aqua science engineers inc.

ENVIRONMENTAL PROTECTION

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May 17, 1995

QUARTERLY GROUNDWATER MONITORING REPORT
MAY 2, 1995 SAMPLING
ASE JOB NO. 2659
at
Romak Iron Works
3250 Hollis Street
Oakland, California 94662

REGISTERED PROFESSIONAL ENGINEER
DAVID M. SCHULTZ
No. 38738
Exp. 4-97
CIVIL
STATE OF CALIFORNIA

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 May 2, 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 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 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 5520B&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 A.

TPH-G was detected in the groundwater sample at 21,000 parts per billion (ppb), TPH-D was detected at 3,400 ppb, total oil and grease was detected at 5,000 ppb, hydrocarbon oil and grease was detected at 1,000 ppb and BTEX was detected between 21 and 3,100 ppb. The benzene concentration of 3,100 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 910 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, 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
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
EPA METHOD	5520C	5520F

4.0 CONCLUSIONS AND RECOMMENDATIONS

High TPH-G, TPH-D, total oil and grease, hydrocarbon oil and grease, benzene and ethylbenzene concentrations (21,000 ppb, 3,400 ppb, 5,000 ppb, 1,000 ppb, 3,100 ppb and 910 ppb, respectively) were detected in groundwater samples collected from monitoring well MW-1. The benzene and ethylbenzene concentrations both exceeded the DTSC MCLs for drinking water. 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.

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.

