Groundwater Monitoring Report
Third Quarter 2000
Former Glovatorium
3815 Broadway, Oakland, California

6895.00-030
November 2, 2000

Prepared for
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601 West Fifth Street, 7th Floor
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November 2, 2000 6895.00-030

Mr. Scott Seery, CHMM
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Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Third Quarter 2000 Groundwater Monitoring Report, Former Glovatorium, 3815 Broadway, Oakland, California

Dear Mr. Seery:

LFR Levine · Fricke is submitting the enclosed quarterly groundwater monitoring report for the subject site, which covers the period from June 1 through August 31, 2000. The report discusses groundwater sampling results from the third quarter 2000 sampling event, which includes the initiation of the bioattenuation evaluation and presents a summary and recommendations.

If you have any questions or comments regarding the enclosed report, please call either of the undersigned.

Sincerely,

Julie C. Sharp, P.E.
Senior Engineer

Charles H. Pardini, R.G.
Principal Geologist,
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Enclosure

cc: Stuart Depper, Clean Tech Machinery
Albert M. Cohen, Smiland & Khachigian
Betty Graham, Regional Water Quality Control Board
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1.0 INTRODUCTION

This quarterly groundwater monitoring report describes activities completed and presents the results of groundwater monitoring conducted during the third quarter 2000, which covers the period from June 1 through August 31, 2000, at the former Glovatorium, a dry cleaning business located at 3815 Broadway in Oakland, California ("the Site"; Figure 1). This report was prepared by LFR Levine · Fricke (LFR) on behalf of Smiland & Khachigian. The quarterly groundwater monitoring activities were conducted in accordance with the June 14, 2000 Work Plan (LFR 2000b) that was approved by the Alameda County Health Care Services Agency (ACHCSA). The report was prepared pursuant to the June 14, 2000 Work Plan, a letter from the ACHCSA dated January 5, 2000, and discussions on May 10, 2000, between Mr. Scott Seery of ACHCSA, Ms. Betty Graham of the Regional Water Quality Control Board (RWQCB), and representatives of LFR and Bruce W. Page Consulting.

The report is organized into the following sections:

Section 1.0 is an introduction and summarizes the organization of this report.

Section 2.0 discusses activities completed in the third quarter 2000.

Section 3.0 provides a description of the Site and background information.

Section 4.0 presents soil and groundwater monitoring results, including groundwater-level measurements, laboratory analysis results of soil and groundwater samples, and field screening results of groundwater samples.

Section 5.0 presents a summary, conclusions, and recommendations.

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 the Johnsons.

2.0 ACTIVITIES COMPLETED IN THIRD QUARTER 2000

Activities completed in the third quarter 2000 included routine groundwater monitoring plus groundwater monitoring well installation, temporary sampling point abandonment, and evaluating the potential of bioattenuation as a means to reduce chemical concentrations in groundwater. As agreed to by ACHCSA during our May 10, 2000, meeting and proposed in LFR's June 14, 2000 Work Plan, four new groundwater monitoring wells were installed to help further assess groundwater flow direction and

to assess the lateral extent of affected groundwater in the site vicinity. The wells were located to provide an adequate distribution of monitoring points for measuring groundwater levels to assess groundwater flow patterns at the Site. Two temporary sampling points were selected to be abandoned as agreed in the May 10, 2000 discussions and proposed in the June 14, 2000 Work Plan. Groundwater gradient and groundwater quality assessments were conducted based on the results obtained. The following activities were conducted during the third quarter 2000 monitoring period (June 1 through August 31, 2000):

- **Preliminary Activities.** Before field work began, permits to abandon the two temporary sampling points and to drill the four soil borings and install four groundwater monitoring wells were obtained from the Alameda County Public Works Agency. In addition, two excavation permits (one for the borings on 38th Street and one for the borings on Manila Avenue) were obtained by the Site owner from the City of Oakland. A traffic plan was also prepared for the City of Oakland. These forms are included in Appendix A. An access agreement was obtained to drill at location LFR-2, which is on private property. The proposed drilling locations were marked using white paint and cleared for underground utilities by a subcontracted utility locator using geophysical methods. Underground Services Alert (USA) was notified of drilling activities. A Health and Safety Plan (HSP) was prepared and distributed to on-site field personnel. Personnel engaged in field activities were briefed on the contents and procedures of the HSP. Field personnel signed a copy of the HSP, which is retained by LFR, documenting that they had read the HSP. Field activities were monitored to ensure that appropriate health and safety procedures were followed.

- **Temporary Sampling Point Abandonment Activities.** Temporary grab groundwater sampling points GW-6 and GW-8 were abandoned and sealed, in accordance with County of Alameda and City of Oakland regulations. GW-6 was abandoned because it had been dry since it was installed. GW-8 was abandoned because monitoring well LFR-1 was installed at that location.

- **Groundwater Monitoring Well Installation.** Four groundwater monitoring wells, LFR-1 through LFR-4, were installed to provide additional groundwater quality data in the site vicinity. Monitoring well LFR-1 was installed to replace grab groundwater sampling point GW-8 in Manila Avenue. Monitoring well LFR-2 was installed at a location downgradient from the storm drain on property located at 340 38th Street. The location of this monitoring well is intended to provide water quality data for groundwater that may be migrating under houses that are located near the corner of Manila Avenue and 38th Street. Monitoring well LFR-3 was installed at a location approximately 75 feet downgradient from grab groundwater sampling point GW-3, near the southwest corner of the intersection of 38th Street and Manila Avenue. No preliminary groundwater quality data previously existed for this location. Monitoring well LFR-4 was installed near the former grab groundwater sampling point GW-7 on 38th Street, to further assess groundwater quality downgradient from the USTs located under the sidewalk nearby.

- **Groundwater Gradient Assessment.** Information regarding the groundwater gradient was obtained by measuring groundwater levels in newly installed monitoring wells LFR-1 through LFR-4, in previously installed temporary sampling points, and in wells MW-8, MW-9, and MW-11.

- **Groundwater Quality Assessment.** Information regarding groundwater quality was obtained by collecting and analyzing groundwater samples from the newly installed monitoring wells, from the temporary sampling points, and from well MW-11. In addition to the routine compounds previously analyzed (total petroleum hydrocarbons as Stoddard solvent [TPHss] and TPH as gasoline [TPHg], volatile organic compounds [VOCs], benzene, toluene, ethylbenzene, total xylenes [BTEX], and methyl tertiary-butyl ether [MTBE]), bioattenuation parameters (dissolved oxygen [DO], nitrate nitrogen, total iron, ferrous iron, sulfate, methane, carbon dioxide, alkalinity, chloride, oxidation-reduction potential [ORP], nitrite nitrogen, sulfide, ethene, and ethane) were analyzed to evaluate natural bioattenuation of dissolved organic chemicals in the groundwater.

3.0 SITE DESCRIPTION AND BACKGROUND

3.1 Site Description

The Site is located between Manila Avenue and Broadway, near the intersection with 38th Street, in Oakland, California. The ground surface at the Site slopes gently southwest, with surface elevations ranging from approximately 84 to 78 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 (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 bend in the drain that is approximately 60 feet south of GW-4 (Figure 2; LFR 1999).

A 10-inch-diameter, cast iron sanitary sewer lateral slopes down from a manhole inside the building to a connection with the sanitary sewer main that runs north-south down the middle of Manila Avenue. The floor drain lines inside the building are less than 2 feet below the surface. The depth of the sanitary sewer line increases gradually inside the building near the manhole and then slopes more steeply downward near the western wall of the building, where it plunges underneath the storm drain (LFR 1999).

Six underground storage tanks (USTs) are located at the Site. Two USTs are located under the sidewalk on 38th Street and four USTs are located inside the building (Figure 2). 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. The six USTs were closed in-place by backfilling them with either cement-sand slurry or pea gravel in August 1997. In addition to these six USTs, there

are an additional three USTs owned by Earl Thompson, Sr. under the sidewalk on 38th Street (Figure 2).

Further description of Site history, land uses, geology, and previous soil and groundwater investigations are contained in LFR 1999, LFR 2000a, and LFR 2000b.

3.2 Summary of Previous Investigations

- Geosolv, LLC ("GeoSolv") performed a soil and grab groundwater investigation in August 1997. Fourteen soil borings were advanced to depths of approximately 10 to 24 feet below ground surface (bgs) using the direct-push drilling method. Seven of the soil borings (B-2, B-3, B-7, B-8, B-9, B-10, and B-13; Figure 2) were converted to temporary sampling points, from which grab groundwater samples were collected.
- Geosolv performed an additional soil and grab groundwater investigation in September 1998. Twelve direct-push soil borings were advanced to depths of approximately 19 to 25 feet bgs. All 12 of the soil borings were converted to temporary sampling points (E-15 through E-26; Figure 2), from which grab groundwater samples were collected. All of the temporary grab groundwater sampling points were abandoned and sealed.

  In July 1999, LFR drilled 10 soil borings (GW-1 through GW-8, GW-5A, and GW-6A; Figure 2) to depths ranging from approximately 8 feet to 20 feet bgs using the direct-push method. LFR collected soil samples for laboratory analysis and lithologic description, and installed nine temporary sampling points in the borings.
- In July and August 1999, LFR collected grab groundwater samples from seven of the nine temporary sampling points (GW-2, GW-3, GW-4, GW-5, GW-6A, GW-7, and GW-8). Sampling point GW-1 has not yielded water since it was installed and therefore has not been sampled. Sampling point GW-6 was not measured or sampled because the adjacent sampling point, GW-6A, was sampled instead. (GW-6 had not yielded water since it was installed. The adjacent sampling point GW-6A is deeper and has yielded water.) Temporary grab groundwater sampling point GW-7 was abandoned and sealed with cement grout after a grab groundwater sample was collected from it on July 15, 1999, in accordance with the LFR May 1999 Work Plan.
- In January and April 2000, LFR completed quarterly groundwater monitoring events (the first quarter and second quarter 2000 events, respectively). Groundwater monitoring included measuring groundwater levels and collecting groundwater samples. Groundwater levels were measured in the temporary sampling points installed by LFR and GeoSolv, and in off-site wells MW-8, MW-9, and MW-11 owned by TOSCO Marketing Company ("TOSCO"). Groundwater samples were collected from temporary sampling points installed by LFR and from well MW-11. Groundwater samples collected from the temporary sampling points are designated grab samples.

Construction data for the temporary groundwater sampling points and wells installed by GeoSolv and LFR are presented in Table 1. Construction data for the wells owned by TOSCO are not available.

3.3 Local and Site Geology

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.

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.

During previous investigations conducted by GeoSolv and LFR, a relatively coarse-grained layer of silty sand, clayey sand, and clayey gravel was encountered in soil borings E-23, E-25, E-26, GW-2, GW-3, GW-7, and GW-8 at depths between approximately 4.5 to 14 feet bgs (at elevations ranging from approximately 66 to 74 feet msl). A discontinuous layer of silty to clayey sand was encountered at depths from 17 to 21 feet bgs (60 to 64 feet msl) in borings B-11, E-23, E-25, GW-7, and GW-8.

3.3.1 Lithology Encountered in LFR-1 through LFR-4

Lithology encountered in the borings for monitoring wells LFR-1 through LFR-4 was consistent with lithology encountered in previous investigations. Soils encountered during this investigation were predominantly silty clay to clayey silt, varying to sandy silt. A layer of silty sand was encountered in LFR-1 from approximately 13 to 16 feet bgs. A poorly graded sand lens was encountered in LFR-1 at approximately 9 feet bgs (71 feet msl). Poorly graded sand was also encountered in LFR-1 from approximately 16 to 18 feet bgs (62 to 64 feet msl) and in LFR-2 from approximately 6 to 6.5 feet bgs (75.5 to 76 feet msl) and from approximately 16.5 to 17 feet bgs (65 to 65.5 feet msl).

The field descriptions of the consistencies of the fine-grained soils varied from soft to very stiff. The field descriptions of the densities of the sands were loose. The field descriptions of consistency and density did not always correlate with the consistency and density as reflected by the corresponding blow counts from the hammer on the drill rig. Both the field description of the lithology and the blow counts are presented on the boring logs as they were observed in the field.

Boring logs for LFR-1 through LFR-4 are presented in Appendix B. Table 1 summarizes construction data for the groundwater monitoring wells.

4.0 RESULTS OF THIRD QUARTER 2000 SAMPLING EVENT

This section presents the results of the third quarter 2000 sampling event. Section 4.1 presents the results of groundwater level measurements. Section 4.2 presents analysis results of soil samples collected during drilling of the borings for monitoring wells LFR-1 through LFR-4. Section 4.3 presents groundwater analysis results of groundwater samples collected during the third quarter 2000 sampling event. Boring logs for groundwater monitoring wells LFR-1 through LFR-4 are presented in Appendix B. Field methods used to abandon temporary sampling points, collect soil samples, install groundwater monitoring wells, collect groundwater samples, and perform field testing using the spectrophotometer are presented in Appendix C. Water-quality sampling information forms are presented in Appendix D. Laboratory certificates are presented in Appendix E.

4.1 Groundwater Elevations

Table 2 presents groundwater depths measured on August 9, 2000, and the corresponding elevations in temporary sampling points B-2, B-3, B-7 through B-10, B-13, GW-1, GW-2, GW-3, GW-4, GW-5, GW-6A; and in monitoring wells MW-8, MW-9, MW-11, and in LFR-1 through LFR-4. Depth to groundwater ranged from 8.02 feet bgs in B-3 to 13.73 feet bgs in GW-6A. Groundwater elevations ranged from 66.54 feet msl in GW-3 to 77.26 feet msl in MW-8.

Groundwater elevations measured in several of the temporary sampling points could not be used in the groundwater contouring and groundwater gradient calculations. The reasons these measurements were not used are presented below.

- Temporary sampling points GW-1 (screen interval from 3 feet to 8 feet bgs), GW-4 (screen interval from 7 feet to 12 feet bgs), GW-5 (screen interval from 8 feet to 13 feet bgs), and GW-6A (screen interval from 5 feet to 15 feet bgs) are constructed in backfill material adjacent to the storm drain culvert and have screened intervals shallower than those of most other points (Table 1).
- Temporary sampling points B-2, B-3, B-7, B-8, B-9, B-10, and B-13, located inside the building, exhibit groundwater elevations that are either higher or lower than those measured in wells or temporary sampling points outside the building, indicating that apparently both a groundwater mound and depression exist in close proximity. The groundwater elevations measured in these points might be affected by a number of occurrences such as the presence of backfill material in the vicinity of the USTs or possibly by leaking floor drain lines inside the building.

Three monitoring wells were used to calculate the horizontal groundwater gradient: LFR-3, LFR-4, and MW-11. LFR estimated the horizontal gradient to be approximately 0.017 foot per foot (ft/ft) towards the southwest.

Groundwater elevations in wells LFR-1 through LFR-4, MW-8, MW-9, MW-11, and in temporary sampling point GW-3 were used to construct a groundwater-elevation contour map (Figure 3).

4.2 Soil Analyses and Results

Selected soil samples were collected from the borings for wells LFR-1 through LFR-4 to assess concentrations of VOCs and petroleum hydrocarbons in soils at these new well locations. Selected soil samples from the borings for wells LFR-1 through LFR-4 were analyzed for TPHss and TPHg using modified Method 8015; for VOCs using EPA Method 8260B; and for BTEX and MTBE using EPA Method 8021B. Samples were selected based on associated PID readings, changes in lithology, or to characterize a representative sample of the soil. The soil samples were submitted to Curtis & Tompkins, of Berkeley, California, a state-certified laboratory, for analysis.

TPHss and TPHg were each detected in two samples at concentrations of 10 mg/kg and 22 mg/kg, respectively, collected at a depth of approximately 11 feet in LFR-2, and 2.7 mg/kg and 6 mg/kg, respectively, collected at a depth of approximately 11 feet in LFR-1. Ethylbenzene was detected in the sample collected from LFR-1 at approximately 11 feet bgs at 0.0052 mg/kg. Total xylenes were detected in two samples: 0.043 mg/kg in LFR-1 at approximately 11 feet bgs and 0.016 mg/kg in LFR-2 at approximately 11 feet bgs. Benzene, toluene, and MTBE were not present above analytical detection limits. The only VOC present above analytical detection limits was chlorobenzene (0.01135 mg/kg) in LFR-1 at approximately 11 feet.

Laboratory analysis results are summarized in Tables 3 and 4.

4.3 Groundwater Analyses and Results

Groundwater samples were collected on August 9 through 11, 2000, from newly installed monitoring wells LFR-1 through LFR-4, MW-11 and temporary sampling points GW-3, B-7, and B-10. The groundwater samples were submitted to Curtis & Tompkins, of Berkeley, California. Performance Analytical, Inc. of Simi Valley, California conducted some of the bioattenuation parameter analyses (carbon dioxide, methane, ethane, and ethene) as a subcontract laboratory to Curtis & Tompkins.

4.3.1 Routine Analysis Results

Groundwater samples were analyzed for TPHss and TPHg using modified EPA Method 8015; for VOCs using EPA Method 8260B (with a listing of compounds from the 8010 analytical method); and for BTEX and MTBE using EPA Method 8021B.

Laboratory analysis results are summarized in Tables 5 and 6. Results for TPHss, benzene, tetrachloroethehe (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride are illustrated on Figures 4 through 9.

- TPHss was detected in B-7, B-10, LFR-1, LFR-2, and LFR-4 at concentrations up to 3.7 mg/l (B-7). TPHss was not detected in GW-3, MW-11, LFR-3 or the sample designated as LFR-3 split. These results are shown on Figure 4.
- Benzene was detected in B-7, B-10, LFR-2, and LFR-4 at concentrations up to 0.011 mg/l (LFR-4). Benzene was not detected in GW-3, LFR-1, LFR-3 or LFR-3 split, or MW-11. These results are shown on Figure 5.
- MTBE was detected in B-7, B-10, MW-11, LFR-1, LFR-2, and LFR-4 at concentrations up to 0.16 mg/l (B-10). MTBE was not detected in GW-3 or LFR-3.
- PCE was detected in B-10, GW-3, and LFR-1[1] at concentrations up to 2.9 mg/l (B-10). PCE was not detected in B-7, MW-11, LFR-2, LFR-3, or LFR-4. These results are shown on Figure 6.
- TCE was detected in B-10, GW-3, and LFR-1[1] at concentrations up to 1.6 mg/l (B-10). TCE was not detected in B-7, MW-11, LFR-2, LFR-3, or LFR-4. These results are shown on Figure 7.
- cis-1,2-DCE was detected in B-7, B-10, GW-3, LFR-1[1], LFR-2, and LFR-4 at concentrations up to 6.5 mg/l (B-10). cis-1,2-DCE was not detected in LFR-3 or MW-11. These results are shown on Figure 8.
- Vinyl chloride was only detected in LFR-2 at a concentration of 0.0045 mg/l. These results are shown on Figure 9.

4.3.2 Bioattenuation Parameter Analysis Results

A natural attenuation study was initiated in this third quarter 2000 sampling event to evaluate whether intrinsic bioremediation processes are active at the Site and whether PCE and other chemicals dissolved in groundwater are biodegrading as a result of these processes because of the presence of indigenous microbes. In the process of degrading dissolved organic chemicals, bacteria use electron acceptors, typically dissolved oxygen, nitrate, ferric iron, or sulfate. As a result, a decrease in these parameters would be observed during the process of organic chemical degradation. Similarly, during the process of organic chemical degradation, an increase in ferrous iron, alkalinity, methane, and carbon dioxide would be observed.

[1] The fourth quarter 2000 sample from LFR-1 was collected on October 30, 2000, and VOC results have been received by LFR. Results for PCE (0.82 mg/l in fourth quarter compared with 2.8 mg/l in third quarter), TCE (0.034 mg/l in fourth compared with 0.064 mg/l in third quarter), and for cis-1,2-DCE (0.010 mg/l in fourth quarter compared with 0.041 mg/l in third quarter) indicate decreased concentrations from the third to the fourth quarter. The reasons for these differences will be evaluated and discussed in the fourth quarter 2000 report.

Groundwater samples collected during this third quarter 2000 sampling event were analyzed for common electron acceptors or other geochemical indicators as described below.

The bioattenuation parameters analyzed in the laboratory consisted of the following: alkalinity by EPA Method 310.1; chloride by EPA Method 300.00; iron by EPA Method 6010B; ferrous iron by bioattenuation parameter protocol; sulfide by EPA Method 376.2; sulfate by EPA Method 300.00; nitrite nitrogen and nitrate nitrogen by EPA Method 300.00; and carbon dioxide, methane, ethene, and ethane by modified RSK Method 175.

Additionally, several of these parameters (iron, ferrous iron, sulfide, sulfate, nitrite nitrogen and nitrate nitrogen) were measured in the field using a Hach spectrophotometer. DO, ORP, pH, conductivity, and temperature were measured in the field using a flow-through instrument as described in Appendix C. A description of the field screening process is also provided in Appendix C. Results for these are summarized in Table 7 and in Appendix Table C-1. Results for DO, nitrate nitrogen, sulfate, and carbon dioxide/methane are presented on Figures 10 through 13, respectively. Selected samples were analyzed for the bioattenuation parameters to obtain results from at least one upgradient location (MW-11), one location within the chemically affected portion of the Site (B-7 and/or B-10), and one location downgradient of the Site (LFR-3).

Results for selected parameters (DO, nitrate nitrogen, sulfate, ferrous iron, methane, alkalinity, chloride, and carbon dioxide) are presented in Table 7. Results of the other parameters tested (ORP, iron, nitrite nitrogen, sulfide, ethene and ethane, pH, temperature, and conductivity) are summarized in Table C-1 and the field sheets contained in Appendix D. All analytical laboratory results are contained in Appendix E.

The results of the bioattenuation parameter analysis are presented below.

Dissolved Oxygen. DO is the most favored electron acceptor used by microbes for the biodegradation of organic carbon. Concentrations of DO less than 0.5 mg/l, indicating anaerobic conditions, were measured in the apparent source area and slightly downgradient in B-10 and LFR-2. Concentrations of DO from this sampling point and well were 0.44 mg/l and 0.48 mg/l, respectively. Results for the centrally located B-7 (0.63 mg/l) and further downgradient GW-3 (0.72 mg/l) indicate a condition between aerobic and anaerobic. Results for LFR-1 (3.63 mg/l), LFR-3 (1.3 mg/l), LFR-4 (1.13 mg/l), and MW-11 (2.52 mg/l) indicate low DO, aerobic conditions downgradient, upgradient, and crossgradient of the apparent source area. These results indicate that conditions in the apparent source area are anaerobic and conducive to anaerobic biodegradation processes.

Nitrate Nitrogen. 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 nitrogen concentrations less

than 1.0 mg/l occurred near the apparent source area in B-7 and B-10, and in the southerly crossgradient well LFR-4, indicating conditions that are conducive to anaerobic biodegradation. Nitrate nitrogen concentrations ranged from 1 mg/l to 5.5 mg/l at the downgradient, upgradient, and crossgradient wells and/or sampling points LFR-1, LFR-2, LFR-3, GW-3, and MW-11. These results indicate that conditions in the apparent source area are conducive to anaerobic biodegradation processes.

Sulfate. After DO and nitrate 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 ranged from less than 0.5 mg/l to 3 mg/l in the apparent source area locations B-7 and B-10, and in the downgradient and crossgradient locations LFR-2 and LFR-4, indicating conditions that are conducive to anaerobic biodegradation. Sulfate concentrations ranged from 30 mg/l to 67 mg/l at GW-3, LFR-1, LFR-3, and MW-11.

Ferrous Iron. Increased ferrous iron accompanies anaerobic degradation. Sometimes ferric iron is used as an electron acceptor during anaerobic biodegradation. During this process, ferric iron is reduced to ferrous iron that 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 (5.7 mg/l in B-10) and in the slightly downgradient location LFR-2 (2.7 mg/l), indicating conditions that are conducive to anaerobic biodegradation. Ferrous iron concentrations were less than 1 mg/l at LFR-3, LFR-4, and MW-11.

Methane. The presence of methane in groundwater is indicative of strongly reducing conditions and suggests reductive dechlorination by the process of methanogenesis. Methane was not detected (detection limit of 0.0005 mg/l) in downgradient locations GW-3, LFR-3 split, or in upgradient MW-11. Methane was detected from 0.00051 mg/l to 0.062 mg/l in LFR-1, LFR-3, and LFR-4. Methane concentrations ranged from 6.6 mg/l to 11 mg/l in the apparent source area and slightly downgradient in B-7, B-10, and LFR-2, indicating conditions that are conducive to anaerobic biodegradation. Methane was not detected (detection limit of 0.0005 mg/l) in B-10-Field Blank.

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. Background alkalinity in the site vicinity would presumably be reflected in the result of 360 mg/l in well MW-11 because this well is upgradient of the Site. Results from LFR-1 (250 mg/l), LFR-3 (310 mg/l and 300 mg/l), and GW-3 (340 mg/l) were within about 70 percent of the concentration in MW-11. Results from the apparent source area and downgradient locations B-10 (520 mg/l), LFR-2 (590 mg/l), LFR-3 (630 mg/l), and B-7 (760 mg/l) were up to about twice that of MW-11, indicating conditions that are consistent with biodegradation. The alkalinity of B-10-Field Blank was 1.1 mg/l.

Chloride. Chloride is the final product of chlorinated solvent reduction and is a general water quality parameter. The concentrations in GW-3 (25 mg/l), LFR-2 (33 mg/l), and

B-7 (39 mg/l) were lower than those in LFR-4 (71 mg/l), B-10 (74 mg/l), LFR-3 (110 mg/l), and LFR-1 and MW-11 (both 110 mg/l). Chloride was not detected (detection limit of 0.2 mg/l) in B-10-Field Blank. These results are inconclusive regarding the occurrence of reductive dechlorination.

Carbon Dioxide. Carbon dioxide is a product of several biodegradation processes. Concentrations of carbon dioxide ranged from 51.1 mg/l (LFR-1) to 216 mg/l (MW-11). Concentrations in LFR-1 (51.1 mg/l) and GW-3 (54.3 mg/l) were considerably lower than those in B-7, B-10, LFR-2, LFR-3, LFR-4, and MW-11 which ranged from 145 mg/l to 216 mg/l. Carbon dioxide was not detected (detection limit of 0.1 mg/l) in B-10-Field Blank. These results may indicate that conditions are conducive to reductive dechlorination (e.g., in the apparent source area locations [B-7, B-10] and downgradient locations [LFR-2, LFR-4]); however, the furthest downgradient location (LFR-3) and the upgradient location (MW-11) also have elevated concentrations, making these results somewhat inconclusive regarding the occurrence of reductive dechlorination.

Other Parameters

pH, Temperature, and Conductivity. The pH of groundwater has an affect on the activity of microbial populations in groundwater, with optimal pH values from 6 to 8 standard units for microbes capable of degrading PCE and other chlorinated aliphatic hydrocarbons. Groundwater temperature affects the metabolic activity of bacteria, and groundwater conductivity is directly related to the concentration of ions in solution. Temperature, pH, and conductivity results are included in Appendix Table C-1.

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 negative values expected in areas where anaerobic processes are occurring. ORP measurements obtained in this sampling event ranged from 193 mV (B-7) to 476 mV (MW-11). Although the highest concentration was found in the upgradient location (MW-11) and the lowest in the apparent source area (B-7 and B-10), more variation in concentrations would be necessary to indicate whether reductive dechlorination is occurring. ORP results are included in Appendix Table C-1. ORP will continue to be measured in subsequent quarters.

Nitrite Nitrogen. Nitrate may reduce to nitrite during the process of anaerobic biodegradation. Nitrite nitrogen concentrations ranged from less than the detection limit of 0.05 mg/l (B-10 and MW-11) to 0.227 mg/l (GW-3). Nitrite nitrogen results are included in Appendix Table C-1. These results are inconclusive regarding the occurrence of reductive dechlorination, and nitrite nitrogen may not be measured in subsequent quarters.

Sulfide. When sulfate is used as an electron acceptor for anaerobic biodegradation, it is reduced to sulfide. Sulfide concentrations ranged from less than 0.04 mg/l (B-10

[laboratory result], GW-3, MW-11, LFR-1, and LFR-3) to 0.06 mg/l (B-10 [field result]). The higher concentration in the B-10 field result may indicate sulfate reduction at this location, however, the variation between laboratory and field results and the similarities between the upgradient, apparent source area, and downgradient locations makes the sulfide results inconclusive, and sulfide may not be measured in subsequent quarters. Sulfide results are included in Appendix Table C-1.

Ethane and Ethene. Ethane and ethene are analyzed where chlorinated solvents are suspected of undergoing biological transformation. Ethane was not detected in any samples (detection limit 0.0005 mg/l). Ethene concentrations were 0.0017 mg/l (LFR-2), 0.00057 mg/l (B-10), and less than the detection limit of 0.0005 mg/l in the remaining samples. These results indicate that if reductive dechlorination is producing these compounds, they are not accumulating in significant concentrations. Ethane and ethene results are included in Appendix Table C-1.

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 less than 0.1 mg/l (LFR-3) to 6 mg/l (B-10) and are included in Appendix Table C-1.

Hydrogen. Sampling and analysis for hydrogen was not conducted because this sampling event occurred about two weeks after installation of wells LFR-1 through LFR-4. Standard hydrogen sampling procedures suggest that at least 30 to 90 days elapse after well installation before conducting hydrogen sampling and analysis because of the influence of ground disturbance and exposure of fresh mineral surfaces in the soil resulting 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 results from subsequent sampling events may be useful in assessing whether reductive dechlorination is occurring because elevated hydrogen concentrations are indicative of reductive dechlorination. Groundwater samples for hydrogen analysis would be collected using the bubble strip or equivalent method as described in EPA 1998.

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

The following is a summary of the work performed in July and August 2000 and the results of this work.

Four monitoring wells were installed to further assess the lateral extent of the affected groundwater.

TPHss, TPHg, ethylbenzene, total xylenes, PCE, and chlorobenzene were detected at very low levels in some soil samples. Benzene, toluene, MTBE, TCE, and cis-1,2-DCE, were not detected in soil above analytical detection limits.

Groundwater samples were collected from the newly installed monitoring wells LFR-1 through LFR-4, temporary sampling points GW-3, B-7, B-10, and from well MW-11. These samples were analyzed for TPHss, TPHg, MTBE, BTEX, and VOCs.

The PCE concentration of 2.8 mg/l in the cross-gradient well LFR-1 is nearly as high as the PCE concentration detected in the temporary sampling point B-10 located at the Site. Subsequent sampling results from LFR-1 will be assessed to establish whether any mitigation measures may be required to address affected groundwater in this area.

Except for MTBE in B-10, which increased an order of magnitude from 0.014 mg/l in January 2000 to 0.16 mg/l in August 2000, analytical results for each compound at each sampling location were within one order of magnitude of the previously collected samples from April or January 2000.

This was the first sampling event in which bioattenuation parameters were analyzed. Selected samples were analyzed for the following: DO, nitrate nitrogen, sulfate, ferrous iron, total iron, methane, alkalinity, chloride, carbon dioxide, ORP, nitrite nitrogen, sulfide, ethene, and ethane. The bioattenuation parameters analysis provided a baseline for these parameters and a means to compare their concentrations at locations within the apparent source area against surrounding upgradient, downgradient and crossgradient locations.

The maximum concentrations of the compounds analyzed during this third quarter 2000 sampling event for the following wells or sampling points are: B-7 (MTBE [0.02 mg/l]; benzene [0.0077 mg/l]; ethylbenzene [0.007 mg/l]; and trans-1,2-DCE [0.0048 mg/l]; B-10 (TPHg [6.1 mg/l]; MTBE [0.16 mg/l]; benzene [0.0073 mg/l]; and PCE [2.9 mg/l]]; GW-3 (TCE [0.0028 mg/l] and cis-1,2-DCE [0.012 mg/l]; and MW-11 (MTBE [0.011 mg/l].

Chemical concentrations detected in the third quarter 2000 sampling event were less than in the previous (January or April 2000) sampling events for the following wells or sampling points: B-7 (TPHss, TPHg, toluene, total xylenes, and cis-1,2-DCE); B-10 (toluene, ethylbenzene, total xylenes, TCE, cis-1,2-DCE, and trans-1,2-DCE); and GW-3 (TPHss, TPHg, and PCE).

Vinyl chloride was only detected in LFR-2 at a concentration of 0.0045 mg/l in the August 2000 sampling event.

Benzene was not detected in GW-3, LFR-3 or LFR-3 split, or MW-11, but was detected in B-7, B-10, LFR-1, LFR-2, and LFR-4 at concentrations up to 0.011 mg/l (LFR-4) in the August 2000 sampling event.

5.2 Conclusions

LFR's conclusions about the Site based on the data obtained in July and August 2000 are as follows:

The furthest downgradient well, LFR-3, did not contain VOCs or petroleum hydrocarbons at concentrations above their respective analytical detection limits. These results indicate that migration of these compounds to this downgradient location is not occurring. Historical PCE results in GW-3 (located upgradient of LFR-3), however, indicate that PCE has been present from July 1999 to August 2000 at fluctuating concentrations.

The data collected to date regarding the distribution of PCE and other VOCs in groundwater indicates the degradation of PCE to breakdown product VOCs. The typical breakdown of PCE into TCE, cis-1,2-DCE, trans-1,2-DCE (at much lower concentrations than cis-1,2-DCE), and vinyl chloride 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 temporary sampling point B-10 in January and August 2000 indicates that PCE breakdown 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 indicate the presence of vinyl chloride between July 1999 and April 2000. Vinyl chloride was also detected in LFR-2 in the August 2000 sampling event.

Analysis results of DO, nitrate, sulfate, ferrous iron, methane, and alkalinity indicate 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 a groundwater are indicative of anaerobic biodegradation conditions. DO results less than 0.5 mg/l were encountered in the apparent source area (B-10) and slightly downgradient in LFR-2, indicating anaerobic conditions that are conducive to PCE biodegradation.

- We would anticipate relatively low concentrations of nitrate nitrogen (e.g. less than 1.0 mg/l) in locations where the oxygen has been depleted, because nitrate ion can be an effective electron acceptor in anaerobic biodegradation. Nitrate nitrogen concentrations less than 1.0 mg/l occurred in the apparent source area (B-7 and B-10), and in the crossgradient well LFR-4.

- We would also anticipate relatively low concentrations of sulfate (e.g. less than 20 mg/l) 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 3 mg/l in B-7 and B-10, and in the downgradient and crossgradient locations LFR-2 and LFR-4.

- The reducing conditions conducive to dehalogenation of VOCs can also reduce iron to the soluble ferrous state. Therefore; we anticipate a relatively higher concentration of ferrous iron in locations of biodegradation than in other areas. The highest ferrous iron concentrations were in the apparent source area (B-10) and in the slightly downgradient location LFR-2.

- We would anticipate a relatively higher concentration of methane in locations of biodegradation because methane is indicative of strongly reducing conditions and suggests reductive dechlorination by the process of methanogenesis. Methane concentrations up to 11 mg/l were encountered in B-7, B-10, and in the slightly downgradient well LFR-2.

- Relatively high concentrations of alkalinity would be expected in locations of biodegradation, because of the interaction between carbon dioxide (a product of several biodegradation processes) and aquifer minerals. Alkalinity results from the apparent source area and downgradient locations B-10, LFR-2, LFR-3, and B-7 were up to about twice that of upgradient well MW-11.

5.3 Recommendations

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

Continue implementing the sampling and analysis plan for the routine parameters and natural bioattenuation parameters established through discussion with representatives of ACHCSA and the RWQCB. Collection of groundwater samples for hydrogen analysis has been initiated in the fourth quarter 2000 sampling event.

Continue quarterly groundwater monitoring in the four newly installed wells LFR-1 through LFR-4, 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.

As further results are obtained, continue to evaluate PCE and potential breakdown product concentrations in the on-site temporary sampling points, and downgradient and crossgradient temporary sampling points and groundwater monitoring wells to assess plume stability, the progress of reductive dechlorination, and any potential migration issues.

REFERENCES

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LFR 2000a. Soil and Groundwater Investigation Report, March 20.

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Table 1
Construction Data for Temporary Sampling Points and Monitoring Wells
Former Glovatorium
3815 Broadway, Oakland, California

Location	Date Installed	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Total Depth (ft bgs)	Screened Interval Depth (ft bgs)	Screened Interval Elevation (ft msl)	Notes
Temporary sampling points installed by GeoSolv, LLC:							
B-2	19-Aug-97	82.20	82.09	21	5 to 21	77.2 to 61.2	
B-3	19-Aug-97	82.60	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	81.50	19	4 to 19	77.7 to 62.7	
B-13	22-Aug-97	85.12	84.58	20	5 to 20	80.1 to 65.1	
Temporary sampling points installed by LFR:							
GW-1	16-Jul-99	80.24	79.94	8	3 to 8	77.2 to 72.2	
GW-2	16-Jul-99	79.44	79.14	20	10 to 20	69.4 to 59.4	
GW-3	15-Jul-99	78.48	77.92	20	10 to 20	68.5 to 58.5	
GW-4	16-Jul-99	82.55	82.37	12	7 to 12	75.6 to 70.6	
GW-5	15-Jul-99	81.31	81.01	13	8 to 13	73.3 to 68.3	
GW-6	15-Jul-99	81.91	81.65	13.5	7.5 to 13.5	74.4 to 68.4	(2)
GW-6A	16-Jul-99	81.93	81.61	15	5 to 15	76.9 to 66.9	
GW-7	15-Jul-99	81.3	NS	20	10 to 20	71.3 to 61.3	(2)
GW-8	16-Jul-99	80.28	80.10	20	10 to 20	70.3 to 60.3	(2)
Groundwater Monitoring Wells Installed by Tosco:							
MW-8	unknown	NS	87.44	unknown	unknown	unknown	
MW-9	unknown	NS	86.56	unknown	unknown	unknown	
MW-11	unknown	NS	84.13	unknown	unknown	unknown	
Groundwater Monitoring Wells Installed by LFR:							
LFR-1	28-Jul-00	NS	79.97	19	9 to 19		
LFR-2	27-Jul-00	NS	81.89	19	9 to 19		
LFR-3	27-Jul-00	NS	77.96	22	12 to 22		
LFR-4	28-Jul-00	NS	81.65	19	9 to 19		

Notes:
(1) Top of casing surveyed on south side on January 21, 2000, because the casing was broken.
(2) GW-7 was abandoned on July 15, 1999, in accordance with LFR's work plan dated May 6, 1999, and GW-6 and GW-8 were abandoned on July 26, 2000, in accordance with LFR's work plan dated June 14, 2000.

ft msl = feet above mean sea level
ft bgs = feet below ground surface
NS = Not surveyed.

