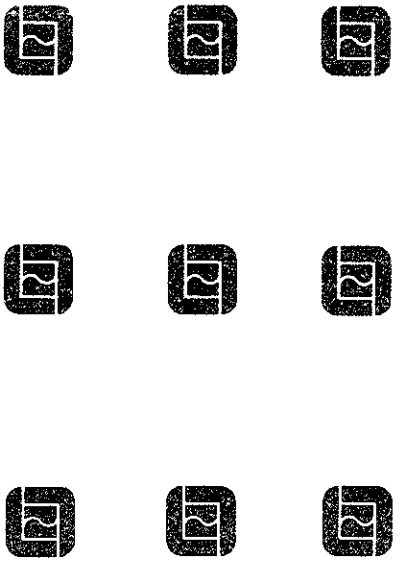


Quarterly Ground-Water Monitoring Report
July 1 through September 30, 1994
Polvorosa Business Park
1555 Doolittle Drive
San Leandro, California

October 31, 1994
1204.00-001

Prepared for
Chamberlin Associates

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

October 31, 1994 LF 1204.00-001

Mr. Scott Seery
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94501

Subject: Quarterly Ground-Water Monitoring Report,
July 1 through September 30, 1994,
Polvorosa Business Park, 1555 Doolittle Drive,
San Leandro, California

Dear Scott:

Enclosed is one copy of the subject report for your review and for your files. The enclosed report covers the period from July 1 through September 30, 1994. This report is submitted on behalf of Chamberlin Associates, in accordance with your May 20, 1994 letter to Stephen Chamberlin of Chamberlin Associates.

Please note that monitoring well LF-15 was not sampled during this quarterly sampling event. This well is located on the adjacent Viking Trucking Terminal property, and Chamberlin Associates is currently working out an access agreement with the property owner to allow the collection of quarterly ground-water samples from this well. This well will be included in the quarterly sampling program once the access agreement is completed. The next quarterly sampling event is tentatively scheduled for late November or early December; the results from this sampling event will be reported in our January 31, 1995 quarterly monitoring report.

Please call either of the undersigned if you have questions or comments.

Sincerely,

Adam Klein
Senior Project Hydrologist

Ted Splitter, P.E.
Principal Engineer

cc: Stephen Chamberlin, Chamberlin Associates

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

LIST OF TABLES

LIST OF FIGURES

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.

Theodore Splitter
Principal Geotechnical Engineer
Professional Engineer (29718)

10/27/94
Date

October 31, 1994 LF 1204.00-001

**QUARTERLY GROUND-WATER MONITORING REPORT
FOR JULY 1 THROUGH SEPTEMBER 30, 1994
POLVOROSA BUSINESS PARK
1555 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA**

1.0 SCOPE OF THIS REPORT

This quarterly ground-water monitoring report is submitted by Levine•Fricke, Inc. ("Levine•Fricke") on behalf of Chamberlin Associates for the Polvorosa Business Park, located at 1555 Doolittle Drive in San Leandro, California ("the Site"; Figure 1). This report is submitted pursuant to Section 2652 (d) of Title 23, California Code of Regulations, and in accordance with the Alameda County Department of Environmental Health's letter of May 20, 1994 to Stephen Chamberlin of Chamberlin Associates. This report presents summaries of ground-water monitoring and remedial activities conducted during July 1 to September 30, 1994 ("the reporting period") at the Site.

2.0 TECHNICAL PROGRESS

The following site activities were performed during the reporting period:

- Removal of approximately 500 gallons of purged ground water mixed with oil from the oil-water separator, by Evergreen Environmental Services on August 11, 1994.
- Collection of water-level measurements from monitoring wells MW-3, MW-8, MW-10, LF-12, LF-13, and LF-14 on September 28, 1994.
- Measurement of free-product thickness in monitoring well LF-12 on September 28, 1994.
- Collection of ground-water samples from monitoring wells MW-3, MW-8, MW-10, LF-13, and LF-14 on September 28, 1994.

3.0 QUARTERLY GROUND-WATER MONITORING

This section presents the results of ground-water monitoring activities conducted during the reporting period.

3.0 QUARTERLY GROUND-WATER MONITORING

This section presents the results of ground-water monitoring activities conducted during the reporting period.

