aqua science engineers inc.

STIP 379

March 23, 2000

SEMI-ANNUAL GROUNDWATER MONITORING REPORT
MARCH 2000 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

8203

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 March 3, 2000, 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
03-02-00	**6,700[2]**	**670[2]**	**440**	**< 2.5**	**65**	**< 2.5**	**77**
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 hydrocarbon 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
03-02-00	**2,100**	**---**

4.0 CONCLUSIONS

The results the March 2000 sampling are slightly higher than the last September 1999 sampling, but are similar to the March 1999 sampling. Although, there is still an overall decreasing trend in hydrocarbon concentrations, the benzene and MTBE concentrations are still 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

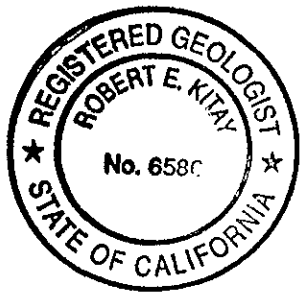
the laboratory work cited in this report was prepared under the direction of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the analytical data.

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

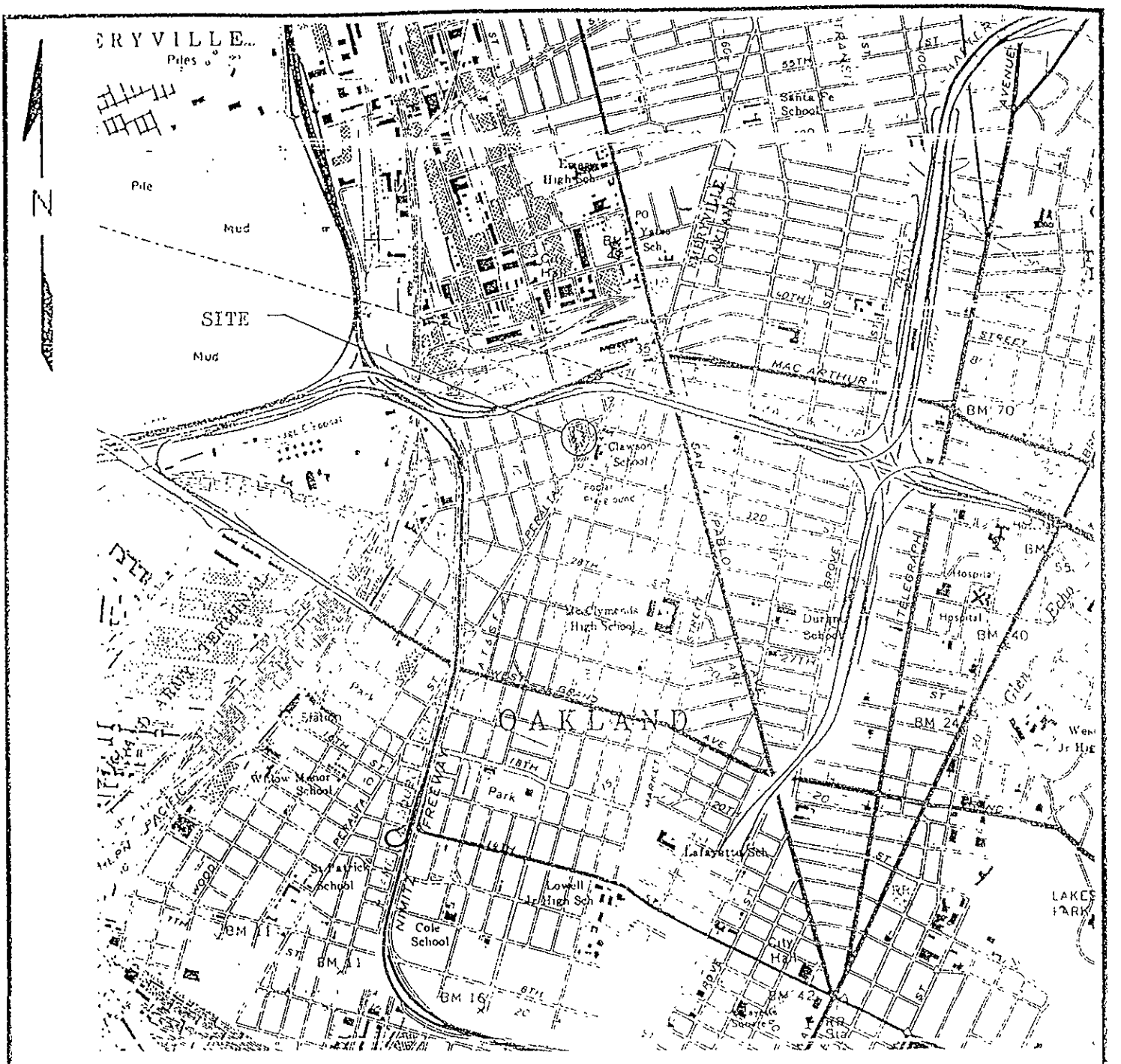


Robert E. Kitay, R.G., R.E.A.
Senior Geologist

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

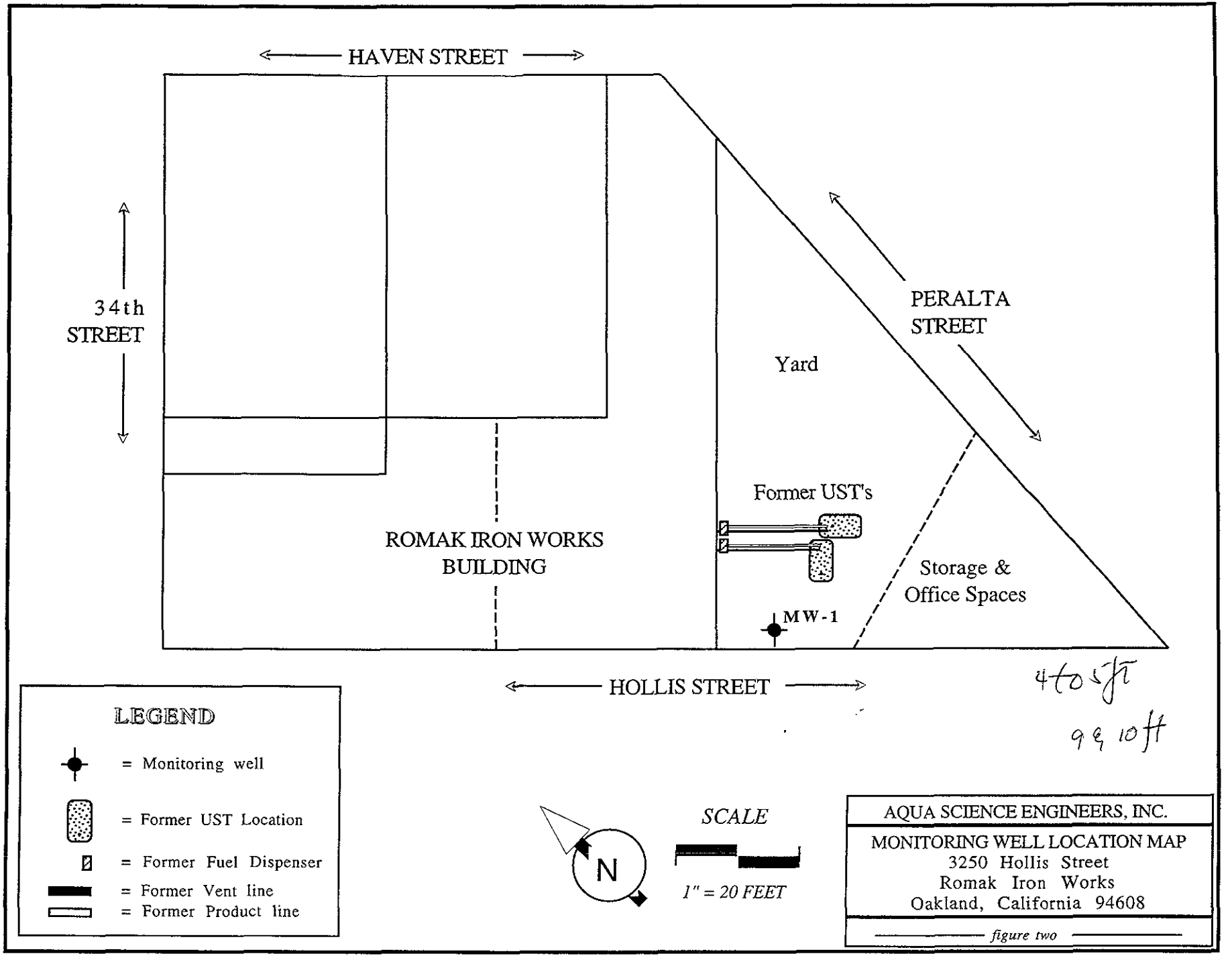


SITE LOCATION MAP

Romak Iron Works
3250 Hollis Street
Oakland, California

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

Aqua Science Engineers | Figure 1


HAVEN STREET
34th STREET
PERALTA STREET
Yard
Former UST's
ROMAK IRON WORKS BUILDING
Storage & Office Spaces
MW-1
HOLLIS STREET
4 to 5 ft
9 & 10 ft
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: Rorick
Job #: 2657 Date of sampling: 3-2-00
Well Name: MW-1 Sampled by: ITR
Total depth of well (feet): 21.78 Well diameter (inches): 2"
Depth to water before sampling (feet): 6.53
Thickness of floating product if any: sheen
