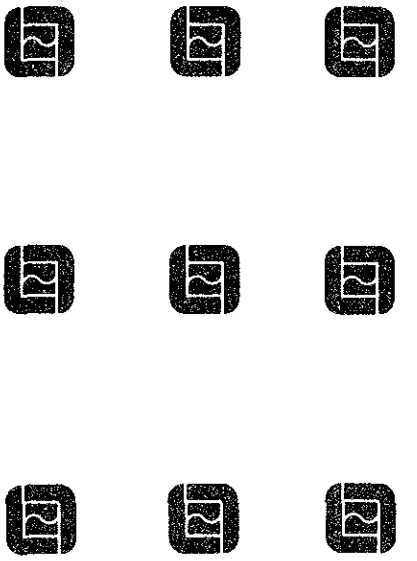
93 OCT 29 PM 4 35

[redacted]

LEVINE·FRICKE



Quarterly Monitoring Report for July 1 through September 30, 1993 Former Ransome Property Yerba Buena/East Baybridge Project Site Emeryville, California

October 29, 1993
1649.09

Prepared for
Catellus Development Corporation
201 Mission Street
San Francisco, California 94105

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

October 29, 1993 LF 1649.09

Ms. Susan Hugo
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

Subject: Quarterly Monitoring Report for July 1 through September 30, 1993, Former Ransome Property, Yerba Buena/ East Baybridge Project Site, Emeryville, California

Dear Ms. Hugo:

The enclosed report presents results of quarterly ground-water monitoring conducted during July 1 through September 30, 1993, at the Former Ransome Property on the Yerba Project Site in Emeryville, California. The monitoring was conducted and this report is submitted in accordance with Levine•Fricke's September 15, 1992 "Work Plan to Install One Monitoring Well and Conduct Quarterly Monitoring for the Former Ransome Property, Yerba Buena Project Site, Emeryville, California" prepared by Levine•Fricke, Inc., and submitted to and approved by the Alameda County Health Care Services Agency.

If you have any questions or comments concerning this report, please call me or Cindy Barclay, Senior Project Geologist.

Sincerely,

Jenifer Beatty
Project Hydrogeologist

Enclosure

cc: Pat Cashman, Catellus
Kimberly Brandt, Catellus
Richard Hiett, RWQCB

1900 Powell Street, 12th Floor
Emeryville, California 94608
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Other offices in Irvine, CA, Sacramento/Roseville, CA; Tallahassee, FL, Honolulu, HI

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CERTIFICATION

All hydrogeologic and geologic information, conclusions, and recommendations have been prepared under the supervision of and reviewed by a Levine·Fricke California Registered Geologist.

Andrew L. Wright
Senior Associate Geologist
California Registered Geologist (4592)

10/29/93
Date

October 29, 1993 LF 1649.09

**QUARTERLY MONITORING REPORT FOR
JULY 1 THROUGH SEPTEMBER 30, 1993
FORMER RANSOME PROPERTY
YERBA BUENA/EAST BAYBRIDGE PROJECT SITE
EMERYVILLE, CALIFORNIA**

1.0 INTRODUCTION

This report presents ground-water monitoring results for July 1 through September 30, 1993, for the former Ransome Property, located at 4030 Hollis Street in Emeryville, California ("the Property"; Figure 1). Levine·Fricke, Inc. ("Levine·Fricke") conducted this work on behalf of Catellus Development Corporation ("Catellus") in accordance with Levine·Fricke's September 15, 1992 work plan (Levine·Fricke 1992c) submitted to and approved by the Alameda County Health Care Services Agency (ACHA).

2.0 BACKGROUND

In May 1992, Levine·Fricke conducted a ground-water investigation of the Property, which included installation of five shallow ground-water monitoring wells in accordance with Levine·Fricke's April 15, 1992 work plan (Levine·Fricke 1992a). Results of the investigation indicated that ground water had not been significantly affected by petroleum compounds identified in soil at the Property and subsequently removed (Levine·Fricke 1992b). However, to complete the investigation, a sixth well (LF-29) was installed in October 1992, as recommended by Mr. Lester Feldman of the Regional Water Quality Control Board during a meeting on June 22, 1992, among representatives of Catellus and Levine·Fricke, Mr. Feldman, and Mr. Dennis Byrne of the ACHA.

A quarterly monitoring program was implemented at the Property in October 1992 to monitor the possible future effects to shallow ground water from petroleum-affected soils previously located on the Property. This quarterly monitoring report presents the results of recent quarterly ground-water monitoring activities.

3.0 ACTIVITIES CONDUCTED DURING THE QUARTERLY MONITORING PERIOD

The following activities were conducted for the Property during the period from July 1 through September 30, 1993:

- Water levels were measured on July 9, 1993, in wells LF-8, LF-16, LF-24, LF-25, LF-26, LF-27, LF-28, and LF-29 to the nearest 0.01 foot using an electric water-level sounding probe, and recorded in the field.

- Ground-water samples were collected from well LF-16 and wells LF-24 through LF-29 on July 14, 1993, in accordance with the procedures described in Appendix A. Water-quality sampling sheets are included in Appendix B.

- Ground-water samples were submitted to Anametrix, Inc., a California state-certified laboratory located in San Jose, California, for analyses of total petroleum hydrocarbons (TPH) as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020, 5030 GCFID; TPH as diesel (TPHd) using EPA Method 3510 GCFID; and total recoverable hydrocarbons as oil and grease (TRH) using Standard Method 5520BF. Results of chemical analyses are discussed in Section 5.0.

- Following monitoring, wells LF-16 and LF-24 through LF-29 were abandoned during the week of July 26, 1993, in accordance with the "Work Plan for Site Characterization and Remediation Activities to be Conducted in Conjunction with Proposed Site Development, Yerba Buena/East Baybridge Project Site," dated April 28, 1993.

4.0 GROUND-WATER ELEVATIONS AND FLOW DIRECTION

Table 1 presents a historical summary of depth-to-water measurements and ground-water elevation data collected at the Property. Depth to ground water measured on July 9, 1993, ranged from 6.91 feet below ground surface (bgs) in well LF-25 to 13.19 feet bgs in well LF-27. Shallow ground-water elevation contours are presented on Figure 2. These data generally indicate a southwesterly ground-water flow direction, with an average gradient of 0.015 ft/ft. The July 1993 results are consistent with the general ground-water flow direction previously reported for the Property.

5.0 GROUND-WATER QUALITY RESULTS

Analytical results for ground-water samples collected in July 1993 are presented on Figure 3. Historical ground-water quality data collected at the Property are summarized in Table 2. Laboratory data sheets and chain-of-custody forms are presented in Appendix C.

