Report on a Supplemental Site Investigation and a Conceptual Remediation Plan 625 Hegenberger Road Oakland, California

April 5, 1995
3015.94

Prepared for
Diversified Investment and
Management Corporation
400 Oyster Point Boulevard, Suite 415
South San Francisco, California 94080

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

April 5, 1995 LF 3015

Mr. Barney Chan
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Room 200
Oakland, California 94621

Subject: Tank Closure Report on Removal of Underground Fuel Storage Tanks and Related Structures at the Former Gasoline Service Station Location at 625 Hegenberger Road, Oakland, California

Dear Mr. Chan:

Enclosed is the final Supplemental Site Investigation and a Conceptual Remediation report for the subject site. If you have any questions about the report, please call either of the undersigned.

Sincerely,

John Sturman, P.E., R.G.
Senior Geotechnical Engineer

Shellie Fletcher
Senior Staff Geotechnical Engineer

Enclosure

cc: James Graeb, Diversified Investment and Management Corp.

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1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500
Fax (510) 652-2246

Other offices in Irvine, CA; Sacramento/Roseville, CA; Tallahassee, FL; Honolulu, HI

CONTENTS

CONTENTS (continued)

CERTIFICATION

All engineering information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a Levine·Fricke California Professional Engineer.

4/5/95

John O. Sturman
Senior Geotechnical Engineer
California Civil Engineer (049765)

Date

April 5, 1995 LF 3015

REPORT ON A SUPPLEMENTAL SITE INVESTIGATION AND A CONCEPTUAL REMEDIATION PLAN 625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

1.0 INTRODUCTION AND BACKGROUND

This Supplemental Site Investigation Report and Conceptual Remedial Plan is submitted by Levine·Fricke, Inc. ("Levine·Fricke"), on behalf of Diversified Investment and Management Corp., for the former fuel service station location at 625 Hegenberger Road, Oakland, California, ("the Site"; Figure 1).

The work was performed in accordance with the "Work Plan for Supplemental Site Investigation and Conceptual Remedial Planning, 625 Hegenberger Road, Oakland, California," originally dated September 26, 1994, revised on October 14, 1994, and approved by Mr. Barney Chan of the Alameda County Department of Environmental Health (ACDEH). This report presents the results of the supplemental investigation conducted on January 5, 6 and 10, 1995, as well as the proposed conceptual remediation plan for bringing the Site into compliance with the requirements of the ACDEH.

1.1 Site Description

Underground fuel storage tanks (USTs) associated with the former fuel service station were removed from the Site in October 1993. An active tune-up shop and convenience store are located at the Site.

1.2 Previous Site Activities

1.2.1 Subsurface Consultants Investigations

Soil and ground-water investigations conducted by Subsurface Consultants Inc. (SCI) in 1988 and 1990 indicated that Site soil and ground water at the Site contained gasoline and diesel petroleum hydrocarbons, as well as petroleum hydrocarbons characterized as oil and grease (SCI 1988 and 1990). Approximate boring locations are shown on Figure 2. A thin layer (about ¼-inch) of floating gasoline was encountered during SCI 1988 investigation. The most elevated gasoline concentrations detected in soil were 5,600 milligrams per kilogram (mg/kg), 2,200 mg/kg, and 1,000 mg/kg in borings 6, 7, and 23, respectively. The highest diesel concentrations

in soil were 6,400 mg/kg and 5,000 mg/kg in borings 7 and 9, respectively. The highest total oil and grease (TOG) concentrations in soil were 100,000 mg/kg, 40,000 mg/kg, and 23,000 mg/kg in borings 7, 9, and 8 (MW-8), respectively.

Soil samples collected by SCI were also analyzed for total lead, soluble lead, organic lead, cyanide, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and ethylene dibromide. Total lead was detected in soil at concentrations well below 1,000 mg/kg, the State of California total threshold limit concentration (TTLC), and was detected in all soil samples analyzed. Soluble lead was detected in three of six samples at concentrations slightly in excess of the State of California soluble threshold limit concentration (STLC) of 5 milligrams per liter (mg/l). Organic lead was detected in one of six samples at 0.9 mg/kg, which is below the TTLC of 13 mg/kg. VOCs and SVOCs were not detected using EPA Methods 8010 and 8270. Ethylene dibromide was not detected. Cyanide was detected at 0.49 mg/kg in one of two soil samples analyzed.

Subsurface Consultants installed five shallow ground-water monitoring wells on the Site (Subsurface Consultants 1990).

1.2.2 HartCrowser Ground-Water Monitoring

Ground water in the five wells was monitored by HartCrowser on May 28, 1993 (HartCrowser 1993). Analytical test results indicated that total petroleum hydrocarbons (TPH) as gasoline (TPHg), BTEX, and TPH as diesel (TPHd) were present in wells MW-8, MW-11, and MW-16. The most elevated TPHg and benzene concentrations (19 mg/l and 6.4 mg/l, respectively) were detected in monitoring well MW-8, which is approximately downgradient from the pump islands. Ground-water samples were also analyzed for organic lead, which was not detected.

1.2.3 Levine·Fricke Activities

1.2.3.1 Underground Storage Tank Removal and Closure

In October 1993, three underground storage tanks (USTs) and related structures were removed from the Site under Levine·Fricke observation (Levine·Fricke 1994a). During UST removal and closure, the following were removed from the Site: two fuel islands; the dispensers; a canopy; three 12,000-gallon-capacity USTs; approximately 140 feet of associated piping; one 260-gallon-capacity sump; approximately 250 cubic yards (cy) of soil affected by petroleum hydrocarbons. The excavated soil is currently

stored on-site until a treatment plan is implemented. Soils have been set on bermed plastic and have been covered with plastic sheeting, in accordance with the UST Closure Plan developed by Levine·Fricke and approved by the ACDEH.

1.2.3.2 Soil Characterization

Hydrocarbons. Soil samples collected during UST removal and closure indicate that soil surrounding the USTs, the sump, and the product piping is affected by gasoline-, diesel-, and oil-range hydrocarbons. [redacted] detected at concentrations up to 7,600 mg/kg (see Figure 2). The fuel constituents benzene, toluene, ethyl benzene and total xylenes (BTEX) were present at corresponding elevated concentrations. TPH as oil (TPHo) was detected at concentrations as high as 11,000 mg/kg. TPHd was frequently below detection limits; the highest concentration detected was 140 mg/kg.

The reported chemicals of concern at the Site are gasoline, diesel, and petroleum hydrocarbons in the TOG range. Results of ground-water monitoring, sampling of soil and ground water during the UST removal and closure operations, and sampling conducted previously by Subsurface Consultants indicate that gasoline, BTEX, diesel, and petroleum hydrocarbons in the TOG range are present in site soils and ground water.

The petroleum hydrocarbons in the TOG range have not yet been fully characterized. These hydrocarbons could potentially be constituents of motor oil and grease, resulting from service station operations. Alternatively, they could result from a tar-like substance that has been identified at adjacent sites as part of the earth fill materials used in the area of the Site (Barney Chan, Alameda County Health Care Services Agency, Department of Environmental Health [ACDEH], personal communication, August 17, 1994). On August 18, 1994, Levine·Fricke personnel examined the stockpile of excavated soil, and found some large chunks (gravel and cobble-sized) of solidified tar- or asphalt-like material. This material is believed to be part of the fill materials used in the area.

Lead. Soil samples collected during UST removal were also analyzed or tested for lead. Total lead was detected at concentrations well below the 1,000 mg/kg TTLC in all soil samples tested. Organic lead (methyl-ethyl and tetra-ethyl lead, additives in leaded gasoline) was detected in only 8 out of 23 soil samples, all below the TTLC of 13 mg/kg.

Five soil samples were analyzed for soluble lead. Four of the samples contained soluble lead below the STLC; one sample, in

which the highest concentration of total lead was detected contained 6 mg/l soluble lead, slightly in excess of the STLC (5 mg/l).

Based on the Subsurface Consultants results for total and organic lead, it is our opinion that elevated lead present in site soils are likely due to the presence of lead in fill materials in the region.

1.2.3.3 Ground-Water Monitoring

Levine·Fricke collected ground-water samples from five monitoring wells during December 1993 and June 1994 (Levine·Fricke 1994b, 1994c). On August 15, 1994, the well casing elevation for monitoring well MW-16 was surveyed by Levine·Fricke personnel, and ground-water levels were measured over a six-hour period to assess tidal influence. A quarterly ground-water monitoring program has been implemented at the Site. Analysis of ground-water samples collected by Levine·Fricke during the past four quarterly monitoring events (Levine·Fricke 1994b, 1994c, 1994d, 1995a) indicate that:

- TPHg and BTEX were consistently present in only two of the seven monitoring wells MW-8 and MW-11.
- There does not appear to be any trend of increase in TPHg and BTEX concentrations and the plume does not appear to be moving.
- Weathered diesel and oil, when present, were present in very low concentrations.
- Lead was not detected in any ground-water samples.

The most elevated TPHg and benzene concentrations were detected in monitoring well MW-8, which is immediately downgradient from the former pump and piping location and adjacent to the former tank location. Evaluation of ground-water levels indicated that tidal influence at the Site does not significantly affect the ground-water flow direction or gradient. Results of the quarterly ground-water sampling indicate that lead is not present in concentrations that exceed regulatory levels.

2.0 SUPPLEMENTAL SITE INVESTIGATION

2.1 Scope of Work

A supplemental site investigation was requested by ACDEH to further assess the extent of the petroleum hydrocarbons in the soil and ground water, and to develop a site cleanup plan. Additional soil sampling for petroleum hydrocarbons was necessary to estimate the total volume of soils that will require excavation and treatment, and to identify soils that may be segregated for treatment or backfill.

This scope of work included the following tasks:

- installation and sampling of 11 soil borings and 1 ground-water monitoring well
- laboratory analysis of 23 soil and 5 ground-water samples (4 ground-water samples were collected from soil borings; one ground-water sample was collected from the new well as part of quarterly monitoring in January 1995)
- data evaluation
- remedial evaluation and report preparation

2.2 Objectives

The specific objectives of the supplemental site investigation were as follows:

- Assess the lateral and vertical extent of petroleum hydrocarbons associated with the former USTs in the soil.
- Identify the petroleum hydrocarbons identified as TPHo or TOG, and determine if they are similar to the tar-like substance found in fill materials on adjacent sites.
- Better assess the lateral extent of affected ground water.
- Collect data to evaluate the potential of an off-site source(s) that may have affected site soil and/or ground water.
- Use the data collected during these activities to assess remediation options and costs.

2.3 Field Activities

2.3.1 Drilling Soil Borings

On January 5, 6, and 10th, 1995, Levine·Fricke installed 13 soil borings (LF-24 through LF-36) at the Site. Soil samples were collected and analyzed for petroleum hydrocarbons. Soil borings were sampled at selected depths to assess the vertical and lateral extent of petroleum hydrocarbons in soil and ground water. Soil borings extended to a maximum depth of approximately 9.75 to 13.75 feet below ground surface (bgs) and were backfilled to the ground surface after samples were collected. Soil boring logs are included in Appendix A.

2.3.2 Collecting Grab Ground-Water Samples and Installing One Well

Grab ground-water samples were collected from four soil borings (GG-25, GG-30, GG-33, GG-34) and were sent to American Environmental Network (AEN) of Pleasanton, California for analysis. On January 5, 1995, soil boring LF-24, located downgradient from the former USTs location, was converted into ground-water monitoring well MW-24, which extends to a maximum depth of approximately 14 feet bgs. Monitoring well MW-24 was developed and sampled to fulfill the quarterly ground-water monitoring requirement of the ACDEH, as well as to gather information as a part of the supplementary investigation. The first quarter ground-water quality monitoring report (Levine·Fricke 1995) has been completed and filed with the ACDEH. Appendix B presents detailed field methods.

2.3.3 Field Observations

Four of the 11 soil borings had soil cuttings with elevated VOC readings (greater than 100 ppm) when measured using the field photoionization detector (PID). These borings were MW-24, LF-25, LF-28, and LF-33. All of the borings had some VOC readings, though most were relatively low (around 10 ppm or less).

The depth of fill materials at the Site appears to vary between about 2 to 6 feet. Although a few brick and glass fragments were observed, most of the fill materials appeared to be soil, primarily sandy and gravelly clay mixtures. The tar-like material previously observed (discussed in Section 1.2.3.2) was not observed in materials during this phase of the investigation.

Free water was encountered in eight of the thirteen borings. Based on this investigation, static shallow ground water appears to be found at about 7.5 to 9 feet bgs. This is generally consistent with the water levels measured as part of the quarterly monitoring program, though we did not allow the borings to remain open overnight in order to reach equilibrium. In some of the borings, free water did not enter the borehole until we had reached 10 or more feet bgs; then water rose to 7.5 to 9 feet bgs. This indicates that shallow ground water is confined, at least in some portions of the Site.

In boring LF-26, a dark, viscous oil entered the boring on top of water at a depth of about 8 feet, after drilling to 9 feet bgs. This layer of oil increased to approximately one-half foot in thickness. A sample of this oil was collected for hydrocarbon characterization (fuel fingerprinting). Borings LF-35 and LF-36 were drilled in the vicinity of LF-26 to assess the lateral extent of this oil, but the oil was not encountered in either boring, indicating that its extent is limited.

2.4 Analysis Results

Soil and ground-water samples were submitted to AEN of Pleasanton, California, a state-certified analytical laboratory for chemical analyses. Soil and ground-water samples were analyzed for TPHg and BTEX using EPA Method 8020. Select soil and ground-water samples were analyzed for TPHd using EPA Methods 3550/GCFID and 3510/GCFID, respectively. Select soil and ground-water samples were also analyzed for TPHo by EPA methods 3550/GCFID and 3510/GCFID, respectively.

2.4.1 Soil

Analytical test results indicate that petroleum hydrocarbons are present in soil at the Site (Table 1; Figure 2). TPHg was detected in 13 of 23 soil samples at concentrations ranging from 3,300 mg/kg in soil sample LF-24-6 to 0.5 mg/kg in soil samples LF-30-7.5 and LF-31-7.5. In addition to sample LF-24-6, TPHg was detected above 1,000 mg/kg in soil sample LF-24-9 at a concentration of 1,400 mg/kg. TPHg was detected above 100 mg/kg in three soil samples; in eight sample TPHg was detected above the laboratory detection limit (0.2 mg/kg and 1.0 mg/kg), but below 100 mg/kg.

Fifteen soil samples were analyzed for TPHd. Analytical tests detected TPHd above the laboratory detection limit only in sample LF-26-6 at a concentration of 9 mg/kg.

TPHo was detected in 11 of 15 soil samples at low concentrations, except for sample LF-34-6 in which TPHo was detected at the elevated concentration of 2,500 mg/kg. All other concentrations were below 1,000 mg/kg, with three soil samples above 100 mg/kg, but less than 1,000 mg/kg.

Benzene was detected above the laboratory detection limit in 12 of 23 soil samples at concentrations ranging from to 34 mg/kg in sample LF-24-6 to 0.018 mg/kg in sample LF-30-7.5. Benzene was detected above 10 mg/kg only in sample LF-24-6. Benzene was detected above 1 mg/kg in four soil samples, in seven soil samples it was detected above the laboratory detection limit (0.005 mg/kg) but below 1 mg/kg.

Toluene was detected above the laboratory detection limit in 8 of 23 soil samples at concentrations ranging from 210 mg/kg in sample LF-24-6 to 0.016 mg/kg in sample LF-24-13.5. Toluene was detected above 10 mg/kg in two soil samples and above the laboratory detection limits (0.005 mg/kg and 0.030 mg/kg) but less than 1 mg/kg in five samples.

Ethylbenzene was detected above the laboratory detection limit in 9 of 23 soil samples at concentrations ranging from 72 mg/kg in sample LF-24-6 to 0.067 mg/kg in sample LF-24-13.5. Ethylbenzene was detected above 10 mg/kg in three soil samples and above 1 mg/kg but below 10 mg/kg in two samples. Ethylbenzene was detected above the laboratory detection limit but below 1 mg/kg (0.1 mg/kg, 0.030 mg/kg and 0.005 mg/kg) in four samples.

Total xylenes were detected above the laboratory detection limit in 9 of 23 soil samples at concentrations ranging from 460 mg/kg in sample LF-24-6 to 0.046 mg/kg in sample LF-24-13.5.

Laboratory certificates are presented in Appendix C.

2.4.2 Ground Water

Grab ground-water samples were collected from soil borings LF-25, LF-30, LF-33 and LF-34. Analytical test results indicate that petroleum hydrocarbons are present in shallow ground water at the Site (Table 2; Figure 2).

TPHg was detected in all four grab ground-water samples (GG-25, GG-30, GG-33, GG-34) at 29 mg/kg, 26 mg/kg, mg/kg, and 2.9 mg/kg, respectively. TPHd was detected in samples GG-30 and GG-33 at a concentration of 0.5 mg/kg and in sample GG-34 at a concentration of 0.3 mg/kg.

TPHo was detected in samples GG-30 and GG-34 at concentrations of 0.4 mg/kg and 0.5 mg/kg, respectively.

Benzene was detected in samples [redacted] at concentrations of 7.3 mg/kg, [redacted] 0.700 mg/kg, respectively.

Toluene was detected in samples GG-25, GG-30, GG-33 and GG-34 at concentrations of 2.4 mg/kg, 0.044 mg/kg, 1.2 mg/kg, 0.002 mg/kg, respectively.

Ethylbenzene was detected in samples GG-25, GG-30, GG-33 and GG-34 at concentrations of 1.5 mg/kg, 0.480 mg/kg, 0.950 mg/kg, 0.003 mg/kg, respectively.

Total xylenes were detected in samples GG-25, GG-30, GG-33 and GG-34 at concentrations of 3.8 mg/kg, 0.990 mg/kg, 2.1 mg/kg, 0.004 mg/kg, respectively.

Laboratory certificates are presented in Appendix C.

2.4.3 Fuel Fingerprint Characterization

A sample of oil, which was encountered floating on ground water in soil boring LF-26, was collected and submitted to Friedman and Bruya, Inc, ("F&B") of Seattle, Washington for fingerprint characterization. In addition, soil sample LF-34-6, which appeared to contained a tar-like petroleum hydrocarbon substance was also sent to F&B for fingerprinting. The objective of fingerprint characterization of the tar-like substance was to assess whether the substance is at the Site as a result of gasoline fuel activities or whether the tar substance is associated with the regional fill materials. Results of fingerprinting characterization indicated that the [redacted] lubricating oil such as motor oil. Small amounts of weathered diesel or heating oil were also detected in the analysis of soil sample LF-26-6.

Laboratory certificates are presented in Appendix C. Chromatograms?

2.5 Conclusions and Recommendations

2.5.1 Ground-Water Quality

Analytical test results indicate that TPHg and BTEX compounds are present at elevated concentrations in ground water at the

Site. Test results also suggest that petroleum hydrocarbons may be migrating off site along Collins Drive at low concentrations. The highest concentration of TPHg was detected at 30 mg/kg in soil boring LF-33, approximately 30 feet to the south of the UST excavation. The highest benzene concentration was detected in the downgradient soil boring LF-36 at a concentration of 1.0 mg/kg. However, it is possible that petroleum-affected soil particles can contact and affect with a grab ground-water sample, or that gasoline and the BTEX compounds may have more chance to volatilize when collected from an open borehole. Consequently test results from grab ground-water samples should not be considered as accurate as analyses of ground water collected from a monitoring well and should be used only for estimation and screening purposes. Test results do not suggest that there is an off-site source of contamination that has significantly affected soil or ground water at the Site.

The historical ground-water quality data suggests that the concentrations of TPHg, TPHd, TPHo, and BTEX have not changed significantly and have remained low during the past four quarterly monitoring events. Concentrations of petroleum hydrocarbons in the newly installed groundwater monitoring well, MW-24, are comparable to grab ground-water sample results and are only slightly higher than the other downgradient monitoring well, monitoring well MW-8. Since petroleum hydrocarbon concentrations are higher in MW-24 than have been detected in ground water at the Site, and since the concentrations of petroleum hydrocarbons increased slightly in ground-water monitoring well MW-8, more data is needed to determine if the increase in concentrations represents a trend.

A summary of historical ground-water quality data is presented in Table 3. Laboratory certificates are presented in Appendix C.

2.5.2 Soil Quality

The vertical and lateral extent of petroleum hydrocarbons has been defined based upon analytical test results. TPHg appears to extend laterally out from the center of the UST excavation approximately 40 to 90 feet (Figure 3). Analytical data suggests that petroleum hydrocarbons may extend under the building located at the Site. The vertical extent of TPHg varies across the Site. At highest concentrations, TPHg appears in a six-foot-thick layer from approximately 4 feet bgs to 10 feet bgs. The thickness of the affected layer diminishes outward from the excavation.

TPHo was encountered at elevated concentrations in soil boring LF-34 at a concentration of 2,500 mg/kg; Fingerprint characterization by F & B indicates that the oil most closely resembles lubricating oil such as motor oil, with small amounts of weathered diesel or heating oil. TPHd was encountered only at low concentrations. Oil encountered floating on ground water in soil boring LF-26 appears to be localized and not migrating. This is evidenced by test results of soil samples collected from borings LF-35 and LF-36 and by ground-water samples collected from MW-12. Soil borings LF-35 and LF-36 are located 10 to 15 feet downgradient from LF-26, while monitoring well MW-12 is located approximately 20 upgradient from LF-26.

