Quarterly Ground-Water Monitoring Report
October 1 through December 31, 1994
Polvorosa Business Park
1555 Doolittle Drive
San Leandro, California

January 31, 1995
1204.00-001

Prepared for
Chamberlin Associates

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

January 31, 1995 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, October 1 through December 31, 1994, Polvorosa Business Park, 1555 Doolittle Drive, San Leandro, California

Dear Scott:

Enclosed is one copy of the subject report for your review and files. The report details ground-water monitoring at the subject site for the period from October 1 through December 31, 1994, and is submitted on behalf of Chamberlin Associates, in accordance with your May 20, 1994 letter to Stephen Chamberlin.

Please note that monitoring well LF-15, located on the adjacent Viking Trucking Terminal property, was not sampled during this quarterly sampling event. Chamberlin Associates has recently completed an access agreement with the property owner, and this well will be sampled during the next quarterly sampling event.

The next quarterly sampling event is tentatively scheduled for late February or early March, and results from that event will be reported in our April 30, 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
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Fax (510) 652-2246

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

CONTENTS

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 Engineer
Professional Engineer (29718)

1/31/95
Date

January 31, 1995 LF 1204.00-001

**QUARTERLY GROUND-WATER MONITORING REPORT
FOR OCTOBER 1 THROUGH DECEMBER 31, 1994
POLVOROSA BUSINESS PARK
1555 DOOLITTLE DRIVE, SAN LEANDRO, CALIFORNIA**

1.0 SCOPE OF THIS REPORT

On behalf of Chamberlin Associates, Levine·Fricke, Inc. submitting this quarterly ground-water monitoring report 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 May 20, 1994 letter to Stephen Chamberlin of Chamberlin Associates. This report presents a summary of ground-water monitoring at the Site from October 1 to December 31, 1994 ("the reporting period").

2.0 TECHNICAL PROGRESS

On November 22, 1994, the following site work was completed:

- Water levels were measured in wells MW-3, MW-8, MW-10, LF-12, LF-13, and LF-14.
- Free product thickness was measured in well LF-12.
- Ground-water samples were collected from monitoring wells MW-3, MW-8, MW-10, LF-13, and LF-14.

3.0 QUARTERLY GROUND-WATER MONITORING

On November 22, 1994, the depth to ground water was measured in and ground-water samples were collected from the monitoring wells noted above. Ground-water elevations are summarized in Table 1 and Figure 2. Field parameters measured during well sampling are presented in Table 2, and field data sheets are presented in Appendix A.

3.1 Ground-Water Elevation and Flow Direction

Ground-water levels measured in site monitoring wells on November 22, 1994 ranged from approximately 7 to 12 feet below

the ground surface (bgs), indicating a rise in local ground-water elevations of approximately one foot since the September 28, 1994 sampling event. As shown in Figure 2, the general direction of ground-water flow at the Site is to the north under a horizontal hydraulic gradient of approximately 0.0008 feet/foot (ft/ft). The direction of the horizontal hydraulic gradient has shifted slightly from the northwesterly direction previously reported.

Approximately 0.06 foot of free product was measured in well LF-12, a significant reduction from the 0.5 foot of free product measured in this well on September 28, 1994. The water-level measurement collected from this well was not used to plot the ground-water flow contours presented in Figure 2, because of the depression of the ground-water surface caused by the presence of free product.

3.2 Ground-Water Sampling

Ground-water samples were collected from monitoring wells MW-3, MW-8, MW-10, LF-13, and LF-14 on November 22, 1994. A ground-water sample was not collected from well LF-12, because of the presence of free product in the well. Samples were collected from each well 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 (in well MW-10, a clean disposable plastic bailer was used, because of the narrow diameter of the well head). Field parameters (temperature, pH, and conductivity) were measured during purging, to ensure representative sample collection.

- After 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.

- Ground-water samples were collected using a clean Teflon bailer (in well MW-10, a clean disposable plastic bailer was used). Samples to be analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPHg) and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) were decanted into 40-milliliter volatile organic analysis (VOA) vials. Samples to be analyzed for TPH as diesel (TPHd) were decanted into 1-liter amber bottles.

3.3 Ground-Water Sample Analysis

Ground-water samples were analyzed by American Environmental Network (AEN), of Pleasant Hill, California, a state-certified laboratory. Samples were analyzed for TPHd and TPHg using modified EPA Method 8015, and for BTEX using EPA Method 8020. The resulting ground-water quality data are presented in Table 3 and Figure 3, and are summarized briefly below. Laboratory data reports are presented in Appendix B.

