aqua science engineers inc.

ENVIRONMENTAL PROTECTION
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August 15, 2000

QUARTERLY GROUNDWATER MONITORING REPORT
JULY 19, 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 July 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 July 19, 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, TPH-D by EPA Method 3550/8015M, 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 One. The certified analytical report and chain-of-custody documentation are included as Appendix B.

TABLE ONE
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
4/04/00	180*	<50	<0.5	<0.5	<0.5	<0.5	<5.0
7/19/00	**150***	**< 50**	**18**	**< 0.5**	**4.8**	**< 0.5**	**< 5.0**
DHS MCL	NE	NE	1.0	150	680	1,750	13

Notes:
Most recent sampling concentrations are in **bold**.
Non-detectable concentrations are noted by the less than sign (<) followed by the detection limit.
* = Hydrocarbon reported in the gasoline range does not match the laboratory standard.
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 150 parts per billion (ppb) TPH-G, 18 ppb benzene and 4.8 ppb ethyl benzene. No other compounds were detected in groundwater samples analyzed above the laboratory reporting limits. The hydrocarbon concentrations were still relatively low and consistent with previous results.

Based on the relatively low hydrocarbon concentrations in groundwater samples collected during the one year of groundwater monitoring as well as results from ASE's previous soil and groundwater assessments at this site, ASE recommends that this case be reviewed for case closure at this time.

4.0 REPORT LIMITATIONS

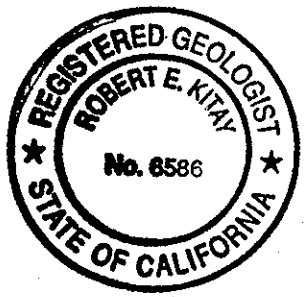
The results of this assessment represent conditions at the time of the groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory.

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,

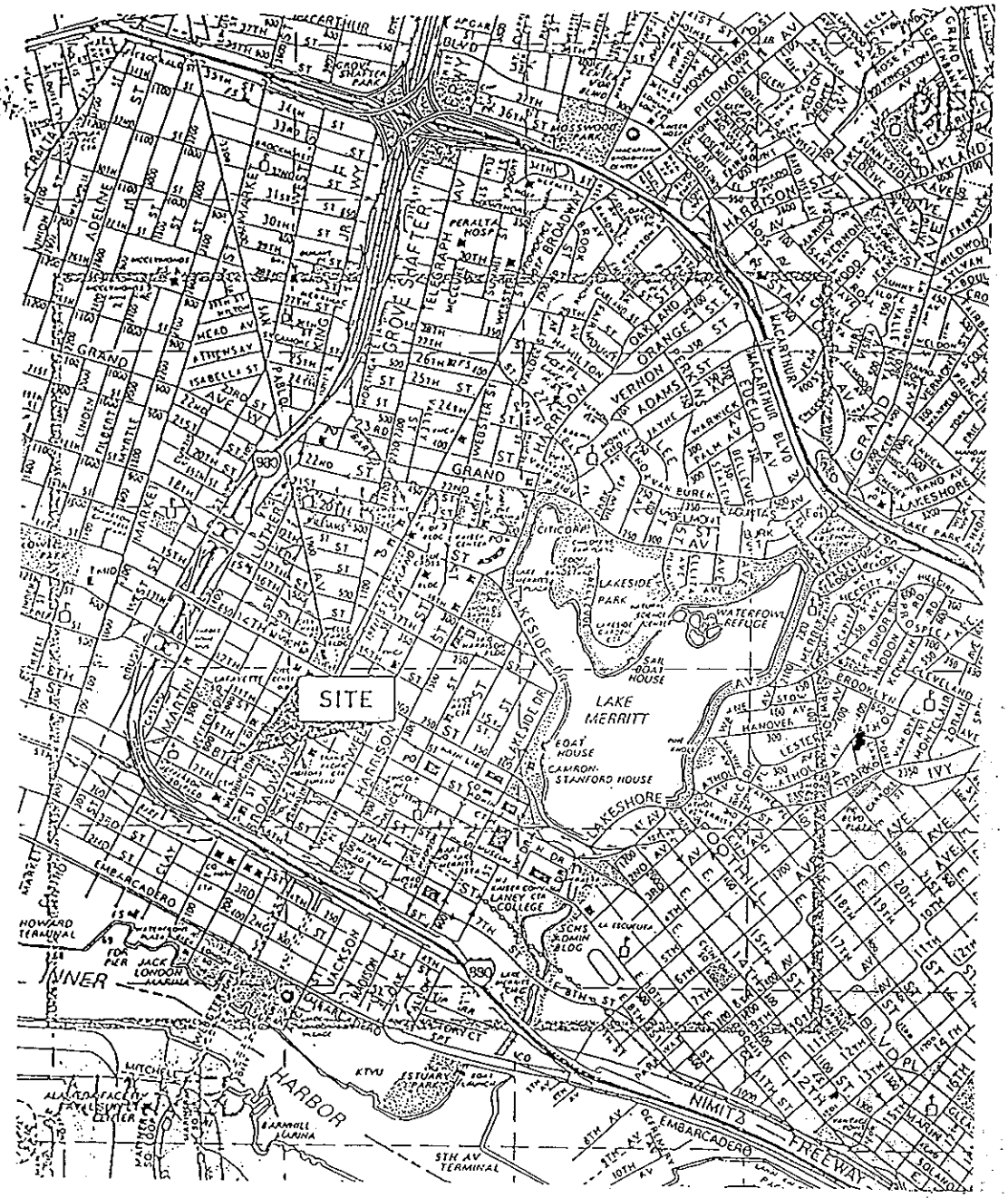
AQUA SCIENCE ENGINEERS, INC.