Table 2
Groundwater Elevations
Former Glovatorium
3815 Broadway, Oakland, California

Location	Date Measured	Top of Casing Elevation (ft msl)	Depth To Groundwater (feet)	Groundwater Elevation (ft msl)	Notes
Temporary sampling points installed by GeoSolv, LLC:					
B-2	26-Oct-97	82.20	9.54	72.66	(1)
	18-Feb-98		4.04	78.16	(1)
	19-Jan-00	82.09	8.12	73.97	(P)
	24-Jan-00		6.16	75.93	(P)
	27-Apr-00		6.68	75.41	(P)
	09-Aug-00		8.19	73.90	(P)
B-3	26-Oct-97	82.60	8.93	73.67	(1)
	18-Feb-98		4.53	78.07	(1)
	19-Jan-00	82.57	9.35	73.22	(2)
	24-Jan-00		6.74	75.83	
	27-Apr-00		6.71	75.86	(P)
	09-Aug-00		8.02	74.55	(P)
B-7	26-Oct-97	77.33	9.24	68.09	(1)
	18-Feb-98		5.76	71.57	(1)
	19-Jan-00	76.96	8.36	68.60	(P)
	24-Jan-00		7.3	69.66	(P)
	27-Apr-00		7.11	69.85	(P)
	09-Aug-00		8.35	68.61	
B-8	26-Oct-97	82.06	10.95	71.11	(1)
	18-Feb-98		5.42	76.64	(1)
	19-Jan-00	81.82	10.01	71.81	(P)
	24-Jan-00		8.98	72.84	(P)
	27-Apr-00		7.68	74.14	(P)
	09-Aug-00		9.02	72.80	(P)
B-9	26-Oct-97	77.57	9.18	68.39	(1)
	18-Feb-98		6.13	71.44	(1)
	19-Jan-00	77.37	8.46	68.91	(P)
	24-Jan-00		7.12	70.25	(P)
	27-Apr-00		7.41	69.96	
	09-Aug-00		8.55	68.82	
B-10	26-Oct-97	81.65	9.39	72.26	(1)
	18-Feb-98		6.52	75.13	(1)
	19-Jan-00	81.50	8.48	73.02	(P)
	24-Jan-00		7.35	74.15	(P)

Table 2
Groundwater Elevations
Former Glovatorium
3815 Broadway, Oakland, California

Location	Date Measured	Top of Casing Elevation (ft msl)	Depth To Groundwater (feet)	Groundwater Elevation (ft msl)	Notes
B-10	27-Apr-00	81.50	7.80	73.70	
	09-Aug-00		8.85	72.65	
B-13	26-Oct-97	85.12	12.10	73.02	(1)
	18-Feb-98		6.61	78.51	(1)
	19-Jan-00	84.58	10.40	74.18	
	24-Jan-00		8.26	76.32	
	27-Apr-00		8.71	75.87	
	09-Aug-00		9.35	75.23	
Temporary sampling points installed by LFR:					
GW-1	27-Aug-99	79.94	DRY	DRY	
	19-Jan-00		DRY	DRY	
	27-Apr-00		DRY	DRY	
	09-Aug-00		DRY	DRY	
GW-2	27-Aug-99	79.14	10.68	68.46	
	19-Jan-00		10.90	68.24	
	21-Jan-00		10.82	68.32	
	27-Apr-00		8.55	70.59	
	09-Aug-00		10.03	69.11	
GW-3	27-Aug-99	77.92	10.26	67.66	
	19-Jan-00		10.06	67.86	
	20-Jan-00		9.99	67.93	
	27-Apr-00		9.76	68.16	
	09-Aug-00		11.38	66.54	
GW-4	27-Aug-99	82.37	NM	NM	
	19-Jan-00		7.66	74.71	
	21-Jan-00		8.04	74.33	
	27-Apr-00		8.40	73.97	
	09-Aug-00		DRY	DRY	
GW-5	27-Aug-99	81.01	12.30	68.71	
	19-Jan-00		12.40	68.61	
	20-Jan-00		12.40	68.61	
	27-Apr-00		12.31	68.70	
	09-Aug-00		12.30	68.71	
GW-6A	27-Aug-99	81.61	13.90	67.71	
	19-Jan-00		13.98	67.63	

Table 2
Groundwater Elevations
Former Glovatorium
3815 Broadway, Oakland, California

Location	Date Measured	Top of Casing Elevation (ft msl)	Depth To Groundwater (feet)	Groundwater Elevation (ft msl)	Notes
GW-6A	27-Apr-00	81.61	13.61	68.00	
	09-Aug-00		13.73	67.88	
GW-8	27-Aug-99	80.10	9.50	70.60	
	19-Jan-00		9.66	70.44	
	20-Jan-00		9.68	70.42	
	27-Apr-00		8.76	71.34	
Monitoring wells owned by TOSCO:					
MW-8	27-Apr-00	87.44	8.29	79.15	
	10-Aug-00		10.18	77.26	
MW-9	27-Apr-00	86.56	9.31	77.25	
	10-Aug-00		9.42	77.14	
MW-11	25-Jan-00	84.21	10.73	73.48	
	27-Apr-00		8.86	75.35	
	09-Aug-00		10.09	74.12	
Monitoring wells installed by LFR:					
LFR-1	09-Aug-00	79.97	9.81	70.16	
LFR-2	09-Aug-00	81.89	11.90	69.99	
LFR-3	09-Aug-00	77.96	11.20	66.76	
	09-Aug-00		11.20	66.76	
LFR-4	09-Aug-00	81.65	13.26	68.39	

Notes:
(1) Survey elevation and water level measurement taken at concrete surface. Elevations and water levels without a (1) in the Notes Column were measured from top-of-casing.
(2) Top of casing was resurveyed because it was broken.

ft msl = Feet above mean sea level
NM = Not measured
(P) = Floating product or sheen was observed

Table 3
Summary of Analytical Results For Total Petroleum Hydrocarbon, BTEX, and MTBE Analyses
Soil Samples Collected in the Vicinity of the Former Glovatorium
3815 Broadway, Oakland, California

All results expressed in milligrams per kilogram (mg/kg)

Location	Date Sampled	Depth (ft bgs)	TPH, purge., Stoddard	TPH, purge., Gasoline	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes
GW-1	16-Jul-99	8	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-1	16-Jul-99	7	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-4	16-Jul-99	9	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-5A	16-Jul-99	9	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-6A	16-Jul-99	10	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-7	15-Jul-99	11	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-7	15-Jul-99	9	<1	**1.4 YH**	<0.02	<0.005	<0.005	<0.005	<0.005
GW-7	15-Jul-99	14	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-7	15-Jul-99	16	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-8	16-Jul-99	9	<1	<1	<0.02	<0.005	<0.005	<0.005	<0.005
GW-8	16-Jul-99	12	**4.8**	**8.2 YH**	<0.02	<0.005	<0.005	<0.005	**0.14 C**
LFR-1	28-Jul-00	11	**2.7**	**6 YH**	<0.019	<0.0048	<0.0048	0.0052 C	**0.043 C**
LFR-2	27-Jul-00	6.5	<0.97	<0.97	<0.019	<0.0049	<0.0049	<0.0049	<0.0049
LFR-2	27-Jul-00	11	**10**	**22 YH**	<0.018	<0.0046	<0.0046	<0.0046	0.016 C
LFR-3	27-Jul-00	14	<0.97	<0.97	<0.019	<0.0049	<0.0049	<0.0049	<0.0049
LFR-4	28-Jul-00	8	<0.98	<0.98	<0.02	<0.0049	<0.0049	<0.0049	<0.0049

Notes:

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

YH = Sample exhibits fuel pattern which does not resemble TPH gasoline standard. Heavier hydrocarbons than the TPH gasoline standard are present in the sample.

ft. bgs = feet below ground surface

MTBE = Methyl tertiary-butyl ether

For LFR-1-11 and LFR-2-11, TPHg and/or BTEX results are estimated due to surrogate recovery of bromofluorobenzene above upper QC limit.

Table 4
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses
Soil Samples Collected in the Vicinity of the Former Glovatorium
3815 Broadway, Oakland, California

All results expressed in milligrams per kilogram (mg/kg)

Location	Date Sampled	Depth (ft bgs)	PCE	TCE	Cis-1,2-DCE
GW-1	16-Jul-99	7	**0.71**	<0.023	<0.023
GW-1	16-Jul-99	8	**0.14**	<0.0048	<0.0048
GW-4	16-Jul-99	9	<0.0046	<0.0046	<0.0046
GW-5A	16-Jul-99	9	<0.005	<0.005	<0.005
GW-6A	16-Jul-99	10	<0.0051	<0.0051	<0.0051
GW-7	15-Jul-99	9	<0.0051	<0.0051	<0.0051
GW-7	15-Jul-99	11	<0.0049	<0.0049	<0.0049
GW-7	15-Jul-99	14	<0.0046	<0.0046	<0.0046
GW-7	15-Jul-99	16	<0.0049	<0.0049	<0.0049
GW-8	16-Jul-99	9	**0.05**	**0.0061**	<0.0046
GW-8	16-Jul-99	12	<0.005	**0.013**	<0.005
LFR-1	28-Jul-00	11	**0.1**	<0.0048	<0.0048 (1)
LFR-2	27-Jul-00	6.5	<0.0046	<0.0046	<0.0046
LFR-2	27-Jul-00	11	<0.005	<0.005	<0.005
LFR-3	27-Jul-00	14	<0.005	<0.005	<0.005
LFR-4	28-Jul-00	8	<0.0052	<0.0052	<0.0052

Notes:

(1) = Chlorobenzene was detected at 0.01135 mg/kg

ft. bgs = feet below ground surface

Cis-1,2-DCE = Cis-1,2-Dichloroethene

PCE = Tetrachloroethene

TCE = Trichloroethene

Table 5
Summary of Analytical Results For Total Petroleum Hydrocarbon, BTEX, and MTBE Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	TPH, ext., Stoddard	TPH, purge., Stoddard	TPH, ext., Diesel	TPH, purge., Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Notes
Temporary sampling points installed by GeoSolv, LLC:												
B-2	24-Jan-00	5 to 21	NA	20	NA	**31 Y**	<0.05	<0.013	<0.013	0.11 C	0.22 C	(1)
B-3	24-Jan-00	5 to 18	NA	**4.9**	NA	**8.8 Y**	<0.01	0.0048	<0.0025	<0.0025	0.0714	(1)
B-7	24-Jan-00	5 to 17.5	NA	19	NA	**30 Y**	<0.05	<0.013	0.062	<0.013	0.207	
B-7	11-Aug-00		NA	**3.7**	NA	**6.8 YH**	0.02	0.0077	0.047	0.007	0.065 C	(3)
B-8	24-Jan-00	9 to 24	NA	11	NA	**19 Y**	<0.01	<0.0025	<0.0025	<0.0025	0.17 C	(1)
B-9	24-Jan-00	4.5 to 19.5	NA	**1 Y**	NA	**1.8 YH**	<0.002	<0.0005	<0.0005	0.01 C	0.0089 C	(1)
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-13	24-Jan-00	5 to 20	NA	1.7	NA	**3 Y**	<0.01	<0.0025	<0.0025	<0.0025	0.02	(1)
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	(2)
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	0.00051	<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		NA	0.3 Z	NA	0.57 YZ	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	

Table 5
Summary of Analytical Results For Total Petroleum Hydrocarbon, BTEX, and MTBE Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	TPH, ext., Stoddard	TPH, purge., Stoddard	TPH, ext., Diesel	TPH, purge., Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Notes
GW-3	11-Aug-00	10 to 20	NA	<0.05	NA	0.077 YZ	<0.002	<0.0005	<0.0005	<0.0005	0.00051	
GW-4	21-Jul-99	7 to 12	NA	6.8	NA	10 YH	0.0022	<0.0005	<0.0005	<0.0005	0.0029	(3)
GW-4	20-Jan-00		NA	0.97	NA	1.6 Y	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	(4)
Split	20-Jan-00		NA	0.85	NA	1.5 Y	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	(4)
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	5 to 15	NA	<0.05	NA	0.054 Y	0.0089	<0.0005	<0.0005	<0.0005	<0.0005	
Split	27-Aug-99		NA	<0.05	NA	0.057 Y	0.0087	<0.0005	<0.0005	<0.0005	<0.0005	
GW-6A	25-Jan-00		NA	<0.05	NA	<0.05	0.0022	<0.0005	<0.0005	<0.0005	<0.0005	
GW-6A	27-Apr-00		NA	<0.05	NA	0.087 Y	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	
GW-7	15-Jul-99	10 to 20	0.697 B	NA	1.79 A	NA	<0.0025	0.05	<0.0005	0.000727	0.00313	(5)
Split	15-Jul-99		1.42 B	NA	3.1 A	NA	NA	NA	NA	NA	NA	(5)
GW-7	15-Jul-99		NA	NA	NA	NA	NA	0.0567	<0.002	<0.002	<0.002	(6)
Split	15-Jul-99		NA	NA	NA	NA	NA	0.0755	<0.002	<0.002	<0.002	(6)
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	

Table 5
Summary of Analytical Results For Total Petroleum Hydrocarbon, BTEX, and MTBE Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	TPH, ext., Stoddard	TPH, purge., Stoddard	TPH, ext., Diesel	TPH, purge., Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Notes
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	(2)
MW-11	10-Aug-00		NA	<0.05	NA	<0.05	0.011	<0.0005	<0.0005	<0.0005	<0.0005	
Monitoring wells installed by LFR:												
LFR-1	09-Aug-00	9 to 19	NA	0.53	NA	1.2	0.0095	<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-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-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	
Blanks												
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	
Field Blank	27-Apr-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	0.00054	<0.0005	<0.0005	
Field Blank	10-Aug-00		NA	<0.05	NA	<0.05	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	

Table 5
Summary of Analytical Results For Total Petroleum Hydrocarbon, BTEX, and MTBE Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	TPH, ext., Stoddard	TPH, purge., Stoddard	TPH, ext., Diesel	TPH, purge., Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Notes

Notes:

(1) = TPH results are estimated due to high surrogate recoveries for bromofluorobenzene.

(2) = MTBE was considered not detected due to blank contamination.

(3) = Gasoline, Stoddard solvent, and/or BTEX results are estimated due to surrogate recovery of bromofluorobenzene above upper QC limit.

(4) = Gasoline and Stoddard solvent results estimated due to high surrogate recoveries above the upper QC limit.

(5) = TPH diesel results are estimated due to high RPD > 50%. BTEX results are estimated due to high surrogate recovery above upper QC limits.

(6) = Results are estimated because EPA-recommended hold time was exceeded.

A = Chromatogram pattern: unidentified hydrocarbons C9-C24

B = Chromatogram pattern: unidentified hydrocarbons C9-C13

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

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.

ft bgs = Feet below ground surface

NA = Not analyzed

TPH, ext. = Total petroleum hydrocarbons (extractable)

TPH, purge. = Total petroleum hydrocarbons (purgeable)

MTBE = Methyl tertiary-butyl ether

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

Table 6
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
Temporary sampling points installed by GeoSolv, LLC:										
B-2	24-Jan-00	5 to 21	NA	<0.0013	<0.0013	0.27	0.0014	<0.0013	<0.0013	
B-3	24-Jan-00	5 to 18	NA	<0.002	<0.002	0.61	<0.002	<0.002	<0.002	
B-7	24-Jan-00	5 to 17.5	NA	<0.0036	<0.0036	0.92	0.0043	<0.0036	<0.0036	
B-7	11-Aug-00		NA	<0.0031	<0.0031	0.86	0.0048	<0.0031	<0.0031	
B-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-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-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		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	

Table 6
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
GW-3	11-Aug-00	10 to 20	NA	0.068	0.0028	0.012	<0.0005	<0.0005	<0.0005	
GW-4	19-Jul-99	7 to 12	NA	<0.0005	<0.0005	0.0035	<0.0005	<0.0005	0.0017	
GW-4	20-Jan-00		<0.01	0.0008	<0.0005	0.0036	<0.0005	<0.0005	0.0015	(1)
Split	20-Jan-00		<0.01	0.0006	<0.0005	0.0044	<0.0005	<0.0005	0.0021	(2)
GW-4	27-Apr-00		NA	0.0017	<0.0005	0.001	<0.0005	<0.0005	0.0006	
GW-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		NA	<0.002	<0.002	0.00383	<0.002	<0.002	<0.002	(4)
GW-8	19-Jul-99	10 to 20	NA	0.024	0.015	0.0038	0.0017	**0.0012**	<0.0005	
GW-8	20-Jan-00		NA	0.15	0.19	0.053	0.012	**0.0045**	<0.0007	
Split	20-Jan-00		NA	0.15	0.18	0.052	0.011	**0.0046**	<0.0005	

Table 6
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Location	Date Sampled	Screened Interval Depth (ft bgs)	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2-Dichloro-propane	Notes
GW-8	28-Apr-00	10 to 20	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	
Monitoring wells installed by LFR:										
LFR-1	09-Aug-00	9 to 19	NA	**2.8**	0.064	0.041	<0.0083	<0.0083	<0.0083	(6)
LFR-2	11-Aug-00	9 to 19	NA	<0.0005	<0.0005	0.035	<0.0005	**0.0045**	<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-4	11-Aug-00	9 to 19	NA	<0.0005	<0.0005	0.0012	<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	
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	(7)

Table 6
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

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

Notes:

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

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

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

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

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

(6) = The fourth quarter 2000 sample from LFR-1 was collected on October 30, 2000, and VOC results have been received by LFR. Results for PCE (0.82 mg/l in fourth quarter compared with 2.8 mg/l in third quarter), TCE (0.034 mg/l in fourth compared with 0.064 mg/l in third quarter), and for cis-1,2-DCE (0.010 mg/l in fourth quarter compared with 0.041 mg/l in third quarter) indicate decreased concentrations from the third to the fourth quarter. The reasons for these differences will be evaluated and discussed in the fourth quarter 2000 report.

(7) = Chloroform was detected at 0.0088 mg/l.

ft bgs = Feet below ground surface
NA = Not analyzed

Table 6
Summary of Analytical Results For Volatile Organic Compound (VOC) Analyses of Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

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

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 samples; therefore the results should be considered estimates of groundwater quality.

Table 7
Summary of Analytical Results and Field Measurements For Dissolved Anions, Cations, and Gases in Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/l])

Well Number	Date Sampled	Dissolved Oxygen	Methane	Carbon Dioxide	Ferrous Iron (Fe+2)	Alkalinity, Total as CaCO3, Bicarbonate	Chloride	Nitrogen, Nitrate	Sulfate
B-7	08/11/2000	0.63	11	202		760	39		
B-7-field	08/11/2000							(1)	3
B-10	08/10/2000	0.44	10	145	5.7	520	74	<0.05	<0.5
B-10-field	08/10/2000							(1)	(2)
GW-3	08/11/2000	0.72	<0.0005	54.3		340	25		
GW-3-field	08/11/2000							1	46
MW-11	08/10/2000	2.52	<0.0005	216	<0.1	360	110	2.8	63
MW-11-field	08/10/2000							4.1	67
LFR-1	08/09/2000	3.63				250	110		
	08/11/2000		0.0096	51.1					
LFR-1-field	08/09/2000							5.5	30
LFR-2	08/11/2000	0.48	6.6	174		590	33		
LFR-2-field	08/11/2000				2.7			1.5	(1)
LFR-3	08/10/2000	1.3	0.00051	162	<0.1	310	85	2.4	64
Split	08/10/2000		<0.0005	152		300	85		
LFR-3-field	08/10/2000							2.4	64
LFR-4	08/11/2000	1.13	0.062	161		630	71		
LFR-4-field	08/11/2000				0.14			0.7	1
Field Blank	08/10/2000		<0.0005	<0.1		1.1	<0.2		

Table 7
Summary of Analytical Results and Field Measurements For Dissolved Anions, Cations, and Gases in Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

(concentrations in milligrams per liter [mg/l])

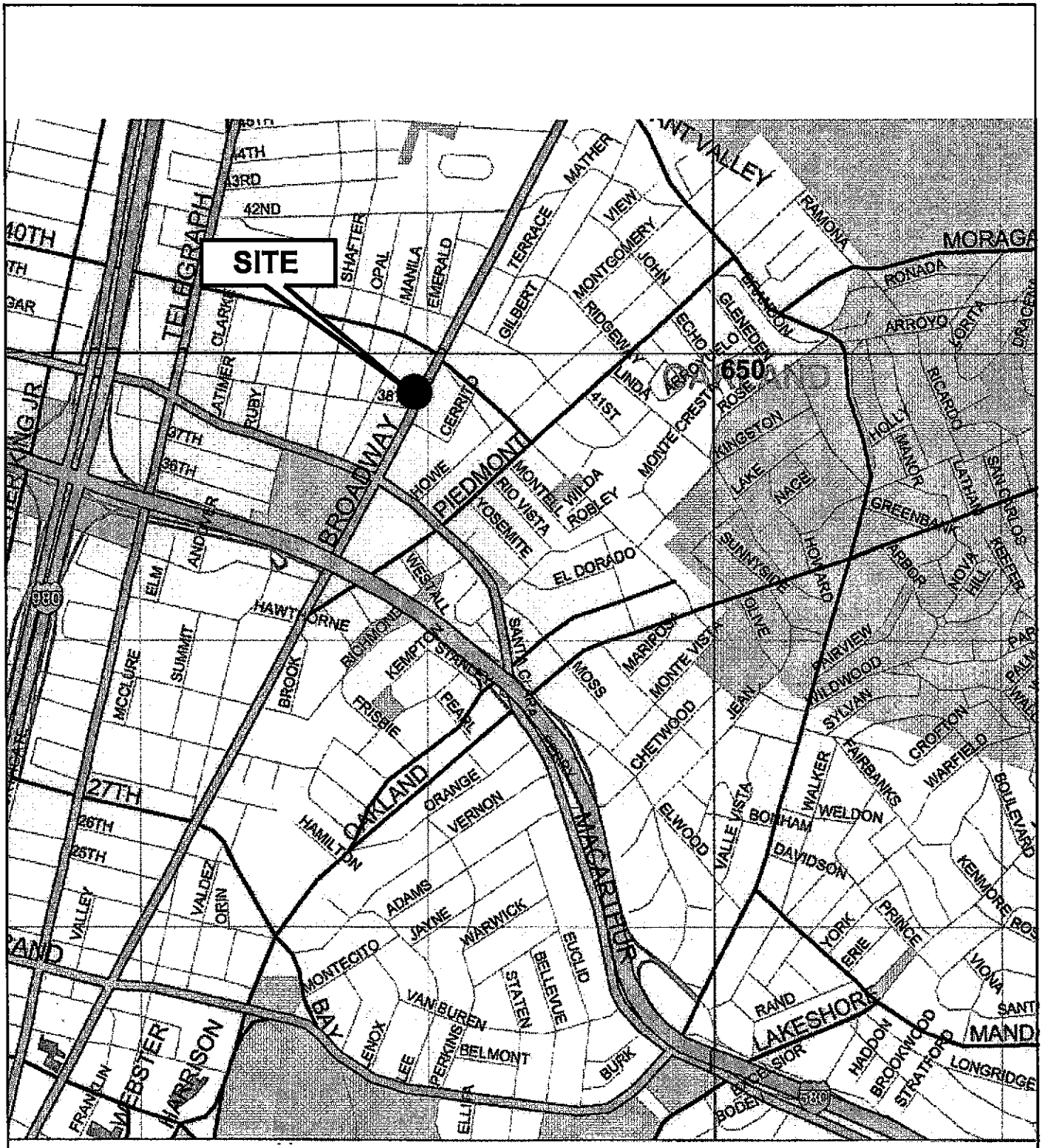
Well Number	Date Sampled	Dissolved Oxygen	Methane	Carbon Dioxide	Ferrous Iron (Fe+2)	Alkalinity, Total as CaCO3, Bicarbonate	Chloride	Nitrogen, Nitrate	Sulfate

Notes:

Samples with "field" in the Well Number indicate that the results are from field measurements obtained using a Hach spectrophotometer.

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

(2) Field measurement sample was not recorded.



Source: The Thomas Guide Digital Edition
1999 Bay Area

3815 BROADWAY, OAKLAND, CALIFORNIA

Site Location Map

LFR LEVINE-FRICKE

Figure 1

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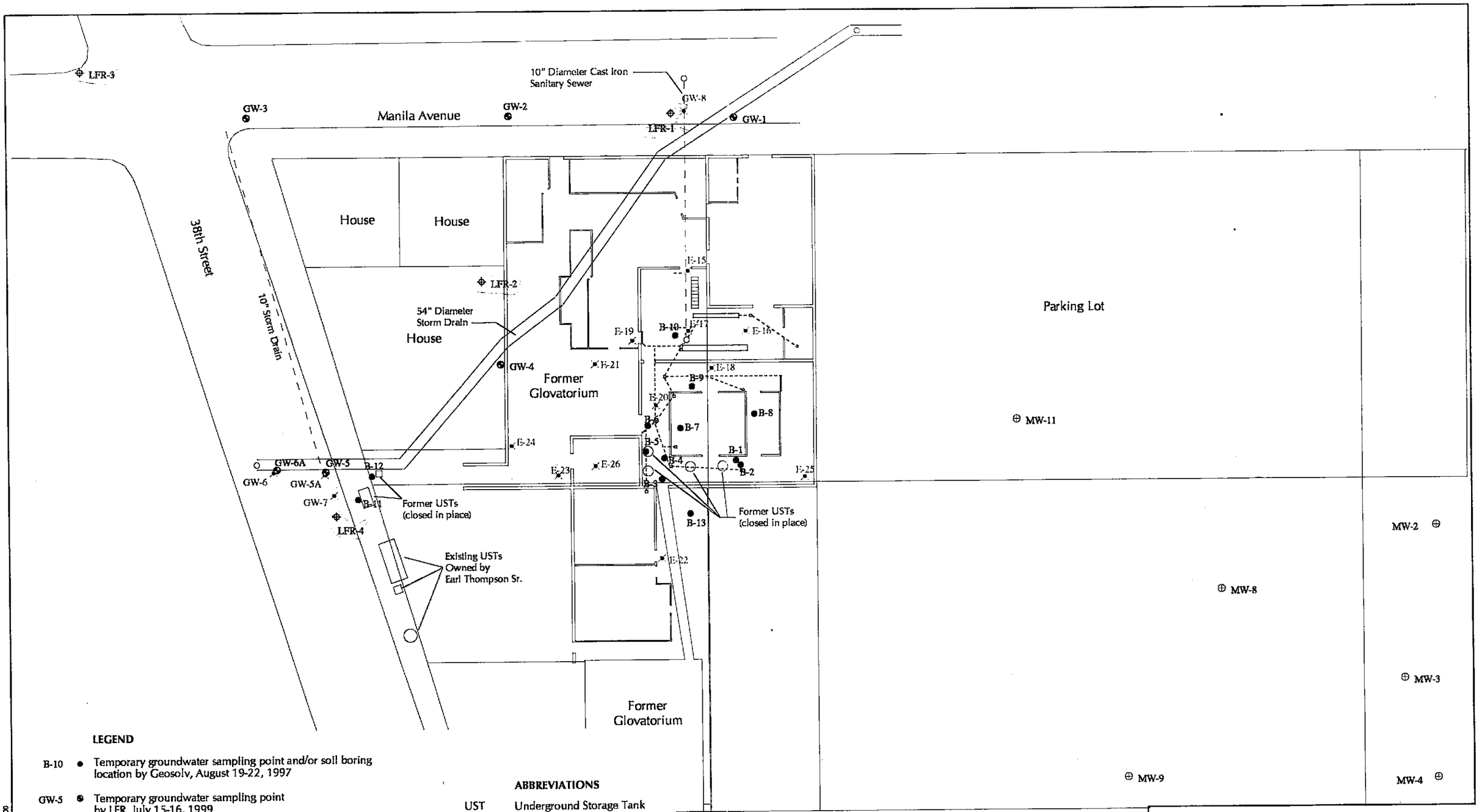

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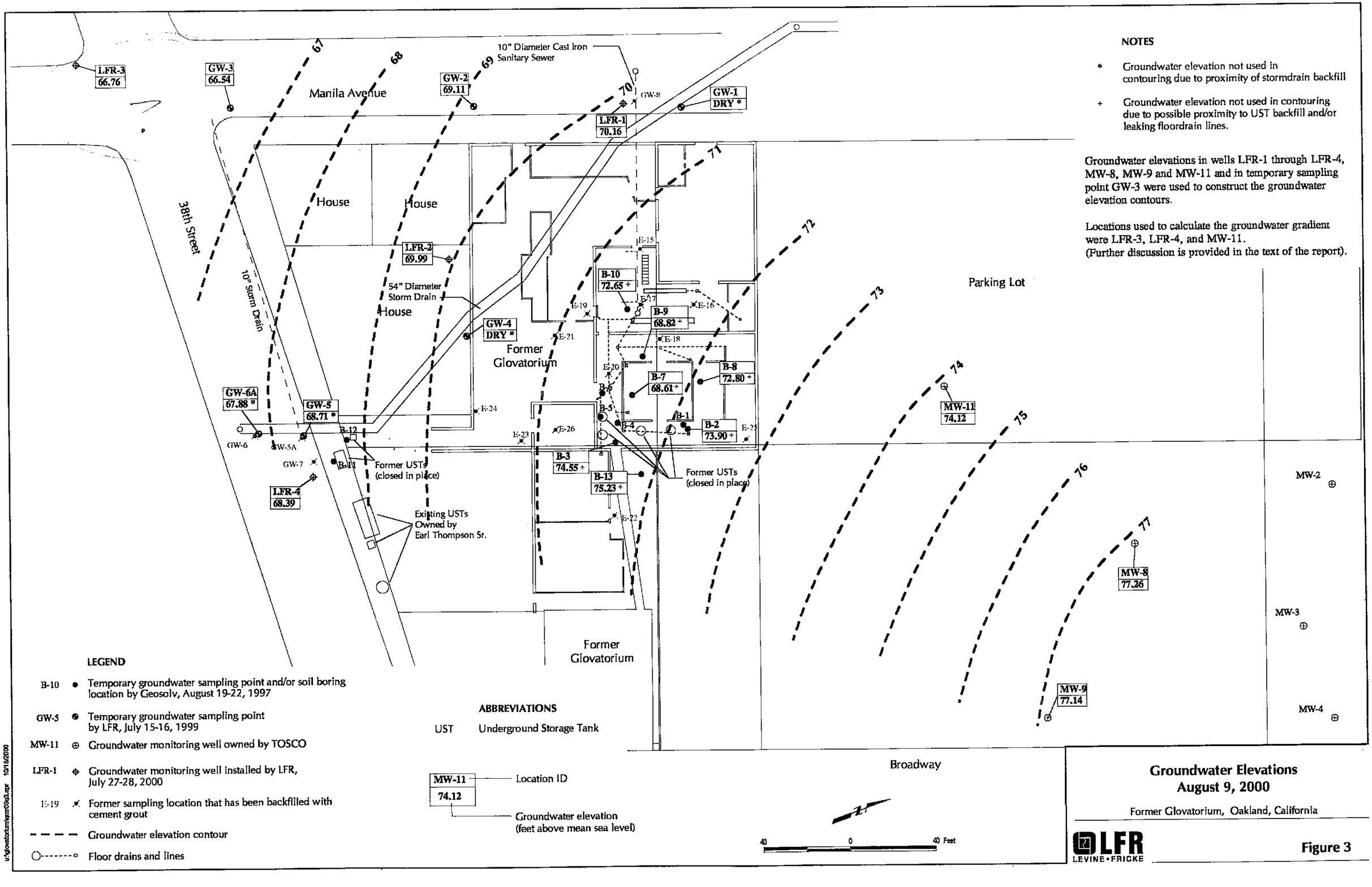
Site Plan Showing Groundwater Sampling Locations

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 2



NOTES

* Groundwater elevation not used in contouring due to proximity of stormdrain backfill

\+ Groundwater elevation not used in contouring due to possible proximity to UST backfill and/or leaking floordrain lines.

Groundwater elevations in wells LFR-1 through LFR-4, MW-8, MW-9 and MW-11 and in temporary sampling point GW-3 were used to construct the groundwater elevation contours.

Locations used to calculate the groundwater gradient were LFR-3, LFR-4, and MW-11.
(Further discussion is provided in the text of the report).

