aqua science engineers inc.

November 30, 1995

QUARTERLY GROUNDWATER MONITORING REPORT
NOVEMBER 13, 1995 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 13, 1995, 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 PVC bailer. The samples were collected from the well with a dedicated polyethylene bailer. The groundwater samples were decanted from the bailer into three (3) 40-ml volatile organic analysis (VOA) vials and three (3) 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 American Environmental Network (AEN) of Pleasant Hill, California (DOHS #1172) 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 sample field log.

3.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by AEN for total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 5030/8015, total petroleum hydrocarbons as diesel (TPH-D) by modified EPA Method 3510/8015, benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Method 8020 and total and hydrocarbon oil and grease (O&G) by Standard Method 5520 C&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
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
DTSC MCL		Not Established	1.0	100**	680	1,750
EPA METHOD		5030/ 8015	602 or 8020	602 or 8020	602 or 8020	602 or 8020

--- = Not analyzed
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

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
EPA METHOD	5520C	5520F

4.0 CONCLUSIONS AND RECOMMENDATIONS

High TPH-G, benzene and ethylbenzene concentrations (17,000 ppb, 2,300 ppb and 550 ppb, respectively) were detected in groundwater samples collected from monitoring well MW-1. The benzene concentration of 2,300 ppb exceeded the California EPA Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water of 1 ppb. No TPH-D or hydrocarbon oil and grease concentrations were detected this quarter for the first time; however, the TPH-G and BTEX concentrations are consistent with previous results.

5.0 REPORT LIMITATIONS

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

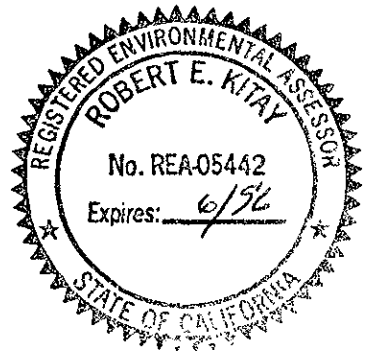
It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed for by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CSDHS certified laboratory. The independent laboratory is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

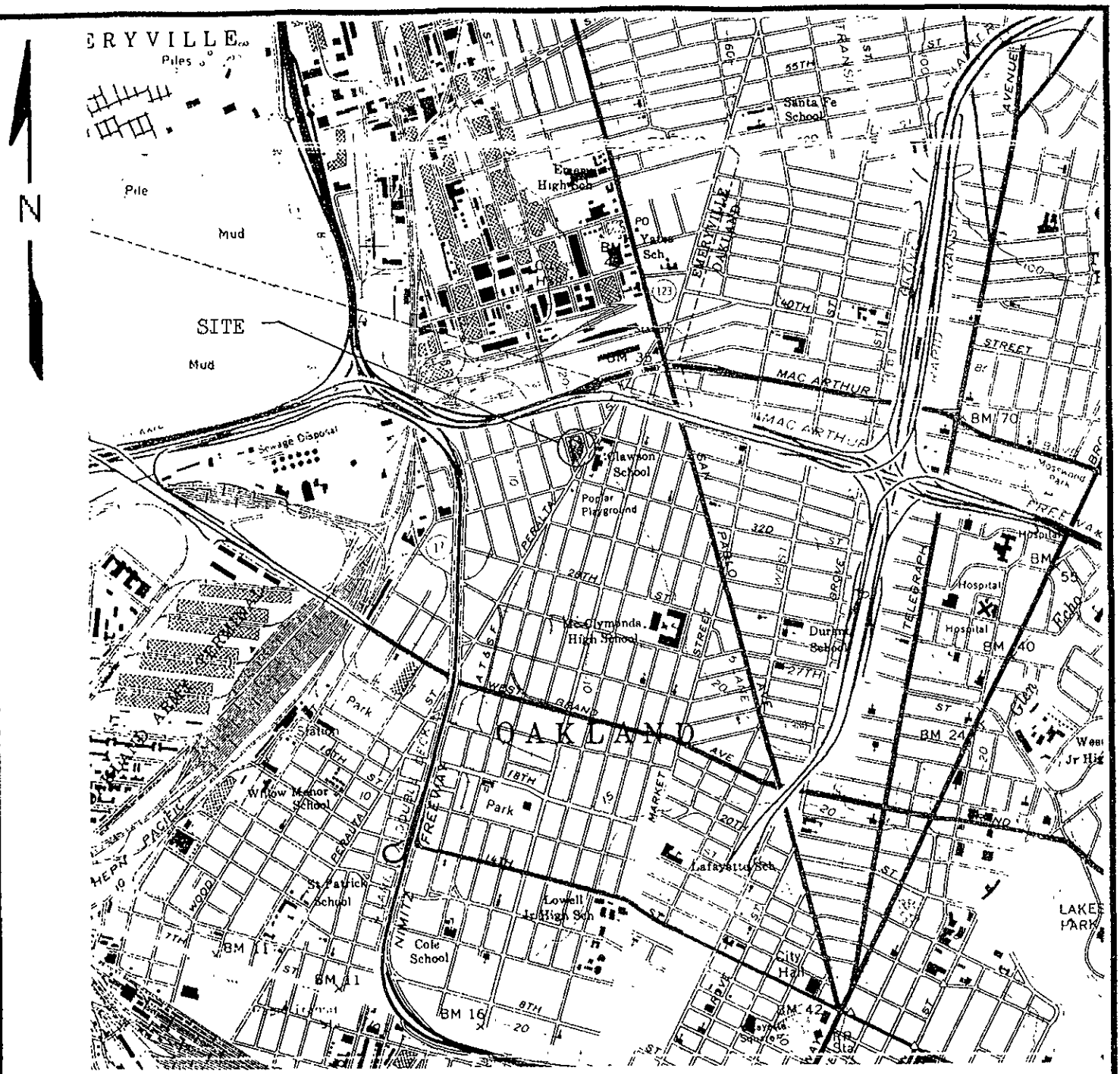
AQUA SCIENCE ENGINEERS, INC.