BTEX. No BTEX compounds were detected above laboratory detection limits in the ground-water samples from wells MW-8, MW-10, and LF-13. Benzene was detected at a maximum concentration of 0.0008 parts per million (ppm) (well LF-14), and toluene, ethylbenzene, and xylene were detected at a maximum concentration of 0.003 ppm (well MW-3).

TPHg and TPHd. Neither TPHg nor TPHd were detected above laboratory detection limits in the ground-water samples collected from wells MW-10 and LF-13. The maximum concentrations of TPHg and TPHd detected at the Site were in ground-water samples collected from MW-3, in which TPHg was detected at 7.8 ppm (primary) and 2.6 ppm (duplicate) and TPHd was detected at 56 ppm (primary) and 67 ppm (duplicate).

According to AEN, the TPHg detected in the analyzed samples was not typical of a gasoline chromatogram. This information, together with the detection of only trace concentrations of BTEX compounds, suggests that the reported TPHg may have been the lighter fraction hydrocarbons present in diesel.

4.0 NEXT QUARTERLY SAMPLING EVENT

The next quarterly sampling event is tentatively scheduled for late February or early March 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	Ground-Water Elevation 28-Sep-94		Product Thickness 28-Sep-94 (feet)	Ground-Water Elevation 22-Nov-94		Product Thickness 22-Nov-94 (feet)
			DTW			DTW	
MW-3	12.18	3.15	8.12	NP	4.06		NP
MW-8	12.83	3.24		NP	3.97		NP
MW-10	14.22	3.17		NP	4.08		NP
LF-12	14.89	2.57	(1)	0.05	2.43	(1)	0.06
LF-13	14.58	3.10		NP	3.92		NP
LF-14	10.76	2.98		NP	3.84		NP

Data input by DLM 14/Dec 94; WKH 1/Jan 95. 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
NOVEMBER 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	22-Nov-94	13:07	1.62	4.8	8.21	6.53	22.3	583	black, sheen, petrol smell, turbi
MW-8	22-Nov-94	14:10	1.42	4.5	9.20	6.96	22.4	1,172	grey-green, very turbid
MW-10	22-Nov-94	11:10	2.17	6.6	10.21	7.14	20.1	1,086	brown, very turbid
LF-13	22-Nov-94	15:28	1.12	3.6	10.96	7.11	20.3	1,615	green-grey, turbid
LF-14	22-Nov-94	14:50	1.78	5.25	7.15	6.89	17.6	1,449	green, turbid,

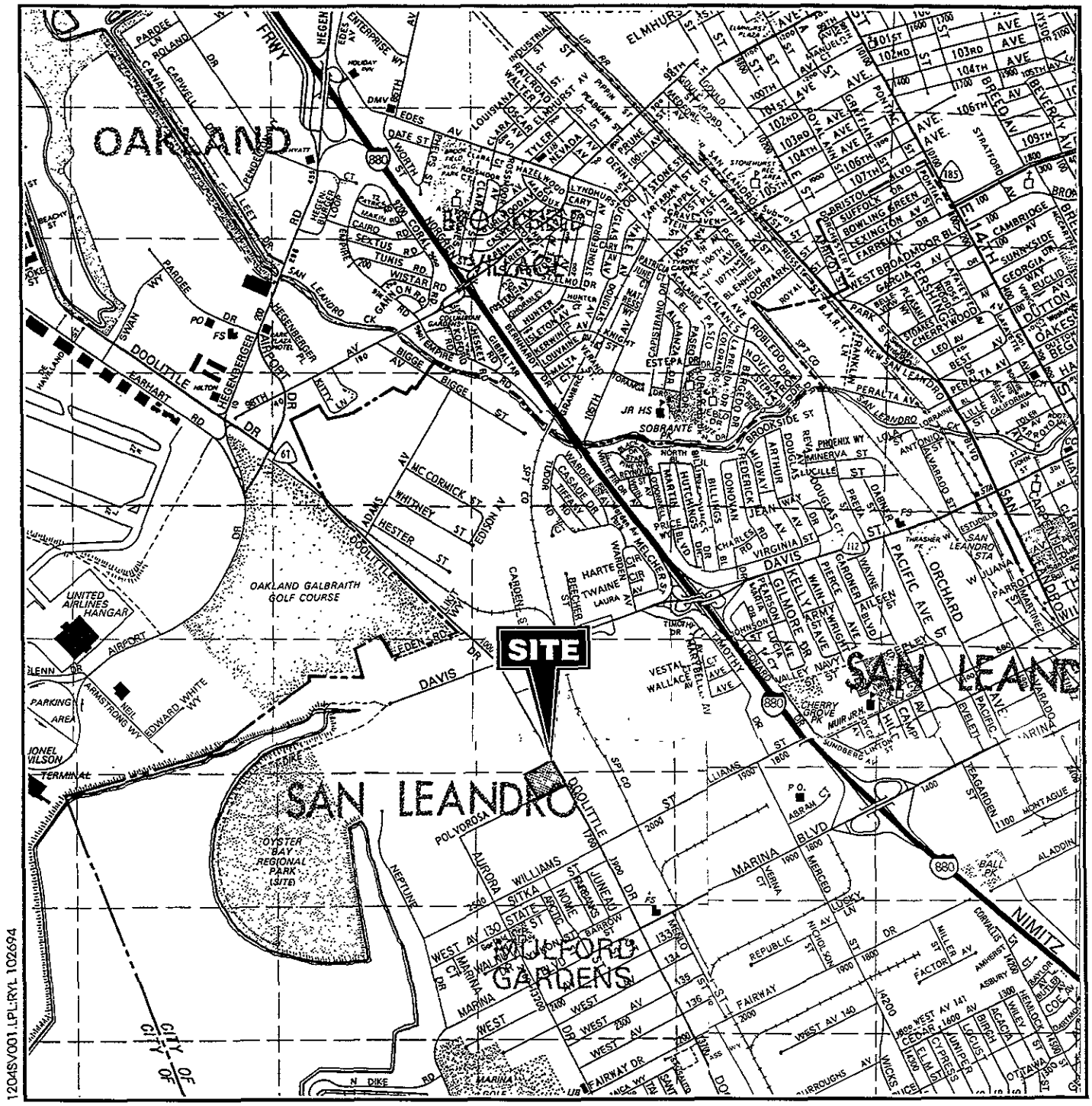
Data input by DLM 14/Dec 94 Data proofed by AL.