Ground-water level measurements were collected from all accessible monitoring wells on September 28, 1994. Ground-water elevation data for all wells are summarized in Table 1 and are shown in Figure 2. Ground-water samples were also collected from all accessible monitoring wells on September 28, 1994. Field parameters measured during well sampling are presented in Table 2, and the field parameter data sheets are presented in Appendix A. Ground-water quality data for total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as gasoline (TPHg), and benzene, toluene, ethylbenzene and xylene (BTEX) are presented in Table 3, and are shown in Figure 3. Laboratory analytical data sheets are presented in Appendix B.

3.1 Ground-Water Elevation and Flow Direction

Depth to ground-water levels measured in site monitoring wells ranged from approximately 8 to 12 feet below the ground surface (bgs). As shown in Figure 2, the general direction of ground-water flow at the Site is to the northwest under a horizontal hydraulic gradient of approximately 0.022 feet/foot (ft/ft). The direction of the horizontal hydraulic gradient is consistent with previous results from the Site.

Approximately 0.5 foot of free petroleum product was measured in monitoring well LF-12. The water-level measurement collected from this well was not used in plotting the ground-water flow contours presented in Figure 2, because of the depression of the ground-water surface in this well caused by the presence of free product.

3.2 Ground-Water Sampling and Analysis

Ground-water samples were collected from monitoring wells MW-3, MW-8, MW-10, LF-13, and LF-14 on September 28, 1994. A ground-water sample was not collected from monitoring well LF-12 because of the presence of free product in this well. Samples were collected using the following procedure:

- Depth to ground water was measured in the well using an electric water-level indicator.

- Approximately 3 well volumes were purged from the well using a clean Teflon bailer. Field parameters (temperature, pH, and conductivity) were measured during purging, to ensure representative sample collection.

- Following purging and before sample collection, depth to water was again measured in the well, to ensure that the well had recovered to at least 80 percent of the original water level.

- A ground-water sample was collected using a clean Teflon bailer. Samples were decanted into 40-milliliter volatile organic analysis (VOA) vials for the TPHg and BTEX analyses, and into 1-liter amber bottles for the TPHd analysis.

Ground-water samples were analyzed by American Environmental Network Laboratories of Pleasant Hill, California (AEN), a state-certified laboratory, for TPHd and TPHg using modified EPA Method 8015, and for BTEX using EPA Method 8020. Results of the September 28, 1994 sampling program are summarized below.

3.3 Ground-Water Analysis Results

The water-quality data are presented in Figure 3, and indicate the following:

- BTEX compounds were not detected in any of the ground-water samples collected, except 0.0006 parts per million (ppm) benzene detected in the ground-water sample collected from LF-14.

- The ground-water samples collected from monitoring wells MW-10 and LF-13 were below method detection limits for TPHd and TPHg.

- The ground-water sample collected from well MW-3 had concentrations of 58 ppm TPHg and 87 ppm TPHd, the highest detected concentrations at the Site.

- The laboratory reported that the TPHg detected in the ground-water samples was not typical of a gasoline chromatogram. This information, coupled with the absence of BTEX compounds in the ground-water samples, suggests that the reported TPHg was likely the lighter fraction hydrocarbons present in diesel.

3.4 Next Quarterly Sampling Event

The next quarterly sampling event is tentatively scheduled for late November or early December 1994.

TABLE 1

GROUND-WATER ELEVATION DATA
POLVOROSA BUSINESS PARK
1555 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

(all measurements in feet above mean sea level)

Well Number	Well Elevation	Product Thickness (feet)	Ground-Water Elevation 28-Sep-94
MW-3	12.18	NP	~~3.15~~ 3.16
MW-8	12.83	NP	~~3.24~~ 3.26
MW-10	14.22	NP	~~3.17~~ 3.24
LF-12	14.89	0.5	2.57 (1)
LF-13	14.58	NP	~~3.10~~ 3.12
LF-14	10.76	NP	~~2.98~~ 3.01

Data input by DLM 30/Sep 94. Data proofed by AIK

Notes:
NP - No product detected
(1) Ground-water surface may be depressed due to the presence of floating product

