aqua science engineers inc.

September 30, 1998

SEMI-ANNUAL GROUNDWATER MONITORING REPORT
SEPTEMBER 18,1998 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 Road
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s quarterly 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 18, 1998, 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. No free-floating hydrocarbons or 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 preserved with hydrochloric acid and three (3) 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 stored on-site for handling by the client at a later date. 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*	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**	1,600	14	580	66	<50
11-12-96	13,000	6,000**	910	27	440	440	85
02-06-97	16,000	7,000*	1,200	170	660	410	<500
05-21-97	8,600	2,900*	720	<10	460	41	170
09-24-97	6,400	2,600	520	12	310	13	210
03-04-98	6,500	3,300**	650	2.3	290	35	98
09-18-98	**5,400**	**2,000****	**980**	**11**	**150**	**24**	**< 50**
DTSC MCL	NE	NE	1.0	150	700	1,750	35***
EPA METHOD	5030/ 8015M	3510/ 8015M	8020	8020	8020	8020	8020

Notes:
--- = Not analyzed
NE = Not established
DTSC = California EPA Department of Toxic Substance Control
MCL = maximum contaminant level for drinking water
* = motor oil detected
** = Fuel pattern does not match diesel standard, concentration due to overlap of the gasoline fuel pattern into the diesel range
*** = DTSC interim action level; MCL not established.

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**
EPA METHOD	5520C	5520BF

4.0 CONCLUSIONS

TPH-G, TPH-D and benzene were detected in groundwater samples collected from monitoring well MW-1 at 5,400 parts per billion (ppb), 2,000 ppb and 980 ppb, respectively. The TPH-G concentration represents a historic low for this site. The ethylbenzene concentration represents the lowest concentration since the initial August 1993 sampling. All of the remaining concentrations are very similar to the analytical results from the last two years of groundwater monitoring. Overall, the analytical results show a very slow decreasing trend in hydrocarbon concentrations.

The benzene concentration of 980 ppb exceeded the California Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water of 1 ppb. The toluene, ethylbenzene, and total xylenes concentrations detected this quarter did not exceed DTSC 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.

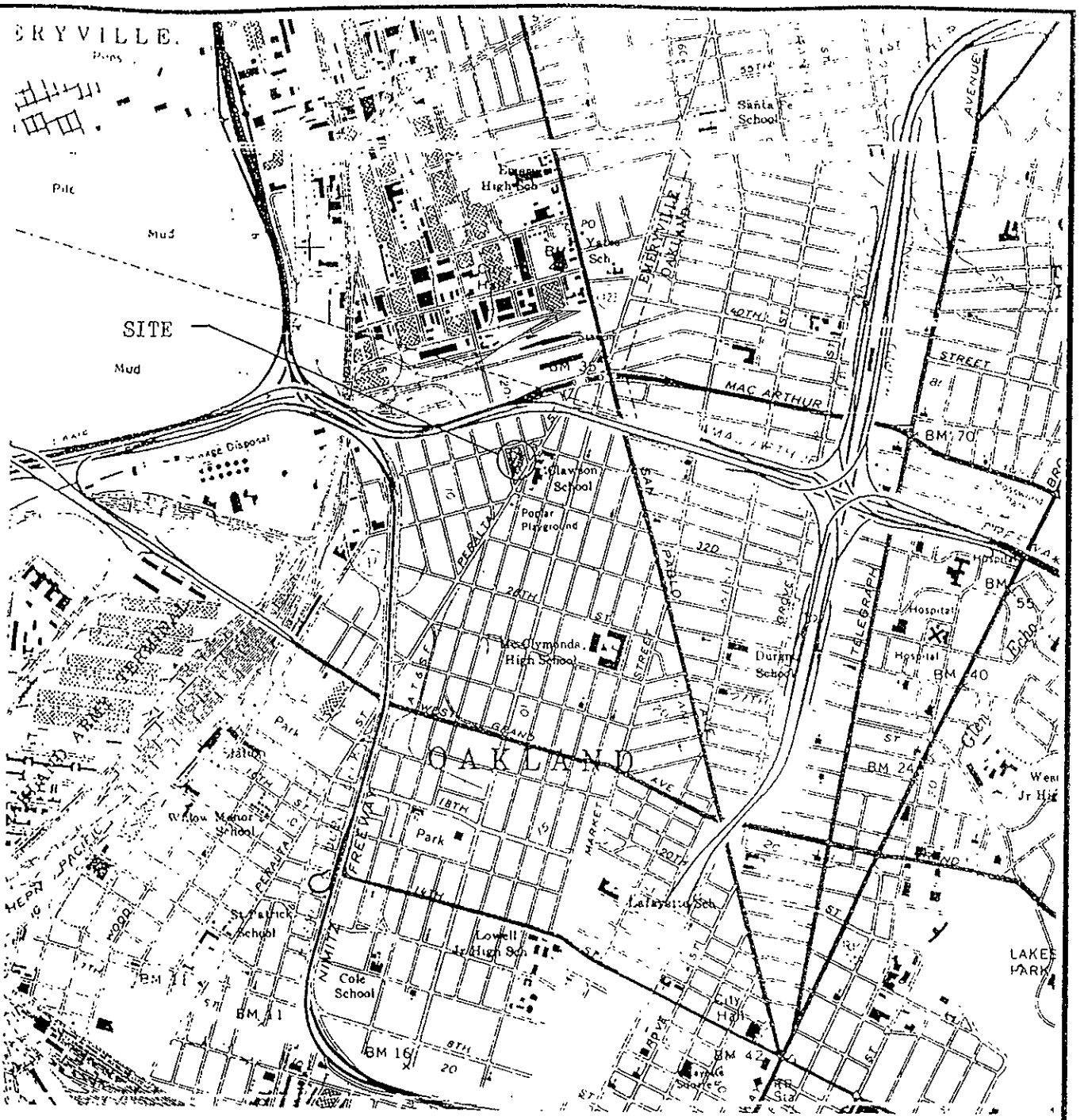
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Robert E. Kitay, R.G.
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