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
	22-Nov-94	0.0005	0.001	0.0008	0.003	7.8	56
duplicate	22-Nov-94	0.0006	0.001	<0.0005	<0.002	2.6	67
MW-8	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	0.1	2.1
duplicate	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	1.6	1.5
	22-Nov-94	<0.0005	<0.0005	<0.0005	<0.002	0.7	8.0
MW-10	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05
	23-Nov-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
	22-Nov-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
	22-Nov-94	0.0008	<0.0005	<0.0005	<0.002	1.0	9.2
Blanks:							
MW-8-FB	28-Sep-94	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05
MW-8-FB	22-Nov-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 entered by DLM 14/Dec 94 Proofed by _____.



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

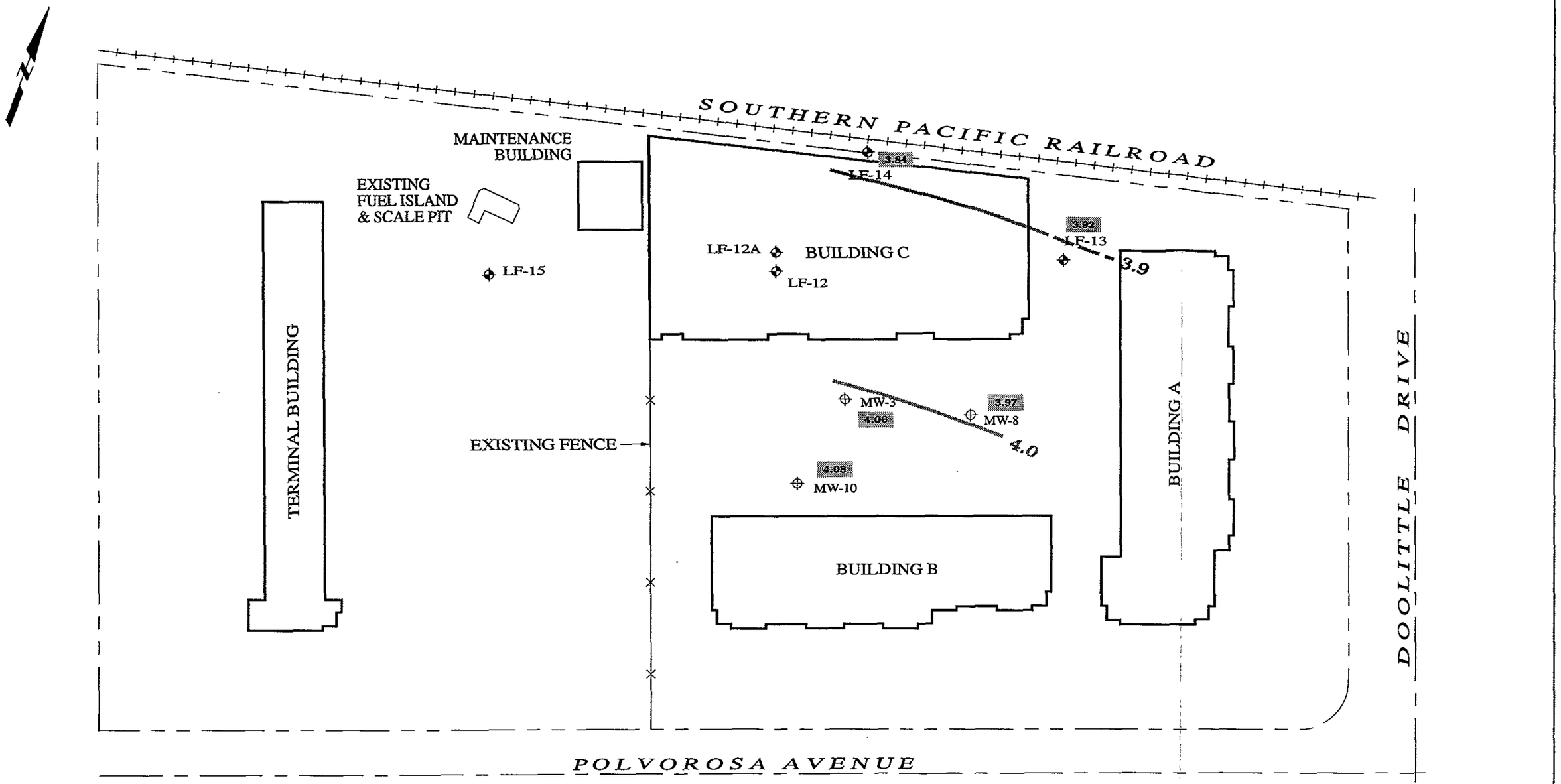
0 1/2 1 MILE

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

Project No. 1204

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

1204QG01.AIK:JSM 011995



EXPLANATION

- Approximate well location (installed by Levine-Fricke)
- Approximate well location (installed by others)
- 3.84 Ground-water elevation (feet above mean sea level)
- 3.9 Ground-water elevation contour dashed where inferred (feet above mean sea level)

0 40 80 FEET

Figure 2 :

GROUND-WATER ELEVATION CONTOURS NOVEMBER 22, 1994

Project No. 1204

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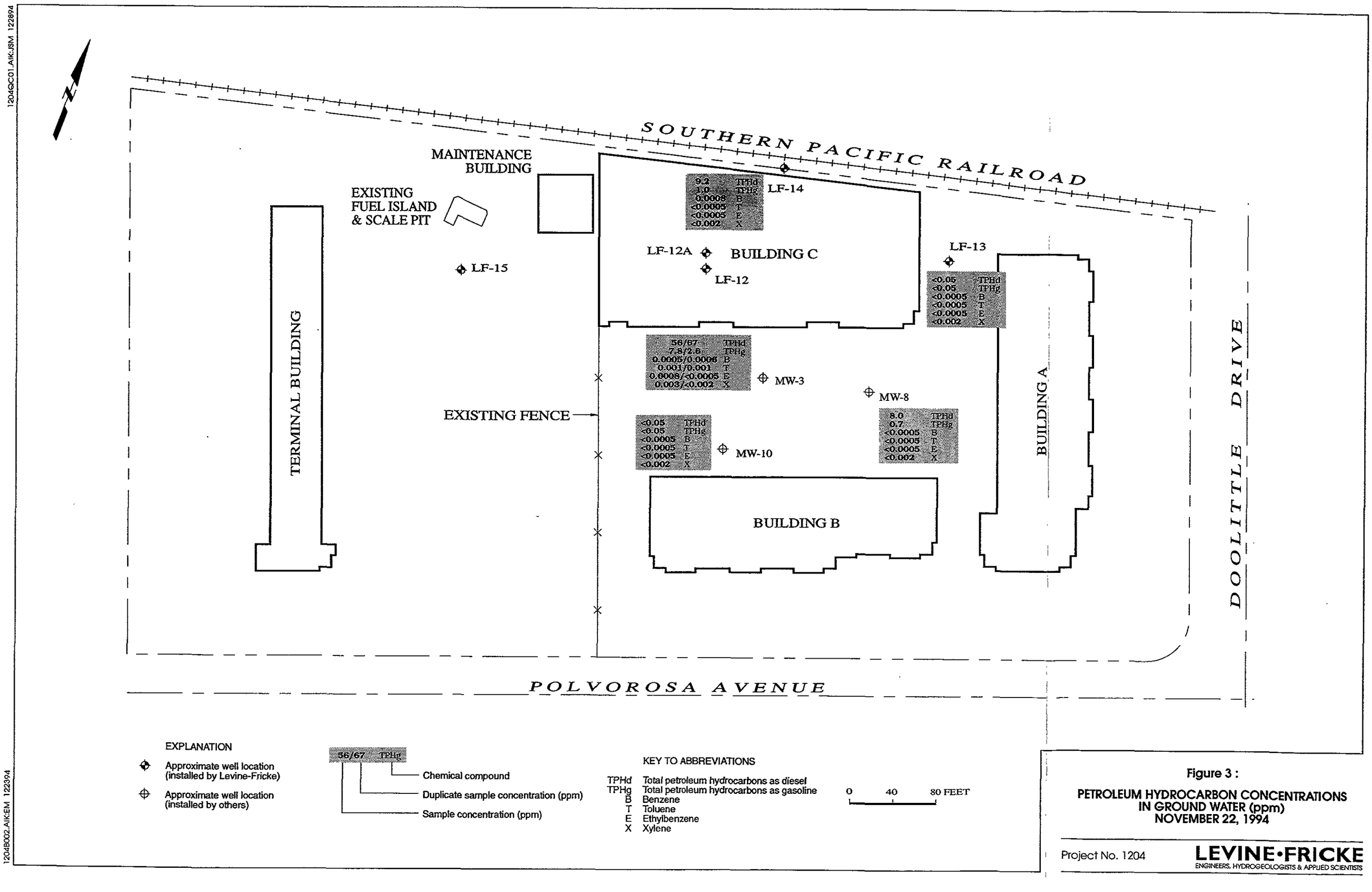
1204B002.AIK:EM 122394