Chemical analytical results for July 1993 were generally consistent with results reported for the Property in February 1993 and May 1993 (Levine·Fricke 1993a), which indicated that shallow ground water has not been significantly affected by residual concentrations of petroleum in soils that were removed from the Property by ARI and Levine·Fricke between June 1991 and September 1992 (Levine·Fricke 1992d).

With the exception of wells LF-16 and LF-29, no TPHg, BTEX, or TRH compounds were detected above method detection limits in the wells sampled. Analytical results for the samples collected from wells LF-16 and LF-29 indicated very low concentrations of TPHg (0.07 parts per million [ppm] and 0.08 ppm, respectively). Very low concentrations of toluene and ethylbenzene also were detected in wells LF-16 and LF-29 (0.0017 ppm and 0.012 ppm, respectively).

With the exception of LF-25, TPHd was not detected above method detection limits in any of the monitoring wells sampled in July 1993. Analytical results for LF-25 indicated 1.0 ppm TPHd.

This quarter of monitoring activities completes the one-year monitoring program implemented at the Property in October 1992 (although the wells were first sampled in May 1992). The wells were abandoned in late July 1993 as discussed below, in preparation for construction activities at the Yerba Buena/ East Baybridge Center Project Site. Following construction activities, one well will be installed along the western (downgradient) property boundary. After installation, this well will be monitored in accordance with the April 28, 1993 work plan (Levine·Fricke 1993b).

6.0 WELL ABANDONMENT

Monitoring wells LF-16 and LF-24 through LF-29 were destroyed and properly sealed in accordance with Alameda County Water Conservation District-Zone (ACWD) guidelines. A water well destruction permit was obtained from the ACWD.

Wells LF-16 and LF-24 through LF-29 were abandoned using 8- or 10-inch-diameter hollow-stem augers, to drill out well materials (PVC casing, sand pack, bentonite, and cement grout) to the total depth of each well. As drilling proceeded, fragments of well materials were conveyed to the surface by the rotation of the augers. Remaining well materials were removed from the boring when the augers were withdrawn.

To complete well destruction, the evacuated borings were sealed from the bottom of the boring to the ground surface with a cement-bentonite slurry pumped into the boring through a tremie pipe.

7.0 PROJECT ACTIVITIES PROPOSED FOR THE PERIOD FROM OCTOBER THROUGH DECEMBER 1993

No quarterly monitoring activities are planned for the fourth quarter of 1993 (October through December 1993) for the Property. It is anticipated that the replacement well will be installed during the first quarter of 1994, following completion of grading activities, and the next quarterly monitoring event will occur in February or March 1994. A quarterly ground-water monitoring report will be submitted to the ACHA in April 1994.

REFERENCES

Levine•Fricke, Inc. 1992a. Work plan for ground-water investigations, former Ransome property, Yerba Buena project site, Emeryville, California. Report. Emeryville, California. April 15.

———. 1992b. Ground-water investigations, Former Ransome Property, Yerba Buena Project Site, 4030 Hollis Street, Emeryville, California. August 4.

———. 1992c. Work plan to install one monitoring well and conduct quarterly monitoring, Former Ransome Property, Yerba Buena Project Site, Emeryville, California. September 15.

———. 1992d. Soil remediation activities report, Former Ransome Property, Yerba Buena Project Site, Emeryville, California. December 2.

———. 1993a. Quarterly monitoring report for the period from October 1 through December 31, 1992, Former Ransome Property, Yerba Buena Project Site, Emeryville, California. January 29.

———. 1993b. Work plan for site characterization and remediation activities to be conducted in conjunction with proposed site development, Yerba Buena/East Baybridge Project Site. April 28.

TABLE 1
WELL CONSTRUCTION AND GROUND-WATER ELEVATION DATA
FORMER RANSOME PROPERTY, EMERYVILLE, CALIFORNIA
(all elevations in feet above mean sea level)

Well Number	Well Elevation	Well Depth (feet)	Screened Interval (feet)	Date Measured	Depth to Water	Ground-Water Elevation
LF-8	29.63	18	7.5-17.5	23-Feb-90	6.05	23.58
				06-Jan-92	5.04	24.59
				15-Apr-92	6.51	23.12
				14-May-92	8.54	21.09
				22-Jul-92	10.19	19.44
				20-Oct-92	11.24	18.39
				09-Feb-93	3.59	26.04
				24-May-93	8.17	21.46
				22-Jun-93	8.68	20.95
				09-Jul-93	9.18	20.45
LF-16	17.47	20	5-20	23-Feb-90	5.98	11.49
				06-Jan-92	6.04	11.43
				15-Apr-92	6.40	11.07
				14-May-92	6.46	11.01
				22-Jul-92	6.68	10.79
				20-Oct-92	7.43	10.04
				09-Feb-93	5.65	11.82
				24-May-93	6.48	10.99
				22-Jun-93	6.48	10.99
				09-Jul-93	6.61	10.86
LF-24	21.97	20	7-20	14-May-92	9.75	12.22
				28-May-92	9.86	12.11
				22-Jul-92	10.13	11.84
				20-Oct-92	10.91	11.06
				09-Feb-93	8.90	13.07
				24-May-93	9.90	12.07
				22-Jun-93	9.99	11.98
				09-Jul-93	10.15	11.82
LF-25	23.00	15	5-15	14-May-92	7.02	15.98
				28-May-92	7.34	15.66
				22-Jul-92	8.38	14.62
				20-Oct-92	9.11	13.89
				09-Feb-93	3.13	19.87
				24-May-93	6.31	16.69
				22-Jun-93	6.61	16.39
				09-Jul-93	6.91	16.09
LF-26	26.82	20	8-20	14-May-92	10.55	16.27
				28-May-92	10.87	15.95
				22-Jul-92	11.70	15.12
				20-Oct-92	12.67	14.15
				09-Feb-93	6.87	19.95
				24-May-93	10.10	16.72
				22-Jun-93	10.51	16.31
				09-Jul-93	10.84	15.98
LF-27	22.76	20	8-20	14-May-92	12.87	9.89
				28-May-92	13.10	9.66
				22-Jul-92	13.55	9.21
				20-Oct-92	14.40	8.36
				09-Feb-93	10.31	12.45
				24-May-93	12.59	10.17
				22-Jun-93	12.95	9.81
				09-Jul-93	13.19	9.57
LF-28	20.54	20	7-20	14-May-92	9.00	11.54
				28-May-92	9.02	11.52
				22-Jul-92	9.41	11.13
				20-Oct-92	10.04	10.50
				09-Feb-93	8.34	12.20
				24-May-93	8.84	11.70

TABLE 1
WELL CONSTRUCTION AND GROUND-WATER ELEVATION DATA
FORMER RANSOME PROPERTY, EMERYVILLE, CALIFORNIA
(all elevations in feet above mean sea level)

