXYGEN	T43 223	3.50	3.32	5.14
NITROGEN	T43 223	33.25	31.33	5.77
METHANE (TCD)	T43 223	2.25	2.10	6.67
HYDROGEN	T43 224	25.00	28.13	12.5

HE IN LOOP 02/06/01

COMPOUND	FILE ID	DET. LIMIT	MEASURED
METHANE (FID)	T43 226	0.015ug/l	ND
CARBON DIOXIDE	T43 226	0.60mg/l	ND
OXYGEN	T43 226	0.15mg/l	ND
NITROGEN	T43 226	0.40mg/l	ND
METHANE (TCD)	T43 226	0.07mg/l	ND
HYDROGEN	T43 226	0.03nM	ND

LABORATORY CONTROL SAMPLE 02/06/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
METHANE (FID)	T43 225	300.00	298.57	0.48
CARBON DIOXIDE	T43 224	1.00	1.02	2.00
OXYGEN	T43 224	2.00	2.03	1.50
HYDROGEN	T43 225	25.00	25.20	0.80

ANALYST INITIALS BC

REVIEW

P0102008

----- QUALITY CONTROL -----

WATER

CONTINUING CALIBRATION STANDARDS 02/06/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
CARBON DIOXIDE	X24 157	159.62	157.10	1.58
OXYGEN	X24 157	16.96	16.34	3.66
NITROGEN	X24 157	135.14	135.44	0.22
CARBON MONOXIDE	X24 157	14.55	13.84	4.86
METHANE (TCD)	X24 157	5.48	5.97	8.99
METHANE (FID)	X24 158	36.66	35.37	3.52
ETHANE	X24 158	23631	22908	3.06
ETHYLENE	X24 158	26522	25824	2.63
PROPANE	X24 158	33655	32447	3.59
PROPYLENE	X24 158	39153	38043	2.84
ISO-BUTANE	X24 158	42718	41353	3.20
N-BUTANE	X24 158	43297	41892	3.25
METHANE (FID) D	X24 158	36.66	36.04	1.69
ETHANE D	X24 158	23631	23249	1.62
ETHYLENE D	X24 158	26522	27049	1.99

METHOD BLANK 02/06/01

COMPOUND	FILE ID	DET. LIMIT	MEASURED
CARBON DIOXIDE	X24 160	0.60mg/l	ND
OXYGEN	X24 160	0.15mg/l	ND
NITROGEN	X24 160	0.40mg/l	ND
CARBON MONOXIDE	X24 160	0.40mg/l	ND
METHANE (TCD)	X24 160	0.07mg/l	ND
METHANE (FID)	X24 160	0.015ug/l	ND
ETHANE	X24 160	5ng/l	ND
ETHYLENE	X24 160	5ng/l	ND
PROPANE	X24 160	25ng/l	ND
PROPYLENE	X24 160	25ng/l	ND
ISO-BUTANE	X24 160	25ng/l	ND
N-BUTANE	X24 160	25ng/l	ND
METHANE (FID) D	X24 160	0.15ug/l	ND
ETHANE D	X24 160	50ng/l	ND
ETHYLENE D	X24 160	50ng/l	ND

SECOND SOURCE (LH012700): 02/06/01

CARBON DIOXIDE	X24 159	21.28	20.41	4.11
OXYGEN	X24 159	9.69	9.36	3.36
METHANE (FID)	X24 159	73.31	69.38	5.37
ETHANE	X24 159	47164	44886	4.83
ETHYLENE	X24 159	53282	50629	4.98

ANALYST INITIALS RCW

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---- QUALITY CONTROL ----

WATER

CONTINUING CALIBRATION STANDARDS 02/07/01

COMPOUND	FILE ID	TRUE CONC.	MEASURED	% DIFF.
CARBON DIOXIDE	X24 188	159.62	160.08	0.29
OXYGEN	X24 188	16.96	16.14	4.82
NITROGEN	X24 188	135.14	135.78	0.47
CARBON MONOXIDE	X24 188	14.55	14.10	3.07
METHANE (TCD)	X24 188	5.48	5.97	8.91
METHANE (FID)	X24 189	36.66	34.68	5.39
ETHANE	X24 189	23631	22490	4.83
ETHYLENE	X24 189	26522	25339	4.46
PROPANE	X24 189	33655	31860	5.33
PROPYLENE	X24 189	39153	36655	6.38
ISO-BUTANE	X24 189	42718	40725	4.67
N-BUTANE	X24 189	43297	41102	5.07
METHANE (FID) D	X24 189	36.66	35.52	3.10
ETHANE D	X24 189	23631	22953	2.87
ETHYLENE D	X24 189	26522	26725	0.77

METHOD BLANK 02/07/01

COMPOUND	FILE ID	DET. LIMIT	MEASURED
CARBON DIOXIDE	X24 191	0.60mg/l	ND
OXYGEN	X24 191	0.15mg/l	ND
NITROGEN	X24 191	0.40mg/l	ND
CARBON MONOXIDE	X24 191	0.40mg/l	ND
METHANE (TCD)	X24 191	0.07mg/l	ND
METHANE (FID)	X24 191	0.015ug/l	ND
ETHANE	X24 191	5ng/l	ND
ETHYLENE	X24 191	5ng/l	ND
PROPANE	X24 191	25ng/l	ND
PROPYLENE	X24 191	25ng/l	ND
ISO-BUTANE	X24 191	25ng/l	ND
N-BUTANE	X24 191	25ng/l	ND
METHANE (FID) D	X24 191	0.15ug/l	ND
ETHANE D	X24 191	50ng/l	ND
ETHYLENE D	X24 191	50ng/l	ND

SECOND SOURCE (LH012700): 02/07/01

CARBON DIOXIDE	X24 190	21.28	20.64	3.03
OXYGEN	X24 190	9.69	9.54	1.53
METHANE (FID)	X24 190	73.31	68.27	6.87
ETHANE	X24 190	47164	44249	6.18
ETHYLENE	X24 190	53282	49926	6.30

MS/MSD 02/07/01 SAMPLE; P0102058-04

COMPOUND	SAMPLE CONC.	SPIKE CONC.	MS CONC.	MSD CONC.	MS %R	MSD %R	%D
CARBON DIOXIDE	23.91	5.99	27.94	28.68	67.26	79.63	16.84
OXYGEN	1.43	8.72	9.09	8.93	87.80	85.94	2.14
METHANE (FID)	54.11	65.62	100.2	106.6	70.29	79.95	12.87
ETHANE	225	40873	37112	36586	90.25	88.96	1.44
ETHYLENE	33	38148	34828	33852	91.21	88.65	2.84

ANALYST INITIALS RCW

REVIEW