Groundwater Elevations
August 9, 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 3

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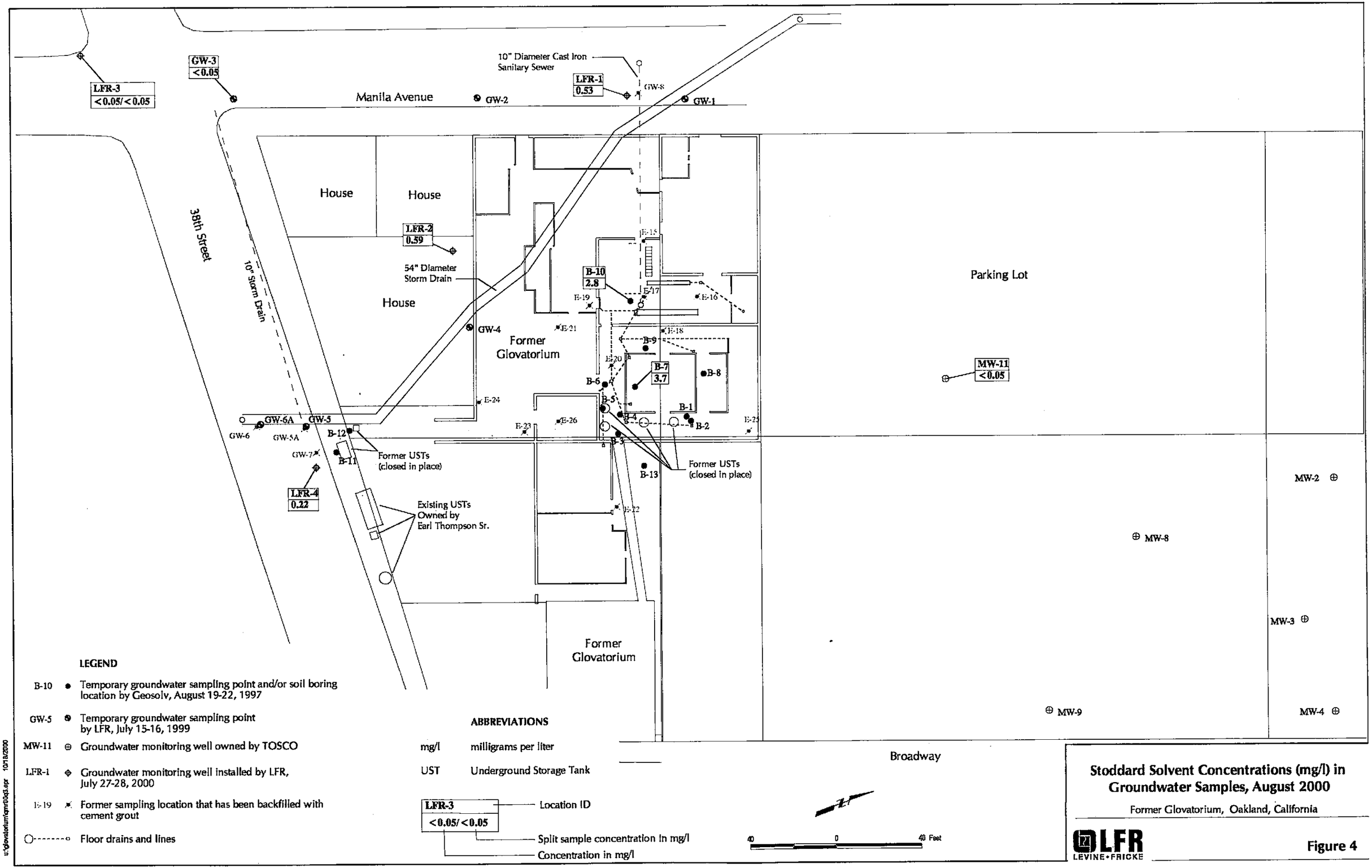

LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	⊛	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	✕	Former sampling location that has been backfilled with cement grout
	○-------○	Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
UST	Underground Storage Tank

LFR-3 — Location ID
<0.05/<0.05 — Split sample concentration in mg/l
Concentration in mg/l

40 0 40 Feet

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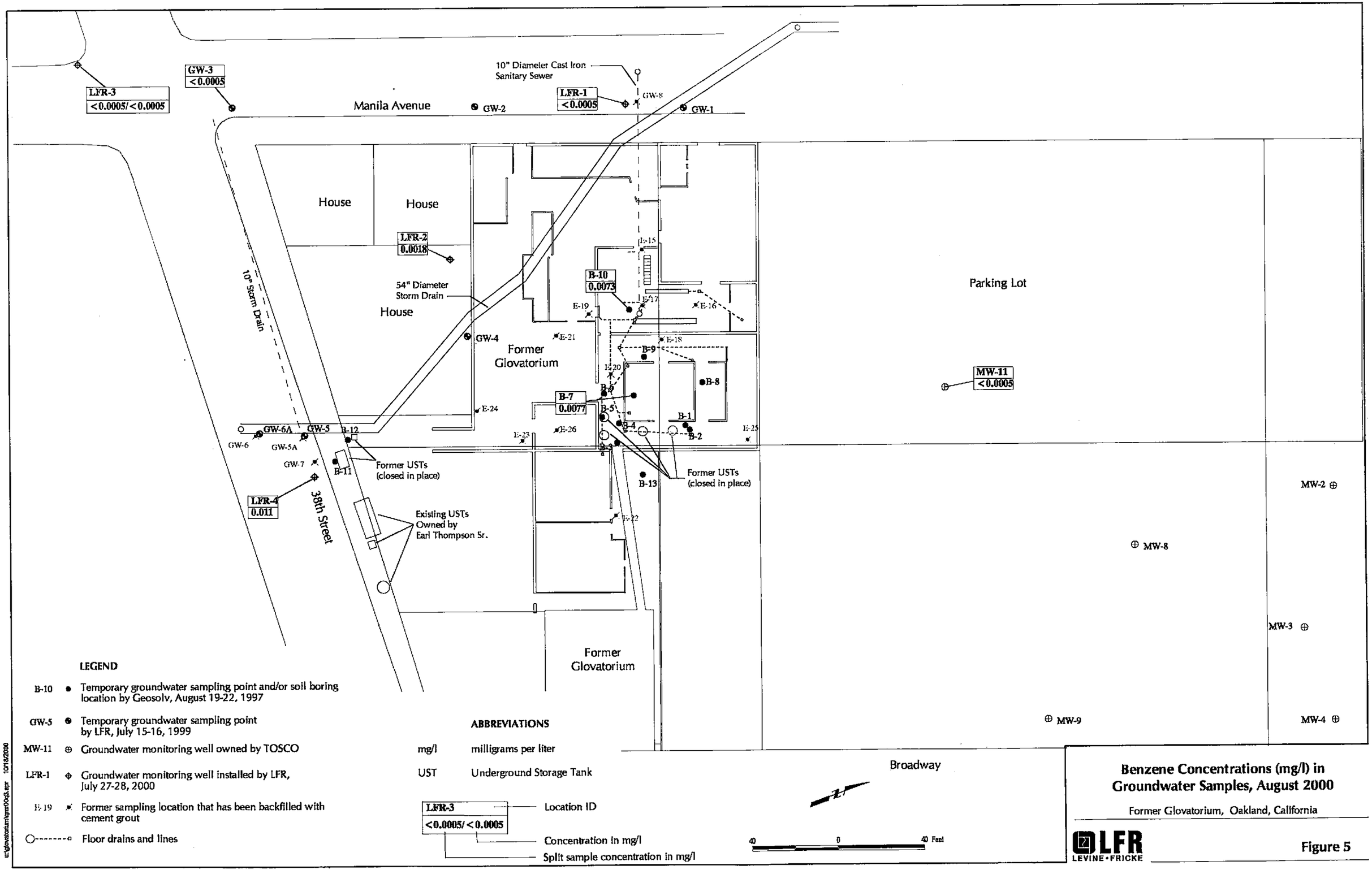
Stoddard Solvent Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 4



LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	⊛	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	✱	Former sampling location that has been backfilled with cement grout
	○--------○	Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
UST	Underground Storage Tank

LFR-3 — Location ID
<0.0005/<0.0005
Concentration in mg/l
Split sample concentration in mg/l

40 0 40 Feet

Benzene Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 5

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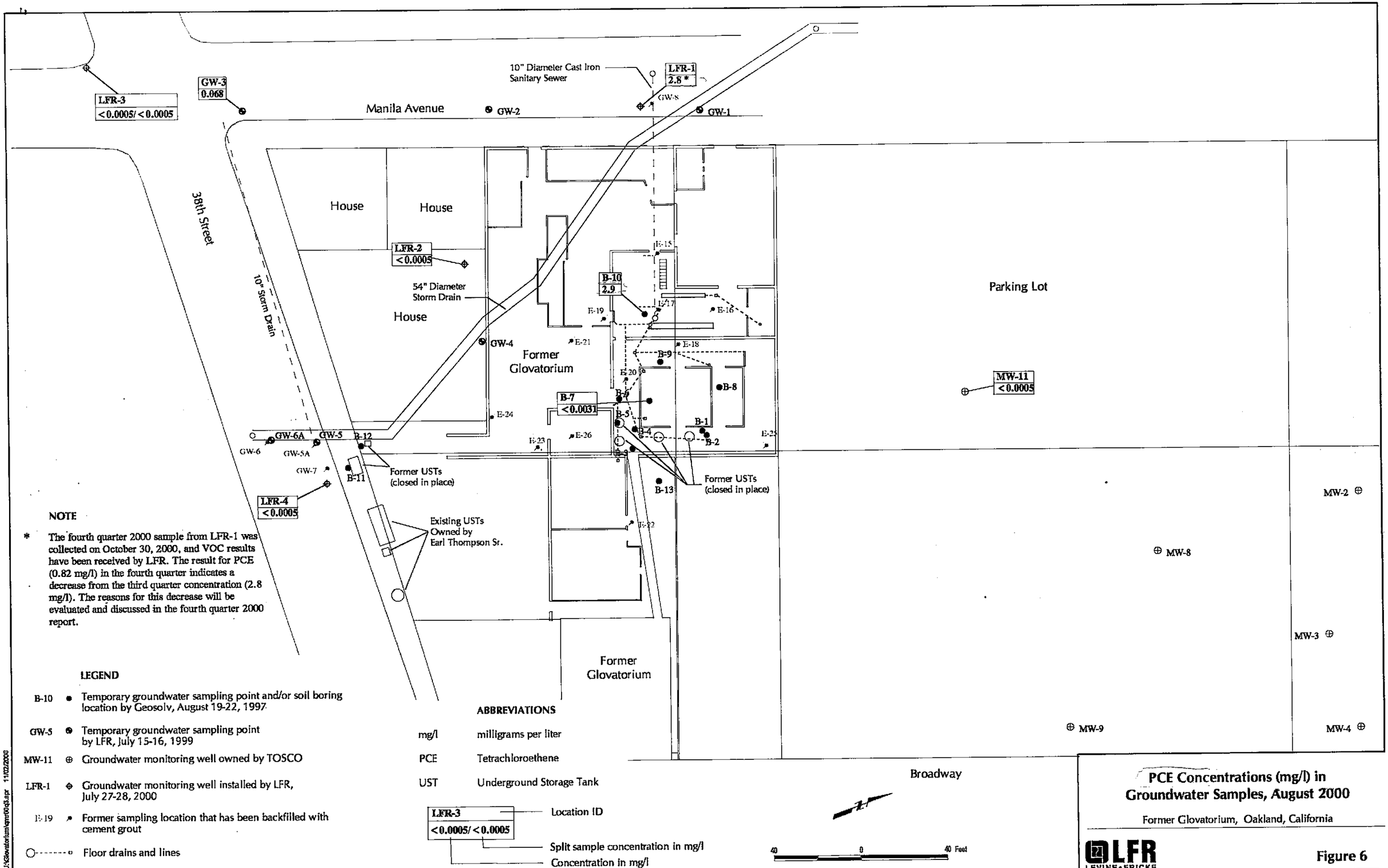

NOTE

* The fourth quarter 2000 sample from LFR-1 was collected on October 30, 2000, and VOC results have been received by LFR. The result for PCE (0.82 mg/l) in the fourth quarter indicates a decrease from the third quarter concentration (2.8 mg/l). The reasons for this decrease will be evaluated and discussed in the fourth quarter 2000 report.

LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	⊕	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	✦	Former sampling location that has been backfilled with cement grout
	○-------○	Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
PCE	Tetrachloroethene
UST	Underground Storage Tank

LFR-3 — Location ID
<0.0005/<0.0005 — Split sample concentration in mg/l; Concentration in mg/l

PCE Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 6

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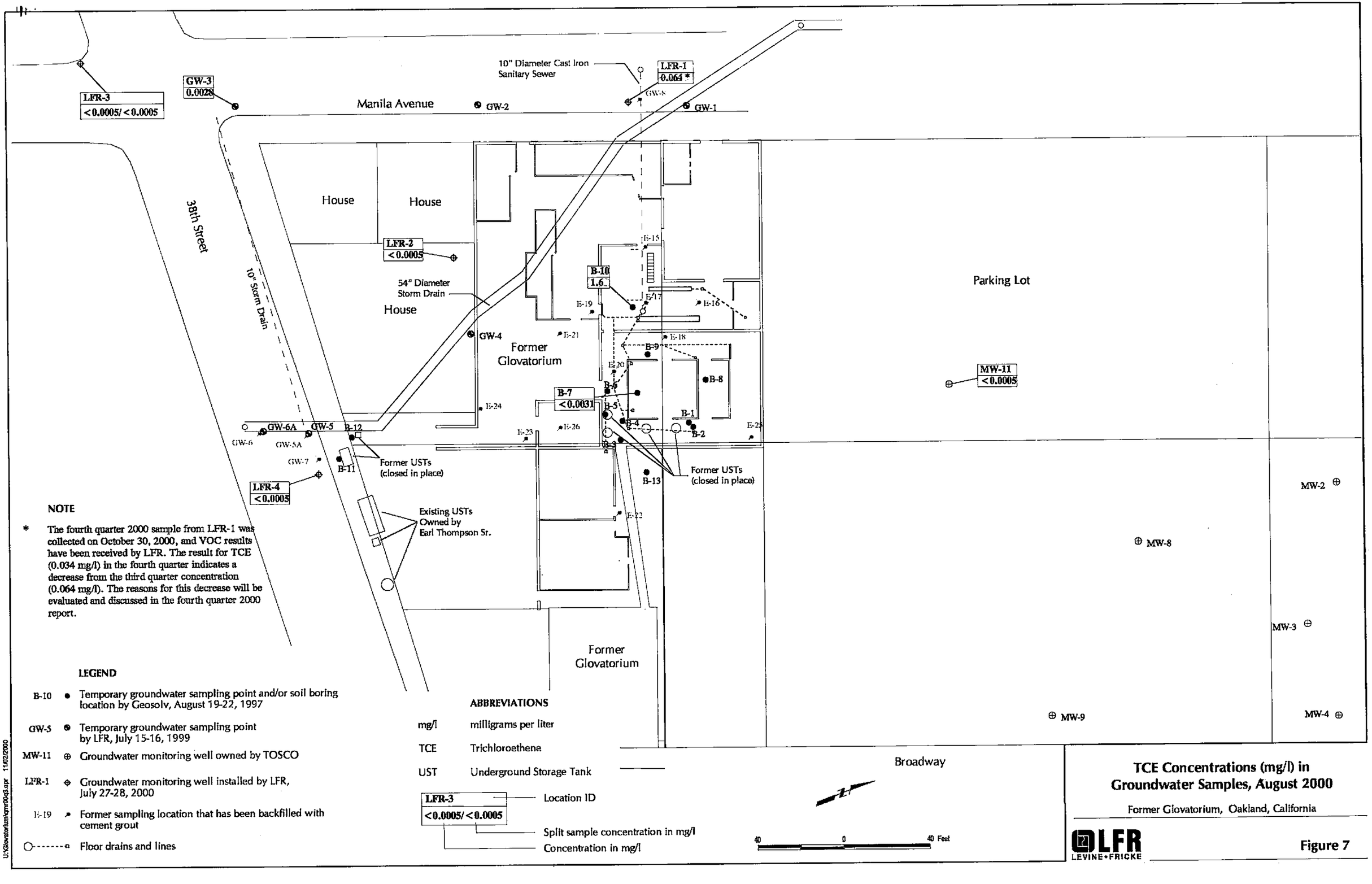

NOTE

* The fourth quarter 2000 sample from LFR-1 was collected on October 30, 2000, and VOC results have been received by LFR. The result for TCE (0.034 mg/l) in the fourth quarter indicates a decrease from the third quarter concentration (0.064 mg/l). The reasons for this decrease will be evaluated and discussed in the fourth quarter 2000 report.

LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	●	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	◤	Former sampling location that has been backfilled with cement grout
○-------□		Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
TCE	Trichloroethene
UST	Underground Storage Tank

LFR-3 — Location ID
<0.0005/<0.0005 — Split sample concentration in mg/l
Concentration in mg/l

TCE Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 7

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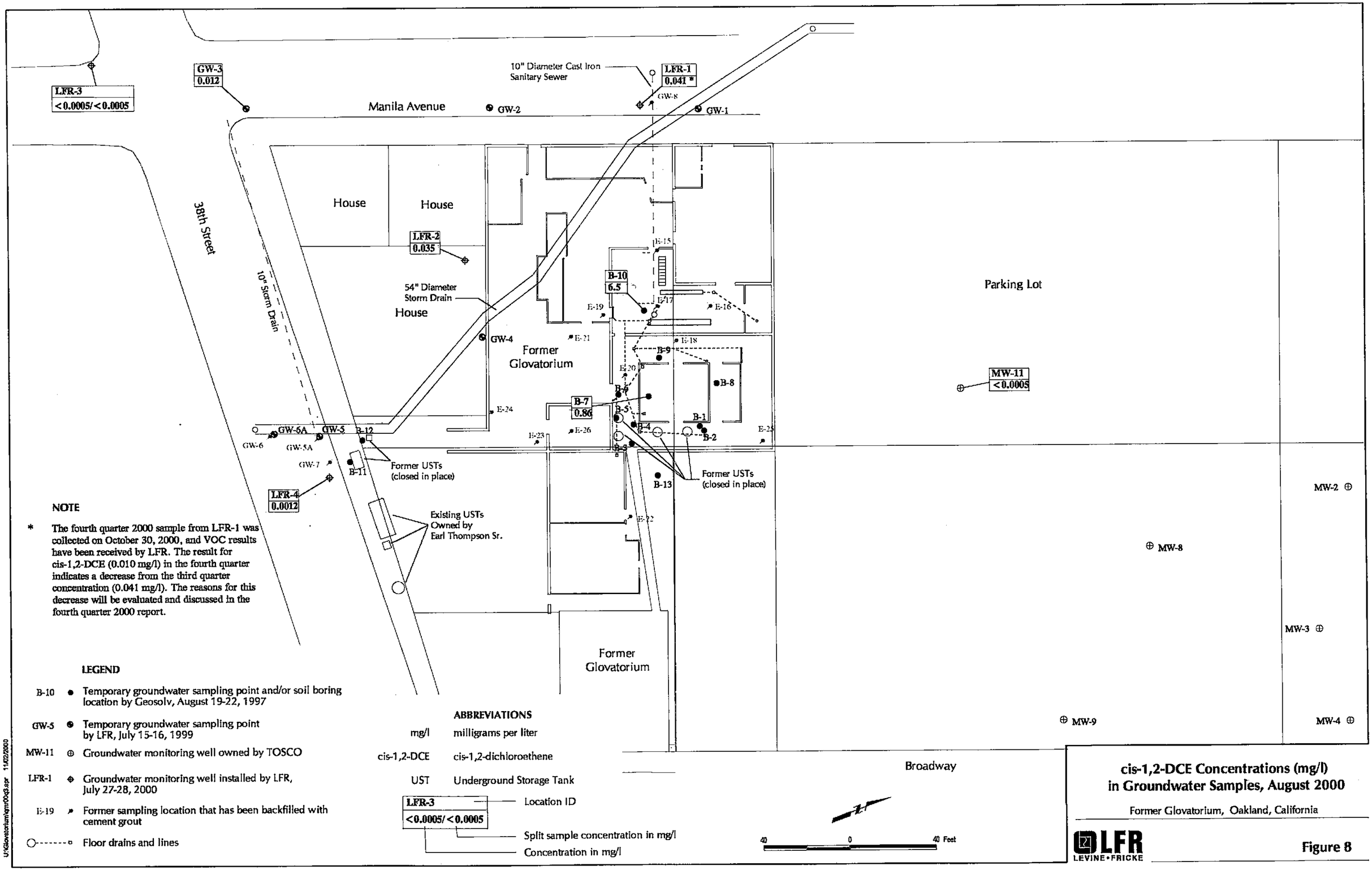

NOTE

* The fourth quarter 2000 sample from LFR-1 was collected on October 30, 2000, and VOC results have been received by LFR. The result for cis-1,2-DCE (0.010 mg/l) in the fourth quarter indicates a decrease from the third quarter concentration (0.041 mg/l). The reasons for this decrease will be evaluated and discussed in the fourth quarter 2000 report.

LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	⊕	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19		Former sampling location that has been backfilled with cement grout
		Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
cis-1,2-DCE	cis-1,2-dichloroethene
UST	Underground Storage Tank

LFR-3 — Location ID
<0.0005/<0.0005 — Split sample concentration in mg/l
Concentration in mg/l

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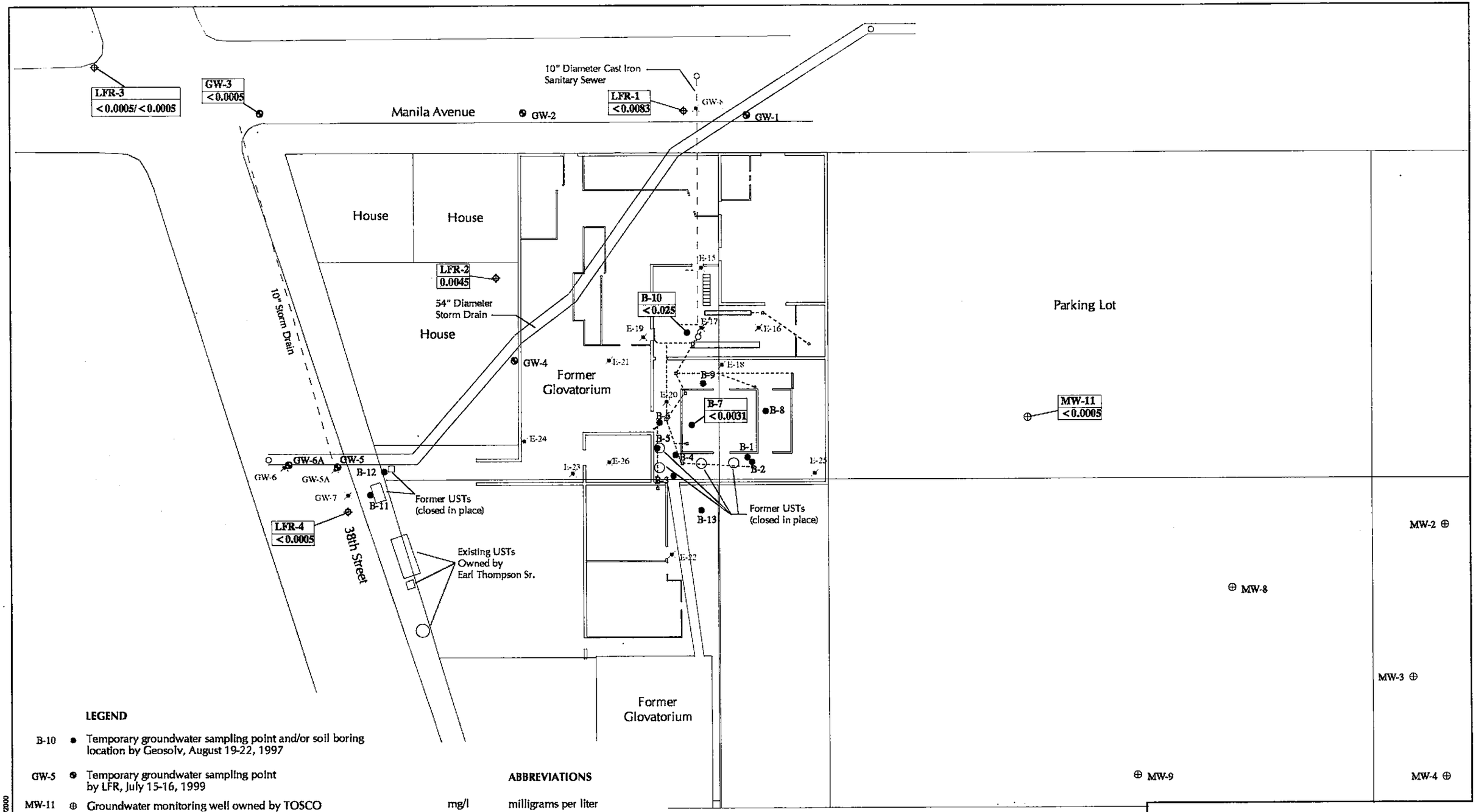
cis-1,2-DCE Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 8



LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	⊛	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	✕	Former sampling location that has been backfilled with cement grout
	○-------○	Floor drains and lines

ABBREVIATIONS

mg/l	milligrams per liter
UST	Underground Storage Tank

LFR-3 — Location ID
<0.0005/<0.0005 — Split sample concentration in mg/l
Concentration in mg/l

Vinyl Chloride Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 9

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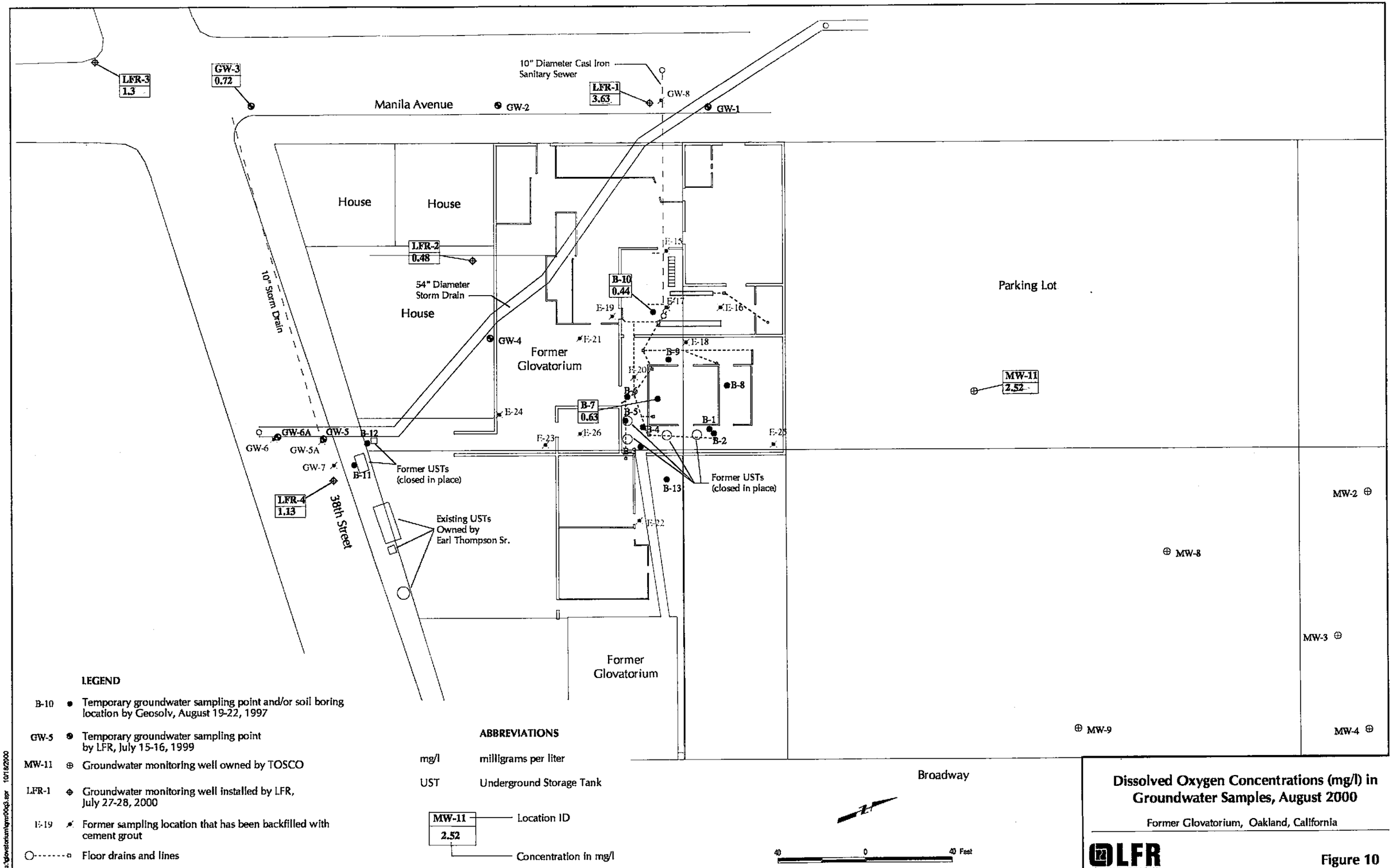

LEGEND

- B-10 ● Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
- GW-5 ⊛ Temporary groundwater sampling point by LFR, July 15-16, 1999
- MW-11 ⊕ Groundwater monitoring well owned by TOSCO
- LFR-1 ⊕ Groundwater monitoring well installed by LFR, July 27-28, 2000
- E-19 ✕ Former sampling location that has been backfilled with cement grout
- ○-------▫ Floor drains and lines

ABBREVIATIONS

- mg/l milligrams per liter
- UST Underground Storage Tank

MW-11 — Location ID
2.52 — Concentration in mg/l

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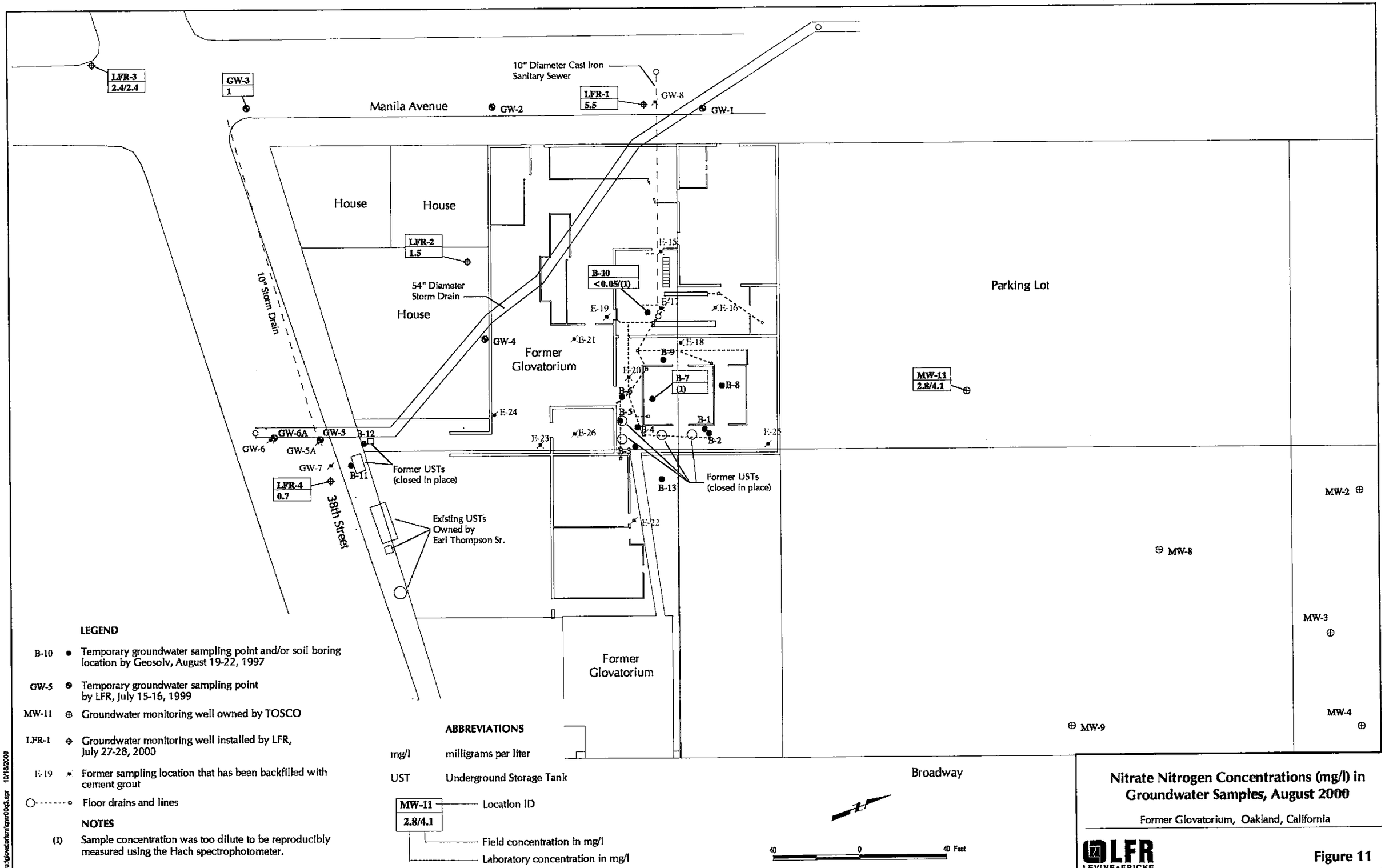
Dissolved Oxygen Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 10



LEGEND

- B-10 ● Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
- GW-5 ⊙ Temporary groundwater sampling point by LFR, July 15-16, 1999
- MW-11 ⊕ Groundwater monitoring well owned by TOSCO
- LFR-1 ⊕ Groundwater monitoring well installed by LFR, July 27-28, 2000
- E-19 * Former sampling location that has been backfilled with cement grout
- ○-------○ Floor drains and lines

NOTES

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

ABBREVIATIONS

- mg/l milligrams per liter
- UST Underground Storage Tank

MW-11 — Location ID
2.8/4.1
- Field concentration in mg/l
- Laboratory concentration in mg/l

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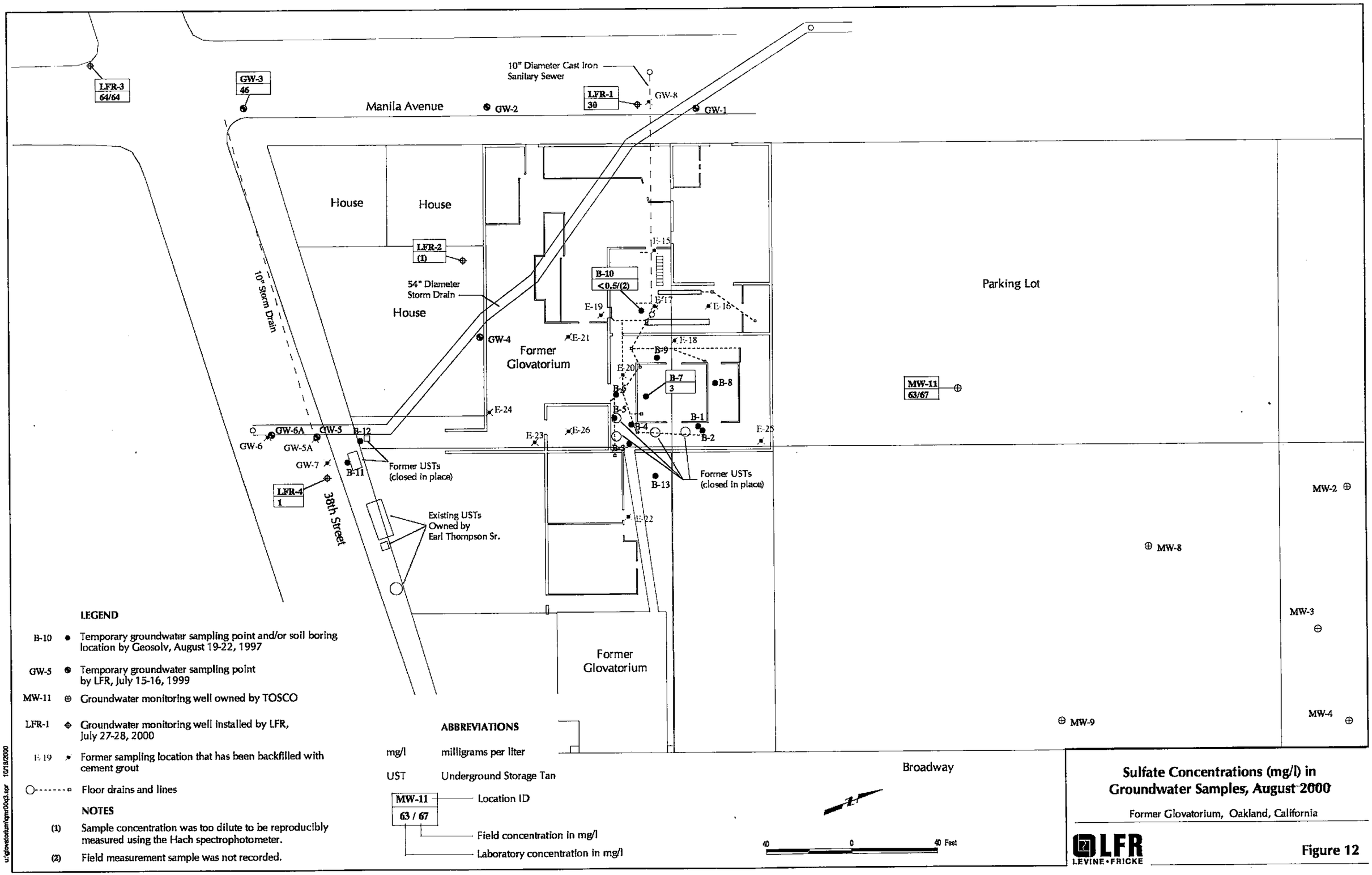
Nitrate Nitrogen Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 11



LEGEND

B-10	●	Temporary groundwater sampling point and/or soil boring location by Geosolv, August 19-22, 1997
GW-5	●	Temporary groundwater sampling point by LFR, July 15-16, 1999
MW-11	⊕	Groundwater monitoring well owned by TOSCO
LFR-1	⊕	Groundwater monitoring well installed by LFR, July 27-28, 2000
E-19	*	Former sampling location that has been backfilled with cement grout
	○-------○	Floor drains and lines

NOTES

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

(2) Field measurement sample was not recorded.

ABBREVIATIONS

mg/l	milligrams per liter
UST	Underground Storage Tan

MW-11 — Location ID
63 / 67 — Field concentration in mg/l
Laboratory concentration in mg/l

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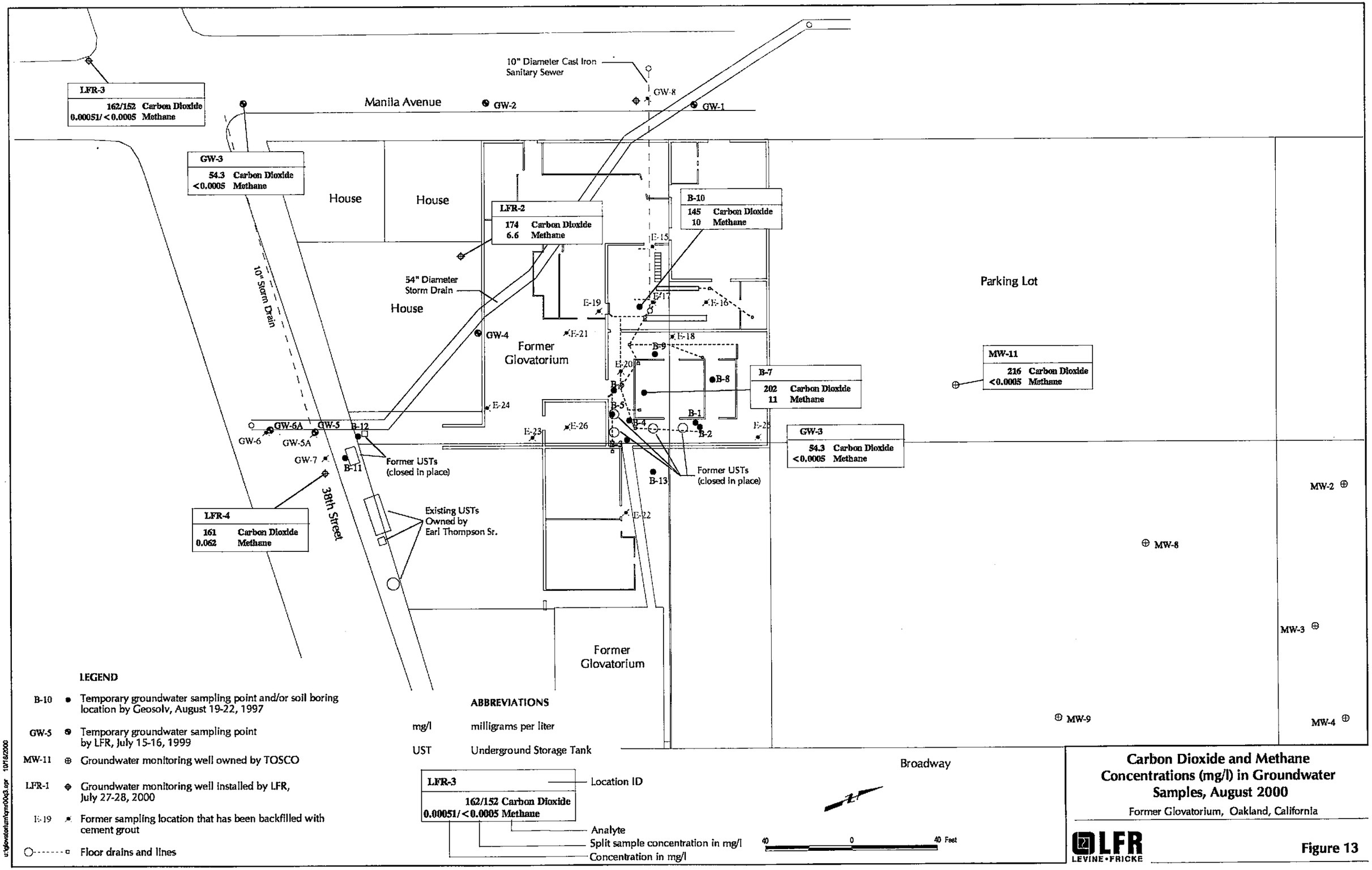
Sulfate Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 12



Carbon Dioxide and Methane Concentrations (mg/l) in Groundwater Samples, August 2000

Former Glovatorium, Oakland, California

LFR LEVINE•FRICKE

Figure 13

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ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Manila Avenue between 28th St and 30th St. Oakland, CA

CLIENT
Name Stuart Depper, Clean Tech Machining
Address 537 No Canal, #2C Phone (650) 589-7677
City South San Francisco, CA Zip 94080

APPLICANT
Name LFR Levine Fricke
Fax (510) 652-4906
Address 1900 Powell St, 12th Fl Phone (510) 652-4500
City Emeryville, CA Zip 94608

TYPE OF PROJECT
Well Construction
Cathodic Protection ☐
Water Supply ☐
Monitoring ☑
Geotechnical Investigation
General ☐
Contamination ☐
Well Destruction ☐

PROPOSED WATER SUPPLY WELL USE
New Domestic ☐ Replacement Domestic ☐
Municipal ☐ Irrigation ☐
Industrial ☐ Other ________ ☐

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Auger ☑
Cable ☐ Other ☐

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter 8 in.
Casing Diameter 2 in.
Surface Seal Depth ≥ 5 ft.
Maximum Depth 20 ft.
Owner's Well Number LFR-1

GEOTECHNICAL PROJECTS
Number of Borings ______
Hole Diameter ______ in.
Maximum Depth ______ ft.