Well Number	Well Elevation	Well Depth (feet)	Screened Interval (feet)	Date Measured	Depth to Water	Ground-Water Elevation
				22-Jun-93	8.95	11.59
				09-Jul-93	9.00	11.54
LF-29	29.82	20	8-20	20-Oct-92	14.40	15.42
				09-Feb-93	8.48	21.34
				24-May-93	11.91	17.91
				22-Jun-93	12.32	17.50
				09-Jul-93	12.67	17.15

Data entered by SCH/28-Sep-93. Data proofed by _____

TABLE 2
GROUND-WATER QUALITY DATA
FORMER RANSOME PROPERTY
YERBA BUENA PROJECT SITE, EMERYVILLE, CALIFORNIA
(concentrations expressed in milligrams per liter [mg/l])

Well Number	Date	Lab	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Oil and Grease	Hydrocarbons	Diesel
LF-16	14-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	6.6	6.3	NA
	28-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	0.05
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	NA	0.05
	12-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05*
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.054
	14-Jul-93	ANA	0.05	<0.0005	0.0017	<0.0005	<0.0005	NA	<5	<0.05
LF-24	14-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	NA
	28-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	0.98
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	NA	0.3
	12-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.076
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.180
	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	Duplicate	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA
LF-25	14-May-92	QUA	<0.05	0.0004	0.0004	<0.0003	<0.001	4	2	NA
	duplicate	QUA	<0.05	0.0004	0.0004	<0.0003	<0.001	5.6	3	NA
	28-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	2	1	0.2
	duplicate	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	NA	NA	NA
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	0.6	NA	0.4
	11-Feb-93	ANA	0.054	0.0006	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	26-May-93	ANA	0.070	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.320
	Duplicate	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.230
	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	1.0
LF-26	14-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	NA
	28-May-92	QUA	<0.05	<0.0003	0.002	<0.0003	<0.001	<0.5	<0.5	0.1
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	NA	<0.05
	11-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.088
	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
LF-27	14-May-92	QUA	<0.05	0.0004	0.002	<0.0003	0.002	<0.5	<0.5	NA
	28-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	0.1
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	NA	<0.05
	11-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.085
	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
LF-28	14-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	<0.5	NA
	28-May-92	QUA	<0.05	<0.0003	0.001	<0.0003	<0.001	<0.5	<0.5	0.3
	22-Oct-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	<0.5	NA	<0.05
	12-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	0.062
	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
LF-29	22-Oct-92	QUA	0.09	0.001	<0.0003	0.0004	0.001	<0.5	NA	<0.05
	11-Feb-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	<5	<0.05
	26-May-93	ANA	<0.05	<0.0005	<0.0005	0.0039	<0.0005	NA	<5	0.170
	14-Jul-93	ANA	0.08	<0.0005	<0.0005	0.012	<0.0005	NA	<5	<0.05
LF-25-FB	14-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	NA	NA	NA
	28-May-92	QUA	<0.05	<0.0003	<0.0003	<0.0003	<0.001	NA	NA	NA
	26-May-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA
LF-25-BB	14-Jul-93	ANA	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA

Data entered by SCH/28-Sep-93. Data proofed by JJB. QA/QC by _____.

Notes:

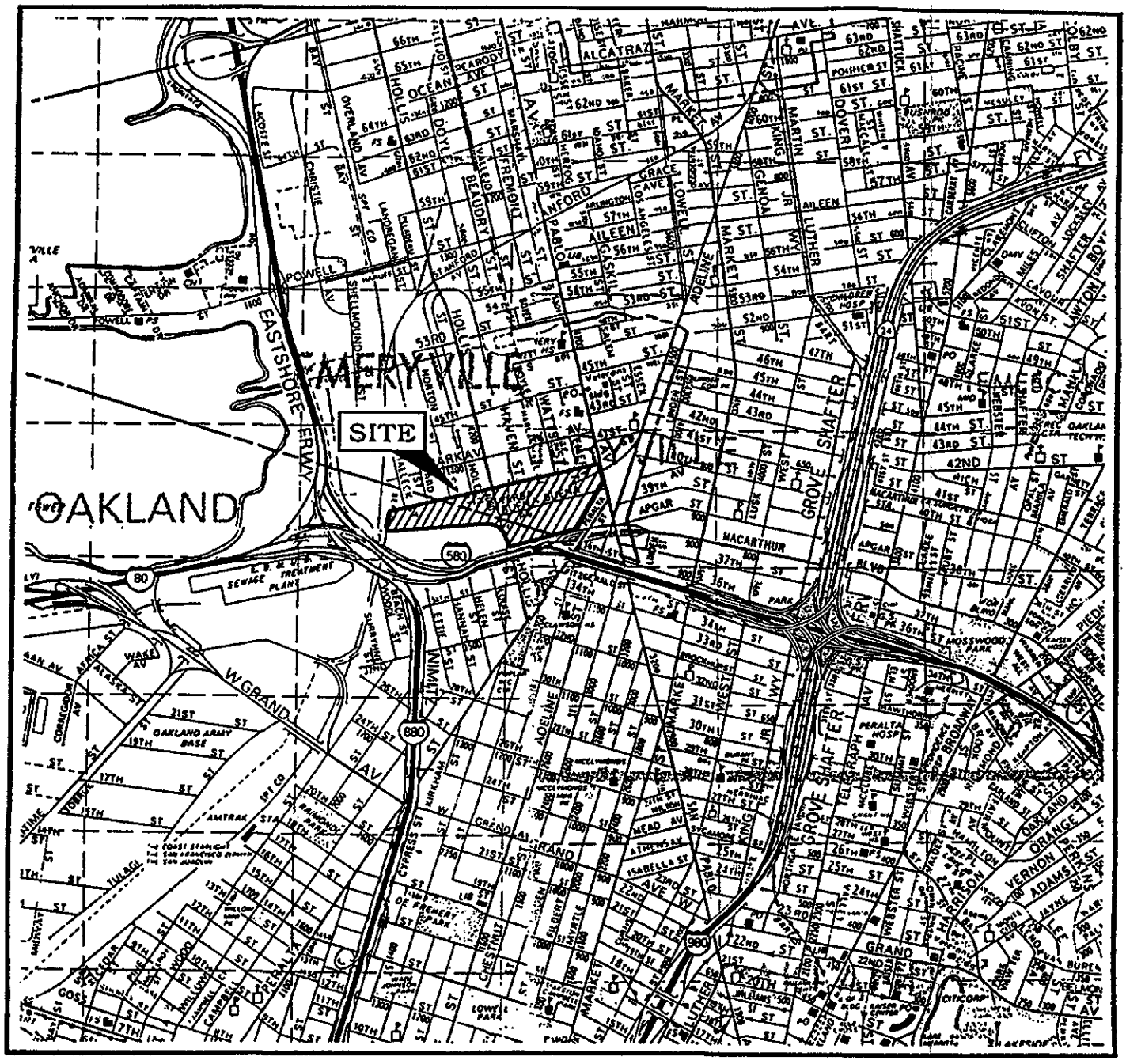
Milligrams per liter is equivalent to parts per million.
TPHg - Total petroleum hydrocarbons as gasoline.
Diesel - Extractable hydrocarbons as diesel
NA - not analyzed
FB - field blank

ANA - Anametrix, Inc., of San Jose, California.
QUA - Quanteq Laboratories of Pleasant Hill, California.

