aqua science engineers inc.

99 OCT 28 PM 4:15

October 25, 1999

REPORT
of
SOIL AND GROUNDWATER ASSESSMENT
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

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1.0 INTRODUCTION

This report presents the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater assessment at the Salvation Army property located at 810 Clay Street in Oakland, California (Figures 1 and 2). The site assessment activities were initiated by Major Al Summerfield of the Salvation Army to meet the requirements of the Alameda County Health Care Services Agency (ACHCSA) as outlined in their letter dated May 25, 1999 (Appendix A).

2.0 SITE HISTORY

2.1 Site History

Prior to the construction of the current site structure in 1965, a gasoline service station was located at the site. It is believed that the former underground storage tanks (USTs) for the station were located in the area of the current basement of the building. No information regarding the condition of the USTs upon the closing of the service station was available.

2.2 January 1999 Environmental Assessment

In January 1999, Ceres Associates of Oakland, California drilled three (3) soil borings at the site to assess subsurface environmental conditions for a potential buyer of the site (Figure 2). Soil samples were collected from each boring at a depth of 15-feet below ground surface (bgs) and groundwater samples were collected from a depth of 28-feet bgs. The soil sample collected from 15-feet bgs in boring SB-1 contained 3,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G), 1,000 ppm total petroleum hydrocarbons as diesel (TPH-D), 22 ppm benzene, 88 ppm toluene, 28 ppm ethylbenzene and 170 ppm total xylenes. The groundwater sample collected from boring SB-1 contained 610 parts per billion (ppb) TPH-G, 610 ppb TPH-D, 47 ppb benzene, 30 ppb toluene, 26 ppb ethylbenzene and 120 ppb total xylenes. Borings SB-2 and SB-3 contained much lower concentrations of hydrocarbons, below levels that are typically of concern to regulators.

2.3 April 1999 Environmental Assessment

In April 1999, ASE drilled two soil borings in the sidewalk area of the site for the collection of soil and groundwater samples for analysis. These borings were located on each side of previous boring SB-1. In addition,

four soil samples were collected from beneath the basement area of the site. No hydrocarbons were detected in any of the soil samples analyzed. Moderate hydrocarbon concentrations, including a benzene concentration of 540 ppb, were detected in the groundwater sample collected from boring BH-B. Several attempts were made to drill soil borings downgradient of the site on the opposite side of Clay Street but all of these borings were met with refusal at relatively shallow depths.

3.0 SCOPE OF WORK (SOW)

Based on the site history and the requirements of the ACHCSA, ASE's SOW was as follows:

1) Prepare a workplan and a health and safety plan for approval by the ACHCSA.

2) Obtain a drilling permit from the Alameda County Public Works Agency (ACPWA), an encroachment permit from the City of Oakland and an excavation permit from the City of Oakland.

3) Drill one (1) soil boring to approximately 35-feet bgs at the site.

4) Analyze at least one soil sample from the boring at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015, TPH-D by modified EPA Method 3510/8015, and benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020.

5) Construct a 2-inch diameter groundwater monitoring well in the boring described in task 3.

6) Develop the monitoring well.

7) Collect groundwater samples from the monitoring well for analyses.

8) Analyze the groundwater samples at a CAL-EPA certified analytical laboratory for TPH-G, TPH-D, BTEX and MTBE.

9) Prepare a report detailing the methods and findings of this assessment.

Details of this assessment follow.

4.0 DRILLING A SOIL BORING AND COLLECTING SAMPLES

4.1 Drilling and Collection of Soil Samples

Prior to drilling, ASE obtained a drilling permit from the Alameda County Public Works Agency (ACPWA), an encroachment permit from the City of Oakland and an excavation permit from the City of Oakland (Appendix A). ASE also notified Underground Service Alert (USA) to have underground public utilities in the vicinity of the site marked prior to drilling.

On September 28, 1999, West Hazmat Drilling of Newark, California drilled soil boring MW-1 at the site using a Mobile B-61 drill rig equipped with 8-inch diameter hollow-stem augers (Figure 2). Groundwater monitoring well MW-1 was subsequently constructed in this boring. The drilling was directed by ASE associate geologist Ian Reed and senior geologist Robert E. Kitay, R.G.

Undisturbed soil samples were collected at 5-foot intervals as drilling progressed for lithologic and hydrogeologic description and for possible chemical analyses. The samples were collected by driving a split-barrel drive sampler lined with 2-inch diameter brass tubes ahead of the auger tip with successive blows from a 140-lb. hammer dropped 30-inches. One tube from each sampling interval was immediately trimmed, sealed with Teflon tape, plastic end caps and duct tape, labeled, sealed in a plastic bag and stored on ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under chain of custody. Soil from the remaining tubes was described by an ASE geologist using the Unified Soil Classification System and was screened for volatile compounds with an Organic Vapor Meter (OVM). The soil was screened by emptying soil from one of the sample tubes into a plastic bag. The bag was then sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons were allowed to volatilize, the OVM measured the vapor in the bag through a small hole punched in the bag. OVM readings are used as a screening tool only, since the procedures are not as rigorous as those used in the laboratory.

Drilling equipment was steam-cleaned prior to use, and sampling equipment was washed with a TSP solution between sampling intervals to prevent cross-contamination. Steam cleaning rinsate and drill cuttings were contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged.

