aqua science engineers inc.

October 6, 1999

SEMI-ANNUAL GROUNDWATER MONITORING REPORT
SEPTEMBER 9, 1999 GROUNDWATER SAMPLING
ASE JOB NO. 2659
at
Romak Iron Works
3250 Hollis Street
Oakland, California 94662

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

1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s semi-annual groundwater sampling at the Romak Iron Works property located at 3250 Hollis Street in Oakland, California *(Figures 1 and 2).*

2.0 GROUNDWATER SAMPLING

On September 9, 1999, ASE measured the depth to water in the site groundwater monitoring well using an electric water level sounder. The well was also checked for the presence of free-floating hydrocarbons. A sheen was present on the groundwater surface this quarter. Prior to sampling, the well was purged of four well casing volumes of groundwater using a pre-cleaned polyethylene bailer. The groundwater samples were decanted from the bailer into three (3) 40-ml volatile organic analysis (VOA) vials pre-preserved with hydrochloric acid and two (2) 1-liter amber glass bottles. The samples were labeled, placed in protective foam sleeves, and placed into a cooler with wet ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under appropriate chain of custody documentation.

Well sampling purge water was contained in steel 55-gallon drums and removed from the site for disposal. The well sampling log is included as Appendix A.

3.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, total petroleum hydrocarbons as diesel (TPH-D) by EPA Method 3510/8015M, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020, and hydrocarbon oil and grease (O&G) by Standard Method 5520 B&F. The analytical results are presented in Tables One and Two. The certified analytical report and chain of custody documentation are included in Appendix B.

TABLE ONE

Certified Analytical Results of **GROUNDWATER** Samples
TPH-G, TPH-D, BTEX and MTBE
All results are in **parts per billion**

Sampling Date	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
08-04-93	12,000	---	7.6	9.7	9.9	29	---
11-18-93	10,270	---	3,169	38.3	661.2	659.4	---
02-09-94	17,000	---	6,200	64	770	420	---
05-25-94	24,000	---	6,200	27	1,100	210	---
08-18-94	22,000	---	5,000	10	740	150	---
11-14-94	20,000	4,200	4,200	25	860	450	---
02-03-95	20,000	4,600[1]	3,400	11	810	100	---
05-02-95	21,000	3,400	3,100	21	910	130	---
08-08-95	17,000	1,800	2,800	11	680	63	---
11-13-95	17,000	<1,000	2,300	8	550	69	---
02-16-96	8,900	7,600	3,100	21	760	474	<40
05-17-96	9,900	1,400	2,100	6	560	23	120
08-01-96	11,000	5,100[2]	1,600	14	580	66	<50
11-12-96	13,000	6,000[2]	910	27	440	440	85
02-06-97	16,000	7,000[1]	1,200	170	660	410	<500
05-21-97	8,600	2,900[1]	720	<10	460	41	170
09-24-97	6,400	2,600	520	12	310	13	210
03-04-98	6,500	3,300[2]	650	2.3	290	35	98
09-18-98	5,400	2,000[2]	980	11	150	24	<50
03-10-99	6,600	2,500[2]	470	85	130	20	<50
09-09-99	**2,300**	**2,400[2]**	**330**	**11**	**48**	**19**	**61**
DHS MCL	NE	NE	1.0	150	700	1,750	13

Notes:
--- = Not analyzed
NE = Not established
DHS= California Department of Health Services
MCL = maximum contaminant level for drinking water
1 = motor oil detected
2 = Fuel pattern does not match diesel standard

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

Sampling Date	Total Oil & Grease	Hydrocarbon Oil & Grease
11-14-94	4,000	<1,000
02-07-95	11,000	9,300
05-02-95	5,000	1,000
08-08-95	11,000	9,700
11-13-95	1,000	<1,000
02-16-96	---	<5,000
05-17-96	---	1,100
08-01-96	---	1,000
11-12-96	---	< 1,000
02-06-97	---	1,700
05-21-97	---	2,600
09-24-97	---	< 1,000
03-04-98	---	2,200
09-18-98	---	1,700
03-10-99	---	< 1,000
09-09-99	**---**	**< 1,000**

4.0 CONCLUSIONS

The results of the September sampling continue to show a decreasing trend in hydrocarbon concentrations. Although, hydrocarbon concentrations continue to decrease, benzene and MTBE concentrations remained above California Department of Health Services (DHS) maximum contaminant levels (MCLs) for drinking water.

ASE recommends continued semi-annual groundwater monitoring at the site.

5.0 REPORT LIMITATIONS

The results of this investigation represent conditions at the time of the groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory.