Oil and grease (analyzed using Standard Method 5520c) is all oil and grease compounds, including animal, vegetable, and petroleum hydrocarbon oil and grease compounds.

Hydrocarbons (analyzed using Standard Methods 5520 B+F and C+F) is only the petrolem hydrocarbon fraction of the oil and grease compounds.

* 0.33 ppm of an unknown compound was detected during analysis of sample LF-16 for TPHd. The laboratory confirmed that its detection most likely is the result of instrument contamination.



MAP SOURCE:
Alameda & Contra Costa Counties,
Thomas Bros. map, 1990 Edition

Figure 1 : SITE LOCATION MAP
YERBA BUENA PROJECT SITE

Project No. 1649

LEVINE • FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

1649ALS•8FEB91•IYZ

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND	ND	ND	ND	ND/ND	TPHg
ND	ND	ND	ND	ND/ND	B
ND	ND	ND	ND	ND/ND	T
ND	ND	ND	ND	ND/ND	E
ND	ND	ND	ND	ND/ND	X
0.98	0.3	0.076	0.160	ND/NA	TPHd
ND	ND	NA	NA	NA/NA	O+G
ND	NA	ND	ND	ND/NA	TRH

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND/ND	ND	0.05	0.070/ND	ND	TPHg
ND/ND	ND	0.0005	ND/ND	ND	B
ND/ND	ND	ND	ND/ND	ND	T
ND/ND	ND	ND	ND/ND	ND	E
ND/ND	ND	ND	ND/ND	ND	X
0.2/NA	0.4	ND	0.220/0.230	ND	TPHd
>/ND	0.6	NA	NA/NA	NA	O+G
/NA	NA	ND	ND/ND	ND	TRH

10/22/92	2/11/93	5/26/93	7/14/93	
0.09	ND	ND	0.080	TPHg
0.001	ND	ND	ND	B
ND	ND	ND	ND	T
0.0004	ND	0.0039	0.012	E
0.001	ND	ND	ND	X
ND	ND	0.170	ND	TPHd
ND	NA	NA	NA	O+G
NA	ND	ND	ND	TRH

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND	ND	ND	ND	ND	TPHg
ND	ND	ND	ND	ND	B
0.001	ND	ND	ND	ND	T
ND	ND	ND	ND	ND	E
ND	ND	ND	ND	ND	X
0.3	ND	ND	0.062	ND	TPHd
ND	ND	NA	NA	NA	O+G
ND	NA	ND	ND	ND	TRH

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND	ND	ND	ND	ND	TPHg
ND	ND	ND	ND	ND	B
ND	ND	ND	ND	ND	T
ND	ND	ND	ND	ND	E
ND	ND	ND	ND	ND	X
0.1	ND	ND	0.085	ND	TPHd
ND	ND	NA	NA	NA	O+G
ND	NA	ND	ND	ND	TRH

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND	ND	ND	ND	ND	TPHg
ND	ND	ND	ND	ND	B
0.002	ND	ND	ND	ND	T
ND	ND	ND	ND	ND	E
ND	ND	ND	ND	ND	X
0.1	ND	ND	0.088	ND	TPHd
ND	ND	NA	NA	NA	O+G
ND	NA	ND	ND	ND	TRH

5/28/92	10/22/92	2/11/93	5/26/93	7/14/93	
ND	ND	ND	ND	0.05	TPHg
ND	ND	ND	ND	ND	B
ND	ND	ND	ND	0.0017	T
ND	ND	ND	ND	ND	E
ND	ND	ND	ND	ND	X
0.05	0.05	ND	0.054	ND	TPHd
ND	ND	NA	NA	NA	O+G
ND	NA	ND	ND	ND	TRH

BESLER BUILDING

NORTHERN AREA

HOLLIS ST.

LF-8

LF-25

LF-24

LF-16

LF-26

LF-28

LF-27

LF-29

W-1

W-2

W-3

A

A'

B

B'

C

D

E

F

G

H

J

K

L

5/26/93
0.070/ND TPHg

- Date sample was collected
- Chemical compound
- Duplicate analysis
- Concentration in parts per million (ppm)

ND Not detected above method detection limits

NA Not analyzed

EXPLANATION

- Boundary of northern area excavation completed by Levine-Fricke
- A — Excavations completd by Aqua Resources, Inc.
- Abandoned shallow monitoring well installed by Aqua Resources, Inc
- Shallow monitoring location

KEY TO ABBREVIATIONS

TPHg	Total Petroleum Hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylenes
TPHd	Total Petroluem Hydrocarbons as diesel
O+G	Oil and Grease
TRH	Total Recoverable Hydrocarbons

N

0 20 40 60 FEET

Note:

Oil and Grease (O+G; by Standard Method 5520C): all oil and grease compounds including animal, vegetable and petroleum hydrocarbons.

Total Recoverable Hydrocarbons (TRH; by Standard Methods 5520B+F or C+F): only the petroleum hydrocarbon fraction of the oil and grease compounds.

Figure 3 :