TABLE 2

WATER-QUALITY PARAMETERS MEASURED DURING PURGING AND SAMPLING
SEPTEMBER 1994
POLVOROSA BUSINESS PARK
1555 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

Well Number	Date Sampled	Time Sampled	Well Volume (gallons)	Water Extracted (gallons)	Depth to Water (feet)	pH	Temperature (degrees C)	Specific Conductance (micromhos/cm)	Remarks
MW-3	28-Sep-94	4:45	1.48	5.0	9.02	6.02	23.4	323	Dark brown/green, very turbid, sulfuric petroleum odor
MW-8	28-Sep-94	3:49	1.30	4.5	9.57	6.68	23.1	1,177	Very turbid, brown, sheen
MW-10	28-Sep-94	2:31	2.00	6.0	10.98	6.82	21.4	1,082	Very turbid, gray
LF-13	28-Sep-94	11:35	1.00	3.5	11.46	6.98	21.2	1,557	Very turbid, gray
LF-14	28-Sep-94	12:30	1.70	5.0	7.75	6.99	18.4	1,374	Cloudy, sheen

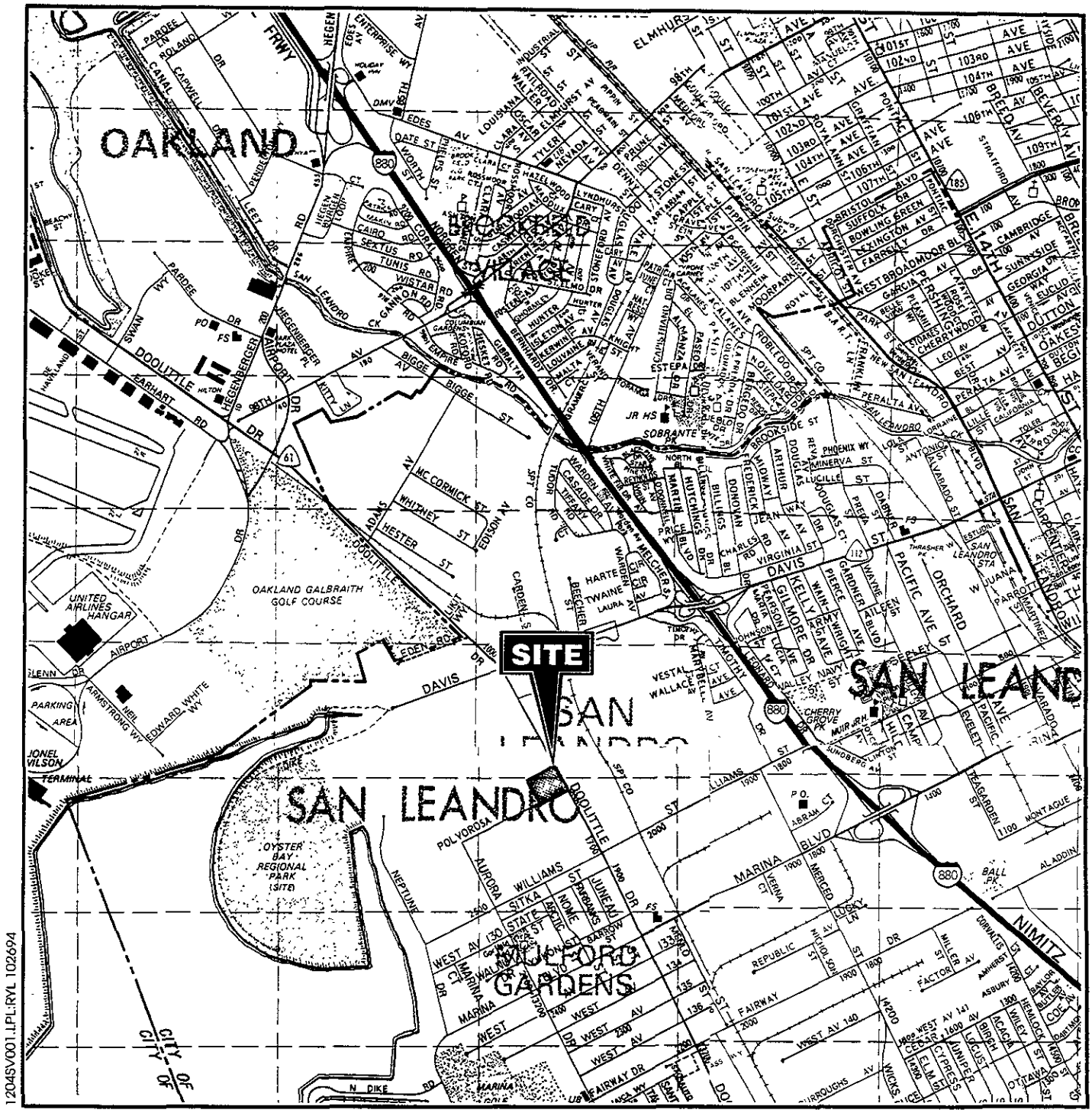
Data input by DLM 29/Sep 94 Data proofed by AK.

