aqua science engineers inc.

LOP
1247

August 5, 1999

QUARTERLY GROUNDWATER MONITORING REPORT
JULY 20, 1999 GROUNDWATER SAMPLING
ASE JOB NO. 3389

at

Lerer Brothers Transmission
6340 Christie Ave.
Emeryville, CA 94608

Prepared by:
AQUA SCIENCE ENGINEERS, INC.
208 W. El Pintado
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

Site Location (Site), See Figure 1
Lerer Brothers Transmission
6340 Christie Ave.
Emeryville, CA 94608

Responsible Party
Rick Gold
P.O. Box 117820
Burlingame, CA 94011-7820

Environmental Consulting Firm
Aqua Science Engineers, Inc. (ASE)
208 W. El Pintado
Danville, CA 94583
Contact: Robert Kitay, Senior Geologist
(925) 820-9391

Agency Review
Alameda County Health Care Services
1131 Harbor Bay Pkwy., Suite 250
Alameda, CA 94502
Contact: Ms. Susan Hugo
(510) 567-6700

California Regional Water Quality Control Board (RWQCB)
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Contact: Mr. Chuck Headlee
(510) 622-2433

The following is a report detailing the results of the July 20, 1999 quarterly groundwater sampling at the above-referenced site. This sampling was conducted as required by the RWQCB. ASE has prepared this report on behalf of Mr. Rick Gold, owner of the property.

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On July 20, 1999, ASE environmental scientist Ian Reed measured the depth to water in each site groundwater monitoring well using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. There was no free-floating product or sheen present in any well. Groundwater elevation data is presented as Table One.

TABLE ONE

Groundwater Elevation Data

Well I.D.	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	1-28-99	10.00	4.85	5.15
	3-29-99		4.85	5.15
	7-20-99		**5.08**	**4.92**
MW-2	1-28-99	9.96	4.17	5.79
	3-29-99		3.89	6.07
	7-20-99		**4.30**	**5.66**
MW-3	1-28-99	9.25	4.23	5.02
	3-29-99		4.41	4.84
	7-20-99		**3.86**	**5.39**

A groundwater potentiometric surface map is presented as Figure 2. The groundwater flow direction is to the southeast with a gradient of approximately 0.014-feet/foot. This groundwater flow direction is not consistent with the expected flow direction to the west.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, each monitoring well was purged of four well casing volumes of groundwater using a dedicated bailer. Slight petroleum hydrocarbon odors were present during the purging and sampling of the groundwater monitoring wells. The parameters pH, temperature and conductivity were monitored during the well purging. Samples were not collected until these parameters stabilized. Groundwater samples were collected from each well using dedicated polyethylene bailers. The samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, pre-preserved with hydrochloric acid. The samples were capped without headspace, labeled and placed in coolers with wet ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP 1094) under appropriate chain-of-custody documentation. Well sampling field logs are presented in Appendix A.

The groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) by EPA Method 8020 and methyl tertiary butyl ether (MTBE) by EPA Method 8020. The analytical results for this sampling period are presented in Table Two. The certified analytical report and chain-of-custody documentation are included as Appendix B.

TABLE TWO
Certified Analytical Results of **GROUNDWATER** Samples
All results are in **parts per billion**

Well ID & Dates Sampled	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Lead
MW-1							
1-28-99	730	22	3.3	24	61	<5.0	<5.0
3-29-99	950	37	5.7	27	60	<5.0	--
7-20-99	**970**	**40**	**5.4**	**67**	**120**	**< 5.0**	**--**
MW-2							
1-28-99	710	20	180	14	67	<5.0	<5.0
3-29-99	500	8.6	44	4.3	25	<5.0	--
7-20-99	**510**	**8.4**	**44**	**6.0**	**31**	**< 5.0**	**--**
MW-3							
1-28-99	<50*	<0.5	<0.5	<0.5	0.69	<5.0	<5.0
3-29-99	130	1.9	8.2	1.4	7.1	<5.0	--
7-20-99	**170**	**< 0.5**	**1.9**	**< 0.5**	**0.89**	**< 5.0**	**--**
DHS MCL	NE	1	150	700	1,750	13	15
EPA METHOD	5030/ 8015M	8020	8020	8020	8020	8020	6010

