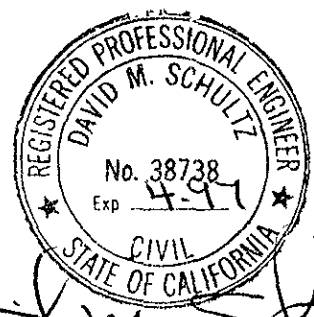
aqua science engineers inc.

August 29, 1994

ST1D379

QUARTERLY GROUNDWATER MONITORING REPORT
AUGUST 18, 1994 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 August 18, 1994, 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 as well as a unidentifiable, black, oil-like substance. The well was then 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. 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 B 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 EPA Method 8015 and benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Method 8020. The analytical results are tabulated below in Table One, and the certified analytical report and chain of custody form are included in Appendix A.

TPH-G was detected in the groundwater sample at 22,000 parts per billion (ppb), and BTEX was detected between 10 and 5,000 ppb. The benzene concentration of 5,000 ppb exceeded the California EPA Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water of 1 ppb, and the ethylbenzene concentration of 740 ppb exceeded the DTSC MCL of 680 ppb. The analytical results from this quarter are consistent with the previous quarters results.

TABLE ONE
Summary of Chemical Analysis of **GROUNDWATER** Samples
TPH-G and BTEX
All results are in **parts per billion**

Sampling Date	Analytical Laboratory	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes
08-04-93	PEL	12,000	7.6	9.7	9.9	29
11-18-93	GEL	10,270	3,169	38.3	661.2	659.4
02-09-94	SPA	17,000	6,200	64	770	420
05-25-94	AEN	24,000	6,200	27	1,100	210
08-18-94	**AEN**	**22,000**	**5,000**	**10**	**740**	**150**
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

PEL = Priority Analytical Labs of Milpitas, California
GEL = Geochem Environmental Laboratory of San Jose, California
SPA = Superior Precision Analytical of Martinez, California
AEN = American Environmental Network of Pleasant Hill, California
DTSC = California EPA Department of Toxic Substance Control
MCL = maximum contaminant level for drinking water
* = DTSC recommended action level for drinking water; MCL not established

4.0 CONCLUSIONS AND RECOMMENDATIONS

Relatively high TPH-G, benzene and ethylbenzene concentrations (22,000 ppb, 5,000 ppb and 740 ppb, respectively) were detected in groundwater samples collected from monitoring well MW-1. These concentrations are consistent with previous quarter's results.

Future plans for this site include determining the groundwater gradient and flow direction beneath the site utilizing wells at other surrounding sites, and installing one (1) well downgradient of the site. ASE also recommends analyzing next quarter's samples from monitoring well MW-1 for total extractable petroleum hydrocarbons (TEPH) by EPA Method 8015 and oil and grease (O&G) by EPA Method 5520 in an effort to determine the unidentifiable, black substance floating on top of the groundwater.

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.