HISTORICAL SHALLOW GROUND-WATER QUALITY DATA (ppm)
FORMER RANSOME COMPANY PROPERTY

Project No. 1649

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

1649B017 JJB EM 040293

1649G002 JJB JSM 102593

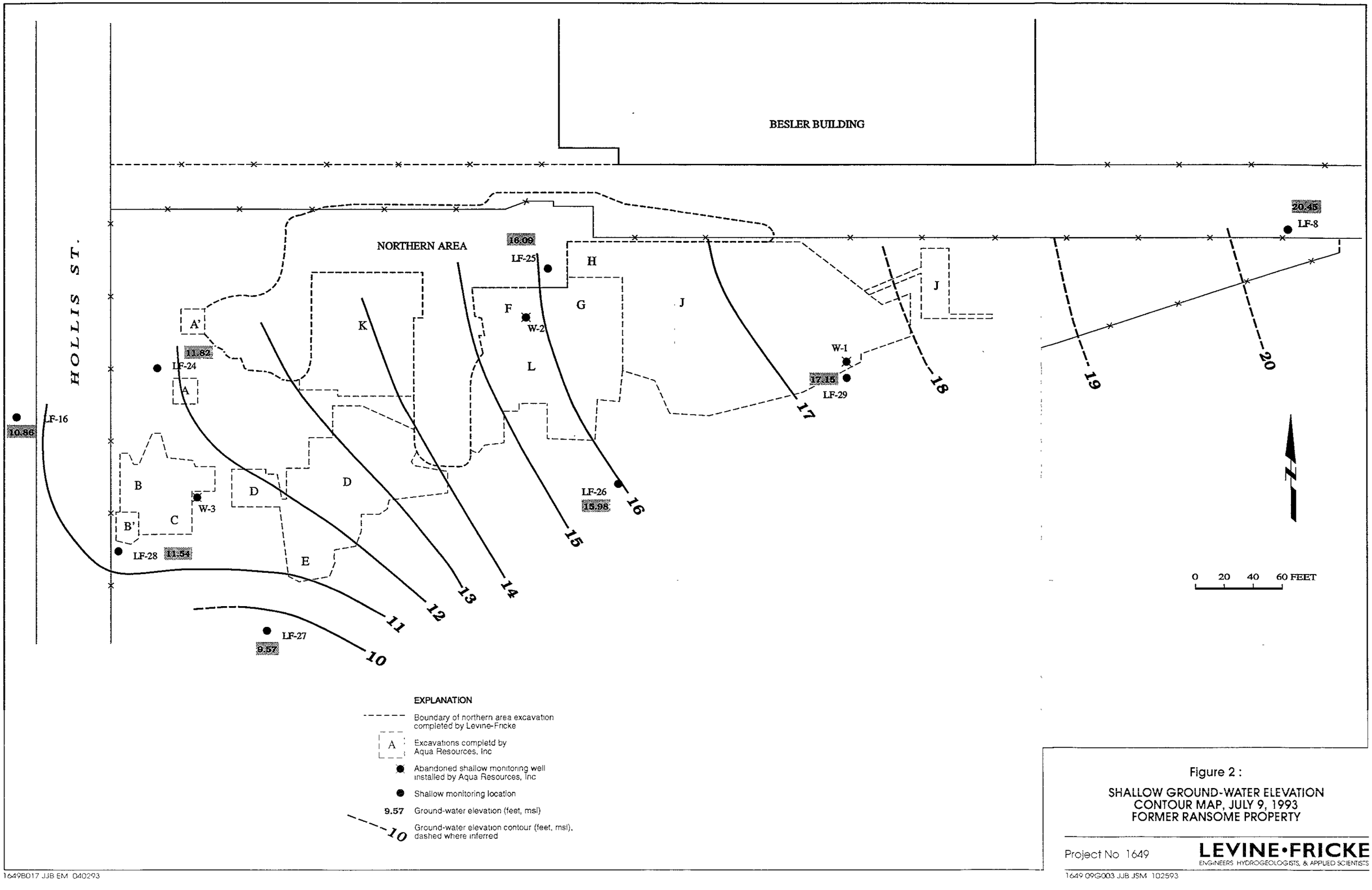


Figure 2 :

SHALLOW GROUND-WATER ELEVATION
CONTOUR MAP, JULY 9, 1993
FORMER RANSOME PROPERTY

Project No 1649

LEVINE•FRICKE
ENGINEERS HYDROGEOLOGISTS, & APPLIED SCIENTISTS

1649B017 JJB EM 040293

1649 09G003 JJB JSM 102593

APPENDIX A
GROUND-WATER SAMPLING PROCEDURES

GROUND-WATER SAMPLING PROCEDURES

Ground-water samples were collected from wells LF-16, LF-24, LF-25, LF-26, LF-27, LF-28, and LF-29 on July 9, 1993. Before ground-water samples were collected, wells were purged by removing three to five well casing volumes of water from each well using a clean Teflon bailer or a centrifugal pump and clean hose. Wells were purged until indicator readings had stabilized.

After purging, ground-water samples were collected using a clean Teflon bailer and poured directly into three 40-milliliter, HCl-preserved, glass volatile organic analysis (VOA) vials, and into four 1-liter amber bottles: two preserved with HCl and two with H_2SO_4. Before the ground-water sample was collected from well LF-25, one field blank (LF-25-FB) was collected for quality control/quality assurance (QA/QC) purposes by pouring laboratory-supplied distilled water into a clean Teflon bailer and filling three 40-milliliter VOA bottles with the water from the bailer. Additionally, a duplicate sample was collected for chemical analysis from well LF-24 (labeled LF-124) for QA/QC purposes. The field blank and duplicate samples were submitted to the laboratory on a hold basis, pending analytical results of the primary samples.

Immediately after collection, samples were labeled and placed into an ice-chilled cooler. Ground-water samples were delivered under strict chain-of-custody protocol to Anametrix, Inc., of San Jose, California. Ground-water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Methods 8020 and 5030 GCFID; for TPH as diesel (TPHd) using EPA Method 3510 GCFID; and for total recoverable hydrocarbons as oil and grease (TRH) using Standard Method 5520BF. Copies of the laboratory certificates are presented in Appendix C.

The Teflon bailers were washed with Alconox (a laboratory-grade detergent) and water, rinsed, and steam cleaned before use in each well. Centrifugal pump hoses were also steam cleaned before use in each well.

Purged water (generated during well development and sample collection) was temporarily stored on site in labeled, 55-gallon drums.

APPENDIX B
WATER-QUALITY SAMPLING SHEETS

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Yerba Buena — Project No. 1649.09

Date 7.14.93 — Sample No. LF·16

Samplers Name SCH JCK

Sampling Location Eville/ Bashland

Sampling Method Cent. pump/ Teflon bail

Analyses Requested TPHg + BTEX, TPHd, O+G (5520 BF)

Number and Types of Sample Bottles used 3 VOA/HCl, 2 amber L, 2 amber L/H2SO4

Method of Shipment couries

19.40
6.60
1280
65
6400
76800
832

GROUND WATER

Well No. LF·16

Well Diameter (in.) 4

Depth to Water, Static (ft) 6.60

Water in Well Box NO

Well Depth (ft) 19.40

Height of Water Column in Well 12.80

Water Volume in Well 8.32 ≈ 8.5

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently? NO

Other

2-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

LOCATION MAP

80% = .2 × 12.8 + 6.60
= 2.56 + 6.60
= 9.16

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
0952								Start pump
0955		8.5	21.5	7.01	640			U. Sl. Turbid
0957		17	20.7	6.97	584			" /stop/dwtrd.
	< Recharge		0.45'/min >					
1002								start
1003		20						OFF/DWTRD
	< site visit by JJB >							
1025								start
1027		27	21.3	6.99	599			Sl. Turbid
1028		30						off
1035								sample LF·16
1041	15.12							

325
333.5
342
350.5

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name: YERBA BUENA — Project No.: 1649.09