TABLE 3

GROUND-WATER SAMPLE ANALYTICAL RESULTS
PETROLEUM HYDROCARBON COMPOUNDS
POLVOROSA BUSINESS PARK
1555 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA
(results expressed in ppm)

Sample ID	Date	Benzene	Toluene	Ethyl-benzene	Xylenes Total	TPHg	TPHd
MW-3	28-Sep-94	<0.010	<0.010	<0.010	<0.040	58	87
MW-8	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	0.1	2.1
MW-80	duplicate	<0.0005	<0.0005	<0.0005	<0.002	1.6	1.5
MW-10	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05
LF-13	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05
LF-14	28-Sep-94	0.0006	<0.0005	<0.0005	<0.002	1.7	13
Blanks:							
MW-8-FB	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05

NOTES
TPHd = total petroleum hydrocarbons as diesel
TPHg = total petroleum hydrocarbons as gasoline
Data proofed by AJK.



Modified from:
Thomas Brothers Map
Alameda and Contra Costa Counties
1994 Edition

0 1/2 1 MILE

12045V001.LPL:RYL 102694

Figure 1 : SITE LOCATION MAP
POLVOROSA BUSINESS PARK, 1555 DOOLITTLE DRIVE, SAN LEANDRO, CALIFORNIA

Project No. 1204

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

1204GC01.AIK:EM 102494

SOUTHERN PACIFIC RAILROAD

MAINTENANCE BUILDING

EXISTING FUEL ISLAND & SCALE PIT

LF-15

LF-14

13	TPHd
1.7	TPHg
0.0006	B
<0.0005	T
<0.0005	E
<0.002	X

LF-12

BUILDING C

LF-12A

LF-13

<0.05	TPHd
<0.05	TPHg
<0.0005	B
<0.0005	T
<0.0005	E
<0.002	X

TERMINAL BUILDING

87	TPHd
58	TPHg
<0.010	B
<0.010	T
<0.010	E
<0.040	X

MW-3

MW-8

2.1/1.5	TPHd
0.1/1.6	TPHg
<0.0005/<0.0005	B
<0.0005/<0.0005	T
<0.0005/<0.0005	E
<0.002/<0.002	X

EXISTING FENCE

<0.05	TPHd
<0.05	TPHg
<0.0005	B
<0.0005	T
<0.0005	E
<0.002	X

MW-10

BUILDING A

BUILDING B

DOOLITTLE DRIVE

POLVOROSA AVENUE

EXPLANATION

- Approximate well location (installed by Levine-Fricke)
- Approximate well location (installed by others)

0.1/1.6 TPHg

- Chemical compound
- Duplicate sample concentration (ppm)
- Sample concentration (ppm)