No analytical test for TPHo in either soil samples collected from LF-35 and LF-36 or ground-water samples collected form MW-12 detected TPHo above the laboratory detection limit, except for a low concentration of 0.4 mg/kg in the June 20, 1994 ground-water sample from MW-8. Fingerprint characterization of the tar-like petroleum hydrocarbon collected from soil boring LF-24 was found to most closely resemble lubricating oil, such as motor oil.

2.5.3 Estimated Volumes of Petroleum-Affected Soil

Levine·Fricke has estimated the volume of petroleum-affected soil in place at the Site based upon analytical test results. According to our estimates, a total of approximately 5,000 to 8,[illegible] soil are affected by petroleum hydrocarbons, principally gasoline and the BTEX compounds. This estimate does not include fill materials which may be affected by petroleum hydrocarbon outside of the former UST area. Figure 3 shows the lateral extent of the petroleum hydrocarbons which are associated with the former USTs. The total volume of affected soil breaks down by concentration as follows:

- Approximately 350 to 500 cubic yards of in-place soil are estimated to be above a concentration of 5,000 mg/kg as TPHg.
- Approximately 300 to 450 cubic yards of in-place soil are estimated to be at concentrations above 1,000 mg/kg and less than 5,000 mg/kg as TPHg.
- Approximately 1,250 to 1,500 cubic yards of in-place soil are estimated to be at concentrations above 100 mg/kg and less than 1,000 mg/kg as TPHg.

- Approximately 3,000 to 3,500 cubic yards of in-place soil are estimated to be above 50 mg/kg and less than 100 mg/kg as TPHg.

In addition, approximately 300 to 400 cubic yards of soil excavated during the UST removal are currently stockpiled on-site. Analytical test results (Table 4) of soil samples collected from the stockpile indicates that concentrations of petroleum hydrocarbons in the soil are relatively low and pending additional analytical results, the soil should be suitable for backfilling the excavation.

2.5.4 Recommendations

Based on the results of the supplemental site investigation, Levine·Fricke recommends that Diversified Investments work with ACDEH to develop and implement a site remediation program. A conceptual remediation plan is presented in the next section. Periodic ground-water quality monitoring should continue throughout this period and for a reasonable time after remediation is complete, to evaluate the effectiveness of the remedial program.

3.0 CONCEPTUAL REMEDIATION PLAN

This conceptual remediation plan:

- proposes appropriate cleanup goals to protect human health and the environment
- evaluates ways to achieve these cleanup goals
- develops a remedial strategy to bring the Site into regulatory compliance

After soil remediation is complete, Levine·Fricke recommends that the Site be considered for closure by the Water Quality Control Boards (RWQCB's) "Category I: Non-Sediment Area" policy, as discussed in Section 3.4 below.

3.1 Proposed Soil Cleanup Levels

To protect human health and the environment, Levine·Fricke recommends implementing cleanup goals for site soil remediation. At the concentrations proposed below, hydrocarbons remaining in site soils would have a low potential to affect human health. These levels are also

similar to RWQCB-approved goals for the adjacent former Malibu Grand Prix Site:

Compound	Level
Total BTEX Compounds	1 mg/kg
TPHg	100 mg/kg
TPHd	500 mg/kg
TPHo	1,000 mg/kg

3.2 Potential Remedial Alternatives

To find a cost-effective remedial technology by which these cleanup levels can be achieved, Levine·Fricke evaluated the following in-situ and ex-situ potential remedial methods for the Site:

- soil-vapor extraction (SVE)
- air sparging
- excavation and treatment and/or disposal of affected soils

3.2.1 Soil-Vapor Extraction

Soil-vapor extraction and treatment uses a vacuum applied to vadose-zone wells installed in the vicinity of hydrocarbon-affected soils. The vacuum enhances volatilization and draws vapors to the surface, where the vapors are treated using granulated activated carbon (GAC) adsorption and vented to the atmosphere. This method is effective in remediating relatively permeable hydorcarbon-affected soils.

SVE would probably not remediate soil at the Site within a reasonable time period, however, because of the soil's high clay content. Although SVE decreases vadose-zone contaminants, it does not effectively abate contaminants in the capillary or "smear" zones; therefore, SVE would not bring soils in these zones into conformance with cleanup goals.

3.2.2 Air Sparging

Under the right conditions, air sparging effectively remediates both soil and ground water affected by VOCs such as

petroleum hydrocarbons. Ambient surface air is pumped into affected ground water beneath affected soils, which causes VOCs to pass from the water and soil into the air. The air travels outward and upward, where it is captured and treated.

Site conditions (clayey soils with relatively low hydraulic conductivity and permeability) are far from ideal for this technology and air sparging would be ineffective in remediating these soils for the same reasons noted in the Section discussing SVE.

3.2.3 Excavation and Treatment of Affected Soils

In this treatment method, affected soils are excavated and then treated on site (by aeration), off site (at a treatment facility), or by a combination of on- and off-site methods. Soil excavation and treatment appears to be the most effective remedial method for this Site:

- The ground-water level and the maximum depth of affected soils are both relatively shallow (about 10' or less).
- Although excavation is relatively labor-intensive, it requires less overall time than SVE or air sparging, and permits sampling to confirm the effectiveness of the source removal.

In addition, because of the Site's size, it is possible to treat soils using on-site aeration; this is an effective method of reducing gasoline hydrocarbons, which are the primary contaminant of concern at this Site.

3.3 Recommended Remedial Closure Strategy

Levine·Fricke recommends the following general remedial strategy at this Site:

- Source Removal. Remove and treat soils in the vadose (non-saturated) zone and capillary fringe that contain TPHg and BTEX above cleanup levels.
- Periodic Monitoring. Monitor BTEX and TPHg in site wells for five years, and establish a compliance well or wells downgradient from the Site to monitor potential plume migration.
- Contingency Plan. Develop a contingency plan, to be implemented if there is an increase in concentrations in the compliance well or wells.

· May need to evaluate health risk of existing gw conc.

Ground-water extraction and treatment should not be necessary under this strategy; Levine·Fricke recommends against ground-water extraction at this Site because of the many contaminant plumes at nearby sites in this area, which may be drawn to the Site if ground-water extraction is implemented.

3.3.1 Soil Excavation

Soil in the unsaturated zone affected with petroleum hydrocarbons should be excavated to the proposed cleanup goals. As discussed previously, Levine·Fricke estimates that approximately 2,000 to 4,000 in-place cubic yards of affected soil would be removed.

Soil samples would be collected from the sidewalls of the excavation to confirm that the cleanup goals are met. [redacted] soils and used to backfill the excavation. The stockpiled soil could also be sent to REMCO, PCM, or a class II landfill for disposal.

[redacted] ground water present in the excavation would be removed and properly disposed. — how about removing addl gw?

3.3.2 Soil Treatment

Levine·Fricke evaluated both on-site and off-site soil treatment alternatives to determine the most cost effective treatment. Disposal at landfill facility was not evaluated due to high costs and high liability. The following were evaluated:

- aerate affected soil on site
- treat affected soils at REMCO treatment facility
- treat affected soils at Port Costa Materials treatment facility

Aerate Affected Soils. Excavated soil would be aerated on site in accordance with Bay Area Air Quality Management District (BAAQMD) regulations. Soil above the cleanup level for TPHg, except soils affected with oil above 1,000 mg/kg, would be aerated on-site. Soil above the cleanup goal would be treated as discussed in Section 3.3.2.

Aerated soils would be sampled to confirm that cleanup goals concentrations are met; these soils would then be used to backfill the excavation or could be sent to a Class II landfill facility.

Because of BAAQMD limits on the volume of soil that may be aerated per day per location, Levine·Fricke estimates that it could take five to six months to aerate all the affected soil to below the cleanup goal, if the soil were to be used for backfill. Soil samples would be collected from the aerated soil to confirm that concentrations of petroleum hydrocarbons in soil were below cleanup goals.

Sample frequency?

If the soil is to be sent to a class II landfill facility, soil samples will be collected to confirm that the soil meets contaminant level requirements of the facility.

Aerating all soil to the cleanup goal is the least expensive treatment alternative. However, aeration of all gasoline-affected soil would also take the most time. In addition, the aeration stockpile would be large, approximately 100,000 to 225,000 square feet, depending upon the volume of soil aerated and the thickness of the aeration stockpile.

Treat Affected Soils at REMCO Treatment Facility. Soil affected by less than 3,000 mg/kg of TPHg can be treated using the low temperature thermal desorption (LTTD) method at REMCO Inc., in Richmond, California. Soils containing more than 3,000 mg/kg would be aerated on site until concentrations fell below REMCO's 3,000 mg/kg TPHg acceptance limit, and then sent to REMCO for treatment. Levine·Fricke estimates that it would take approximately six weeks to aerate soil to a concentration less than 3,000 mg/kg. The excavation would be backfilled with clean imported fill supplied by REMCO. This alternative is more expensive than aerating all soil on site, but would be significantly faster.

Treat Affected Soils at Port Costa Materials Treatment Facility. Soil with concentrations below 1,000 mg/kg of TPHg can be treated using LTTD technology at the Port Costa Materials (PCM) facility in Port Costa, California. PCM uses a rotary kiln to treat soils at higher temperatures than REMCO, which is a more effective remediation for high-end hydrocarbons. Soils containing more than 1,000 mg/kg of TPHg would be aerated on site until concentrations were below 1,000 mg/kg. The aerated soil would then be sent to PCM for treatment. The excavation would be backfilled with clean imported fill supplied by PCM. Levine·Fricke estimates that it would take approximately 3 to 4 months to aerate soils to

concentrations less than 1,000 mg/kg. Treating soil at PCM would cost significantly more than aeration alone, but about the same as treatment at REMCO.

Soil with concentrations above 3,000 mg/kg would be aerated on-site until concentrations were less than 3,000 mg/kg. Soil then above 1,00ºmg/kg and less than 3,000 mg/kg would be treated at REMCO. Soil below 1,000 mg/kg but above the clean-up goal would be treated at Port Costa Materials. The excavation would be backfilled with clean imported fill supplied by REMCO and PCM. Levine·Fricke estimates that treating all soil would be the fastest, although the most expensive treatment alternative.

Treat Affected soils at REMCO and Port Costa Materials. Soil affected by less than 3,000 mg/kg and greater than 1,000 mg/kg of TPHg would be treated at REMCO. Soil affected by less than 1,000 mg/kg and above the approved clean-up goal would be treated at PCM. Soil above 3,000 mg/kg as TPHg would be aerated on-site until concentrations were below 3,000 mg/kg and then treated at REMCO. The excavation would be backfilled with clean import fill supplied by REMCO and PCM.

Recommended Treatment Method. Because costs for off-site LTTD treatment are significantly higher than costs for on-site aeration, Levine·Fricke recommends that affected soils be aerated on site. Soil affected with elevated concentrations of TPHo which does not diminish in the presence of air, will still need to be treated at an LTTD treatment/disposal facility.

3.3.3 Periodic Monitoring

Levine·Fricke recommends that Diversified Investment develop a contingency plan which would be implemented if petroleum hydrocarbons are found to be migrating off-site in elevated concentrations. To confirm that concentrations of petroleum hydrocarbons are low and also to confirm that petroleum hydrocarbons are not migrating off-site, Levine·Fricke recommends periodic monitoring of ground-water monitoring wells at one site.

3.3.4 Contingency Plan

After completing source removal, Levine·Fricke recommends that Diversified Investments develop a contingency plan that would be implemented if petroleum hydrocarbons are found to be migrating off site at elevated concentrations. To confirm that petroleum hydrocarbons concentrations are low, and also

to confirm that petroleum hydrocarbons are not migrating off site, Levine·Fricke recommends periodic monitoring of monitoring wells at the Site.

3.4 Site Closure Under Non-Attainment Policy

After soil remediation is complete, Levine·Fricke recommends that the Site be considered for closure under the Regional Water Quality Control Board's (RWQCB's) "Category I: Non-Attainment Area" policy, which is applicable to "sites which have ground-water pollution and residual soil pollution with limited water quality, environmental, and human health risks." The Site fits this category for the following reasons:

- The Site is in a commercial and industrial area with several nearby contaminant plumes as indicated to us by Alameda County Department of Environmental Health.
- The Site is currently a paved car repair business. According to the owner, it will remain a paved, commercial area, thus limiting the potential of humans to contact the affected soils.
- The main chemicals of concern at the Site are petroleum hydrocarbons, which are known to degrade over time with microbial activity. No chlorinated solvents have been detected at the Site.
- The affected ground-water plume is of limited extent, and does not appear to be moving, based on periodic ground-water monitoring results.
- Natural mitigation of the affected ground-water plume (after source removal) is effective, because the soils are predominantly clay, and the ground-water gradient is very low, averaging approximately 0.002 ft/ft.
- The Site is not a Bay-margin site, and there are no adjacent or nearby wetlands or other surface water sources.
- Affected site ground water is not a drinking water source, because of its poor quality and high dissolved salt concentrations, as indicated by its high specific conductance (see Table 2).

REFERENCES

HartCrowser, 1993. Ground-Water Monitoring Report.

Levine·Fricke, 1993. Health and Safety Plan.

——. 1994a. Work Plan.

——. 1994b. Quarterly Ground-Water Monitoring Report. January.

——. 1994c. Quarterly Ground-Water Monitoring Report. September.

——. 1994d. Quarterly Ground-Water Monitoring Report. November.

——. 1995. Quarterly Ground-Water Monitoring Report. February.

Subsurface Consultants, 1988. Investigation Letter Report.

——. 1990. Investigation Report.

TABLE 1

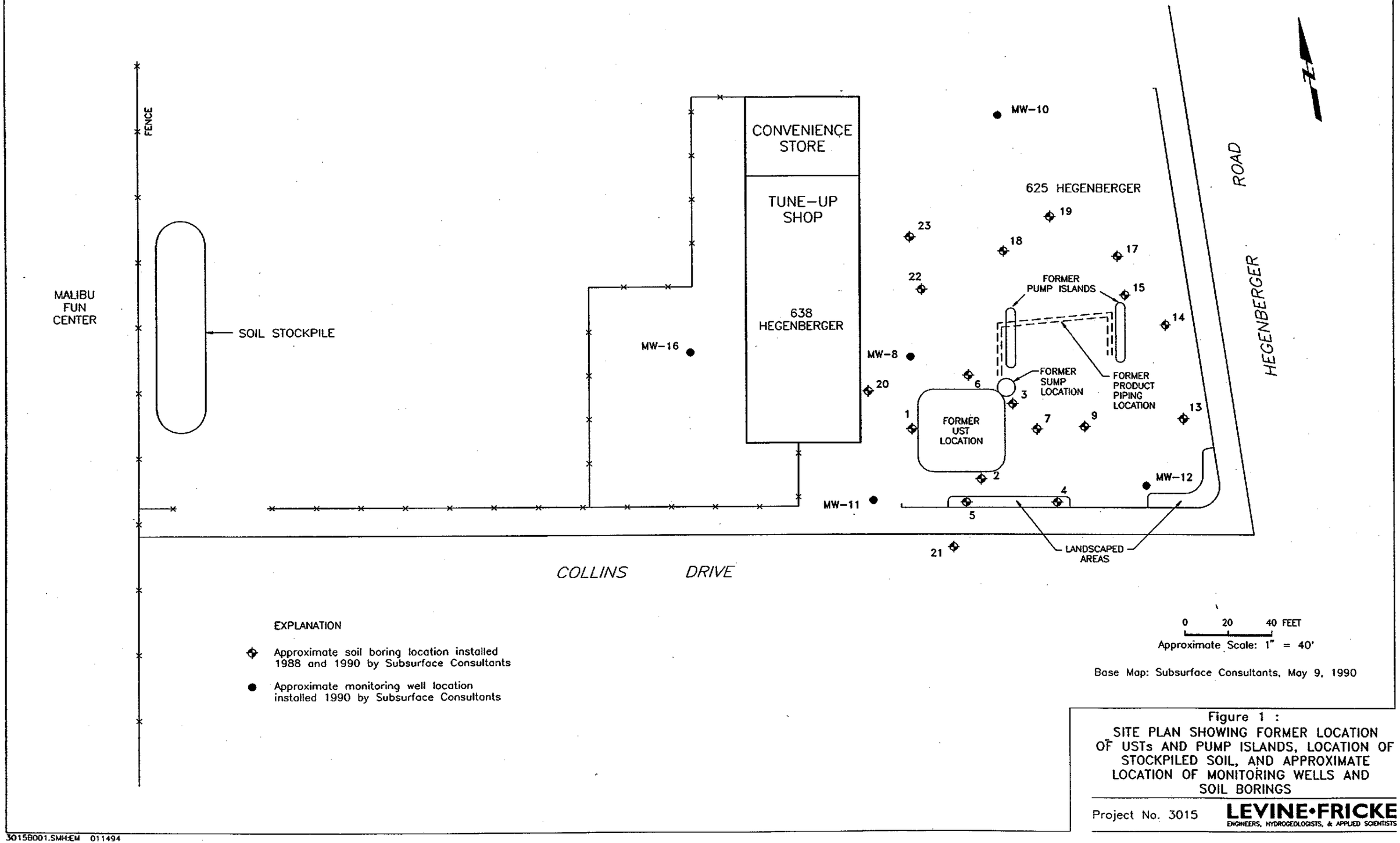
SOIL SAMPLING RESULTS
SUPPLEMENTAL SITE INVESTIGATION
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per kilogram [mg/kg])

Boring ID	Depth feet	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd	TPHo
LF24	3 - 3.5	05-Jan-95	1.1	0.130	0.160	0.730	[redacted]	NA	NA
	6 - 6.5	05-Jan-95	34	210	72	460		<1	65
	9 - 9.5	05-Jan-95	5.1	38	29	210		<1	96
	13.5 - 14	05-Jan-95	0.180	0.016	0.067	0.046	1	NA	NA
LF25	6 - 6.5	05-Jan-95	0.920	0.470	[redacted]	6.4	120	<1	77
	9 - 9.5 (1)	05-Jan-95	3.3	11		77	630	<1	40
	10.5 - 11	05-Jan-95	0.240	0.200	0.130	0.580	9.9	NA	NA
LF26	6 - 6.5	05-Jan-95	<0.1	<0.1	<0.1	<0.1	69	9	740
LF27	2 - 2.5	05-Jan-95	0.009	<0.005	<0.005	<0.005	0.6	NA	NA
	6 - 6.5	05-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<5	450
	9 - 9.5	05-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	NA	NA
LF28	6 - 6.5	05-Jan-95	0.100	<0.030	0.110	0.082	1.4	<1	30
	10.5 - 11	05-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<1	<5
LF29	6 - 6.5	05-Jan-95	<0.030	<0.030	<0.030	<0.030	<1.0	NA	NA
LF30	3.5 - 4	06-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	NA	NA
	7.5 - 8	06-Jan-95	0.018	<0.005	<0.005	<0.005	0.5	<10	100
LF31	3 - 3.5	06-Jan-95	<0.030	<0.030	<0.030	<0.030	<1.0	NA	NA
	7.5 - 8	06-Jan-95	0.027	<0.005	<0.005	<0.005	0.5	<1	<5
LF32	8 - 8.5	06-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<1	<5
LF33	8 - 8.5	06-Jan-95	1.7	0.420	4.8	5.3	180	<5	65
LF34	6 - 6.5	06-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<10	[redacted]
LF35	8.5 - 9	06-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<1	<5
LF36	9 - 9.5	06-Jan-95	<0.005	<0.005	<0.005	<0.005	<0.2	<1	8

Data entered by KAC/26 Jan 95 Data proofed by SXS QA/QC by SXS 20 Jan 95.

TPHg - Total petroleum hydrocarbons as gasoline by EPA Method 5030, GCFID
TPHd - Total petroleum hydrocarbons as diesel by EPA Method 3550, GCFID
TPHo - Total petroleum hydrocarbons as oil by EPA Method 3550, GCFID
Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020
NA - not analyzed
(1) The values for benzene, toluene, ethyl benzene, total xylenes, and TPHg represent estimated concentrations, as the percent of surrogate recovery for EPA method 8020 and 5030/GCFID analysis was outside the quality control limits.

Analyses performed by American Environmental Network, Pleasant Hill, California.