Notes:
* = Hydrocarbons uncharacteristic of gasoline detected in the gasoline range at 68 ppb.
-- = Not analyzed
NE = DHS MCL not established
DHS MCL = California Department of Health Services maximum contaminant level for drinking water.
Non-detectable concentrations noted by the less than sign (<) followed by the laboratory detection limit.

4.0 CONCLUSIONS

The groundwater flow direction beneath this site is to the southeast at a gradient of 0.014 feet/foot. This groundwater flow direction is generally consistent with previous flow directions to the south but is not consistent with the expected flow direction to the west. Hydrocarbon concentrations detected in groundwater samples collected from all three monitoring wells are similar to previous results. Benzene concentrations in groundwater samples collected from monitoring wells MW-1 and MW-2 exceeded the California Department of Health Services (DHS) maximum contaminant

level (MCL) for drinking water. MTBE has not been detected in any groundwater sample collected in the past three quarters.

5.0 RECOMMENDATIONS

ASE recommends continued monitoring of the site on a quarterly basis. The next scheduled event is October1999.

6.0 REPORT LIMITATIONS

The results presented in this report represent the conditions at the time of the groundwater sampling, at the specific locations where the groundwater samples were collected, and for the specific parameters analyzed by the laboratory. It does not fully characterize the site for contamination resulting from sources other than the former underground storage tanks and associated plumbing at the site, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

Aqua Science Engineers appreciates the opportunity to provide environmental consulting services to Lerer Brother Transmission Service, and trust that this report meets your needs. Please feel free to call us at (925) 820-9391 if you have any questions or comments.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