KEY TO ABBREVIATIONS

TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylene

0 40 80 FEET

1204B002.AIK:EM 102494

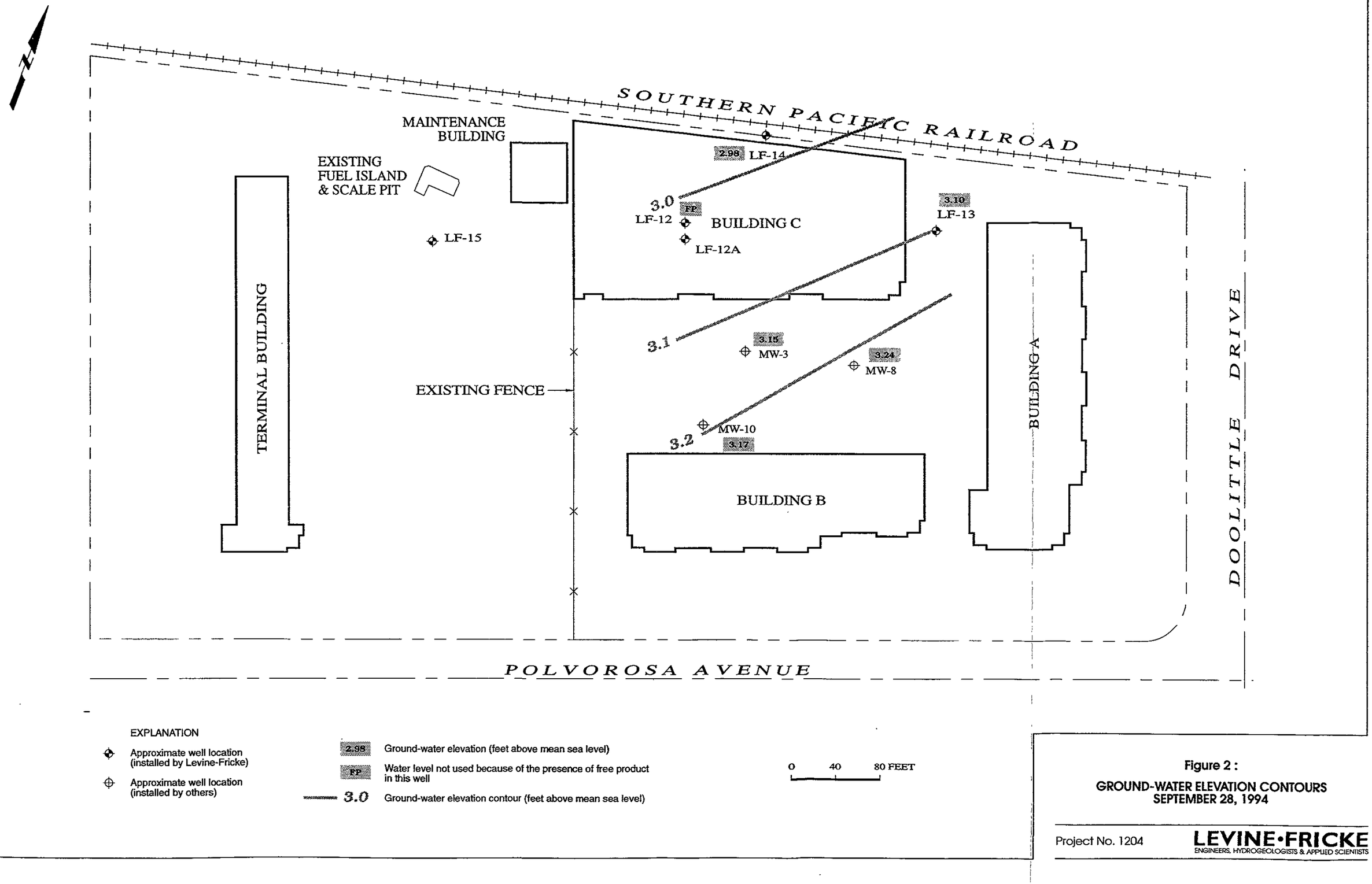
Figure 3 :

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER (ppm) SEPTEMBER 28, 1994

Project No. 1204

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

1204GG01.AIK:EM 102494



EXPLANATION

- Approximate well location (installed by Levine-Fricke)
- Approximate well location (installed by others)
- 2.98 Ground-water elevation (feet above mean sea level)
- FP Water level not used because of the presence of free product in this well
- 3.0 Ground-water elevation contour (feet above mean sea level)

0 40 80 FEET

1204B002.AIK:EM 102494

Figure 2 :

GROUND-WATER ELEVATION CONTOURS SEPTEMBER 28, 1994

Project No. 1204

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

APPENDIX A

WATER-QUALITY SAMPLING FIELD LOGS
SEPTEMBER 1994 SAMPLING EVENT

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Polverosa — Project No. 1204.01