4.2 Site Specific Geology

Sediments encountered during drilling generally consisted of silty sand from beneath the asphalt surface to 34.5-feet bgs and silty clay from 34.5-feet bgs to 35-feet bgs. Groundwater was encountered at approximately 23.5-feet bgs. The boring log and well construction details are included as Appendix B.

5.0 ANALYTICAL RESULTS FOR SOIL

The soil sample collected from 20.5-feet bgs was analyzed by Chromalab, Inc. for TPH-G by modified EPA Method 5030/8015, TPH-D by modified EPA Method 3510/8015 and BTEX and MTBE by EPA Method 8020. The analytical results are tabulated in Table One, and a copy of the certified analytical report and chain of custody form are included in Appendix C. No hydrocarbons were detected in the soil sample.

TABLE ONE
Summary of Chemical Analysis of **SOIL** Samples
Petroleum Hydrocarbons
All results are in **parts per million**

Boring/ Sample Depth	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
MW-1 20.5'	< 1.0	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
USEPA PRG	NE	NE	0.62	520	230	210	NE

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

USEPA PRG is the United States Environmental Protection Agency Region IX preliminary remediation goal for residential soil.

USEPA PRG has not been established.

6.0 MONITORING WELL CONSTRUCTION, DEVELOPMENT AND SAMPLING

6.1 Monitoring Well Construction

Groundwater monitoring well MW-1 was constructed in boring MW-1. The well was constructed with 2-inch diameter, 0.020-inch factory slotted, flush-threaded, schedule 40 PVC well screen and blank casing. The well is screened between 15-feet bgs and 35-feet bgs to monitor the first water bearing zone encountered. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to approximately 2-feet above the well screen. A 2-foot thick hydrated bentonite layer separates the sand from the overlying cement surface seal. The wellhead is secured with a locking wellplug beneath an at-grade, traffic-rated vault.

6.2 Monitoring Well Development

On October 1, 1999, ASE associate geologist Ian Reed developed monitoring well MW-1 using multiple episodes of surge-block agitation and bailer and pump evacuation. Over ten well casing volumes of water were removed from each well during development, and evacuation continued until the water was relatively clear. Well development purge water was contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged. No free-floating hydrocarbons or sheen were present on the surface of groundwater during well development.

6.3 Monitoring Well Sampling

On October 5, 1999, ASE associate geologist Ian Reed collected groundwater samples from monitoring well MW-1 for analysis. No free-floating hydrocarbons or sheen were present on the surface of groundwater. Prior to sampling, the well was purged of four well casing volumes of groundwater. The pH, temperature and conductivity of the purge water was monitored during evacuation, and samples were not collected until these parameters stabilized. Samples were collected from the well using a new, unused polyethylene bailer. The groundwater samples to be analyzed for TPH-G, BTEX and MTBE were decanted from the bailer into 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid, and sealed without headspace. The samples to be analyzed for TPH-D were contained in 1-liter amber glass containers. All of the samples were labeled, placed in protective foam sleeves, and stored

on ice for transport to Chromalab, Inc. of Pleasanton, California under chain of custody. Well sampling purge water was contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged. See Appendix D for a copy of the Field Logs.

7.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for TPH-G by modified EPA Method 5030/8015, TPH-D by modified EPA Method 3510/8015, and BTEX and MTBE by EPA Method 8020. The analytical results are tabulated in Table Two, and copies of the certified analytical report and chain of custody form are included in Appendix E.

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	**210**	**110**	**64**	**3.0**	**11**	**6.7**	<5
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 Toxic Substances Control maximum contaminant level for drinking water.

NE = DHS MCL has not been established.

The groundwater sample collected from monitoring well MW-1 contained 210 ppb TPH-G, 110 ppb TPH-D, 64 ppb benzene, 11 ppb ethylbenzene, 3.0 ppb toluene and 6.7 ppb total xylenes. No MTBE was detected. The benzene concentration exceeded the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water.

8.0 CONCLUSIONS AND RECOMMENDATIONS

No hydrocarbons were detected in the soil sample collected from boring MW-1. The groundwater sample collected from monitoring well MW-1 contained 210 ppb TPH-G, 110 ppb TPH-D, 64 ppb benzene, 11 ppb ethylbenzene, 3.0 ppb toluene and 6.7 ppb total xylenes. No MTBE was detected. The benzene concentration exceeded the DHS MCL for drinking water.

Although this benzene concentration exceeded drinking water standards, groundwater is not currently utilized for drinking water supplies in Oakland, and petroleum hydrocarbon cases are usually reviewed for case closure a on health risk basis. These concentrations probably would not present a health risk to human health or the environment using non-drinking water scenarios. ASE recommends that groundwater samples be collected from monitoring well MW-1 on a quarterly basis for one year. After this one year period, ASE will review this case for its suitability for case closure and will make any appropriate recommendations.

9.0 REPORT LIMITATIONS

The results of this assessment represent conditions at the time of the soil and 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.

