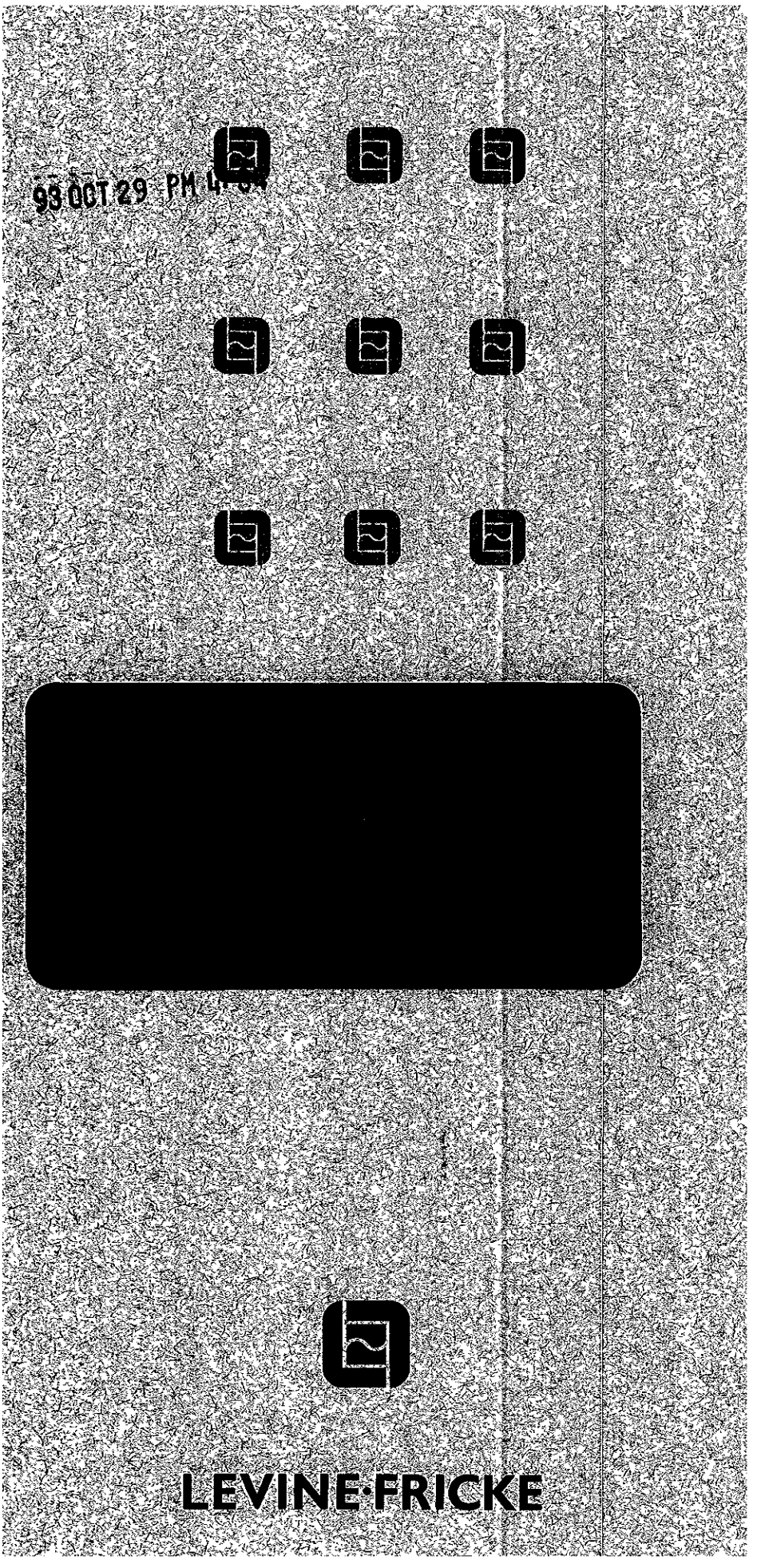
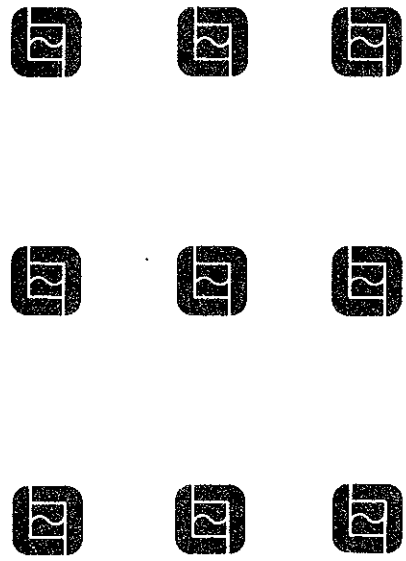

