aqua science engineers inc.

November 25, 1996

QUARTERLY GROUNDWATER MONITORING REPORT
NOVEMBER 12, 1996 GROUNDWATER SAMPLING
ASE JOB NO. 2659
at
Romak Iron Works
3250 Hollis Street
Oakland, California 94662

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
(510) 820-9391

1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineer's, Inc. (ASE) 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 November 12, 1996, ASE measured the depth to water in the site monitoring well using an electric water level sounder. The well was also checked for the presence of free-floating hydrocarbons. The well contained a hydrocarbon sheen. 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 and two (2) 1-liter amber glass bottles. The samples were preserved with hydrochloric acid, labeled, placed in protective foam sleeves, and placed into an ice chest containing wet ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under chain of custody.

Well sampling purge water was contained in DOT 17H drums and stored on-site for handling by the client at a later date. See Appendix A for a copy of the well sampling field log.

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 (BTEX) and MTBE by EPA Method 8020 and hydrocarbon oil and grease (O&G) by Standard Method 5520 B&F. The analytical results are tabulated below in Tables One and Two, and the certified analytical report and chain of custody form are included in Appendix B.

TABLE ONE
Summary of Chemical Analysis of **GROUNDWATER** Samples
TPH-G, TPH-D and BTEX
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
DTSC MCL	NE	NE	1.0	100**	680	1,750	NE
EPA METHOD	5030/ 8015M	3510/ 8015M	8020	8020	8020	8020	8020

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

TABLE TWO
Summary of Chemical Analysis 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
EPA METHOD	5520C	5520BF

4.0 CONCLUSIONS

High TPH-G and benzene concentrations (13,000 ppb and 910 ppb, respectively) continue to be detected in groundwater samples collected from monitoring well MW-1. The benzene concentration of 910 ppb exceeded the California Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water of 1 ppb. Although high hydrocarbon concentrations continue to be detected in groundwater samples collected at the site, there does appear to be a decreasing trend in these concentrations, although there was a very slight increase in total petroleum hydrocarbon concentrations from last quarter.

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 CSDHS 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 assist Romak Iron Works with its environmental needs. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

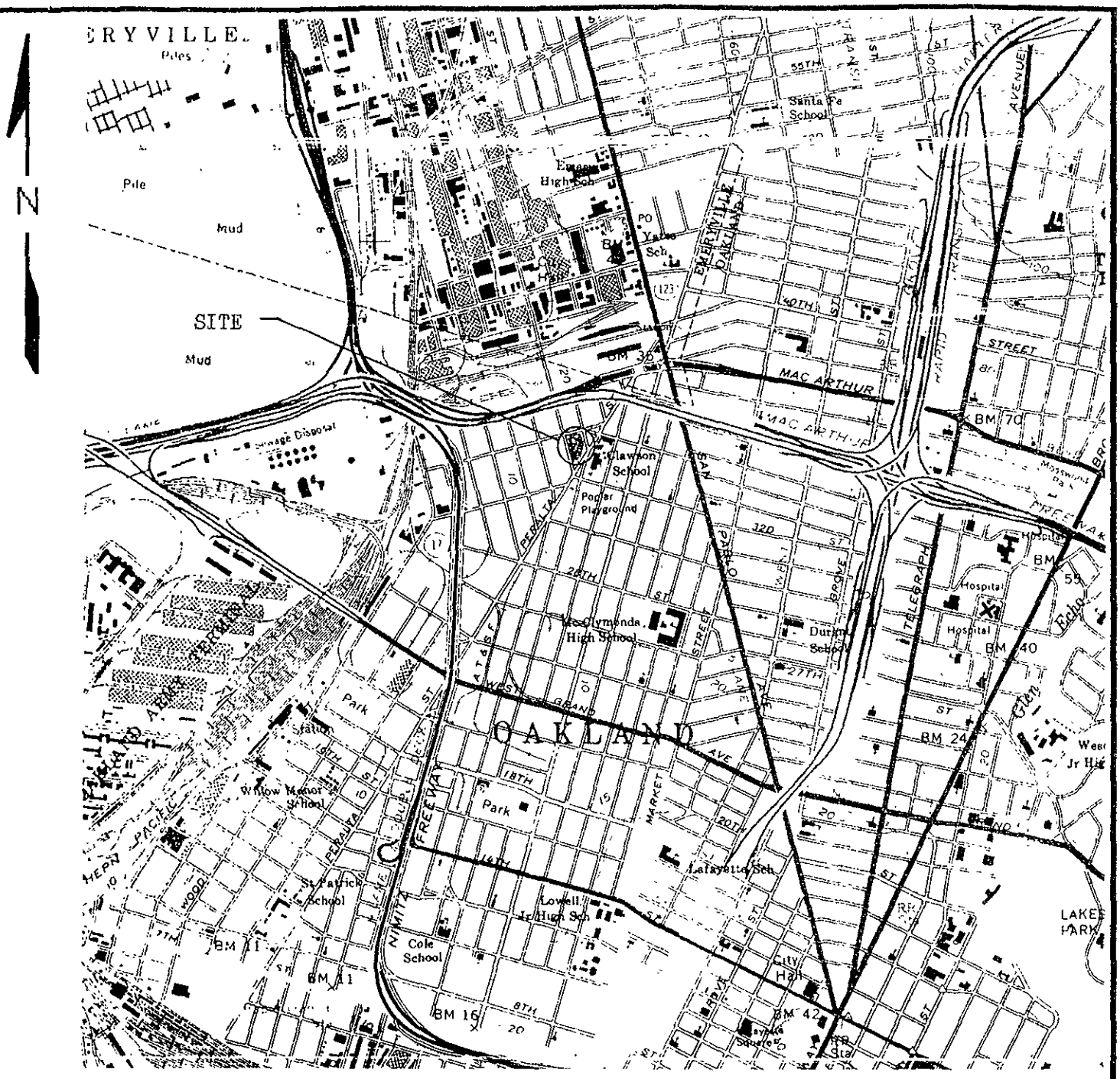
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Scott Ferriman
Environmental Specialist