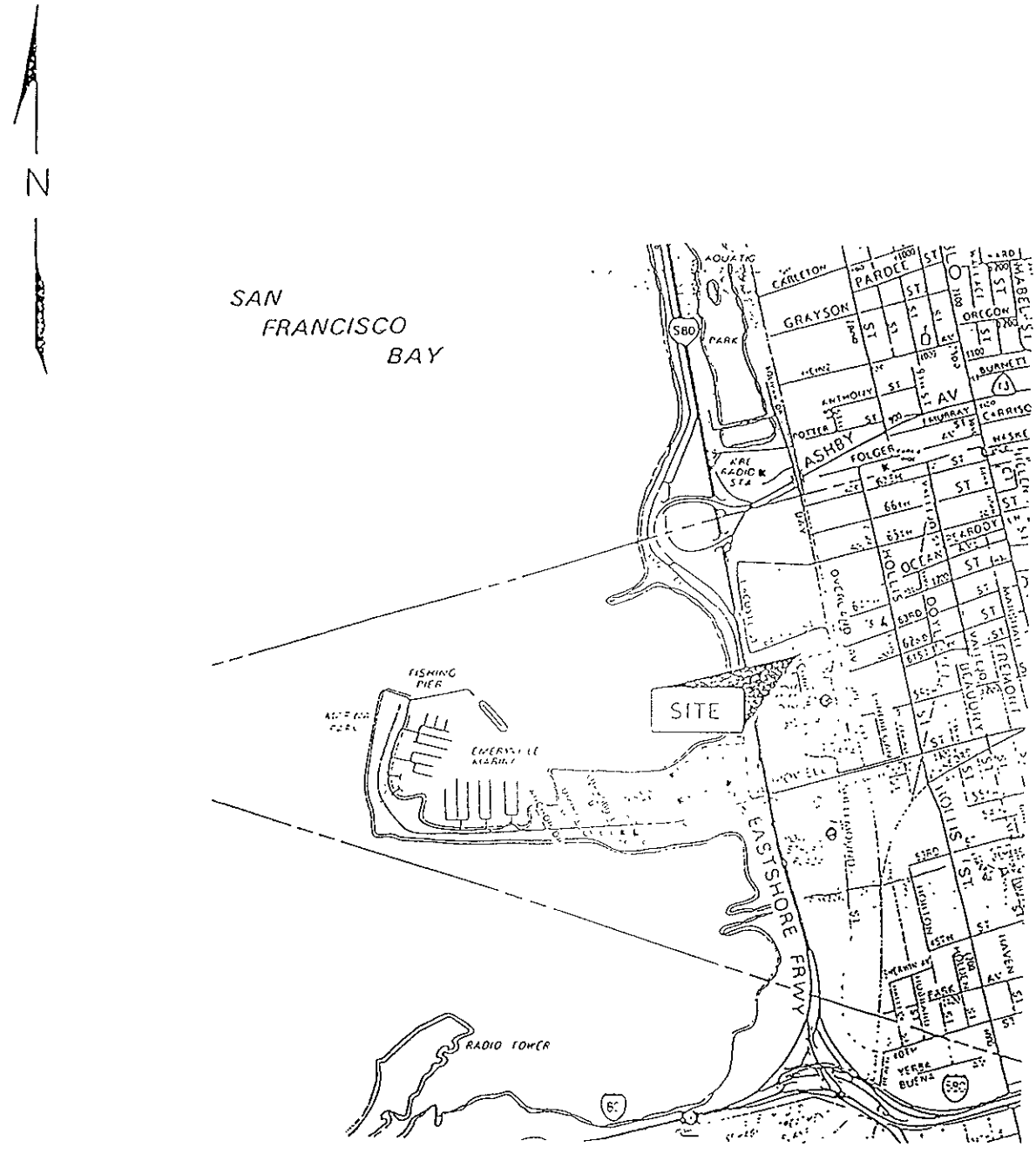
Ian Reed
Environmental Scientist

Robert E. Kitay, R.G., R.E.A.
Senior Geologist

Attachments: Figures 1 and 2
Appendices A and B

cc: Ms. Susan Hugo, Alameda County Health Care Services Agency
Mr. Chuck Headlee, RWQCB, San Francisco Bay Region

