aqua science engineers inc.

ENVIRONMENTAL
PROTECTION
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January 25, 2000

QUARTERLY GROUNDWATER MONITORING REPORT
JANUARY 2000 GROUNDWATER SAMPLING
ASE JOB NO. 3487
at
The Salvation Army
810 Clay Street
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado Road
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

The following is a report detailing the results of the January 2000 quarterly groundwater sampling at the Salvation Army Property located at 810 Clay Street, Oakland, California *(Figures 1 and 2).*

2.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

On January 6, 2000, ASE associate geologist Ian Reed measured the depth to water in groundwater monitoring well MW-1 using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. No free-floating hydrocarbons or sheen were observed in the monitoring well.

Prior to sampling, the monitoring well was purged of four well casing volumes of groundwater using a dedicated polyethylene bailer. The parameters pH, temperature and conductivity were monitored during the well purging. Samples were not collected until these parameters stabilized. The groundwater samples were collected using a dedicated polyethylene bailer. The samples to be analyzed for volatile compounds were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, pre-preserved with hydrochloric acid and capped without headspace. The samples to be analyzed for total petroleum hydrocarbons as diesel (TPH-D) were contained in 1-liter amber glass containers. All of the samples were labeled and placed in a cooler with wet ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under appropriate chain-of-custody documentation. Well sampling field logs are presented in Appendix A. The groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, benzene, toluene, ethyl benzene and total xylenes (collectively known as BTEX) by EPA Method 8020 and methyl tertiary-butyl ether (MTBE) by EPA Method 8020. The analytical results for this and previous sampling periods are presented in Table Two. The certified analytical report and chain-of-custody documentation are included as Appendix B.

The 1-liter amber glass containers which were to be analyzed for TPH-D cracked from freezing, and therefore no TPH-D analyses were perfomed this quarter.

TABLE TWO
Summary of Chemical Analysis of **GROUNDWATER** Samples
Petroleum Hydrocarbons
All results are in **parts per billion**

Boring	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
MW-1							
10/01/99	210	110	64	3.0	11	6.7	<5.0
1/06/00	**270**	**- - -**	**22**	**0.96**	**5.2**	**< 0.5**	**< 5.0**
DHS MCL	NE	NE	1.0	150	680	1,750	13

Notes:
Detectable concentrations are in **bold**.
Non-detectable concentrations are noted by the less than sign (<) followed by the detection limit.

DHS MCL is the California Department of Health Services maximum contaminant level for drinking water.

NE = DHS MCL has not been established.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The groundwater sample collected from monitoring well MW-1 contained 270 parts per billion (ppb) TPH-G, 22 ppb benzene, 0.96 ppb toluene, and 5.2 ppb ethyl benzene. No other compounds were detected in groundwater samples analyzed above the laboratory reporting limits. The hydrocarbon concentrations were similar to the previous quarter's results. The TPH-G concentration increased slightly from the last quarter; all other concentrations decreased. Benzene was the only compound that exceeded the California Department of Health Services (DHS) Maximum Contaminant Level (MCL) for drinking water.

ASE recommends that this site continue to be monitored for at least two additional quarters. At that time, ASE will evaluate whether additional work should be performed or whether the case is suitable for closure.

4.0 REPORT LIMITATIONS

The results of this assessment 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.

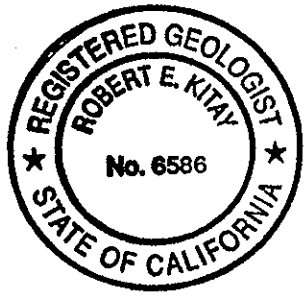
It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