Date: 7/14/93 — Sample No.: LF-24 LF-124

Samplers Name: JCK SCH

Sampling Location: LF-24

Sampling Method: HAND BAIL / TEFLON BAILER

Analyses Requested: TPH-G BTEX, TPH-D, O+G

Number and Types of Sample Bottles used: 3 VOA 4 L. AMBER

Method of Shipment: COURIER

GROUND WATER

Well No.: LF-24

Well Diameter (in.): 2

Depth to Water, Static (ft): 10.16

Water in Well Box: NO

Well Depth (ft): 22.0

Height of Water Column in Well: 11.84

Water Volume in Well: 1.79

SURFACE WATER

Stream Width: _____

Stream Depth: _____

Stream Velocity: _____

Rained recently? _____

Other: _____

2-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

22.00
10.16
11.84
.16
6104
1184
1.794

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
13:53								START
13:55		2	21.8	6.91	738			TURBID
13:58		4	20.5	6.94	731			TURBID
14:00		6	19.2	6.90	717			TURBID
14:02		8	19.0	6.90	715			TURBID
14:10								SAMPLE
1411	10.64							
1510								Dup LF-124 (gas/BTEX)

Suggested Method for Purging Well: _____

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Yerba Buena — Project No. 1649.09

Date 7.14.93 — Sample No. LF.25.BB

Samplers Name SCH JCK — LF.25

Sampling Location Emeryville

Sampling Method Hand bail / Teflon bailer

Analyses Requested TPHg + BTEX; TPHd; O+G (5520 BF)

Number and Types of Sample Bottles used 3 VOA/HCl, 2amber L, 2amber 4/H_2SO_4

Method of Shipment Courier

GROUND WATER

Well No. LF.25

Well Diameter (in.) 4

Depth to Water, Static (ft) 7.01

Water in Well Box

Well Depth (ft) 17.10

Height of Water Column in Well 10.09

Water Volume in Well 1.61 ≈ 2

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently? NO

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

~~17.10~~

17.10
7.01
1009
16
6054
10090
16144

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1134								start bailing
1136		2	22.8	7.69	860			Turbid
1139		4	22.3	7.68	828			"
1141		6	22.3	7.72	801			" /stop
1145								sample LF25
1149	7.00							
1130								LF.25.BB

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Yerba Buena — Project No. 1649.09

Date 7.14.93 — Sample No. LF.26

Samplers Name SCH JCK

Sampling Location Emeryville

Sampling Method Hand bail / Teflon bailer

Analyses Requested TPHg + BTEX, TPHd, O+G (5520 BF)

Number and Types of Sample Bottles used 3 VOA/HCl

Method of Shipment Courier

GROUND WATER

Well No. LF.26

Well Diameter (in.) 2

Depth to Water, Static (ft) 10.92

Water in Well Box

Well Depth (ft) 21.80

Height of Water Column in Well 10.88

Water Volume in Well 1.75

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently? no

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

21.80
10.92
1088
16
6528
10880
174

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1110								Start bailing
1112		2	20.9	6.66	715			Turbid
1114		4	20.0	6.67	692			"
1116		6	19.7	6.71	688			"
1120								Sample LFZ6
1122	10.98							

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name: YERBA BUENA — Project No.: 1649.09

Date: 7/14/93 — Sample No.: LF-27

Samplers Name: JCK

Sampling Location: LF-27

Sampling Method: HAND BAIL / TEFLON BAILER

Analyses Requested: TPH-g + BTEX, TPH-d, O+G

Number and Types of Sample Bottles used: 3 VOA 2 1/L AMBER

Method of Shipment: COURIER

21.92
13.26
8.66
.16
5196
866
13856

LOCATION MAP

GROUND WATER

Well No.: _____

Well Diameter (in.): 2

Depth to Water, Static (ft): 13.26

Water in Well Box: _____

Well Depth (ft): 21.92

Height of Water Column in Well: 8.66

Water Volume in Well: 1.39

SURFACE WATER

Stream Width: _____

Stream Depth: _____

Stream Velocity: _____

Rained recently? _____

Other: _____

2-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
13:17								START
13:20		1.50	20.1	6.70	763			TURBID
13:22		3.00	19.8	6.68	734			TURBID
13:24		4.50	19.1	6.74	719			TURBID
13:30	14.75							SAMPLE

Suggested Method for Purging Well: _____

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name: YERBA BUENA — Project No.: 1649.09

Date: 7/14/95 — Sample No.: LF-28

Samplers Name: JCK, SCH

Sampling Location: LF-28

Sampling Method: HAND BAIL / TEFLON BAILER

Analyses Requested: TPH-G+BTEX, TPH-D, O+G

Number and Types of Sample Bottles used: 3 VOA + 4 L. AMBER

Method of Shipment: COURIER

21.70
9.01
12.69
.16
7614
1269
2.0304

GROUND WATER

Well No.: LF-28

Well Diameter (in.): 2

Depth to Water, Static (ft): 9.01

Water in Well Box: NO

Well Depth (ft): 21.70

Height of Water Column in Well: 12.69

Water Volume in Well: 2.03

SURFACE WATER

Stream Width: _____

Stream Depth: _____

Stream Velocity: _____

Rained recently? _____

Other: _____

2-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
13:36								START
13:38		2	20.9	6.82	775			TURBID
13:40		4	20.0	6.74	734			TURBID
13:42		6	20.4	6.75	722			TURBID
13:45								SAMPLE
1348	11.62							

Suggested Method for Purging Well: _____

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Yerba Buena — Project No. 1649.09

Date 7.14.93 — Sample No. LF-29

Samplers Name Scott JCK

Sampling Location Emeryville / Ransome

Sampling Method Hand bail / Teflon bailer

Analyses Requested TPHg + BTEX, TPHd, O+G (5520 BF)

Number and Types of Sample Bottles used 3 VOA/HCl, 2 amber L, 2 amber L/H_2SO_4

Method of Shipment Courier

GROUND WATER

Well No. LF-29

Well Diameter (in.) 2

Depth to Water, Static (ft) 12.75

Water in Well Box

Well Depth (ft) 22.10

Height of Water Column in Well 9.35

Water Volume in Well 1.5

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently? no

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

22.10
12.75
935
16
5610
935
150

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1051								start bailing
1053		1.5	19.8	6.69	749			Mod. Turbid
1054		3	19.6	6.68	720			Turbid
1056		4.5	19.3	6.70	716			" / stop
1100								sample LF-29
1104	12.85							

Suggested Method for Purging Well

APPENDIX C

LABORATORY DATA SHEETS AND CHAIN-OF-CUSTODY FORM FOR GROUND-WATER SAMPLE ANALYSES

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9307145
Date Received : 07/15/93
Project ID : 1649.09
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9307145- 1	LF-16
9307145- 2	LF-29
9307145- 3	LF-26
9307145- 4	LF-25-BB
9307145- 5	LF-25
9307145- 6	LF-27
9307145- 7	LF-28
9307145- 8	LF-24
9307145- 9	TRIP 14