1204QC01.AIK;JSM 122894



EXPLANATION

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

56/67 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

Figure 3 :

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER (ppm) NOVEMBER 22, 1994

Project No. 1204

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

1204B002.AIK;EM 122394

APPENDIX A

WATER-QUALITY SAMPLING FIELD LOGS
NOVEMBER 1994 SAMPLING EVENT

WATER-QUALITY SAMPLING INFORMATION

Project No.: 1204

Project Name: Polvorosa

Sample Location: San Leandro

Samplers Name: BCC

Sampling Plan Prepared By: AIK

Sampling Method:

Date: 11-22-94

Sample No.: MW-3

☐ FB: [redacted]

☐ DUP: MW-103

☐ Centrifugal Pump ☐ Disposable Bailer

☐ Submersible Pump ☑ Teflon Bailer

☐ Hand Bail ☐ _____ (Other)

Analyses Requested	Number and Types of Bottle used
TPHg/BTEX	2x(3 VOA's + 2 L's)
TPHd	

Method of Shipment: AEN (Lab Name)

☑ Courier

☐ Hand Deliver:

Well Number: MW-3

Depth of Water: 8.12

Well Depth: 18.26

Height of Water Column: 10.14

Volume in Well: 1.62 gal

Well Diameter:

☑ 2" (0.16 Gallon/Feet)

☐ 4" (0.65 Gallon/Feet

☐ 5" (1.02 Gallon/Feet)

☐ 6" (1.47 Gallon/Feet)

10.14	10.14
.16	.2
6084	20.28
1014	8.12
1.6224	10.14

80% DTW 10.14

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temparture °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
12:49	8.12	0						Start bailing
12:53		1.6		22.6	6.66	620		black, sheen, petrol smell, turbid
12:57		3.2		22.4	6.50	565		"
13:00		4.8		22.3	6.53	583		"
13:07	8.21							sample MW-3
[redacted]								~~sample~~
14:07								sample MW-103

Inlet Depth: _____

Comments: Nasty Water

(Recommended Method For Purging Well)

WTRQLTY.SMPLNG.INFO.22/UL94/YL

LEVINE•FRICKE

Page ____ of ____

WATER-QUALITY SAMPLING INFORMATION

Project No.: 1204
Project Name: Polverosa
Sample Location: San Leandro
Samplers Name: BCC
Sampling Plan Prepared By: AIK
Sampling Method:

Date: 11-22-94
Sample No.: MW-8
☐ FB: MW-8-FB
☐ DUP:

☐ Centrifugal Pump
☐ Submersible Pump
☐ Hand Bail
☐ Disposable Bailer
☒ Teflon Bailer
☐ _____ (Other)

Analyses Requested
TPHg / BTEX
TPHd

Number and Types of Bottle used
2x (3 VOA's + 2 L's)