EXPLANATION

- ⌖ Approximate soil boring location installed 1988 and 1990 by Subsurface Consultants
- ● Approximate monitoring well location installed 1990 by Subsurface Consultants

0 20 40 FEET

Approximate Scale: 1" = 40'

Base Map: Subsurface Consultants, May 9, 1990

Figure 1 :
SITE PLAN SHOWING FORMER LOCATION OF USTs AND PUMP ISLANDS, LOCATION OF STOCKPILED SOIL, AND APPROXIMATE LOCATION OF MONITORING WELLS AND SOIL BORINGS

Project No. 3015

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

3015B001.SMH:EM 011494

3015C001.SMH:DAT/EM 013195

EXPLANATION

- Approximate location of soil borings. Soil borings designated "LF" installed by Levine•Fricke in 1995. Others installed by Subsurface Consultants in 1989-1990.
- Approximate location of monitoring wells. MW-24 was installed by Levine•Fricke in 1995. Others installed by Subsurface Consultants in 1989-1990.
- Soil sample by Levine•Fricke, UST Removal, 1993; (sample depth @ former UST location, 6-8 bgs) (sample depth @ former product piping location, 4-6 bgs)
- Approximate ground-water flow direction
- 9200 TPHg concentration in parts per million (ppm)
- 1000 8 TPHg concentration (ppm) @ 8 feet
- ND Non-detect
- NA Not analyzed

TPHg Total petroleum hydrocarbons as gasoline

CONVENIENCE STORE

TUNE-UP SHOP

638 HEGENBERGER

625 HEGENBERGER

HEGENBERGER ROAD

COLLINS DRIVE

MW-10 NA

MW-16 ND 5

MW-8 75 4 4 5.5

MW-24 8.8 3 3,300 6 1,400 9 ND 10.5

MW-11 NA

MW-12 180 8

LF-29 ND 5

LF-30 ND 0.5 25

LF-31 ND 5 0.8 7.5

LF-32 ND 5

LF-34 ND 5

LF-35 ND 5.5

LF-36 ND 5

LF-25 120 6 630 9 9.9 10.5

LF-26 80 6

LF-27 0.8 2 ND 6 ND 9

LF-28 1500 6 9200 7.5 ND 10.5

LF-33 28 4 10 5 5 7.5 200 8

1 NA
2 NA
3 NA
4 ND 6 11 8
5 28 4 10 5 5 7.5 200 8
6 3500 3200 7500 5000 1300 3800 3200 3000 490
7 1.4 6 ND 10.5
8 100 5.5 260 11
9 170 6 150 6.5 ND 9
10 940 74 590 14 1600 ND 450 160
11 ND 5 0.8 7.5
12 ND 2.5 ND 11
13 ND 1.5 ND 4.5
14 ND 5
15 590 14 1600 ND 450
16 ND 2.5 ND 11
17 ND 2.5 ND 11
18 ND 1
19 ND 1.5
20 100 5.5 260 11
21 ND 3 ND 10
22 1000 8
23 ND 2.5 ND 11

FORMER PUMP ISLANDS

FORMER PRODUCT PIPING LOCATION

FORMER SUMP LOCATION

FORMER UST LOCATION

LANDSCAPED AREAS

0 25 FEET

3015B003.SMH:DAT/EM 020395

Figure 2 :

APPROXIMATE LOCATIONS OF SOIL BORINGS AND MONITORING WELLS AND TPHg CONCENTRATIONS IN SOIL

Project No. 3015

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015C002.SRF:EM 021095

EXPLANATION

- Approximate location of soil borings. Soil borings designated "LF" installed by Levine•Fricke in 1995. Others installed by Subsurface Consultants in 1989-1990.
- Approximate location of monitoring wells. MW-24 was installed by Levine•Fricke in 1995. Others installed by Subsurface Consultants in 1989-1990.
- Soil sample by Levine•Fricke, UST Removal, 1993; (sample depth @ former UST location, 6-8 bgs) (sample depth @ former product piping location, 4-6 bgs)
- Approximate ground-water flow direction
- 50 ppm — Approximate extent of petroleum-affected soils in parts per million (ppm)

CONVENIENCE STORE

TUNE-UP SHOP

638 HEGENBERGER

625 HEGENBERGER

HEGENBERGER ROAD

MW-10, MW-16, MW-8, MW-24, MW-11, MW-12

LF-29, LF-30, LF-31, LF-32, LF-33, LF-34, LF-35, LF-36, LF-25, LF-26, LF-27, LF-28

19, 23, 18, 17, 22, 15, 14, 20, 6, 3, 1, 7, 9, 13, 2, 5, 4, 21

50 ppm, 100 ppm

FORMER PUMP ISLANDS

FORMER PRODUCT PIPING LOCATION

FORMER SUMP LOCATION

FORMER UST LOCATION

what about FP here?

LANDSCAPED AREAS

COLLINS DRIVE

need added downgradient well beyond MW 11 + borings #21 + LF-25

0 25 FEET

3015B003.SMH:DAT/EM 020396

Figure 3 :

APPROXIMATE EXTENT OF PETROLEUM-AFFECTED SOILS

Project No. 3015

LEVINE•FRICKE

ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

TABLE 2

GRAB GROUND WATER SAMPLING RESULTS
SUPPLEMENTAL SITE INVESTIGATION
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per liter [mg/l])

Sample ID	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd	TPHo
GG-25	05-Jan-95	[redacted]	2.4	1.5	3.8	29	NA	NA
GG-30	06-Jan-95	[redacted]	0.044	0.480	0.990	26	0.5	0.4
GG-33	06-Jan-95	[redacted]	1.2	0.950	2.1	30	0.5	<0.2
GG-34	06-Jan-95	[redacted]	0.002	0.003	0.004	2.9	0.3	0.5
Trip Blank	06-Jan-95	<0.005	<0.005	<0.005	<0.002	<0.05	NA	NA

Data entered by KAC/20 Jan 95 Data proofed by SXS QA/QC by SXS 20 Jan 95.

TPHg - Total petroleum hydrocarbons as gasoline by EPA Method 5030. GCFID
TPHd - Total petroleum hydrocarbons as diesel by EPA Method 3510, GCFID
TPHo - Total petroleum hydrocarbons as oil by EPA Method 3510, GCFID
Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020
NA - not analyzed

Analyses performed by American Environmental Network, Pleasant Hill, California.

TABLE 3

[redacted]

625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per liter [mg/l])

Sample ID	Date Sampled	Consultant/ Lab		Benzene	Toluene		Ethyl-benzene	Xylenes	TPHg	TPHd	TPHo	Total Lead
MW-8	(1)	SUB	(2)	3.7	BDL		0.29	0.69	NA	NA	NA	BDL
	28-May-93	HC/SUP		6.4	0.028		0.16	0.036	19	1	NA	(3)
	22-Dec-93	LF/AEN	(4)	16	5.9993	(5)	0.65	2.7	56	0.3	<0.2	<0.04
	30-Jun-94	LF/AEN	(4)	11	4.8		2.2	8.2	41	<0.05	0.5	<0.04
	27-Sep-94	LF/AEN		8.5	0.26		1.6	5.2	28	0.62	<0.2	<0.04
	10-Jan-95	LF/AEN		[redacted]	11		2.4	12	[redacted]	0.07	<0.2	NA
MW-10	(1)	SUB		0.0017	BDL		BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP		<0.0003	<0.0003		<0.0003	<0.0009	<0.05	0.054	NA	(3)
	22-Dec-93	LF/AEN		<0.0005	<0.0007	(5)	<0.0005	<0.002	<0.05	0.58	<0.2	<0.04
	30-Jun-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	<0.05	0.6	<0.04
	27-Sep-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	0.61	<0.2	<0.04
	10-Jan-95	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	0.6	<0.2	NA
MW-11	(1)	SUB	(6)	0.053	BDL		BDL	BDL	NA	NA	NA	0.21
	28-May-93	HC/SUP		0.45	0.0017		0.0015	0.0021	1.2	<0.05	NA	(3)
	22-Dec-93	LF/AEN		4.5	0.0383	(5)	0.012	0.043	9.2	0.53	<0.2	<0.04
	30-Jun-94	LF/AEN		1.5	0.013		0.69	1.2	8.8	<0.05	1.1	<0.04
duplicate	30-Jun-94	LF/AEN		1.7	0.014		0.73	1.3	9.7	NA	NA	NA
	27-Sep-94	LF/AEN		6.5	0.026		0.87	0.59	15	0.91	<0.2	<0.04
	10-Jan-95	LF/AEN		0.89	0.22		0.84	2.4	14	1.1	0.2	NA
MW-12	(1)	SUB		BDL	BDL		BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP		<0.0003	<0.0003		<0.0003	<0.0009	<0.05	<0.05	NA	(3)
	22-Dec-93	LF/AEN		<0.0005	<0.0007	(5)	<0.0005	<0.002	0.05	0.3	<0.2	<0.04
	30-Jun-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	<0.05	0.4	<0.04
	27-Sep-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	0.4	<0.2	<0.04
duplicate	27-Sep-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	NA	NA	NA
	10-Jan-95	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	0.3	<0.2	NA
MW-16	(1)	SUB	(7)	BDL	BDL		BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP		0.0028	<0.0003		0.0007	<0.0009	<0.05	<0.05	NA	(3)
	22-Dec-93	LF/AEN		<0.0005	<0.0007	(5)	<0.0005	<0.002	2.2	0.52	<0.2	<0.04
	30-Jun-94	LF/AEN		0.008	<0.0005		<0.0005	<0.002	<0.05	<0.05	0.9	<0.04
	27-Sep-94	LF/AEN		0.017	<0.0005		<0.0005	<0.002	0.07	0.59	<0.2	<0.04
	10-Jan-95	LF/AEN		0.19	<0.0005		<0.0005	<0.002	0.3	0.7	<0.2	NA
MW-24	10-Jan-95	LF/AEN		[redacted]	1.9		1.1	1.3	[redacted]	0.9	0.2	NA
duplicate	10-Jan-95	LF/AEN			2		1.1	1.3		0.8	0.2	NA
BLANKS												
Trip Blank	28-May-93	HC/SUP		<0.0003	<0.0003		<0.0003	<0.0009	<0.05	NA	NA	BDL
MW-12-BB	22-Dec-93	LF/AEN		<0.0005	0.0007		<0.0005	<0.002	<0.05	NA	NA	(3)
MW-16-BB	22-Dec-93	LF/AEN		NA	NA		NA	NA	NA	NA	NA	<0.04
MW-12-BB	30-Jun-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	NA	NA	<0.04
MW-12-BB	27-Sep-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	NA	NA	NA
Trip Blank	27-Sep-94	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	NA	NA	NA
MW-11-BB	10-Jan-95	LF/AEN		<0.0005	<0.0005		<0.0005	<0.002	<0.05	NA	NA	NA

TABLE 3

HISTORICAL WATER QUALITY
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per liter [mg/l])

Sample ID	Date Sampled	Consultant/ Lab	Benzene	Toluene	Ethyl-benzene	Xylenes	TPHg	TPHd	TPHo	Total Lead

NOTES:

BDL below detection limit; detection limit undocumented
NA not analyzed
TPHd total petroleum hydrocarbons as diesel
TPHg total petroleum hydrocarbons as gasoline
TPHo total petroleum hydrocarbons as oil

AEN American Environmental Network, Pleasant Hill, California
HC HartCrowser, San Francisco, California
LF Levine-Fricke, Emeryville, California
SUB Subsurface Consultants, Oakland, California
SUP Superior Analytical Laboratories, Martinez, California

(1) Date of ground-water sampling unavailable. Ground-water monitoring results accompanied Subsurface Consultants well development and boring logs dated March 1990 through June 1990.
(2) 18 mg/l total volatile hydrocarbons also detected.
(3) All May 1993 samples also analyzed for total organic lead (DHS Method). The compound was not detected above the detection limit of 4 mg/l.
(4) A slight hydrocarbon sheen was observed on the surface of the well water.
(5) Toluene detections for 22-Dec-93 were qualified using 0.0007 mg/l as a baseline. The bailer blank (MW-12-BB) contained toluene at 0.0007 mg/l.
(6) 0.24 mg/l total volatile hydrocarbons also detected.
(7) 0.38 mg/l total volatile hydrocarbons also detected.

All samples collected by Subsurface Consultants were also analyzed for total lead and organic lead. Both compounds were below detection limits (detection limits unavailable), except as noted.

Data entered by KAC/24 Jan 95 Data proofed by SXS

TABLE 4

STOCKPILE SOIL SAMPLING RESULTS
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per kilogram [mg/kg])

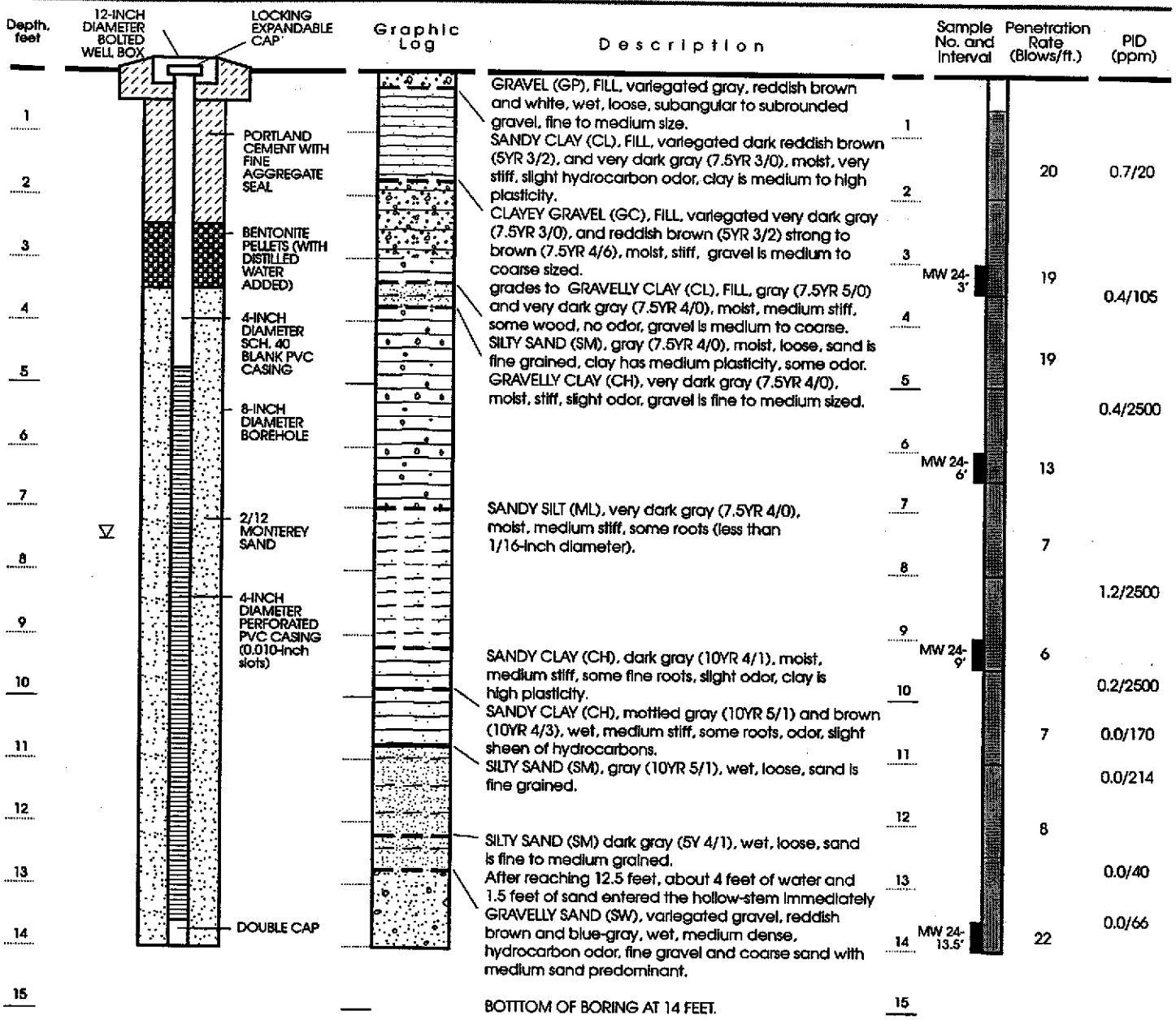
Boring ID	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd	TPHo
SP-7 & 8	18-Aug-94	<0.005	<0.005	<0.005	<0.005	<0.2	NA	NA
SP-9 & 10	18-Aug-94	<0.01	<0.01	<0.01	<0.01	2.6	NA	NA
SP-11 & 12	18-Aug-94	<0.01	<0.01	<0.01	35	4.7	NA	NA
composite*(1),(2)	18-Aug-94	<0.005	<0.005	<0.005	<0.01	NA	NA	NA

Data entered by KAC/27 Feb 95. Data proofed by SXS. QA/QC by SXS.

TPHg - Total petroleum hydrocarbons as gasoline by EPA Method 5030. GCFID
TPHd - Total petroleum hydrocarbons as diesel by EPA Method 3550, GCFID
TPHo - Total petroleum hydrocarbons as oil by EPA Method 3550, GCFID
Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020
NA - not analyzed

* A composite of SP's 7-8-9-10-11 & 12.
(1) All EPA 8240 VOC's non-detect, except as otherwise noted.
(2) Arsenic detected at 7 mg/kg, Barium at 96 mg/kg, Beryllium at 0.2 mg/kg, Cobalt at 8.9 mg/kg, Chromium at 38 mg/kg, Copper at 40 mg/kg, Nickel at 36 mg/kg, Lead at 38 mg/kg, Antimony at 1 mg/kg, Vanadium at 33 mg/kg and Zinc detected at 51 mg/kg. Silver, Cadmium, Mercury, Molybdenum, Selenium, and Thallium not detected.

Analyses performed by American Environmental Network, Pleasant Hill, California.



Well Permit No.: 94822
Date well drilled: January 5, 1995
Drilling company: Gregg Drilling
Driller: Chris St. Pierre
Sampling Method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

EXPLANATION

Clay
Silt
Sand
Gravel

Interval sampled using Modified California Sampler
Sample retained for chemical analysis
Water level at time of drilling
PID (ppm) Photolonization Detector reading (background value/sample value) in parts per million

Approved by: John Sturman R.G. 5714

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-24

Project No. 3015

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L001.JOS:MPM/RYL 030795

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
		LITHOLOGY			**SAMPLE DATA**
1		GRAVEL (GP), FILL, variegated gray, white and blue, moist, loose.			
2		GRAVELLY SAND (SW), FILL, brown (7.5YR 5/3), moist, medium dense, gravel up to 1-inch diameter.		20	
3		GRAVELLY CLAY (CL), FILL, greenish gray (5G 5/1), moist, very stiff, some gravel-medium size, no odor.			0.0/22
4		SILTY CLAY (CH), variegated very dark gray (7.5YR 3/0) and dark gray (5Y 4/1), moist, stiff, high plasticity, some hydrocarbon odor, slight sheen.			
5					
6			LF 25-6.5'	15	0.0/1315
7		SILTY CLAY (CH), dark gray (7.5YR 4/0), moist, soft, hydrocarbon odor and sheen, decaying root observed.			
8					
9	▽				
10		CLAYEY SAND (SC) to SANDY CLAY (CH), dark greenish gray (5G 4/1), wet, loose (medium stiff), hydrocarbon odor.	LF 25-9.5'	9	0.0/739
11		GRAVELLY CLAYEY SAND (SW), dark greenish gray (5G 4/1), wet, loose, gravel is fine grained, slight odor.	LF 25-11'	11	0.0/39
12		BOTTOM OF BORING AT 11 FEET.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using Modified California Sampler
- Sample retained for analysis
- ▽ Water level at time of drilling
- PID (ppm) Photoionization Detector reading (background value/sample value) in parts per million

Well Permit No.: 94822
Date boring drilled: January 5, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-25 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L002:JOS:JSM/RYL 030795

LITHOLOGY			SAMPLE DATA		
Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
1		GRAVELLY SAND (GP), Fill, variegated red/brown, dark gray, moist, soft, fine grained sand, fine and coarse gravel, bound with asphaltic-like material at 1 to 1.5 feet.			
2		SILTY CLAY (CH), FILL, very dark gray (2.5Y 4/0), grading to very dark grayish brown (2.5Y 4/2), moist, stiff, high plasticity odor.	LF 27-2.5'	19	
3					0.6/5.0
4					
5					
6		SILTY CLAY (CH-OH), black (2.5Y 2/0), moist, high plasticity, stiff, abundant organic material-root hairs, hydrogen sulfide odor, appears to be Bay Mud.	LF 27-6.5'	10	2.8/3.1
7					
8		SANDY CLAY (CH), dark gray (5Y 4/1), medium stiff, medium plasticity, sand is fine-grained, no odor.			
9			LF 27-9.5'	7	2.8/4.0
10		BOTTOM OF BORING AT 9.5 FEET. No free water encountered.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 5, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-27 *(page 1 of 1)*

Project No. 3015.94

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L004:JOS:JSM/RYL 030795

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
		LITHOLOGY		**SAMPLE DATA**	
1		SANDY GRAVEL (GW), FILL, variegated brown, moist, medium dense.			
2		SANDY CLAY (CH), FILL, very dark gray, moist, very stiff, some fine-grained gravel.		25	4.5/5.8
3					
4					
5					
6		CLAY (OH), very dark gray with brown wood and roots, moist, medium stiff, strong organic odor, some wood decaying.	LF 28-6.5'	7	0.0/1315
7					
8		Minimal recovery—Silty Sand.			
9		SILTY CLAYEY SAND (SC), variegated gray (2.5Y N 5/0), wet, loose, clay is medium to high plasticity, gravel is fine-grained.		5	
10					
11		BOTTOM OF BORING AT 11 FEET.	LF 28-11'	10	

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

Water level at time of drilling

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 5, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-28 *(page 1 of 1)*