ESTIMATED STARTING DATE 7/26/00
ESTIMATED COMPLETION DATE 7/28/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 7/17/00

PLEASE PRINT NAME Julie Sharp

Rev.6-5-00

FOR OFFICE USE

PERMIT NUMBER W00-449
WELL NUMBER ______
APN ______

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 7-18-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 340 38th St
Oakland, CA

CLIENT
Name Stuart Depper, Clean Tech Machinery
Address 328 No Canal, #56 Phone (650) 587-3677
City South San Francisco, CA Zip 94080

APPLICANT
Name LFR Levine Fricke Fax (510) 652-4906
Address 1900 Powell St., 12th Fl. Phone (510) 652-4500
City Emeryville, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☑	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☑
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing
DRILLER'S LICENSE NO 485165

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 25 ft. Owner's Well Number LFR-2

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 7/24/00
ESTIMATED COMPLETION DATE 7/29/00

FOR OFFICE USE
PERMIT NUMBER W00-445
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole above zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 7-18-00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Julie Sharp DATE 7/17/00
PLEASE PRINT NAME Julie Sharp

Rev. 6-1-00

PLEASE PRINT NAME Julie Sharp Rev. 6-1-00
JUL 17 '00 10:14 5107821939 PAGE.02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT: Intersection of 38th St and Manila Av Oakland CA

CLIENT
Name: Stuart Depper, CleanTech Machinery
Address: 338 No. Canal #26 Phone: (650) 589-3677
City: South San Francisco, CA Zip: 94080

APPLICANT
Name: LFR Levine Fricke
Fax: (510) 652-4906
Address: 1900 Powell St, 12th Fl Phone: (510) 652-4500
City: Emeryville, CA Zip: 94608

TYPE OF PROJECT
Well Construction
Cathodic Protection ☐
Water Supply ☐
Monitoring ☑
Geotechnical Investigation
General ☐
Contamination ☐
Well Destruction ☐

PROPOSED WATER SUPPLY WELL USE
New Domestic ☐ Replacement Domestic ☐
Municipal ☐ Irrigation ☐
Industrial ☐ Other ______ ☐

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Auger ☑
Cable ☐ Other ☐

DRILLER'S NAME: Gregg Drilling & Testing

DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter: 8 in.
Casing Diameter: 2 in.
Surface Seal Depth: > 5 ft.
Maximum Depth: 20 ft.
Owner's Well Number: LFR-3

GEOTECHNICAL PROJECTS
Number of Borings ______
Hole Diameter ______ in.
Maximum Depth ______ ft.

ESTIMATED STARTING DATE: 7/26/00
ESTIMATED COMPLETION DATE: 7/27/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE: [signature] DATE: 7/17/00
PLEASE PRINT NAME: Julie Shaw

Rev.6-5-00

FOR OFFICE USE

PERMIT NUMBER: W00-444
WELL NUMBER: ______
APN: ______

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
(3.) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 7-18-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 38th St between Broadway and Manila Av Oakland, CA

CLIENT
Name Stuart Depper, Clean Tech Machinery
Address 338 No Canal, #26 Phone (650) 589-3677
City South San Francisco, CA Zip 94080

APPLICANT
Name LFR Levine Fricke
Fax (510) 652-4906
Address 1900 Powell St, 12th Fl. Phone (510) 652-4500
City Emeryville, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☑	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☑
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing
DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 5 ft. Owner's Well Number LFR-4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 7/26/00
ESTIMATED COMPLETION DATE 7/28/00

FOR OFFICE USE
PERMIT NUMBER W00-446
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole above zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 7-18-00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Julie Sharp DATE 7/17/00

PLEASE PRINT NAME Julie Sharp

Rev.6-5-00

FAXED 7-18-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 38th St between Broadway and Manila Av Oakland, CA

CLIENT
Name Stuart Dagger CleanTech Machinery
Address 737 N. Canal #36 Phone (650) 589-2677
City South San Francisco, CA Zip 94080

APPLICANT
Name Lee Louise Fricke Fax (510) 652-4906
Address 1900 Powell St, 12th Fl. Phone (510) 652-4920
City Emeryville, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☑

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☑
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing
DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum Depth 13.5 ft.
Casing Diameter 1 in. Owner's Well Number GW-6
Surface Seal Depth ____ ft.

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum Depth ____ ft.
Hole Diameter ____ in.

ESTIMATED STARTING DATE 7/26/00
ESTIMATED COMPLETION DATE 7/28/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Julie Shang DATE 7/17/00
PLEASE PRINT NAME Julie Shang

Rev. 6-5-00

FOR OFFICE USE
PERMIT NUMBER W00-447
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with acceptable grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

(F.) WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 7-18-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Manila Avenue between 38th St and 40th St Oakland, CA

CLIENT
Name Stuart Dapper CleanTech Machining
Address 237 No. Canal #26 Phone (650) 583-2677
City South San Francisco, CA Zip 94080

APPLICANT
Name LFR Levine Fricke Fax (510) 652-4906
Address 1900 Powell St, 12th Fl Phone (510) 652-4500
City Emeryville, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☑

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☑
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing
DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum
Casing Diameter 1 in. Depth 20 ft.
Surface Seal Depth ____ ft. Owner's Well Number GW-8

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 7/26/00
ESTIMATED COMPLETION DATE 7/28/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Julie Sharp DATE 7/17/00
PLEASE PRINT NAME Julie Sharp

Rev.6-5-00

FOR OFFICE USE

PERMIT NUMBER WO0-448
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

(F) WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 7-18-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
955 ELMHURST ST. HAYWARD, CA. 94544-1395
PHONE (510) 670-5554 FAX (510) 782-1939

WATER RESOURCES SECTION
GROUNDWATER PROTECTION ORDINANCE
For **Destruction of Shallow Water Wells (Less than 45 feet in depth)**

Destruction Requirements:

1. Sound the well as deeply as practicable and record for your drillers well report.
2. Remove from the well any pump, appurtenances, debris, and clean out all bridged or poorly compacted materials to the bottom of the well.
3. Remove any casing(s) and annular seal to 2 feet below finished grade of original ground, whichever is the lower elevation.
4. Fill, using a tremie pipe, the casing with neat cement, cement grout or concrete. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.
5. After the seal has set, backfill the remaining hole with compacted material.
6. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
7. Permit is void if project not begun within 90 days of approval date.

CITY OF OAKLAND
Office of Planning And Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

PERMIT NUMBER		SITE ADDRESS/LOCATION
X0000971		3820 Manila Ave
APPROX. START DATE	APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS		CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: _____

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sole requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

Signature of Permittee ☐ Agent for ☐ Contractor ☒ Owner Date 7/11/00

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☒ YES ☐ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☒ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☒ NO
ISSUED BY Robin McGiffen		DATE ISSUED 7-11-00	

File 6895.00-030

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

PAGE 2 of 2

PERMIT NUMBER		SITE ADDRESS/LOCATION
X0000972		3815 Broadway
APPROX. START DATE	APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS		CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry Identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: _____

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☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, an owner of the property, am exempt from the sole requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, an owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

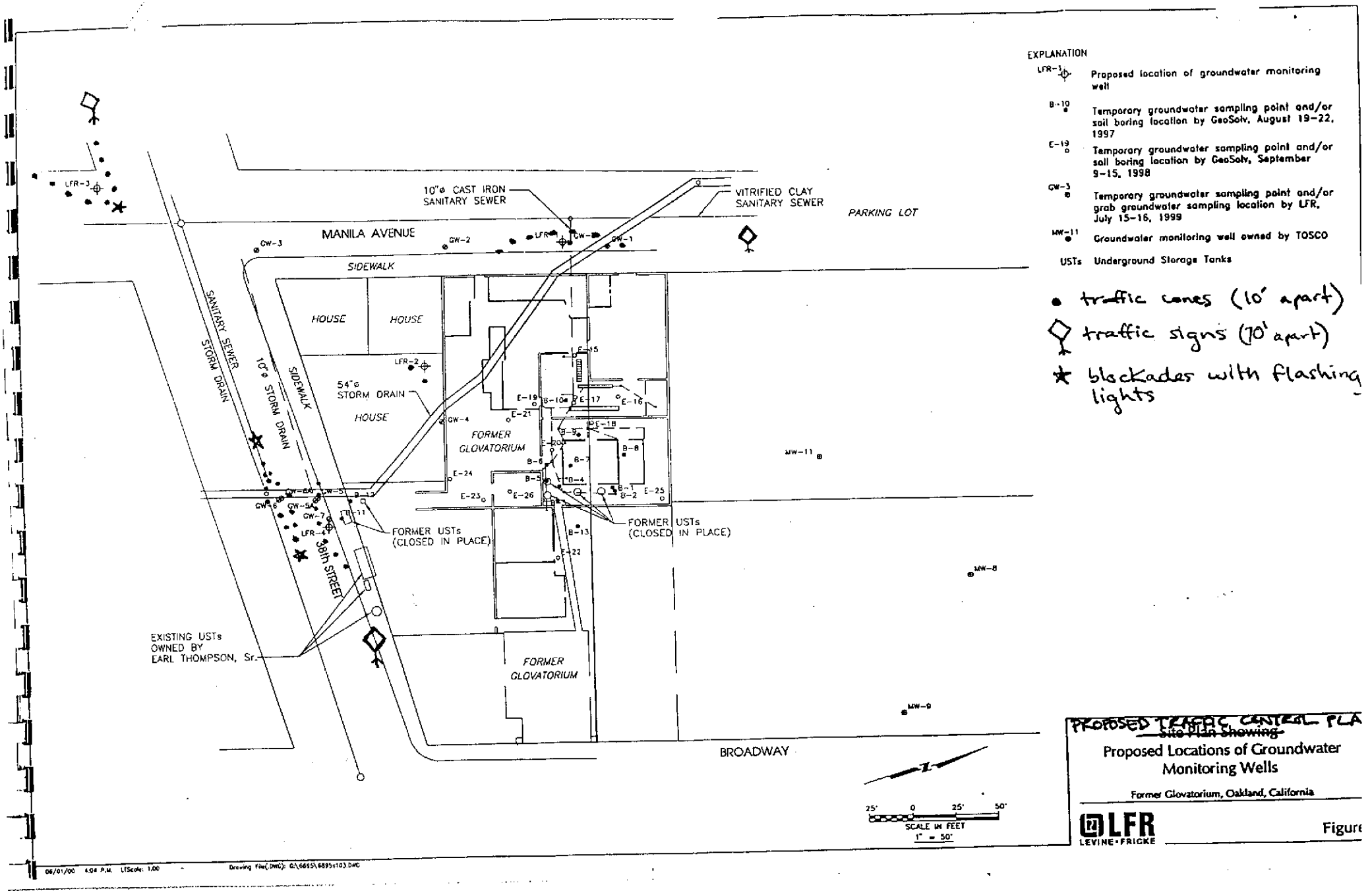
NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X [signature] 7/11/20

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☑ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☑ YES ☐ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☑ YES ☐ NO
ISSUED BY [signature]		DATE ISSUED 7-11-00	



PROPOSED TRAFFIC CONTROL PLA
~~Site Plan Showing~~

Proposed Locations of Groundwater Monitoring Wells

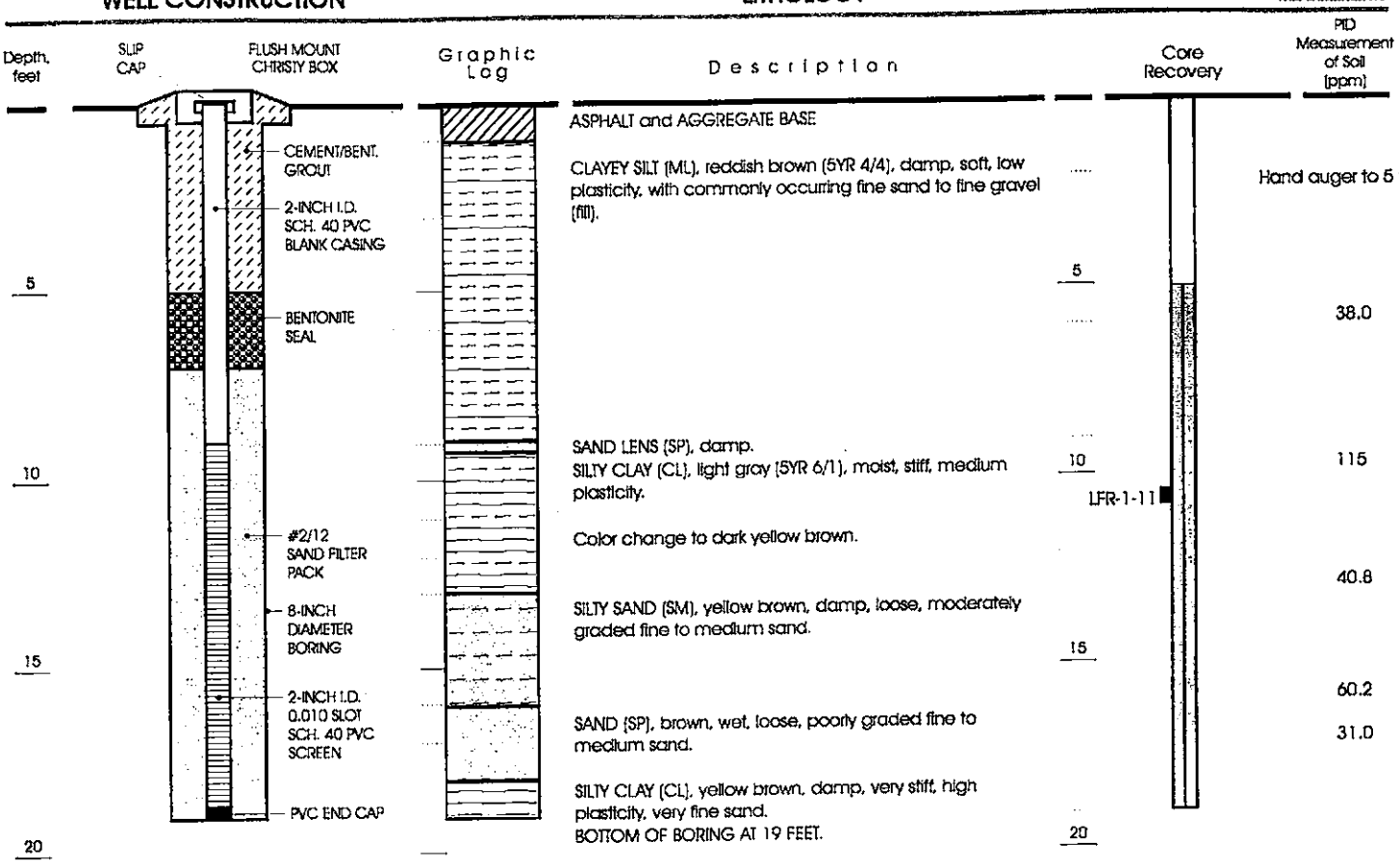
Former Glovatorium, Oakland, California

LFR LEVINE-FRICKE

Figure

Appendix B

Boring Logs and Well Construction Details



Well Permit No.	W00-449
Date Well Drilled:	July 28, 2000
Drilling Company:	Gregg Drilling
Driller:	Trevor
Drill Rig:	Mari M5-T (Rhino) Hollow Stem Auger
Sampling Method:	Hydraulic, continous core
LFR Geologist:	Dan Foster

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using continuous core barrel
- Soil sample collected for analysis

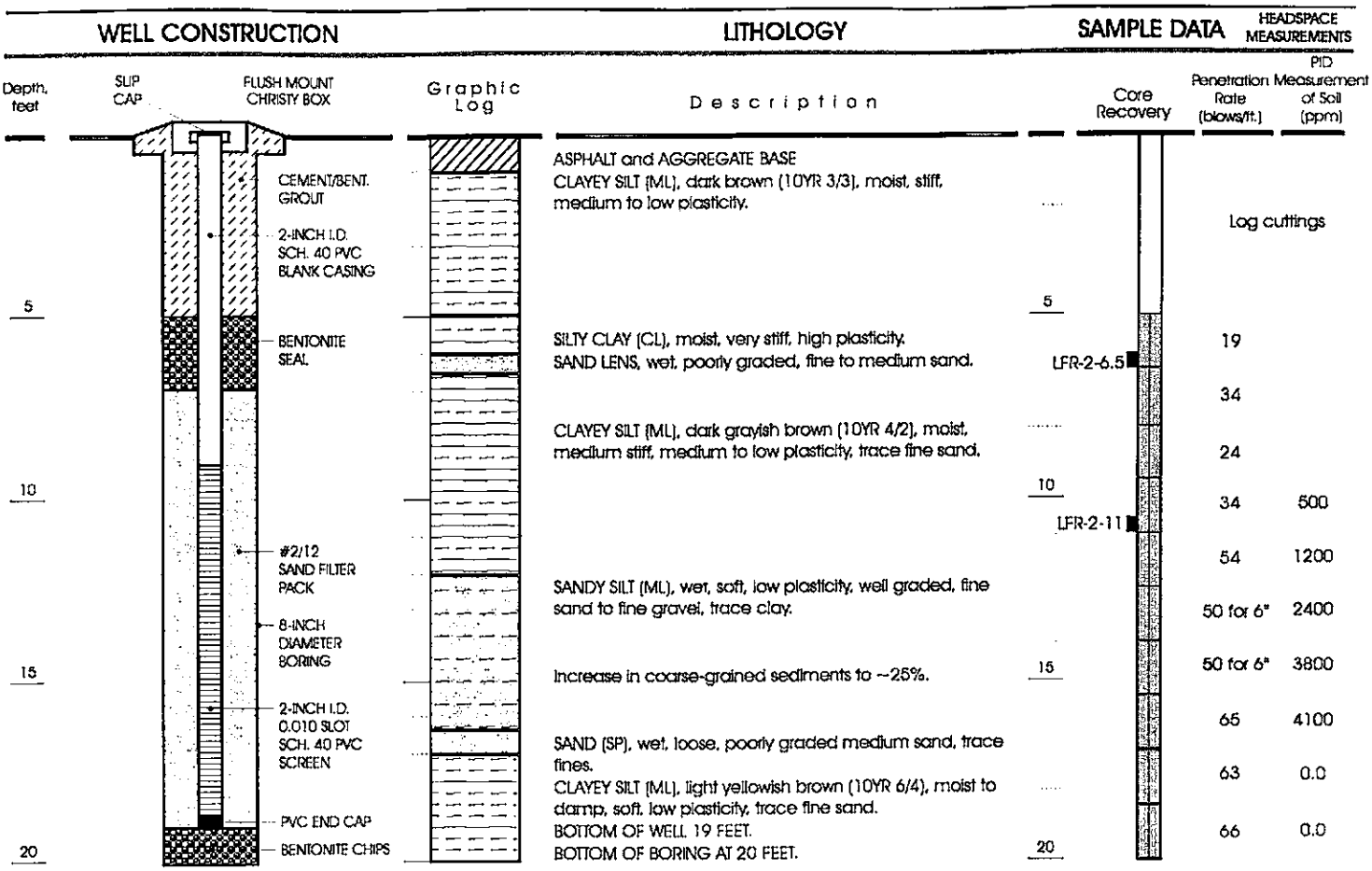
Approved by:

CONSTRUCTION AND LITHOLOGY FOR LFR-1

LFR LEVINE•FRICKE

FORMER GLOVATORIUM

6895L111.CDR 091100



Groundwater not encountered at time of drilling.

Note: PID operation questionable - PID measurements considered qualitative.

Well Permit No.	W00-445
Date Well Drilled:	July 27, 2000
Drilling Company:	Gregg Drilling
Driller:	Trevor
Drill Rig:	Mobile B-53 Hollow Stem Auger
Hammer Weight and Drop:	140 lbs./30-inch
LFR Geologist:	Dan Foster

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using 2-inch I.D. Modified California Sampler
- Soil sample collected for analysis

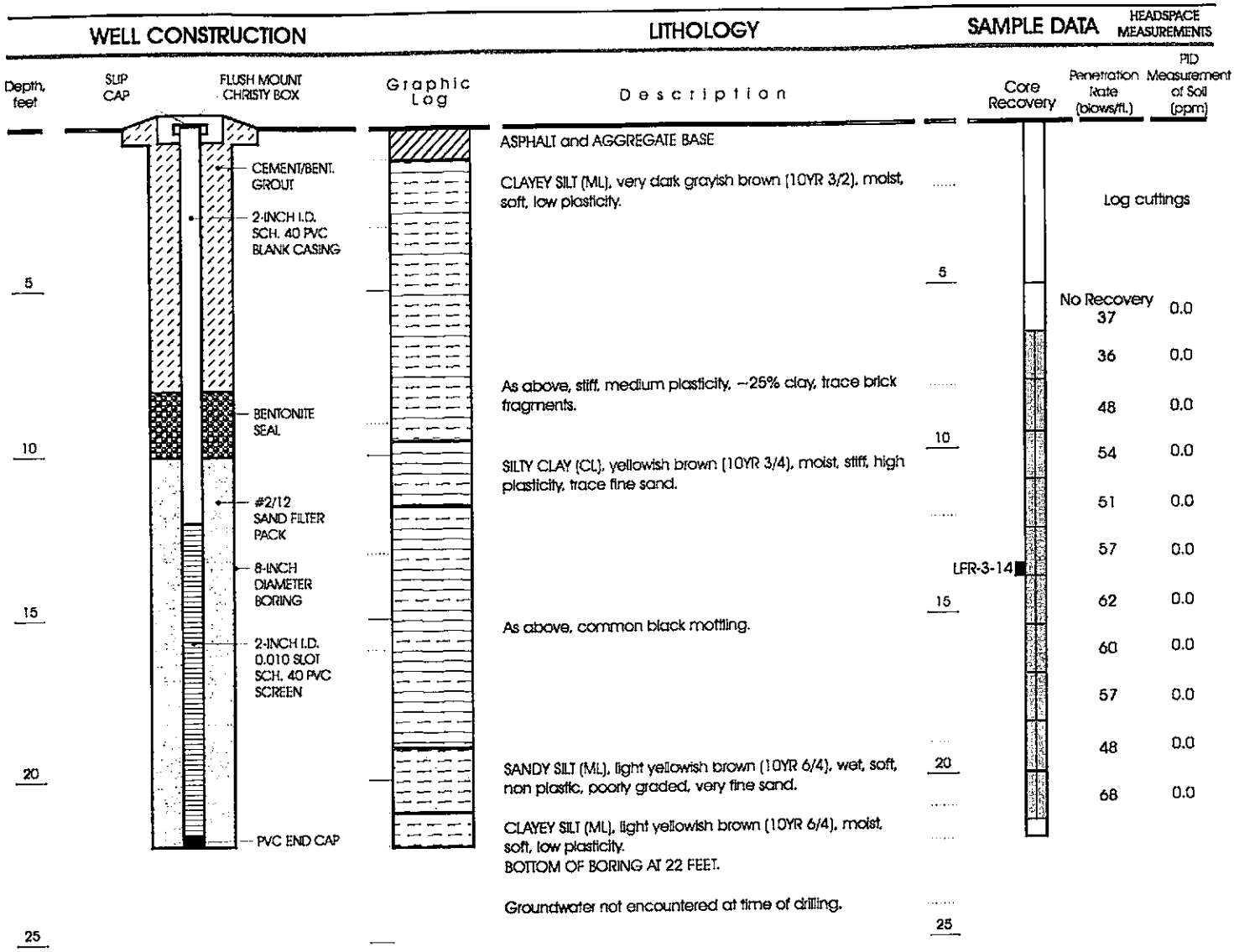
Approved by:

CONSTRUCTION AND LITHOLOGY FOR LFR-2

LFR LEVINE•FRICKE

FORMER GLOVATORIUM

6895L112.CDR 091100



Well Permit No.	W00-444
Date Well Drilled:	July 27, 2000
Drilling Company:	Gregg Drilling
Driller:	Trevor
Drill Rig:	Mobile B-53 Hollow Stem Auger
Hammer Weight and Drop:	140 lbs./30-inch
LFR Geologist:	Dan Foster

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using 2-inch I.D. Modified California Sampler
- Soil sample collected for analysis

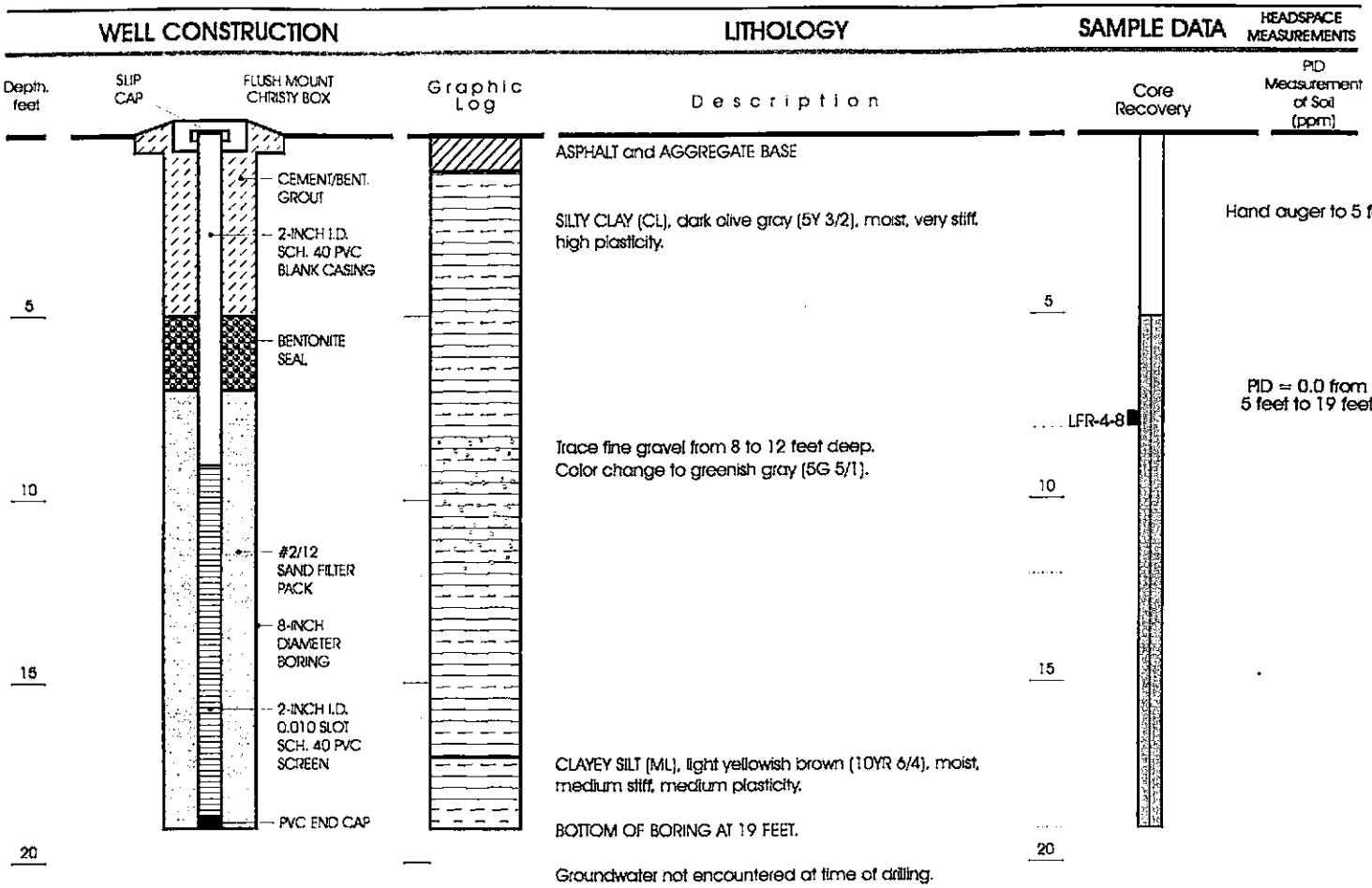
Approved by:

CONSTRUCTION AND LITHOLOGY FOR LFR-3

LFR LEVINE-FRICKE

FORMER GLOVATORIUM

6895L113.CDR 091100



Well Permit No.	W00-446
Date Well Drilled:	July 28, 2000
Drilling Company:	Gregg Drilling
Driller:	Trevor
Drill Rig:	Mari M5-T (Rhino) Hollow Stem Auger
Sampling Method:	Hydraulic, continous core
LFR Geologist:	Dan Foster

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using continuous core barrel
- Soil sample collected for analysis

Approved by:

CONSTRUCTION AND LITHOLOGY FOR LFR-4

LFR LEVINE•FRICKE

FORMER GLOVATORIUM

6895L114.CDR 091100

Appendix C

Field Methods for Soil and Groundwater Investigation

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 drilling, soil sampling, and well construction 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. Soil cuttings, water generated from decontaminating the drilling and sampling equipment, and development and purge water were stored at the Site in 55-gallon drums pending selection of an appropriate disposal alternative.

TEMPORARY SAMPLING POINT ABANDONMENT ACTIVITIES

Two temporary sampling points, GW-6 and GW-8, were abandoned on July 26, 2000, by Gregg Drilling & Testing, Inc., of Martinez, California ("Gregg"), a California state licensed drilling company, under the observation of an LFR geologist. GW-6 was 13.5 bgs and GW-8 was 20 feet bgs. Gregg used a Mobile B-53 hollow stem auger rig. The augers were forwarded with the temporary sampling point casing inside the augers. Casing fragments were removed from the borings with drill cuttings. The borings were overdrilled to approximately 1 foot below the bottom of the casings. To seal the boreholes, a cement-bentonite grout was pumped, through a hose placed in the bottom of the borehole, from the bottom of the boring to the top. The borings were subsequently topped off with grout. The surfaces of the grouted holes were sealed with hot asphalt-concrete per City of Oakland requirements. GW-6 and GW-8 were abandoned under Alameda County Public Works Agency permit numbers WOO-447 and WOO-448, respectively.

DRILLING AND SOIL SAMPLING

Gregg drilled four soil borings in the vicinity of the Site and installed four groundwater-monitoring wells in the borings. The soil borings were drilled using a Mobile B-53 or a Marl M5-T (Rhino) hollow-stem auger rig with 8-inch-outside-diameter augers. An LFR geologist logged the borings in accordance with the Unified Soil Classification System. Soil samples from the borings were collected for lithologic description using a continuous core sampler or a modified California sampler. Sample depths are shown on the boring logs. A photoionization detector (PID) was used to screen soil samples in the field. Soils were monitored with the PID by placing a portion of the soil sample into a glass jar, then placing the jar lid on. The jar lid had a hole approximately the diameter of the PID probe. The PID probe was inserted into the jar through the hole, and the PID measurement was recorded. Soils were tested in this way at approximate intervals of 5 feet. The boring logs in Appendix B show PID measurements recorded for the soil samples.

The samples retained for chemical analysis were collected in brass tubes that were labeled, capped with Teflon™ sheets and plastic caps, and transported in a chilled cooler under standard chain-of-custody protocol to the analytical laboratory.

The locations of the soil borings and temporary groundwater sampling points are shown on Figure 2.

GROUNDWATER MONITORING WELL INSTALLATION

Groundwater monitoring wells LFR-1 through LFR-4 were constructed under the observation of an LFR geologist. The wells used 2-inch-diameter, Schedule 40, factory-slotted (with 0.010-inch slots), polyvinyl chloride (PVC) casing. The PVC casing was installed through the augers, then a sand filter pack consisting of No. 2/12 sand was placed in the annulus between the borehole and the PVC screen as the augers were slowly withdrawn. To reduce the potential for grout to enter the sand pack, the annulus was then backfilled with approximately 2 feet of bentonite. The remaining annular space, above the bentonite seal, was filled with cement-bentonite grout (approximately 5 percent bentonite). Flush-mounted, traffic-rated well boxes were installed on the wells.

LFR-1, LFR-2, LFR-3, and LFR-4 were installed under Alameda County Public Works Agency permit numbers WOO-449, WOO-445, WOO-444, and WOO-446, respectively.

GROUNDWATER MONITORING WELL DEVELOPMENT

Well development for LFR-1 through LFR-4 was conducted on July 31, 2000, to remove sediment and sand remaining after well construction and to enhance hydraulic communication with the surrounding sediments. First, the screened interval was surged with a bailer to stir up sediment before bailing out water. Groundwater was then bailed from the wells to remove the finer-grained soil particles from around the screened interval and to enhance hydraulic communication with surrounding saturated soils. During groundwater withdrawal, the LFR environmental technician recorded measurements or observations of several groundwater parameters (pH, temperature, conductivity, quantity, and clarity). Each well was bailed until approximately ten casing volumes of groundwater were removed. A new disposable polyethylene bailer fitted with new nylon rope was used for each well.

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 five minutes. (Samples were collected from wells and temporary sampling points that produced water. The temporary sampling point GW-2 did not produce enough water, and therefore was not sampled.) 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 7 and C-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.

GROUNDWATER LEVEL MEASUREMENT

Groundwater monitoring well top-of-casing elevations for wells LFR-1 through LFR-4 and MW-11 were surveyed by Carlson, Barbee, & Gibson of San Ramon, California, a California state licensed surveyor. Groundwater levels were measured in previously installed 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, and MW-11 and in newly installed wells 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-2, B-3, and in B-8. 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 7 and Table C-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.

Table C-1
Summary of Analytical Results and Field Measurements for ORP, Iron, Nitrite Nitrogen, Sulphide, Ethane, Ethene, pH, Temperature, and Conductivity in Groundwater Samples
Former Glovatorium
3815 Broadway, Oakland, California

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

Well ID	Date Sampled	ORP (milliVolts)	Iron	Nitrite Nitrogen	Sulfide	Ethane	Ethene	pH (standard units)	Temperature (degrees Celcius)	Conductivity (millisiemens/cm)
B-7	8/11/00	193				<0.0005	<0.0005	6.86	17.55	1.279
B-7-field	8/11/00			(1)	0.049					
B-10	8/10/00	213	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					
GW-3	11-Aug-00	395				<0.0005	<0.0005	7.05	21.43	0.86
GW-3-field	11-Aug-00			0.046	(1)					
MW-11	10-Aug-00	476	0.13	<0.05	<0.04	<0.0005	<0.0005	6.47	21	1.089
MW-11-field	10-Aug-00			0.036	0.002					
LFR-1	11-Aug-00	462				<0.0005	<0.0005	6.97	19.73	0.936
LFR-1-field	9-Aug-00			0.02	(1)					
LFR-2	11-Aug-00	270				<0.0005	0.0017	6.8	19.87	1.088
LFR-2-field	11-Aug-00		2.95	(1)	0.005					
LFR-3	10-Aug-00	464	<0.1	0.15	<0.04	<0.0005	<0.0005	6.57	19.92	0.951
LFR-3 split	10-Aug-00					<0.0005	<0.0005			
LFR-3-field	10-Aug-00			0.058	(1)					
LFR-4	11-Aug-00	402				<0.0005	<0.0005	6.9	20.11	1.24
LFR-4-field	11-Aug-00		0.22	0.018	0.002					
B-10-Field Blank	10-Aug-00					<0.0005	<0.0005			

Notes:

Samples with "field" in the Well Number indicate that the results are from field measurements obtained using a Hach spectrophotometer.

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

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 6895.00.030 Date: 8/11/00 WELL: B-7

Project Name: Gloveatorium Sample Number: B-7

Location: Oakland, CA Blank: /

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: 8.85 Inlet: 1FT From Bottom

TD: 15.90

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
~~Fe+2,+3 Nitrate, Nitrite, Sulfate~~, Alk Cl⁻	1 Unpres. Poly, 1 HCl Poly
~~Metals Filter in Field~~ Cases	~~500mL HNO3~~ 3unpres VOAs
TPH\Solvents	6 VOAs w/ HCl
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min
1435	8.85	0	NA							Start purge GS shows. possible
1445	10.40	0.25		17.62	1.485	0.71	6.79	190	—	Sl. turbid
1450	11.53	0.5		17.42	1.391	0.68	6.80	195	66.8	Sl. turbid
1455	11.51	0.6		17.37	1.384	0.62	6.79	199	>200	Sl. turbid
1500	15.84	0.8		17.36	1.373	0.59	6.80	200	*	Turbidy meter malfunctioning
1503		1.0								Stop DWTR. Solinst was sampling
—										on wet hose?
1510	10.00	1								restart
1515	11.03	1.25		17.51	1.339	0.73	6.85	198	—	Sl. turbid
1520		1.35	↓	17.68	1.323	0.75	6.85	198	—	Sl. turbid TPH odor

NOTES: * #'s ranging from <20 to OR range. Particulates?