8.89 × .16 = 5334 + 889 = 1.4224
8.89 × .2 = 1.778
8.86 / 1063

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

Well Number: MW-8
Depth of Water: 8.86
Well Depth: 17.75
Height of Water Column: 8.89
Volume in Well: 1.42 gal

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

80% DTW 10.63

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temparture °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
13:54	8.86	0						start bailing
13:57		1.5		22.3	6.83	1131		gray-green, very turbid, [redacted]
14:00		3.0		22.3	6.99	1122		11
14:03		4.5		22.4	6.96	1172		11
14:10	9.20							sample MW-8
13:40								sample MW-8-FB

Inlet Depth: _____
Comments: First couple bailers - full had [redacted] waters
(Recommended Method For Purging Well)

WTR.QLTY.SMPLNG.INFO.2211U.94RYL

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Page ____ of ____

WATER-QUALITY SAMPLING INFORMATION

Project No.: 1204.00
Project Name: Polverosa
Sample Location: San Leandro
Samplers Name: BCC
Sampling Plan Prepared By: AIK
Sampling Method:

Date: 11-22-94
Sample No.: MW-10
☐ FB:
☐ DUP:

☐ Centrifugal Pump ☐ Disposable Bailer
☐ Submersible Pump ☒ Teflon Bailer
☐ Hand Bail ☐ _____ (Other)

Analyses Requested
TPH_g/BTEX
TPH_d

Number and Types of Bottle used
3 VOA's, 2 L's

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

13.56 × .16 = 8136 + 1356 = 21696

13.56 × .2 = 2712 + 1014 = 12.85

80% DTW 12.85

Well Number: MW-10
Depth of Water: 10.14
Well Depth: 23.70
Height of Water Column: 13.56
Volume in Well: 2.17 gal

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

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temparture °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
12:28	10.14	0						start bailing
		TEFLON	BAILER TOO	BIG	FOR	WELL		
		RETURN	11:23	, water table = 10.71				
10:47	10:17	0						start bailing
10:52		2.2		20.4	7.13	1090		brown, very turbid
11:00		4.4		20.1	7.09	1102		" "
11:06		6.6		20.1	7.14	1086		" "
11:10	10:21							sample

Inlet Depth:

Comments:
(Recommended Method For Purging Well)

WTR.QLTY.SMPLNG.INFO.22JUL94RYL

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WATER-QUALITY SAMPLING INFORMATION

Project No.: 1204
Project Name: Polverosa
Sample Location: San Leandro
Samplers Name: BCC
Sampling Plan Prepared By: AIK
Sampling Method:

Date: 11-22-94
Sample No.: LF-13
☐ FB:
☐ DUP:

☐ Centrifugal Pump
☐ Submersible Pump
☐ Hand Bail
☐ Disposable Bailer
☒ Teflon Bailer
☐ _____ (Other)

7.01 .16 4206 701 1.1216

7.01 .2 1.402 1206

Analyses Requested
TPHg/BTEX
TPHd

Number and Types of Bottle used
3 VOA's, 2 L's

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

Well Number: LF-13
Depth of Water: 10.66
Well Depth: 17.67
Height of Water Column: 7.01
Volume in Well: 1.12 gal

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

80% DTW 12.06

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temparture °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
15:18	10.66	0						start bailing
15:20		1.2		20.4	7.23	1588		green/gray, turbid
15:23		2.4		20.3	7.10	1612		" "
15:26		3.6		20.3	7.11	1615		" "
15:28	10.96							sample

Inlet Depth:

Comments:
(Recommended Method For Purging Well)

WATER-QUALITY SAMPLING INFORMATION

Project No.: 1204

Project Name: Potrerosa

Sample Location: San Leandro

Samplers Name: BLL

Sampling Plan Prepared By: AIK

Sampling Method:

Date: 11-22-94

Sample No.: LF-14

☐ FB:

☐ DUP:

☐ Centrifugal Pump ☐ Disposable Bailer

☐ Submersible Pump ☑ Teflon Bailer

☐ Hand Bail ☐ _____ (Other)

Analyses Requested	Number and Types of Bottle used
TPHg/BTEX	3 VOA's, 2 L's
TPHd	

Method of Shipment

AEN (Lab Name)

☑ Courier

☐ Hand Deliver:

Well Number: LF-14

Depth of Water: 6.92

Well Depth: 18.06

Height of Water Column: 11.14

Volume in Well: 1.78 gal

Well Diameter:

☑ 2" (0.16 Gallon/Feet)

☐ 4" (0.65 Gallon/Feet

☐ 5" (1.02 Gallon/Feet)

☐ 6" (1.47 Gallon/Feet)