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. Kevin Graves, California Regional Water Quality Control Board

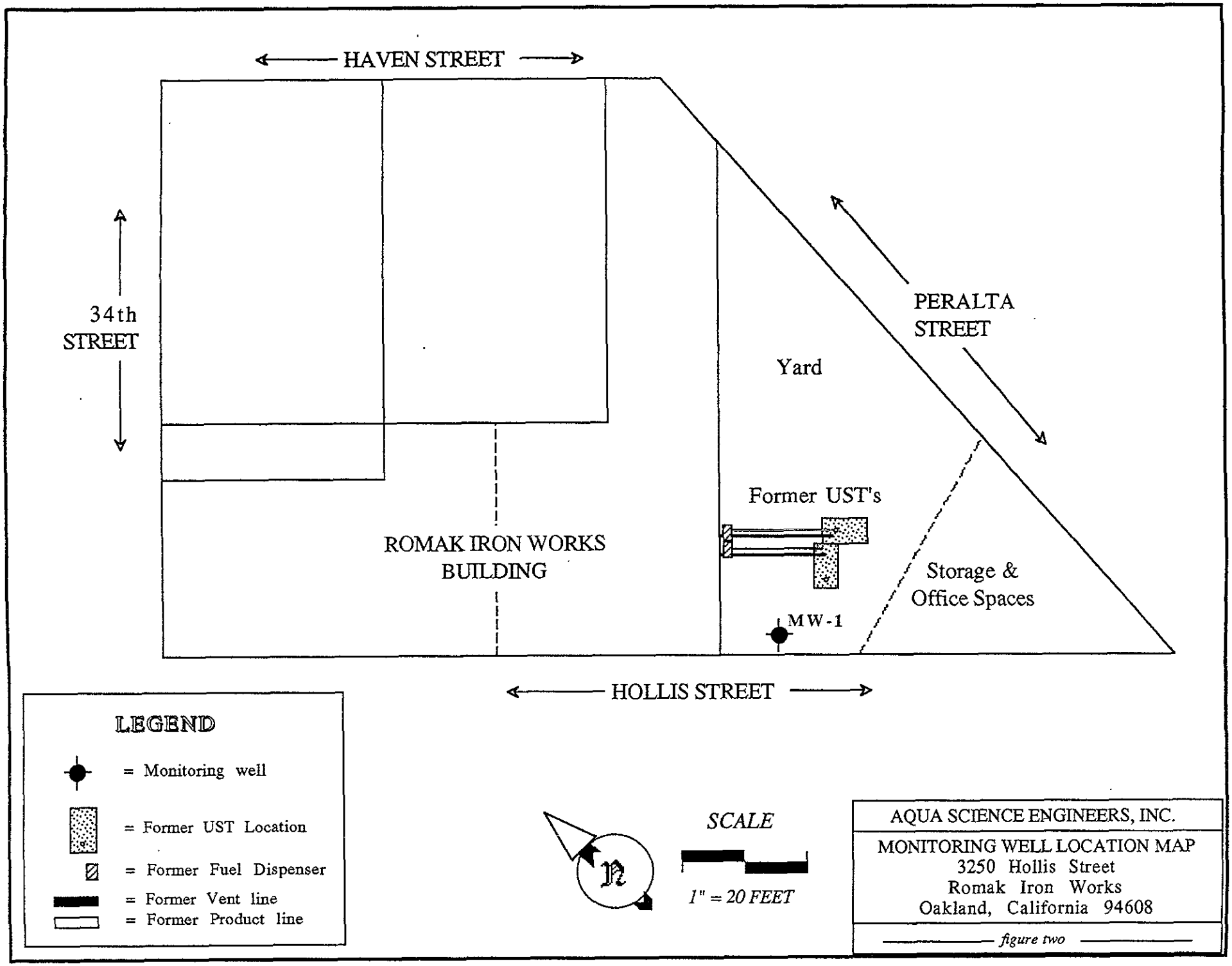


SITE LOCATION MAP

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 Iron Works, Oakland, CA
Job #: 2657 Date of sampling: 11-12-96
Well Name: MW-1 Sampled by: SF
Total depth of well (feet): 21.65 Well diameter (inches): 2"
Depth to water before sampling (feet): 10.06
Thickness of floating product if any: Sheen
Depth of well casing in water (feet): 11.59
Number of gallons per well casing volume (gallons): 2.0
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 Poly Bailer
Time Evacuation Began: 13:55 Time Evacuation Finished: 14:20
Approximate volume of groundwater purged: 8
Did the well go dry?: no After how many gallons: ~
Time samples were collected: 14:25
Depth to water at time of sampling: 10.36
Percent recovery at time of sampling: 97%
Samples collected with: Dedicated Poly Bailer
Sample color: clear Odor: Strong HC odor
Description of sediment in sample: none

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40 ml VOAs	HCl	Yes	TPH$_g$/BTEX/MTBE
↓	1	1 L Amber	↓	↓	TPHD
↓	1	1 L Amber	↓	↓	O+GBF

APPENDIX B

Analytical Report and Chain of Custody Form

CHROMALAB, INC.

Environmental Services (SDB)

November 19, 1996 Submission #: 9611137

AQUA SCIENCE ENGINEERS INC
2411 OLD CROW CANYON RD #4
SAN RAMON, CA 94583

Attn: Scott Ferriman

RE: Analysis for project ROMAK IRON WORKS, number 2657.

REPORTING INFORMATION

Samples were received cold and in good condition on November 12, 1996. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Motor oil was found in sample MW-1.

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 18, 1996 *Submission #:* 9611137

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman

Project: ROMAK IRON WORKS *Project#:* 2657
Received: November 12, 1996

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

Matrix: WATER *Extracted:* November 18, 1996
Sampled: November 12, 1996 *Run#:* 4071 *Analyzed:* November 18, 1996

Spl#	CLIENT SPL ID	OIL & GREASE (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
107006	MW-1	N.D.	1.0	N.D.	90.5	--

Carolyn House
Extractions Supervisor

Chip Poalinelli
Operations Manager

CHROMALAB, INC.

Environmental Services (SDB)