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 6895.00.030 **Date:** 8/ 11 /00 **WELL:** B-7

Project Name: Gloveatorium **Sample Number:** B-7

Location: Oakland, CA **Blank:**

Sampler: MXD **DUP:**

Sampling Plan By: JCS **Depth to Water:** **Inlet:** Bottom

Purge Method:	**Peristaltic**	Submersible	**Sampling Method:**	**Peristaltic**	**Analysis**	**Bottles**
	Centrifugal	Extraction		Bailer	Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
					Metals Filter in Field	500mL HNO3
				Sample Port	TPH\Solvents	VOAs
					Delivery: Hand	**LAB:** C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
15.25	13.41	1.5	NA	17.64	1.319	0.74	6.84	196	96.8	sl. turbid
1530		1.75		17.75	1.312	0.75	6.84	196	101.4	sl. turbid
1531		1.8								DWTR off 15.90
1540	10.70			80% DTW =	10.26				9.85 9.41	7.05 8.85 7.05
1545	9.81	1.8								Restart purge
1555	11.00	2.0		17.53	1.298	0.78	6.86	192	40.8	sl. turbid
1600	12.41	2.1		17.59	1.286	0.71	6.87	193	18.8	sl. turbid
1605	13.40	2.25		17.62	1.281	0.69	6.85	193	29.6	sl. turbid
1608		2.4		17.55	1.279	0.63	6.86	193	76.9	sl. turbid off DWTR
1619	10.25									Sample ✱

NOTES: 10.26 80% DTW : Conduct standard Purge ? 3 DWTRS

✱ Effharvescent well DWTR at end of Lab sampling. Allow to recover before collecting HACH

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

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Project #: 6895.00.030 Date: 8/10/00 WELL: B-10

Project Name: Gloveatorium Sample Number: B-10

Location: Oakland, CA Blank: B-10 FB (1330)

Sampler: MXD DUP: —

Sampling Plan By: JCS Depth to Water: 8.85 Inlet: 16.30

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (mS) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
1430	8.85	0	NA	—	—	—	—	—	—	start purge
1433	9.80	0.05								slow as possible
1435	10.25	0.1		18.63	1.239	0.13	6.85	280	>200	cloudy
1440	10.40	0.25		17.69	1.274	0.12	6.84	265	>200	cloudy
1440	10.70			17.34	1.274	0.12	6.83	255	>200	stop-cloudy
1448	9.55									
1450										Restart
1455	9.95	0.5		17.18	1.256	0.16	6.85	236	—	cloudy
1505	10.45	1.0		16.49	1.242	0.18	6.85	230	58.5	cloudy
1515	10.51	1.5		16.97	1.229	0.20	6.85	228	32.7	

NOTES: Obstruction noted at 10' bg (when inserting tubing); FB at 1330

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 6895.00.030 Date: 8/ /00 WELL: B-10

Project Name: Gloveatorium Sample Number: B-10

Location: Oakland, CA Blank:

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: Inlet:

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S)	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
1520	10.45	1.75	NA	16.91	1.209	0.21	6.86	225	18.2	Sl. turbid / Emptied flow cell due to sediment
1530	10.70	2.0		16.96	1.130	0.62	6.86	225	44.1	Sl. turbid
15:35	10.93	2.15		16.81	1.132	0.53	6.86	215	37.0	Sl. turbid
15:40	11.00	2.35		16.80	1.130	0.44	6.86	213	25.2	Sl. turbid
1545										Sample

NOTES:

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

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Project #: 6895.00.030 **Date:** 8/9/00 **WELL:** GW-2

Project Name: Gloveatorium **Sample Number:** GW-2

Location: Oakland, CA **Blank:**

Sampler: MXD **DUP:** GW-102

Sampling Plan By: JCS **Depth to Water:** 10.03 **Inlet:** 14FT → 18FT

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic	Analysis	Bottles
	Centrifugal	Extraction		Bailer	Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
					Metals Filter in Field	500mL HNO3
				Sample Port	TPH\Solvents	VOAs
					Delivery: Hand	**LAB:** C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
1540	10.03	0	NA							start Purge
1545	11.72	0.25		24.94	0.890	2.91	7.05	213	15.23	clear
1550	13.50	0.4		24.91	0.878	1.97	7.05	217	~~9.94~~ 8.34	Pumping as slow as possible
1600	15.20	0.5		24.77	0.830	1.95	7.09	218	8.76	clear
1605	16.86	0.6		24.81	0.841	1.88	7.04	219	4.65	clear
1610	18.11	0.75		24.75	0.852	1.79	7.03	214	4.77	clear
1615		1.0		25.07	0.889	1.78	7.06	199	5.10	clear
1620		1.25		25.11	0.922	2.00	7.04	216		clear - DWTR - OFF
1015	17.01									Date 8/10/00

NOTES:

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 6895.00.030 Date: 8/9/00 WELL: GW-3

Project Name: Gloveatorium Sample Number: GW-3

Location: Oakland, CA Blank:

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: 14F Inlet: 14FT → Bottom

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min
1440	11.20	0	NA							START Purge Turn pump as slow as possible
1443	13.40									
1452		0.1								lower hose and resume
1457	16.32	0.5		20.63	.808	0.82	6.98	393	3.24	clear
15:02	17.96	0.6		21.10	.829	0.87	7.05	395	2.62	clear
1505		0.6		21.43	.860	0.72	7.05	395	—	off DWTR
106	15.21									Date 8/10/00
0706		0.6								Purge on 8/11/00
0708		1.5								DWTR - OFF
1740	16.70	1.5	✓							Sample ☆

NOTES: ☆ well Dewatered while sampling only able to collect 9 VOAs and 1/2 L

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Page 1 of 1

Project #: 6895.00.030 Date: 8/10 /00 WELL: MW-11

Project Name: Gloveatorium Sample Number: MW-11

Location: Oakland, CA Blank: /

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: 10.09 Inlet: 18FT

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
1115	10.09	0	NA							start purge
1120	10.50	0.25	~~20.19~~	20.23	1.106	2.51	6.48	464	1.16	clear
1125	10.50	0.5	NA	20.31	1.100	2.49	6.47	469	1.18	clear
1130	11.00	0.75		20.41	1.096	2.47	6.47	472	~~1.40~~ 1.30	clear
1135	11.03	1.0		20.61	1.092	2.48	6.47	474	1.07	clear
1140	11.33	1.25		20.66	1.089	2.49	6.47	476	1.05	clear slow down pump
1145	11.40	1.5		21.00	1.039	2.52	6.47	476	1.01	clear
1150										sample

NOTES:

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 6895.00.030 Date: 8/ 9 /00 WELL: LFR-1

Project Name: Gloveatorium Sample Number: LFR-1

Location: Oakland, CA Blank: /

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: 9.81 Inlet: 14FT

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
~~Fe+2,+3 Nitrate, Nitrite, Sulfate~~, Alk	1 Unpres. Poly, 1 ~~HCl Poly~~
~~Metals Filter in Field~~	~~500mL HNO3~~
TPH\Solvents	VOAs w/HCl
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (~~%~~ mg/L)	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min
1125		0	NA	~	~	~	~	~	~	start purge
1130	10.13	0.1		20.75	1.022	4.72	7.13	372	14.18	clear
1145	10.43	~~1.5~~		20.80	1.029	4.52	7.09	375	1.94	clear; speak to client
1150		1.75		20.77	1.023	4.56	7.08	375	1.95	clear;
1155	10.52	2.0		20.75	1.009	4.56	7.05	376	1.46	clear
1205	10.61	3.0		20.68	0.977	4.31	6.99	378	1.40	clear
1210		3.25		20.83	0.965	4.07	6.94	380	1.77	clear
1220	10.92	4.0		20.85	0.950	4.20	6.92	382	1.97	clear
1225		4.2		21.16	0.942	4.06	6.91	383	1.43	clear.
1235	10.50	5.0		20.81	0.931	4.12	6.89	385	1.55	clear. - stop.
1250										sample

NOTES:

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Project #: 685.02.030 Date: 8/11/00 WELL: LFR-1

Project Name: Glove Sample Number: LFR-1

Location: Oakland, CA Blank:

Sampler: MKD DUP:

Sampling Plan By: JCS Depth to Water: 9.81 Inlet:

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic	Analysis	Bottles
	Centrifugal	Extraction		Bailer	methane CO2 ethene Ethene	3 unpres VOAs
				Sample Port	Delivery:	LAB:

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (Celsius)	COND (mS/cm)	D.O. ~~(%S)~~ mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
0730	9.81	0	NA							resume purge for gas VOAs
0740	10.15	1		19.64	1.024	4.91	6.99	393	1.73	clear slowdown pump
0745	10.20	1.1		19.63	0.938	3.99	7.00	421	1.59	Clear
0750	10.22	1.25		19.62	0.937	3.99	6.99	436	1.49	clear
0755	10.24	1.4		19.65	0.943	3.89	7.00	444	1.50	clear
0800		1.5		19.70	0.926	3.69	6.98	454	1.49	clear
0805	10.30	1.6		19.73	0.931	3.61	7.00	459	1.42	clear
0810		1.7		19.73	0.936	3.63	6.97	462	1.38	clear - stop param.
0815										sample

NOTES: TB-2 @ 0810

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Page of

Project #: 6895.00.030 Date: 8/11/00 WELL: LFR-2

Project Name: Gloveatorium Sample Number: LFR-2

Location: Oakland, CA Blank:

Sampler: MXD DUP:

Sampling Plan By: JCS Depth to Water: 10.91 Inlet: .14 FT

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S)	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
1150	10.91	0	NR							start purge
1200	11.35	0.25		19.95	1.072	0.66	6.77	319	2.80	clear slow down pump
1205	11.54	0.5		19.98	1.087	0.61	6.79	308	—	clear
1215	11.78	0.75		19.94	1.088	0.53	6.81	300	2.37	clear.
1220	11.82	0.9		19.99	1.073	0.51	6.81	298	2.66	clear
1225	11.92	1.1		19.92	1.085	0.50	6.90	279	2.39	Clear
1230	12.00	1.5		19.95	1.088	0.48	6.80	276	2.36	clear
1235	12.08			19.87	1.088	0.48	6.80	270	2.33	clear stop
1240										Sample

NOTES:

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Page of

Project #: 6895.00.030

Project Name: Gloveatorium

Location: Oakland, CA

Sampler: MXD

Sampling Plan By: JCS

Date: 8/10/00 WELL: LFR-3

Sample Number: LFR-3

Blank:

DUP: LFR-103

Depth to Water: 10.99 Inlet: 16 FT

Purge Method:	Peristaltic	Submersible
	Centrifugal	Extraction

Sampling Method:	Peristaltic
	Bailer
	Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	LAB: C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
0820	10.99	0	NA	—	—	—	—	—	—	start
0825	12.00	0.25		20.19	1.094	3.23	6.77	456	1.44	clear slow down Pump
0830		0.35		20.05	1.100	2.99	6.74	459	1.27	clear
0838	11.89	0.45		20.11	1.057	2.15	6.68	461	1.10	clear
0843	11.90	~~0.75~~ 0.75		19.98	1.024	1.80	6.65	462	1.23	clear
0848		1.00		20.03	1.000	1.66	6.62	463	1.16	clear
08:53	11.96	1.15		19.96	0.996	1.55	6.61	463	1.23	clear
08:58	11.98	1.50		19.95	0.970	1.41	6.60	464	1.08	clear
09:03	12.06	1.75		19.93	0.960	1.34	6.57	464	1.08	clear
09:08	12.07	2.10		19.92	0.951	1.30	6.57	464	1.11	clear

NOTES: 0910: SAMPLE 0915: DUP

LFR-Levine Fricke

MiniSonde
Groundwater Parameter Log

Page of

Project #: 6895.00.030 **Date:** 8/11/00 **WELL:** LFR-4

Project Name: Gloveatorium **Sample Number:** LFR-4

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

Sampler: MXD **DUP:** LFR-104 HOLD

Sampling Plan By: JCS **Depth to Water:** 13.25 **Inlet:** TD: 19.40 Inlet 18FT

Purge Method:	Peristaltic	Submersible	Sampling Method:	Peristaltic
	Centrifugal	Extraction		Bailer
				Sample Port

Analysis	Bottles
Fe+2,+3 Nitrate, Nitrite, Sulfate, Alk	1 Unpres. Poly, 1 HCl Poly
Metals Filter in Field	500mL HNO3
TPH\Solvents	VOAs
Delivery: Hand	**LAB:** C&T

TIME	DTW	VOLUME (Gallons)	Totalizer	TEMP (C)	COND (mS/cm)	D.O. (%S) mg/L	pH	ORP (mV)	TURBIDITY (NTU)	COMMENTS
Stabilization if 3 successive parameters are				NA	+/-3%	+/-10%	+/- 0.1	+/-10mv	+/-10%	Take Readings every 3-5 min.
0855	13.25	0	NA	—	—	—	—	—	—	start purge
0900	13.51	0.25		19.94	1.256	1.09	6.90	363	3.56	clear
0910		0.5		19.91	1.223	0.73	6.95	402	2.35	clear pumps as slow as poss.
0915	13.97	0.7		19.95	1.213	0.85	6.99	404	2.33	clear
0920	14.20	1.0		20.20	1.209	1.16	6.97	405	2.02	clear
0930	15.30	1.5		20.13	1.233	1.16	6.91	402	2.00	clear
0935	15.37	1.75		20.11	1.240	1.13	6.90	402	1.98	clear - ok stop
0940										sample
0945										DUP

NOTES:

Appendix D

Water-Quality Sampling Information Forms And Water-Level Measurements Log

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project No.: 6895.00.030

Date: 7/31/00

Project Name: Gloveatorium

Sample No.: /

Sample Location: Oakland, CA

☐ FB: /

Samplers Name: MXD

☐ DUP: /

Sampling Plan Prepared By: JCS

Sampling Method:

- ☐ Centrifugal Pump
- ☒ Disposable Bailer
- ☐ Submersible Pump
- ☐ Teflon Bailer
- ☒ Hand Bail
- ☐ ________ (Other)
- ☐ Extraction Well Port

Analyses Requested: NA

Number and Types of Bottle used: Develop only

Method of Shipment: / (Lab Name)

☐ Courier /

☐ Hand Deliver /

19.02
9.73
9.29
.16
5574
9290
1.4864
9.29
.2
1.858
9.73

Well Number: LFR-1

Depth to Water: 9.73

Well Depth: 19.02

Height of Water Column: 9.29

Volume in Well: ≈1.5gal

Well Diameter:

- ☒ 2" (0.16 Gallon/Feet)
- ☐ 4" (0.65 Gallon/Feet
- ☐ 5" (1.02 Gallon/Feet)
- ☐ 6" (1.47 Gallon/Feet)

80% DTW 11.58

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temperature °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
0913	9.73	0	NA	—	—	—	—	collect DTW readings
0936	—			—	—	—	—	start purge
0940		1.5		19.7	7.01	1640	>200	cloudy
0943		3		19.6	6.68	1523	>200	cloudy
0946		4.5		19.5	6.47	1392	>200	"
0950		6		19.5	6.47	1398	>200	"
0954	13.48	7.5		19.4	6.51	1654	>200	"
1000		9.0		19.3	6.60	1027	>200	"
1004		10.5		18.8	6.55	1566	>200	"
1009	16.95	12.0		18.8	6.73	1771	>200	cloudy
1013		13.5		18.7	6.74	1614	>200	"
17	16.83	15.0		18.9	6.87	1051	>200	" stop - 10th volume

Inlet Depth:

Comments: MW-11 DTW = 9.92 @ 0927

(Recommended Method For Purging Well)

6

LEVINE•FRICKE

Page ____ of ____

WATER-QUALITY SAMPLING INFORMATION

Project No.: 6895.00.030

Project Name: Gloveatorium

Sample Location: Oakland, CA

Samplers Name: MKD

Sampling Plan Prepared By: JCS

Sampling Method:

- ☐ Centrifugal Pump
- ☐ Submersible Pump
- ☒ Hand Bail
- ☐ Extraction Well Port
- ☒ Disposable Bailer
- ☐ Teflon Bailer
- ☐ _____ (Other)

Date: 7/31/00

Sample No.:

- ☐ FB:
- ☐ DUP:

Analyses Requested: NA

Number and Types of Bottle used: Develop only

Method of Shipment:

(Lab Name)

- ☐ Courier
- ☐ Hand Deliver:

Well Number: LFR4

Depth to Water: 13.11

Well Depth: 19.43

Height of Water Column: 6.32

Volume in Well: ≈ 1.25 gal

Well Diameter:

- ☒ 2" (0.16 Gallon/Feet)
- ☐ 4" (0.65 Gallon/Feet)
- ☐ 5" (1.02 Gallon/Feet)
- ☐ 6" (1.47 Gallon/Feet)

19.43
13.11
6.32
116
3792
6320
1112
6.32
.2
1264
13.11

80% DTW 14.37

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temperature °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
0920	13.11	0	NA					DTW measurements
1035		0						start purge
1038		1.25		19.3	6.75	2.13	173.2	cloudy
1042		~~2.5~~		19.2	6.72	2.36	107.2	"
1045		3.75		19.2	6.68	2.40	148.6	"
1050	17.32	5.0		19.1	6.58	2.46	>200	cloudy
1054		6.25		19.0	6.63	2.26	>200	cloudy
1100		7.5		19.1	6.67	2.20	>200	cloudy - DWTR - st
1250	14.96	7.5						Resume purge
1253		8.75		19.7	6.34	1230	58.7	sl. turbid
1256		10.0		19.5	6.34	1253	122.9	cloudy
22	18.22	11.25		19.4	6.41	1336	>200	"
1310		12.0		19.6	6.45	1284	>200	" stop DWTR

Comments: (Assessment and Method For Purging Well)

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project No.: 6895.00.030

Date: 7/31/00

Project Name: Gloveatorium

Sample No.: /

Sample Location: Oakland, CA

☐ FB: /

Samplers Name: MXD

☐ DUP: /

Sampling Plan Prepared By: JCS

Sampling Method:

☐ Centrifugal Pump
☒ Disposable Bailer
☐ Submersible Pump
☐ Teflon Bailer
☒ Hand Bail
☐ ______ (Other)
☐ Extraction Well Port

Analyses Requested: NA

Number and Types of Bottle used: Develop only

Method of Shipment:

(Lab Name)

☐ Courier

☐ Hand Deliver

18.95
10.72
8.23
.16
4938
8230
13068
8.23
.2
1646
10.72

Well Number: LF-2

Well Diameter:

Depth to Water: 10.72

☒ 2" (0.16 Gallon/Feet)

Well Depth: 18.95

☐ 4" (0.65 Gallon/Feet)

Height of Water Column: 8.23

☐ 5" (1.02 Gallon/Feet)

Volume in Well: ~1.5 gal

☐ 6" (1.47 Gallon/Feet)

80% DTW 12.36

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temperature °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
0923	10.72		NA					DTW measure
1110		0						Start Purge
1113		1.5		18.5	6.53	1495	>200	Cloudy
1116		3.0		18.4	6.45	1403	>200	"
1119	14.16	4.5		18.4	6.46	1535	>200	"
1126		6.0		18.3	6.54	1932	>200	Cloudy
1130		7.5		18.1	6.63	2.47	>200	"
1134		9.0		18.3	6.75	2.13	>200	DWTR - Cloudy - Stop
1315	12.46	9						Resume Purge
1300		10.5		18.6	6.42	1097	118.4	Sl. turbid
1323		12.0		18.6	6.55	1068	>200	Cloudy
28	17.52	13.5		18.2	6.74	1507	>200	Cloudy
1335		14.0		18.8	6.82	1401	>200	Cloudy - DWTR - Stop

Total Depth:

Comments:

(Recommended Method For Purging Well)

LEVINE•FRICKE

Page ____ of ____

WATER-QUALITY SAMPLING INFORMATION

Project No.: 6895.00.030

Date: 7/31/00

Project Name: Gloveatorium

Sample No.: /

Sample Location: Oakland, CA

☐ FB: /

Samplers Name: MXD

☐ DUP: /

Sampling Plan Prepared By: JCS

Sampling Method:

☐ Centrifugal Pump ☒ Disposable Bailer

☐ Submersible Pump ☐ Teflon Bailer

☒ Hand Bail ☐ ______ (Other)

☐ Extraction Well Port

22.07
11.11
10.96
.16
6576
10960
1.7536

10.96
.2
2.192
11.11

Analyses Requested: NA

Number and Types of Bottle used: Develop only

Method of Shipment: ______ (Lab Name) ☐ Courier ☐ Hand Deliver

Well Number: LFR-3

Depth to Water: 11.11

Well Depth: 22.07

Height of Water Column: 10.96

Volume in Well: ≈2 gal

Well Diameter:

☒ 2" (0.16 Gallon/Feet)

☐ 4" (0.65 Gallon/Feet)

☐ 5" (1.02 Gallon/Feet)

☐ 6" (1.47 Gallon/Feet)

80% DTW 13.30

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temperature °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
0916	11.11	0	NA					DTW measurments
1145								start purge
1151		2		20.4	6.59	1923	>200	cloudy
1155		4		20.0	6.49	1725	>200	cloudy
1200	15.14	6		19.8	6.43	1662	>200	cloudy
1206		8		19.7	6.35	1518	>200	cloudy
1213	16.15	10		19.6	6.31	1422	>200	cloudy
1218		12		19.7	6.28	1344	>200	cloudy
1223		14		19.8	6.27	1102	>200	cloudy
1230		16		19.8	6.16	1193	>200	cloudy
1239		18		19.7	6.15	955	>200	"
1243	18.63	20		19.5	6.11	826	>200	" - stop

Inlet Depth: ______

Comments: ______
(Recommended Method For Purging Well)

WATER SAMPLING INFO 2/90VS-RYL

LFR LEVINE·FRICKE

WATER-LEVEL MEASUREMENTS LOG

Project No. 6895.00.030 Date 8/9/00 Page ___ of ___

Project Name Glaatorium

Day: ☐ Sun ☐ Mon ☐ Tues ☒ Weds ☐ Thurs ☐ Fri ☐ Sat

Field Personnel MXD; CMS;

General Observations Cloudy 60°s

WELL NO.	WELL ELEVATION	DEPTH TO WATER 1	DEPTH TO WATER 2	WATER ELEVATION	WELL SECURE? Y	WELL SECURE? N	REMARKS (UNITS = FEET)
LFR-1		9.81	9.81		X		1050
LFR-2		11.90	11.90		X		1123
LFR-3		11.20	11.20		X		1100
LFR-4		13.26	13.26		X		1106
MW-11		10.09	10.09		X		1403
GW-1		DRY			X		1052
GW-2		10.03 ~~[illegible]~~	10.03		X		1028
GW-3		11.38	11.38		X		1104
GW-4		DRY	DRY		X		1120
GW-5		12.30	12.30		X		1108
GW-6A		13.73	13.73		X		1114
B-2		8.19	8.19		X		Product 1155
B-3		8.02	8.02		X		Product 1145
B-7		8.35	8.35		X		1143
B-8		9.02	9.02		X		Product 1204
B-9		8.55	8.55		X		1138
B-10		8.85	8.85		X		1135
B-13		TRACE	TRACE		X		TD= 9.85 1150
MW-8		10.18	10.18	8/10	X		1634
MW-9		9.42	9.42	8/10	X		1636

Appendix E

Laboratory Certificates

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: 25-SEP-00
Lab Job Number: 146813
Project ID: ~~N/A~~ 0895.00.030
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: _____ for JG
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Numbers: **146813**
Client: **LFR-Levine-Fricke**
Project #: **6895.00-030**
Location: **Glovatorium**
COC#: **10170 & 10210**

Sampled Date: **07/27,28/00**
Received Date: **07/28/00**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for twenty-seven soil samples, which were received from the site referenced above on July 28, 2000. The samples were received intact. All data were faxed to Julie Sharp on August 07,2000.

TVH/BTXE:
High surrogate recoveries for bromofluorobenzene were observed in samples 1-11 (CT# 146813-002) and 2-11 (CT# 146813-008) due to hydrocarbons coeluting with the surrogate peak. No other analytical problems were encountered.

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

146813

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00 - 030	Field Logbook No.:	Date: 7/28/00	Serial No.: 10170
Project Name: GLOVATORIUM	Project Location: 3815 BROADWAY OAKLAND CA		
Sampler (Signature):			Samplers: DJF / CNS

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	VOCs	TPHss	BTEX	MTBE	HOLD	RUSH	REMARKS
1-7	7/28/00	—		1	SOIL							X		
1-11				1				X	X	X	X			
1-15				1								X		NORMAL TAT
1-19	↓			1								X		
2-6.5	7/27			1				X	X	X	X			
2-8				1								X		PLEASE FAX RESULTS
2-9.5				1								X		TO JULIE SHARP @
2-11				1				X	X	X	X			LBR
2-12.5				1								X		
2-13.5				1								X		
2-15				1								X		
2-16.5				1								X		
2-18				1								X		
2-19.5				1								X		
3-8				1								X		
3-9.5	↓			1	↓							X		

RELINQUISHED BY: (Signature) Christy Swanson	DATE 7/28	TIME 3:50	RECEIVED BY: (Signature) Ben Smith	DATE 7/28	TIME 3:50
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 1900 Powell Street, 12th Floor Emeryville, Ca 94608 (415) 652-4500	Analytical Laboratory:

Shipping Copy (White) Lab Copy (Green) File Copy (Yellow) Field Copy (Pink) FORM NO. 86/COC/ARF

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00-030	Field Logbook No.:	Date: 7/28/00	Serial No.: 10210
Project Name: GLOVATORIUM	Project Location: 3815 BROADWAY, OAKLAND CA		
Sampler (Signature):			

SAMPLES / ANALYSES — Samplers: DSF / CNS

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	VOCs	TPHss	BTEX	MTBE	HOLD	RUSH	REMARKS
3-11	7/27			1	SOIL						X			
3-12.5				1							X			NORMAL TAT's
3-14				1				X	X	X	X			
3-15.5				1							X			
3-17				1							X			Please fax Results
3-18.5				1							X			to Julie Sharp @
3-20				1							X			LFR
3-21.5				1							X			
4-8	7/28			1				X	X	X	X			
4-12				1							X			
4-20				1							X			
											X			
											X			

CNS 7/28

RELINQUISHED BY: (Signature) CHRISTY SWINDLING	DATE 7/28	TIME 3:50	RECEIVED BY: (Signature) Ben Smith	DATE 7/28	TIME 3:50
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
1900 Powell Street, 12th Floor
Emeryville, Ca 94608
(415) 652-4500

Analytical Laboratory:

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

FORM NO. 86/COC/ARF

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Received:	07/28/00
Basis:	wet		

Field ID: 1-11 | Batch#: 57421
Type: SAMPLE | Sampled: 07/28/00
Lab ID: 146813-002 | Analyzed: 08/02/00

Analyte	Result	RL
Gasoline C7-C12	6.0 H Y	2.1
Stoddard Solvent C7-C12	2.7	2.1

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	62-138
Bromofluorobenzene (FID)	121	46-150

Field ID: 2-6.5 | Batch#: 57385
Type: SAMPLE | Sampled: 07/27/00
Lab ID: 146813-005 | Analyzed: 08/02/00

Analyte	Result	RL
Gasoline C7-C12	ND	0.97
Stoddard Solvent C7-C12	ND	0.97

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	62-138
Bromofluorobenzene (FID)	114	46-150

Field ID: 2-11 | Batch#: 57385
Type: SAMPLE | Sampled: 07/27/00
Lab ID: 146813-008 | Analyzed: 08/02/00

Analyte	Result	RL
Gasoline C7-C12	22 H Y	0.92
Stoddard Solvent C7-C12	10	0.92

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	62-138
Bromofluorobenzene (FID)	160 *	46-150

Field ID: 3-14 | Batch#: 57385
Type: SAMPLE | Sampled: 07/27/00
Lab ID: 146813-019 | Analyzed: 08/02/00

Analyte	Result	RL
Gasoline C7-C12	ND	0.97
Stoddard Solvent C7-C12	ND	0.97

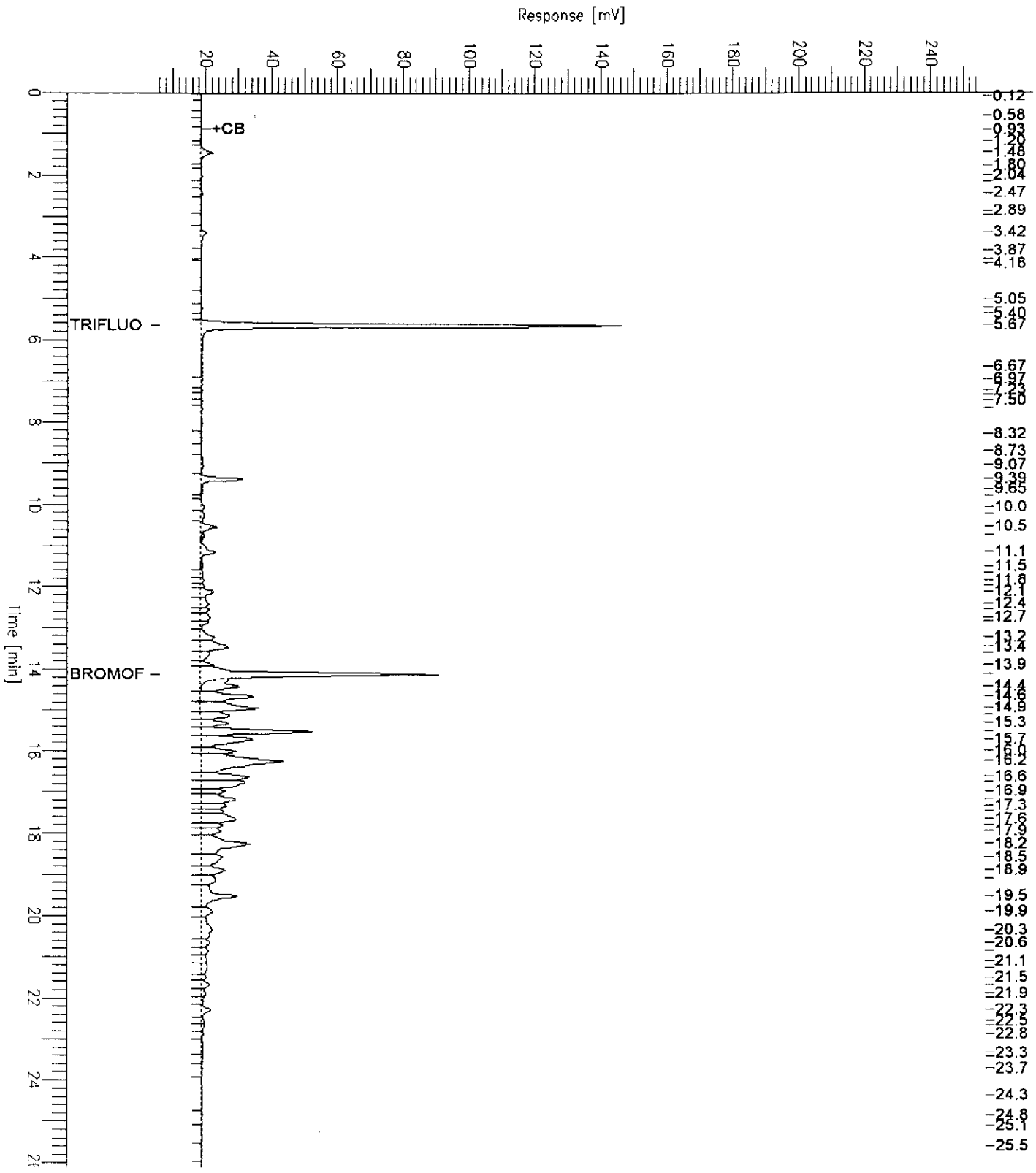
Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	62-138
Bromofluorobenzene (FID)	107	46-150

* = Value outside of QC limits; see narrative
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 : 146813-002,57421,tvh stod only
FileName : G:\GC19\DATA\215X009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

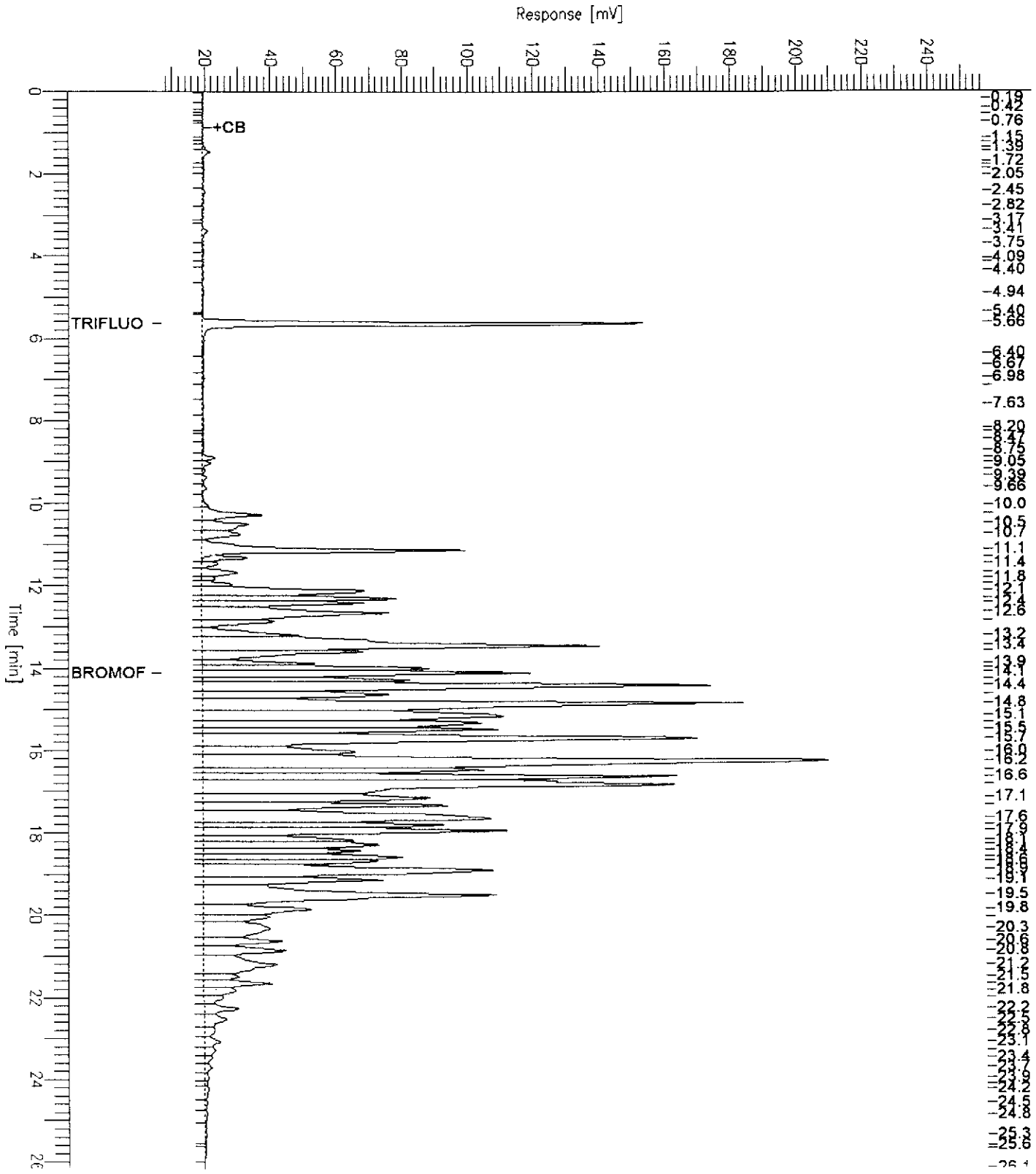
Sample #: a,2x Page 1 of 1
Date : 8/2/00 10:44 PM
Time of Injection: 8/2/00 10:16 PM
Low Point : 5.97 mV High Point : 255.97 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 146813-008,57385,+mtbe & stoddard
FileName : G:\GC19\DATA\214X021.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 7 mV