Robert E. Kitay, R.E.A.
Project 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. Kevin Graves, California Regional Water Quality Control Board

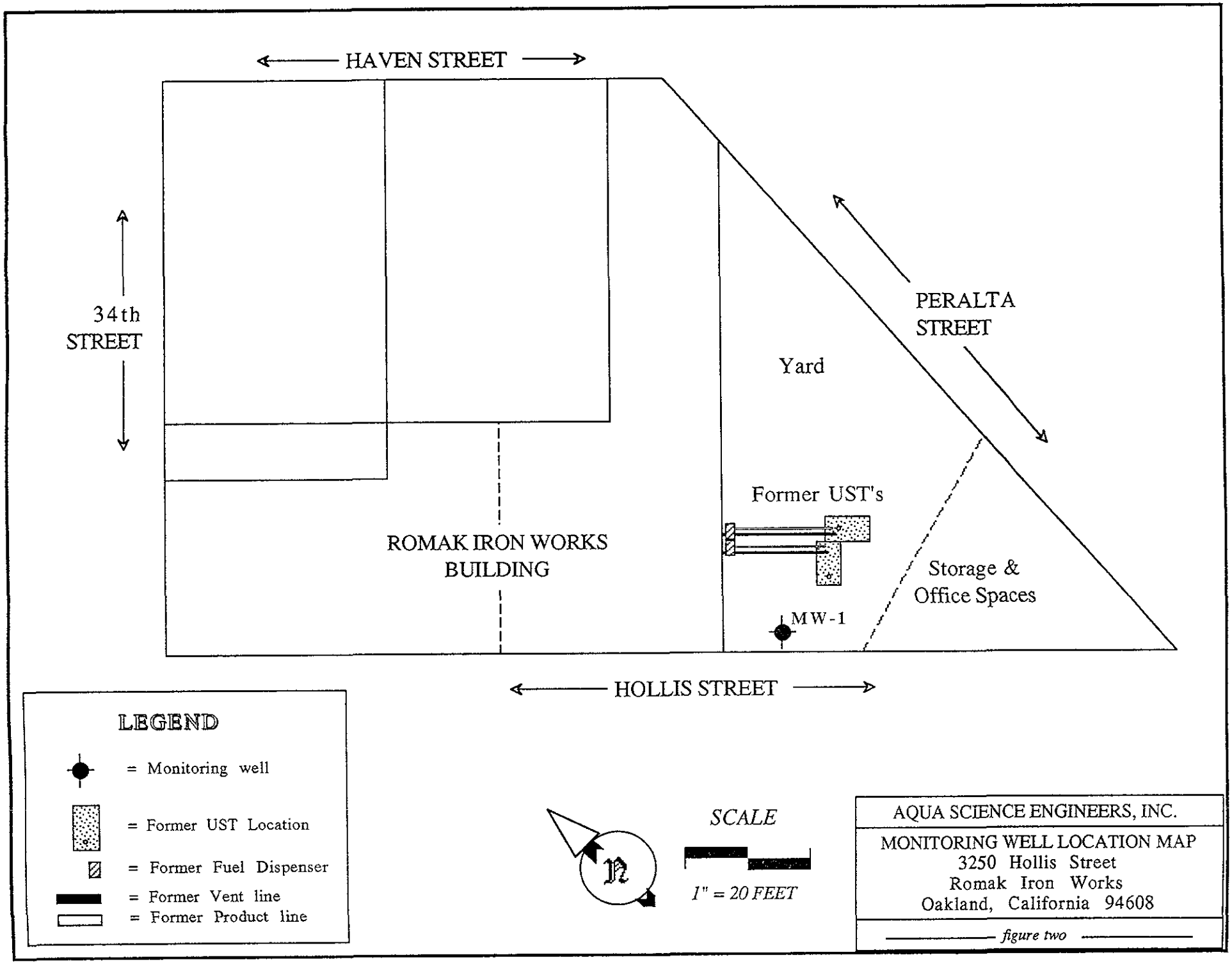


SITE LOCATION MAP

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



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

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WELL SAMPLING FIELD LOG

Project Name and Address: Romak Iron Works, Oakland CA
Job #: 2659 Date of sampling: 11-13-95
Well Name: MW-1 Sampled by: SR
Total depth of well (feet): 21.65 Well diameter (inches): 2'
Depth to water before sampling (feet): 9.12
Thickness of floating product if any: sheen
Depth of well casing in water (feet): 12.53
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): 8.5
Equipment used to purge the well: Dedicated Polyethylene Bailer
Time Evacuation Began: 12:25 Time Evacuation Finished: 12:50
Approximate volume of groundwater purged: 9 gallons
Did the well go dry?: no After how many gallons: —
Time samples were collected: 13:06
Depth to water at time of sampling: —
Percent recovery at time of sampling: —
Samples collected with: Dedicated Polyethylene Bailer
Sample color: none Odor: Strong HC
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	TPHg/BTEX
↓	2	1-L Amber glass	↓	↓	TPHD
↓	1	↓	↓	↓	O+G BF

APPENDIX B

Analytical Report and Chain of Custody Form

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: SCOTT FERRIMAN
CLIENT PROJ. ID: 2659
CLIENT PROJ. NAME: ROMAK IRONWORK

REPORT DATE: 11/28/95

DATE(S) SAMPLED: 11/13/95

DATE RECEIVED: 11/14/95

AEN WORK ORDER: 9511211

PROJECT SUMMARY:

On November 14, 1995, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

AQUA SCIENCE ENGINEERS, INC.

AEN JOB NO: 9511211
DATE SAMPLED: 11/13/95
DATE RECEIVED: 11/14/95
CLIENT PROJ. ID: 2659

Client Sample Id	AEN Lab Id	Purgeable Hydrocarbons as Gasoline (ug/L)	Extractable Hydrocarbons as Diesel (ug/L)	Oil & Grease (ug/L)	Hydrocarbons (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-1	01	17,000	ND	1,000	ND	2,300	8	550	69
Reporting Limit		500	1000	1000	1000	5	5	5	20