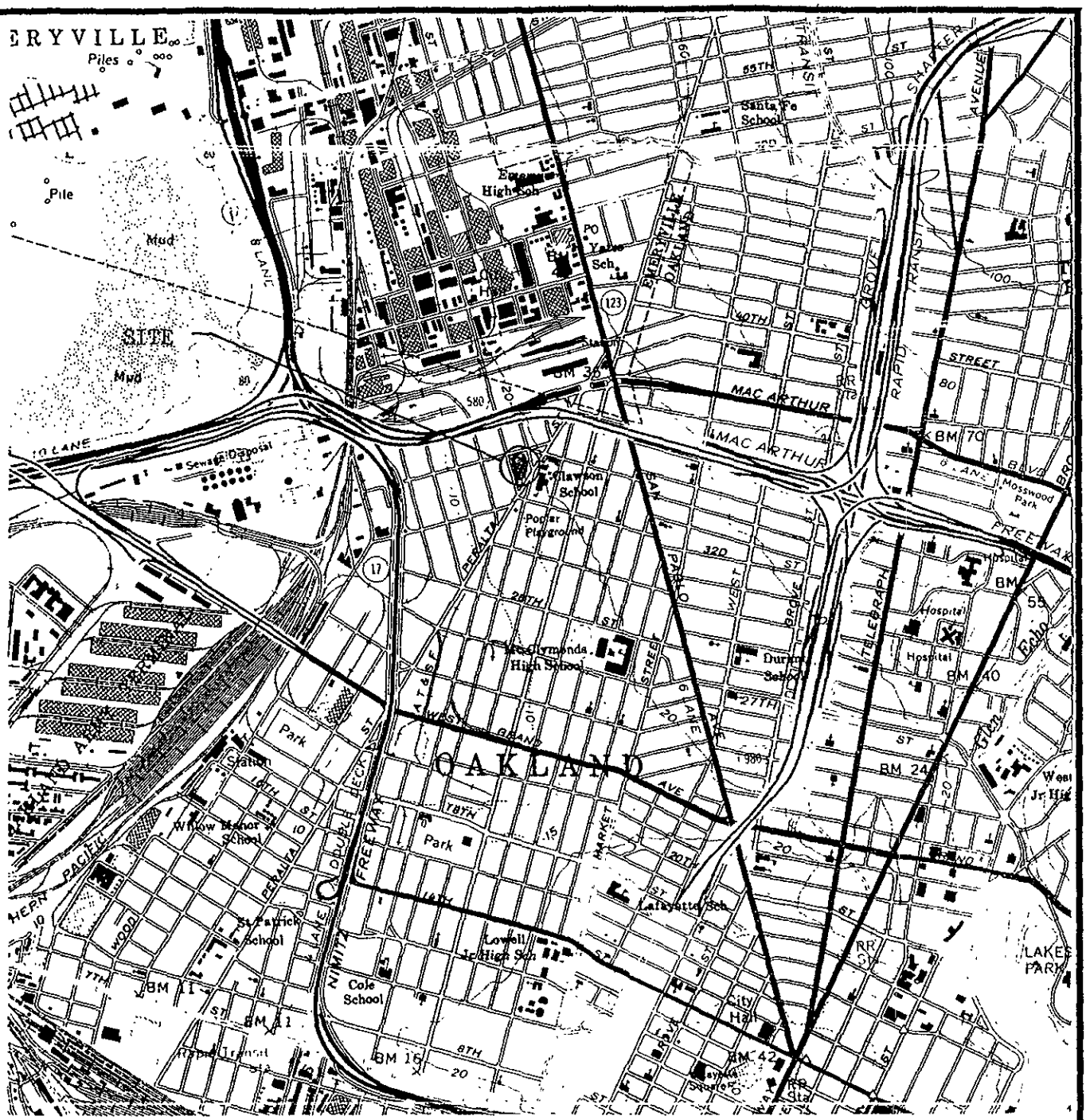
Respectfully submitted,

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. Richard Hiett, California Regional Water Quality Control Board