Project No. 3015.94

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L005:JOS:JSM/RYL 030795

Depth, feet	Graphic Log	Description		Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
		LITHOLOGY			**SAMPLE DATA**	
1		CONCRETE. SANDY GRAVEL (GW), FILL, variegated gray (10YR 5/0) with some red and white and grayish brown (10YR 5.2), moist, medium dense, gravel is 1/2 to 1-inch diameter and angular.	1			
2		SANDY CLAY (CL), FILL, very dark gray (2.5Y 4/0), moist, medium stiff, some fine gravel.	2		23	
3		GRAVELLY CLAY (CL), FILL, very dark gray (2.5Y 4/0), moist to dry, very stiff, gravel is 1/4-inch to 1-inch diameter size and angular, some brick fragments observed.	3			4.4/4.7
4			4			
5			5			
6			6			
7		SILTY CLAY (CL), very dark gray (2.5Y 3/0), moist, medium stiff, organic odor, some roots, showing reddish brown color in decay.	7	LF 29-6.5'	6	4.4/5.1
8			8			
9			9		5	
10		CLAYEY SILTY SAND (SM) to SANDY SILT (ML), dark gray (2.5Y 4/0), moist, loose, some organic odor.	10			4.5/5.8
11		BOTTOM OF BORING AT 11 FEET.	11	LF 29-11'	10	4.5/6.5

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Interval sampled using Modified California Sampler
- Sample retained for analysis
- ∇ Water level at time of drilling
- PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 5, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-29 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L006:JOS:JSM/RYL 030795

LITHOLOGY			SAMPLE DATA		
Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
1		CONCRETE PAVING SURFACE. SANDY GRAVEL (GW), FILL, grayish brown (10YR 5/2), moist, dense.			
2		GRAVELLY CLAY (CH), FILL, grayish brown (10YR 5/2), moist, medium stiff, gravel is 1/2 to 1 1/2-inch diameter, some glass shards observed.			
3					
4			LF 30-4'	7	0.1/5.4
5		SANDY GRAVELLY CLAY (CH), dark grayish brown (10YR 4/2), slight greenish gray mottling (5GY 5/1), moist, medium stiff, no odor.			
6					
7					
8		Slight hydrocarbon odor at 7.5 feet. SANDY CLAY (CH), greenish gray (5GY 5/1), moist, medium stiff, slight hydrocarbon odor, a few fine gravel pieces observed.	LF 30-11'	7	0.2/13.1
9					
10					
11					
12					
13		Based on cuttings and drill rig pressure, a sand layer is suspected at 12 feet. BOTTOM OF BORING AT 13 FEET. No free water encountered.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-30 *(page 1 of 1)*

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
		LITHOLOGY			**SAMPLE DATA**
1		ASPHALT CONCRETE PAVING SURFACE. SANDY GRAVEL (GW), FILL, variegated gray and light brown, moist, dense.			
2		GRAVELLY CLAY (CH), FILL, very dark gray, moist, stiff, gravel is 1/4 to 1 1/2-inch diameter and angular, no odor, a piece of broken concrete observed.			
3					
4		Some greenish gray (5GY 6/1) mottling, slight odor at 3.5 feet.	LF 31-3.5'	13	0.2/11.4
5					
6					
7		SILTY CLAY (CH), dark gray (N 4/), moist, medium stiff, minor sand, high plasticity, minor dark organic material in decay.			
8			LF 31-8'	9	0.5/3.5
9		BOTTOM OF BORING AT 8.5 FEET. No free water encountered.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

PID (ppm) — Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

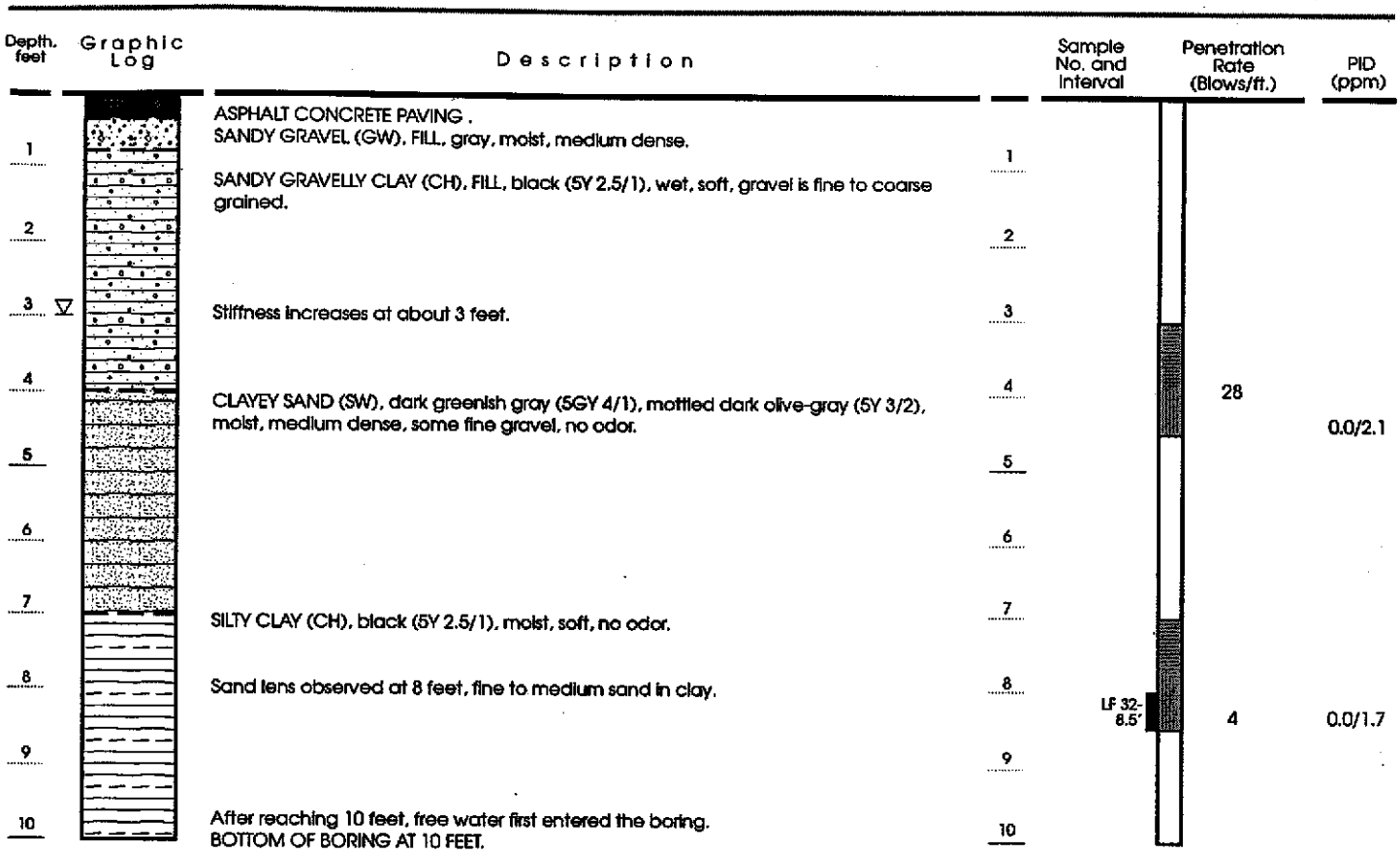
Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-31 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L008:JOS:JSM/RYL 030795



EXPLANATION

Clay

Silt

Sand

Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

Water level at time of drilling

PID (ppm) Photolonization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-32 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L009:JOS:JSM/RVL 030795

Depth, feet	Graphic Log	Description		Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
1		SANDY CLAY (CL), FILL, dark brown, moist, soft, abundant organic material (landscaping soil).	1			
2		GRAVELLY SANDY CLAY (CH), FILL, mottled dark reddish gray (5YR 4/2) and very dark gray (5YR 3/1), moist, soft, gravel is 1/4 to 1-inch diameter, some root hairs observed and decaying wood (small-possibly roots).	2			
3		Stiffness increases at about 3 feet.	3			
4		Slight organic odor at 3.5 feet.	4			
5			5		17	0.0/27
6		SANDY CLAY (CH), very dark gray (5YR 3/1), moist, medium stiff, some fine root hairs.	6			
7		color changes to dark greenish gray (5GY 4/1), some hydrocarbon odor at 7 feet. Slight reddish brown tint in some areas, small 1/4-inch diameter sand pockets which appear to be isolated within clay.	7			
8			8			
9 ▽			9	LF 33-8.5'	8	0.0/293
10			10			
11		CLAYEY SAND (SC), gray (5Y 5/1), with white specks, moist, medium dense, sand is fine to coarse-grained, no odor, some small black mottling (less than 1/8-inch thick	11			
12		clay decreases in content. Free water enters boring after reaching 12.5 feet. BOTTOM OF BORING AT 12.5 FEET.	12		24	
13			13			

EXPLANATION

Clay

Silt

Sand

Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

▽ Water level at time of drilling

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R. G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-33 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L010:JOS:JSM/RYL 030795

LITHOLOGY			SAMPLE DATA		
Depth, feet	Graphic Log	Description	Sample No. and	Penetration Rate (Blows/ft.)	PID (ppm)
1		ASPHALT CONCRETE PAVING. SANDY GRAVEL (GW), FILL, gray, moist, dense. SANDY GRAVELLY CLAY (CH-GW), FILL, variegated brown, moist, medium stiff (medium dense), sand is medium to coarse grained, some concrete, tile and brick pieces.			
2					
3					
4		GRAVELLY SANDY CLAY (CH), very dark gray (7.5YR 4/1), moist, soft to medium stiff, slight organic odor.			
5		Sand content varies.			
6		Lens appears to have approximate equal sand and clay, color is dark greenish gray (5G 4/1).	LF 34-6.5'	10	0.0/2.6
7					
8		SANDY CLAY (CH), dark gray (N/4), moist, soft, slight greenish tint in some portions of sample.			
9	▽				
10		CLAY (CH), same as above but no sand observed.		3	0.0/3.6
11					
12		Free water first entered the boring after reaching 12 feet. BOTTOM OF BORING AT 12 FEET.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

- Interval sampled using Modified California Sample
- Sample retained for analysis
- ▽ Water level at time of drilling
- PID (ppm) Photolonization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-34 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L011:JOS:JSM/RYL 030795

LITHOLOGY			SAMPLE DATA		
Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
1		ASPHALT CONCRETE PAVING. SANDY GRAVEL (GW), FILL, gray, moist, medium dense.			
2		SANDY GRAVEL (GW), FILL, reddish brown (5YR 3/1), moist, medium dense.			
3		GRAVELLY SANDY CLAY (CH), FILL, mottled dark gray and dark greenish gray, moist, very stiff.		21	0.0/2.0
4					
5		SANDY SILTY CLAY (CH), very dark gray (7.5YR 4/10), moist, soft to medium stiff.			
6					
7					
8		Some small dark discoloration observed (~1/16-inch), slight oily odor.			
9			LF 35-9'	5	
		BOTTOM OF BORING AT 9 FEET. No free water encountered.			

EXPLANATION

Clay

Silt

Sand

Gravel

Interval sampled using Modified California Sampler

Sample retained for analysis

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: John Sturman/Bryan Croll

Approved by: John Sturman R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-35 *(page 1 of 1)*

Project No. 3015.94

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

3015L012:JOS:JSM/RYL 030795

LITHOLOGY			SAMPLE DATA		
Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)	PID (ppm)
1		ASPHALT CONCRETE, PAVING. SANDY GRAVEL (GW), FILL, gray (2.5Y 5/0), moist, dense, fine sand, fine gravel subround and subangular.			
2		SANDY SILTY CLAY (CH), very dark gray (5Y 3/1) moist, very stiff, high plasticity, no odor at 3 feet, some fine gravel for 3-inches, then no gravel observed immediately below.			
3			LF 36-3.5'	20	0.0/1.3
4					
5					
6					
7		SANDY CLAY (CH), dark gray (5Y 4/1), moist becoming wet at about 9-inch, stiff, grading to soft at about 9-inch, organic root hairs slightly decayed observed in abundance with some fine organics, grades, no fine sand observed at 9.5 feet.			
8					
9			LF 36-9.5'	12	0.0/2.5
10		BOTTOM OF BORING AT 9.5 FEET. No free water encountered.			

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Interval sampled using Modified California Sample

Sample retained for analysis

PID (ppm) Photoionization detector reading (background value/sample value) in parts per million

Well Permit No.: 4822
Date boring drilled: January 6, 1995
Drilling Company: Gregg Drilling
Drilling method: Modified California Sampler
Hammer weight and drop: 140 lbs./30 inches
LF Engineer/Geologist: Bryan Croll

Approved by: John Stevens R.G. 5714

LITHOLOGY AND SAMPLE DATA FOR SOIL BORING LF-36 *(page 1 of 1)*

Project No. 3015.94

3015L013:JOS:MPM/RYL 030795

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

APPENDIX B

FIELD METHODS

CONTENTS

FIELD METHODS

B.1 Introduction

All field activities were performed in accordance with the project Health and Safety Plan (Levine•Fricke 1993). Public utility companies that potentially had underground utility lines located near the drilling locations were notified through Underground Service Alert at least 48 hours before drilling began. All drilling locations were also cleared before drilling began by downUnder Technologies, a private utility locating service, using geophysical methods.

Well construction permits were obtained from Alameda County Zone 7 Water Agency, before drilling began.

B.2 Drilling and Soil Sampling Methods

The thirteen soil borings (MW-24 through LF-36) were drilled by Gregg Drilling Co., ("Gregg") of Concord, California, a California C-57 licensed drilling subcontractor, under the observation of a Levine•Fricke geologist. The borings were drilled with 8-inch-diameter hollow-stem augers to depths of approximately 8.5 to 14 feet below ground surface (bgs).

In the first soil boring drilled (which became MW-24), soil samples were collected on a continuous basis from 1 foot bgs to the maximum depth of the boring (14 feet bgs). In other borings, soil samples were collected, at intervals ranging from 2 to 5 feet, for lithologic description and possible chemical analysis using a modified California sampler lined with clean brass tubes 6 inches long and approximately 2 inches in diameter. The sampler was driven into native soil below the augers using a 140-pound hammer dropped 30 inches at a time until a sample interval of 1.5 feet was achieved, or until refusal. The sampler was washed in a solution of Alconox tap water, followed by a distilled water rinse, before each sample was collected.

A Levine•Fricke geologist described the lithology of each boring (Appendix A) using the Unified Soil Classification System. Soil samples were screened for possible chemical analysis using a portable photoionization detector (PID), which measured volatile hydrocarbons in air emanating from soil cuttings and drive samples.

After the brass tubes were removed from the sample barrel, the ends of the tubes were covered with teflon tape and capped

with plastic caps. The tubes were labeled and placed in a chilled container for transportation to the laboratory under standard chain-of-custody protocol.

Soil cuttings generated during drilling were stored on site in sealed 55-gallon drums. A sticker was affixed to the drum with the warning "Caution, Waste Soils, Do Not Handle," the generator's name, the site location, the date, and the boring number. All drilling equipment was steam-cleaned before being brought to the Site and at the driller's yard after drilling was completed.

B.3 Grab Ground-Water Sampling Methods

Grab ground-water samples were collected from borings LF-30 and LF-33 on January 6, 1995. Grab ground-water samples were collected from the open boreholes at each of the locations by lowering a disposable bailer into the ground water through the hollow-stem auger using a new nylon rope.

The grab ground-water samples were poured from the bailers into laboratory-supplied containers with Teflon septa. Samples to be analyzed for total petroleum hydrocarbons as gasoline (TPHg) and the aromatic hydrocarbons benzene, toluene, ethylbenzene, and total xylenes (BTEX) were poured into 40-milliliter volatile organic analysis vials (VOAs) preserved with hydrochloric acid. Each container was filled to capacity, capped, and checked for trapped air bubbles. If an air bubble was observed, the container was discarded and a new preserved container filled. Samples to be analyzed for total petroleum hydrocarbons as diesel (TPHd) and total petroleum hydrocarbons as oil (TPHo) were poured into 1-liter amber bottles preserved with hydrochloric acid. The samples were labeled and placed in a chilled container for transportation to the laboratory under standard chain-of-custody protocol.

B.4 Well Installation and Borehole Sealing Methods

The soil boring for well MW-24 was drilled to a depth of 14 feet bgs. The well was installed in the borings in accordance with State of California Department of Water Resources (DWR) regulations. The depth of each soil boring was determined in the field on the basis of soil conditions and the depths at which ground water-yielding sediments were encountered.

The boring was converted into a well by inserting 4-inch-diameter, flush-threaded, solid and slotted (0.010-inch-wide slots) schedule 40 PVC casing through the hollow-stem augers.

The slotted well screen in well MW-24 was installed from approximately 4.75 to 13.75 feet bgs. A filter pack consisting of Number 2/12 graded Monterey sand was placed into the annular space between the hollow-stem auger and the PVC casing, while the augers were slowly withdrawn from the borehole, to prevent bridging of the sand pack. The sand pack in boring MW-24 was installed from approximately 3 feet to 14 feet bgs. A layer of bentonite pellets approximately 1 foot thick was then placed above the sand, around the solid portion of the casing to create a seal and prevent concrete from entering the sand pack. From the top of the bentonite seal to the surface, concrete was installed to protect the well from surface water intrusion. A locking well cap was placed on the well casing. A traffic-rated well box was set in concrete over the well casing to protect the well from unauthorized access.

Borings not converted into wells (LF-25 through 36) were sealed. Borings that did not encounter free water were sealed by pouring volclay pellets into the boreholes and adding distilled water to activate the seal. Other boreholes were sealed by placing bentonite grout using the tremie method to displace water.

B.5 Well Development and Sampling Methods

After a well had been installed, it was developed to remove fine particles and improve hydraulic communication between the slotted casing and the formation. The well was developed by purging approximately 9 well casing volumes of ground-water until the water clarity improved and parameters stabilized. Water-quality parameters (specific conductance, pH, and temperature) were measured and recorded during the purging process. Observations regarding the quantity and clarity of water withdrawn were recorded on water-quality sampling information forms during this process (Appendix D). Ground-water samples were collected after the parameters had stabilized. Sampling equipment was steam cleaned before use. Purged water was stored in DOT-approved 55-gallon drums, which were labeled "Caution, Non-Potable Wastewater, Do Not Handle or Drink," and temporarily stored on site pending disposal.

Following purging, water samples were collected with a clean Teflon bailer, poured into laboratory-supplied, 40-milliliter VOA vials (for TPHg and BTEX) and 1-liter amber bottles (for TPHd and TPHo), with hydrochloric acid as a preservative. The VOA containers were filled and capped so that there would be no headspace after the containers had been sealed. The sample containers were placed into a chilled cooler for

transportation to American Environmental Network (AEN) Laboratory of Pleasant Hill, a State of California-certified laboratory, under chain-of-custody protocol. A duplicate sample was also collected from well MW-24 to ensure laboratory quality control and was submitted for analysis of TPHg, BTEX, TPHd, and TPHo.

B.6 Well Surveying and Ground-Water Elevation and Product Thickness Measurements

The elevations of the tops of the well casings were elevation surveyed by Levine•Fricke staff on January 6, 1995. The elevation was measured to the nearest 0.01 foot and referenced to the existing well elevations. (Reference data for existing wells installed by Subsurface Consultants Inc. is not known to Levine•Fricke, but may be mean sea level.)

The depth to ground water was measured using an electronic water level probe.

APPENDIX C

LABORATORY REPORTS

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

LEVINE-FRICKE
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: SUE HENRY
CLIENT PROJ. ID: 3015.03
CLIENT PROJ. NAME: DIVERSIFIED
C.O.C. NUMBER: 12557

REPORT DATE: 09/14/94
DATE(S) SAMPLED: 08/18/94
DATE RECEIVED: 08/19/94
AEN WORK ORDER: 9408275

PROJECT SUMMARY:

On August 19, 1994, this laboratory received 6 soil sample(s).

Client requested samples be composited into three composite samples for organic analysis; samples were composited into one composite sample for additional inorganic and organic analysis. Portions of single composite sample were subcontracted to a DOHS certified laboratory for Toxicity and Reactivity analyses. Subcontract report will follow at a later date. Results of analysis are summarized on the following page(s).