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

Attachments: Figures 1 and 2
Appendices A and B

FIGURES

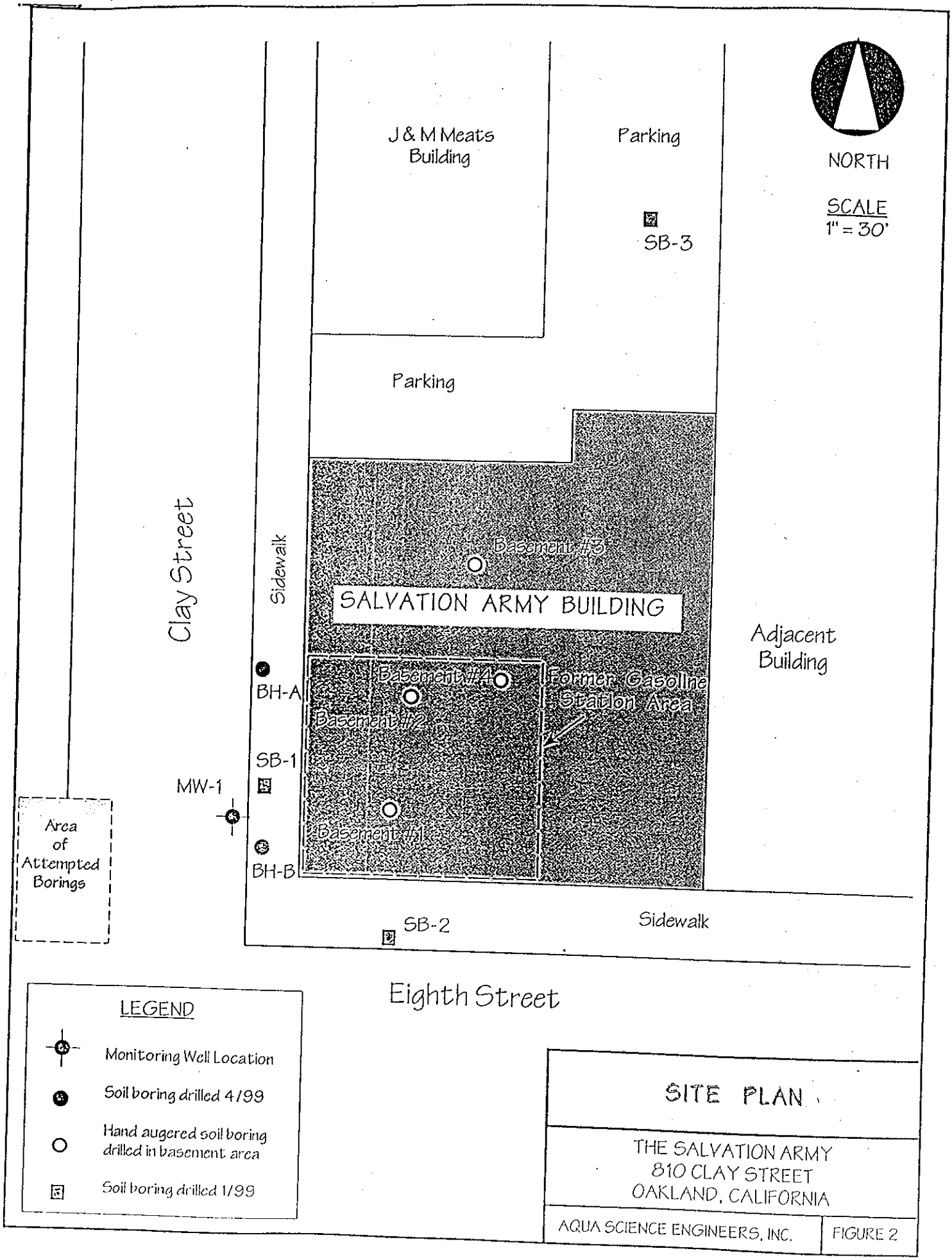


NORTH

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 Log

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: 3487
Salvation Army

Site: 810 Clay Street
Oakland, CA

Dear Mr. Reed,

Attached is our report for your samples received on Friday July 21, 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 August 20, 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

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

Diesel

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 #: 3487	Project: Salvation Army
Site: 810 Clay Street Oakland, CA	