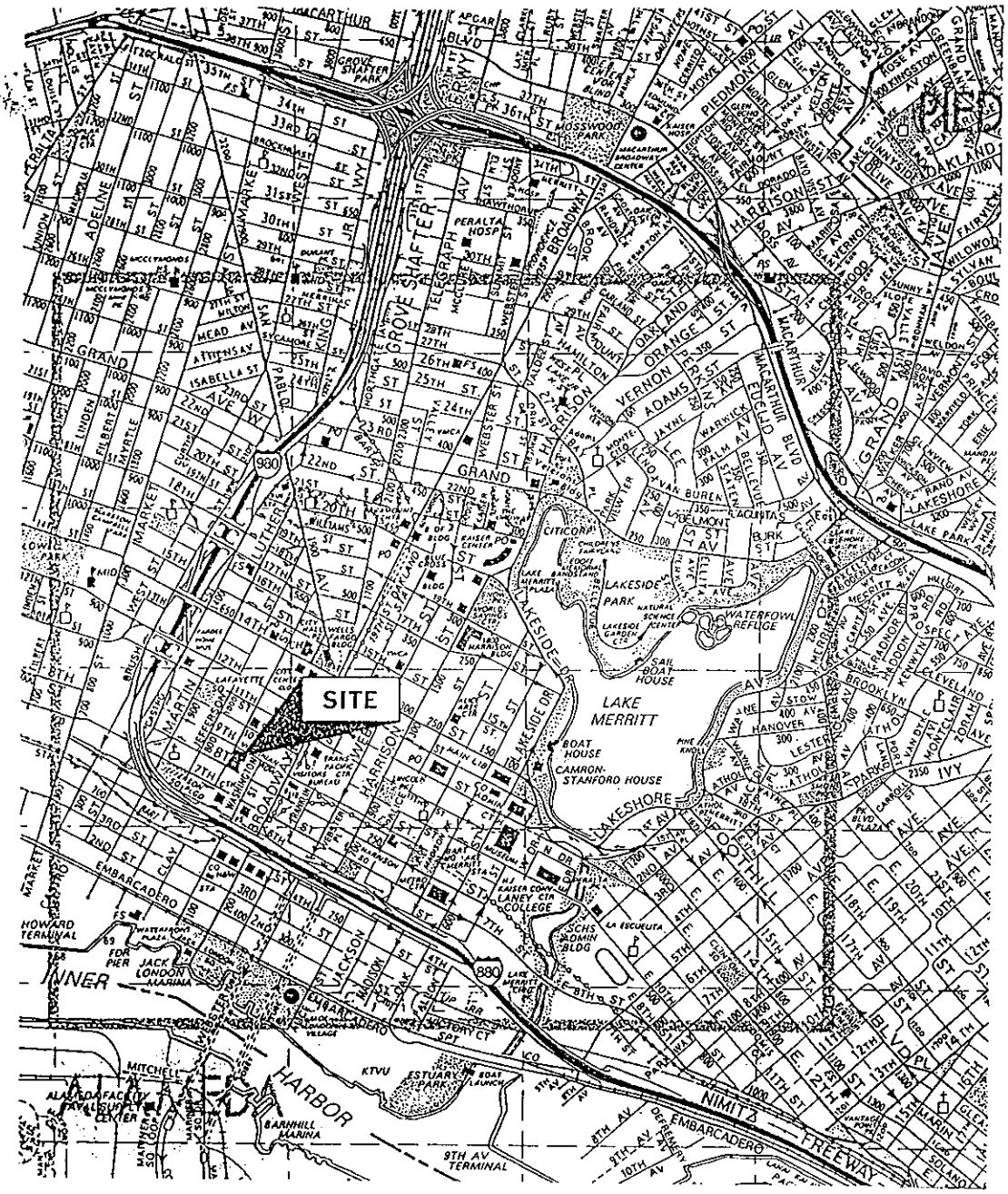
Ian T. Reed
Associate Geologist



Robert E. Kitay, R.G., R.E.A.
Senior Geologist

Attachments: Figures 1 and 2
Appendices A and B

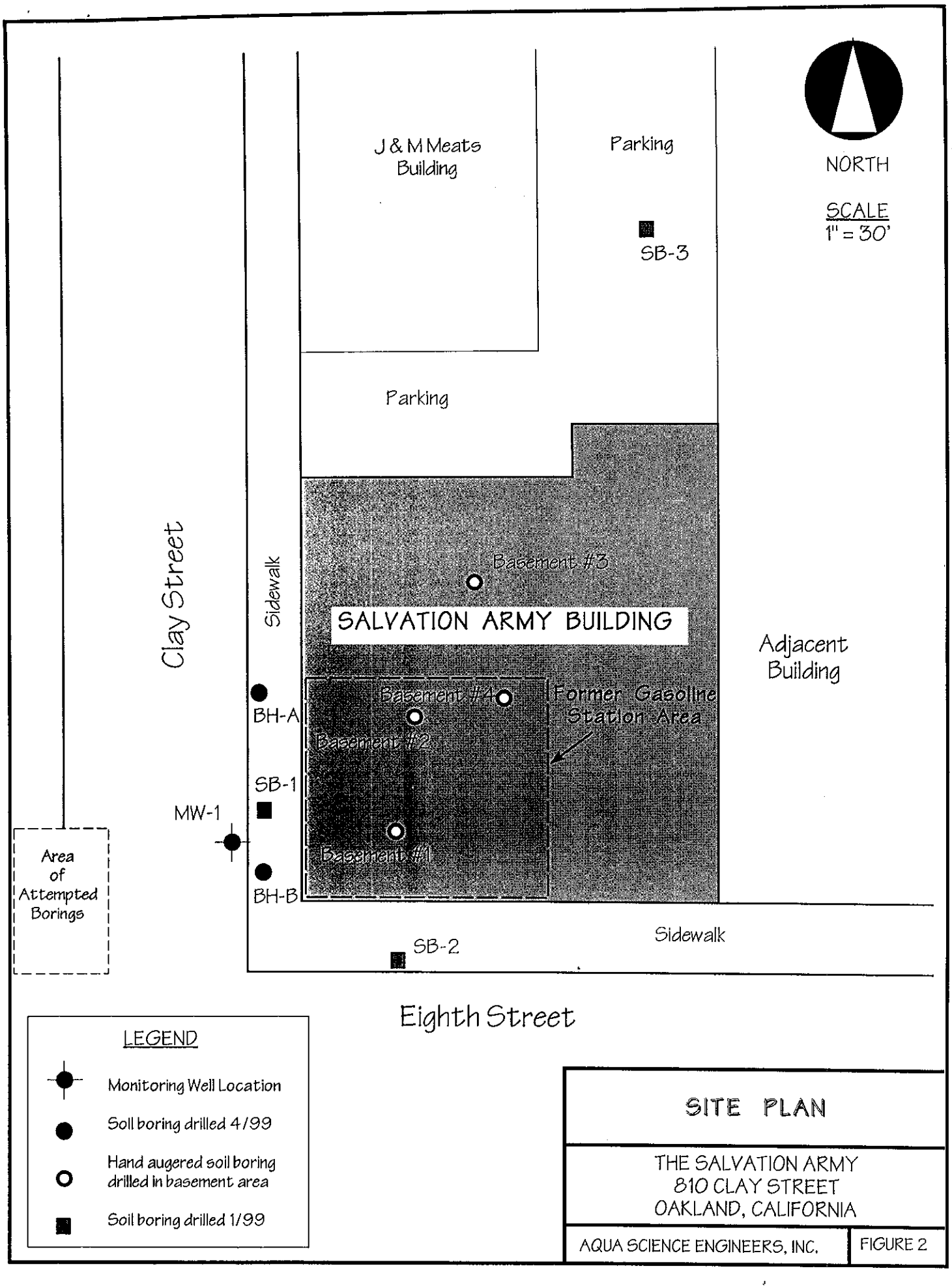
FIGURES



SITE LOCATION MAP

THE SALVATION ARMY
810 CLAY STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | Figure 1



SITE PLAN

THE SALVATION ARMY
810 CLAY STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | FIGURE 2

APPENDIX A

Well Sampling Field Logs

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WELL SAMPLING FIELD LOG

Project Name and Address: Salvation Army
Job #: _____ Date of sampling: 1·6·00
Well Name: MW-1 Sampled by: JTR
Total depth of well (feet): 32.6' Well diameter (inches): 2"
Depth to water before sampling (feet): 20.90
Thickness of floating product if any: —
Depth of well casing in water (feet): 11.70'
Number of gallons per well casing volume (gallons): 1.9
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 7.6
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1255 Time Evacuation Finished: 1315
Approximate volume of groundwater purged: 8.0
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1320
Depth to water at time of sampling: 20.97'
Percent recovery at time of sampling: 99%
Samples collected with: dedicated bailer
Sample color: orange-brown / clear Odor: none
Description of sediment in sample: silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	71.6	6.10	673
2	70.9	6.76	760
3	71.9	7.81	764
4	72.3	7.13	793