93 OCT 29 PM 4:04
LEVINE·FRICKE



Quarterly Monitoring Report for July 1 through September 30, 1993 Former Bay Area Warehouse Property Emeryville, California

October 29, 1993
1649.13

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

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

October 29, 1993 LF 1649.13

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

Subject: Quarterly Monitoring Report for July 1 through September 30, 1993, Former Bay Area Warehouse Property, Emeryville, California

Dear Ms. Hugo:

Enclosed is the ground-water investigation report and quarterly monitoring report for the period from July 1 through September 30, 1993, for the former Bay Area Warehouse (BAW) property, located in Emeryville, California. This report has been prepared on behalf of Catellus Development Corporation ("Catellus") in accordance with Levine•Fricke's work plan dated April 30, 1993, and submitted to the Alameda Health Care Services Agency (ACHA).

As you are aware, this work was conducted in accordance with your October 13, 1992 letter to Mr. Charles Wellnitz of BAW, former tenant at the property and the owner and operator of the gasoline underground storage tank (UST) formerly located at the BAW property. Your October 13, 1992 letter to Mr. Wellnitz directed BAW to conduct a ground-water investigation at the BAW property to assess the possible effect of petroleum hydrocarbons from the former UST on shallow ground water in the vicinity of the tank excavation. Because BAW has failed and refused to perform any such investigation, Catellus, as the current owner of the BAW Property, was compelled to proceed with installation of the monitoring well.

The enclosed report describes field activities conducted and presents the analytical results for ground-water samples collected during monitoring activities.

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

Please call me if you have any questions or comments regarding this report.

Sincerely,

Jenifer Beatty

Jenifer Beatty
Project Hydrogeologist

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

CONTENTS

	PAGE
CERTIFICATION	ii
1.0 INTRODUCTION	1
2.0 BACKGROUND AND PREVIOUS INVESTIGATIONS	1
3.0 QUARTERLY MONITORING ACTIVITIES CONDUCTED DURING JULY 1 THROUGH SEPTEMBER 30, 1993	2
3.1 Collection of Water-Level Measurements	2
3.2 Ground-Water Sampling and Laboratory Analysis	2
3.3 Results of Monitoring Activities	3
4.0 CONCLUSIONS AND RECOMMENDATIONS	3
REFERENCES	4

TABLE 1: SUMMARY OF GROUND-WATER QUALITY DATA

FIGURE 1: SITE LOCATION MAP

FIGURE 2: SHALLOW GROUND-WATER ELEVATION CONTOUR MAP, JULY 9, 1993

APPENDICES:

A WATER-QUALITY SAMPLING SHEETS

B LABORATORY DATA SHEETS FOR GROUND-WATER SAMPLES

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 1649.13

**QUARTERLY MONITORING REPORT FOR
JULY 1 THROUGH SEPTEMBER 30, 1993
FORMER BAY AREA WAREHOUSE PROPERTY
EMERYVILLE, CALIFORNIA**

1.0 INTRODUCTION

This report describes analytical results for monitoring activities conducted at the former Bay Area Warehouse (BAW) property located in Area C of the Yerba Buena/East Baybridge Project Site in Emeryville, California (Figure 1). Monitoring activities were conducted by Levine·Fricke, Inc., on behalf of Catellus Development Corporation in accordance with the work plan dated April 30, 1993 (Levine·Fricke 1993), and submitted to and approved by the Alameda County Health Care Services Agency (ACHA).