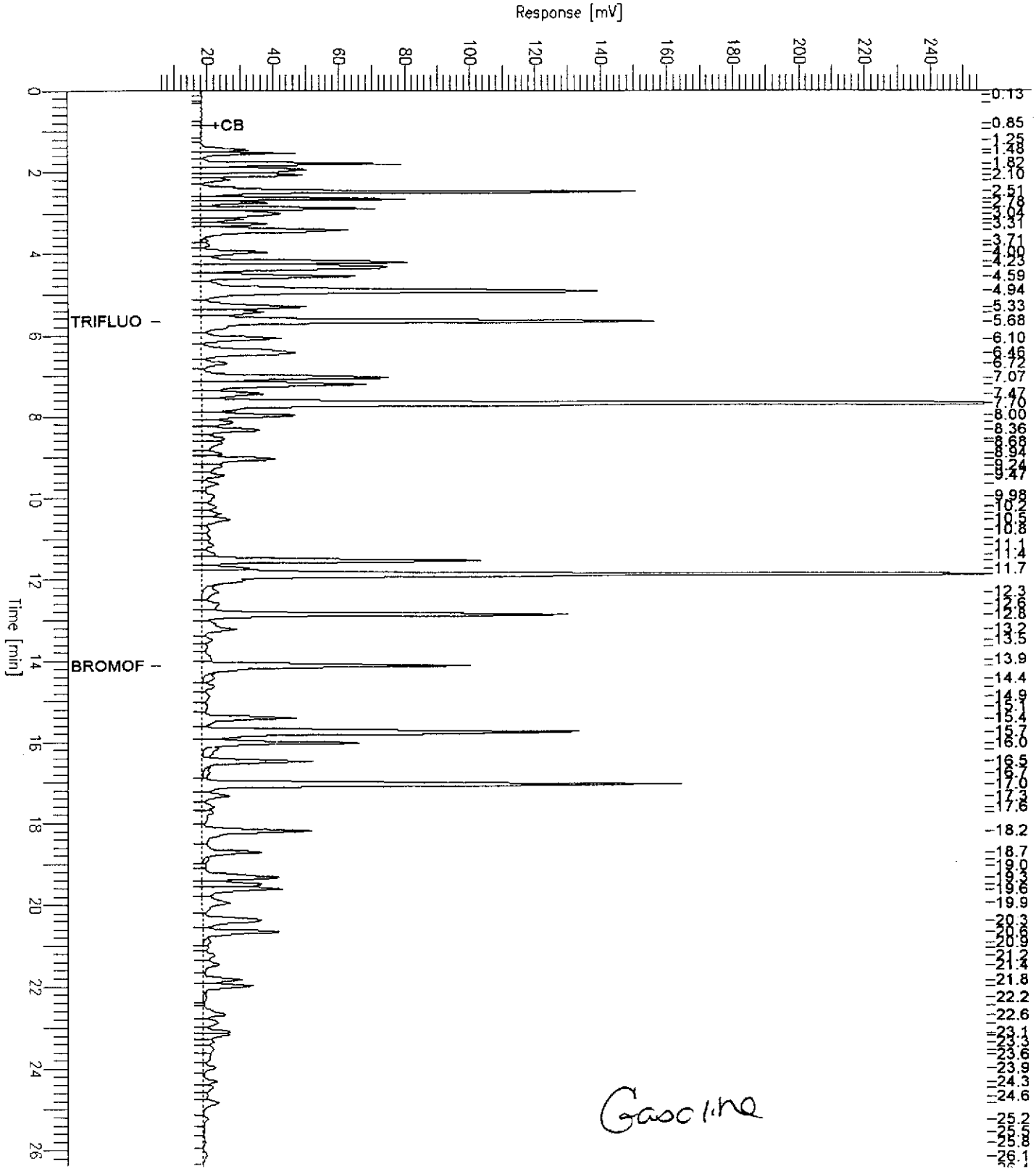
Sample #: a
Date : 8/2/00 03:19 AM
Time of Injection: 8/2/00 02:52 AM
Low Point : 6.55 mV High Point : 256.55 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : ccv/bs,qc121593,57385,00ws9465,5/5000
FileName : G:\GC19\DATA\214X003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: gas Page 1 of 1
Date : 8/1/00 03:51 PM
Time of Injection: 8/1/00 03:24 PM
Low Point : 5.59 mV High Point : 255.59 mV
Plot Scale: 250.0 mV

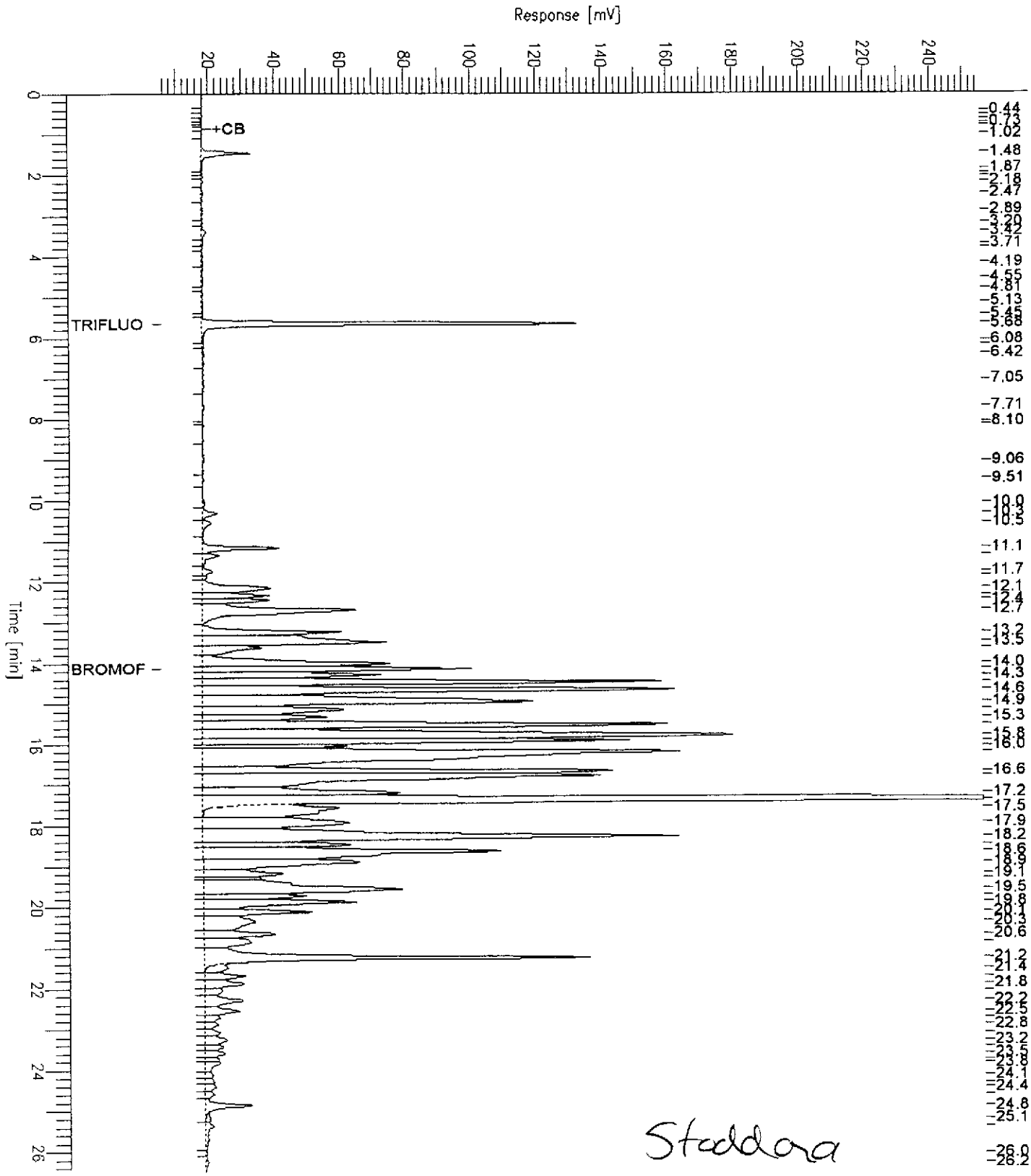


Gasoline

GC19 TVH 'X' Data File (FID)

Sample Name : ccv,stoddard,57385,00ws8810,5/5000
FileName : G:\GC19\DATA\214X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 5 mV

Sample #. stoddard Page 1 of 1
Date : 8/1/00 03:13 PM
Time of Injection: 8/1/00 02:46 PM
Low Point : 5.35 mV High Point : 255.35 mV
Plot Scale: 250.0 mV



Stoddard

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Matrix:	Soil	Dilu Fac:	1.000
Units:	mg/Kg	Received:	07/28/00
Basis:	wet		

Field ID:	4-8	Batch#:	57385
Type:	SAMPLE	Sampled:	07/28/00
Lab ID:	146813-025	Analyzed:	08/02/00

Analyte	Result	RL
Gasoline C7-C12	ND	0.98
Stoddard Solvent C7-C12	ND	0.98

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	62-138
Bromofluorobenzene (FID)	111	46-150

Type:	BLANK	Batch#:	57385
Lab ID:	QC121592	Analyzed:	08/01/00

Analyte	Result	RL
Gasoline C7-C12	ND	1.0
Stoddard Solvent C7-C12	ND	1.0

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	62-138
Bromofluorobenzene (FID)	104	46-150

Type:	BLANK	Batch#:	57421
Lab ID:	QC121744	Analyzed:	08/02/00

Analyte	Result	RL
Gasoline C7-C12	ND	1.0
Stoddard Solvent C7-C12	ND	1.0

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	62-138
Bromofluorobenzene (FID)	106	46-150

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

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Batch#:	57385
Basis:	wet	Analyzed:	08/01/00

Type: BS Lab ID: QC121593

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	10.00	9.847	98	75-123

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	62-138
Bromofluorobenzene (FID)	130	46-150

Type: BSD Lab ID: QC121594

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.00	9.988	100	75-123	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	123	62-138
Bromofluorobenzene (FID)	131	46-150

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Batch#:	57421
Basis:	wet	Analyzed:	08/02/00

Type: BS Lab ID: QC121745

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	10.00	9.242	92	75-123

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	62-138
Bromofluorobenzene (FID)	120	46-150

Type: BSD Lab ID: QC121746

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	10.00	9.901	99	75-123	7	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	62-138
Bromofluorobenzene (FID)	130	46-150

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	146840-045	Batch#:	57421
Matrix:	Soil	Sampled:	08/01/00
Units:	mg/Kg	Received:	08/01/00
Basis:	wet	Analyzed:	08/03/00

Type: MS Lab ID: QC121749

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.2389	9.709	5.496	54	41-132

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	62-138
Bromofluorobenzene (FID)	134	46-150

Type: MSD Lab ID: QC121750

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.709	5.444	54	41-132	1	25

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	62-138
Bromofluorobenzene (FID)	132	46-150

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Matrix:	Soil	Diln Fac:	1.000
Units:	ug/Kg	Batch#:	57385
Basis:	wet	Received:	07/28/00

Field ID:	1-11	Sampled:	07/28/00
Type:	SAMPLE	Analyzed:	08/02/00
Lab ID:	146813-002		

Analyte	Result	RL
MTBE	ND	19
Benzene	ND	4.8
Toluene	ND	4.8
Ethylbenzene	5.2 C	4.8
m,p-Xylenes	13 C	4.8
o-Xylene	30 C	4.8

Surrogate	%REC	Limits
Trifluorotoluene (PID)	112	65-134
Bromofluorobenzene (PID)	156 *	55-138

Field ID:	2-6.5	Sampled:	07/27/00
Type:	SAMPLE	Analyzed:	08/02/00
Lab ID:	146813-005		

Analyte	Result	RL
MTBE	ND	19
Benzene	ND	4.9
Toluene	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Trifluorotoluene (PID)	112	65-134
Bromofluorobenzene (PID)	117	55-138

Field ID:	2-11	Sampled:	07/27/00
Type:	SAMPLE	Analyzed:	08/02/00
Lab ID:	146813-008		

Analyte	Result	RL
MTBE	ND	18
Benzene	ND	4.6
Toluene	ND	4.6
Ethylbenzene	ND	4.6
m,p-Xylenes	ND	4.6
o-Xylene	16 C	4.6

Surrogate	%REC	Limits
Trifluorotoluene (PID)	109	65-134
Bromofluorobenzene (PID)	129	55-138

* = 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 #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Matrix:	Soil	Diln Fac:	1.000
Units:	ug/Kg	Batch#:	57385
Basis:	wet	Received:	07/28/00

Field ID: 3-14 Sampled: 07/27/00
Type: SAMPLE Analyzed: 08/02/00
Lab ID: 146813-019

Analyte	Result	RL
MTBE	ND	19
Benzene	ND	4.9
Toluene	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	65-134
Bromofluorobenzene (PID)	108	55-138

Field ID: 4-8 Sampled: 07/28/00
Type: SAMPLE Analyzed: 08/02/00
Lab ID: 146813-025

Analyte	Result	RL
MTBE	ND	20
Benzene	ND	4.9
Toluene	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	65-134
Bromofluorobenzene (PID)	111	55-138

Type: BLANK Analyzed: 08/01/00
Lab ID: QC121592

Analyte	Result	RL
MTBE	ND	20
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	65-134
Bromofluorobenzene (PID)	108	55-138

* = 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 #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Type:	LCS	Basis:	wet
Lab ID:	QC121595	Diln Fac:	1.000
Matrix:	Soil	Batch#:	57385
Units:	ug/Kg	Analyzed:	08/01/00

Analyte	Spiked	Result	%REC	Limits
MTBE	100.0	107.3	107	58-115
Benzene	100.0	92.12	92	68-117
Toluene	100.0	96.65	97	70-120
Ethylbenzene	100.0	101.5	102	67-124
m,p-Xylenes	200.0	215.1	108	72-124
o-Xylene	100.0	102.8	103	72-123

Surrogate	%REC	Limits
Trifluorotoluene (PID)	109	65-134
Bromofluorobenzene (PID)	115	55-138

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	146806-005	Batch#:	57385
Matrix:	Soil	Sampled:	07/27/00
Units:	ug/Kg	Received:	07/31/00
Basis:	wet	Analyzed:	08/01/00

Type: MS Lab ID: QC121596

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	ND	100.0	108.9	109	58-116
Benzene	ND	100.0	90.97	91	62-117
Toluene	ND	100.0	93.87	94	55-121
Ethylbenzene	ND	100.0	96.03	96	46-128
m,p-Xylenes	ND	200.0	202.6	101	33-141
o-Xylene	ND	100.0	97.90	98	40-136

Surrogate	%REC	Limits
Trifluorotoluene (PID)	108	65-134
Bromofluorobenzene (PID)	116	55-138

Type: MSD Lab ID: QC121597

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	100.0	109.4	109	58-116	0	20
Benzene	100.0	92.58	93	62-117	2	20
Toluene	100.0	95.59	96	55-121	2	20
Ethylbenzene	100.0	98.70	99	46-128	3	20
m,p-Xylenes	200.0	208.1	104	33-141	3	20
o-Xylene	100.0	100.4	100	40-136	3	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	108	65-134
Bromofluorobenzene (PID)	117	55-138

ND = Not Detected
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	1-11	Diln Fac:	0.9615
Lab ID:	146813-002	Batch#:	57431
Matrix:	Soil	Sampled:	07/28/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/03/00

Analyte	Result	RL
Chloromethane	ND	9.6
Vinyl Chloride	ND	9.6
Bromomethane	ND	9.6
Chloroethane	ND	9.6
Trichlorofluoromethane	ND	4.8
Freon 113	ND	4.8
1,1-Dichloroethene	ND	4.8
Methylene Chloride	ND	19
trans-1,2-Dichloroethene	ND	4.8
1,1-Dichloroethane	ND	4.8
cis-1,2-Dichloroethene	ND	4.8
Chloroform	ND	4.8
1,1,1-Trichloroethane	ND	4.8
Carbon Tetrachloride	ND	4.8
1,2-Dichloroethane	ND	4.8
Trichloroethene	ND	4.8
1,2-Dichloropropane	ND	4.8
Bromodichloromethane	ND	4.8
cis-1,3-Dichloropropene	ND	4.8
trans-1,3-Dichloropropene	ND	4.8
1,1,2-Trichloroethane	ND	4.8
Tetrachloroethene	100	4.8
Dibromochloromethane	ND	4.8
Chlorobenzene	ND	4.8
Bromoform	ND	9.6
1,1,2,2-Tetrachloroethane	ND	4.8
1,3-Dichlorobenzene	ND	4.8
1,4-Dichlorobenzene	ND	4.8
1,2-Dichlorobenzene	ND	4.8

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	76-127
Toluene-d8	102	80-111
Bromofluorobenzene	95	77-126

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	2-6.5	Diln Fac:	0.9259
Lab ID:	146813-005	Batch#:	57410
Matrix:	Soil	Sampled:	07/27/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/02/00

Analyte	Result	RL
Chloromethane	ND	9.3
Vinyl Chloride	ND	9.3
Bromomethane	ND	9.3
Chloroethane	ND	9.3
Trichlorofluoromethane	ND	4.6
Freon 113	ND	4.6
1,1-Dichloroethene	ND	4.6
Methylene Chloride	ND	19
trans-1,2-Dichloroethene	ND	4.6
1,1-Dichloroethane	ND	4.6
cis-1,2-Dichloroethene	ND	4.6
Chloroform	ND	4.6
1,1,1-Trichloroethane	ND	4.6
Carbon Tetrachloride	ND	4.6
1,2-Dichloroethane	ND	4.6
Trichloroethene	ND	4.6
1,2-Dichloropropane	ND	4.6
Bromodichloromethane	ND	4.6
cis-1,3-Dichloropropene	ND	4.6
trans-1,3-Dichloropropene	ND	4.6
1,1,2-Trichloroethane	ND	4.6
Tetrachloroethene	ND	4.6
Dibromochloromethane	ND	4.6
Chlorobenzene	ND	4.6
Bromoform	ND	9.3
1,1,2,2-Tetrachloroethane	ND	4.6
1,3-Dichlorobenzene	ND	4.6
1,4-Dichlorobenzene	ND	4.6
1,2-Dichlorobenzene	ND	4.6

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	76-127
Toluene-d8	106	80-111
Bromofluorobenzene	100	77-126

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	2-11	Diln Fac:	1.000
Lab ID:	146813-008	Batch#:	57431
Matrix:	Soil	Sampled:	07/27/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/03/00

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	121	76-127
Toluene-d8	105	80-111
Bromofluorobenzene	105	77-126

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	3-14	Diln Fac:	1.000
Lab ID:	146813-019	Batch#:	57410
Matrix:	Soil	Sampled:	07/27/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/02/00

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	76-127
Toluene-d8	106	80-111
Bromofluorobenzene	106	77-126

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC121795	Batch#:	57431
Matrix:	Water	Analyzed:	08/03/00
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	96	77-126

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Basis:	wet
Lab ID:	QC121704	Diln Fac:	1.000
Matrix:	Soil	Batch#:	57410
Units:	ug/Kg	Analyzed:	08/02/00

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	55.09	110	66-138
Trichloroethene	50.00	57.46	115	75-124
Chlorobenzene	50.00	53.98	108	78-115

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	76-127
Toluene-d8	107	80-111
Bromofluorobenzene	102	77-126

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	1-11	Diln Fac:	0.9804
MSS Lab ID:	146813-002	Batch#:	57410
Matrix:	Soil	Sampled:	07/28/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/02/00

Type: MS Lab ID: QC121725

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<4.808	49.02	51.83	106	42-145
Trichloroethene	<4.808	49.02	54.38	108	33-133
Chlorobenzene	<4.808	49.02	54.26	88	38-137

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	76-127
Toluene-d8	116 *	80-111
Bromofluorobenzene	117	77-126

Type: MSD Lab ID: QC121726

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.02	48.67	99	42-145	6	31
Trichloroethene	49.02	54.79	108	33-133	1	30
Chlorobenzene	49.02	51.06	81	38-137	6	31

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	76-127
Toluene-d8	107	80-111
Bromofluorobenzene	117	77-126

* = Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC121794	Batch#:	57431
Matrix:	Water	Analyzed:	08/03/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	47.95	96	66-138
Trichloroethene	50.00	54.70	109	75-124
Chlorobenzene	50.00	53.54	107	78-115

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	108	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	90	77-126

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146813	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Diln Fac:	0.9434
MSS Lab ID:	146805-010	Batch#:	57431
Matrix:	Soil	Sampled:	07/27/00
Units:	ug/Kg	Received:	07/28/00
Basis:	wet	Analyzed:	08/03/00

Type: MS Lab ID: QC121812

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<4.717	47.17	44.88	95	42-145
Trichloroethene	<4.717	47.17	48.93	104	33-133
Chlorobenzene	<4.717	47.17	46.02	98	38-137

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	92	77-126

Type: MSD Lab ID: QC121813

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	47.17	42.83	91	42-145	5	31
Trichloroethene	47.17	46.70	99	33-133	5	30
Chlorobenzene	47.17	42.93	91	38-137	7	31

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	76-127
Toluene-d8	102	80-111
Bromofluorobenzene	92	77-126

RPD= Relative Percent Difference

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: 21-AUG-00
Lab Job Number: 146981
Project ID: ~~N/A~~ 6895.00.030
Location: Gloveatorium

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: **146981**
Client: **LFR-Levine-Fricke**
Location: **Gloveatorium**
COC#: **7590**

Sampled Date: **08/09/00**
Received Date: **08/09/00**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for one water sample, which was received from the site referenced above on August 09, 2000. The sample was received intact. All data were faxed to Julie Sharp on August 21, 2000.

TVH/BTXE:
No analytical problems were encountered.

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

General Chemistry:
No analytical problems were encountered.

146981

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.030	Project Location: Oakland, Ca	Date: Aug 9, 2000	Serial № 7590
Project Name: Gloveatorium	Field Logbook No.: MXD 3	Sample Event Name: Qtr. 3	
Sampler (Signature): [signature]			Samplers: RER, MXD,

SAMPLE INFORMATION (Print Clearly)

ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	Alkalinity Chloride	[illegible, struck through]	[illegible, struck through]	TPH as Stoddard Solvent	TPHG + 8260	~~BTEX 8020~~ TD 9/11/0	HOLD	RUSH	REMARKS
LFR-1	8/9/00	12:50	~~ML~~	10	H_2O	X	X	X	X	X	~~X~~			Results to Julie Sharp
														Standard TAT

Do not analyze voas submitted are preserved. Client will resample. TB per MD 8/10/00

RELINQUISHED BY: (Signature) [signature]	DATE 8/9/00	TIME 1730	RECEIVED BY: (Signature) Tray Bobia	DATE 8/9/0	TIME 1730
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: HAND Cooler #1	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 Berkeley, CA

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

9999\COCTEMP.CDR 042998

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Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Field ID:	LFR-1	Batch#:	57622
Matrix:	Water	Sampled:	08/09/00
Units:	ug/L	Received:	08/09/00
Diln Fac:	1.000		

Type: SAMPLE Analyzed: 08/12/00
Lab ID: 146981-001

Analyte	Result	RL
Gasoline C7-C12	1,200 Y Z	50
Stoddard Solvent C7-C12	530 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	59-135
Bromofluorobenzene (FID)	115	60-140

Type: BLANK Analyzed: 08/11/00
Lab ID: QC122562

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

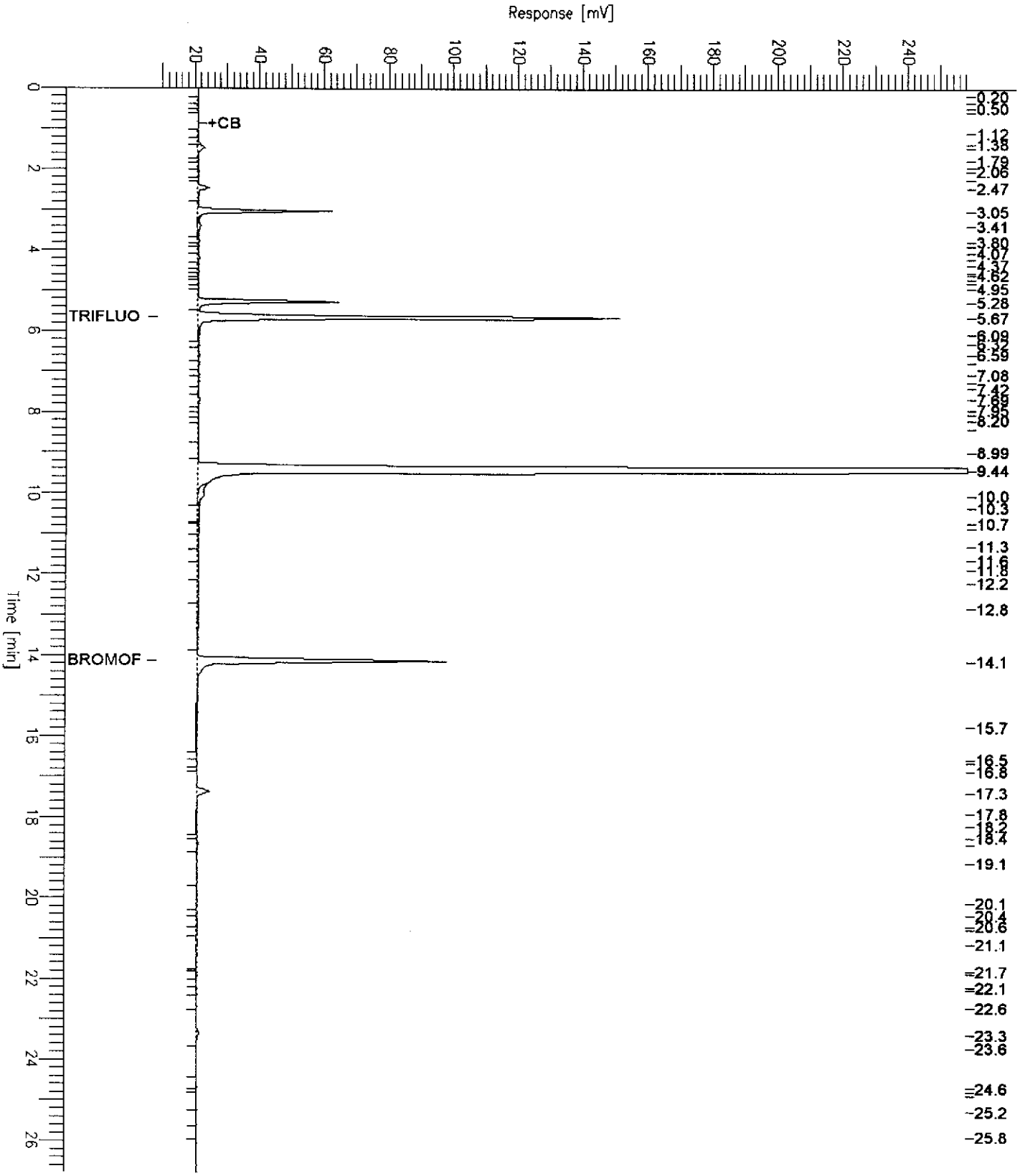
Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	100	60-140

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 : 146981-001,57622
FileName : G:\GC19\DATA\224X026.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 8 mV

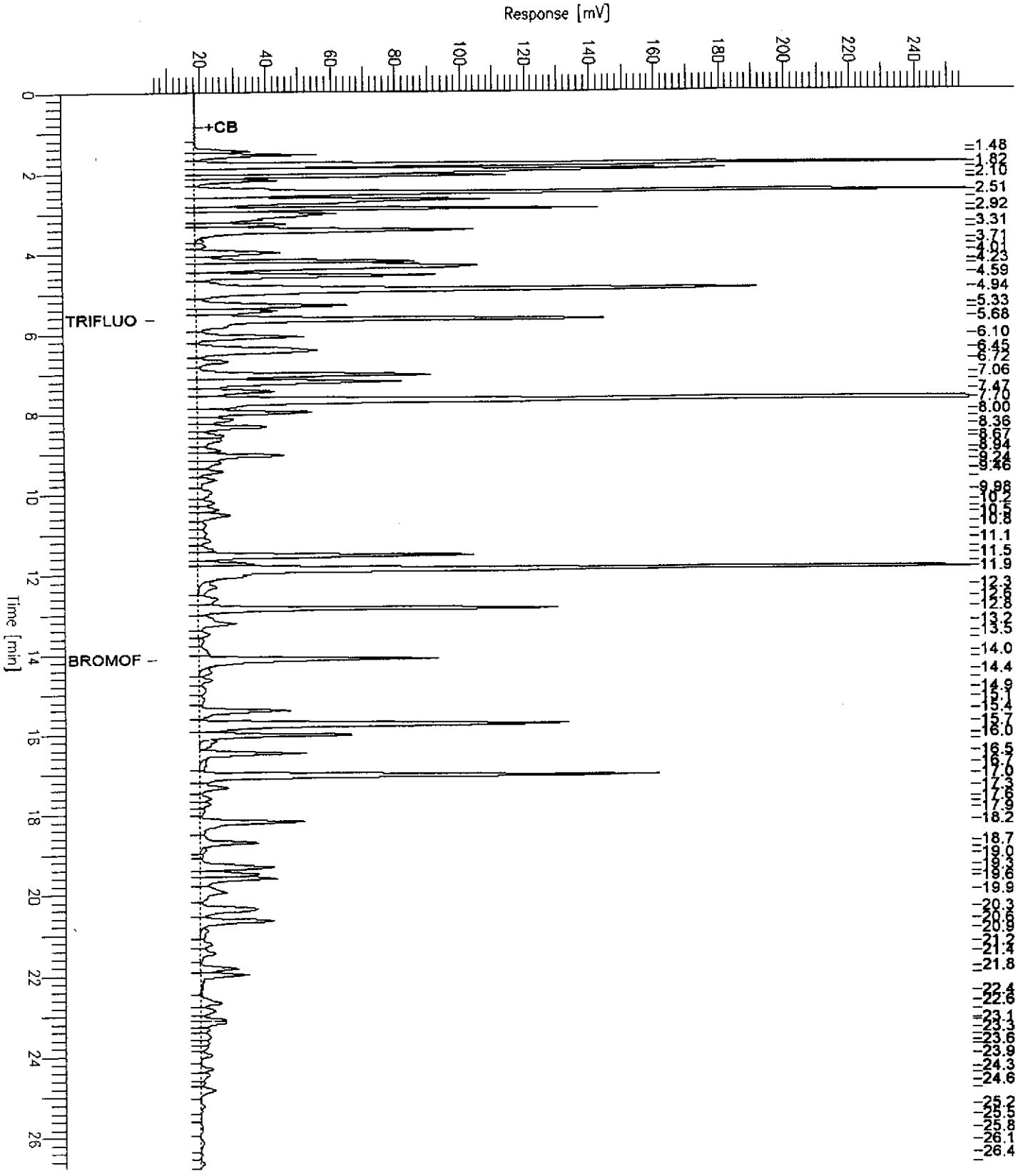
Sample #: Page 1 of 1
Date : 8/12/00 05:25 AM
Time of Injection: 8/12/00 04:58 AM
Low Point : 8.13 mV High Point : 258.13 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC122560,57622,00WS9465,5/5000
FileName : G:\GC19\DATA\224X003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

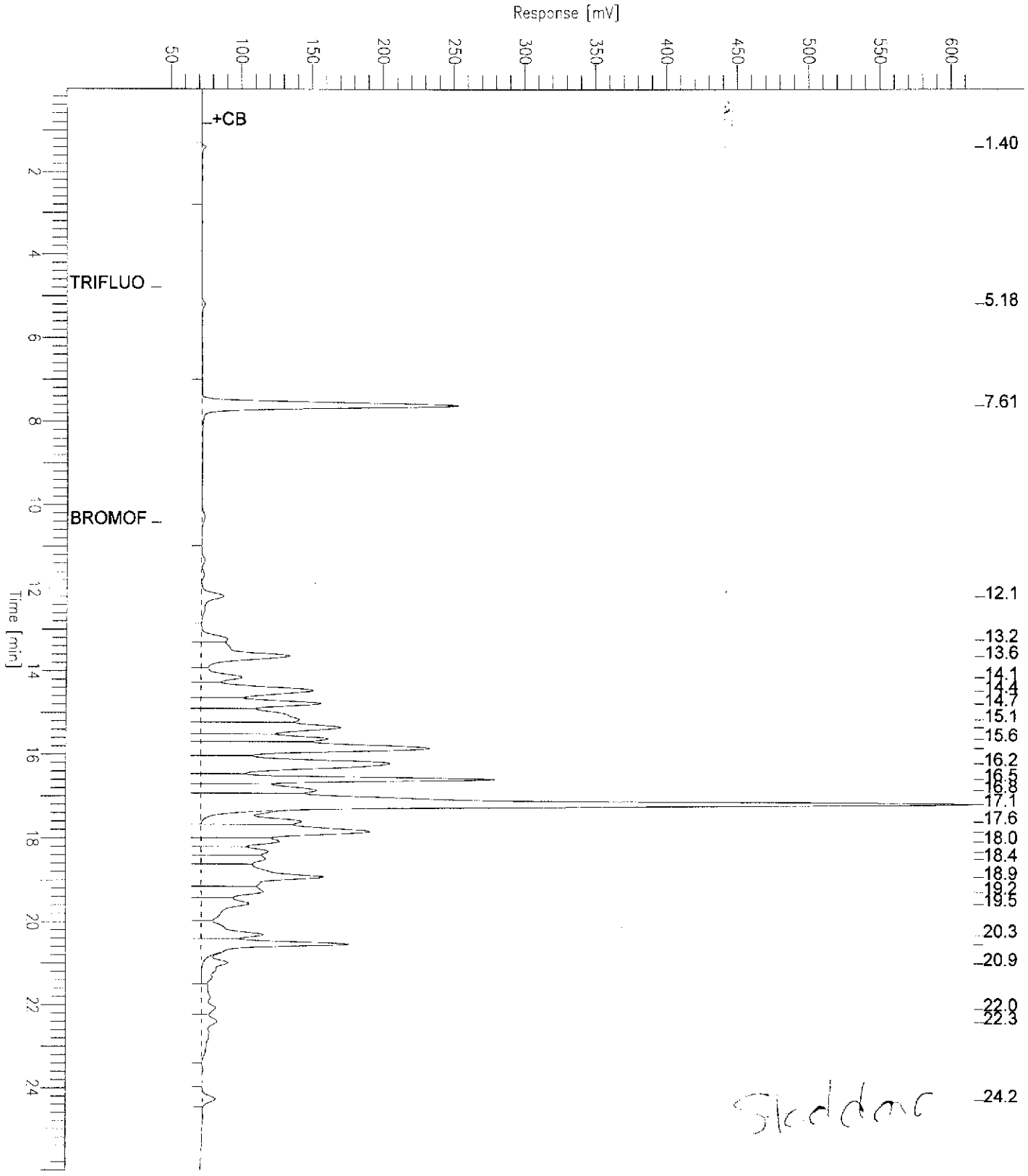
Sample #: Page 1 of 1
Date : 8/11/00 02:50 PM
Time of Injection: 8/11/00 02:23 PM
Low Point : 5.65 mV High Point : 255.65 mV
Plot Scale: 250.0 mV



GC04 TVH 'J' Data File Rtx1FID

Sample Name : ccv,stod,57795,00ws9595,5/5000
FileName : G:\GC04\DATA\231J003.RAW
Method : TVHBTXE.MTH
Start Time : 0.01 min End Time : 26.00 min
Scale Factor: 0.0 Plot Offset: 43 mV

Sample #: stod Page 1 of 1
Date : 8/21/00 05:37 PM
Time of Injection: 8/18/00 08:25 PM
Low Point : 42.70 mV High Point : 616.35 mV
Plot Scale: 573.7 mV



Sheddan

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Field ID:	LFR-1	Batch#:	57622
Matrix:	Water	Sampled:	08/09/00
Units:	ug/L	Received:	08/09/00
Diln Fac:	1.000		

Type: SAMPLE Analyzed: 08/12/00
Lab ID: 146981-001

Analyte	Result	RL
MTBE	9.5	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)	113	55-149

Type: BLANK Analyzed: 08/11/00
Lab ID: QC122562

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)	101	56-142
Bromofluorobenzene (PID)	102	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122560	Batch#:	57622
Matrix:	Water	Analyzed:	08/11/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,101	105	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	59-135
Bromofluorobenzene (FID)	121	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122561	Batch#:	57622
Matrix:	Water	Analyzed:	08/11/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.90	99	51-125
Benzene	20.00	17.18	86	67-117
Toluene	20.00	17.08	85	69-117
Ethylbenzene	20.00	17.78	89	68-124
m,p-Xylenes	40.00	37.80	95	70-125
o-Xylene	20.00	18.00	90	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	56-142
Bromofluorobenzene (PID)	103	55-149

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	146998-001	Batch#:	57622
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00

Type: MS Analyzed: 08/11/00
Lab ID: QC122563

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	42.73	2,000	2,191	107	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	135	59-135
Bromofluorobenzene (FID)	139	60-140

Type: MSD Analyzed: 08/12/00
Lab ID: QC122564

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,224	109	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 #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	LFR-1	Batch#:	57807
Lab ID:	146981-001	Sampled:	08/09/00
Matrix:	Water	Received:	08/09/00
Units:	ug/L	Analyzed:	08/20/00
Diln Fac:	16.67		

Analyte	Result	RL
Freon 12	ND	33
Chloromethane	ND	17
Vinyl Chloride	ND	8.3
Bromomethane	ND	17
Chloroethane	ND	17
Trichlorofluoromethane	ND	8.3
Freon 113	ND	83
1,1-Dichloroethene	ND	8.3
Methylene Chloride	ND	83
trans-1,2-Dichloroethene	ND	8.3
1,1-Dichloroethane	ND	8.3
cis-1,2-Dichloroethene	41	8.3
Chloroform	ND	8.3
1,1,1-Trichloroethane	ND	8.3
Carbon Tetrachloride	ND	8.3
1,2-Dichloroethane	ND	8.3
Trichloroethene	64	8.3
1,2-Dichloropropane	ND	8.3
Bromodichloromethane	ND	8.3
cis-1,3-Dichloropropene	ND	8.3
trans-1,3-Dichloropropene	ND	8.3
1,1,2-Trichloroethane	ND	8.3
Tetrachloroethene	2,800	8.3
Dibromochloromethane	ND	8.3
Chlorobenzene	ND	8.3
Bromoform	ND	8.3
1,1,2,2-Tetrachloroethane	ND	8.3
1,3-Dichlorobenzene	ND	8.3
1,4-Dichlorobenzene	ND	8.3
1,2-Dichlorobenzene	ND	8.3

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	122	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	107	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123316	Batch#:	57807
Matrix:	Water	Analyzed:	08/20/00
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	2.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
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	115	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	107	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	57807
Units:	ug/L	Analyzed:	08/20/00
Diln Fac:	1.000		

Type: BS Lab ID: QC123307

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	50.92	102	74-132
Trichloroethene	50.00	54.73	109	80-119
Chlorobenzene	50.00	51.39	103	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	108	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	102	80-115

Type: BSD Lab ID: QC123308

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	47.73	95	74-132	6	20
Trichloroethene	50.00	50.56	101	80-119	8	20
Chlorobenzene	50.00	49.22	98	80-117	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	102	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 310.1
Field ID:	LFR-1	Batch#:	57698
Matrix:	Water	Sampled:	08/09/00
Units:	mg/L	Received:	08/09/00
Diln Fac:	1.000	Analyzed:	08/15/00

Type: SAMPLE Lab ID: 146981-001

Analyte	Result	RL
Alkalinity, Bicarbonate	250	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	250	1.0

Type: BLANK Lab ID: QC122830

Analyte	Result	RL
Alkalinity, Bicarbonate	ND	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	ND	1.0

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Units:	mg/L
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122831	Batch#:	57698
Matrix:	Water	Analyzed:	08/15/00

Spiked	Result	%REC	Limits
200.0	187.8	94	80-110

Alkalinity

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Diln Fac:	1.000
Field ID:	LFR-1	Batch#:	57698
MSS Lab ID:	146981-001	Sampled:	08/09/00
Matrix:	Water	Received:	08/09/00
Units:	mg/L	Analyzed:	08/15/00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC122832	247.3	200.0	439.7	96	69-112		
MSD	QC122833		200.0	437.4	95	69-112	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chloride

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Analyte:	Chloride	Batch#:	57621
Field ID:	LFR-1	Sampled:	08/09/00
Matrix:	Water	Received:	08/09/00
Units:	mg/L	Analyzed:	08/11/00

Type	Lab ID	Result	RL	Diln Fac
SAMPLE	146981-001	110	2.0	10.00
BLANK	QC122555	ND	0.20	1.000

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Chloride

Lab #:	146981	Location:	Gloveatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Analyte:	Chloride	Batch#:	57621
Field ID:	ZZZZZZZZZZ	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Analyzed:	08/11/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
BS	QC122556		10.00	9.970	100	90-110			1.000
BSD	QC122557		10.00	10.00	100	90-110	0	20	1.000
MS	QC122558	85.49	50.00	136.4	102	80-120			10.00
MSD	QC122559		50.00	137.4	104	80-120	1	20	10.00

RPD= Relative Percent Difference

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: 06-SEP-00
Lab Job Number: 146991
Project ID: 6895.00.030
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: **146991**
Client: **LFR-Levine-Fricke**
Project #: **6895.00.030**
Location: **Glovatorium**
COC#: **2205**

Sampled Date: **08/10/00**
Received Date: **08/10/00**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for five water samples and a trip blank, which were received from the site referenced above on August 10, 2000. The samples were received intact. All data were faxed to Julie Sharp on August 29,2000.