FIGURES

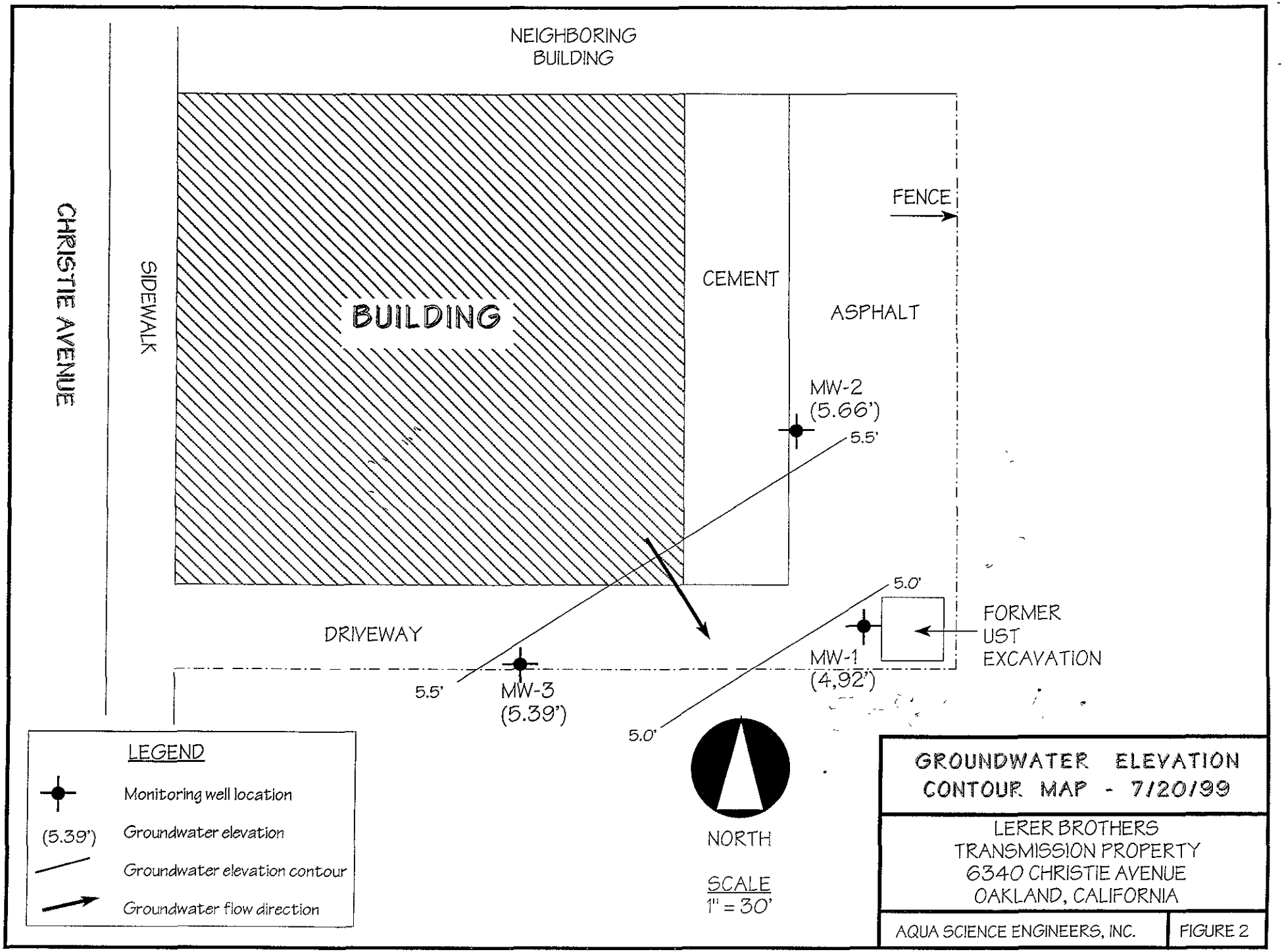


SITE LOCATION MAP

6340 Christie Avenue
Emeryville, California

Aqua Science Engineers

Figure 1


NEIGHBORING BUILDING
CHRISTIE AVENUE
SIDEWALK
BUILDING
CEMENT
ASPHALT
FENCE
MW-2 (5.66')
5.5'
5.0'
DRIVEWAY
FORMER UST EXCAVATION
MW-1 (4.92')
5.5'
MW-3 (5.39')
5.0'
NORTH
SCALE 1" = 30'
LEGEND
Monitoring well location
(5.39')
Groundwater elevation
Groundwater elevation contour
Groundwater flow direction
GROUNDWATER ELEVATION CONTOUR MAP - 7/20/99
LERER BROTHERS TRANSMISSION PROPERTY
6340 CHRISTIE AVENUE
OAKLAND, CALIFORNIA
AQUA SCIENCE ENGINEERS, INC.
FIGURE 2

APPENDIX A

Well Sampling Field Logs

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Leher
Job #: _____ Date of sampling: 7-20-99
Well Name: MW-1 Sampled by: ITR
Total depth of well (feet): 17.66 Well diameter (inches): 2"
Depth to water before sampling (feet): 5.08
Thickness of floating product if any: _____
Depth of well casing in water (feet): 12.58
Number of gallons per well casing volume (gallons): 2
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons) 8
Equipment used to purge the well: dedicated bailers
Time Evacuation Began: 1200 Time Evacuation Finished: 1220
Approximate volume of groundwater purged: 8
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1225
Depth to water at time of sampling: 17.70
Percent recovery at time of sampling: 99%
Samples collected with: dedicated bailer
Sample color: grey Odor: Yes
Description of sediment in sample: _____