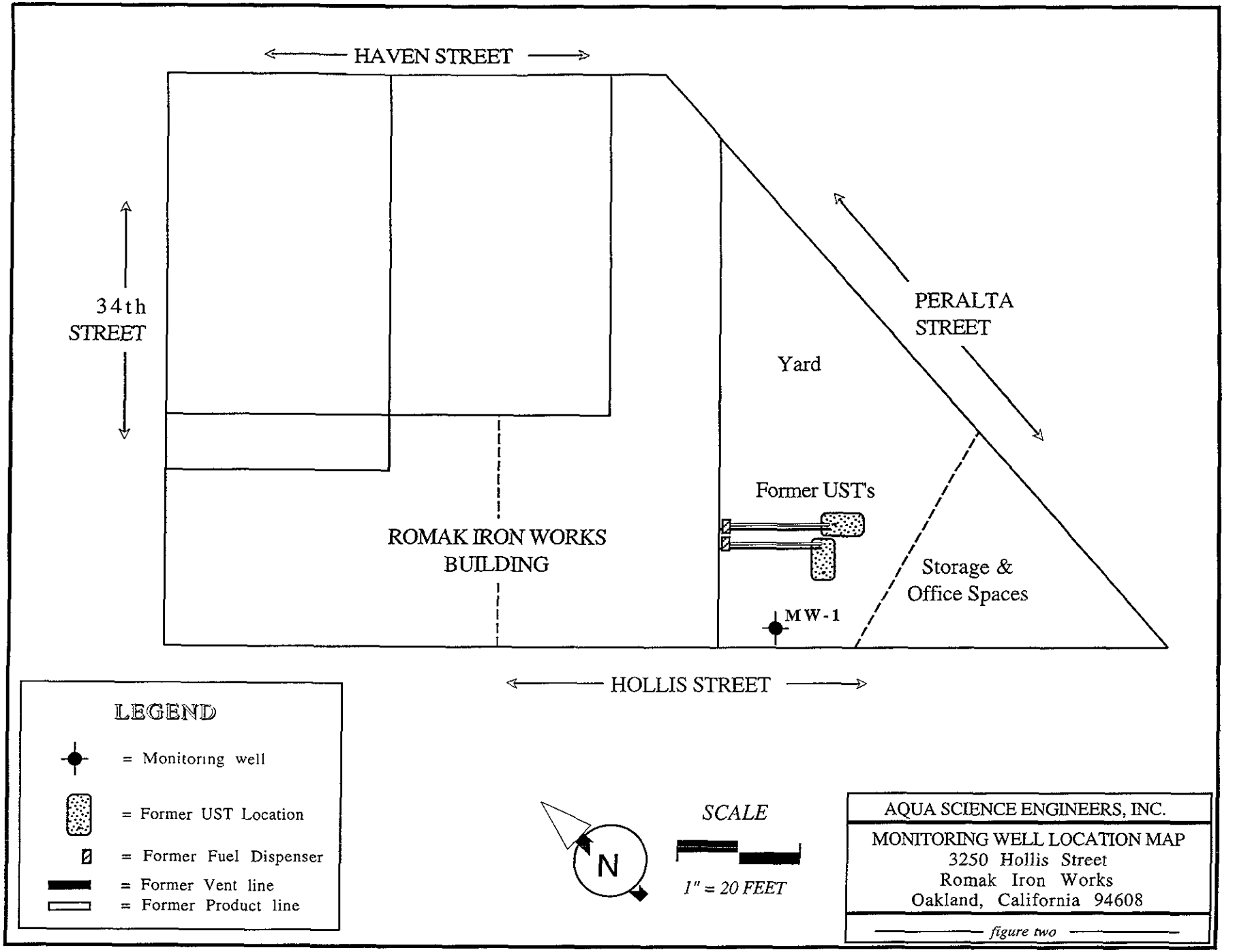


BASE USGS Oakland West 7.5 minute quadrangle topographic r
dated 1980, scale 1:24,000