This report consists of 14 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Larry Kent for

Sarah Schoen, Ph.D.
Laboratory Director

7-29-93
Date

COPY

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9307145
Date Received : 07/15/93
Project ID : 1649.09
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9307145- 1	LF-16	WATER	07/14/93	TPHd
9307145- 2	LF-29	WATER	07/14/93	TPHd
9307145- 3	LF-26	WATER	07/14/93	TPHd
9307145- 5	LF-25	WATER	07/14/93	TPHd
9307145- 6	LF-27	WATER	07/14/93	TPHd
9307145- 7	LF-28	WATER	07/14/93	TPHd
9307145- 8	LF-24	WATER	07/14/93	TPHd
9307145- 1	LF-16	WATER	07/14/93	TPHgBTEX
9307145- 2	LF-29	WATER	07/14/93	TPHgBTEX
9307145- 3	LF-26	WATER	07/14/93	TPHgBTEX
9307145- 4	LF-25-BB	WATER	07/14/93	TPHgBTEX
9307145- 5	LF-25	WATER	07/14/93	TPHgBTEX
9307145- 6	LF-27	WATER	07/14/93	TPHgBTEX
9307145- 7	LF-28	WATER	07/14/93	TPHgBTEX
9307145- 8	LF-24	WATER	07/14/93	TPHgBTEX
9307145- 9	TRIP 14	WATER	07/14/93	TPHgBTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9307145
Date Received : 07/15/93
Project ID : 1649.09
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as diesel for sample LF-25 is primarily due to the presence of a heavier petroleum product of hydrocarbon range C18-C36, possibly motor oil.

Cheryl Balmer 7/28/93
Department Supervisor Date

Peggie Davison 7/28/93
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9307145
Matrix : WATER
Date Sampled : 07/14/93

Project Number : 1649.09
Date Released : 07/28/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# LF-27 -06	Sample I.D.# LF-28 -07	Sample I.D.# LF-24 -08	Sample I.D.# TRIP 14 -09	Sample I.D.# BL2001E2 BLANK
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND	ND	ND
% Surrogate Recovery		99%	99%	116%	112%	107%
Instrument I.D.		HP8	HP8	HP8	HP8	HP8
Date Analyzed		07/21/93	07/21/93	07/21/93	07/21/93	07/20/93
RLMF		1	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Davison 7/28/93
Analyst Date

Cheryl Balmer 7/28/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9307145
Matrix : WATER
Date Sampled : N/A

Project Number : 1649.09
Date Released : 07/28/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# BL2101E2 BLANK
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND
% Surrogate Recovery		105%
Instrument I.D.		HP8
Date Analyzed		07/21/93
RLMF		1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Dawson 7/28/93
Analyst Date

Cheryl Balmer 7/28/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9307145
Matrix : WATER
Date Sampled : 07/14/93
Date Extracted: 07/16/93

Project Number : 1649.09
Date Released : 07/28/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9307145-01	LF-16	07/23/93	50	ND
9307145-02	LF-29	07/23/93	50	ND
9307145-03	LF-26	07/23/93	50	ND
9307145-05	LF-25	07/28/93	50	1000
9307145-06	LF-27	07/23/93	51	ND
9307145-07	LF-28	07/23/93	51	ND
9307145-08	LF-24	07/23/93	50	ND
BL1611F1	METHOD BLANK	07/22/93	50	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 50 ug/L.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Dawson 7/28/93
Analyst Date

Cheryl Bauman 7/28/93
Supervisor Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 1649.09 LF-16
Matrix : WATER
Date Sampled : 07/14/93
Date Analyzed : 07/21/93

Anametrix I.D. : 07145-01
Analyst : AD
Supervisor : [illegible]
Date Released : 07/28/93
Instrument I.D.: HP8

COMPOUND	SPIKE AMT (ug/L)	SAMPLE CONC (ug/L)	REC MS (ug/L)	%REC MS	REC MD (ug/L)	%REC MD	RPD	%REC LIMITS
BENZENE	20.0	0.0	18.9	95%	22.2	111%	16%	45-139
TOLUENE	20.0	1.7	22.0	101%	24.5	114%	11%	51-138
ETHYLBENZENE	20.0	0.0	20.2	101%	22.7	114%	12%	48-146
TOTAL XYLENES	20.0	0.0	19.5	98%	21.8	109%	11%	50-139
p-BFB				93%		98%		61-139

* Quality control established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: ML2101E1
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	:
Date Analyzed	: 07/21/93	Date Released	: 07/26/93
		Instrument I.D.	: HP8

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	20.7	103%	52-133
Toluene	20.0	22.2	111%	57-136
Ethylbenzene	20.0	22.5	113%	56-139
TOTAL Xylenes	20.0	21.8	109%	61-139
P-BFB			100%	61-139

* Limits established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: ML2002E1
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	: CM
Date Analyzed	: 07/21/93	Date Released	: 07/22/93
		Instrument I.D.	: HP8

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	500	520	104%	67-127
p-BFB			84%	61-139

* Quality control established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3510 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Extracted: 07/16/93
Date Analyzed : 07/22/93

Anametrix I.D. : ML1611F1
Analyst : RD
Supervisor : [illegible]
Date Released : 07/27/93
Instrument I.D.: HP9

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCSD REC (ug/L)	% REC LCSD	RPD	% REC LIMITS
DIESEL	1250	880	70%	910	73%	3%	47-130

*Quality control established by Anametrix, Inc.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9307145
Date Received : 07/15/93
Project ID : 1649.09
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9307145- 1	LF-16	WATER	07/14/93	5520BF
9307145- 2	LF-29	WATER	07/14/93	5520BF
9307145- 3	LF-26	WATER	07/14/93	5520BF
9307145- 5	LF-25	WATER	07/14/93	5520BF
9307145- 6	LF-27	WATER	07/14/93	5520BF
9307145- 7	LF-28	WATER	07/14/93	5520BF
9307145- 8	LF-24	WATER	07/14/93	5520BF

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9307145
Date Received : 07/15/93
Project ID : 1649.09
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Department Supervisor 7/22/93 Date

Chemist 07.229 Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Project I.D. : 1649.09
Matrix : WATER
Date sampled : 07/14/93
Date extracted: 07/19/93
Date analyzed : 07/20/93

Anametrix I.D. : 9307145
Analyst : ML
Supervisor : CM
Date released : 07/22/93

Workorder #	Sample I.D.	Reporting Limit (mg/L)	Amount Found (mg/L)
9307145-01	LF-16	5	ND
9307145-02	LF-29	5	ND
9307145-03	LF-26	5	ND
9307145-05	LF-25	5	ND
9307145-06	LF-27	5	ND
9307145-07	LF-28	5	ND
9307145-08	LF-24	5	ND
BL1911W4	METHOD BLANK	5	ND

ND - Not detected above the reporting limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520BF.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

LAB CONTROL SAMPLE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
STANDARD METHOD 5520BF
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date sampled : N/A
Date extracted : 07/19/93
Date analyzed : 07/20/93

Anametrix I.D. : ML1911W4
Analyst : YC
Supervisor : CM
Date Released : 07/22/93

COMPOUND	SPIKE AMT. (mg/L)	LCS (mg/L)	%REC LCS	LCSD (mg/L)	%REC LCSD	%RPD	%REC LIMITS
Motor Oil	50	53	106%	48	96%	10%	47-99%

Quality control limits established by Anametrix Laboratories.