Date 9/28/94 — Sample No. MW-3

Samplers Name BCC

Sampling Location

Sampling Method Plastic Bailer

Analyses Requested BTEX, TPHg+d

Number and Types of Sample Bottles used 2L + 2VOA

Method of Shipment

GROUND WATER

Well No. MW-3

Well Diameter (in.) 2"

Depth to Water, Static (ft) 9.02

Water in Well Box

Well Depth (ft) 18.26

Height of Water Column in Well 9.24

Water Volume in Well ~1.48

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
4:34		1.5	23.8	6.01	420			Dark brown/green Very turbid
4:36		3.0	23.5	5.93	340			Sulfuric smell
4.40		4.25	23.5	5.99	315			petroleum sheen
4:43		5.00	23.4	6.02	323			
4:45	Sample	ATW	9.55'					

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Polverosa — Project No. 1204.01

Date 9/28/94 — Sample No. MW-8, MW-80, MW-8-

Samplers Name BCC

Sampling Location

Sampling Method Plastic Bailer

Analyses Requested BTEX, TPH/gas

Number and Types of Sample Bottles used 4 L + 4 VOA

Method of Shipment

GROUND WATER

Well No. MW-8

Well Diameter (in.) 2"

Depth to Water, Static (ft) 9.87

Water in Well Box No

Well Depth (ft) 17.75

Height of Water Column in Well 8.18

Water Volume in Well ~1.3 gal.

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
3:38		1 gal	23.3	6.96	1317			Very Turbid,
3:42		2 gal	23.2	6.58	1284			Brown, sheen, yes
3:44		3 gal	23.1	6.63	1243			
3:47		4.5 gal	23.1	6.68	1177			
	Sample 3:49 PM		DTW =	9.85'				

Suggested Method for Purging Well

LEVINE-FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Polverosa — Project No. 1704.01

Date 9/24/94 — Sample No. MW-10

Samplers Name BLC

Sampling Location

Sampling Method Plastic Bailer

Analyses Requested BTEX, TPH/gas

Number and Types of Sample Bottles used

Method of Shipment

GROUND WATER

Well No. MW-10

Well Diameter (in.) 2"

Depth to Water, Static (ft) 10.98'

Water in Well Box No

Well Depth (ft) ~~23.40~~ 23.70'

Height of Water Column in Well 12.72

Water Volume in Well ≈ 2 gallons

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
1:51		0.25	22.6	7.56	1062			very turbid, gray/
1:56		1.25	22.3	7.06	1096			green, no
2:04		2.25	21.9	6.70	1087			sheen
2:15		3.25	21.8	6.77	1073			↓
2:19		4.75	21.4	6.82	1077			↓
2:26		6.0	21.4	6.82	1082			
2:28	11.27	Sample at 2:31 pm						

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name Polvorosa Business Park Project No. 1204.01

Date 9/28/94 Sample No. LF-13

Samplers Name AIK, BCC

Sampling Location

Sampling Method Plastic Bailer

Analyses Requested

Number and Types of Sample Bottles used

Method of Shipment

GROUND WATER

Well No. LF-~~8~~13

Well Diameter (in.) 2"

Depth to Water, Static (ft) 11.46

Water in Well Box Y

Well Depth (ft) 17.67

Height of Water Column in Well 6.21

Water Volume in Well ≈ 1 gallon

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

6.21
.16
1.26
021
9936

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
11:25 a.m.		0.5	21.6	6.92	1490			gray, very turbid
11:27		~~0~~1.0	21.6	6.89	1557			" " "
11:29		2.0	21.4	6.92	1557			no sheen
11:31		2.5	21.2	6.95	1559			
11:33		3.5	21.2	6.98	1557			
11:35	11.77	SAMPLED						

Suggested Method for Purging Well

LEVINE•FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name: Poloroosa Bus. Park — Project No. 1204.01

Date: 4/28/94 — Sample No. LF-14

Samplers Name: BCC, AIK

Sampling Location:

Sampling Method: Plastic Bailer

Analyses Requested: TPH&, TPHg, BTEX

Number and Types of Sample Bottles used: 2L, 2 VOA

Method of Shipment:

GROUND WATER

Well No. LF-14

Well Diameter (in.) 2"

Depth to Water, Static (ft) 7.75

Water in Well Box NO

Well Depth (ft) 18.06

Height of Water Column in Well 10.31

Water Volume in Well ≈1.7 gal.