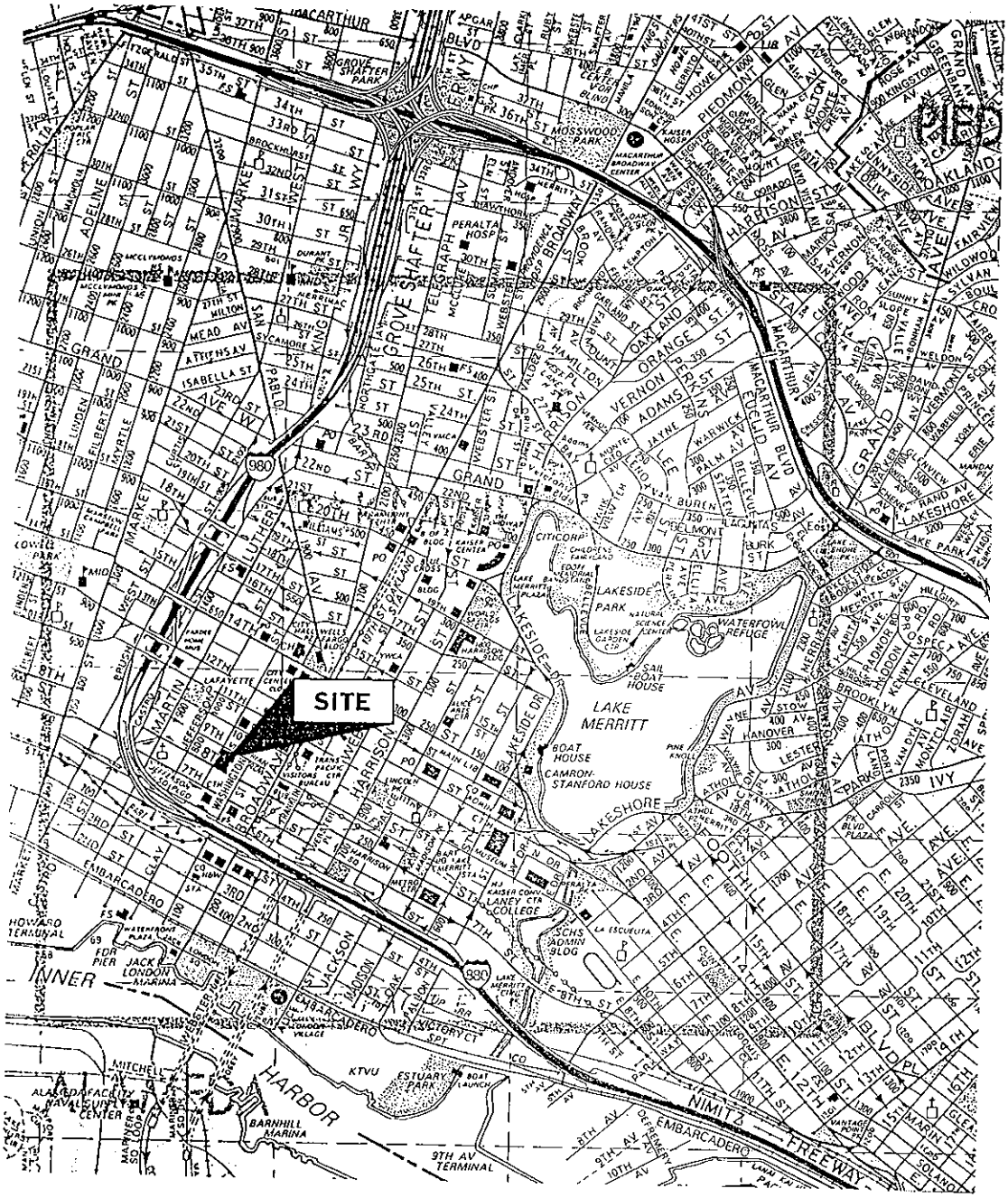
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