2.0 BACKGROUND AND PREVIOUS INVESTIGATIONS

On November 20, 1991, a gasoline underground storage tank (UST) was removed from the BAW property by consultants retained by BAW. A Levine·Fricke geologist was present to collect a sample of the fuel product contained in the UST before the UST was removed and to observe removal of the UST. The product sample was submitted to Friedman & Bruya of Seattle, Washington, for fuel characterization analysis. Results reported by Friedman & Bruya indicated that the product was gasoline with trace amounts of weathered diesel.

Tank removal activities are described in the December 1991 "Report of Findings, Underground Storage Tank Removal," prepared by the consultants for BAW and submitted to the ACHA.

Results presented in that report indicated that benzene was not detected in any soil samples collected by BAW from the UST excavation, and that total petroleum hydrocarbon (TPH) as gasoline (TPHg) concentrations in these soil samples were 3 parts per million (ppm) or less. Results for the grab ground-water sample collected from the UST excavation by BAW indicated the presence of benzene and TPHg at concentrations of 0.24 ppm and 8.8 ppm, respectively. Soil and ground-water samples were not submitted for laboratory analysis of TPH as diesel (TPHd).

On October 13, 1992, the ACHA sent a letter to Mr. Charles Wellnitz of BAW, directing BAW to conduct a ground-water investigation at the BAW property to assess the possible effect of petroleum hydrocarbons from the former UST on shallow ground water in the vicinity of the tank excavation. Because BAW has refused to perform any such investigation, Catellus was compelled to proceed with installation of the monitoring well. Levine·Fricke installed monitoring well LF-32 on May 20, 1993, within 10 feet downgradient from the former tank excavation (Figure 2).

3.0 QUARTERLY MONITORING ACTIVITIES CONDUCTED DURING JULY 1 THROUGH SEPTEMBER 30, 1993

A quarterly monitoring program was implemented at BAW in May 1993 accordance with Levine·Fricke's work plan dated April 30, 1993 (Levine·Fricke 1993). The activities conducted and the results obtained are presented below.

3.1 Collection of Water-Level Measurements

Depth to water was measured using an electric water-level sounding probe to the nearest 0.01 foot, relative to the top of the PVC well casing. The depth to water measured in well LF-32 on July 9, 1993, was 6.80 feet below ground surface. This is consistent with the May 1993 measurement (6.35 feet below ground surface on May 24).

3.2 Ground-Water Sampling and Laboratory Analysis

Before ground-water samples were collected, three to four well volumes of water were purged from the well in accordance with procedures described in Appendix A. A copy of the water-quality sampling sheet showing parameter readings (pH, specific conductance, temperature) is included in Appendix B. After the well had been purged, ground-water samples were collected on July 14, 1993.

Ground-water samples were submitted to Anametrix, Inc., of San Jose, California, a state-certified laboratory, and analyzed for TPHg and BTEX using modified EPA Method 8015/8020 and TPHd using EPA Method 3510 GCFID. A duplicate sample (LF-132) was submitted to American Environmental Network of Pleasant Hill, California, for the same analysis.

3.3 Results of Monitoring Activities

Ground-water elevation measurements for BAW and vicinity are included on Figure 2, which presents ground-water elevation data and ground-water elevation contours for the entire Yerba Buena Project Site. Depth-to-water measurements collected on July 9, 1993, indicate that shallow ground-water flow beneath BAW is toward the southwest, with an average hydraulic gradient of approximately 0.01 ft/ft. These results are consistent with ground-water flow directions previously reported for this area of the Site.

Analytical results for ground-water samples collected from well LF-32 do not indicate the presence of TPHg or BTEX (Table 1). TPHd was detected at a concentration of 0.230 ppm in the primary sample, but was below laboratory detection limits in the duplicate sample (<0.05 ppm). Laboratory data sheets for ground-water samples are presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Analytical results for ground-water samples collected from well LF-32 indicate that shallow ground water has not been significantly affected by petroleum hydrocarbons. TPHg and BTEX, which were previously detected at low concentrations in soil and ground-water samples collected during tank removal activities, were not identified above method detection limits in the ground-water samples collected from well LF-32. The detection of a low concentration of TPHd in ground water may be related to the trace amount of diesel detected in the product sample collected from the UST. Soil and ground-water samples collected during tank removal activities were not analyzed for the presence of TPHd.