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
~~12:10~~	~~7.75~~							
12:14		0.5	19.1	6.92	1403			Cloudy, sheen
12:16		1.25	18.8	6.93	1371			Cloudy, sheen
12:19		2.50	18.6	6.94	1372			Cloudy, Sheen
12:21		3.50	18.6	6.98	1381			Cloudy, Sheen
12:25		4.50	18.5	6.99	1376			Cloudy, Sheen
12:28		5.00	18.4	6.99	1374			Cloudy Sheen
12:30	8.51'		SAMPLED					

Suggested Method for Purging Well

APPENDIX B

LABORATORY CERTIFICATES FOR GROUND-WATER SAMPLES SEPTEMBER 1994 SAMPLING EVENT

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: ADAM KLEIN
CLIENT PROJ. ID: 1204.01
CLIENT PROJ. NAME: POLUOROSA
C.O.C. NUMBER: 12381

REPORT DATE: 10/13/94
DATE(S) SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
AEN WORK ORDER: 9409406

PROJECT SUMMARY:

On September 29, 1994, 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 pages.

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
OCT 18

LEVINE-FRICKE

SAMPLE ID: LF-13
AEN LAB NO: 9409406-01
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/07/94
Toluene	108-88-3	ND	0.5	ug/L	10/07/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/07/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/07/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/07/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	10/05/94

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

LEVINE-FRICKE

SAMPLE ID: LF-14
AEN LAB NO: 9409406-02
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.6 *	0.5	ug/L	10/07/94
Toluene	108-88-3	ND	0.5	ug/L	10/07/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/07/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/07/94
Purgeable HCs as Gasoline	5030/GCFID	1.7 *	0.05	mg/L	10/07/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	13 *	0.05	mg/L	10/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-10
AEN LAB NO: 9409406-03
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/07/94
Toluene	108-88-3	ND	0.5	ug/L	10/07/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/07/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/07/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/07/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	10/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-8
AEN LAB NO: 9409406-04
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/10/94
Toluene	108-88-3	ND	0.5	ug/L	10/10/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/10/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/10/94
Purgeable HCs as Gasoline	5030/GCFID	0.1 *	0.05	mg/L	10/10/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	2.1 *	0.05	mg/L	10/08/94

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

LEVINE-FRICKE

SAMPLE ID: MW-80
AEN LAB NO: 9409406-05
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/07/94
Toluene	108-88-3	ND	0.5	ug/L	10/07/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/07/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/07/94
Purgeable HCs as Gasoline	5030/GCFID	1.6 *	0.05	mg/L	10/07/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	1.5 *	0.05	mg/L	10/08/94

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

LEVINE-FRICKE

SAMPLE ID: MW-8-FB
AEN LAB NO: 9409406-06
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/10/94
Toluene	108-88-3	ND	0.5	ug/L	10/10/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/10/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/10/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/10/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	10/08/94

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

LEVINE-FRICKE

SAMPLE ID: MW-3
AEN LAB NO: 9409406-07
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	10	ug/L	10/07/94
Toluene	108-88-3	ND	10	ug/L	10/07/94
Ethylbenzene	100-41-4	ND	10	ug/L	10/07/94
Xylenes, Total	1330-20-7	ND	40	ug/L	10/07/94
Purgeable HCs as Gasoline	5030/GCFID	58 *	1	mg/L	10/07/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	87 *	3	mg/L	10/09/94

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: WW-1
AEN LAB NO: 9409406-08
AEN WORK ORDER: 9409406
CLIENT PROJ. ID: 1204.01

DATE SAMPLED: 09/28/94
DATE RECEIVED: 09/29/94
REPORT DATE: 10/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/10/94
Toluene	108-88-3	1 *	0.5	ug/L	10/10/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/10/94
Xylenes, Total	1330-20-7	ND	2	ug/L	10/10/94
Purgeable HCs as Gasoline	5030/GCFID	4.3 *	0.05	mg/L	10/10/94
#Extraction for TPH	EPA 3510	-		Extrn Date	10/05/94
TPH as Diesel	GC-FID	5.8 *	0.05	mg/L	10/08/94

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9409406

CLIENT PROJECT ID: 1204.01

Quality Control Summary

Surrogate recovery for EPA 3510 GCFID for sample MW-3 was outside of established quality control limits due to matrix interference.