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

Attachments: Figures 1 through 2
Appendices A through E

FIGURES

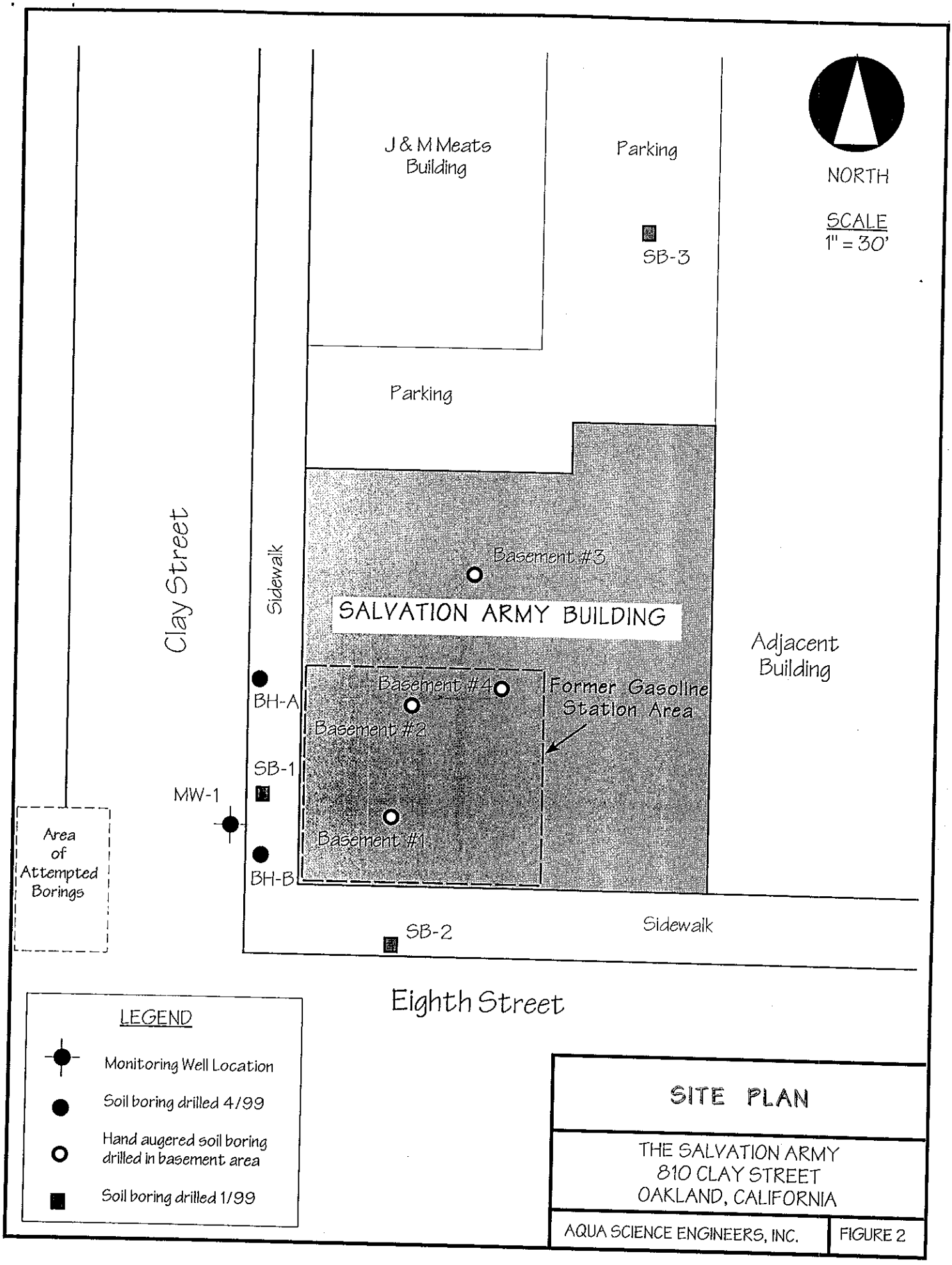


NORTH

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

Drilling Permit

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERIN

PERMIT NUMBER X 9900688		SITE ADDRESS/LOCATION 810 Clay St
APPROX. START DATE	APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS		CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: _____

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit t construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employe provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work wi be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than t structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Law of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure t perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or prop sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. Thi permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have re this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X Gerald W Lamm V.P. 9/16/99

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☒ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☒ YES ☐ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☒ NO
ISSUED BY		DATE ISSUED 9/16/99	

forms/permits/excavate.pm3 (04/98)

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT The Salvation Army
810 Clay Street
Oakland, CA 94604

California Coordinates Source ____ ft. Accuracy ____ ft.
CCN ____ ft. CCE ____ ft.
APN ____

CLIENT
Name The Salvation Army
Address 810 Clay Street Phone ____
City Oakland, CA Zip 94604

APPLICANT
Name Aqua Science Engineers Inc. Fax (925) 820-5391
Address 208 W. El Pintado Phone (925) 837-9453
City Danville CA Zip 94526

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other ____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C-57 553979

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 40 ft.
Surface Seal Depth 5 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 9-27-99
ESTIMATED COMPLETION DATE 9-27-99

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 9-21-99

FOR OFFICE USE

PERMIT NUMBER 99WR0505
WELL NUMBER ____
APN ____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