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	7 3	40 ml VOAs	✓	✓	TPH-G/BTEX/MTBE
MW-1	2	1-liter Amber		✓	TPH-D

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

Aqua Science Engineers, Inc.
208 West El Pintado Road
Danville, CA 94526

Attn.: Mr. Ian T. Reed

Project: Salvation Army

Site: Clay Street, Oakland, CA

Dear Mr. Reed,

Attached is our report for your samples received on Monday January 10, 2000
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after February 9, 2000 unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: vvancil@chromalab.com

Sincerely,

Vincent Vancil

Gas/BTEX and MTBE

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Ian T. Reed

Phone: (925) 820-9391 Fax: (925) 837-4853

Project #:

Project: Salvation Army

Site: Clay Street, Oakland, CA

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	01/06/2000 13:20	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-01-0117

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-1**	Lab Sample ID:	**2000-01-0117-001**
Project:	Salvation Army	Received:	01/10/2000 18:04
Site:	Clay Street, Oakland, CA	Extracted:	01/17/2000 14:12
Sampled:	01/06/2000 13:20	QC-Batch:	2000/01/17-01.04
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	270	50	ug/L	1.00	01/17/2000 14:12	
Benzene	22	0.50	ug/L	1.00	01/17/2000 14:12	
Toluene	0.96	0.50	ug/L	1.00	01/17/2000 14:12	
Ethyl benzene	5.2	0.50	ug/L	1.00	01/17/2000 14:12	
Xylene(s)	ND	0.50	ug/L	1.00	01/17/2000 14:12	
MTBE	ND	5.0	ug/L	1.00	01/17/2000 14:12	
Surrogate(s)						
Trifluorotoluene	84.9	58-124	%	1.00	01/17/2000 14:12	
4-Bromofluorobenzene-FID	85.0	50-150	%	1.00	01/17/2000 14:12	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Method Blank **Water** **QC Batch # 2000/01/17-01.04**

MB: 2000/01/17-01.04-001 Date Extracted: 01/17/2000 09:42

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	01/17/2000 09:42	
Benzene	ND	0.5	ug/L	01/17/2000 09:42	
Toluene	ND	0.5	ug/L	01/17/2000 09:42	
Ethyl benzene	ND	0.5	ug/L	01/17/2000 09:42	
Xylene(s)	ND	0.5	ug/L	01/17/2000 09:42	
MTBE	ND	5.0	ug/L	01/17/2000 09:42	
Surrogate(s)					
Trifluorotoluene	100.0	58-124	%	01/17/2000 09:42	
4-Bromofluorobenzene-FID	88.8	50-150	%	01/17/2000 09:42	

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/01/17-01.04**

LCS: 2000/01/17-01.04-002 Extracted: 01/17/2000 07:16 Analyzed: 01/17/2000 07:16

LCSD: 2000/01/17-01.04-003 Extracted: 01/17/2000 07:44 Analyzed: 01/17/2000 07:44

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	522	589	500	500	104.4	117.8	12.1	75-125	20		
Benzene	105	93.6	100.0	100.0	105.0	93.6	11.5	77-123	20		
Toluene	103	92.7	100.0	100.0	103.0	92.7	10.5	78-122	20		
Ethyl benzene	101	90.3	100.0	100.0	101.0	90.3	11.2	70-130	20		
Xylene(s)	298	270	300	300	99.3	90.0	9.8	75-125	20		
Surrogate(s)											
Trifluorotoluene	484	414	500	500	96.8	82.8		58-124			
4-Bromofluorobenzene-FI	435	427	500	500	87.0	85.4		50-150			

2000-01-0117

49883

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE) Matt Reed (PHONE NO.) (925)820-9391

PROJECT NAME Salvation Army JOB NO.

ADDRESS Clay Street, Oakland CA DATE 1-6-00

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

5-day TAT

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) (EPA 608/8080)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)					COMPOSITE
MW-1	1/6/00	1320	water	1	X																		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
(signature) Matt Reed (time)	(signature) (time) 1356	(signature) (time) 1804	(signature) (time) 1804	
(printed name) Matt Reed (date) 1/6/00	(printed name) (date) 1-10-00	(printed name) (date) 1-10-00	(printed name) (date) 1-10-00	5-day TAT
Company- ASE	Company-	Company-	Company-	4.5°C

rec'd for lab: Denise Barrington