It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction

of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the analytical data.

Aqua Science Engineers appreciates the opportunity to assist Romak Iron Works with its environmental needs. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Ian T. Reed
Associate Geologist

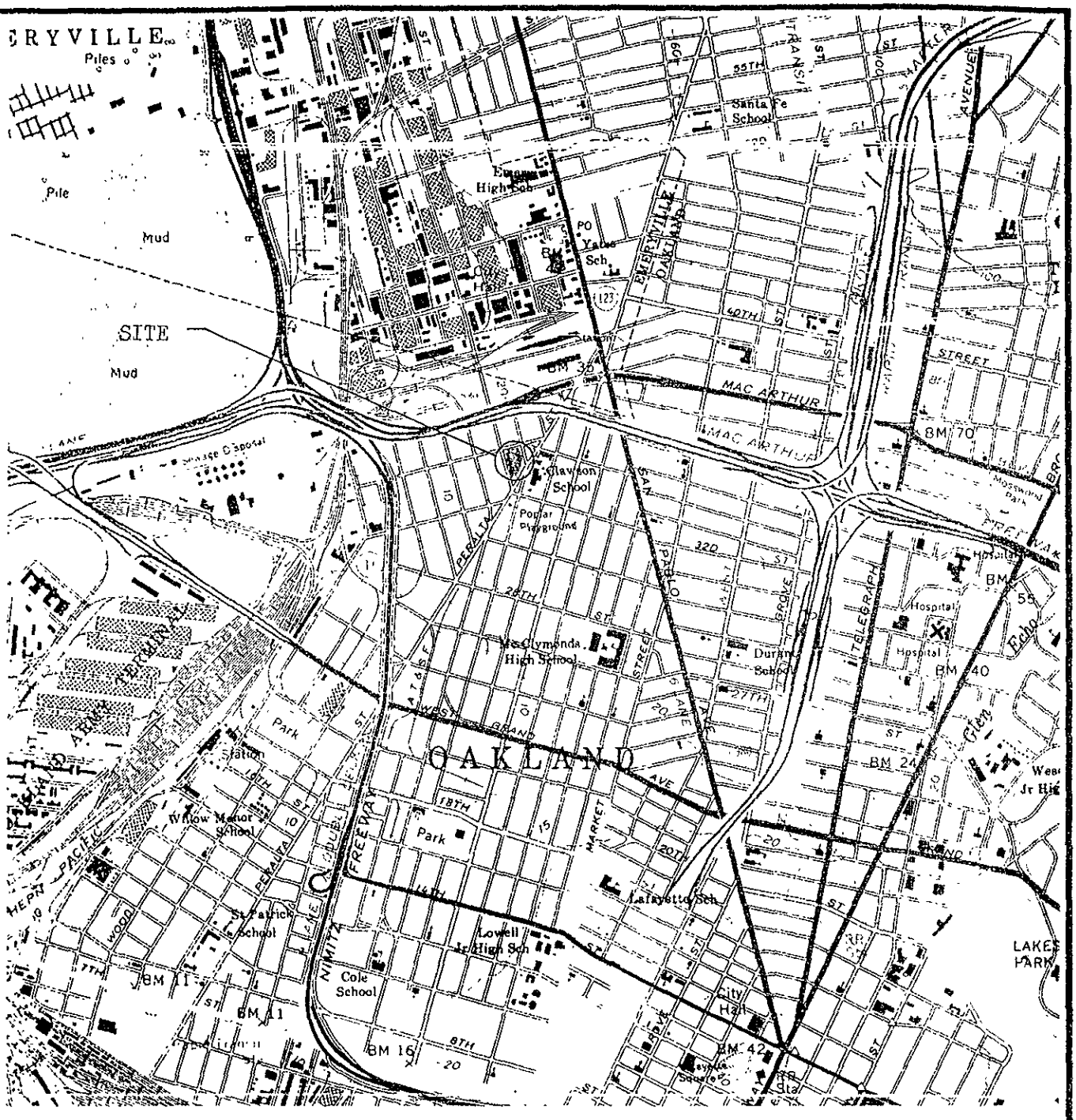
REGISTERED GEOLOGIST
ROBERT E. KITAY
No. 6586
STATE OF CALIFORNIA

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

Attachments: Figures 1 and 2
Appendices A and B

cc: Mr. Kevin Romak, Romak Iron Works
Ms. Susan Hugo, Alameda County Health Care Services Agency
Mr. Chuck Headlee, California Regional Water Quality Control Board