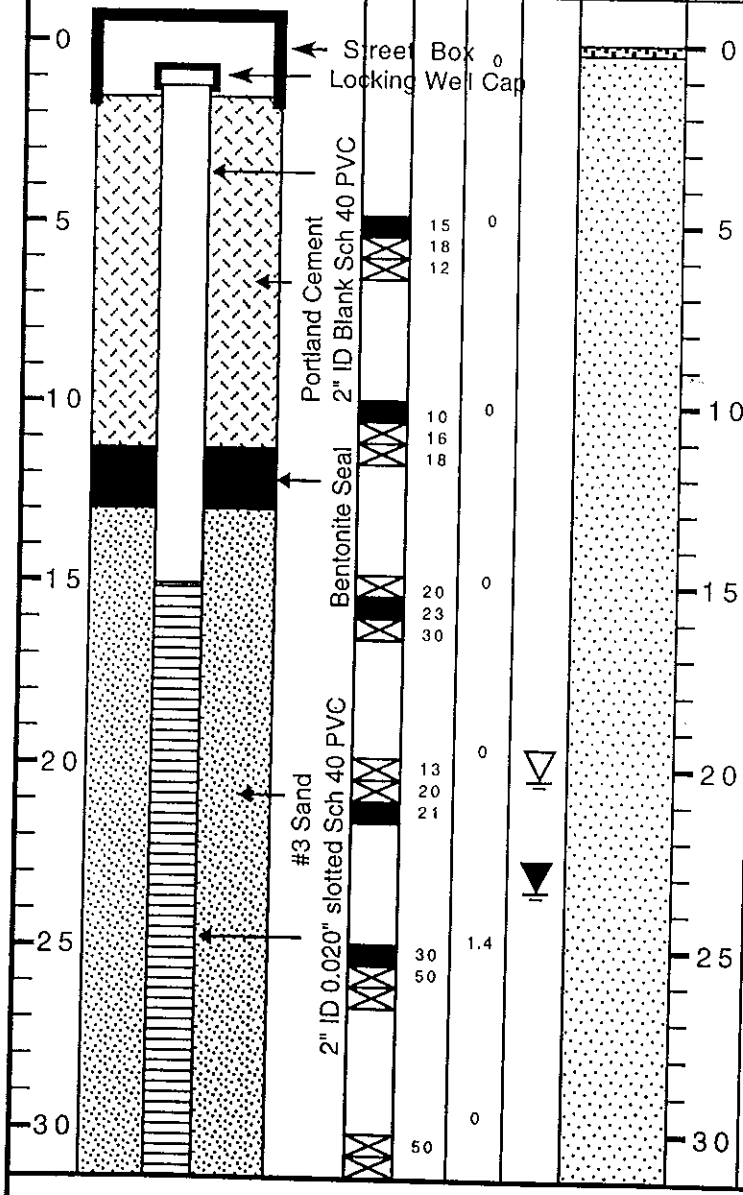
APPROVED [signature] DATE 9-22-99

APPENDIX B

Boring Log and Well Construction Details

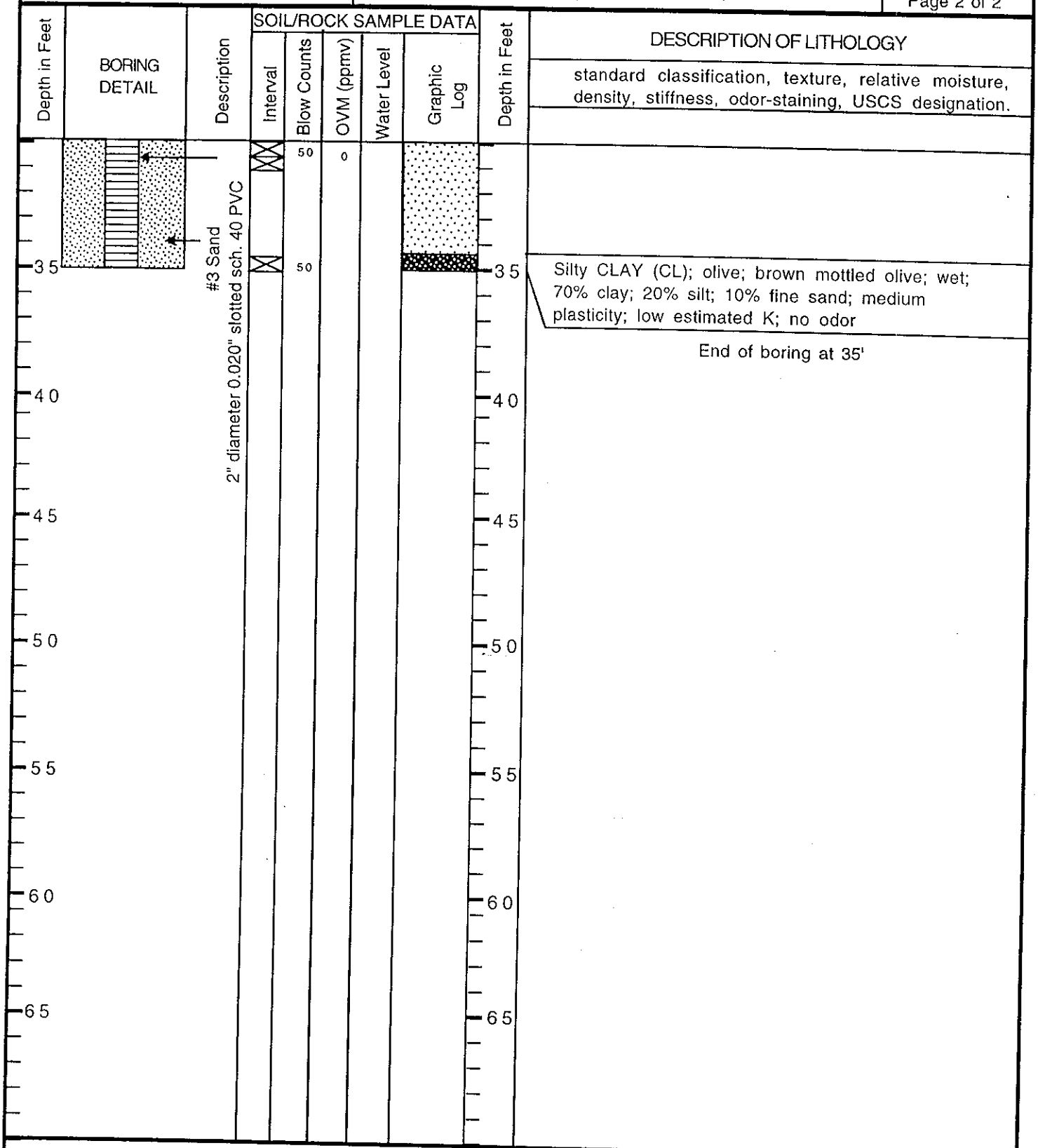
SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS		Monitoring Well MW-1
Project Name: Salvation Army	Project Location: 810 Clay Street, Oakland, CA	Page 1 of 2
Driller: West Hazmat Drilling	Type of Rig: Hollow-Stem Auger	Size of Drill: 8.0" Diameter
Logged By: Ian Reed	Date Drilled: September 28, 1999	Checked By: Robert E. Kitay, R.G.