Please see quality control report for a summary of QC data pertaining to this project.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

LEVINE-FRICKE

SAMPLE ID: SP-7,SP-8
AEN LAB NO: 9408275-01A
AEN WORK ORDER: 9408275
CLIENT PROJ. ID: 3015.03

DATE SAMPLED: 08/18/94
DATE RECEIVED: 08/19/94
REPORT DATE: 09/14/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	08/23/94
Toluene	108-88-3	ND	5	ug/kg	08/23/94
Ethylbenzene	100-41-4	ND	5	ug/kg	08/23/94
Xylenes, Total	1330-20-7	ND	5	ug/kg	08/23/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	08/23/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: SP-9,SP-10
AEN LAB NO: 9408275-02A
AEN WORK ORDER: 9408275
CLIENT PROJ. ID: 3015.03

DATE SAMPLED: 08/18/94
DATE RECEIVED: 08/19/94
REPORT DATE: 09/14/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	10	ug/kg	08/26/94
Toluene	108-88-3	ND	10	ug/kg	08/26/94
Ethylbenzene	100-41-4	ND	10	ug/kg	08/26/94
Xylenes, Total	1330-20-7	ND	10	ug/kg	08/26/94
Purgeable HCs as Gasoline	5030/GCFID	2.6 *	0.2	mg/kg	08/26/94

Reporting limits elevated due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

QUALITY CONTROL DATA

AEN JOB NO: 9408275
DATE ANALYZED: 08/23/94
SAMPLE SPIKED: 9408285-03
INSTRUMENT: H
MATRIX: SOIL

Matrix Spike Recovery Summary
Method: EPA 8020, 5030

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	19.6	107	8	81-127	11
Toluene	72.9	103	6	84-121	14
Hydrocarbons as Gasoline	1000	96	2	66-116	20

QUALITY CONTROL DATA

AEN JOB NO: 9408275
AEN LAB NO: 0825-BLANK
DATE ANALYZED: 08/25/94
INSTRUMENT: 12
MATRIX: SOIL

Volatile Organic Compounds
Method: EPA 8240

Analyte	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Acetone	67-64-1	ND	100
Benzene	71-43-2	ND	5
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	10
2-Butanone	78-93-3	ND	100
Carbon Disulfide	75-15-0	ND	10
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	10
2-Chloroethyl Vinyl Ether	110-75-8	ND	10
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	10
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Ethylbenzene	100-41-4	ND	5
2-Hexanone	591-78-6	ND	50
Methylene Chloride	75-09-2	8	5
4-Methyl-2-pentanone	108-10-1	ND	50
Styrene	100-42-5	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
Toluene	108-88-3	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Vinyl Acetate	108-05-4	ND	50
Vinyl Chloride	75-01-4	ND	10
Xylenes, total	1330-20-7	ND	10

QUALITY CONTROL DATA

AEN JOB NO: 9408275
INSTRUMENT: 12
MATRIX: SOIL

Surrogate Standard Recovery Summary
Method: EPA 8240

Date Analyzed	Client Id.	Lab Id.	Percent Recovery 1,2-Dichloroethane-d_4	Toluene-d_8	p-Bromofluorobenzene
08/25/94	SP-7,8,9,10,11,12	04	121	109	87

Current QC Limits

Surrogate	Percent Recovery
1,2-Dichloroethane-d_4	68-141
Toluene-d_8	89-119
p-Bromofluorobenzene	85-112

QUALITY CONTROL DATA

AEN JOB NO: 9408275
DATE ANALYZED: 08/24/94
SAMPLE SPIKED: 9408210-05
INSTRUMENT: 12
MATRIX: SOIL

Matrix Spike Recovery Summary
Method: EPA 8240

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
1,1-Dichloroethene	50	109	6	66-143	15
Trichloroethene	50	111	1	60-127	12
Benzene	50	100	2	88-117	10
Toluene	50	97	<1	70-126	14
Chlorobenzene	50	106	3	89-111	13

QUALITY CONTROL DATA

AEN JOB NO: 9408275
SAMPLE SPIKED: SAND
DATE ANALYZED: 08/29/94
MATRIX: SOIL

Method Blank and Spike Recovery Summary

Analyte	Inst./ Method	Blank Result (mg/kg)	Spike Added (mg/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Ag. Silver	ICP/6010	ND	10	59	1	38- 78	7
As. Arsenic	4000/7060	ND	20	92	1	76-128	15
Ba. Barium	ICP/6010	ND	200	98	1	90-107	5
Be. Beryllium	ICP/6010	ND	5	98	<1	76-108	6
Cd. Cadmium	ICP/6010	ND	10	100	1	85-106	7
Co. Cobalt	ICP/6010	ND	50	102	<1	84-115	6
Cr. Chromium	ICP/6010	ND	50	108	<1	87-110	6
Cu. Copper	ICP/6010	ND	50	102	<1	90-107	6
Hg. Mercury	Hg/7471	ND	0.4	97	1	75-125	15
Mo. Molybdenum	ICP/6010	ND	50	105	<1	82-114	6
Ni. Nickel	ICP/6010	ND	50	106	<2	87-109	6
Pb. Lead	ICP/6010	ND	50	95	1	85-111	6
Sb. Antimony	ICP/6010	ND	50	98	1	75-111	7
Se. Selenium	4000/7740	ND	40	87	4	70-125	14
Tl. Thallium	ICP/6010	ND	200	94	1	78-111	6
V. Vanadium	ICP/6010	ND	50	102	<1	83-112	6
Zn. Zinc	ICP/6010	ND	50	93	1	82-107	8

*** END OF REPORT ***

R-4, S-C.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9408275

Project No.: 3015.03	Field Logbook No.:	Date: 8/18/94	Serial No.: Nº 12557
Project Name: Diversified	Project Location:		
Sampler (Signature): Prescott C. Heald			

SAMPLES						ANALYSES								Samplers:
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601 (1) ~~EPA 624~~	TPHgas	CAM 17 METALS	RCI	8240	HOLD	RUSH		REMARKS
SP-7	8/19/94	1105	~~01A~~ 01A	1	Soil									(1) 96 Hour Fish
SP-8		1115	~~02A~~ 02A	1										Toxicity prescreen
SP-9		1140	~~03A~~ 03A	1										Bioassay.
SP-10		1130	~~04A~~ 04A	1										Please composite into 3
SP-11		1145	~~05A~~ 05A	1										samples for TPHgas as
SP-12	↓	1125	~~06A~~ 06A	1	↓									follows: (SP-7 + SP-8),
														(SP-9 + SP-10), (SP-11 + SP-12)
														Please composite all 6
														samples into one sample
														~~for~~ each for Fish Tox.
														CAM-17, RCI, CAM 8240
														Normal TAT
														Contact SUE HENRY

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
Prescott C. Heald	8/19/94	10:30	Michael E. Mueller	8/19/94	10:30
RELINQUISHED BY: (Signature) Michael E. Mueller	DATE 8/19/94	TIME 11:00	RECEIVED BY: (Signature) Liz L. Pruitt	DATE 8-19-94	TIME 11:00
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: Courier	DATE	TIME	LAB COMMENTS:		

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

Analytical Laboratory:
AEN, Pleasant Hill, CA

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

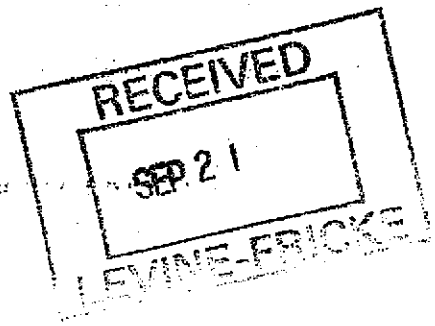
Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

American Environmental Net.	Client Proj. ID: 9408275	Sampled: 08/18/94
3440 Vincent Road	Sample Descript: SP-7,8,9,10,11,12	Received: 08/22/94
Pleasant Hill, CA 94523	Matrix: SOLID	
	Analysis Method: Comb	Analyzed: 08/25/94
Attention: Denise Harrington	Lab Number: 9408C59-01	Reported: 08/31/94

Reactivity

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Reactivity:		
Sulfide	13	N.D.
Cyanide	0.50	N.D.
Reaction with Water		N.D.



Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mark Cargasacchi
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

AEN
3440 Vincent Road
Pleasant Hill, CA 94523
Attention: Denise Harrington

Client Project ID: 9408275
Sample Descript: SP-7,8,9,10,11,12
Analysis Method: See below
Lab Number: 9408-C59 01

Sampled: 8/18/94
Received: 8/22/94
Reported: 8/31/94

STATIC HAZARDOUS ABBREVIATED SCREEN BIOASSAY

Species: Pimephales promelas
Common Name: Fathead Minnow

Mean length: 31.00 mm
Min. length: 29.00 mm
Max. length: 33.00 mm
Mean weight: 0.30 g
Min. weight: 0.29 g
Max. weight: 0.33 g

Organisms/Tank: 10
Organisms/Conc.: 20
Tank Depth: 13 cm
Tank Volume: 10 L
Acclimation Temp.: 19 °C
Supplier: Sticklebacks Unlimited

Dilution Water: Synthetic Softwater
Hardness 40-48

	Alkalinity, mg/L		Hardness, mg/L	
	Initial	Final	Initial	Final
Control	25	30	44	46
750 ppm	27	30	44	44
Duplicate 750 ppm	27	30	42	44

	Initial	24 Hr	48 Hr	72 Hr	96 Hr
DATE	8/24/94	8/25/94	8/26/94	8/27/94	8/28/94

	DO	C	pH	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	Total
	mg/L	Temp	Units	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	Dead
Control	10.2	19	7.6	8.4	19	6.9	0	7.9	19	7.1	0	7.7	19	7.1	0	7.6	19	7.0	0	0
750 ppm	9.5	19	7.8	8.4	19	7.2	0	8.5	19	7.3	0	8.5	19	6.9	0	8.4	19	7.0	0	0
300 ppm	9.5	19	7.7	8.6	19	7.3	0	8.2	19	7.3	0	8.3	19	7.0	0	8.2	19	7.0	0	0
Duplicate																				
750 ppm	9.4	19	7.7	8.8	19	7.3	0	8.8	19	7.3	0	8.7	19	7.1	0	8.6	19	7.0	0	0
300 ppm	9.7	19	7.8	8.7	19	7.3	0	8.4	19	7.3	0	8.1	19	7.0	0	8.1	19	7.0	0	0

Pass X Failed ____

Remarks: The screen fails if > 40% of the fish die in the 750 ppm concentration.

Analyst: M. Otte/ M. Kuhn

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples, September 1987, California Department of Fish and Game WPCL

SEQUOIA ANALYTICAL

Mark J. Cargasacchi
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

AEN
3440 Vincent Road
Pleasant Hill, CA 94523
Attention: Denise Harrington

Client Project ID: 9408275
Matrix: Solid
QC Sample Group: 9408C59 01

Reported: Aug 31, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Reacitve Sulfide	Reactive Cyanide
Method:	SW 846	SW 846
Analyst:	K. Newberry	J. Heider
Date Analyzed:	8/25/94	8/25/94
Sample #:	9408D2001	9408D2001
Sample Concentration:	N.D.	N.D.
Sample Duplicate Concentration:	N.D.	N.D.
% RPD:	0.0	0.0
Control Limits:	±20	±20

OK

SEQUOIA ANALYTICAL

Mark J. Cargasacchi
Project Manager

Reporting Information:

1. Client: AEN
Address:
Contact: Denise Harrington
Alt. Contact:

Address Report To:

2. (1)

Send Invoice To:

3. (1)

American Environmental Network

3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: SQ
Date Samples Shipped: 8-22-94
Lab Contact: Mark Cargasacchi
Date Results Required: Standard
Date Report Required: Standard
Client Phone No.: 930-9090
Client FAX No.: 930-0256

Send Report To: (1) or 2 (Circle one)

Client P.O. No.: Client Project I.D. No.: 9408275

Sample Team Member (s)

9408C59

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: Hazardous Waste Screen - Title 22	ANALYSIS: Reactivity	Comments / Hazards
01 A	SP-7,8,9,10,11,12	—	8-18-94	8	—	1	JAR	X	X	0

Relinquished by: (Signature)	DATE 8-22-94	TIME 0850	Received by: (Signature) DATE 8/22/94 TIME 0850
Relinquished by: (Signature)	DATE 8/22/94	TIME 3:10	Received by: (Signature) DATE TIME
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature) DATE 8/22/94 TIME 15:10

Method of Shipment

Lab Comments

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____. 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
10) Other 11) Other

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9408275

Project No.: 3015.03	Field Logbook No.:	Date: 8/18/94	Serial No.: Nº 12557
Project Name: Diversified	Project Location:		
Sampler (Signature): Prescott C. Herald			

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601 (1)	EPA 624	TPHgas	CAM 17 METALS	RCI	8240	HOLD	RUSH	REMARKS
SP-7	8/18/94	1105	~~01A~~ 01A+04A	1	Soil									(1) 96 Hour Fish Toxicity prescreen Bioassay Please composite into 3 samples for TPHgas as follows: (SP-7 + SP-8), (SP-9 + SP-10), (SP-11 + SP-12) Please composite all 6 samples into one sample ~~for~~ each for Fish Tox., CAM-17, RCI, and 8240 Normal TAT Contact SUE HENRY
SP-8		1115	~~02A~~	1										
SP-9		1140	~~03A~~	1										
SP-10		1130	~~04A~~ 04A+04A	1										
SP-11		1145	~~05A~~ 05A+04A	1										
SP-12	↓	1125	~~06A~~ 06A+04A	1	↓									

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
Prescott C. Herald	8/19/94	10:30	Michael E. Miller	8/19/94	10:30
RELINQUISHED BY: (Signature) Michael E. Miller	DATE 8/19/94	TIME 11:00	RECEIVED BY: (Signature) Lee L. Pruitt	DATE 8-19-94	TIME 11:00
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: COMIS	DATE	TIME	LAB COMMENTS:		

Samplers:

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

Analytical Laboratory:
AEN, Pleasant Hill, CA

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

FORM NO. 86/COC/ARF

AMERICAN ENVIRONMENTAL NETWORK (AEN)

FAX TRANSMISSION COVER

AMERICAN ENVIRONMENTAL NETWORK
3440 VINCENT ROAD
PLEASANT HILL, CA 94523

FAX NO: (510) 930-0256
PHONE NO: (510) 930-9090

DATE: 09/06/94 # OF PAGES (Including cover) 5

REPLY REQUESTED: (circle request) (NO) YES URGENT FAX REPLY PHONE REPLY FYI

TO: Sue Hearn
LF

FROM: Client Services

AEN PROJ NO: 9408275

CLIENT PROJ NO: 3015.03

✓ FINAL RESULTS

✓ PARTIAL RESULTS reactivity & fish toxicity only

___ PRELIMINARY RESULTS

COMMENTS:

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

American Environmental Net.
3440 Vincent Road
Pleasant Hill, CA 94523

Attention: Denise Harrington

Client Proj. ID: 9408275
Sample Descript: SP-7,8,9,10,11,12
Matrix: SOLID
Analysis Method: Comb
Lab Number: 9408C69-01

Sampled: 08/18/94
Received: 08/22/94

Analyzed: 08/25/94
Reported: 08/31/94

Reactivity

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Reactivity:		
Sulfide	13	N.D.
Cyanide	0.50	N.D.
Reaction with Water		N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mark Cargasacchi
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

AEN
3440 Vincent Road
Pleasant Hill, CA 94523
Attention: Denise Harrington

Client Project ID: 9408275
Matrix: Solid
QC Sample Group: 9408C59 01
Reported: Aug 31, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Reactive Sulfide	Reactive Cyanide
Method:	SW 846	SW 846
Analyst:	K. Newberry	J. Helder
Date Analyzed:	8/25/94	8/25/94
Sample #:	9408D2001	9408D2001
Sample Concentration:	N.D.	N.D.
Sample Duplicate Concentration:	N.D.	N.D.
% RPD:	0.0	0.0
Control Limits:	±20	±20

SEQUOIA ANALYTICAL

Mark J. Cargasacchi
Project Manager

9408C59.AAA <1>

TOTAL P.04

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

AEN
3440 Vincent Road
Pleasant Hill, CA 94523
Attention: Denise Herrington

Client Project ID: 9408276
Sample Descript: SP-7,8,9,10,11,12
Analysis Method: See below
Lab Number: 9408-C59 01

Sampled: 8/18/94
Received: 8/22/94
Reported: 8/31/94

STATIC HAZARDOUS ABBREVIATED SCREEN BIOASSAY

Species: Pimephales promelas
Common Name: Fathead Minnow

Mean length: 21.00 mm
Min. length: 20.00 mm
Max. length: 33.00 mm
Mean weight: 0.30 g
Min. weight: 0.29 g
Max. weight: 0.33 g

Dilution Water: Synthetic Softwater
Hardness 40-48

Organisms/Tank: 10
Organisms/Conc.: 20
Tank Depth: 13 cm
Tank Volume: 10 L
Acclimation Temp.: 19 °C
Supplier: Stickleabaks Unlimited

	Alkalinity, mg/L		Hardness, mg/L	
	Initial	Final	Initial	Final
Control	25	30	44	46
750 ppm	27	30	44	44
Duplicate 750 ppm	27	30	42	44

DATE	Initial	24 Hr	48 Hr	72 Hr	96 Hr
	8/24/94	8/25/94	8/26/94	8/27/94	8/28/94

	Initial				24 Hr				48 Hr				72 Hr				96 Hr				Total Dead
	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	DO mg/L	C Temp	pH Units	# M Dead	
Control	10.2	19	7.6	0	8.4	19	6.9	0	7.9	19	7.1	0	7.7	19	7.1	0	7.6	19	7.0	0	0
750 ppm	9.5	19	7.8	0	8.4	19	7.2	0	8.5	19	7.3	0	8.5	19	6.9	0	8.4	19	7.0	0	0
300 ppm	9.5	19	7.7	0	8.6	19	7.3	0	8.2	19	7.3	0	8.3	19	7.0	0	8.2	19	7.0	0	0
Duplicate																					
750 ppm	9.4	19	7.7	0	8.6	19	7.3	0	8.6	19	7.3	0	8.7	19	7.1	0	8.6	19	7.0	0	0
300 ppm	9.7	19	7.8	0	8.7	19	7.3	0	8.4	19	7.3	0	8.1	19	7.0	0	8.1	19	7.0	0	0

Pass X Failed

Remarks: The screen fails if > 40% of the fish die in the 750 ppm concentration.

Analyst: M. Otte/ M. Kuhn

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples, September 1987, California Department of Fish and Game WPCL.

SEQUOIA ANALYTICAL

Mark J. Cargasacchi
Project Manager

9408-C59.AAA <1>

R-4, S-C

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9408275

Project No.: 3015.03	Field Logbook No.:	Date: 8/18/94
Project Name: Diversified	Project Location:	Serial No.: Nº 12557
Sampler (Signature): Prescott C. Arnold		

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601 (8020)	TPHgas	CAM 17 METALS	RCI	8240	HOLD	RUSH	Samplers: REMARKS
SP-7	8/18/94	1105	~~01A~~ 01A	1	Soil								① 96 Hour Fish Toxicity prescreen Bioassay
SP-8		1115	~~02A~~ 01A +04A	1									Please composite into 3 samples for TPHgas as follows: (SP-7 + SP-8), (SP-9 + SP-10), (SP-11 + SP-12)
SP-9		1140	~~03A~~	1									
SP-10		1130	~~04A~~ 04A +04A	1									Please composite all 6 samples into one sample ~~for~~ each for Fish Tox.
SP-11		1115	~~05A~~ 03A	1									CAM-17, RCI, and 8240
SP-12	↓	1125	~~06A~~ 03A +04A	1	↓								Normal TAT
													Contact SUE HENRY

RELINQUISHED BY: (Signature) Prescott C. Arnold	DATE 8/19/94	TIME 10:30	RECEIVED BY: (Signature) Michael E. Pendleton	DATE 8/19/94	TIME 10:30
RELINQUISHED BY: (Signature) Michael E. Pendleton	DATE 8/19/94	TIME 11:00	RECEIVED BY: (Signature) Lisa L. Pruitt	DATE 8-19-94	TIME 11:00
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: COURIER	DATE	TIME	LAB COMMENTS:		

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

Analytical Laboratory: AEN, Pleasant Hill, CA

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

FORM NO. 86/COC/ARF

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

LEVINE-FRICKE
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: SUSAN SHIU
CLIENT PROJ. ID: 3015.94-05
CLIENT PROJ. NAME: DIVERSIFIED
C.O.C. NUMBER: 013362

REPORT DATE: 01/20/95
DATE(S) SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
AEN WORK ORDER: 9501044

PROJECT SUMMARY:

On January 6, 1995, this laboratory received 15 (14 soil and 1 water) sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s).