Depth of well casing in water (feet): 15.25
Number of gallons per well casing volume (gallons): 2.6
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 10 4
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1100 Time Evacuation Finished: 1115
Approximate volume of groundwater purged: 1120
Did the well go dry?: NO After how many gallons: -
Time samples were collected: 1120
Depth to water at time of sampling: 6.61
Percent recovery at time of sampling: 93%
Samples collected with: dedicated bailer
Sample color: clear Odor: mod. HC odor
Description of sediment in sample: some silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	60.7	4.73	681
2	72.4	4.9	521
3	72.3	4.82	580
4	71.9	4.79	525

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40ml VOA	✓	✓	TPH G/BTEX/MTBE
MW-1	3	1-lite Amber		✓	O&G/pH/Diss.

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 Street
Oakland, CA

Dear Mr. Reed,

Attached is our report for your samples received on Thursday March 2, 2000
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 April 1, 2000 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. You can also contact me via email. My email address is: vvancil@chromalab.com

Sincerely,

Vincent Vancil

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

Diesel

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 Street Oakland, CA	

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	03/02/2000 11:20	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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

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

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**2000-03-0051-001**
Project:	2657 Romak Iron Works	Received:	03/02/2000 16:11
Site:	3250 Hollis Street Oakland, CA	Extracted:	03/06/2000 12:15
Sampled:	03/02/2000 11:20	QC-Batch:	2000/03/06-05.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	670	50	ug/L	1.00	03/08/2000 07:04	ndp