Well LF-32 will continue to be monitored on a quarterly basis through March 1994 to assess the potential effects on shallow ground water from the possible release of petroleum hydrocarbons from the former UST.

REFERENCES

Levine•Fricke, Inc. 1991. Correspondence to Mr. Don Marini of Catellus Development Corporation. Subject: Summary of Underground Fuel Storage Tank Removal, Former Bay Area Warehouse, Yerba Buena Project Site, Emeryville and Oakland, California. December 9.

———. 1993. Levine•Fricke, Inc. 1993. Work Plan to Install One Ground-Water Monitoring Well and Conduct Quarterly Monitoring, Bay Area Warehouse Property, Emeryville, California. April 30.

TABLE 1

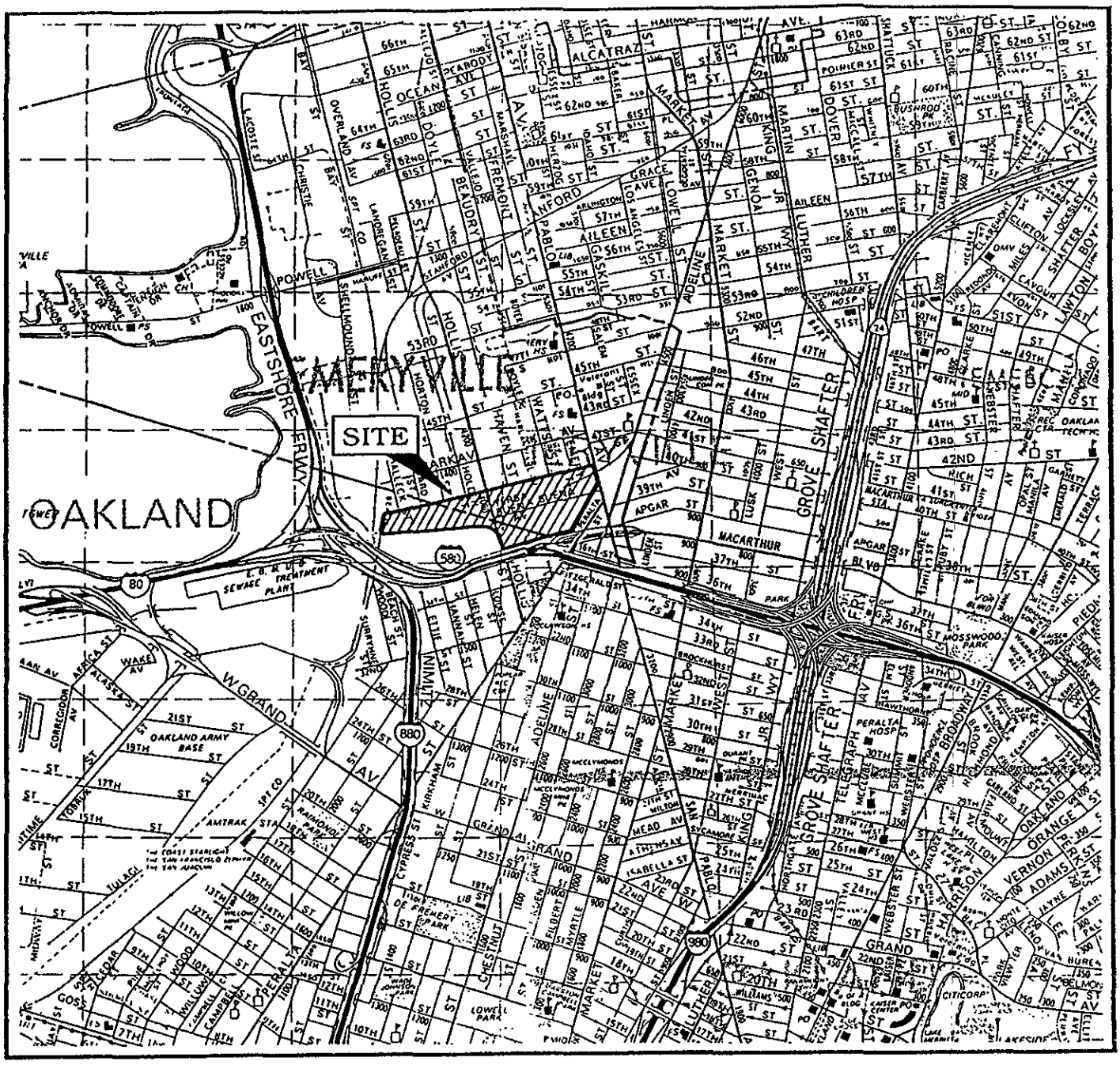
Summary of Ground-Water Quality Data

(concentrations expressed in milligram per liter [mg/l])