11.14	11.14
.16	.2
6684	2.228
1114	6.92
17824	9.14

80% DTW 9.14

TIME	Depth to Water	Volume Purged (Gallons)	Totalizer Reading	Temparture °C	pH (SU)	Cond (mohs)	Turbidity (NTU)	Remarks
14:36	6.92	0						
14:39		1.75		17.9	7.05	1410		sheen in cup, green, turbid, off
14:42		3.50		17.5	6.88	1442		no sheen, " " " "
14:47		5.25		17.6	6.89	1449		" " " "
14:50	7.15							sample

Inlet Depth:

Comments:

(Recommended Method For Purging Well)

WTR.QLTY.SMPLNG.INFO.22JUL94RYL

APPENDIX B

LABORATORY CERTIFICATES FOR GROUND-WATER SAMPLES NOVEMBER 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
CLIENT PROJ. NAME: POLVEROSA
C.O.C. NUMBER: 013231

REPORT DATE: 12/13/94
DATE(S) SAMPLED: 11/22/94-11/23/94
DATE RECEIVED: 11/23/94
AEN WORK ORDER: 9411345

PROJECT SUMMARY:

On November 23, 1994, this laboratory received 7 water sample(s).

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

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

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

Larry Klein
Laboratory Director

RECEIVED
DEC 15

LEVINE-FRICKE

SAMPLE ID: LF-13
AEN LAB NO: 9411345-01
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	12/02/94
Toluene	108-88-3	ND	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	12/06/94

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

LEVINE-FRICKE

SAMPLE ID: LF-14
AEN LAB NO: 9411345-02
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.8 *	0.5	ug/L	12/02/94
Toluene	108-88-3	ND	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	1.0 *	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	9.2 *	0.05	mg/L	12/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-3
AEN LAB NO: 9411345-03
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.5 *	0.5	ug/L	12/02/94
Toluene	108-88-3	1 *	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	0.8 *	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	3 *	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	7.8 *	0.05	mg/L	12/03/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	56 *	0.05	mg/L	12/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-103
AEN LAB NO: 9411345-04
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.6 *	0.5	ug/L	12/02/94
Toluene	108-88-3	1 *	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	2.6 *	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	67 *	0.05	mg/L	12/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-8
AEN LAB NO: 9411345-05
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	12/02/94
Toluene	108-88-3	ND	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	0.7 *	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	8.0 *	0.05	mg/L	12/06/94

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

LEVINE-FRICKE

SAMPLE ID: MW-8-FB
AEN LAB NO: 9411345-06
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/22/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	12/02/94
Toluene	108-88-3	ND	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	12/07/94

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

LEVINE-FRICKE

SAMPLE ID: MW-10
AEN LAB NO: 9411345-07
AEN WORK ORDER: 9411345
CLIENT PROJ. ID: 1204

DATE SAMPLED: 11/23/94
DATE RECEIVED: 11/23/94
REPORT DATE: 12/13/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	12/02/94
Toluene	108-88-3	ND	0.5	ug/L	12/02/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/02/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/02/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/02/94
#Extraction for TPH	EPA 3510	-		Extrn Date	12/04/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	12/06/94

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9411345

CLIENT PROJECT ID: 1204

Quality Control Summary

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

Definitions

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

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

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

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

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

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

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

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9411345
AEN LAB NO: 1204-BLANK
DATE EXTRACTED: 12/04/94
DATE ANALYZED: 12/04/94

Method Blank

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

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9411345
DATE EXTRACTED: 12/04/94
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
12/06/94	LF-13	01	91
12/06/94	LF-14	02	95
12/06/94	MW-3	03	95
12/06/94	MW-103	04	107
12/06/94	MW-8	05	95
12/07/94	MW-8-FB	06	82
12/06/94	MW-10	07	100
QC Limits:			30-120

DATE EXTRACTED: 12/02/94
DATE ANALYZED: 12/04/94
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.08	89	4	65-103	12

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9411345
AEN LAB NO: 1202-BLANK
DATE ANALYZED: 12/02/94

Method Blank

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

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9411345
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
12/02/94	LF-13	01	99
12/02/94	LF-14	02	100
12/02/94	MW-3	03	97
12/02/94	MW-103	04	100
12/02/94	MW-8	05	99
12/02/94	MW-8-FB	06	100
12/02/94	MW-10	07	100
QC Limits:			92-109

DATE ANALYZED: 12/02/94
SAMPLE SPIKED: LCS
INSTRUMENT: H

Laboratory Control Sample

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits Percent Recovery
Benzene	33.3	95	63-117
Toluene	97.5	94	67-114
Hydrocarbons as Gasoline	1000	85	63-120