Surrogate(s) o-Terphenyl	91.3	60-130	%	1.00	03/08/2000 07:04	

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 # 2000/03/06-05.10**

MB: 2000/03/06-05.10-001 | Date Extracted: 03/06/2000 11:14

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	03/07/2000 14:47	
Surrogate(s)					
o-Terphenyl	85.5	60-130	%	03/07/2000 14:47	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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 # 2000/03/06-05.10**
LCS:	2000/03/06-05.10-002	Extracted: 03/06/2000 11:14	Analyzed	03/07/2000 20:02
LCSD:	2000/03/06-05.10-003	Extracted: 03/06/2000 11:14	Analyzed	03/07/2000 20:40

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	908	1030	1250	1250	72.6	82.4	12.6	60-130	25		
Surrogate(s)											
o-Terphenyl	15 3	16.9	20.0	20.0	76 5	84.5		60-130			

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

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

Legend & Notes

Diesel

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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 Street
Oakland, CA

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	03/02/2000 11:20	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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:	**2000-03-0051-001**
Project:	2657 Romak Iron Works	Received:	03/02/2000 16:11
Site:	3250 Hollis Street Oakland, CA	Extracted:	03/06/2000 12:14
Sampled:	03/02/2000 11:20	QC-Batch:	2000/03/06-01.01
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	6700	250	ug/L	5.00	03/06/2000 12:14	g
Benzene	440	2.5	ug/L	5.00	03/06/2000 12:14	
Toluene	ND	2.5	ug/L	5.00	03/06/2000 12:14	
Ethyl benzene	65	2.5	ug/L	5.00	03/06/2000 12:14	
Xylene(s)	ND	2.5	ug/L	5.00	03/06/2000 12:14	
MTBE	77	25	ug/L	5.00	03/06/2000 12:14	
Surrogate(s)						
Trifluorotoluene	112.2	58-124	%	1.00	03/06/2000 12:14	
4-Bromofluorobenzene-FID	96.7	50-150	%	1.00	03/06/2000 12:14	