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

AEN JOB NO: 9409406
DATE EXTRACTED: 10/05/94
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary
Method: EPA 3510 GCFID

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
10/05/94	LF-13	01	78
10/06/94	LF-14	02	81
10/06/94	MW-10	03	84
10/08/94	MW-8	04	97
10/08/94	MW-80	05	96
10/08/94	MW-8-FB	06	91
10/09/94	MW-3	07	I
10/08/94	WW-1	08	112

I: Out of established control limits due to matrix interference.

Current QC Limits

Surrogate	Percent Recovery
n-Pentacosane	30-120

QUALITY CONTROL DATA

AEN JOB NO: 9409406
DATE EXTRACTED: 10/03/94
DATE ANALYZED: 10/03/94
INSTRUMENT: C
MATRIX: WATER

Matrix Spike Recovery Summary
Method: EPA 3510 GCFID

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.00	79	<1	65-103	12

Method Blank Result

Lab Id.	Extractable Hydrocarbons as Diesel (mg/L)
100594-BLANK	ND
Reporting Limit	0.05

QUALITY CONTROL DATA

AEN JOB NO: 9409406
AEN LAB NO: 1007-BLANK
DATE ANALYZED: 10/07/94

BTEX and Hydrocarbons
Method: EPA 8020, 5030 GCFID

	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
Purgeable Hydrocarbons as: Gasoline		ND mg/L	0.05 mg/L

AEN LAB NO: 1010-BLANK
DATE ANALYZED: 10/10/94

BTEX and Hydrocarbons
Method: EPA 8020, 5030 GCFID

	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
Purgeable Hydrocarbons as: Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

AEN JOB NO: 9409406
INSTRUMENT: E.F
MATRIX: WATER

Surrogate Standard Recovery Summary
Method: EPA 8020, 5030 GCFID

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
10/07/94	LF-13	01	98
10/07/94	LF-14	02	98
10/07/94	MW-10	03	96
10/10/94	MW-8	04	97
10/07/94	MW-80	05	99
10/10/94	MW-8-FB	06	96
10/07/94	MW-3	07	97
10/10/94	WW-1	08	102

Current QC Limits

Surrogate	Percent Recovery
Fluorobenzene	86-110

QUALITY CONTROL DATA

AEN JOB NO: 9409406
DATE ANALYZED: 10/07/94
SAMPLE SPIKED: 9409435-01
INSTRUMENT: F
MATRIX: WATER

Matrix Spike Recovery Summary
Method: EPA 8020, 5030

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	18.5	95	4	82-125	15
Toluene	50.4	96	<1	75-126	17
Hydrocarbons as Gasoline	500	87	5	75-132	16

*** END OF REPORT ***

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9409406

Project No.: 1209.01	Field Logbook No.:	Date: 9/28/94	Serial No.: No. 12381
Project Name: Poluvorosa Business Park	Project Location:		
Sampler (Signature): Bryan Cecil BCC#507			

SAMPLES						ANALYSES								Samplers: AEK, BCC
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	EPA 8015 TPHd	EPA 8020 BTEX	TPHd / EPA 8015		HOLD	RUSH	REMARKS
LF-13	9/28	11:35	01A-D	4	water			✓	✓	✓				
LF-14		12:30	02A-D											Standard TAT
MW-10		2:31	03A-D											Results to Adam Klein
MW-8		3:49	04A-D											Liter bottles to be tested for TPHd, VOA vials for TPHg & BTEX
MW-80		3:49	05A-D											
MW-8-FB		3:15	06A-D											
MW-3		4:45	07A-D											
MW-1		5:15	08A-D											
TB			09AB									✓		

RELINQUISHED BY: (Signature)	DATE 9/29/94	TIME 11:25	RECEIVED BY: (Signature)	DATE 9/29/94	TIME 11:25
RELINQUISHED BY: (Signature)	DATE 9/29/94	TIME 12:15	RECEIVED BY: (Signature)	DATE 9-29-94	TIME 1215
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