WATER AND WELL DATA	
Depth of Water First Encountered: 23.5'	Total Depth of Well Completed: 35'
Static Depth of Water in Well: 20.3'	Well Screen Type and Diameter: 0.020" slotted, 2" sch. PVC
Total Depth of Boring: 35'	Well Screen Slot Size: 0.020"
	Type and Size of Soil Sampler: 2.0" I.D. Macro Sampler



Depth in Feet	DESCRIPTION OF LITHOLOGY standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0	Asphaltic concrete
	Silty SAND (SM); brown; dense, damp; 70% fine to medium sand: 30%silt; non-plastic; medium estimated K; no odor
5	70% fine to medium sand; 25% silt; 5% clay; low plasticity; medium estimated K; no odor
10	moist; 75% silt; 20% fine to coarse sand; 5% clay; low plasticity; medium estimated K; no odor
15	grey to green at 15.5'
20	70% fine to medium sand; 30% silt; slight hydrocarbon odor at 20'
	wet at 23.5'
25	
30	

SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS	Monitoring Well MW-1
Project Name: Salvation Army	Project Location: 810 Clay Street, Oakland, CA



AQUA SCIENCE ENGINEERS, INC.

APPENDIX C

Analytical Report and Chain of Custody Form
For Soil Samples

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 1999-10-0013
Date: October 8, 1999

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 Thursday September 30, 1999. 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 October 30, 1999 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.

Sincerely,

Pierre Monette

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

Reported on: 10/08/1999 17:04

Summary Report

From: Pierre Monette

To: Aqua Science Engineers, Inc.
Attn: Ian T. Reed
Phone: (925) 820-9391 Fax: (925) 837-4853

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

MW-1-20.5' on 09/28/1999 09:15

Diesel (8015m)
G/BTEX with MTBE (8015M/8020)

LabID: 1999-10-0013-001	Results	RL	Units
Diesel	ND	1.0	mg/Kg
Gasoline	ND	1.0	mg/Kg
Benzene	ND	0.0050	mg/Kg
Toluene	ND	0.0050	mg/Kg
Ethyl benzene	ND	0.0050	mg/Kg
Xylene(s)	ND	0.0050	mg/Kg
MTBE	ND	0.0050	mg/Kg

RL = Reporting Limit Surr. = Surrogate

1220 Quarry Lane * Pleasanton, CA 94566-4756

Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

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 #: 3487

Project: Salvation Army

Site: 810 Clay Street, Oakland, CA.

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1-20.5`	Soil	09/28/1999 09:15	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

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

Attn.: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-1-20.5`**	Lab Sample ID:	**1999-10-0013-001**
Project:	3487 Salvation Army	Received:	09/30/1999 16:31
Site:	810 Clay Street, Oakland, CA.	Extracted:	10/06/1999 19:29
Sampled:	09/28/1999 09:15	QC-Batch:	1999/10/06-01.04
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	10/06/1999 19:29	
Benzene	ND	0.0050	mg/Kg	1.00	10/06/1999 19:29	
Toluene	ND	0.0050	mg/Kg	1.00	10/06/1999 19:29	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	10/06/1999 19:29	
Xylene(s)	ND	0.0050	mg/Kg	1.00	10/06/1999 19:29	
MTBE	ND	0.0050	mg/Kg	1.00	10/06/1999 19:29	
Surrogate(s)						
Trifluorotoluene	78.4	53-125	%	1.00	10/06/1999 19:29	
4-Bromofluorobenzene-FID	71.4	58-124	%	1.00	10/06/1999 19:29	

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 | **Soil** | **QC Batch # 1999/10/06-01.04**

MB: 1999/10/06-01.04-001 | Date Extracted: 10/06/1999 06:44

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	10/06/1999 06:44	
Benzene	ND	0.0050	mg/Kg	10/06/1999 06:44	
Toluene	ND	0.0050	mg/Kg	10/06/1999 06:44	
Ethyl benzene	ND	0.0050	mg/Kg	10/06/1999 06:44	
Xylene(s)	ND	0.0050	mg/Kg	10/06/1999 06:44	
MTBE	ND	0.0050	mg/Kg	10/06/1999 06:44	
Surrogate(s)					
Trifluorotoluene	96.2	53-125	%	10/06/1999 06:44	
4-Bromofluorobenzene-FID	91.6	58-124	%	10/06/1999 06:44	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

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) Soil **QC Batch # 1999/10/06-01.04**

LCS: 1999/10/06-01.04-002 Extracted: 10/06/1999 07:11 Analyzed: 10/06/1999 07:11

LCSD: 1999/10/06-01.04-003 Extracted: 10/06/1999 07:38 Analyzed: 10/06/1999 07:38

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	0.620	0.467	0.500	0.500	124.0	93.4	28.2	75-125	35		
Benzene	0.0907	0.0865	0.1000	0.1000	90.7	86.5	4.7	77-123	35		
Toluene	0.0871	0.0825	0.1000	0.1000	87.1	82.5	5.4	78-122	35		
Ethyl benzene	0.0847	0.0807	0.1000	0.1000	84.7	80.7	4.8	70-130	35		
Xylene(s)	0.253	0.243	0.300	0.300	84.3	81.0	4.0	75-125	35		
Surrogate(s)											
Trifluorotoluene	464	436	500	500	92.8	87.2		53-125			
4-Bromofluorobenzene-FI	590	471	500	500	118.0	94.2		58-124			