FIGURES

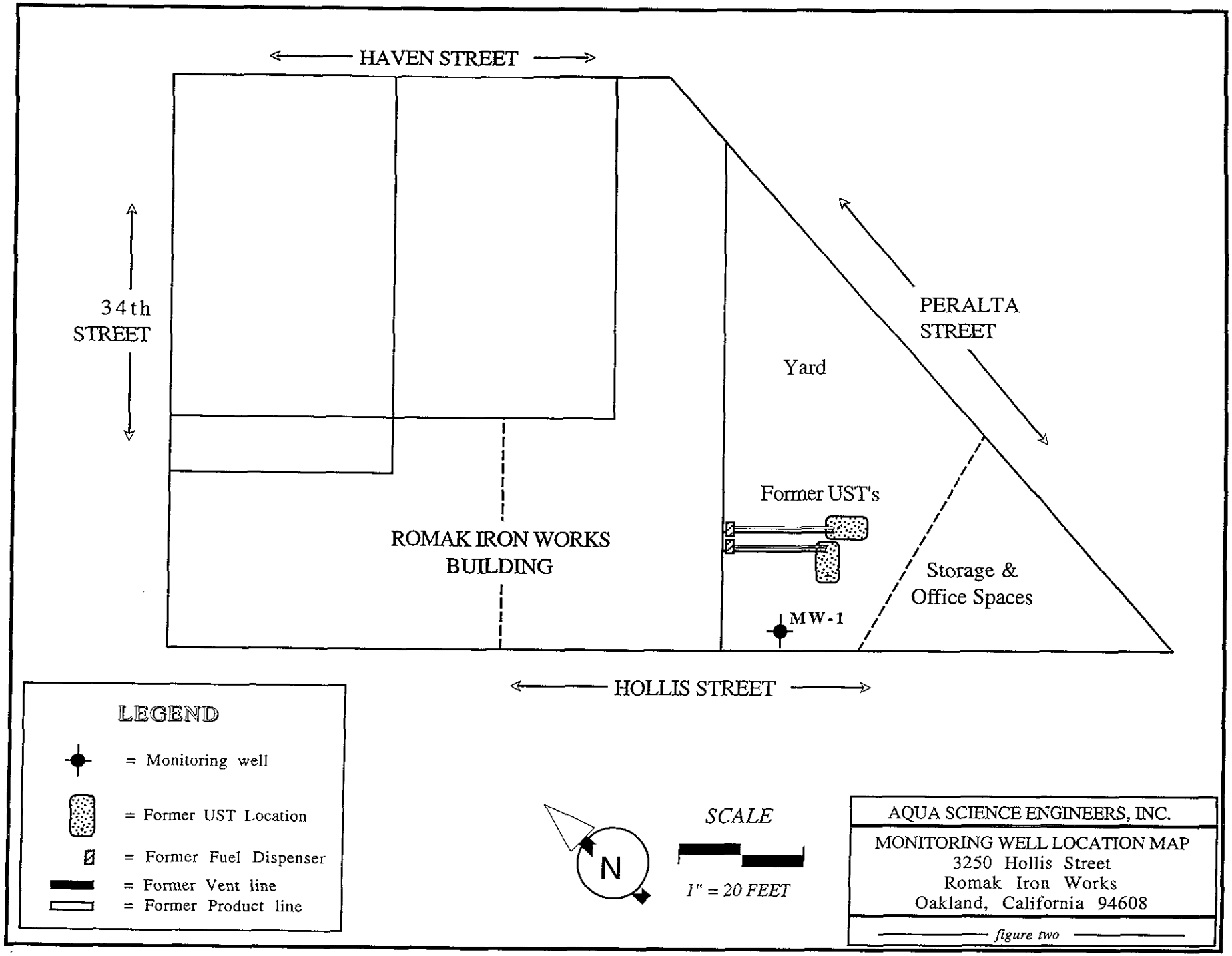


SITE LOCATION MAP

Romak Iron Works
3250 Hollis Street
Oakland, California

Aqua Science Engineers | Figure 1

BASE: USGS Oakland West 7.5 minute quadrangle topographic r
dated 1980, scale 1:24,000.