TVH/BTXE:
No analytical problems were encountered.

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

Metals (EPA 6010B):
No analytical problems were encountered.

General Chemistry:
No analytical problems were encountered.

RSK Method 175:
Performance Analytical Inc. in Simi Valley performed the analysis. Please see the Performance Analytical case narrative. No analytical problems were encountered

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00
Batch#:	57622	Analyzed:	08/11/00

Field ID: LFR-3 Lab ID: 146991-001
Type: SAMPLE Diln Fac: 1.000

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	111	60-140

Field ID: LFR-103 Lab ID: 146991-002
Type: SAMPLE Diln Fac: 1.000

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	112	60-140

Field ID: MW-11 Lab ID: 146991-003
Type: SAMPLE Diln Fac: 1.000

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	59-135
Bromofluorobenzene (FID)	111	60-140

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

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00
Batch#:	57622	Analyzed:	08/11/00

Field ID: B-10-FB
Type: SAMPLE
Lab ID: 146991-004
Diln Fac: 1.000

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	59-135
Bromofluorobenzene (FID)	110	60-140

Field ID: B-10
Type: SAMPLE
Lab ID: 146991-005
Diln Fac: 10.00

Analyte	Result	RL
Gasoline C7-C12	6,100 Y	500
Stoddard Solvent C7-C12	2,800 Y	500

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	59-135
Bromofluorobenzene (FID)	118	60-140

Type: BLANK
Lab ID: QC122562
Diln Fac: 1.000

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

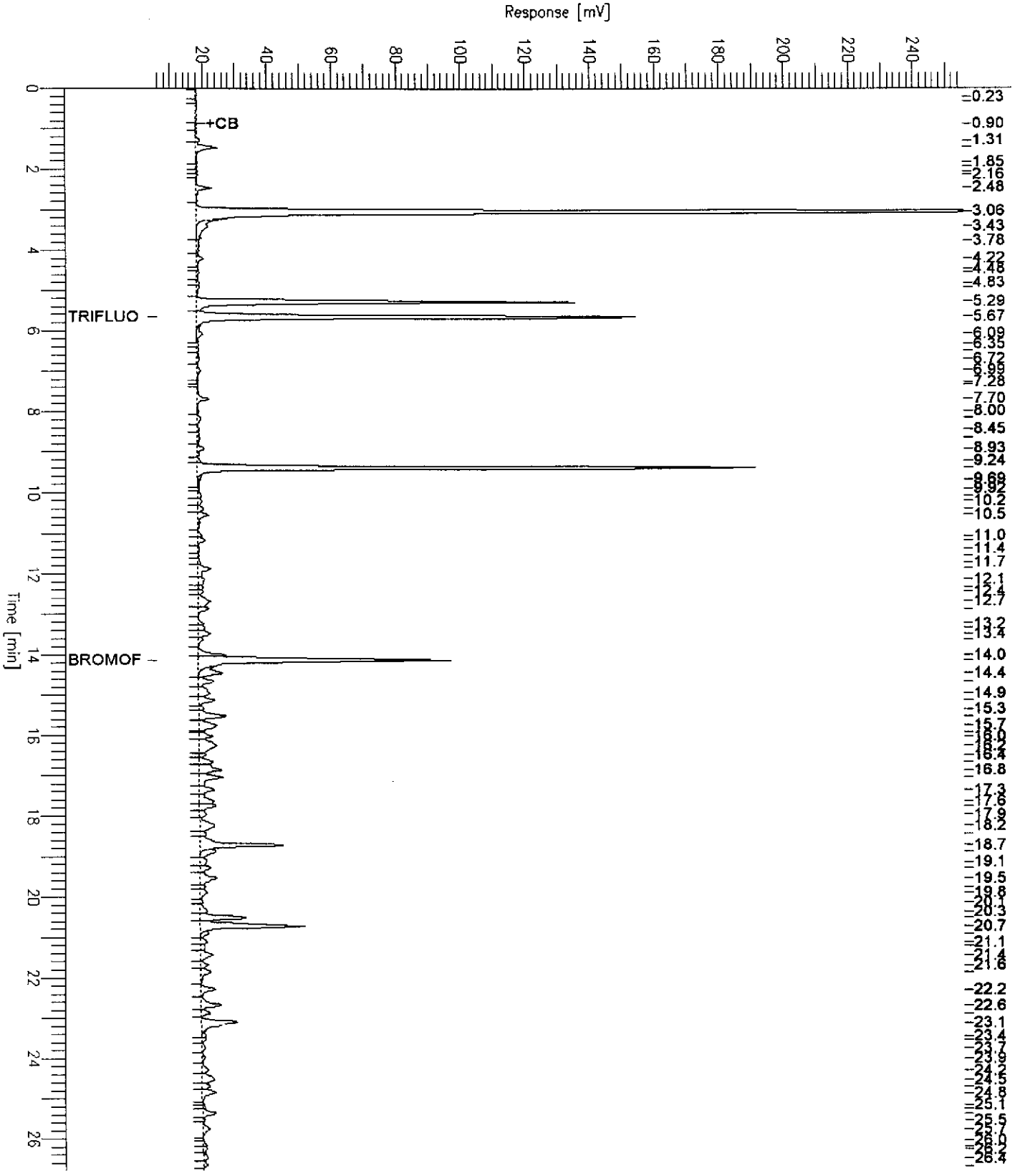
Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	100	60-140

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

GC19 TVH 'X' Data File (FID)

Sample Name : 146991-005,57622
FileName : G:\GC19\DATA\224X011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

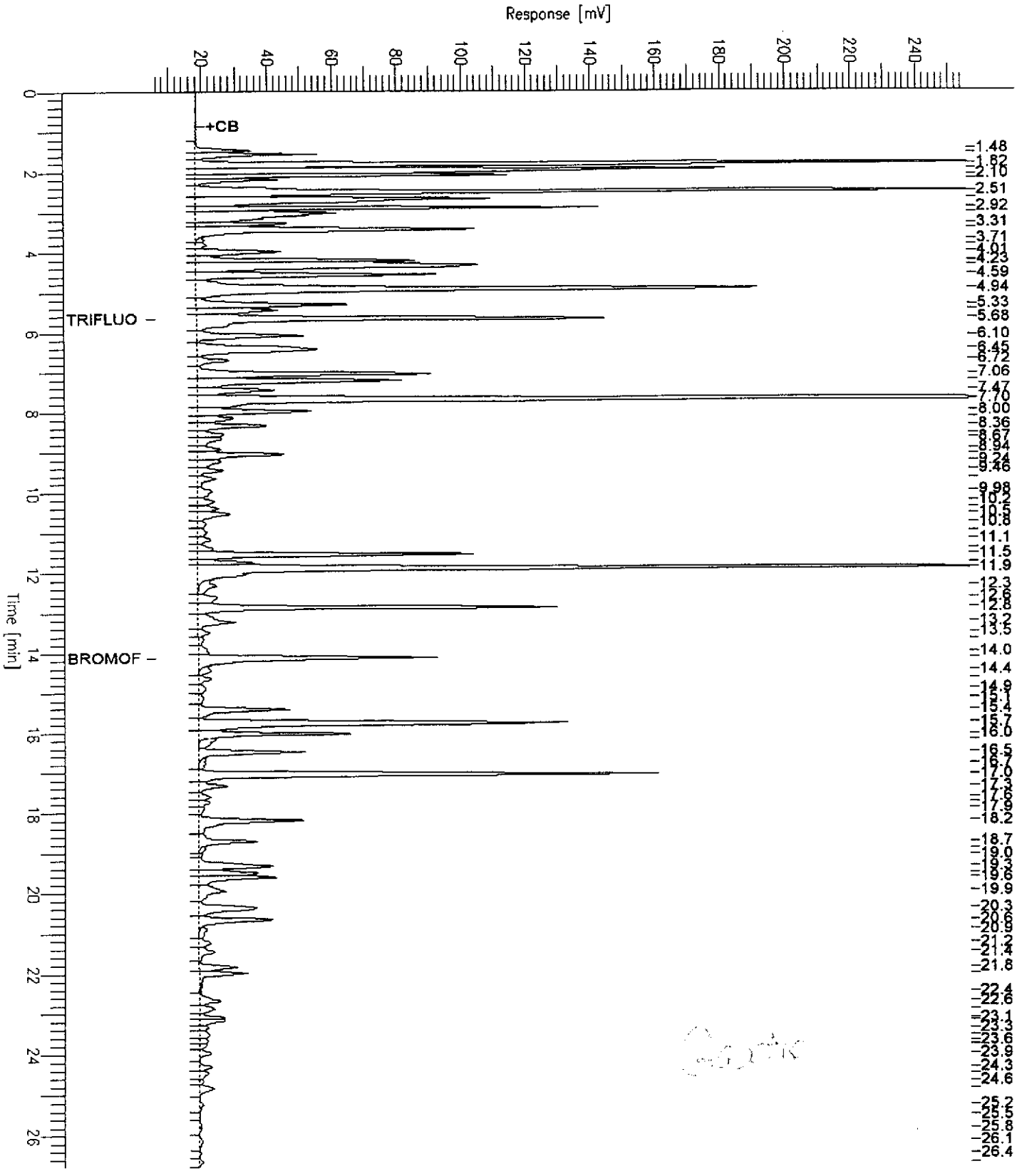
Sample #: Page 1 of 1
Date : 8/11/00 08:32 PM
Time of Injection: 8/11/00 08:05 PM
Low Point : 5.50 mV High Point : 255.50 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC122560,57622,00WS9465,5/5000
FileName : G:\GC19\DATA\224X003.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

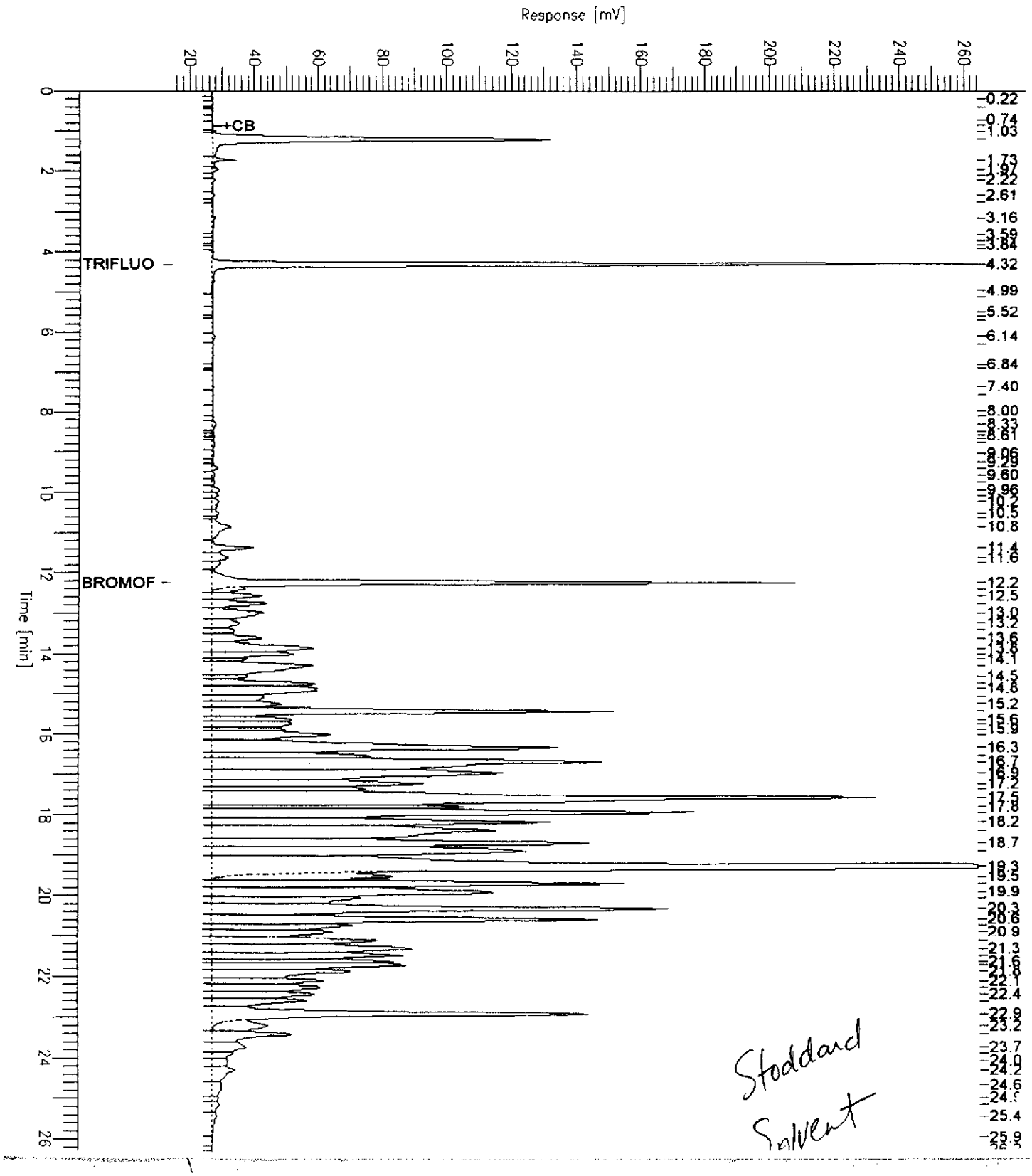
Sample #: Page 1 of 1
Date : 8/11/00 02:50 PM
Time of Injection: 8/11/00 02:23 PM
Low Point : 5.65 mV High Point : 255.65 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV,97WS4980,40466
FileName : G:\GC19\DATA\113X030.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 14 mV

Sample #: STODD Page 1 of 1
Date : 4/24/98 08:16 PM
Time of Injection: 4/24/98 07:49 PM
Low Point : 14.15 mV High Point : 264.15 mV
Plot Scale: 250.0 mV



Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00
Batch#:	57622	Analyzed:	08/11/00

Field ID: LFR-3 Lab ID: 146991-001
Type: SAMPLE Diln Fac: 1.000

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)	109	56-142
Bromofluorobenzene (PID)	113	55-149

Field ID: LFR-103 Lab ID: 146991-002
Type: SAMPLE Diln Fac: 1.000

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)	116	55-149

Field ID: MW-11 Lab ID: 146991-003
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
MTBE	11	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)	109	56-142
Bromofluorobenzene (PID)	114	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00
Batch#:	57622	Analyzed:	08/11/00

Field ID: B-10-FB
Type: SAMPLE
Lab ID: 146991-004
Diln Fac: 1.000

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)	111	55-149

Field ID: B-10
Type: SAMPLE
Lab ID: 146991-005
Diln Fac: 10.00

Analyte	Result	RL
MTBE	160	20
Benzene	7.3	5.0
Toluene	12	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	15	5.0
o-Xylene	9.1	5.0

Surrogate	%REC	Limits
Trifluorotoluene (PID)	111	56-142
Bromofluorobenzene (PID)	114	55-149

Type: BLANK
Lab ID: QC122562
Diln Fac: 1.000

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)	101	56-142
Bromofluorobenzene (PID)	102	55-149

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122560	Batch#:	57622
Matrix:	Water	Analyzed:	08/11/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,101	105	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	59-135
Bromofluorobenzene (FID)	121	60-140

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122561	Batch#:	57622
Matrix:	Water	Analyzed:	08/11/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.90	99	51-125
Benzene	20.00	17.18	86	67-117
Toluene	20.00	17.08	85	69-117
Ethylbenzene	20.00	17.78	89	68-124
m,p-Xylenes	40.00	37.80	95	70-125
o-Xylene	20.00	18.00	90	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	56-142
Bromofluorobenzene (PID)	103	55-149

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	146998-001	Batch#:	57622
Matrix:	Water	Sampled:	08/10/00
Units:	ug/L	Received:	08/10/00

Type: MS Analyzed: 08/11/00
Lab ID: QC122563

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	42.73	2,000	2,191	107	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	135	59-135
Bromofluorobenzene (FID)	139	60-140

Type: MSD Analyzed: 08/12/00
Lab ID: QC122564

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,224	109	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 #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	LFR-3	Batch#:	57872
Lab ID:	146991-001	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	2.0
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	109	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	103	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	LFR-103	Batch#:	57872
Lab ID:	146991-002	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	2.0
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	98	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	57872
Lab ID:	146991-003	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	2.0
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	99	80-110
Bromofluorobenzene	103	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	B-10-FB	Batch#:	57872
Lab ID:	146991-004	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	2.0
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	8.8	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	97	80-110
Bromofluorobenzene	100	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	B-10	Batch#:	57904
Lab ID:	146991-005	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/24/00
Diln Fac:	50.00		

Analyte	Result	RL
Freon 12	ND	100
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	50	25
1,1-Dichloroethane	ND	25
cis-1,2-Dichloroethene	6,500	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	2,900	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	107	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 #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	57836
Lab ID:	146991-006	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/22/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	2.0
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	101	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123415	Batch#:	57836
Matrix:	Water	Analyzed:	08/22/00
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	2.0
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	105	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 #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123539	Batch#:	57872
Matrix:	Water	Analyzed:	08/23/00
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	2.0
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	106	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 #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123660	Batch#:	57904
Matrix:	Water	Analyzed:	08/24/00
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	2.0
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	103	80-110
Bromofluorobenzene	102	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123661	Batch#:	57904
Matrix:	Water	Analyzed:	08/24/00
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	2.0
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	108	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	101	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	57836
Units:	ug/L	Analyzed:	08/22/00
Diln Fac:	1.000		

Type: BS Lab ID: QC123413

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	50.88	102	74-132
Trichloroethene	50.00	54.92	110	80-119
Chlorobenzene	50.00	55.69	111	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	95	80-115

Type: BSD Lab ID: QC123414

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	49.14	98	74-132	3	20
Trichloroethene	50.00	53.88	108	80-119	2	20
Chlorobenzene	50.00	54.23	108	80-117	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	94	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	57872
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Type: BS Lab ID: QC123536

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	50.93	102	74-132
Trichloroethene	50.00	52.15	104	80-119
Chlorobenzene	50.00	51.40	103	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	101	80-115

Type: BSD Lab ID: QC123537

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	48.43	97	74-132	5	20
Trichloroethene	50.00	50.23	100	80-119	4	20
Chlorobenzene	50.00	49.46	99	80-117	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	99	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC123659	Batch#:	57904
Matrix:	Water	Analyzed:	08/24/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	49.44	99	74-132
Trichloroethene	50.00	50.23	100	80-119
Chlorobenzene	50.00	50.07	100	80-117

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

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	57904
MSS Lab ID:	147089-004	Sampled:	08/15/00
Matrix:	Water	Received:	08/15/00
Units:	ug/L	Analyzed:	08/25/00
Diln Fac:	1.000		

Type: MS Lab ID: QC123662

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5000	50.00	44.74	89	70-132
Trichloroethene	<0.5000	50.00	50.04	100	62-137
Chlorobenzene	<0.5000	50.00	50.38	101	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	99	80-115

Type: MSD Lab ID: QC123663

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	46.05	92	70-132	3	20
Trichloroethene	50.00	48.35	97	62-137	3	20
Chlorobenzene	50.00	49.49	99	80-117	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	99	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Iron

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 3010
Project#:	6895.00.030	Analysis:	EPA 6010B
Analyte:	Iron	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Prepared:	08/10/00
Diln Fac:	1.000	Analyzed:	08/11/00
Batch#:	57619		

Field ID	Type	Lab ID	Result	RL
LFR-3	SAMPLE	146991-001	ND	100
MW-11	SAMPLE	146991-003	130	100
B-10	SAMPLE	146991-005	6,000	100
	BLANK	QC122543	ND	100

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Iron

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 3010
Project#:	6895.00.030	Analysis:	EPA 6010B
Analyte:	Iron	Batch#:	57619
Field ID:	LFR-3	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Prepared:	08/10/00
Units:	ug/L	Analyzed:	08/11/00
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC122544		1,000	1,035		104	70-128		
BSD	QC122545		1,000	952.2		95	70-128	8	25
SDUP	QC122546	<100.0		ND	100			NC	26
SSPIKE	QC122547	ND	1,000	960.8		96	58-136		

NC = Not Calculated
ND = Not Detected
RL = Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Ferrous Iron (Fe+2)

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Analysis:	FE+2
Project#:	6895.00.030		
Analyte:	Ferrous Iron (Fe+2)	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	mg/L	Analyzed:	08/11/00
Batch#:	57626		

Field ID	Type	Lab ID	Result	RL	Diln Fac
LFR-3	SAMPLE	146991-001	ND	0.10	1.000
MW-11	SAMPLE	146991-003	ND	0.10	1.000
B-10	SAMPLE	146991-005	5.7	1.0	10.00
	BLANK	QC122575	ND	0.10	1.000

ND = Not Detected
RL = Reporting Limit

Ferrous Iron (Fe+2)

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Analysis:	FE+2
Project#:	6895.00.030		
Analyte:	Ferrous Iron (Fe+2)	Diln Fac:	1.000
Field ID:	LFR-3	Batch#:	57626
MSS Lab ID:	146991-001	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	mg/L	Analyzed:	08/11/00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC122576	<0.1000	0.8000	0.8280	104	65-134		
MSD	QC122577		0.8000	0.7560	95	65-134	3	20
LCS	QC122578		0.8000	0.7780	97	80-110		

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Matrix:	Water	Sampled:	08/10/00
Units:	mg/L	Received:	08/10/00
Diln Fac:	1.000	Analyzed:	08/15/00
Batch#:	57698		

Field ID: LFR-3 Lab ID: 146991-001
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	310	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	310	1.0

Field ID: LFR-103 Lab ID: 146991-002
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	300	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	300	1.0

Field ID: MW-11 Lab ID: 146991-003
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	360	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	360	1.0

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Matrix:	Water	Sampled:	08/10/00
Units:	mg/L	Received:	08/10/00
Diln Fac:	1.000	Analyzed:	08/15/00
Batch#:	57698		

Field ID: B-10-FB
Type: SAMPLE
Lab ID: 146991-004

Analyte	Result	RL
Alkalinity, Bicarbonate	1.1	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	1.1	1.0

Field ID: B-10
Type: SAMPLE
Lab ID: 146991-005

Analyte	Result	RL
Alkalinity, Bicarbonate	520	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	520	1.0

Type: BLANK
Lab ID: QC122830

Analyte	Result	RL
Alkalinity, Bicarbonate	ND	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	ND	1.0

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Units:	mg/L
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122831	Batch#:	57698
Matrix:	Water	Analyzed:	08/15/00

Spiked	Result	%REC	Limits
200.0	187.8	94	80-110

Alkalinity

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	57698
MSS Lab ID:	146981-001	Sampled:	08/09/00
Matrix:	Water	Received:	08/09/00
Units:	mg/L	Analyzed:	08/15/00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC122832	247.3	200.0	439.7	96	69-112		
MSD	QC122833		200.0	437.4	95	69-112	1	20

RPD= Relative Percent Difference

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Sulfide

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 376.2
Analyte:	Sulfide	Batch#:	57731
Matrix:	Water	Sampled:	08/10/00
Units:	mg/L	Received:	08/10/00
Diln Fac:	1.000	Analyzed:	08/16/00

Field ID	Type	Lab ID	Result	RL
LFR-3	SAMPLE	146991-001	ND	0.040
MW-11	SAMPLE	146991-003	ND	0.040
B-10	SAMPLE	146991-005	ND	0.040
	BLANK	QC122963	ND	0.040

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Sulfide

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 376.2
Analyte:	Sulfide	Units:	mg/L
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122964	Batch#:	57731
Matrix:	Water	Analyzed:	08/16/00

Spiked	Result	%REC	Limits
0.6000	0.6440	107	80-118

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Chloride

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Chloride	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	mg/L	Analyzed:	08/11/00
Batch#:	57621		

Field ID	Type	Lab ID	Result	RL	Dil'n Fac
LFR-3	SAMPLE	146991-001	85	2.0	10.00
LFR-103	SAMPLE	146991-002	85	2.0	10.00
MW-11	SAMPLE	146991-003	110	2.0	10.00
B-10-FB	SAMPLE	146991-004	ND	0.20	1.000
B-10	SAMPLE	146991-005	74	2.0	10.00
	BLANK	QC122555	ND	0.20	1.000

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Nitrite Nitrogen

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Nitrogen, Nitrite	Batch#:	57621
Matrix:	Water	Sampled:	08/10/00
Units:	mg/L	Received:	08/10/00
Diln Fac:	1.000	Analyzed:	08/11/00

Field ID	Type	Lab ID	Result	RL
LFR-3	SAMPLE	146991-001	0.15	0.05
MW-11	SAMPLE	146991-003	ND	0.05
B-10	SAMPLE	146991-005	ND	0.05
	BLANK	QC122555	ND	0.05

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Nitrate Nitrogen

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Nitrogen, Nitrate	Batch#:	57621
Matrix:	Water	Sampled:	08/10/00
Units:	mg/L	Received:	08/10/00
Diln Fac:	1.000	Analyzed:	08/11/00

Field ID	Type	Lab ID	Result	RL
LFR-3	SAMPLE	146991-001	2.4	0.05
MW-11	SAMPLE	146991-003	2.8	0.05
B-10	SAMPLE	146991-005	ND	0.05
	BLANK	QC122555	ND	0.05

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Sulfate

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Sulfate	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	mg/L	Analyzed:	08/11/00
Batch#:	57621		

Field ID	Type	Lab ID	Result	RL	Diln Fac
LFR-3	SAMPLE	146991-001	64	5.0	10.00
MW-11	SAMPLE	146991-003	63	5.0	10.00
B-10	SAMPLE	146991-005	ND	0.50	1.000
	BLANK	QC122555	ND	0.50	1.000

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Chloride

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Chloride	Batch#:	57621
Field ID:	LFR-3	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Analyzed:	08/11/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Dil'n Fac
BS	QC122556		10.00	9.970	100	90-110			1.000
BSD	QC122557		10.00	10.00	100	90-110	0	20	1.000
MS	QC122558	85.49	50.00	136.4	102	80-120			10.00
MSD	QC122559		50.00	137.4	104	80-120	1	20	10.00

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrite Nitrogen

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Nitrogen, Nitrite	Batch#:	57621
Field ID:	LFR-3	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Analyzed:	08/11/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
BS	QC122556		2.000	2.040	102	90-110			1.000
BSD	QC122557		2.000	2.020	101	90-110	1	20	1.000
MS	QC122558	0.1508	10.00	10.07	99	80-120			10.00
MSD	QC122559		10.00	10.03	99	80-120	0	20	10.00

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrate Nitrogen

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Nitrogen, Nitrate	Batch#:	57621
Field ID:	LFR-3	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Analyzed:	08/11/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
BS	QC122556		2.000	1.990	99	90-110			1.000
BSD	QC122557		2.000	1.990	100	90-110	0	20	1.000
MS	QC122558	2.361	10.00	12.20	98	80-120			10.00
MSD	QC122559		10.00	12.24	99	80-120	0	20	10.00

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Sulfate

Lab #:	146991	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Sulfate	Batch#:	57621
Field ID:	LFR-3	Sampled:	08/10/00
MSS Lab ID:	146991-001	Received:	08/10/00
Matrix:	Water	Analyzed:	08/11/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Dil'n Fac
BS	QC122556		20.00	20.37	102	90-110			1.000
BSD	QC122557		20.00	20.38	102	90-110	0	20	1.000
MS	QC122558	63.89	100.0	166.2	102	80-120			10.00
MSD	QC122559		100.0	165.8	102	80-120	0	20	10.00

RPD= Relative Percent Difference

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LABORATORY REPORT

Client:	CURTIS & TOMPKINS, LTD.	Date of Report:	08/30/00
Address:	2323 Fifth Street	Date Received:	08/15/00
	Berkeley, CA 94710	PAI Project No:	P2002052
Contact:	Ms. Tracy Babjar	Purchase Order:	Verbal

Client Project ID: #146991

Five (5) Liquid Samples labeled:

"LFR-3" "LFR-103" "MW-11" "B-10-FB" "B-10"

The samples were received at the laboratory under chain of custody on August 15, 2000. The samples were received intact. The dates of analyses are indicated on the attached data sheets.

Carbon Dioxide Analysis

The samples were analyzed for Carbon dioxide according to modified RSK Method 175 using a gas chromatograph equipped with a thermal conductivity detector (TCD).

Methane, Ethene and Ethane Analysis

The samples were also analyzed for Methane, Ethene and Ethane according to modified RSK Method 175 using a gas chromatograph equipped with a flame ionization detector (FID).

The results of analyses are given in the attached data summary sheets.

Reviewed and Approved:

Ku-Jih Chen
Principal Chemist

Reviewed and Approved:

John Yokoyama
Senior Chemist

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RESULTS OF CARBON DIOXIDE ANALYSIS

Client: Curtis & Tompkins, Ltd.

Client Project ID: 146991
PAI Project ID: P2002052

Test Code: GC/TCD
Instrument ID: HP5890A/TCD #10
Analyst: Joana Ciurash
Matrix: Liquid

Date Sampled: 8/10/00
Date Received: 8/15/00
Date Analyzed: 8/17/00
Volume(s) Analyzed: 0.10 ml

Client Sample ID	PAI Sample ID	D.F.	Carbon Dioxide µg/L	
			Result	Reporting Limit
LFR-3	P2002052-001	1.00	162,000	100
LFR-103	P2002052-002	1.00	152,000	100
MW-11	P2002052-003	1.00	216,000	100
B-10-FB	P2002052-004	1.00	ND	100
B-10-FB	P2002052-004B	1.00	ND	100
B-10	P2002052-005	1.00	145,000	100
Method Blank	P000817-MB	1.00	ND	100

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RC Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : LFR-3
PAI Sample ID : P2002052-001

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	0.51	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : LFR-103
PAI Sample ID : P2002052-002

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RC Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : MW-11
PAI Sample ID : P2002052-003

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : B-10-FB
PAI Sample ID : P2002052-004

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : B-10-FB
PAI Sample ID : P2002052-004B

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: R G Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : B-10
PAI Sample ID : P2002052-005

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/10/00
Date Received : 8/15/00
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	10,000	0.50
74-85-1	Ethene	0.57	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/29/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : Method Blank
PAI Sample ID : P000817-MB

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : NA
Date Received : NA
Date Analyzed : 8/17/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/29/00

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

Project Number: 146991

Subcontract Lab:

Performance Analytical
2665 Park Center Drive Suite D
Simi Valley, CA 93065
(805) 526-7161

Please send report to: Tracy Babjan

P2000052

Turnaround Time: Standard

Report Level: II

	Sample ID	Date Sampled	Matrix	Analysis	C&T Lab #
1	LFR-3	10-AUG-00	Water	RSK-175	146991-001
2	LFR-103	10-AUG-00	Water	RSK-175	146991-002
3	MW-11	10-AUG-00	Water	RSK-175	146991-003
4	B-10-FB	10-AUG-00	Water	RSK-175	146991-004
5	B-10	10-AUG-00	Water	RSK-175	146991-005

***Please report using Sample ID instead of C&T Lab #.

Notes:

CO_2, methane
ethane, ethene

RELINQUISHED BY:		RECEIVED BY:	
Ken Smith	8-14-00 4:00 Date/Time	Sharon Malone	~~8/15/00 10:30~~ Date/Time
	Date/Time	Temp = 21°C	Date/Time

Signature on this form constitutes a firm Purchase Order for the services requested above.

146991

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.030	Project Location: Oakland, CA	Date: 8/10/00	Serial No.: № 2205
Project Name: Glovatorium	Field Logbook No.: MXD-3		
Sampler (Signature): [signature]			Samplers: MXD, CNS

ANALYSES

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	Cl, Alkalinity	Total Iron	Ferrous Iron NO3, NO2	SO4-2 Sulfide	CO2, methane, ethane, ethene	✱	HOLD	RUSH	REMARKS
LFR-3	8/10/00	0910		13	H2O	X	X	X	X	X	X			✱ = BTEX, MTBE, TPH stoddard solvent
LFR-103	|	0915		10	|	X				X	X			TPHg ; EPA 8260
MW-11	|	1150		13	|	X	X	X	X	X	X			
B-10-FB	|	1330		10	|	X				X	X			
B-10	|	1545		13	|	X	X	X	X	X	X			Standard TAT
Trip Blank											X			
														Results to Julie Sharp.
														LFR-3, MW-11, and B-10 were field filtered

RELINQUISHED BY: (Signature) [signature]	DATE 8/10/00	TIME 1625	RECEIVED BY: (Signature) [signature]	DATE 8/10/00	TIME 1625
RELINQUISHED BY: (Signature) [signature]	DATE 8/10/00	TIME 1655	RECEIVED BY: (Signature) [signature]	DATE 8/10/00	TIME 1655
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: HAND cooler #13	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 Berkeley

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

COC CDR 101596RYL

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

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

Prepared for:

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

Date: 06-SEP-00
Lab Job Number: 147064
Project ID: 6895.00.030
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: **147064**
Client: **LFR-Levine-Fricke**
Project #: **6895.00.030**
Location: **Glovatorium**
COC#: **7580**

Sampled Date: **08/11/00**
Received Date: **08/14/00**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for seven water samples and a trip blank, which were received from the site referenced above on August 14, 2000. The samples were received intact. All data were faxed to Julie Sharp on August 28, 2000.

TVH/BTXE:
High bromofluorobenzene surrogate recovery was observed for sample B-7 (CT# 147064-006), due to hydrocarbons coeluting with the surrogate peak. No analytical problems were encountered.

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

General Chemistry:
No analytical problems were encountered.