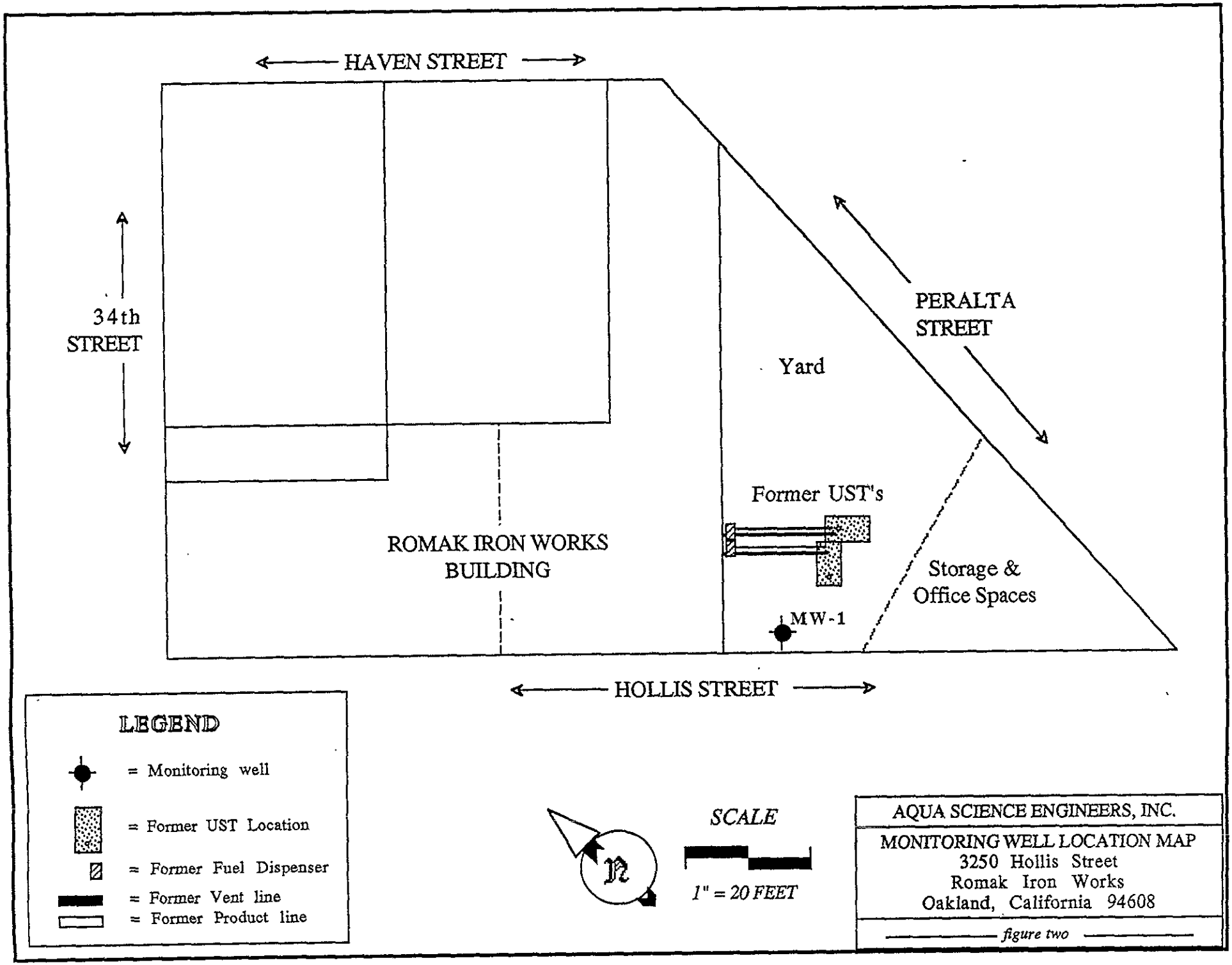


SITE LOCATION MAP

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

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: DAVID ALLEN
CLIENT PROJ. ID: 2659
CLIENT PROJ. NAME: ROMAK IRONWORK

REPORT DATE: 08/31/94
DATE(S) SAMPLED: 08/18/94
DATE RECEIVED: 08/18/94
AEN WORK ORDER: 9408265

PROJECT SUMMARY:

On August 18, 1994, this laboratory received 1 water sample(s).

Client requested the sample be analyzed for organic parameters. Sample identification, methodologies, results and dates analyzed are summarized on the following page.

Please see quality control report for a summary of QC data pertaining to this project.

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

Larry Klein
Laboratory Director

AQUA SCIENCE ENGINEERS, INC.

DATE SAMPLED: 08/18/94
DATE RECEIVED: 08/18/94
CLIENT PROJ. ID: 2659

REPORT DATE: 08/31/94

AEN JOB NO: 9408265

Client Sample Id.	AEN Lab Id.	Purgeable Hydrocarbons as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-1	01	22,000	5,000	10	740	150
Reporting Limit		50	0.5	0.5	0.5	2
EPA Method:		5030 GCFID	8020	8020	8020	8020

Instrument: F

Date Analyzed: 08/24/94

ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9408265

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 that can reliably be determined during routine laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix and method 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

AEN JOB NO: 9408265
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary
Method: EPA 8020, 5030 GCFID

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
08/24/94	MW-1	01	108

Current QC Limits

Surrogate	Percent Recovery
Fluorobenzene	70-115

QUALITY CONTROL DATA

AEN JOB NO: 9408265
DATE ANALYZED: 08/24/94
SAMPLE SPIKED: 9408266-01
INSTRUMENT: F
MATRIX: WATER

Matrix Spike Recovery Summary
Method: EPA 8020, 5030 GCFID

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD
Benzene	8.5	114	1
Toluene	32.2	102	8
Hydrocarbons as Gasoline	500	118	7

Current QC Limits

Analyte	Percent Recovery	RPD
Benzene	81-115	10
Toluene	85-112	9
Gasoline	72-119	12

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

R-3, S-3 9408265

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 8-18-94 PAGE 1 OF 1

SAMPLERS (SIGNATURE) (PHONE NO.) (510) 820-9391

PROJECT NAME Romak Iron Works NO. 2659

ADDRESS 3250 Hollis Street, Oakland, CA

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					
1A-C MW-1	8/18	12:25	Water	3		X																

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
D. Allen 15:55	Michael McMillan 15:55	Michael McMillan 16:35	Lori L. Pruitt 16:35	
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
D Allen 8-18-94	Michael McMillan 8/18	8/18	Lori L. Pruitt 8/18/94	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company- AEW	Company-	Company- AEN	

APPENDIX B

Well Sampling Field Log

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: ROMAK IRON WORKS
Job #: 2059 Date of sampling: 8-18-94
Well Name: MW-1 Sampled by: DA
Total depth of well (feet): 21.65 Well diameter (inches): 2
Depth to water before sampling (feet): 13.44
Thickness of floating product if any: Sheen
Depth of well casing in water (feet): 8.21
Number of gallons per well casing volume (gallons): 1.4
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 5.5
Equipment used to purge the well: Pre-cleaned PVC Bailer
Time Evacuation Began: 12:00 Time Evacuation Finished: 12:20
Approximate volume of groundwater purged: 6 gal.
Did the well go dry?: No After how many gallons: —
Time samples were collected: 12:25
Depth to water at time of sampling: 13.58
Percent recovery at time of sampling: 99%
Samples collected with: Dedicated Polyethylene Bailer
Sample color: Light Brown Odor: Strong Petroleum
Description of sediment in sample: fine silt

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40ml-glass VOA	✓	✓	TPH-G/BTEX