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1			670
2	67.9	5.61	685
3	67.6	5.60	671
4	66.5	5.64	

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40 ml VOA's	ACL	✓	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Lehr
Job #: _____ Date of sampling: 7-20-99
Well Name: MW-2 Sampled by: ITR
Total depth of well (feet): 18.06 Well diameter (inches): 2"
Depth to water before sampling (feet): 4.3
Thickness of floating product if any: -
Depth of well casing in water (feet): 14.16
Number of gallons per well casing volume (gallons): 2.4
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 9.6
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1230 Time Evacuation Finished: 1255
Approximate volume of groundwater purged: 10
Did the well go dry?: No After how many gallons: -
Time samples were collected: 1255
Depth to water at time of sampling: 18.56
Percent recovery at time of sampling: _____
Samples collected with: dedicated bailer
Sample color: gray Odor: slight ?
Description of sediment in sample: _____

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	71.0	5.78	760
2	71.2	5.81	765
3	68.4	5.80	762
4	-	-	-

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-2	3	40ml VIALS	HCl	✓	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Loher
Job #: _____ Date of sampling: 7-20-99
Well Name: MW-3 Sampled by: ITR
Total depth of well (feet): 14.80 Well diameter (inches): 2"
Depth to water before sampling (feet): 3.86
Thickness of floating product if any: None
Depth of well casing in water (feet): 10.9
Number of gallons per well casing volume (gallons): 1.85
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 7.4
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1300 Time Evacuation Finished: 1325
Approximate volume of groundwater purged: 8
Did the well go dry?: NO After how many gallons: -
Time samples were collected: 1330
Depth to water at time of sampling: 14.80
Percent recovery at time of sampling: _____
Samples collected with: dedicated bailer
Sample color: grey Odor: slight
Description of sediment in sample: _____

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity	
1				
2	68.8	5.76	760	14.80
3	69.4	5.97	790	
4	67.8 ~~71.0(?)~~	5.87	810	14.80

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-3	3	40ml VOAs	HCl	✓	

2411 Old Crow Canyon Road, Suite 4 San Ramon, CA 94583 • 510-820-9391 • Fax 510-837-4853

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

Aqua Science Engineers, Inc.
208 West El Pintado Road
Danville, CA 94526

Attn.: Mr. Ian T. Reed

Project: 3389
Lerer

Site: 6340 Christie Ave

Dear Mr. Reed,

Attached is our report for your samples received on Wednesday July 21, 1999.
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after August 20, 1999 unless you have requested otherwise. We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.

Sincerely,

Pierre Monette

Gas/BTEX and MTBE

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville
CA 94526

Attn: Ian T. Reed

Phone. (925) 820-9391 Fax: (925) 837-4853

Project #: 3389

Project: Lerer

Site: 6340 Christie Ave

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	07/20/1999 12:55	1
MW-2	Water	07/20/1999 12:25	2
MW-3	Water	07/20/1999 13:30	3

To: Aqua Science Engineers, Inc.

Attn.. Ian T Reed

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID.	MW-1	Lab Sample ID:	1999-07-0340-001
Project.	3389 Lerer	Received.	07/21/1999 17:50
Site	6340 Christie Ave	Extracted:	07/23/1999 10:42
Sampled:	07/20/1999 12:55	QC-Batch:	1999/07/23-01.01
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	970	50	ug/L	1.00	07/23/1999 10:42	
Benzene	40	0.50	ug/L	1.00	07/23/1999 10:42	
Toluene	5.4	0.50	ug/L	1.00	07/23/1999 10:42	
Ethyl benzene	67	0.50	ug/L	1.00	07/23/1999 10:42	
Xylene(s)	120	0.50	ug/L	1.00	07/23/1999 10:42	
MTBE	ND	5.0	ug/L	1.00	07/23/1999 10:42	
Surrogate(s)						
Trifluorotoluene	95.1	58-124	%	1.00	07/23/1999 10:42	
4-Bromofluorobenzene-FID	115.5	50-150	%	1.00	07/23/1999 10:42	