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-1-20.5`	Soil	09/28/1999 09:15	1

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

Test Method: 8015m
Prep Method: 3550/8015M

Diesel

Sample ID:	**MW-1-20.5`**	Lab Sample ID:	**1999-10-0013-001**
Project:	3487 Salvation Army	Received:	09/30/1999 16:31
Site:	810 Clay Street, Oakland, CA.	Extracted:	10/06/1999 09:00
Sampled:	09/28/1999 09:15	QC-Batch:	1999/10/06-02.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	10/07/1999 23:30	
Surrogate(s)						
o-Terphenyl	100.4	60-130	%	1.00	10/07/1999 23:30	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

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

Test Method: 8015m
Prep Method: 3550/8015M

Batch QC Report
Diesel

Method Blank | **Soil** | **QC Batch # 1999/10/06-02.10**

MB: 1999/10/06-02.10-001 | Date Extracted: 10/06/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	1	mg/Kg	10/07/1999 17:18	
Surrogate(s)					
o-Terphenyl	83.0	60-130	%	10/07/1999 17:18	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0013

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

Test Method: 8015m
Prep Method: 3550/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 1999/10/06-02.10**

LCS: 1999/10/06-02.10-002 Extracted: 10/06/1999 09:00 Analyzed: 10/08/1999 10:10
LCSD: 1999/10/06-02.10-003 Extracted: 10/06/1999 09:00 Analyzed: 10/08/1999 10:42

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	30.6	28.1	41.7	41.7	73.4	67.4	8.5	60-130	25		
Surrogate(s)						-					
o-Terphenyl	20.9	19.5	20.0	20.0	104.5	97.5		60-130			

4910-0013

48274

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) (PHONE NO.)
Ian T Reed (925) 820-9391

PROJECT NAME Salvation Army
ADDRESS 810 Clay Street, Oakland, CA

JOB NO. 3487
DATE 9-30-99

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-1-20.5'	9-28-99	0915	soil	1	X		X															
															4.5							

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Ian T Reed 0910 (signature) (time)	93099 10:10 (signature) (time)	9.30.99 16:31 (signature) (time)	Denise Harrington (signature) (time)	5 day TAT
Ian T Reed 9-30-99 (printed name) (date)	RICHARD Deaty (printed name) (date) 09/30	RICHARD Deaty (printed name) (date) 09.30	D. Harrington (printed name) (date) 1631	
Company- ASE	Company- CHROMALAB	Company-	Company- Chromalab 9/30/99	

APPENDIX D

Well Sampling Field Logs

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Salvation Army, 810 Clay St, Oakland CA
Job #: 3487 Date of sampling: 10-5-99
Well Name: MW-1 Sampled by: ITR
Total depth of well (feet): 32.9 Well diameter (inches): 2"
Depth to water before sampling (feet): 20.29
Thickness of floating product if any: —
Depth of well casing in water (feet): 12.61
Number of gallons per well casing volume (gallons): 2.14
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8.6
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 0820 Time Evacuation Finished: 0840
Approximate volume of groundwater purged: 9
Did the well go dry?: No After how many gallons: —
Time samples were collected: 0850
Depth to water at time of sampling: 20.31
Percent recovery at time of sampling: 99 %
Samples collected with: dedicated bailer
Sample color: clear/gray Odor: None
Description of sediment in sample: —

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	67.4	5.63	581
2	66.9	5.94	407
3	67.3	5.87	641
4	67.1	5.67	643

SAMPLES COLLECTED

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

APPENDIX E

Analytical Report and Chain of Custody Form
For Groundwater Samples

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 1999-10-0087
Date: October 13, 1999

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

Attn.: Mr. Ian T. Reed

Project: Salvation Army

Site: 810 Clay St.
Oakland Ca.

Dear Mr. Reed,

Attached is our report for your samples received on Tuesday October 5, 1999. 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 November 4, 1999 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.

Sincerely,

Pierre Monette

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0087

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: 810 Clay St.	Oakland Ca.

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	10/05/1999 08:50	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0087

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:	**1999-10-0087-001**
Project:	Salvation Army	Received:	10/05/1999 18:10
Site:	810 Clay St. Oakland Ca.	Extracted:	10/11/1999 17:52
Sampled:	10/05/1999 08:50	QC-Batch:	1999/10/11-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	210	50	ug/L	1.00	10/11/1999 17:52	
Benzene	64	0.50	ug/L	1.00	10/11/1999 17:52	
Toluene	3.0	0.50	ug/L	1.00	10/11/1999 17:52	
Ethyl benzene	11	0.50	ug/L	1.00	10/11/1999 17:52	
Xylene(s)	6.7	0.50	ug/L	1.00	10/11/1999 17:52	
MTBE	ND	5.0	ug/L	1.00	10/11/1999 17:52	
Surrogate(s)						
Trifluorotoluene	101.5	58-124	%	1.00	10/11/1999 17:52	
4-Bromofluorobenzene-FID	88.6	50-150	%	1.00	10/11/1999 17:52	