EPA Method:		5030 GCFID	3510 GCFID	5520C	5520F	8020	8020	8020	8020
Date Extracted:		NA	11/17/95	11/18/95	11/18/95	NA	NA	NA	NA
Date Analyzed:		11/18/95	11/19/95	11/19/95	11/19/95	11/18/95	11/18/95	11/18/95	11/18/95

NA = Not Applicable
ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9511211

CLIENT PROJECT ID: 2659

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9511211
DATE(S) EXTRACTED: 11/17/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
11/19/95	MW-1	01	88
QC Limits:			59-118

DATE EXTRACTED: 11/15/95
DATE ANALYZED: 11/16/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.06	79	5	58-107	15

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: SM 5520

AEN JOB NO: 9511211
DATE EXTRACTED: 11/06/95
DATE ANALYZED: 11/06/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: IR
MATRIX: WATER

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Oil	114	83	3	60-108	5

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9511211
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
11/18/95	MW-1	01	100
QC Limits:			92-109

DATE ANALYZED: 11/18/95
SAMPLE SPIKED: LCS
INSTRUMENT: F

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	19.2	83	8	60-120	20
Toluene	56.5	93	7	60-120	20
Hydrocarbons as Gasoline	500	107	11	60-120	20

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

R-3, S C
R-3, S-1 9511211

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

Chain of Custody

DATE 11-13-95 PAGE 1 OF 1

SAMPLERS (SIGNATURE) _ (PHONE NO.) Ph. 820-9391

PROJECT NAME Romak Iron Works NO. 2659

ADDRESS 3250 Hollis Street, Oakland, CA 94662

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID	DATE	TIME	MATRIX	NO OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX (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
1AF MW-1	11/13/95	1326	water	3		X	X					X					

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Scott T. Ferriman 10:39	10:39	12:20	Lori L Pruitt 12:20	
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Scott T. Ferriman 11-14-95	K. HERRICK 11-14-95	11-14-95	LORI L PRUITT 11/4/95	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company- AEN	Company- AEN	Company- AEN	