RSK Method 175:
Performance Analytical Inc. in Simi Valley performed the analysis. Please see the Performance Analytical case narrative. No analytical problems were encountered

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	08/11/00
Units:	ug/L	Received:	08/14/00
Diln Fac:	1.000	Analyzed:	08/16/00
Batch#:	57721		

Field ID: LFR-4 Lab ID: 147064-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	410 Y	50
Stoddard Solvent C7-C12	220 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	107	60-140

Field ID: LFR-2 Lab ID: 147064-005
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	1,100 H Y	50
Stoddard Solvent C7-C12	590	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	59-135
Bromofluorobenzene (FID)	113	60-140

Field ID: B-7 Lab ID: 147064-006
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	6,800 H Y	50
Stoddard Solvent C7-C12	3,700	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	59-135
Bromofluorobenzene (FID)	234 * >LR b	60-140

Field ID: GW-3 Lab ID: 147064-007
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	77 Y Z	50
Stoddard Solvent C7-C12	ND	50

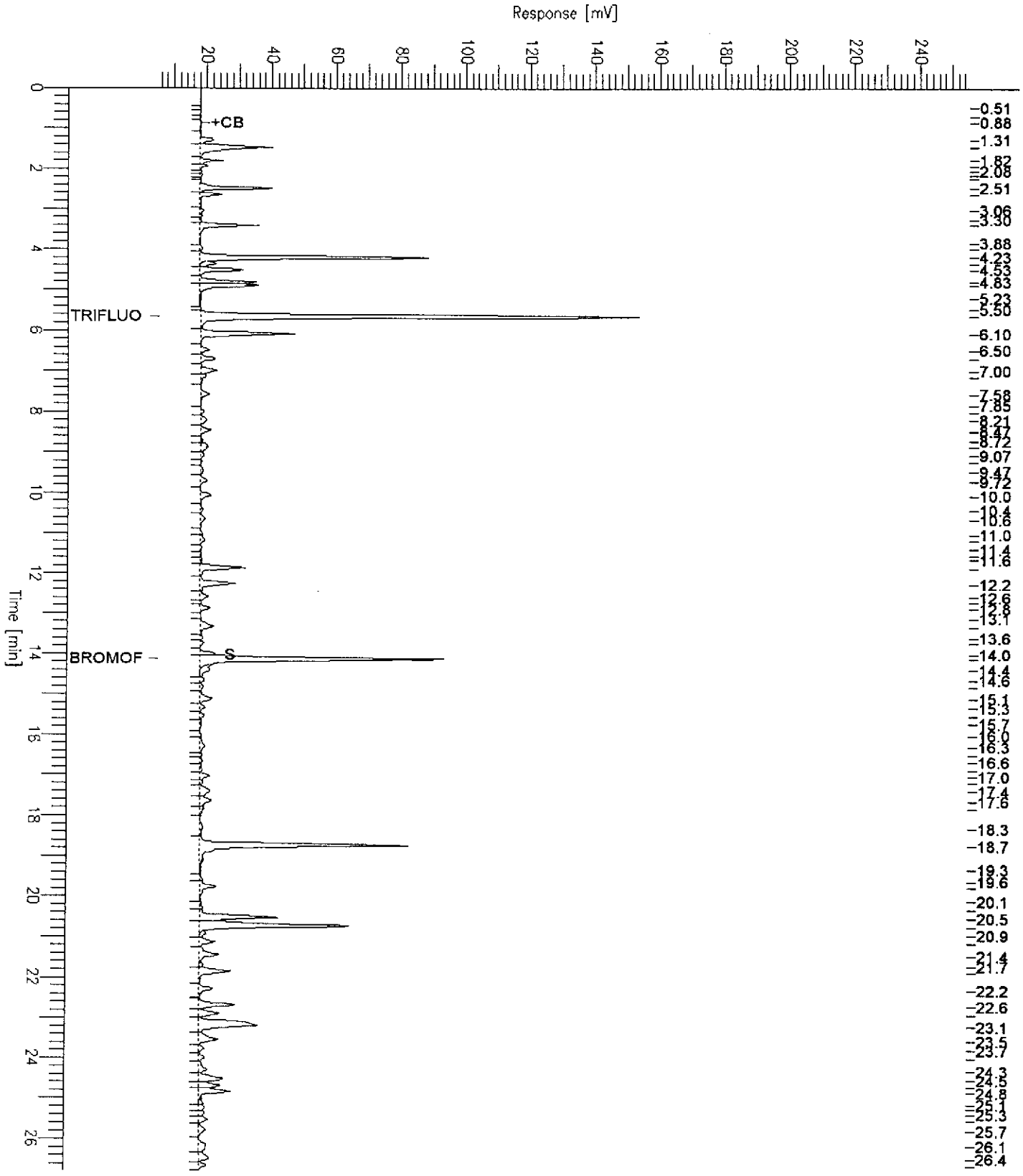
Surrogate	%REC	Limits
Trifluorotoluene (FID)	114	59-135
Bromofluorobenzene (FID)	114	60-140

* = Value outside of QC limits; see narrative
H = Heavier hydrocarbons contributed to the quantitation
Y = Sample exhibits fuel pattern which does not resemble standard
Z = Sample exhibits unknown single peak or peaks
b = See narrative
ND = Not Detected
RL = Reporting Limit
>LR= Response exceeds instrument's linear range

GC19 TVH 'X' Data File (FID)

Sample Name : 147064-003,57721
FileName : G:\GC19\DATA\229X011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 5 mV

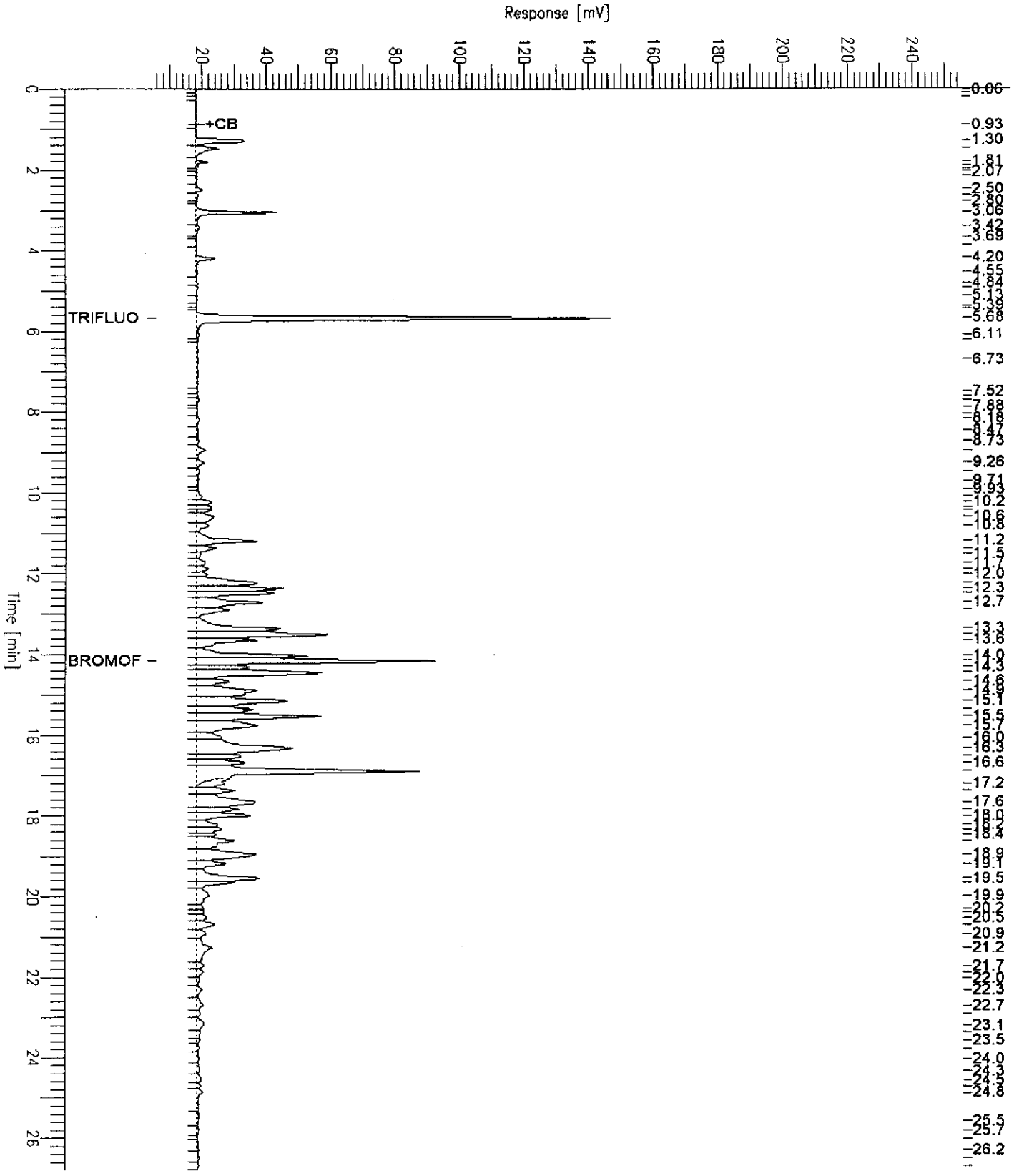
Sample #: Page 1 of 1
Date : 8/17/00 12:03 PM
Time of Injection: 8/16/00 05:34 PM
Low Point : 5.37 mV High Point : 255.37 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 147064-005,57721
FileName : G:\GC19\DATA\229X012.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 5 mV

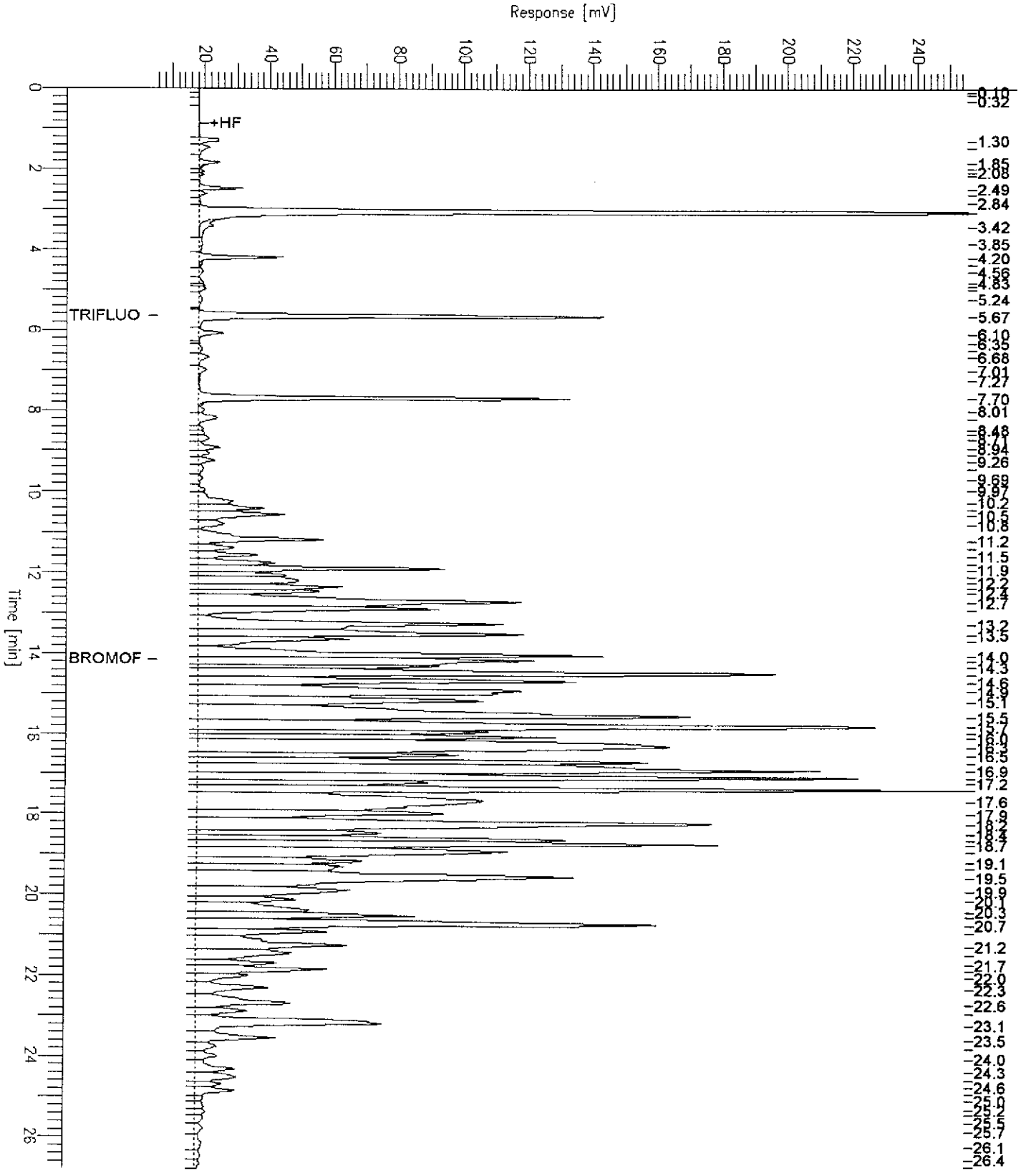
Sample #: Page 1 of 1
Date : 8/16/00 06:37 PM
Time of Injection: 8/16/00 06:10 PM
Low Point : 5.40 mV High Point : 255.40 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 147064-006,57721
FileName : G:\GC19\DATA\229X013.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 5 mV

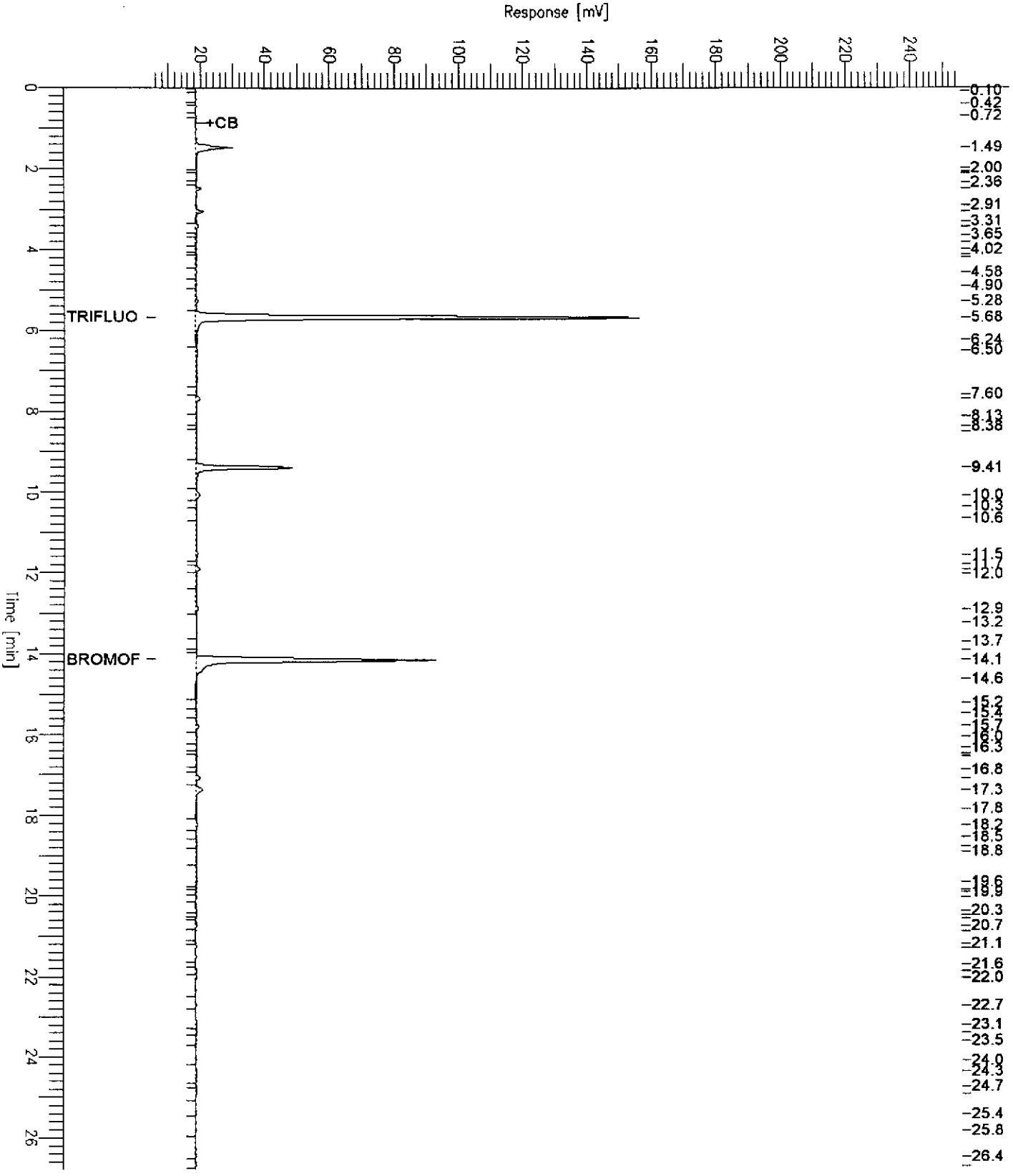
Sample #: Page 1 of 1
Date : 8/17/00 12:03 PM
Time of Injection: 8/16/00 06:45 PM
Low Point : 5.39 mV High Point : 255.39 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : 147064-007,57721
FileName : G:\GC19\DATA\229X018.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

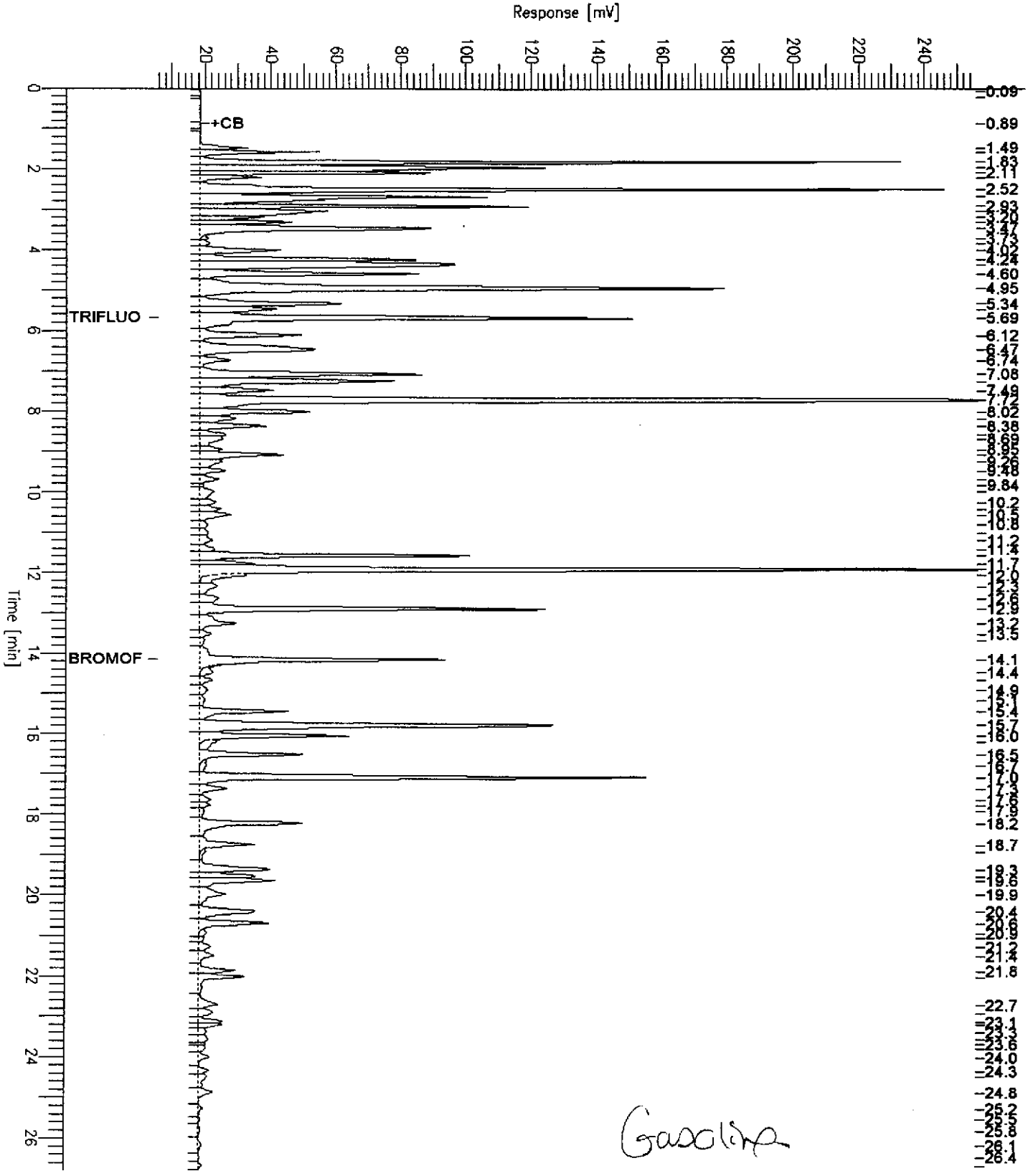
Sample #: Page 1 of 1
Date : 8/16/00 10:11 PM
Time of Injection: 8/16/00 09:44 PM
Low Point : 5.76 mV High Point : 255.76 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC122923,57721,00WS9465,5/5000
FileName : G:\GC19\DATA\229X004.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: Page 1 of 1
Date : 8/16/00 01:36 PM
Time of Injection: 8/16/00 01:09 PM
Low Point : 5.78 mV High Point : 255.78 mV
Plot Scale: 250.0 mV

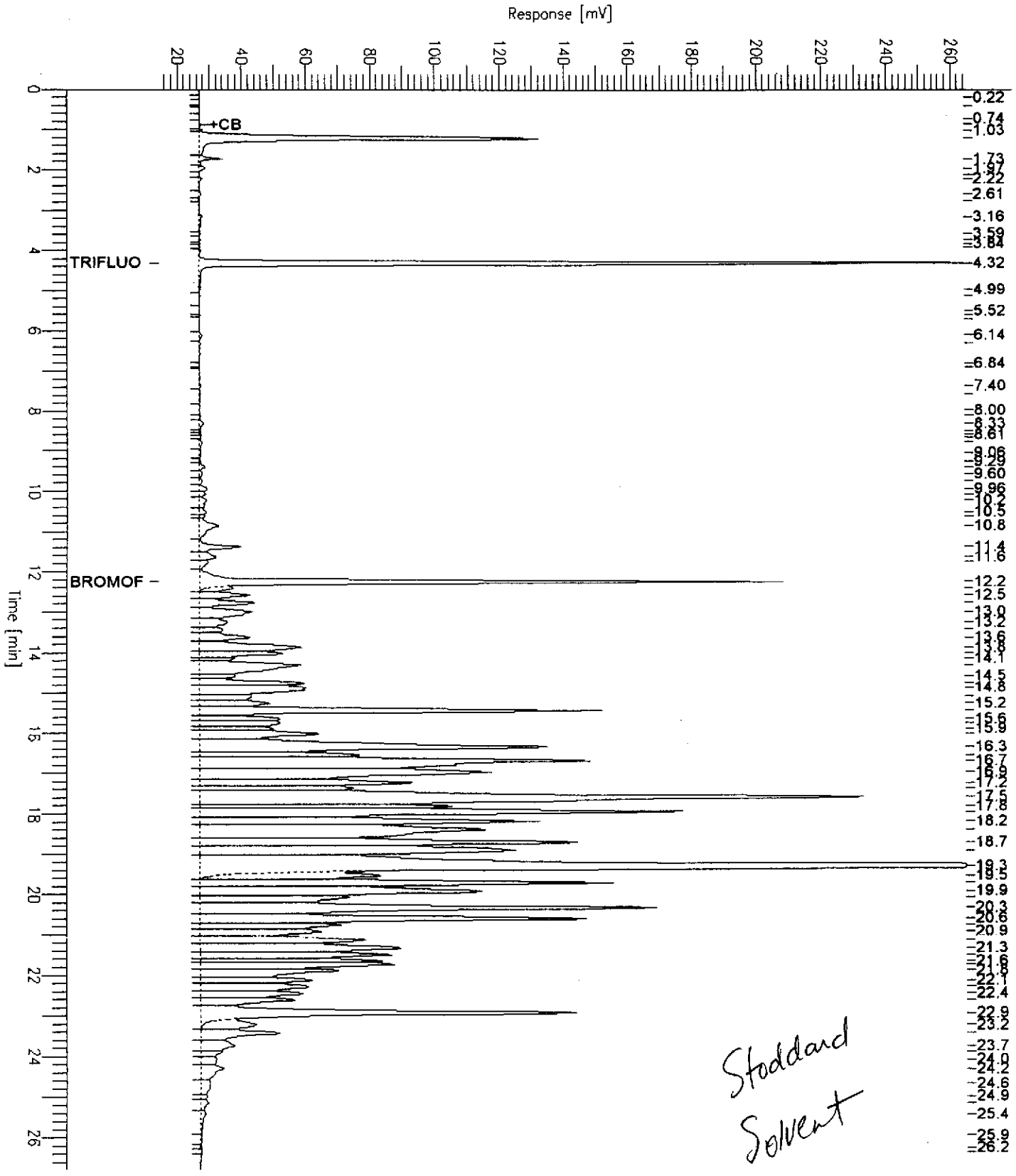


Gasoline

GC19 TVH 'X' Data File (FID)

Sample Name : CCV,97WS4980,40466
FileName : G:\GC19\DATA\113X030.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 14 mV

Sample #: STODD Page 1 of 1
Date : 4/24/98 08:16 PM
Time of Injection: 4/24/98 07:49 PM
Low Point : 14.15 mV High Point : 264.15 mV
Plot Scale: 250.0 mV



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	08/11/00
Units:	ug/L	Received:	08/14/00
Diln Fac:	1.000	Analyzed:	08/16/00
Batch#:	57721		

Type: BLANK Lab ID: QC122925

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

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	100	60-140

* = Value outside of QC limits; see narrative
H = Heavier hydrocarbons contributed to the quantitation
Y = Sample exhibits fuel pattern which does not resemble standard
Z = Sample exhibits unknown single peak or peaks
b = See narrative
ND = Not Detected
RL = Reporting Limit
>LR= Response exceeds instrument's linear range

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122923	Batch#:	57721
Matrix:	Water	Analyzed:	08/16/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,018	101	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	123	59-135
Bromofluorobenzene (FID)	127	60-140

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	57721
MSS Lab ID:	147023-001	Sampled:	08/10/00
Matrix:	Water	Received:	08/10/00
Units:	ug/L	Analyzed:	08/17/00
Diln Fac:	1.000		

Type: MS Lab ID: QC122926

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	30.48	2,000	2,161	107	65-131

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

Type: MSD Lab ID: QC122927

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,969	97	65-131	9	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	59-135
Bromofluorobenzene (FID)	137	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	57721
Units:	ug/L	Sampled:	08/11/00
Diln Fac:	1.000	Received:	08/14/00

Field ID: LFR-4 Lab ID: 147064-003
Type: SAMPLE Analyzed: 08/17/00

Analyte	Result	RL
MTBE	5.1	2.0
Benzene	11	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.1 C	0.50
o-Xylene	0.52 C	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	109	56-142
Bromofluorobenzene (PID)	115	55-149

Field ID: LFR-2 Lab ID: 147064-005
Type: SAMPLE Analyzed: 08/17/00

Analyte	Result	RL
MTBE	2.2	2.0
Benzene	1.8	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	1.3 C	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	105	56-142
Bromofluorobenzene (PID)	114	55-149

Field ID: B-7 Lab ID: 147064-006
Type: SAMPLE Analyzed: 08/17/00

Analyte	Result	RL
MTBE	20	2.0
Benzene	7.7	0.50
Toluene	47	0.50
Ethylbenzene	7.0	0.50
m,p-Xylenes	35	0.50
o-Xylene	30 C	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	109	56-142
Bromofluorobenzene (PID)	178 *	55-149

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

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	57721
Units:	ug/L	Sampled:	08/11/00
Diln Fac:	1.000	Received:	08/14/00

Field ID: GW-3 Lab ID: 147064-007
Type: SAMPLE Analyzed: 08/16/00

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	0.51	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Trifluorotoluene (PID)	112	56-142
Bromofluorobenzene (PID)	115	55-149

Type: BLANK Analyzed: 08/16/00
Lab ID: QC122925

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)	100	56-142
Bromofluorobenzene (PID)	99	55-149

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

Curtis & Tompkins, Ltd.

Benzene, Toluene, Ethylbenzene, Xylenes

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122924	Batch#:	57721
Matrix:	Water	Analyzed:	08/16/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.36	92	51-125
Benzene	20.00	16.49	82	67-117
Toluene	20.00	16.58	83	69-117
Ethylbenzene	20.00	17.13	86	68-124
m,p-Xylenes	40.00	36.52	91	70-125
o-Xylene	20.00	17.27	86	65-129

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	56-142
Bromofluorobenzene (PID)	101	55-149

› = See narrative

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	TB-2	Batch#:	57881
Lab ID:	147064-001	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	ug/L	Analyzed:	08/23/00
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	107	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 #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	LFR-4	Batch#:	57881
Lab ID:	147064-003	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	ug/L	Analyzed:	08/23/00
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	1.2	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	108	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	96	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	LFR-2	Batch#:	57881
Lab ID:	147064-005	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	4.5	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	35	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	109	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 #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	B-7	Batch#:	57905
Lab ID:	147064-006	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	ug/L	Analyzed:	08/24/00
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	4.8	3.1
1,1-Dichloroethane	ND	3.1
cis-1,2-Dichloroethene	860	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	ND	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	ND	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	109	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	93	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	GW-3	Batch#:	57905
Lab ID:	147064-007	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	ug/L	Analyzed:	08/24/00
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	12	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	2.8	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	68	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	108	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	97	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123577	Batch#:	57881
Matrix:	Water	Analyzed:	08/23/00
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	80	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	94	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123665	Batch#:	57905
Matrix:	Water	Analyzed:	08/24/00
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	109	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	96	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC123666	Batch#:	57905
Matrix:	Water	Analyzed:	08/24/00
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	105	78-123
Toluene-d8	102	80-110
Bromofluorobenzene	98	80-115

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	57881
Units:	ug/L	Analyzed:	08/23/00
Diln Fac:	1.000		

Type: BS Lab ID: QC123575

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	51.36	103	74-132
Trichloroethene	50.00	55.57	111	80-119
Chlorobenzene	50.00	54.12	108	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	95	80-115

Type: BSD Lab ID: QC123576

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	49.55	99	74-132	4	20
Trichloroethene	50.00	53.89	108	80-119	3	20
Chlorobenzene	50.00	54.01	108	80-117	0	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	95	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC123664	Batch#:	57905
Matrix:	Water	Analyzed:	08/24/00
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	50.68	101	74-132
Trichloroethene	50.00	57.26	115	80-119
Chlorobenzene	50.00	55.09	110	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	94	80-115

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	EPA 5030
Project#:	6895.00.030	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	57905
MSS Lab ID:	147111-001	Sampled:	08/15/00
Matrix:	Water	Received:	08/17/00
Units:	ug/L	Analyzed:	08/24/00
Diln Fac:	1.000		

Type: MS Lab ID: QC123667

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5000	50.00	50.36	101	70-132
Trichloroethene	<0.5000	50.00	55.30	111	62-137
Chlorobenzene	<0.5000	50.00	55.14	110	80-117

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	96	80-115

Type: MSD Lab ID: QC123668

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	48.87	98	70-132	3	20
Trichloroethene	50.00	54.87	110	62-137	1	20
Chlorobenzene	50.00	55.09	110	80-117	0	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	94	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Matrix:	Water	Sampled:	08/11/00
Units:	mg/L	Received:	08/14/00
Diln Fac:	1.000	Analyzed:	08/21/00
Batch#:	57825		

Field ID: LFR-4 Lab ID: 147064-003
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	630	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	630	1.0

Field ID: LFR-2 Lab ID: 147064-005
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	590	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	590	1.0

Field ID: B-7 Lab ID: 147064-006
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	760	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	760	1.0

Field ID: GW-3 Lab ID: 147064-007
Type: SAMPLE

Analyte	Result	RL
Alkalinity, Bicarbonate	340	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	340	1.0

Type: BLANK Lab ID: QC123374

Analyte	Result	RL
Alkalinity, Bicarbonate	ND	1.0
Alkalinity, Carbonate	ND	1.0
Alkalinity, Hydroxide	ND	1.0
Alkalinity, Total as CaCO3	ND	1.0

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Alkalinity

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Units:	mg/L
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC123375	Batch#:	57825
Matrix:	Water	Analyzed:	08/21/00

Spiked	Result	%REC	Limits
200.0	192.4	96	80-110

Alkalinity

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 310.1
Analyte:	Alkalinity, Total as CaCO3	Diln Fac:	1.000
Field ID:	GW-3	Batch#:	57825
MSS Lab ID:	147064-007	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	mg/L	Analyzed:	08/21/00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC123376	341.2	200.0	526.7	93	69-112		
MSD	QC123377		200.0	538.2	98	69-112	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd.

Chloride

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Chloride	Sampled:	08/11/00
Matrix:	Water	Received:	08/14/00
Units:	mg/L	Analyzed:	08/17/00
Batch#:	57757		

Field ID	Type	Lab ID	Result	RL	Diln Fac
LFR-4	SAMPLE	147064-003	71	4.0	20.00
LFR-2	SAMPLE	147064-005	33	4.0	20.00
B-7	SAMPLE	147064-006	39	4.0	20.00
GW-3	SAMPLE	147064-007	25	4.0	20.00
	BLANK	QC123062	ND	0.20	1.000

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Chloride

Lab #:	147064	Location:	Glovatorium
Client:	LFR-Levine-Fricke	Prep:	METHOD
Project#:	6895.00.030	Analysis:	EPA 300.0
Analyte:	Chloride	Batch#:	57757
Field ID:	ZZZZZZZZZZ	Sampled:	08/16/00
MSS Lab ID:	147094-001	Received:	08/16/00
Matrix:	Water	Analyzed:	08/17/00
Units:	mg/L		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Dil'n Fac
BS	QC123063		10.00	9.610	96	90-110			1.000
BSD	QC123064		10.00	9.550	95	90-110	1	20	1.000
MS	QC123065	19.16	50.00	67.98	98	80-120			10.00
MSD	QC123066		50.00	68.34	98	80-120	1	20	10.00

RPD= Relative Percent Difference

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Air Quality Laboratory
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LABORATORY REPORT

Client:	CURTIS & TOMPKINS, LTD.	Date of Report:	09/01/00
Address:	2323 Fifth Street	Date Received:	08/16/00
	Berkeley, CA 94710	PAI Project No:	P2002063
Contact:	Ms. Tracy Babjar	Purchase Order:	Verbal

Client Project ID: #147064

Five (5) Liquid Samples labeled:

"LFR-1" "LFR-4" "LFR-2" "B-7" "GW-3"

The samples were received at the laboratory under chain of custody on August 16, 2000. The samples were received intact. The dates of analyses are indicated on the attached data sheets.

Carbon Dioxide Analysis

The samples were analyzed for Carbon dioxide according to modified RSK Method 175 using a gas chromatograph equipped with a thermal conductivity detector (TCD).

Methane, Ethene and Ethane Analysis

The samples were also analyzed for Methane, Ethene and Ethane according to modified RSK Method 175 using a gas chromatograph equipped with a flame ionization detector (FID).

The results of analyses are given in the attached data summary sheets.

Reviewed and Approved:

Ku-Jih Chen
Principal Chemist

Reviewed and Approved:

John Yokoyama
Senior Chemist

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RESULTS OF CARBON DIOXIDE ANALYSIS

Client: Curtis & Tompkins, Ltd.

Client Project ID: 147064
PAI Project ID: P2002063

Test Code: GC/TCD
Instrument ID: HP5890A/TCD #10
Analyst: Joana Ciurash
Matrix: Liquid

Date Sampled: 8/11/00
Date Received: 8/16/00
Date Analyzed: 8/22/00
Volume(s) Analyzed: 0.10 ml

Client Sample ID	PAI Sample ID	D.F.	Carbon Dioxide µg/L	
			Result	Reporting Limit
LFR-1	P2002063-001	1.00	51,100	100
LFR-4	P2002063-002	1.00	161,000	100
LFR-2	P2002063-003	1.00	174,000	100
B-7	P2002063-004	1.00	202,000	100
GW-3	P2002063-005	1.00	54,300	100
GW-3	P2002063-005B	1.00	52,800	100
Method Blank	P000822-MB	1.00	ND	100

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RC Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : LFR-1
PAI Sample ID : P2002063-001

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	9.6	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RC- Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : LFR-4
PAI Sample ID : P2002063-002

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	62	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RC Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : LFR-2
PAI Sample ID : P2002063-003

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	6,600	0.50
74-85-1	Ethene	1.7	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : B-7
PAI Sample ID : P2002063-004

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	11,000	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : GW-3
PAI Sample ID : P2002063-005

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : GW-3
PAI Sample ID : P2002063-005B

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : 8/11/00
Date Received : 8/16/00
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/30/00

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RESULTS OF ANALYSIS

Client : Curtis & Tompkins, Ltd.

Client Sample ID : Method Blank
PAI Sample ID : P000822-MB

Test Code : GC/FID
Instrument : HP5890A/FID #10
Analyst : Joana Ciurash
Matrix : Liquid

Date Sampled : NA
Date Received : NA
Date Analyzed : 8/22/00
Volume(s) Analyzed : 0.10 ml

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/L	REPORTING LIMIT µg/L
74-82-8	Methane	ND	0.50
74-85-1	Ethene	ND	0.50
74-84-0	Ethane	ND	0.50

TR = Detected Below Indicated Reporting Limit
ND = Not Detected

Verified By: RG Date: 8/30/00

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P2002063

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

Project Number: 147064

Subcontract Lab:

Performance Analytical
2665 Park Center Drive Suite D
Simi Valley, CA 93065
(805) 526-7161

Please send report to: Tracy Babjar

Turnaround Time: Due 8/21

Report Level: II

	Sample ID	Date Sampled	Matrix	Analysis	C&T Lab #
	LFR-1	11-AUG-00	Water	RSK-175	147064-002
2	LFR-4	11-AUG-00	Water	RSK-175	147064-003
3	LFR-2	11-AUG-00	Water	RSK-175	147064-005
4	B-7	11-AUG-00	Water	RSK-175	147064-006
5	GW-3	11-AUG-00	Water	RSK-175	147064-007

***Please report using Sample ID instead of C&T Lab #.

Notes:

RELINQUISHED BY:		RECEIVED BY:	
Ben Smith	8-15-00 2:10	Sharon Malone	8/16/00 0940
Date/Time		Date/Time	
Date/Time		Date/Time	

Signature on this form constitutes a firm Purchase Order for the services requested above.

Please Test for CO_2, methane, ethane, ethene

147064

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 6895.00.030	Project Location: Oakland, CA	Date: 8/11/00	Serial № 7580
Project Name: Glovatorium	Field Logbook No.: MXD-3	Sample Event Name: Q3	
Sampler (Signature): [signature]			Samplers: MXD

SAMPLE INFORMATION (Print Clearly)

ANALYSES

	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	Alkalinity + Cl	CO2 methane ethane ethene	8015	TPHg + TPH Stoddard solv.	8260 (8010 list)	MTBE + BTEX *	HOLD	RUSH	REMARKS
1	TB-2	8/11/00	0810		2	H2O					X				STANDARD TAT
2	LFR-1	↓	0815		3	↓		X	X						
3	LFR-4		0940		10		X	X	X	X	X	X			Results to julie Sharp
4	LFR-104		0945		10		X	X	X	X	X	X	X		
5	LFR-2		1240		10		X	X	X	X	X	X			* Please include
6	B-7		1619		10		X	X	X	X	X	X			MTBE + BTEX w/
7	GW-3		1740		10		X	X	X	X	X	X			8260 Analysis

RELINQUISHED BY: (Signature) [signature]	DATE 8/14/00	TIME 10:30	RECEIVED BY: (Signature) [signature]	DATE 8/14/00	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: courier cooler #33+	DATE	TIME	LAB COMMENTS:		

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

Analytical Laboratory: C+T

Monday morning Pickup

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

2 coolers

9999\COCTEMP.CDR 042998