Well Number	Date	Lab	TPHg	Benzene	Toluene	Ethyl -benzene	Total Xylenes	Diesel
LF-32	26-May-93	ANA	0.050	<0.0005	<0.0005	<0.0005	<0.0005	0.440
	14-Jul-93	AEN	<0.050	<0.0005	<0.0005	<0.0005	<0.002	<0.05
	14-Jul-93	ANA	<0.050	<0.0005	<0.0005	<0.0005	<0.005	0.230

Milligrams per liter is equivalent to parts per million.

TPHg = total petroleum hydrocarbons as gasoline
Diesel = extractable hydrocarbons as diesel
ANA = Anametrix, Inc., of San Jose, California
AEN = American Environmental Network of Pleasant Hill, California



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-SITE01-tyz

Halleck Street
Hubbard Street
Horton Street
Holden Street
Haven Street
Hollis Street
Street
Beach
FORMER RANSOME COMPANY
FORMER BASHLAND
FORMER BAY AREA WAREHOUSE
FORMER M & N WAREHOUSE
FORMER UNDERGROUND STORAGE TANK
OAKLAND TERMINAL RAILWAYS
MARKSTEIN BEVERAGE COMPANY
EBMUD INTERCEPTOR TRENCH
YERBA BUENA RIGHT-OF-WAY?
Yerba Bue
C
D
LF-12 0.55
LF-11 NM
LF-11R
LF-10 6.09
LF-9
LF-31 10.45
LF-16 10.86
LF-32 5.11
LF-25 16.09
LF-24 11.82
LF-26 16.96
LF-28 11.54
LF-27 9.52
LF-13 1.96
LF-30 2.91
LF-6 5.22
LF-17 8.86
LF-23 5.87
LF-19 7.16
LF-19D
LF-22 6.17
LF-18 11.16
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

FORMER RANSOME COMPANY

LF-25 16.01

LF-29 17.15

LF-26 16.98

LF-8 20.45

B

LF-20 21.15

FORMER LDS WAREHOUSE

EBMUD INTERCEPTOR TRENCH

LF-21 18.90

Yerba Buena Avenue

LF-5 13.64

LF-5D

LF-1 8.89

12.15 LF-4 LF-4D LF-4Z

A

FORMER CLIPPER

LF-18 11.18

12.37 LF-3

LF-7 27.82

NM LF-2

San Pablo Avenue

Peralta Street

MONITORING WELL LOCATION

FORMER DEEPER (62 FEET) MONITORING WELL LOCATION

ABANDONED WELL

LOCATION OF FORMER BUSINESSES

20.45 GROUND-WATER ELEVATION (FEET, MEAN SEA LEVEL)

22 GROUND-WATER ELEVATION CONTOUR (FEET, MEAN SEA LEVEL)

NM NOT MEASURED

0 150 300 FEET

Figure 2 :
SHALLOW GROUND-WATER ELEVATION CONTOUR MAP
JULY 9,1993
YERBA BUENA PROJECT SITE
EMERYVILLE AND OAKLAND, CALIFORNIA

Project No. 1649

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

APPENDIX A

GROUND-WATER SAMPLING PROCEDURES

GROUND-WATER SAMPLING PROCEDURES AND WATER-QUALITY SAMPLING SHEETS

Before sample collection, depth to static water was measured in well LF-32 and the volume of water in the well casing was calculated. Three to five well casing volumes of ground-water were then purged from the well using a submersible or centrifugal pump until indicator parameter readings (pH, specific conductance, and temperature) stabilized. Indicator parameters were measured using portable field instruments and measurements were recorded on a water-quality sampling form. Purging and sampling equipment was steam cleaned before use. Purged ground water was temporarily stored on site in a 6,500-gallon holding tank

A portion of the sample collected for analysis of TPHg and BTEX was placed into laboratory-supplied, 40-milliliter glass vials preserved with hydrochloric acid. The glass vials were filled to capacity, capped, and checked for trapped air bubbles. A portion of the sample collected for TPHd analyses was poured into laboratory-supplied 1-liter amber bottles. Filled sample vials were placed into an ice-chilled cooler immediately after collection for transportation under chain-of-custody protocols to a state-certified laboratory for chemical analysis.