November 19, 1996 *Submission #:* 9611137

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman

Project: ROMAK IRON WORKS *Project#:* 2657
Received: November 12, 1996

re: 1 sample for TPH - Diesel analysis.
Method: *EPA 3510/8015M*

Matrix: WATER *Extracted:* November 14, 1996
Sampled: November 12, 1996 *Run#:* 4033 *Analyzed:* November 18, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
107006	MW-1	6000	100	N.D.	82.0	2

Note: Hydrocarbon reported does not match the pattern of our Diesel standard. Estimated concentration due to overlapping fuel patterns.

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 19, 1996 *Submission #:* 9611137

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman

Project: ROMAK IRON WORKS *Project#:* 2657
Received: November 12, 1996

re: One sample for Gasoline, BTEX & MTBE analysis.
Method: *EPA 5030/8015M/8020A*

Client Sample ID: **MW-1**
Spl#: 107006 *Matrix:* WATER
Sampled: November 12, 1996 *Run#:* 4087 *Analyzed:* November 19, 1996

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	13000	1000	N.D.	101	20
BENZENE	910	10	N.D.	98.0	20
TOLUENE	27	10	N.D.	91.7	20
ETHYL BENZENE	440	10	N.D.	88.9	20
XYLENES	85	10	N.D.	88.8	20

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-837-4853 MV 11/19

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

1371107006

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4,
San Ramon, CA 94583
(510) 820-9391 - FAX (510) 837-4853

Chain of Custody

30711

DATE 11-12-96 PAGE 1 OF 1

SAMPLERS (SIGNATURE) Scott T. Ferrman (PHONE NO.) 510-820-9391

PROJECT NAME Romak Iron Works NO. 2657

ADDRESS Oakland, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

5-Day

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX/MTBE (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC-CAM WET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY
MW-1	11-12-96	14:25	wat	5		X	X					X					

SUBM #: 9611137 REP: MV
CLIENT: ASE
DUE: 11/19/96
REF #: 30711

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Scott T. Ferrman 1504	B Morrow 1505	1654	Chris Rowley	1658
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Scott T. Ferrman 11-12-96	B Morrow 11-12-96		Chris Rowley 11/12/96	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company-	Company- CH2M Hill	Company- CH2M Hill	Company- Chromalab	