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn: Ian T Reed

Prep Method 5030

Gas:BTEX and MTBE

Sample ID:	MW-2	Lab Sample ID:	1999-07-0340-002
Project:	3389 Lerer	Received:	07/21/1999 17 50
Site:	6340 Christie Ave	Extracted:	07/26/1999 10 55
Sampled:	07/20/1999 12:25	QC-Batch:	1999/07/26-01.01
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	510	50	ug/L	1.00	07/26/1999 10:55	
Benzene	8.4	0.50	ug/L	1.00	07/26/1999 10.55	
Toluene	44	0 50	ug/L	1.00	07/26/1999 10:55	
Ethyl benzene	6.0	0 50	ug/L	1.00	07/26/1999 10:55	
Xylene(s)	31	0 50	ug/L	1.00	07/26/1999 10:55	
MTBE	ND	5 0	ug/L	1.00	07/26/1999 10:55	
Surrogate(s)						
Trifluorotoluene	74.1	58-124	%	1.00	07/26/1999 10:55	
4-Bromofluorobenzene-FID	86.5	50-150	%	1.00	07/26/1999 10:55	

To: Aqua Science Engineers, Inc.

Attn.. Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	MW-3	Lab Sample ID:	1999-07-0340-003
Project:	3389 Lerer	Received:	07/21/1999 17 50
Site:	6340 Christie Ave	Extracted:	07/23/1999 11 35
Sampled:	07/20/1999 13:30	QC-Batch:	1999/07/23-01 01
Matrix:	Water		

Compound	Result	Rep Limit	Units	Dilution	Analyzed	Flag
Gasoline	170	50	ug/L	1.00	07/23/1999 11 35	
Benzene	ND	0.50	ug/L	1.00	07/23/1999 11 35	
Toluene	1 9	0 50	ug/L	1.00	07/23/1999 11:35	
Ethyl benzene	ND	0 50	ug/L	1.00	07/23/1999 11:35	
Xylene(s)	0.89	0 50	ug/L	1.00	07/23/1999 11.35	
MTBE	ND	5 0	ug/L	1.00	07/23/1999 11.35	
Surrogate(s)						
Trifluorotoluene	79.3	58-124	%	1.00	07/23/1999 11 35	
4-Bromofluorobenzene-FID	79.5	50-150	%	1.00	07/23/1999 11:35	

To: Aqua Science Engineers, Inc.

Attn.: Ian T Reed

Test Method: 8020
8015M

Prep Method: 5030

Batch QC Report
Gas/BTEX and MTBE

Method Blank | Water | QC Batch # 1999/07/23-01.01

MB: 1999/07/23-01.01-001 | Date Extracted: 07/23/1999 06:31

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	07/23/1999 06.31	
Benzene	ND	0.5	ug/L	07/23/1999 06 31	
Toluene	ND	0.5	ug/L	07/23/1999 06.31	
Ethyl benzene	ND	0.5	ug/L	07/23/1999 06 31	
Xylene(s)	ND	0.5	ug/L	07/23/1999 06.31	
MTBE	ND	5 0	ug/L	07/23/1999 06.31	
Surrogate(s)					
Trifluorotoluene	73 6	58-124	%	07/23 1999 06 31	
4-Bromofluorobenzene-FID	64 8	50-150	%	07/23/1999 06 31	

To. Aqua Science Engineers, Inc.