HAVEN STREET
34th STREET
PERALTA STREET
Yard
Former UST's
ROMAK IRON WORKS BUILDING
Storage & Office Spaces
MW-1
HOLLIS STREET
LEGEND
= Monitoring well
= Former UST Location
= Former Fuel Dispenser
= Former Vent line
= Former Product line
N
SCALE
1" = 20 FEET
AQUA SCIENCE ENGINEERS, INC.
MONITORING WELL LOCATION MAP
3250 Hollis Street
Romak Iron Works
Oakland, California 94608
figure two

APPENDIX A

Well Sampling Field Log

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Ramak
Job #: 2e5x Date of sampling: 9-9-99
Well Name: MW-1 Sampled by: _____
Total depth of well (feet): 21.78 Well diameter (inches): 2
Depth to water before sampling (feet): 9.28
Thickness of floating product if any: ~~1.25~~ sheen
Depth of well casing in water (feet): 12.5
Number of gallons per well casing volume (gallons): 2.1
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8.4
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1600 Time Evacuation Finished: 1615
Approximate volume of groundwater purged: 8.5
Did the well go dry?: NO After how many gallons: _____
Time samples were collected: 1620
Depth to water at time of sampling: 9.34
Percent recovery at time of sampling: 99 %
Samples collected with: dedicated baile
Sample color: clear Odor: HC odor
Description of sediment in sample: -

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	71.0	6.17	784
2	69.4	6.58	810
3	68.5	6.47	814
4	68.7	6.57	892

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40 ml Vocs	✓	✓	TPH-G/BTEX/MTBE
MW-1	3	(-)lte Amb		✓	~~TPH~~ O/G/Kreex/Diesel

2411 Old Crow Canyon Road #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: 2657
Romak Iron Works

Site: 3250 Hollis St.
3250 Hollis St
Oakland Ca.94608

Dear Mr. Reed,

Attached is our report for your samples received on Friday September 10, 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 October 10, 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

Petroleum Oil & Grease

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 #: 2657

Project: Romak Iron Works

Site: 3250 Hollis St.
Oakland Ca.94608

3250 Hollis St

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	09/09/1999 16:20	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-09-0170

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 5520 B & F
Prep Method: 5520 B & F

Petroleum Oil & Grease

Sample ID:	**MW-1**	Lab Sample ID:	**1999-09-0170-001**
Project:	2657 Romak Iron Works	Received:	09/10/1999 17:50
Site:	3250 Hollis St. 3250 Hollis St Oakland Ca.94608	Extracted:	09/14/1999
Sampled:	09/09/1999 16:20	QC-Batch:	1999/09/14-02.23
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Oil and Grease (Petroleum)	ND	1.0	mg/L	1.00	09/15/1999	

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 5520 B & F
Prep Method: 5520 B & F

Batch QC Report
Petroleum Oil & Grease

Method Blank **Water** **QC Batch # 1999/09/14-02.23**

MB: 1999/09/14-02.23-001 Date Extracted: 09/14/1999

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Oil & Grease (total)	ND	1	mg/L	09/15/1999	

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 5520 B & F

Prep Method: 5520 B & F

Batch QC Report

Petroleum Oil & Grease

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/09/14-02.23**

LCS: 1999/09/14-02.23-002 Extracted: 09/14/1999 Analyzed: 09/15/1999

LCSD: 1999/09/14-02.23-003 Extracted: 09/14/1999 Analyzed: 09/15/1999

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Oil & Grease (total)	20.8	20.4	20.0	20.0	104.0	102.0	1.9	80-120	20		

Diesel

Aqua Science Engineers, Inc.

Attn: Ian T. Reed

Project #: 2657

Site: 3250 Hollis St.
Oakland Ca.94608

208 West El Pintado Road
Danville, CA 94526

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

Project: Romak Iron Works
3250 Hollis St

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	09/09/1999 16:20	1

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 8015m
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**1999-09-0170-001**
Project:	2657 Romak Iron Works	Received:	09/10/1999 17:50
Site:	3250 Hollis St. 3250 Hollis St Oakland Ca.94608	Extracted:	09/15/1999 09:00
Sampled:	09/09/1999 16:20	QC-Batch:	1999/09/15-01.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	2400	50	ug/L	1.00	09/15/1999 20:27	ed
Surrogate(s)						
o-Terphenyl	103.3	60-130	%	1.00	09/15/1999 20:27	

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 8015m
Prep Method: *3510/8015M*

Batch QC Report
Diesel

Method Blank | **Water** | **QC Batch # 1999/09/15-01.10**

MB: 1999/09/15-01.10-001 | Date Extracted: 09/15/1999 08:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	09/15/1999 11:01	
Surrogate(s)					
o-Terphenyl	91.5	60-130	%	09/15/1999 11:01	

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8015m

Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/09/15-01.10**

LCS: 1999/09/15-01.10-002 Extracted: 09/15/1999 08:00 Analyzed: 09/15/1999 09:37

LCSD: 1999/09/15-01.10-003 Extracted: 09/15/1999 08:00 Analyzed: 09/15/1999 10:09