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 # 2000/03/06-01.01**

MB: 2000/03/06-01.01-001

Date Extracted: 03/06/2000 06:08

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	03/06/2000 06:08	
Benzene	ND	0.5	ug/L	03/06/2000 06:08	
Toluene	ND	0.5	ug/L	03/06/2000 06:08	
Ethyl benzene	ND	0.5	ug/L	03/06/2000 06:08	
Xylene(s)	ND	0.5	ug/L	03/06/2000 06:08	
MTBE	ND	5.0	ug/L	03/06/2000 06:08	
Surrogate(s)					
Trifluorotoluene	85.6	58-124	%	03/06/2000 06:08	
4-Bromofluorobenzene-FID	84.8	50-150	%	03/06/2000 06:08	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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 # 2000/03/06-01.01**

LCS: 2000/03/06-01.01-002 Extracted: 03/06/2000 07:04 Analyzed 03/06/2000 07:04

LCSD: 2000/03/06-01.01-003 Extracted: 03/06/2000 07:39 Analyzed 03/06/2000 07:39

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	510	430	500	500	102.0	86.0	17.0	75-125	20		
Benzene	95.4	91 5	100.0	100.0	95.4	91.5	4.2	77-123	20		
Toluene	93.4	89.8	100.0	100.0	93.4	89.8	3.9	78-122	20		
Ethyl benzene	94.1	90.4	100.0	100.0	94.1	90 4	4.0	70-130	20		
Xylene(s)	281	272	300	300	93 7	90.7	3.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	452	427	500	500	90.4	85.4		58-124			
4-Bromofluorobenzene-FI	450	472	500	500	90.0	94.4		50-150			

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

Attn:Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

g

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

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

Total 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 Street Oakland, CA	

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	03/02/2000 11:20	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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

Test Method: 5520 B
Prep Method: 5520 B

Total Oil & Grease

Sample ID:	MW-1	Lab Sample ID:	**2000-03-0051-001**
Project:	2657 Romak Iron Works	Received:	03/02/2000 16:11
Site:	3250 Hollis Street Oakland, CA	Extracted:	03/06/2000
Sampled:	03/02/2000 11:20	QC-Batch:	2000/03/06-03.23
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Oil & Grease (total)	2.1	1.0	mg/L	1.00	03/08/2000	

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

Test Method: 5520 B
Prep Method: 5520 B

Batch QC Report
Total Oil & Grease

Method Blank | **Water** | **QC Batch # 2000/03/06-03.23**

MB: 2000/03/06-03.23-001 | Date Extracted: 03/06/2000

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Oil & Grease (total)	ND	1	mg/L	03/08/2000	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-03-0051

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

Attn: Ian T. Reed

Test Method: 5520 B

Prep Method: 5520 B

Batch QC Report

Total Oil & Grease

Laboratory Control Spike (LCS/LCSD)		**Water**		**QC Batch # 2000/03/06-03.23**
LCS:	2000/03/06-03.23-002	Extracted: 03/06/2000	Analyzed	03/08/2000
LCSD:	2000/03/06-03.23-003	Extracted: 03/06/2000	Analyzed	03/08/2000

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)	18.8	18.5	20.0	20.0	94.0	92.5	1.6	80-120	20		

50770

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

Chain of Custody

2000-03-0051

PAGE 1 OF 1

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

PROJECT NAME Romak Iron Works JOB NO. 2637

ADDRESS 3250 Hollis Street, Oakland CA DATE 3-2-00

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

5-day TAT

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	3-2-00	1120	water	6	X		X					X										
																		1				
																		3.5				

RELINQUISHED BY: Ian Reed 1505 (signature) (time)
Ian T Reed 3-2-00 (printed name) (date)
Company- ASE

RECEIVED BY: (signature) (time) 1505
(printed name) (date) 3/2/00
Company- Chromalab

RELINQUISHED BY: (signature) (time) 1611
(printed name) (date) 3/2/00
Company-

RECEIVED BY LABORATORY: Denise Harrington (signature) (time)
D. Harrington 3/2/00 (printed name) (date) @ 1611
Company- Chromalab

COMMENTS:
3 amber
3 voas
5 day TAT