9507.145 (10/33) (18)

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1649.09	Field Logbook No.:	Date: 7-14-93	Serial No.: 11709
Project Name: Yerba Buena	Project Location: Emeryville		
Sampler (Signature): Prescott C. Hudd			

	SAMPLES						ANALYSES								Samplers: SCH JCK
	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPHgas + BTEX	TPHdiesel	SM 5520 BF Oil+Grease		HOLD	RUSH	REMARKS
1	LF-16	7-14-93	1035		7	H_2O			3	2	2				Normal TAT
2	LF-29		1100		7				3	2	2				
3	LF-26		1120		7				3	2	2				Contact Jenifer Beatty.
4	LF-25 BB		1130		3				3						
5	LF-25		1145		7				3	2	2				
6	LF-27		1330		7				3	2	2				Invoice Cakellus Directly; FAX/CC results to Levine-Fricke.
7	LF-28		1345		7				3	2	2				
8	LF-24		1410		7				3	2	2				
9	Trip 14		—	MB	3				3						Analyses: - TPH as gas + BTEX - TPH as diesel - SM 5520 BF for oil + grease.

RELINQUISHED BY: (Signature)	Prescott C. Hudd	DATE 7/15/93	TIME 1435	RECEIVED BY: (Signature)		DATE 7/15/93	TIME 1435
RELINQUISHED BY: (Signature)		DATE 7/15/93	TIME 1640	RECEIVED BY: (Signature)		DATE 7/15/93	TIME 16:40
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, Ca 94608 (415) 652-4500
Analytical Laboratory:	Aramchrix

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: 94523-001

LEVINE-FRICKE
1900 POWELL STREET
12TH FLOOR
EMERYVILLE, CA 94608
ATTN: JENIFER BEATTY

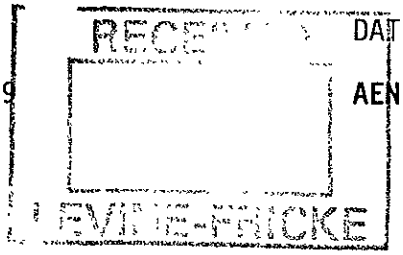
CLIENT PROJECT ID: 1649.09
C.O.C. SERIAL NO: 11710
PROJ. NAME: YERBA BUENA

REPORT DATE: 07/26/93

DATE SAMPLED: 07/14/93

DATE RECEIVED: 07/15/93

AEN JOB NO: 9307135



PROJECT SUMMARY:

On July 15, 1993, this laboratory received one (1) water sample.

Client requested the sample be analyzed for Total Petroleum Hydrocarbons as Gasoline, Benzene, Toluene, Ethylbenzene and Total Xylenes by EPA Methods 8020, 5030 GCFID. Sample identification, results and dates analyzed are summarized on the following pages.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

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

Larry Klein
General Manager

Results FAXed 07/22/93

COPY

LEVINE-FRICKE

SAMPLE ID: LF-124
CLIENT PROJ. ID: 1649.09
DATE SAMPLED: 07/14/93
DATE RECEIVED: 07/15/93
REPORT DATE: 07/26/93

AEN LAB NO: 9307135-01A
AEN JOB NO: 9307135
DATE ANALYZED: 07/20/93
INSTRUMENT: F

BTEX AND HYDROCARBONS (WATER MATRIX)
METHOD: EPA 8020, 5030 GCFID

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-2	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
PURGEABLE HYDROCARBONS AS:			
Gasoline		ND mg/L	0.05 mg/L

ND = Not Detected

INSTRUMENT: F

CLIENT PROJ. ID: 1649.09

AEN JOB NO: 9307135
AEN LAB NO: DAILY BLANK
DATE ANALYZED: 07/20/93

BTXE AND HYDROCARBONS (METHOD BLANK)
METHOD: EPA 8020, 5030 GCFID

	CAS #	CONCENTRATION (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
PURGEABLE HYDROCARBONS AS:			
Gasoline		ND mg/L	0.05 mg/L

ND = Not Detected

QUALITY CONTROL DATA

CLIENT PROJ. ID: 1649.09

AEN JOB NO: 9307135

INSTRUMENT: F

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020
(WATER MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION Client Id.	Lab Id.	SURROGATE RECOVERY (PERCENT) Fluorobenzene
07/20/93	LF-124	01A	98.5
07/20/93		0720-METHOD BLANK	99.8

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
Fluorobenzene	(70-115)

QUALITY CONTROL DATA

DATE ANALYZED: 07/20/93
SAMPLE SPIKED: 9307127-03F
CLIENT PROJ. ID: 1649.09

AEN JOB NO: 9307135
INSTRUMENT: F

MATRIX SPIKE RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
Benzene	14.1	ND	14.5	13.7	100.0	5.7
Toluene	47.5	ND	48.3	46.0	99.3	4.9
Hydrocarbons as Gasoline	500	ND	484	454	93.8	6.4

CURRENT QC LIMITS (Revised 05/14/92)

Analyte	Percent Recovery	RPD
Benzene	(81.4-115.3)	10.2
Toluene	(85.3-112.4)	9.4
Gasoline	(72.0-119.4)	12.8

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9307135

Project No.: 1649.09	Field Logbook No.:	Date: 7.14.93	Serial No.: 11710
Project Name: Yerba Buena	Project Location: Emeryville		
Sampler (Signature): Prescott C. Hudd			Samplers: SCH JCK

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE		EPA 601	EPA 624	TPH(G) + BTEX				HOLD	RUSH	REMARKS
LF-124	7-14-93	1510	01A-C	3	H2O			X							Normal TAT
															Contact Jennifer Beatty

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
Prescott C. Hudd	7/15/93	10:45		7/15/93	10:45
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
	7/15/93	11:40	Gina Gillespie	7-15-93	1140
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, Ca 94608
(415) 652-4500

Analytical Laboratory:
AEN

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