Ground-water samples were submitted to Anametrix, a state-certified laboratory, under strict chain-of-custody protocol. For quality assurance/quality control measures, a duplicate sample also was collected from well LF-32. Laboratory certificates are included in Appendix C.

APPENDIX B

WATER-QUALITY SAMPLING SHEETS

LEVINE • FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name YERBA BUENA

Project No. 1649.13

Date 7/14/93

Sample No. LF-32
LF-132

Samplers Name JCK SCH

Sampling Location LF-32

Sampling Method HAND BAIL / TEFLON BAILER

Analyses Requested TPH-G BTEX TPH-D

Number and Types of Sample Bottles used 6 VOA 4 AMBER L.

Method of Shipment COURIER

20.22
6.85
13.37
.16
7922
1337
21292

GROUND WATER

Well No. LF-32

Well Diameter (in.) 2

Depth to Water, Static (ft) 6.85

Water in Well Box NO

Well Depth (ft) 20.22

Height of Water Column in Well 13.37

Water Volume in Well 2.13

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
14:28								START
14:30		2.5	23.8	6.92	997			TURBID
14:32		5.0	22.2	6.93	967			TURBID
14:34		7.5	22.1	6.94	957			TURBID
14:40	6.94							SAMPLE

Suggested Method for Purging Well

APPENDIX C

LABORATORY DATA SHEETS FOR GROUND-WATER SAMPLES

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 # : 9307143
Date Received : 07/15/93
Project ID : 1649.13
Purchase Order: N/A

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

ANAMETRIX ID	CLIENT SAMPLE ID
9307143- 1	LF-32

This report consists of 7 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.

Sarah Schoen, Ph.D.
Laboratory Director

07-29-93
Date

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

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

Workorder # : 9307143
Date Received : 07/15/93
Project ID : 1649.13
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9307143- 1	LF-32	WATER	07/14/93	TPHd
9307143- 1	LF-32	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 # : 9307143
Date Received : 07/15/93
Project ID : 1649.13
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as diesel for sample LF-32 is primarily due to the presence of a heavier petroleum product of hydrocarbon range C18-C36, possibly motor oil.

Cheryl Brosman 7/27/93
Department Supervisor Date

Peggie Davison 7/29/93
Chemist Date

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

Anametrix W.O.: 9307143
Matrix : WATER
Date Sampled : 07/14/93

Project Number : 1649.13
Date Released : 07/29/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# LF-32 -01	Sample I.D.# BL2001E2 BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH as Gasoline	50	ND	ND
% Surrogate Recovery		109%	101%
Instrument I.D.		HP4	HP4
Date Analyzed		07/20/93	07/20/93
RLMF		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.

Reggie Dawson 7/29/93
Analyst Date

Cheryl Bateman 7/29/93
Supervisor Date

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

Anametrix W.O.: 9307143
Matrix : WATER
Date Sampled : 07/14/93
Date Extracted: 07/20/93

Project Number : 1649.13
Date Released : 07/29/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9307143-01	LF-32	07/28/93	51	230
BL2011F1	METHOD BLANK	07/28/93	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 Davidson 7/29/93
Analyst Date

Cheryl Bulmer 7/29/93
Supervisor Date

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

Sample I.D. : 1649.13 LF-32
Matrix : WATER
Date Sampled : 07/14/93
Date Analyzed : 07/20/93

Anametrix I.D. : 07143-01
Analyst : RD
Supervisor : [illegible]
Date Released : 07/29/93
Instrument I.D.: HP4