Please see quality control report for a summary of QC data pertaining to this project.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

LEVINE-FRICKE

SAMPLE ID: LF24-3-3.5
AEN LAB NO: 9501044-01
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	1,100 *	50	ug/kg	01/17/95
Toluene	108-88-3	130 *	50	ug/kg	01/17/95
Ethylbenzene	100-41-4	160 *	50	ug/kg	01/17/95
Xylenes, Total	1330-20-7	730 *	50	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	8.8 *	2	mg/kg	01/17/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF24-6-6.5
AEN LAB NO: 9501044-02
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	34,000 *	5000	ug/kg	01/16/95
Toluene	108-88-3	210,000 *	5000	ug/kg	01/16/95
Ethylbenzene	100-41-4	72,000 *	5000	ug/kg	01/16/95
Xylenes, Total	1330-20-7	460,000 *	5000	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	3,300 *	200	mg/kg	01/16/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/09/95
TPH as Oil	GC-FID	65 *	5	mg/kg	01/09/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF24-9-9.5
AEN LAB NO: 9501044-03
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	5,100 *	1000	ug/kg	01/17/95
Toluene	108-88-3	38,000 *	1000	ug/kg	01/17/95
Ethylbenzene	100-41-4	29,000 *	1000	ug/kg	01/17/95
Xylenes, Total	1330-20-7	210,000 *	1000	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	1,400 *	40	mg/kg	01/17/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/09/95
TPH as Oil	GC-FID	96 *	5	mg/kg	01/09/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF24-13.5-14
AEN LAB NO: 9501044-04
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	180 *	5	ug/kg	01/16/95
Toluene	108-88-3	16 *	5	ug/kg	01/16/95
Ethylbenzene	100-41-4	67 *	5	ug/kg	01/16/95
Xylenes, Total	1330-20-7	46 *	5	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	1.0 *	0.2	mg/kg	01/16/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF25-6-6.5
AEN LAB NO: 9501044-05
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	920 *	100	ug/kg	01/17/95
Toluene	108-88-3	470 *	100	ug/kg	01/17/95
Ethylbenzene	100-41-4	1,500 *	100	ug/kg	01/17/95
Xylenes, Total	1330-20-7	6,400 *	100	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	120 *	4	mg/kg	01/17/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/08/95
TPH as Oil	GC-FID	77 *	5	mg/kg	01/08/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF25-9-9.5
AEN LAB NO: 9501044-06
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	3,300 *	1000	ug/kg	01/17/95
Toluene	108-88-3	11,000 *	1000	ug/kg	01/17/95
Ethylbenzene	100-41-4	16,000 *	1000	ug/kg	01/17/95
Xylenes, Total	1330-20-7	77,000 *	1000	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	630 *	50	mg/kg	01/17/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/08/95
TPH as Oil	GC-FID	40 *	5	mg/kg	01/08/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF25-10.5-11
AEN LAB NO: 9501044-07
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	240 *	30	ug/kg	01/16/95
Toluene	108-88-3	200 *	30	ug/kg	01/16/95
Ethylbenzene	100-41-4	130 *	30	ug/kg	01/16/95
Xylenes, Total	1330-20-7	580 *	30	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	9.9 *	1	mg/kg	01/16/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF26-6-6.5
AEN LAB NO: 9501044-08
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	100	ug/kg	01/16/95
Toluene	108-88-3	ND	100	ug/kg	01/16/95
Ethylbenzene	100-41-4	ND	100	ug/kg	01/16/95
Xylenes, Total	1330-20-7	ND	100	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	69 *	4	mg/kg	01/16/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	9 *	5	mg/kg	01/08/95
TPH as Oil	GC-FID	740 *	30	mg/kg	01/11/95

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF27-6-6.5
AEN LAB NO: 9501044-09
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/14/95
Toluene	108-88-3	ND	5	ug/kg	01/14/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/14/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/14/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/14/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	5	mg/kg	01/09/95
TPH as Oil	GC-FID	450 *	30	mg/kg	01/09/95

Reporting limits elevated due to high levels of TPH Extractable compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF27-9-9.5
AEN LAB NO: 9501044-10
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	5	ug/kg	01/17/95
Toluene	108-88-3	ND	5	ug/kg	01/17/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/17/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/17/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF27-2-2.5
AEN LAB NO: 9501044-11
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	9 *	5	ug/kg	01/16/95
Toluene	108-88-3	ND	5	ug/kg	01/16/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/16/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	0.6 *	0.2	mg/kg	01/16/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF28-6-6.5
AEN LAB NO: 9501044-12
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	100 *	30	ug/kg	01/16/95
Toluene	108-88-3	ND	30	ug/kg	01/16/95
Ethylbenzene	100-41-4	110 *	30	ug/kg	01/16/95
Xylenes, Total	1330-20-7	82 *	30	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	1.4 *	1	mg/kg	01/16/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/08/95
TPH as Oil	GC-FID	30 *	5	mg/kg	01/08/95

Reporting limits elevated due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF28-10.5-11
AEN LAB NO: 9501044-13
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/17/95
Toluene	108-88-3	ND	5	ug/kg	01/17/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/17/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/17/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/06/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/08/95
TPH as Oil	GC-FID	ND	5	mg/kg	01/08/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF29-6-6.5
AEN LAB NO: 9501044-14
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	30	ug/kg	01/17/95
Toluene	108-88-3	ND	30	ug/kg	01/17/95
Ethylbenzene	100-41-4	ND	30	ug/kg	01/17/95
Xylenes, Total	1330-20-7	ND	30	ug/kg	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	1	mg/kg	01/17/95

Reporting limits elevated due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: GG-25
AEN LAB NO: 9501044-15
AEN WORK ORDER: 9501044
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/05/95
DATE RECEIVED: 01/06/95
REPORT DATE: 01/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	7,300 *	10	ug/L	01/12/95
Toluene	108-88-3	2,400 *	10	ug/L	01/12/95
Ethylbenzene	100-41-4	1,500 *	10	ug/L	01/12/95
Xylenes, Total	1330-20-7	3,800 *	40	ug/L	01/12/95
Purgeable HCs as Gasoline	5030/GCFID	29 *	1	mg/L	01/12/95

Reporting limits elevated due to high levels of Gasoline/BTEX compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9501044

CLIENT PROJECT ID: 3015.94-05

Quality Control Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3550 GCFID

AEN JOB NO: 9501044
AEN LAB NO: 0106-BLANK
DATE EXTRACTED: 01/06/95
DATE ANALYZED: 01/09/95

Method Blank

	Result (mg/kg)	Reporting Limit (mg/kg)
Diesel	ND	1

QUALITY CONTROL DATA

METHOD: EPA 3550 GCFID

AEN JOB NO: 9501044
DATE EXTRACTED: 01/06/95
INSTRUMENT: C
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
01/09/95	LF24-6-6.5	02	101
01/09/95	LF24-9-9.5	03	108
01/08/95	LF25-6-6.5	05	106
01/08/95	LF25-9-9.5	06	103
01/11/95	LF26-6-6.5	08	I
01/09/95	LF27-6-6.5	09	114
01/08/95	LF28-6-6.5	12	107
01/08/95	LF28-10.5-11	13	108
QC Limits:			45-120

I: Surrogate out due to matrix interference

DATE EXTRACTED: 01/06/95
DATE ANALYZED: 01/09/95
SAMPLE SPIKED: 9501058-03
INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	41.7	87	2	44-108	13

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN LAB NO: 0112-BLANK
DATE ANALYZED: 01/12/95

Method Blank

	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
HCs as Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501044
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/12/95	GG-25	15	96
QC Limits:			92-109

DATE ANALYZED: 01/03/95
SAMPLE SPIKED: 9501001-01
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	19.2	89	10	85-109	17
Toluene	52.2	97	11	87-111	16
Hydrocarbons as Gasoline	500	108	9	66-117	19

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501044
AEN LAB NO: 0113-BLANK
DATE ANALYZED: 01/13/95

Method Blank

	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes, Total	1330-20-7	ND	5
Purgeable Hydrocarbons as: Gasoline		ND mg/kg	0.2 mg/kg

AEN LAB NO: 0116-BLANK
DATE ANALYZED: 01/16/95

Method Blank

	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes, Total	1330-20-7	ND	5
Purgeable Hydrocarbons as: Gasoline		ND mg/kg	0.2 mg/kg

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501044
AEN LAB NO: 0117-BLANK
DATE ANALYZED: 01/17/95

Method Blank

	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes, Total	1330-20-7	ND	5
Purgeable Hydrocarbons as: Gasoline		ND mg/kg	0.2 mg/kg

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501044
INSTRUMENT: E
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/17/95	LF-24-3-3.5	01	109
01/16/95	LF24-6-6.5	02	103
01/17/95	LF24-9-9.5	03	103
01/16/95	LF24-13.5-14	04	101
01/17/95	LF25-6-6.5	05	105
01/17/95	LF25-9-9.5	06	103
01/16/95	LF25-10.5-11	07	106
01/16/95	LF26-6-6.5	08	102
01/14/95	LF27-6-6.5	09	110
01/17/95	LF27-9-9.5	10	104
01/16/95	LF27-2-2.5	11	104
01/16/95	LF28-6-6.5	12	103
01/17/95	LF28-10.5-11	13	108
01/17/95	LF29-6-6.5	14	107
QC Limits:			92-110

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501044
DATE ANALYZED: 01/16/95
SAMPLE SPIKED: 9501044-13
INSTRUMENT: E
MATRIX: SOIL

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	35.5	105	2	79-113	26
Toluene	95.7	109	4	84-110	20
Hydrocarbons as Gasoline	1000	92	7	60-126	20

*** END OF REPORT ***

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9501044

Project No.: 3015.94 05	Field Logbook No.: —	Date: 1/5/95	Serial No.: № 013362
Project Name: Diversified Investment	Project Location: 625 Hegenberger		
Sampler (Signature): Susan M Henry			

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	BTEX	TPHg	TPHd+o		HOLD	RUSH	REMARKS
LF24-3-3.5	1/5/95		01A	1	Soil			X	X					Normal TAT
LF24-6-6.5			02A					X	X	X				
LF24-9-9.5			03A					X	X	X				
LF24-13.5-14			04A					X	X					(3 VOA VILES, GG-25 (only bottles we had today)
LF25-6-6.5			05A					X	X	X				
LF25-9-9.5			06A					X	X	X				
LF25-10.5-11			07A					X	X					Questions? Call Sue Henry at 652-4500
LF26-6-6.5			08A					X	X	X				
LF29-6-6.5			09A					X	X	X				
LF27-9-9.5			10A					X	X					
LF27-2-2.5			11A					X	X					Please FAX results
LF28-6-6.5			12A					X	X	X				to SUSAN SHIU ASAP
LF28-10.5-11			13A					X	X	X				Include all Quality Control
LF29-6-6.5			14A					X	X	X				Data & Reports.
GG-25			15A-C	3	GW			X	X	X	If possible- If there is enough			FAX 652-2246

RELINQUISHED BY: (Signature) Susan M Henry	DATE 1-6-95	TIME 10:45	RECEIVED BY: (Signature)	DATE 1-6-95	TIME 10:45
RELINQUISHED BY: (Signature)	DATE 1-6-95	TIME 12:35	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature) Denise Harrington	DATE 1/6/95	TIME 1235
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

Sample Collector:

LEVINE-FRICKE
1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500

Analytical Laboratory: AEN

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

FORM NO. 86/COC/ARF

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

LEVINE-FRICKE
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: ~~SUSAN SHIU~~ SHELLIE FLETCHER
CLIENT PROJ. ID: 3015.94-05
CLIENT PROJ. NAME: DIVERSIFIED
C.O.C. NUMBER: 013367

REPORT DATE: 02/03/95
DATE(S) SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
AEN WORK ORDER: 9501056

PROJECT SUMMARY:

On January 6, 1995, this laboratory received 16 (12 soil & 4 water) sample(s).

Client requested 13 sample(s) be analyzed for organic parameters; three samples were placed on hold. Results of analysis are summarized on the following page(s).

Please see quality control report for a summary of QC data pertaining to this project.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

RECEIVED FEB 07 1995

LEVINE-FRICKE

SAMPLE ID: LF30-3.5-4
AEN LAB NO: 9501056-01
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/13/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF30-7.5-8
AEN LAB NO: 9501056-02
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	18 *	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	0.5 *	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	10	mg/kg	01/11/95
TPH as Oil	GC-FID	100 *	50	mg/kg	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF31-3-3.5
AEN LAB NO: 9501056-04
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	30	ug/kg	01/16/95
Toluene	108-88-3	ND	30	ug/kg	01/16/95
Ethylbenzene	100-41-4	ND	30	ug/kg	01/16/95
Xylenes, Total	1330-20-7	ND	30	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	ND	1	mg/kg	01/16/95

Reporting limits elevated due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF31-7.5-8
AEN LAB NO: 9501056-05
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	27 *	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	0.5 *	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/11/95
TPH as Oil	GC-FID	ND	5	mg/kg	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF32-8-8.5
AEN LAB NO: 9501056-06
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/11/95
TPH as Oil	GC-FID	ND	5	mg/kg	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: GG-33
AEN LAB NO: 9501056-08
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	10,000 *	5	ug/L	01/17/95
Toluene	108-88-3	1,200 *	5	ug/L	01/16/95
Ethylbenzene	100-41-4	950 *	5	ug/L	01/16/95
Xylenes, Total	1330-20-7	2,100 *	20	ug/L	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	30 *	0.5	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/10/95
TPH as Diesel	GC-FID	0.5 *	0.05	mg/L	01/11/95
TPH as Oil	GC-FID	ND	0.2	mg/L	01/11/95

Reporting limits elevated for gasoline/BTEX due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF33-8-8:5
AEN LAB NO: 9501056-09
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1,700 *	300	ug/kg	01/16/95
Toluene	108-88-3	420 *	300	ug/kg	01/16/95
Ethylbenzene	100-41-4	4,800 *	300	ug/kg	01/16/95
Xylenes, Total	1330-20-7	5,300 *	300	ug/kg	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	180 *	10	mg/kg	01/16/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	5	mg/kg	01/12/95
TPH as Oil	GC-FID	65 *	30	mg/kg	01/12/95

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: GG-34
AEN LAB NO: 9501056-11
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	700 *	0.5	ug/L	01/17/95
Toluene	108-88-3	2 *	0.5	ug/L	01/16/95
Ethylbenzene	100-41-4	3 *	0.5	ug/L	01/16/95
Xylenes, Total	1330-20-7	4 *	2	ug/L	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	2.9 *	0.05	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/10/95
TPH as Diesel	GC-FID	0.3 *	0.05	mg/L	01/11/95
TPH as Oil	GC-FID	0.5 *	0.2	mg/L	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF34-6-6.5
AEN LAB NO: 9501056-12
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	10	mg/kg	01/12/95
TPH as Oil	GC-FID	2,500 *	50	mg/kg	01/12/95

Reporting limits elevated for diesel/oil due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF35-8.5-9
AEN LAB NO: 9501056-13
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/11/95
TPH as Oil	GC-FID	ND	5	mg/kg	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: LF36-9-9.5
AEN LAB NO: 9501056-14
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	5	ug/kg	01/13/95
Toluene	108-88-3	ND	5	ug/kg	01/13/95
Ethylbenzene	100-41-4	ND	5	ug/kg	01/13/95
Xylenes, Total	1330-20-7	ND	5	ug/kg	01/13/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.2	mg/kg	01/13/95
#Extraction for TPH	EPA 3550	-		Extrn Date	01/09/95
TPH as Diesel	GC-FID	ND	1	mg/kg	01/11/95
TPH as Oil	GC-FID	8 *	5	mg/kg	01/11/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: GG-30
AEN LAB NO: 9501056-15
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED: 01/06/95
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	12,000 *	5	ug/L	01/17/95
Toluene	108-88-3	44 *	5	ug/L	01/16/95
Ethylbenzene	100-41-4	480 *	5	ug/L	01/16/95
Xylenes, Total	1330-20-7	990 *	20	ug/L	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	26 *	0.5	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/10/95
TPH as Diesel	GC-FID	0.5 *	0.05	mg/L	01/11/95
TPH as Oil	GC-FID	0.4 *	0.2	mg/L	01/11/95

Reporting limits elevated for gasoline/BTEX due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: TB
AEN LAB NO: 9501056-16
AEN WORK ORDER: 9501056
CLIENT PROJ. ID: 3015.94-05

DATE SAMPLED:
DATE RECEIVED: 01/06/95
REPORT DATE: 02/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	01/16/95
Toluene	108-88-3	ND	0.5	ug/L	01/16/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/16/95
Xylenes, Total	1330-20-7	ND	2	ug/L	01/16/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/16/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9501056

CLIENT PROJECT ID: 3015.94-05

Quality Control Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9501056
AEN LAB NO: 0110-BLANK
DATE EXTRACTED: 01/10/95
DATE ANALYZED: 01/10/95
MATRIX: WATER

Method Blank

	Result (mg/L)	Reporting Limit (mg/L)
Diesel	ND	0.05

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9501056
DATE EXTRACTED: 01/10/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
01/11/95	GG-33	08	107
01/11/95	GG-34	11	103
01/11/95	GG-30	15	101
QC Limits:			30-120

DATE EXTRACTED: 01/10/95
DATE ANALYZED: 01/10/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.09	79	4	65-103	12

QUALITY CONTROL DATA

METHOD: EPA 3550 GCFID

AEN JOB NO: 9501056
AEN LAB NO: 0109-BLANK
DATE EXTRACTED: 01/09/95
DATE ANALYZED: 01/09/95
MATRIX: SOIL

Method Blank

	Result (mg/kg)	Reporting Limit (mg/kg)
Diesel	ND	1

QUALITY CONTROL DATA

METHOD: EPA 3550 GCFID

AEN JOB NO: 9501056
DATE EXTRACTED: 01/09/95
INSTRUMENT: C
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
01/11/95	LF30-7.5-8	02	81
01/11/95	LF31-7.5-8	05	80
01/11/95	LF32-8-8.5	06	90
01/12/95	LF33-8-8.5	09	90
01/12/95	LF34-6-6.5	12	I
01/11/95	LF35-8.5-9	13	102
01/11/95	LF36-9-9.5	14	114
QC Limits:			45-120

I: Surrogate out due to matrix interference.

DATE EXTRACTED: 01/06/95
DATE ANALYZED: 01/09/95
SAMPLE SPIKED: 9501058-03
INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	42	87	2	44-108	13

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501056
AEN LAB NO: 0116-BLANK
DATE ANALYZED: 01/16/95
MATRIX: WATER

Method Blank

	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
HCs as Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501056
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/16/95	GG-33	08	100
01/16/95	GG-34	11	100
01/16/95	GG-30	15	109
01/16/95	TB	16	97
QC Limits:			92-109

DATE ANALYZED: 01/16/95
SAMPLE SPIKED: 9501075-01
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	17.9	97	<1	85-109	17
Toluene	50.0	99	7	87-111	16
Hydrocarbons as Gasoline	500	97	5	66-117	19

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501056
AEN LAB NO: 0113-BLANK
DATE ANALYZED: 01/13/95
MATRIX: SOIL

Method Blank

	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes, Total	1330-20-7	ND	5
HCs as Gasoline		ND mg/kg	0.2 mg/kg

AEN LAB NO: 0116-BLANK
DATE ANALYZED: 01/16/95

Method Blank

	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes, Total	1330-20-7	ND	5
HCs as Gasoline		ND mg/kg	0.2 mg/kg

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501056
INSTRUMENT: H
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/13/95	LF30-3.5-4	01	101
01/13/95	LF30-7.5-8	02	102
01/16/95	LF31-3-3.5	04	103
01/13/95	LF31-7.5-8	05	101
01/13/95	LF32-8-8.5	06	108
01/16/95	LF33-8-8.5	09	103
01/13/95	LF34-6-6.5	12	109
01/13/95	LF35-8.5-9	13	108
01/13/95	LF36-9-9.5	14	105
QC Limits:			92-110

DATE ANALYZED: 01/10/95
SAMPLE SPIKED: 9412370-01
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	33.3	100	11	79-113	26
Toluene	97.5	99	11	84-110	20
Hydrocarbons as Gasoline	1000	95	1	60-126	20

*** END OF REPORT ***

R-1, S-E
R-7, S-N

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9501056

Project No.: 3015.94 05	Field Logbook No.: —	Date: 1/6/95	Serial No.: № 013367
Project Name: Diversified Investment	Project Location: 625 Hyenbunga		
Sampler (Signature):			

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	ANALYSES: EPA 601	EPA 624 BTEX	TPH as	TPHdto	HOLD	RUSH	REMARKS
LF30-3.5-4	Date		01A	1	SOIL		X	X				
LF30-7.5-8	1/6/94		02A				X	X	X			
LF30-8-8.5			03A							X		
LF31-3-3.5			04A				X	X				
LF31-7.5-8			05A				X	X	X			
LF32-8-8.5			06A				X	X	X			* no amber recd for GG-34 or GG-30 - DSH
LF32-3.5-4.0			07A							X		** ambers recd 1/9/95 for GG-34 + GG-30 - DSH
GG-33			08A-D	4	GW		X	X	X			
LF33-8-8.5			09A	1	SOIL		X	X	X			
LF33-3.5-4.0			10A	1	"					X		
GG-34			11A-&D	~~3~~ 4	GW		X	X	X**			
LF34 6-6.5			12A	1	SOIL		X	X	X			Please FAX results ASAP to SUSAN SHIU please include all Quality Control Reports. Thankyou! — Sue Hung
LF35 8.5-9			13A	1	SOIL		X	X	X			
LF36 9-9.5			14A	1	SOIL		X	X	X			
GG-30			15A-&D	~~3~~ 4	GW		X	X	X**			
TB-			16A	1	GW							

RELINQUISHED BY: (Signature)	DATE 1-6-95	TIME 17:00	RECEIVED BY: (Signature)	DATE 1-6-95	TIME 17:00
RELINQUISHED BY: (Signature)	DATE 1-6-95	TIME 18:00	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature) Denise Harrington	DATE 1/6/95	TIME 1800
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

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

Analytical Laboratory: AEN
Pleasant Hill, CA
(510) 930-9090

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

FORM NO. 86/CDC/...

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

LEVINE-FRICKE
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: ~~SUSAN SHIU~~ SHELLIE FLETCHER
CLIENT PROJ. ID: 3015.94.10

C.O.C. NUMBER: 013335

REPORT DATE: 01/31/95

DATE(S) SAMPLED: 01/04/95-01/10/95

DATE RECEIVED: 01/11/95

AEN WORK ORDER: 9501097

PROJECT SUMMARY:

On January 11, 1995, this laboratory received 9 water sample(s).

Client requested eight samples be analyzed for organic parameters; one sample was placed on hold. Results of analysis are summarized on the following page(s).