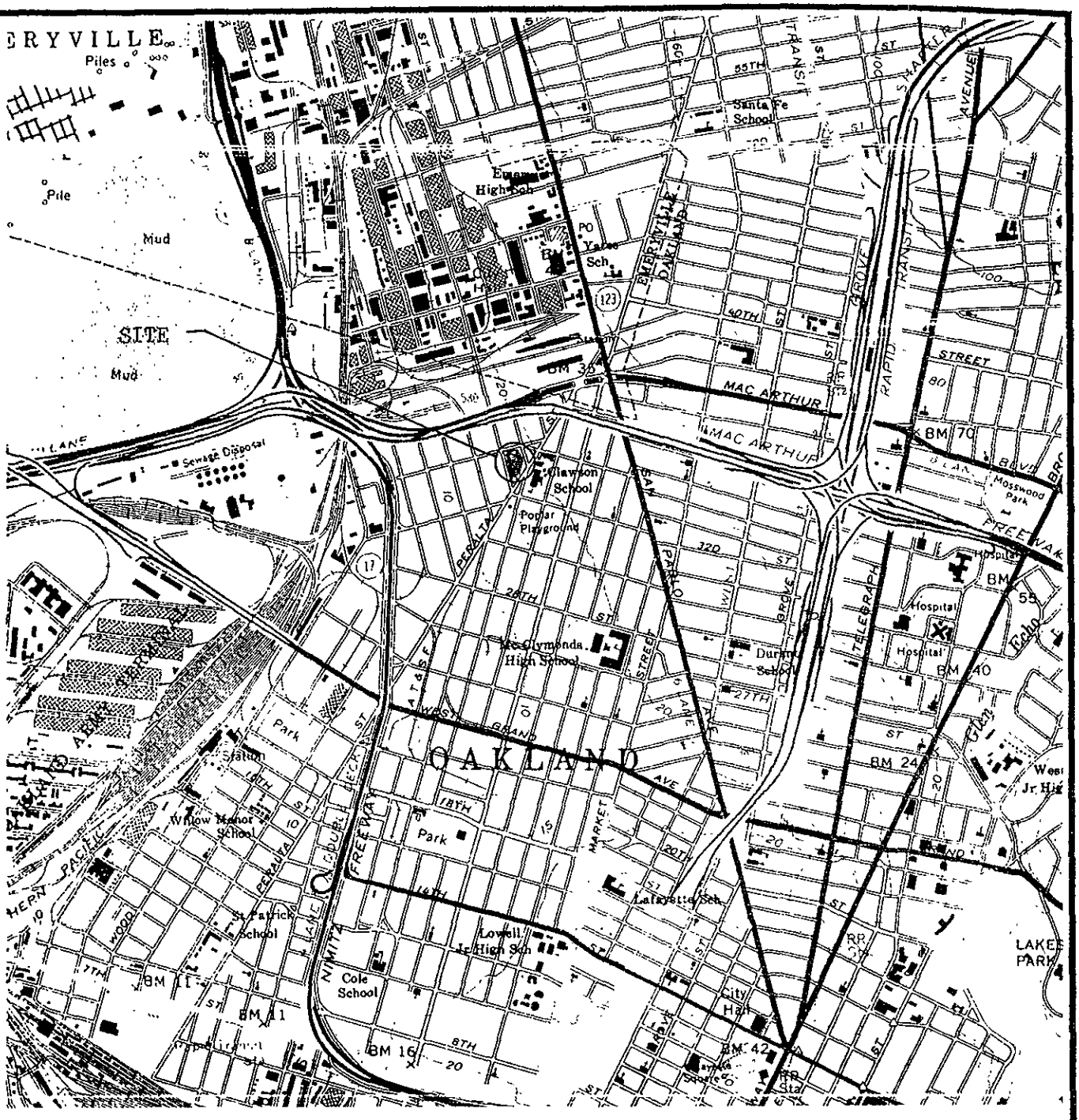
Respectfully submitted,

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

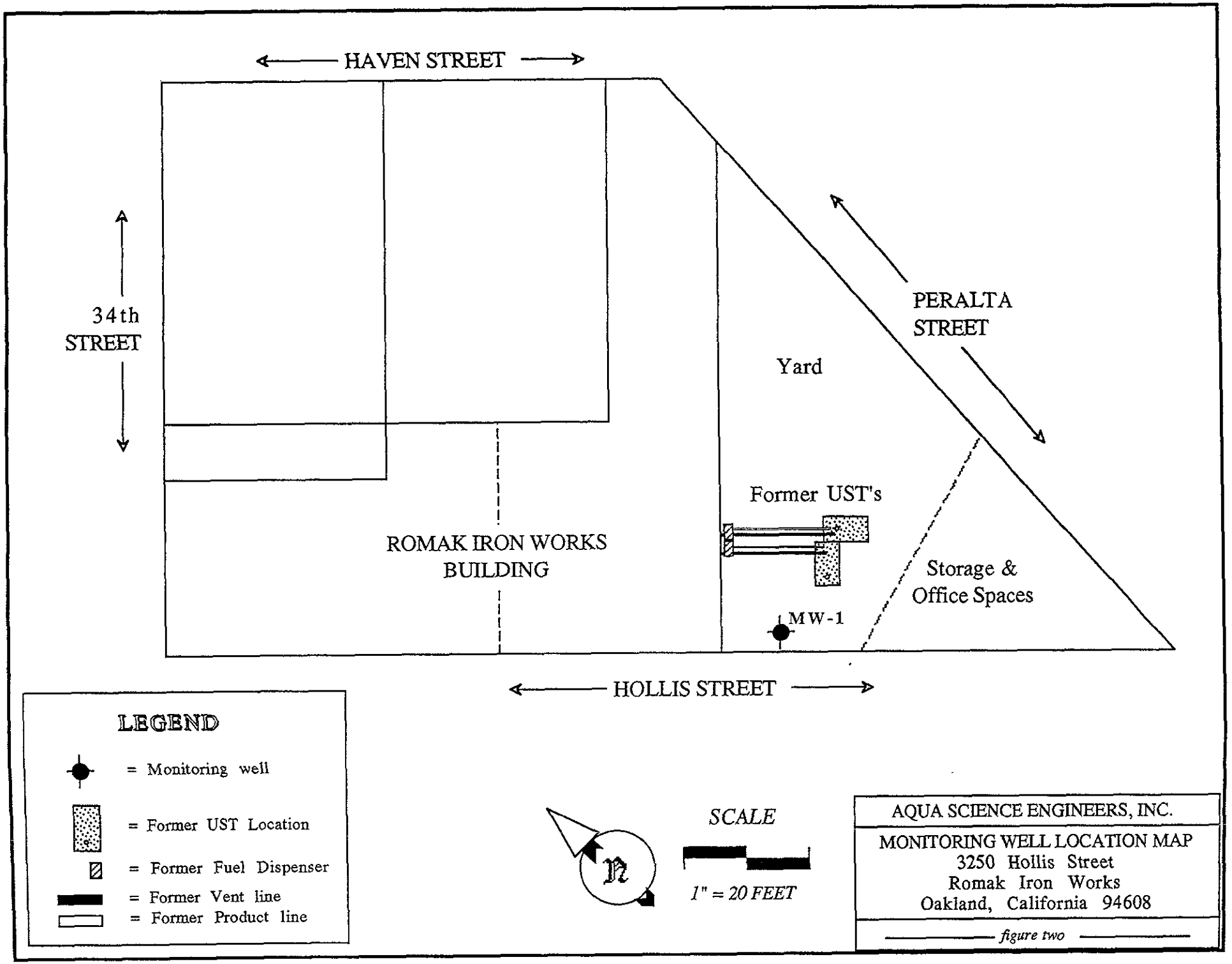


BASE: USGS Oakland West 7.5 minute quadrangle topographic r
dated 1980, scale 1:24,000.