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	962	1040	1250	1250	77.0	83.2	7.7	60-130	25		
Surrogate(s)											
o-Terphenyl	18.0	18.3	20.0	20.0	90.0	91.5		60-130			

To: **Aqua Science Engineers, Inc.**
Attn:Ian T. Reed

Test Method: 8015m
Prep Method: 3510/8015M

Legend & Notes

Diesel

Analyte Flags

ed

Hydrocarbon reported is in the early Diesel range, and does not match our Diesel standard

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 #: 2657

Project: Romak Iron Works

Site: 3250 Hollis St.
Oakland Ca.94608

3250 Hollis St

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	09/09/1999 16:20	1

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-1**	Lab Sample ID:	**1999-09-0170-001**
Project:	2657 Romak Iron Works	Received:	09/10/1999 17:50
Site:	3250 Hollis St. 3250 Hollis St Oakland Ca.94608	Extracted:	09/17/1999 05:49
Sampled:	09/09/1999 16:20	QC-Batch:	1999/09/16-01.02
Matrix:	*Water*		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	2300	250	ug/L	5.00	09/17/1999 05:49	g
Benzene	330	2.5	ug/L	5.00	09/17/1999 05:49	
Toluene	11	2.5	ug/L	5.00	09/17/1999 05:49	
Ethyl benzene	48	2.5	ug/L	5.00	09/17/1999 05:49	
Xylene(s)	19	2.5	ug/L	5.00	09/17/1999 05:49	
MTBE	61	25	ug/L	5.00	09/17/1999 05:49	
Surrogate(s)						
Trifluorotoluene	86.1	58-124	%	1.00	09/17/1999 05:49	
4-Bromofluorobenzene-FID	89.0	50-150	%	1.00	09/17/1999 05:49	

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 # 1999/09/16-01.02**

MB: 1999/09/16-01.02-001

Date Extracted: 09/16/1999 07:05

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	09/16/1999 07:05	
Benzene	ND	0.5	ug/L	09/16/1999 07:05	
Toluene	ND	0.5	ug/L	09/16/1999 07:05	
Ethyl benzene	ND	0.5	ug/L	09/16/1999 07:05	
Xylene(s)	ND	0.5	ug/L	09/16/1999 07:05	
MTBE	ND	5.0	ug/L	09/16/1999 07:05	
Surrogate(s)					
Trifluorotoluene	119.8	58-124	%	09/16/1999 07:05	
4-Bromofluorobenzene-FID	100.4	50-150	%	09/16/1999 07:05	

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/09/16-01.02**

LCS: 1999/09/16-01.02-002 Extracted: 09/16/1999 07:33 Analyzed: 09/16/1999 07:33

LCSD: 1999/09/16-01.02-003 Extracted: 09/16/1999 08:00 Analyzed: 09/16/1999 08:00

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	438	497	500	500	87.6	99.4	12.6	75-125	20		
Benzene	104	98.9	100.0	100.0	104.0	98.9	5.0	77-123	20		
Toluene	103	99.5	100.0	100.0	103.0	99.5	3.5	78-122	20		
Ethyl benzene	98.8	96.8	100.0	100.0	98.8	96.8	2.0	70-130	20		
Xylene(s)	300	294	300	300	100.0	98.0	2.0	75-125	20		
Surrogate(s)											
Trifluorotoluene	498	453	500	500	99.6	90.6		58-124			
4-Bromofluorobenzene-FI	564	550	500	500	112.8	110.0		50-150			

To: **Aqua Science Engineers, Inc.**

Attn:Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

99.09.0170

47909

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

PROJECT NAME Romak Iron Works JOB NO. 2657
ADDRESS 3250 Hollis street, Oakland CA 94608 DATE 9-10-99

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

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) (EPA 608/8080)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)				COMPOSITE
MW-1	9-9-99	1620	water	6	X		X					X										

RELINQUISHED BY:
Ian T Reed 1330
(signature) (time)
Ian T Reed 9-10-99
(printed name) (date)
Company- ASE

RECEIVED BY:
(signature) 1651 (time)
(printed name) 9/10/99 (date)
Company- Chromalab

RELINQUISHED BY:
(signature) 1750 (time)
(printed name) 9/10/99 (date)
Company- Chromalab

RECEIVED BY LABORATORY:
Denise Harrington
(signature) (time)
D. Harrington 1750
(printed name) (date) 9/10/99
Company-

COMMENTS:
5-day TAT.