SITE LOCATION MAP

Romak Iron Works
3250 Hollis Street
Oakland, California

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
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: Komak Iron Works, 3250 Hollis St, Oakland
Job #: 2659 Date of sampling: 9-18-98
Well Name: MW-1 Sampled by: RK
Total depth of well (feet): 21.78 Well diameter (inches): 2
Depth to water before sampling (feet): 7.65
Thickness of floating product if any: None
Depth of well casing in water (feet): 14.13
Number of gallons per well casing volume (gallons): 2.3
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 9.2
Equipment used to purge the well: Dedicated polyethylene bailer
Time Evacuation Began: 11:15 Time Evacuation Finished: 11:40
Approximate volume of groundwater purged: 9.2 gals
Did the well go dry?: No After how many gallons: —
Time samples were collected: 11:45
Depth to water at time of sampling: —
Percent recovery at time of sampling: —
Samples collected with: Dedicated polyethylene bailer
Sample color: None Odor: slight hc
Description of sediment in sample: None

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40-ml VOAs	HCl	Yes	TPH-G/BTEX/MTBE
↓	2	1-liter amber	None	↓	TPH-D
↓	1	1-liter amber	↓	↓	TOC

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

CHROMALAB, INC.

Environmental Services (SDB)

September 30, 1998 *Submission #:* 9809270

AQUA SCIENCE ENGINEERS INC

Atten: Robert Kitay

Project: ROMAK IRON WORKS *Project#:* 2659
Received: September 18, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-1**
Spl#: 206779 *Matrix:* WATER
Sampled: September 18, 1998 *Run#:*15129 *Analyzed:* September 28, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	5400	500	N.D.	88	10
MTBE	N.D.	50	N.D.	90	10
BENZENE	980	5.0	N.D.	88	10
TOLUENE	11	5.0	N.D.	87	10
ETHYL BENZENE	150	5.0	N.D.	88	10
XYLENES	24	5.0	N.D.	87	10

Vincent Vancil
Analyst

Michael Verona For
Operations Manager

925-837-4853

1220 Quarry Lane • Pleasanton, California 94566-4756
(925) 484-1919 • Facsimile (925) 484-1096
Federal ID #68-0140157

PM V132 O:BTEXQC(
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CHROMALAB, INC.

Environmental Services (SDB)

September 25, 1998 *Submission #:* 9809270

AQUA SCIENCE ENGINEERS INC

Atten: Robert Kitay

Project: ROMCK IRON WORKS *Project#:* 2659
Received: September 18, 1998

re: 1 sample for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* September 22, 1998
Sampled: September 18, 1998 *Run#:* 15038 *Analyzed:* September 23, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
206779	MW-1	2000	50	N.D.	107	1

Note: Hydrocarbon reported does not match the pattern of our Diesel Standard. Surrogate Recoveries biased high due to Hydrocarbon co-elution.

Carolyn House
Analyst

Bruce Havlik
Analyst

925-837-4853 PM 09/25

1220 Quarry Lane • Pleasanton, California 94566-4756
(925) 484-1919 • Facsimile (925) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

September 25, 1998 *Submission #:* 9809270

AQUA SCIENCE ENGINEERS INC

Atten: Robert Kitay

Project: ROMCK IRON WORKS *Project#:* 2659
Received: September 18, 1998

re: 1 sample for Oil and Grease analysis.
Method: *5520 B&F*

Matrix: WATER *Extracted:* September 25, 1998
Sampled: September 18, 1998 *Run#:* 15079 *Analyzed:* September 25, 1998

Spl#	CLIENT SPL ID	OIL & GREASE (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
206779	MW-1	1.7	1.0	N.D.	94.5	1

for Lulu Frazier
Analyst

Michael Verona
Operations Manager

9992706206779

420574

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PAGE 1 OF 1

SAMPLER (SIGNATURE) Robert E. Kitay (PHONE NO.) (925) 820-9391

PROJECT NAME Romack Iron Works JOB NO. 2659

ADDRESS 3250 Hollis Street, Oakland, CA DATE 9-18-98

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)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)					COMPOSITE
MW-1	9/18	12:10	water	6	X		X					X											

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Robert E. Kitay 17:13	Gary Cook 17:13	G Cook 17:40	Alex Paredes 1745	5-DAY T.A.T.
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	10.0°C
Robert E. Kitay 9/18/98	Gary Cook 9/18/98	G Cook 9/18/98	Alex Paredes	3 Amber
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	3 VOA HP
Company- ASE	Company- G/C	Company- CL	Company- Chromalab	