Please see quality control report for a summary of QC data pertaining to this project.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

RECEIVED JAN 31 1995

LEVINE-FRICKE

SAMPLE ID: MW-10
AEN LAB NO: 9501097-01
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	01/17/95
Toluene	108-88-3	ND	0.5	ug/L	01/17/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/17/95
Xylenes, Total	1330-20-7	ND	2	ug/L	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.6 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	ND	0.2	mg/L	01/14/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-12
AEN LAB NO: 9501097-02
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	01/17/95
Toluene	108-88-3	ND	0.5	ug/L	01/17/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/17/95
Xylenes, Total	1330-20-7	ND	2	ug/L	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.3 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	ND	0.2	mg/L	01/14/95

Please see page 10 for comments regarding this sample.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-16
AEN LAB NO: 9501097-03
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	190 *	0.5	ug/L	01/17/95
Toluene	108-88-3	ND	0.5	ug/L	01/17/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/17/95
Xylenes, Total	1330-20-7	ND	2	ug/L	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	0.3 *	0.05	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.7 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	ND	0.2	mg/L	01/14/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-11-FB
AEN LAB NO: 9501097-04
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	01/17/95
Toluene	108-88-3	ND	0.5	ug/L	01/17/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/17/95
Xylenes, Total	1330-20-7	ND	2	ug/L	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/17/95

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-11
AEN LAB NO: 9501097-05
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	890 *	10	ug/L	01/17/95
Toluene	108-88-3	220 *	10	ug/L	01/17/95
Ethylbenzene	100-41-4	840 *	10	ug/L	01/17/95
Xylenes, Total	1330-20-7	2,400 *	40	ug/L	01/17/95
Purgeable HCs as Gasoline	5030/GCFID	14 *	1	mg/L	01/17/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	1.1 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	0.2 *	0.2	mg/L	01/14/95

Reporting limits elevated for gas/BTEX due to high levels of target compounds; sample run at dilution.
Please see page 10 for comments regarding this sample.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-24
AEN LAB NO: 9501097-06
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	12,000 *	30	ug/L	01/18/95
Toluene	108-88-3	1,900 *	30	ug/L	01/18/95
Ethylbenzene	100-41-4	1,100 *	30	ug/L	01/18/95
Xylenes, Total	1330-20-7	1,300 *	100	ug/L	01/18/95
Purgeable HCs as Gasoline	5030/GCFID	31 *	3	mg/L	01/18/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.9 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	0.2 *	0.2	mg/L	01/14/95

Reporting limits elevated for gas/BTEX due to high levels of target compounds; sample run at dilution.
Please see page 10 for comments regarding this sample.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-124
AEN LAB NO: 9501097-07
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	12,000 *	30	ug/L	01/18/95
Toluene	108-88-3	2,000 *	30	ug/L	01/18/95
Ethylbenzene	100-41-4	1,100 *	30	ug/L	01/18/95
Xylenes, Total	1330-20-7	1,300 *	100	ug/L	01/18/95
Purgeable HCs as Gasoline	5030/GCFID	31 *	3	mg/L	01/18/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.8 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	0.2 *	0.2	mg/L	01/14/95

Reporting limits elevated for gas/BTEX due to high levels of target compounds; sample run at dilution.
Please see page 10 for comments regarding this sample.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-8
AEN LAB NO: 9501097-08
AEN WORK ORDER: 9501097
CLIENT PROJ. ID: 3015.94.10

DATE SAMPLED: 01/10/95
DATE RECEIVED: 01/11/95
REPORT DATE: 01/31/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	10,000 *	30	ug/L	01/18/95
Toluene	108-88-3	11,000 *	30	ug/L	01/18/95
Ethylbenzene	100-41-4	2,400 *	30	ug/L	01/18/95
Xylenes, Total	1330-20-7	12,000 *	100	ug/L	01/18/95
Purgeable HCs as Gasoline	5030/GCFID	58 *	3	mg/L	01/18/95
#Extraction for TPH	EPA 3510	-		Extrn Date	01/13/95
TPH as Diesel	GC-FID	0.07 *	0.05	mg/L	01/14/95
TPH as Oil	GC-FID	ND	0.2	mg/L	01/14/95

Reporting limits elevated for gas/BTEX due to high levels of target compounds; sample run at dilution.
Please see page 10 for comments regarding this sample.

ND = Not detected at or above the reporting limit
* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9501097

CLIENT PROJECT ID: 3015.94.10

Quality Control Summary

Diesel surrogate recoveries for samples 9501097-02, -05, -06, -07, and -08 were outside of established QC limits. Analysis could not be repeated as duplicate samples were not provided.

All other laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9501097
AEN LAB NO: 0113-BLANK
DATE EXTRACTED: 01/13/95
DATE ANALYZED: 01/14/95

Method Blank

	Result (mg/L)	Reporting Limit (mg/L)
Diesel	ND	0.05

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9501097
DATE EXTRACTED: 01/13/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
01/14/95	MW-10	01	118
01/14/95	MW-12	02	128 #
01/14/95	MW-16	03	103
01/14/95	MW-11	05	124 #
01/14/95	MW-24	06	126 #
01/14/95	MW-124	07	127 #
01/14/95	MW-8	08	121 #
QC Limits:			30-120

#: Outside of established limits

DATE EXTRACTED: 01/10/95
DATE ANALYZED: 01/10/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.09	79	4	65-103	12

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501097
AEN LAB NO: 0117-BLANK
DATE ANALYZED: 01/17/95
MATRIX: WATER

Method Blank

	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
HCs as Gasoline		ND mg/L	0.05 mg/L

AEN LAB NO: 0118-BLANK
DATE ANALYZED: 01/18/95

Method Blank

	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
HCs as Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9501097
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/17/95	MW-10	01	97
01/17/95	MW-12	02	95
01/17/95	MW-16	03	92
01/17/95	MW-11-FB	04	99
01/17/95	MW-11	05	98
01/18/95	MW-24	06	103
01/18/95	MW-124	07	103
01/18/95	MW-8	08	106
QC Limits:			92-109

DATE ANALYZED: 01/17/95
SAMPLE SPIKED: LCS
INSTRUMENT: F

Laboratory Control Sample

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits Percent Recovery
Benzene	17.9	101	63-117
Toluene	49.9	94	67-114
Hydrocarbons as Gasoline	500	96	63-120

*** END OF REPORT ***

K-1, 2, 5
K-3, 4

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9501097

Project No.: 3015.94.10	Field Logbook No.:	Date: 1-10-94	Serial No.: Nº 013335
Project Name: Diversified Investments	Project Location: Oakland		
Sampler (Signature): Susan Call			Samplers: BCC

SAMPLES						ANALYSES							
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPHg/BTEX	TPHd/o			HOLD	RUSH
MW-10	1-10	13:10	01A-D	4	Water			✓	✓				
MW-12	"	13:47	02A-D	4	"			✓	✓				
MW-16	"	15:45	03A-D	4	"			✓	✓				
MW-11-FB	"	15:55	04A-C	3	"			✓					
MW-11	"	16:10	05A-D	4	"			✓	✓				
MW-24	"	16:52	06A-D	4	"			✓	✓				
MW-124	"	17:52	07A-D	4	"			✓	✓				
MW-8	"	17:25	08A-D	4	"			✓	✓				
TB	1/4		09A					—				*	

REMARKS

*1/12/95 Per Susan Shiu, pls. place the TB on HOLD and std TAT requested Jmp

No duplicate ambns received.

Fax results ASAP to Susan Shiu. Please include all Quality Control Reports in Fax.

RELINQUISHED BY: (Signature) Susan Call	DATE 1/11/95	TIME 15:50	RECEIVED BY: (Signature) Michael E. Mueller	DATE 1/11/95	TIME 15:50
RELINQUISHED BY: (Signature) Michael E. Mueller	DATE 1/11/95	TIME 17:30	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, California 94608
(510) 652-4500

Analytical Laboratory: AEN

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

January 17, 1995

Sue Henry, Project Leader
Levine-Fricke, Inc.
1900 Powell Street, 12th Floor
Emeryville, CA 94608

Dear Ms. Henry:

Enclosed are the results from the testing of material submitted on January 13, 1995 from your 3015.94.06, Diversified Investment project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kelley Wilt

Kelley Wilt
Chemist

sao
Enclosures

LF10117R

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: January 17, 1995
Date Received: January 13, 1995
Project: 3015.94.06, Diversified Investment
Date Samples Extracted: January 13, 1995

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
GG-26	The GC trace using the flame ionization detector (FID) showed the presence of medium and high boiling compounds. The patterns displayed by these peaks are indicative of a lubricating fluid such as motor oil, as well as small amounts of weathered diesel or heating oil. The medium boiling compounds appeared as a ragged pattern of peaks eluting from n-C_9 to n-C_{16}. The medium boiling material appears to have undergone chemical/biological degradation. The high boiling compounds appeared as a pattern of peaks eluting from n-C_{17} to beyond n-C_{36} showing a maximum near n-C_{29}. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

01-13-95
9501045

Project No.: 3015.94.06.05 (per S. Henry) | Field Logbook No.: — | Date: 1/5/95 | Serial No.: № 013563

Project Name: Diversified Investment | Project Location: 625 Hegenberger

Sampler (Signature): Susan M Henry

	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	* Fuel Characterization				HOLD	RUSH	REMARKS
MW	24-1.5-2	1/5/95		01A		SOIL							X		
	24-4.5-5			02A									X		These are on TOP of bubble pack - Please HOLD for possible BTEX / TPHg analysis
	24-7.5-8			03A									X		
	24-10.5-11			04A									X		
	24-12-12.5			05A									X		
LF	25-2-2.5			06A									X		
	26-2-2.5			07A									X		
	28-2-2.5			08A									X		
	29-2-2.5			09A									X		Questions - call Susan Henry
	29-9-9.5			10A									X		
	29-10.5-11			11A									X		
	GG-26			12A		GW			✓	5626b			X		→ This has floating product in it - some kind of lubricating oil
				ONLY RECVD GG-26 C.R.											1/11/95 Per Susan Henry, pls. sent sample GG-26 to Friedman & Bruya (in WA) for Fuel Char by fed ex

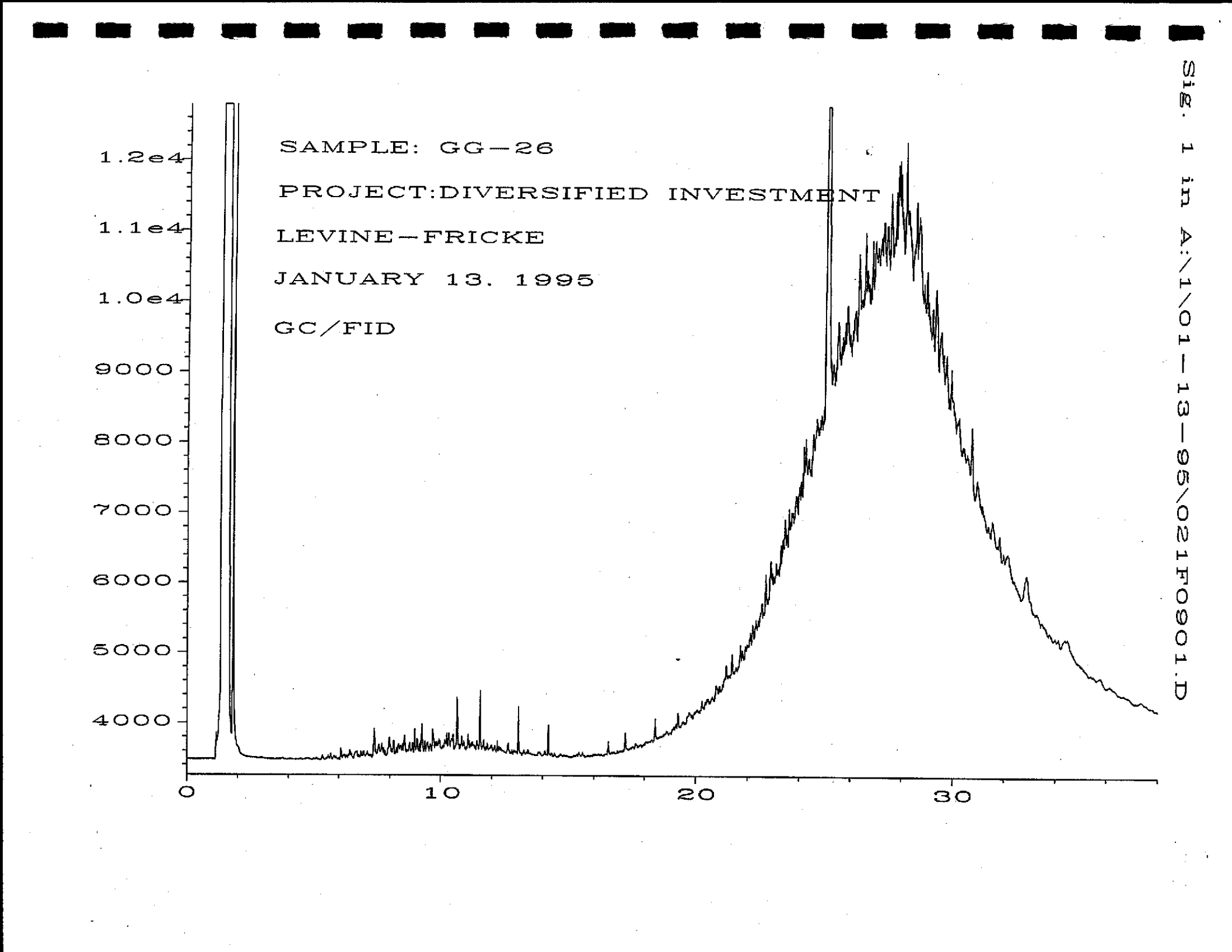
		DATE	TIME		DATE	TIME
RELINQUISHED BY: (Signature)	Susan M Henry	1-6-95	1045	RECEIVED BY: (Signature)		1-6-95	10:45
RELINQUISHED BY: (Signature)		1-6-95	12:35	RECEIVED BY: (Signature)	Cathy Rigga (F+BI)	1-13-95	11:24
RELINQUISHED BY: (Signature)	Kevin Gillespie	1-12-95	1030	RECEIVED BY: (Signature)	Denise Hamajita	1/6/95	1235
METHOD OF SHIPMENT:		DATE	TIME	LAB COMMENTS:			

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

Analytical Laboratory:
AEN

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

FORM NO. 86/COC/ARF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PROJECT:DIVERSIFIED INVESTMENT
LEVINE-FRICKE
JANUARY 13. 1995
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7000
6000
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4000
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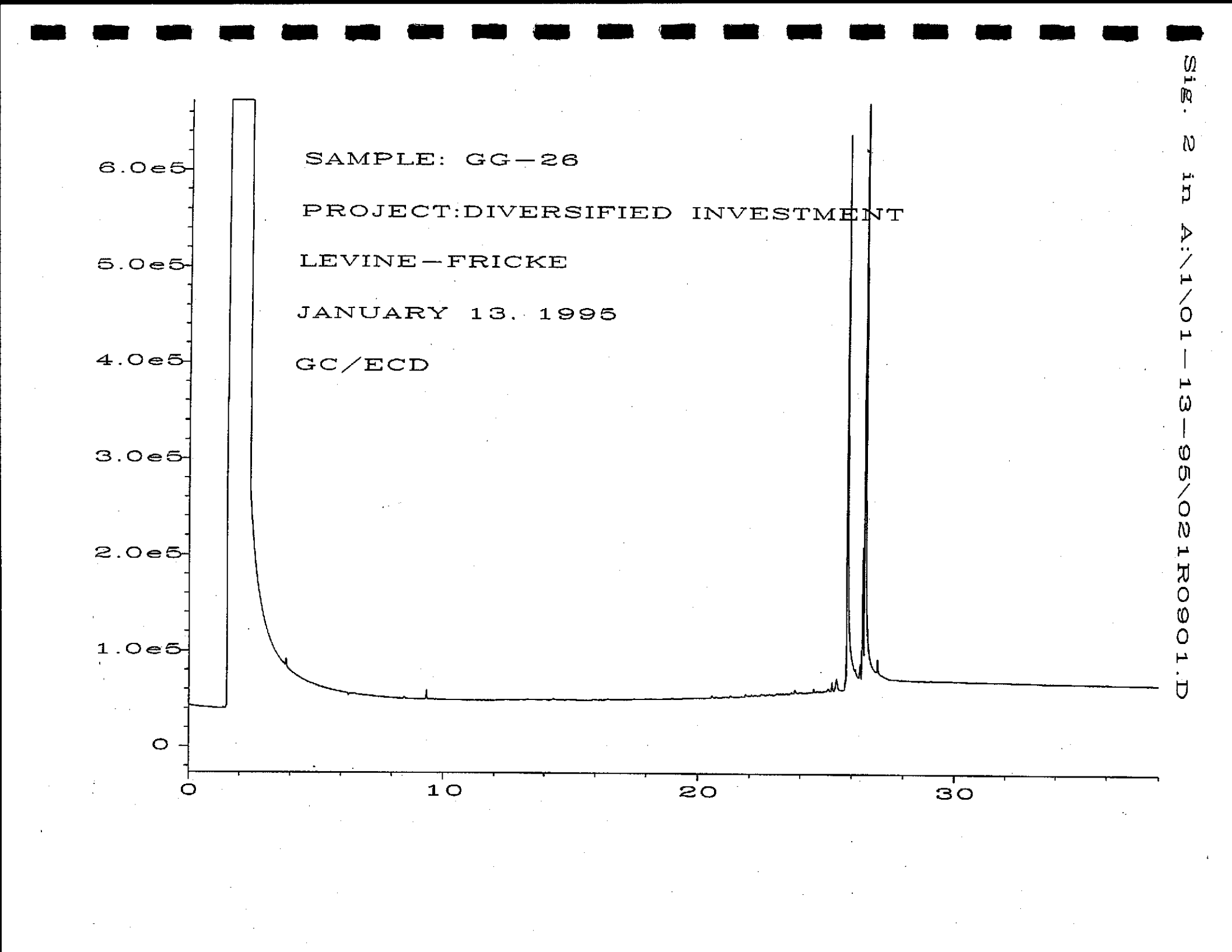
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LEVINE-FRICKE
JANUARY 13. 1995
GC/ECD
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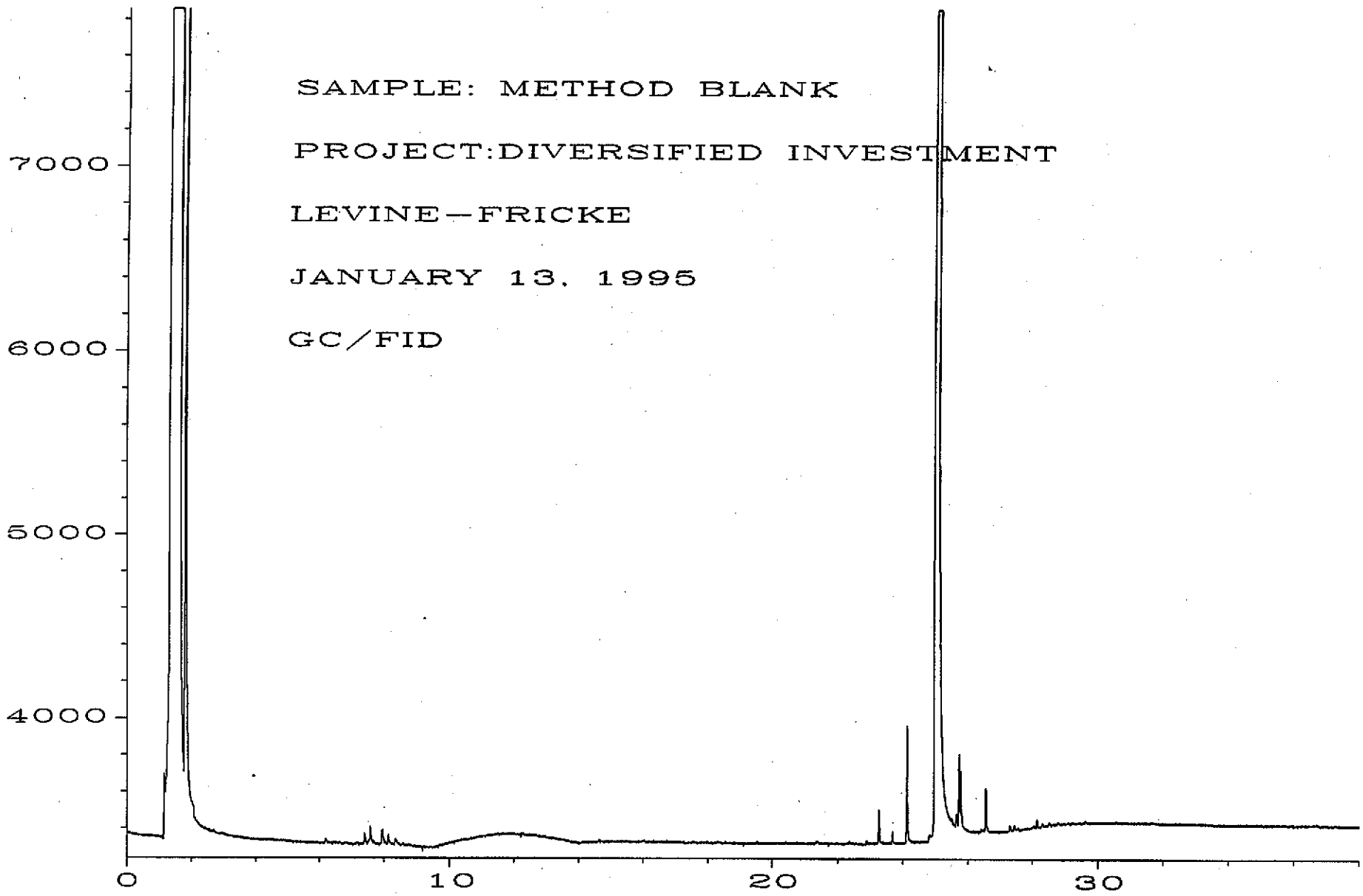
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LEVINE-FRICKE
JANUARY 13, 1995
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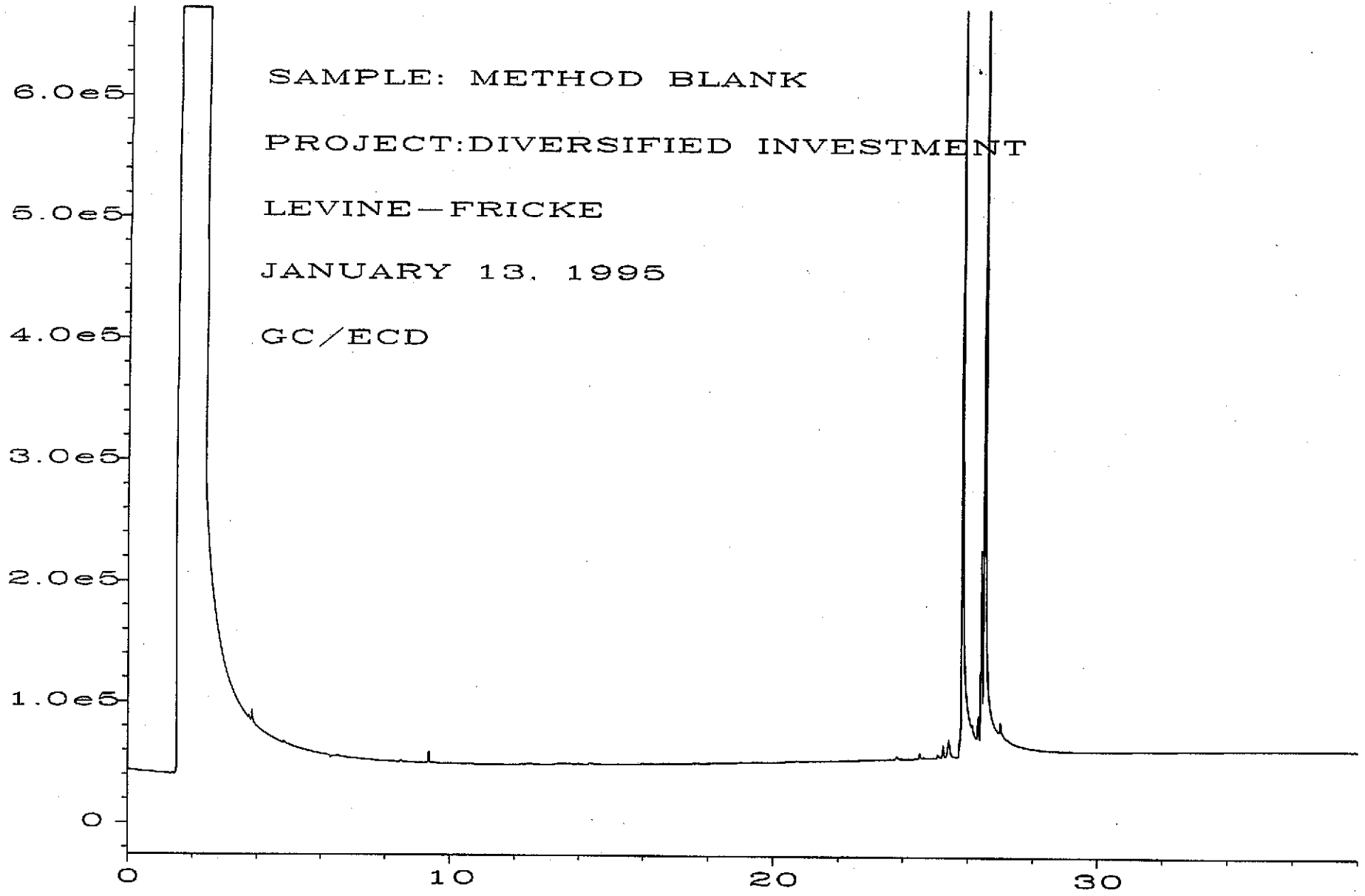
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PROJECT:DIVERSIFIED INVESTMENT
LEVINE—FRICKE
JANUARY 13, 1995
GC/ECD
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3.0e5
2.0e5
1.0e5
0
0
10
20
30
Sig. 2 in A:\1\01—13—95\020R0901.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 7, 1995