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	07/20/2000	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**2000-07-0353-001**
Project:	3487 Salvation Army	Received:	07/21/2000 15:40
Site:	810 Clay Street Oakland, CA	Extracted:	07/24/2000 12:16
Sampled:	07/20/2000	QC-Batch:	2000/07/24-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	07/25/2000 09:06	
Surrogate(s)						
o-Terphenyl	95.7	60-130	%	1.00	07/25/2000 09:06	

To: **Aqua Science Engineers, Inc.**
Attn.: Ian T. Reed

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report
Diesel

Method Blank | **Water** | **QC Batch # 2000/07/24-04.10**

MB: 2000/07/24-04.10-001 | Date Extracted: 07/24/2000 12:16

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	07/24/2000 23:17	
Surrogate(s)					
o-Terphenyl	97.0	60-130	%	07/24/2000 23:17	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

To: **Aqua Science Engineers, Inc.**
Attn: Ian T. Reed

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/07/24-04.10**

LCS: 2000/07/24-04.10-002 Extracted: 07/24/2000 12:16 Analyzed 07/24/2000 23:56
LCSD: 2000/07/24-04.10-003 Extracted: 07/24/2000 12:16 Analyzed 07/25/2000 00:35

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	917	933	1250	1250	73.4	74.6	1.6	60-130	25		
Surrogate(s)											
o-Terphenyl	20.7	21.0	20.0	20.0	103.5	105.0		60-130			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

Gas/BTEX and MTBE

Aqua Science Engineers, Inc.

Attn: Ian T. Reed

Project #: 3487

Site: 810 Clay Street
Oakland, CA

208 West El Pintado Road
Danville, CA 94526

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

Project: Salvation Army

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	07/20/2000	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

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:	**2000-07-0353-001**
Project:	3487 Salvation Army	Received:	07/21/2000 15:40
Site:	810 Clay Street Oakland, CA	Extracted:	07/26/2000 18:04
Sampled:	07/20/2000	QC-Batch:	2000/07/26-01.03
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	150	50	ug/L	1.00	07/26/2000 18:04	g
Benzene	18	0.50	ug/L	1.00	07/26/2000 18:04	
Toluene	ND	0.50	ug/L	1.00	07/26/2000 18:04	
Ethyl benzene	4.8	0.50	ug/L	1.00	07/26/2000 18:04	
Xylene(s)	ND	0.50	ug/L	1.00	07/26/2000 18:04	
MTBE	ND	5.0	ug/L	1.00	07/26/2000 18:04	
Surrogate(s)						
Trifluorotoluene	119.1	58-124	%	1.00	07/26/2000 18:04	
4-Bromofluorobenzene-FID	126.7	50-150	%	1.00	07/26/2000 18:04	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

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 # 2000/07/26-01.03**

MB: 2000/07/26-01.03-001

Date Extracted: 07/26/2000 07:52

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	07/26/2000 07:52	
Benzene	ND	0.5	ug/L	07/26/2000 07:52	
Toluene	ND	0.5	ug/L	07/26/2000 07:52	
Ethyl benzene	ND	0.5	ug/L	07/26/2000 07:52	
Xylene(s)	ND	0.5	ug/L	07/26/2000 07:52	
MTBE	ND	5.0	ug/L	07/26/2000 07:52	
Surrogate(s)					
Trifluorotoluene	113.2	58-124	%	07/26/2000 07:52	
4-Bromofluorobenzene-FID	117.0	50-150	%	07/26/2000 07:52	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0353

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 # 2000/07/26-01.03**

LCS: 2000/07/26-01.03-002 Extracted: 07/26/2000 08:22 Analyzed 07/26/2000 08:22

LCSD: 2000/07/26-01.03-003 Extracted: 07/26/2000 08:53 Analyzed 07/26/2000 08:53

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	615	609	500	500	123.0	121.8	1.0	75-125	20		
Benzene	49.9	48.9	50	50	99.8	97.8	2.0	77-123	20		
Toluene	48.3	47.7	50	50	96.6	95.4	1.3	78-122	20		
Ethyl benzene	49.6	49.4	50	50	99.2	98.8	0.4	70-130	20		
Xylene(s)	150	150	150	150	100.0	100.0	0.0	75-125	20		
Surrogate(s)											
Trifluorotoluene	271	262	250	250	108.4	104.8		58-124			
4-Bromofluorobenzene-FI	581	576	500	500	116.2	115.2		50-150			

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

Attn:Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

2000-07-0353 53468

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

Chain of Custody

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

PAGE 1 OF 1

PROJECT NAME Salvation Army JOB NO. 3487

ADDRESS 810 Clay Street, Oakland CA DATE 7/21/00

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	7/20		water	5	X		X																

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Ian Reed 1000 (signature) (time)	(signature) (time) 0932	(signature) (time) 1540	Denise Harrington (signature) (time)	4.4°C
Ian T. Reed 7/21/00 (printed name) (date)	(printed name) (date) 7/21/00	(printed name) (date) 7/21/00	D. Harrington (printed name) (date)	
Company- ASE	Company-	Company- Chromalab	Company- Chromalab 7/21/00 @ 1540	