*** END OF REPORT ***

K-1,5-E

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9411345

Project No.: 1204	Field Logbook No.:	Date: 11-22-94	Serial No.: № 013231
Project Name: Polverosa	Project Location: San Leandro		
Sampler (Signature): Bryan Coll			Samplers: BCC

SAMPLES						ANALYSES								
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPHg/BTEX	TPHd			HOLD	RUSH	REMARKS
LF-13	11-22	15:28	01A-E	5	Water			✓	✓					
LF-14	11-22	14:50	02A-E											
MW-3		13:07	03A-E											
MW-103		14:07	04A-E											
MW-8		14:10	05A-E											
MW-8-FB		13:40	06A-E											
MW-10	11-23	11:10	07A-E											
														Results to Adam Klein

RELINQUISHED BY: (Signature) Bryan Coll	DATE 11/23/94	TIME 12:00	RECEIVED BY: (Signature) Michael E McMillan	DATE 11-23-94	TIME 12:00
RELINQUISHED BY: (Signature) Michael E McMillan	DATE 11-23-94	TIME 13:15	RECEIVED BY: (Signature) Gwin Gillespie	DATE 11-23-94	TIME 1315
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

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ # 1204. SEC # ____ LABORATORY ABN METHOD 8020/5030 LAB IDs 9411345
SAMPLE DATE(S) 11/22/94 - 11/23/94 ANALYSIS DATE(S) 12/2-12/3/94 PROJECT MANAGER AK

ITEM		STANDARD		STANDARD MET?
HOLDING TIME	10-11 days	MAX HOLDING TIME	14 days	Y N
FIELD BLANK RESULTS	ND	DET LIMIT	—	Y N
TRIP BLANK RESULTS	—	DET LIMIT	—	Y N
METHOD BLANK RESULTS	ND	DET LIMIT	—	Y N
SURROGATE RECOVERY RANGE	97-100	Acceptable range	92-109	Y N
Lab MATRIX SPIKE RECOVERY RANGE	85-95	Acceptable range	63-120	Y N
MATRIX SPIKE RPD RANGE	—	Acceptable range	—	Y N
FIELD DUPLICATE RPD	0-100	Acceptable range	<50	Y N *
ELEVATED DETECTION LIMIT	NO			Y N
COC MATCHES LAB DATA	yes			Y N

CORRECTIVE ACTION SUGGESTED

* Data is to be flagged. Concentration of HCs as Gasoline in sample MW-3 is an estimate b/c relative percent difference between sample and duplicate concentration exceeds 50%. Sample & duplicate concentration cannot be averaged.

AKE. 12/15/94

Worksheet prepared by: AKE Date 12/15/94 Reviewed by _____ Date _____ (Project Manager)

Project Manager must also initial QA/QC space on table.

After review, return copy of initialed worksheet to laboratory data coordinator for filing.

If you have additional questions, please ask Levine•Fricke laboratory manager or Applied Sciences group manager for assistance.

LAB DATA QUALITY ASSURANCE/QUALITY CONTROL WORKSHEET

PROJ # 1204 SEC # ____ LABORATORY AEN METHOD 3510 LAB IDs 9411345
SAMPLE DATE(S) 11/22/94 11/23/94 ANALYSIS DATE(S) 12/6-12/7/94 PROJECT MANAGER AK

ITEM		STANDARD		STANDARD MET?	
HOLDING TIME	14-16 days	MAX HOLDING TIME	40days	Y	N
FIELD BLANK RESULTS	ND	DET LIMIT		Y	N
TRIP BLANK RESULTS		DET LIMIT		Y	N
METHOD BLANK RESULTS	ND	DET LIMIT		Y	N
SURROGATE RECOVERY RANGE	82-107	Acceptable range	30-120	Y	N
~~MATRIX~~ Method SPIKE RECOVERY RANGE	89	Acceptable range	65-103	Y	N
~~MATRIX~~ Method SPIKE RPD RANGE	4	Acceptable range	0-12	Y	N
FIELD DUPLICATE RPD	17	Acceptable range	<50	Y	N
ELEVATED DETECTION LIMIT	No			Y	N
COC MATCHES LAB DATA	Yes			Y	N

CORRECTIVE ACTION SUGGESTED None.

Worksheet prepared by: _____ Date 12/15/94 Reviewed by _____ Date _____ (Project Manager)
Project Manager must also initial QA/QC space on table.
After review, return copy of initialed worksheet to laboratory data coordinator for filing.
If you have additional questions, please ask Levine•Fricke laboratory manager or Applied Sciences group manager for assistance.