Sue Henry, Project Leader
Levine-Fricke, Inc.
1900 Powell Street, 12th Floor
Emeryville, CA 94608

Dear Ms. Henry:

Enclosed are the results from the testing of material submitted on February 2, 1995 from your #3015.94 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kelley Wilt

Kelley Wilt
Chemist

jdp
Enclosures
FAX: (510) 652-4906

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 7, 1995
Date Received: February 2, 1995
Project: #3015.94
Date Samples Extracted: February 2, 1995

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
LF 34 6-6.5	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of lubricating oil such as motor oil. The high boiling compounds appeared as a pattern of peaks eluting from *n*-C_{18} to beyond *n*-C_{37} showing a maximum near *n*-C_{20}.
	The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

Reporting Information:

1. Client: Levine-Fricke
Address:
Contact: Sue Henry
Alt. Contact:

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN 02[redacted]W[redacted]90
02-02-95
9:27

Page ____ of ____

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: Friedman & Bruya Inc
Date Samples Shipped: 2-1-95
Lab Contact:
Date Results Required:
Date Report Required:
Client Phone No.: (510) 652-4500
Client FAX No.: (510) 652-4906

Address Report To:

2. #1

Send Invoice To:

3. #1

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: _____ Client Project I.D. No.: 3015.94

Sample Team Member (s) _____

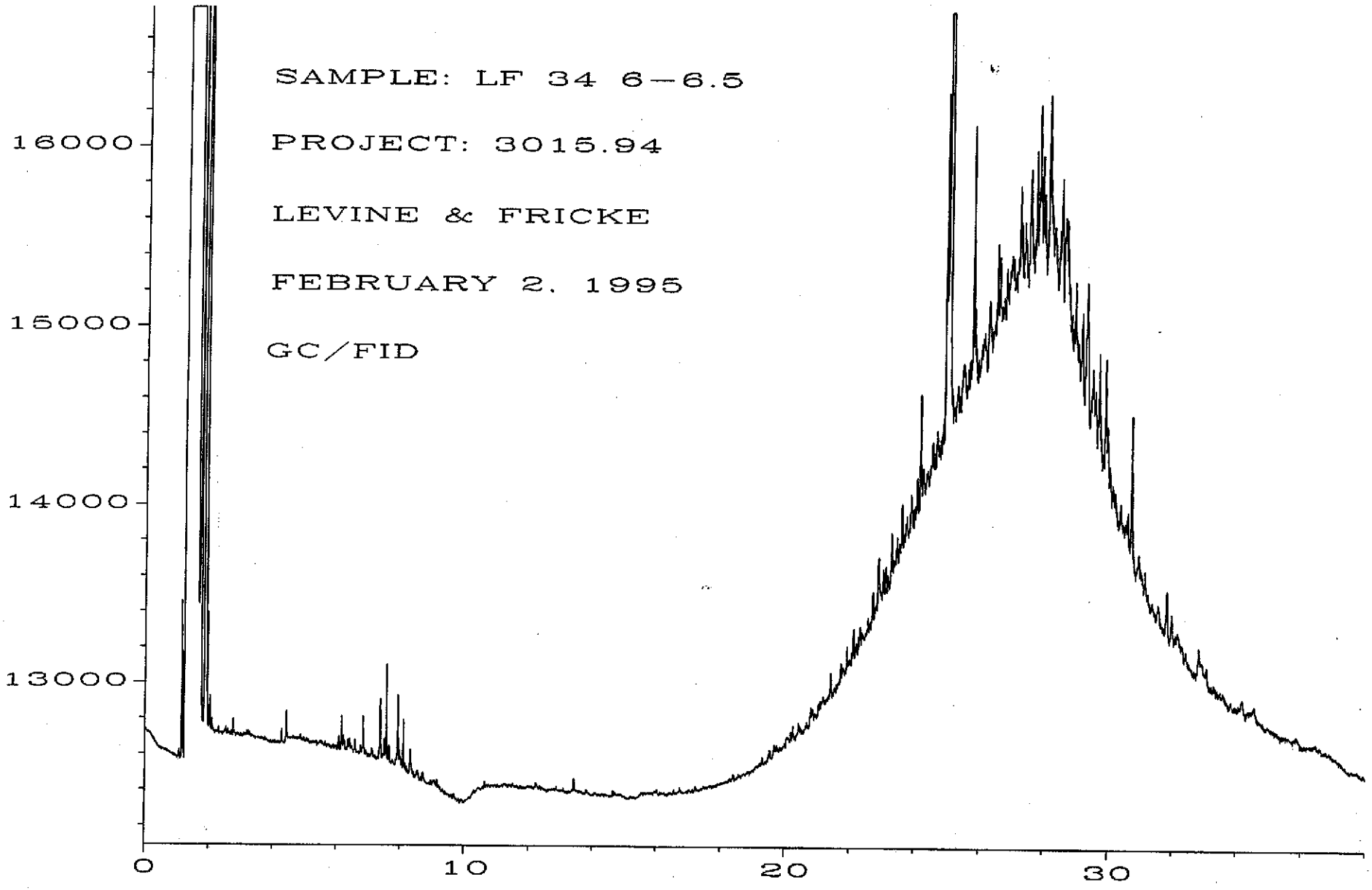
Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: Full Fingerprint	Comments / Hazards
56708	LF34 6-6.5	—	1-6-95 13:10	S	Cold	1	SLEEVE	✓	

Relinquished by: (Signature) Denise Harrington	DATE 2/1/95	TIME 1300	Received by: (Signature) Cathy Riggs
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Method of Shipment Fed X overnight			Lab Comments

DATE 02-02-95 TIME 9:26

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
10) Other _____ 11) Other _____

COPIES WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT



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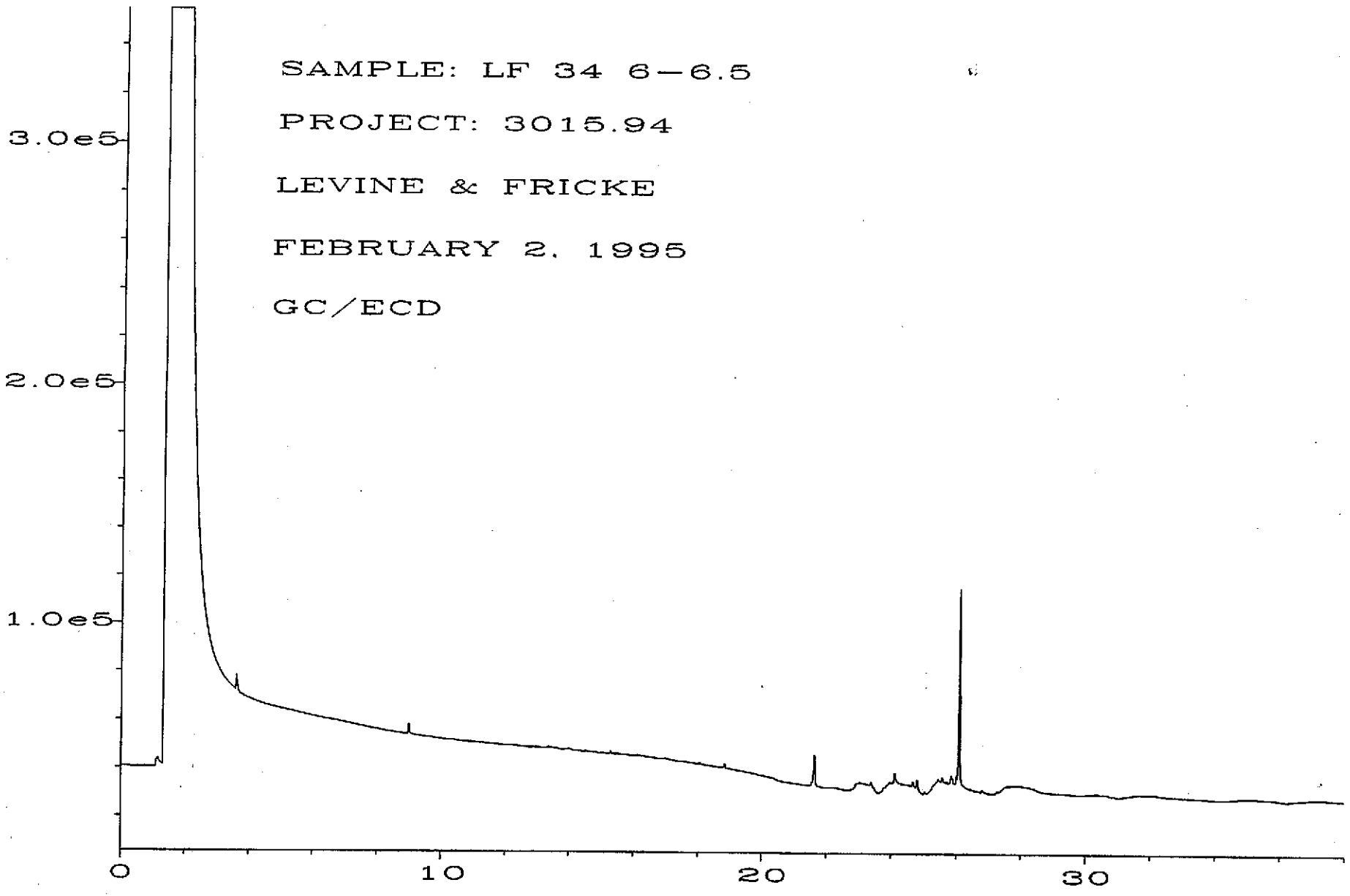

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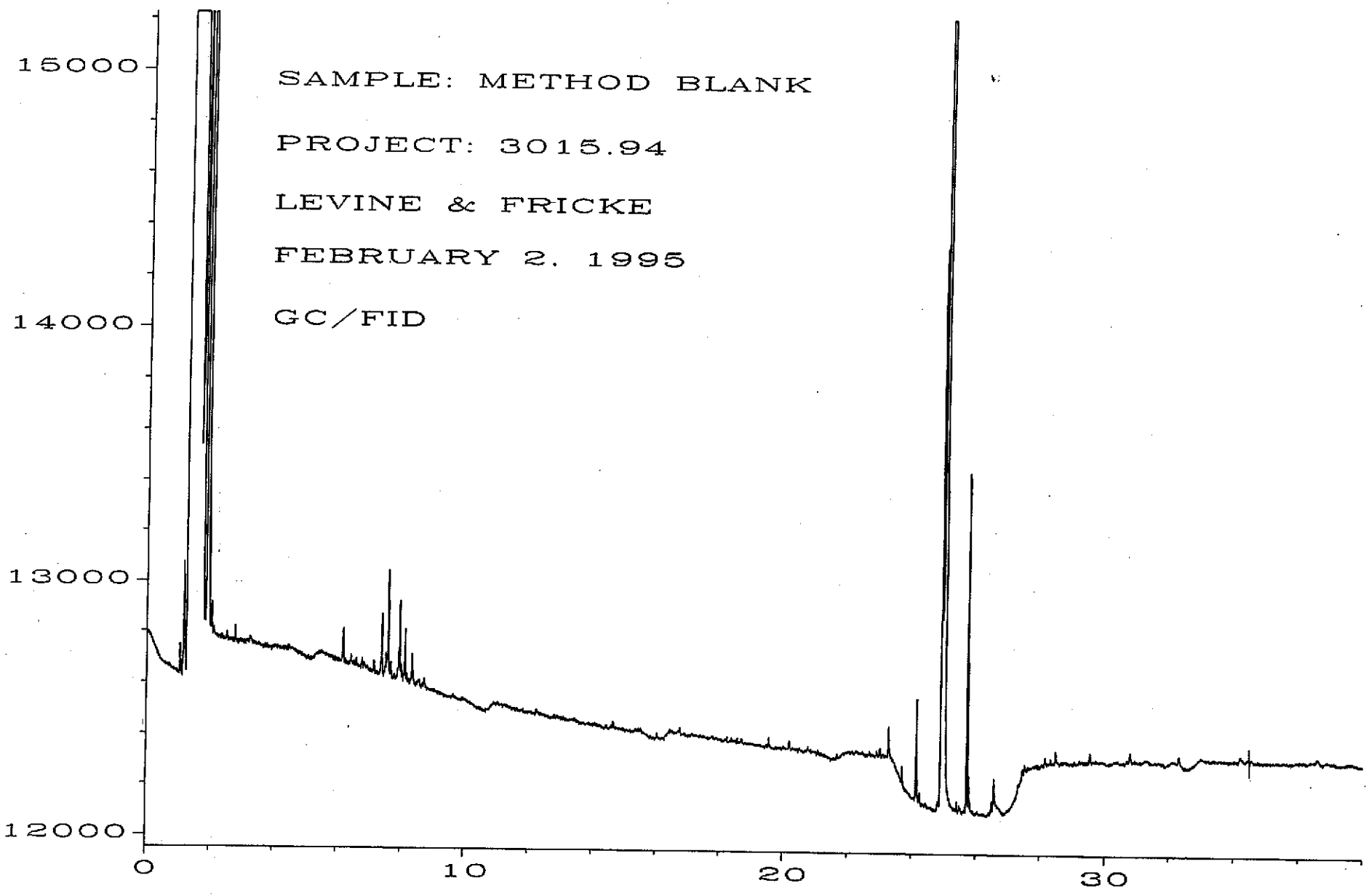

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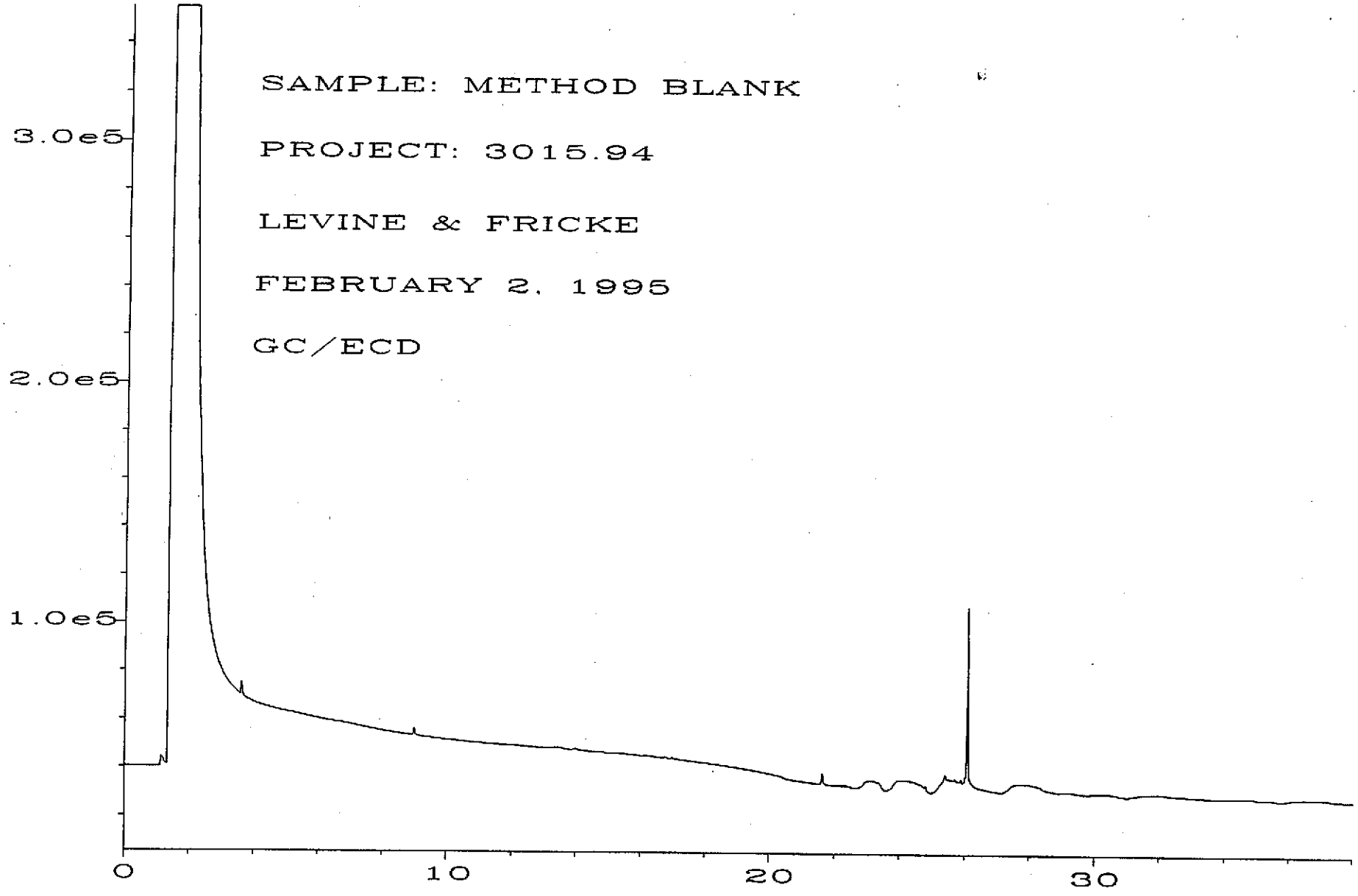

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