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
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: ROBERT KITAY
CLIENT PROJ. ID: 2659
CLIENT PROJ. NAME: ROMAK IRON WRK

REPORT DATE: 05/17/95
DATE(S) SAMPLED: 05/02/95
DATE RECEIVED: 05/03/95
AEN WORK ORDER: 9505043

PROJECT SUMMARY:

On May 3, 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: 9505043
DATE SAMPLED: 05/02/95
DATE RECEIVED: 05/03/95
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	21,000	3,400	5,000	1,000	3,100	21	910	130
Reporting Limit		1,000*	50	1,000	1,000	10*	10*	10*	40*
EPA Method:		5030 GCFID	3510 GCFID	5520C	5520F	8020	8020	8020	8020
Date Extracted:		NA	05/11/95	05/04/95	05/04/95	NA	NA	NA	NA
Date Analyzed:		05/08/95	05/12/95	05/04/95	05/04/95	05/08/95	05/08/95	05/08/95	05/08/95

NA = Not Applicable
ND = Not Detected

* Reporting limits elevated for gas/BTEX due to high levels of target compounds. Sample run at dilution.

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9505043

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 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: 9505043
DATE(S) EXTRACTED: 05/11/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
05/12/95	MW-1	01	93
QC Limits:			73-129

DATE EXTRACTED: 05/04/95
DATE ANALYZED: 05/06/95
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	1.82	101	2	65-103	12

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

QUALITY CONTROL DATA

METHOD: SM 5520

AEN JOB NO: 9505043
DATE EXTRACTED: 05/01/95
DATE ANALYZED: 05/01/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: GRAVIMETRIC
MATRIX: WATER

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Duplicate Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Oil	74.8	82.6	96	3	90-102	5

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

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9505043
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
05/08/95	MW-1	01	100
QC Limits:			92-109

DATE ANALYZED: 05/05/95
SAMPLE SPIKED: 9505057-01
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	36.3	87	7	85-109	17
Toluene	103.0	88	8	87-111	16
Hydrocarbons as Gasoline	1000	75	11	66-117	19

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

*** END OF REPORT ***

R-15-B
R-3-S-1

950543

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 5-2-95 PAGE 1 OF 1

SAMPLERS (SIGNATURE) (PHONE NO.)
Robert E. Kitay (510)820-9391

PROJECT NAME Romak Iron Works NO. 2659
ADDRESS 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
MW-1	5/2	13:50	Water	6		X	X					X					

RELINQUISHED BY:
Robert C. Kitay 9:50
(signature) (time)
Robert E. Kitay 5-3-95
(printed name) (date)
Company- ASE

RECEIVED BY:
[signature] 9:50
(signature) (time)
N. HERRICK 5-3-95
(printed name) (date)
Company- AEN

RELINQUISHED BY:
[signature] 12:05
(signature) (time)
N. HERRICK 5-3-95
(printed name) (date)
Company-

RECEIVED BY LABORATORY:
Gina Gillespie 1205
(signature) (time)
Gina Gillespie
(printed name) (date) 5-3-95
Company- AEN

COMMENTS:

APPENDIX B

Well Sampling Field Log

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Remak Iron Works, Oakland, CA
Job #: 2659 Date of sampling: 5-2-95
Well Name: MW-1 Sampled by: RK
Total depth of well (feet): 21.65 Well diameter (inches): 2
Depth to water before sampling (feet): 11.63
Thickness of floating product if any: sheen
Depth of well casing in water (feet): 10.02
Number of gallons per well casing volume (gallons): 1.7
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 6.8
Equipment used to purge the well: PVC bailer
Time Evacuation Began: 12:45 Time Evacuation Finished: 13:25
Approximate volume of groundwater purged: 7 gallons
Did the well go dry?: No After how many gallons: —
Time samples were collected: 13:50
Depth to water at time of sampling: —
Percent recovery at time of sampling: —
Samples collected with: Dedicated polyethylene bailer
Sample color: turbid black Odor: strong hc odor
Description of sediment in sample: small amount of black silt

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40-ml VOA vials	HCl	Yes	TPH-G/BTEX
↓	2	1-liter amber glass	↓	↓	TPH-D
↓	1	↓	↓	↓	O&G