Test Method 8020
3015M

Attn.: Ian T Reed

Prep Method 5030

Batch QC Report
Gas/BTEX and MTBE

Method Blank Water QC Batch # 1999/07/26-01.01

MB: 1999/07/26-01.01-001 Date Extracted: 07/26/1999 06.33

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	07/26/1999 06:33	
Benzene	ND	0.5	ug/L	07/26/1999 06:33	
Toluene	ND	0.5	ug/L	07/26/1999 06:33	
Ethyl benzene	ND	0.5	ug/L	07/26/1999 06:33	
Xylene(s)	ND	0.5	ug/L	07/26/1999 06.33	
MTBE	ND	5.0	ug/L	07/26/1999 06:33	
Surrogate(s)					
Trifluorotoluene	81.0	58-124	%	07/26/1999 06 33	
4-Bromofluorobenzene-FID	76.4	50-150	%	07/26/1999 06.33	

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn. Ian T. Reed

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 1999/07/23-01.01

LCS: 1999/07/23-01.01-002 Extracted: 07/23/1999 17.25 Analyzed: 07/23/1999 17.25

LCSD: 1999/07/23-01.01-003 Extracted: 07/23/1999 17 53 Analyzed: 07/23/1999 17 53

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	476	528	500	500	95.2	105 6	10 4	75-125	20		
Benzene	99 3	90.7	100 0	100.0	99 3	90 7	9.1	77-123	20		
Toluene	96 8	90 0	100 0	100.0	96 8	90 0	7 3	78-122	20		
Ethyl benzene	97 0	87 7	100.0	100.0	97 0	87 7	10 1	70-130	20		
Xylene(s)	284	259	300	300	94 7	86 3	9 3	75-125	20		
Surrogate(s)											
Trifluorotoluene	516	462	500	500	103 2	92 4		58-124			
4-Bromofluorobenzene-FI	428	441	500	500	85 6	88 2		50-150			

To: Aqua Science Engineers, Inc.

Test Method 8015M
8020

Attn: Ian T. Reed

Prep Method 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 1999/07/26-01.01

LCS: 1999/07/26-01.01-002 Extracted: 07/26/1999 07:00 Analyzed: 07/26/1999 07:00

LCSD: 1999/07/26-01.01-003 Extracted: 07/26/1999 07:53 Analyzed: 07/26/1999 07:53

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	532	537	500	500	106.4	107.4	0.9	75-125	20		
Benzene	92.6	91.6	100.0	100.0	92.6	91.6	1.1	77-123	20		
Toluene	92.9	98.3	100.0	100.0	92.9	98.3	5.6	78-122	20		
Ethyl benzene	89.9	90.3	100.0	100.0	89.9	90.3	0.4	70-130	20		
Xylene(s)	264	265	300	300	88.0	88.3	0.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	467	445	500	500	93.4	89.0		58-124			
4-Bromofluorobenzene-FI	465	478	500	500	93.0	95.6		50-150			

47068

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE) Ian T Reed (PHONE NO.) 925-820-9391

PROJECT NAME Lerer JOB NO 3389

ADDRESS 6340 Christie Ave DATE 7-20-99

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS: Ian T Reed

SAMPLE ID	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-GASOLINE (EPA 5030/8015)	TPH-DIESEL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	PURGEABLE AROMATICS (EPA 602/8020)	VOLATILE ORGANICS (EPA 624/8240)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LUFT METALS (5) (EPA 6010+7000)	CAM 17 METALS (EPA 6010+7000)	PCBs & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)				COMPOSITE
MW-1	7-20-99	1255	water	3	X																	
MW-2	7-20-99	1225	water	3	X																	
MW-3	7-20-99	1330	water	3	X																	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY	RECEIVED BY LABORATORY	COMMENTS
Ian T Reed	B Morris 1550	[illegible] 1750	Denise Harrington	
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Ian T Reed 7-20-99	B Morris 7-21-99	[illegible] 7/21/99	D. Harrington 1750	5 day TAT
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company- Around	Company- [illegible]	Company- Chromelab 7/21/99	