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

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report
Gas/BTEX and MTBE

Method Blank | **Water** | **QC Batch # 1999/10/11-01.02**

MB: 1999/10/11-01.02-001 | Date Extracted: 10/11/1999 07:12

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	10/11/1999 07:12	
Benzene	ND	0.5	ug/L	10/11/1999 07:12	
Toluene	ND	0.5	ug/L	10/11/1999 07:12	
Ethyl benzene	ND	0.5	ug/L	10/11/1999 07:12	
Xylene(s)	ND	0.5	ug/L	10/11/1999 07:12	
MTBE	ND	5.0	ug/L	10/11/1999 07:12	
Surrogate(s)					
Trifluorotoluene	107.0	58-124	%	10/11/1999 07:12	
4-Bromofluorobenzene-FID	94.8	50-150	%	10/11/1999 07:12	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0087

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 # 1999/10/11-01.02**

LCS: 1999/10/11-01.02-002 Extracted: 10/11/1999 07:40 Analyzed: 10/11/1999 07:40

LCSD: 1999/10/11-01.02-003 Extracted: 10/11/1999 08:07 Analyzed: 10/11/1999 08:07

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	469	461	500	500	93.8	92.2	1.7	75-125	20		
Benzene	104	92.0	100.0	100.0	104.0	92.0	12.2	77-123	20		
Toluene	102	92.5	100.0	100.0	102.0	92.5	9.8	78-122	20		
Ethyl benzene	98.7	90.5	100.0	100.0	98.7	90.5	8.7	70-130	20		
Xylene(s)	284	271	300	300	94.7	90.3	4.8	75-125	20		
Surrogate(s)											
Trifluorotoluene	465	401	500	500	93.0	80.2		58-124			
4-Bromofluorobenzene-FI	489	497	500	500	97.8	99.4		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-10-0087

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

Attn.: Ian T. Reed

Test Method: 8020
8015M

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Matrix Spike (MS / MSD) **Water** **QC Batch # 1999/10/11-01.02**

Sample ID: **MW-1** Lab Sample ID: 1999-10-0087-001

MS: 1999/10/11-01.02-004 Extracted: 10/11/1999 18:21 Analyzed: 10/11/1999 18:21 Dilution: 1.0

MSD: 1999/10/11-01.02-005 Extracted: 10/11/1999 18:50 Analyzed: 10/11/1999 18:50 Dilution: 1.0

Compound	Conc [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Gasoline	576	487	208	500	500	73.6	55.8	27.5	65-135	20		mso
Benzene	153	154	64.0	100.0	100.0	89.0	90.0	1.1	65-135	20		
Toluene	99.3	98.6	2.96	100.0	100.0	96.3	95.6	0.7	65-135	20		
Ethyl benzene	107	109	11.0	100.0	100.0	96.0	98.0	2.1	65-135	20		
Xylene(s)	286	285	6.74	300	300	93.1	92.8	0.3	65-135	20		
Surrogate(s)												
Trifluorotoluene	384	409		500	500	76.8	81.8		58-124			
4-Bromofluorobenzene-	485	407		500	500	97.0	81.4		50-150			

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 #:

Project: Salvation Army

Site: 810 Clay St.

Oakland Ca.

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	10/05/1999 08:50	1

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

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

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**1999-10-0087-001**
Project:	Salvation Army	Received:	10/05/1999 18:10
Site:	810 Clay St. Oakland Ca.	Extracted:	10/08/1999 09:00
Sampled:	10/05/1999 08:50	QC-Batch:	1999/10/08-01.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	110	50	ug/L	1.00	10/09/1999 13:23	ndp
Surrogate(s)						
o-Terphenyl	115.4	60-130	%	1.00	10/09/1999 13:23	

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 # 1999/10/08-01.10**

MB: 1999/10/08-01.10-001

Date Extracted: 10/08/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	10/08/1999 19:38	
Surrogate(s)					
o-Terphenyl	113.5	60-130	%	10/08/1999 19:38	

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 # 1999/10/08-01.10**

LCS: 1999/10/08-01.10-002 Extracted: 10/08/1999 09:00 Analyzed: 10/08/1999 14:28
LCSD: 1999/10/08-01.10-003 Extracted: 10/08/1999 09:00 Analyzed: 10/08/1999 15:01

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	918	880	1250	1250	73.4	70.4	4.2	60-130	25		
Surrogate(s)											
o-Terphenyl	20.6	24.0	20.0	20.0	103.0	120.0		60-130			

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

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

Legend & Notes

Diesel

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

99.10.008T

48365

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) Ian T Reed (PHONE NO.) 925-820-9391

PROJECT NAME Salvation Army JOB NO.

ADDRESS 810 Clay St Oakland CA DATE 10-5-99

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	10-5-99	0850	water	6	X		X																

RELINQUISHED BY: Ian T Reed 0950 (signature) (time)

Ian T Reed 10-5-99 (printed name) (date)

Company- ASE

RECEIVED BY: Rich Denty 10:00 (signature) (time)

Rich Denty 10/5/99 (printed name) (date)

Company- CHROMALAB

RELINQUISHED BY: Rich Denty 6:10 (signature) (time)

Rich Denty 10/5/99 (printed name) (date)

Company- CHROMALAB

RECEIVED BY LABORATORY: Denise Harrington (signature) (title)

D. Harrington 1810 (printed name) (date)

Company- Chromalab 10/5/99

COMMENTS: 4.5°C

5-day TAT