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	15.0	75%	20.0	100%	29%	45-139
TOLUENE	20.0	0.0	15.2	76%	20.6	103%	30%	51-138
ETHYLBENZENE	20.0	0.0	16.2	81%	21.4	107%	28%	48-146
TOTAL XYLENES	20.0	0.0	16.4	82%	21.4	107%	26%	50-139
p-BFB				116%		116%		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.	: ML2001E3
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	: [illegible]
Date Analyzed	: 07/20/93	Date Released	: 07/29/93
		Instrument I.D.	: HP4

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	20.6	103%	52-133
Toluene	20.0	20.8	104%	57-136
Ethylbenzene	20.0	21.8	109%	56-139
TOTAL Xylenes	20.0	21.7	109%	61-139
P-BFB			113%	61-139

* Limits 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.

JJB

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

REPORT DATE: 07/28/93

DATE SAMPLED: 07/14/93

DATE RECEIVED: 07/15/93

CLIENT PROJECT ID: 1649.13
C.O.C. SERIAL NO: 11700
PROJ. NAME: YERBA BUENA

AEN JOB NO: 9307136

PROJECT SUMMARY:

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

Client requested the sample be analyzed for organic parameters. Sample identification, methodologies, 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

LEVINE-FRICKE

DATE SAMPLED: 07/14/93
DATE RECEIVED: 07/15/93
CLIENT PROJECT ID: 1649.13

REPORT DATE: 07/28/93

AEN JOB NO: 9307136

Client Sample Id.	AEN Lab Id.	Extractable Hydrocarbons as Diesel (mg/L)	Extractable Hydrocarbons as Oil (mg/L)
LF-132	01D	0.2	0.4
Reporting Limit		0.05	0.05

EPA Method: 3510 GCFID

Instrument: C

Date Extracted: 07/16/93
Date Analyzed: 07/20/93

LEVINE-FRICKE

SAMPLE ID: LF-132
CLIENT PROJ. ID: 1649.13
DATE SAMPLED: 07/14/93
DATE RECEIVED: 07/15/93
REPORT DATE: 07/28/93

AEN LAB NO: 9307136-01A
AEN JOB NO: 9307136
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

QUALITY CONTROL DATA

DATE EXTRACTED: 07/14/93
DATE ANALYZED: 07/15/93
CLIENT PROJ. ID: 1649.13

AEN JOB NO: 9307136
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: C

MATRIX SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATER
METHOD: EPA 3510 GCFID

ANALYTE	Spike Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Diesel	2.02	ND	1.66	1.61	80.9	3.1

CURRENT QC LIMITS (Revised 06/22/92)

Analyte	Percent Recovery	RPD
Diesel	(45.0-103.3)	25.0

METHOD BLANK RESULT

Lab Id.	Extractable Hydrocarbons as Diesel (mg/L)
071693 METHOD BLANK	ND

Reporting Limit: 0.05
Method: 3510 GCFID
Instrument: C
Date Extracted: 07/16/93
Date Analyzed: 07/20/93

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

INSTRUMENT: F

CLIENT PROJ. ID: 1649.13

AEN JOB NO: 9307136
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: 1649.13

AEN JOB NO: 9307136

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-132	01A	98.7
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: 1649.13

AEN JOB NO: 9307136
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

R-315-2

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9307136

Project No.: 1649.13	Field Logbook No.:	Date: 7/14/93	Serial No.: 11700
Project Name: YERBA BUENA	Project Location: EMERYVILLE CA.		
Sampler (Signature):			Samplers: JCK SCH

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPH-G	BTEX	TPH-D		HOLD	RUSH	REMARKS
LF-132	7/14/93	15:40	01A-E	5	H_2O			X	X	X				NORMAL TAT
														RESULTS TO
														JENNIFER BEATTY

RELINQUISHED BY: (Signature) Matthew Cloud	DATE 7/15/93	TIME 16:45	RECEIVED BY: (Signature)	DATE 7/15/93	TIME 16:45
RELINQUISHED BY: (Signature)	DATE 7/15/93	TIME 11:40	RECEIVED BY: (Signature) Gina Gillespie	DATE 7-15-93	TIME 1140
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

Sample Collector:	LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, Ca 94608 (415) 652-4500
Analytical Laboratory:	AEN PLEASANT HILL, CA.

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