



March 31, 1995

ENVIRONMENTAL
PROTECTION

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REPORT
of
SOIL AND GROUNDWATER ASSESSMENT
ASE JOB NO. 2807
at
Eden Medical Center
20103 Lake Chabot Road
Castro Valley, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
(510) 820-9391

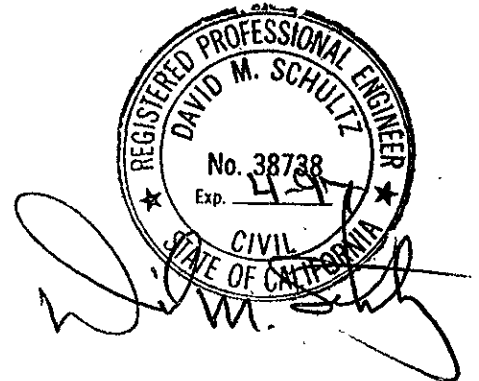


TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 SITE HISTORY	1
3.0 SCOPE OF WORK	1
4.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES	2
5.0 ANALYTICAL RESULTS FOR SOIL	3
6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING	4
7.0 ANALYTICAL RESULTS FOR GROUNDWATER	5
8.0 CONCLUSIONS AND RECOMMENDATIONS	5
9.0 REPORT LIMITATIONS	5

LIST OF TABLES

TABLE 1	ANALYTICAL RESULTS FOR SOIL
TABLE 2	ANALYTICAL RESULTS FOR GROUNDWATER

LIST OF FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SITE PLAN

LIST OF APPENDICES

APPENDIX A PERMITS

APPENDIX B BORING LOGS AND WELL CONSTRUCTION DETAILS

APPENDIX C ANALYTICAL REPORTS AND CHAIN OF CUSTODY FORMS
FOR SOIL SAMPLES

APPENDIX D WELL SAMPLING FIELD LOGS

APPENDIX E ANALYTICAL REPORTS AND CHAIN OF CUSTODY FORMS
FOR GROUNDWATER SAMPLES

1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater assessment at the Eden Medical Center (EMC) located at 20103 Lake Chabot Road in Castro Valley, California (*Figure 1*). The site assessment activities were initiated by EMC as required by the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board - San Francisco Bay Region (RWQCB).

2.0 SITE HISTORY

In October 1994, ASE removed three underground diesel storage tanks from the site. One area of the property contained two 10,000-gallon diesel tanks and another area contained one 3,000-gallon diesel tank. In addition, at least one other diesel tank was located adjacent to the two 10,000-gallon tanks and was previously removed by others. Upon removal of the 10,000-gallon tanks, visual staining and hydrocarbon odors were present in the excavation. Soil samples collected from this excavation contained up to 15 parts per million (ppm) total petroleum hydrocarbons as diesel (TPH-D), although only one sample could be collected from this excavation due to severe sloughing of the sidewalls. Up to 32 ppm TPH-D was detected in the soil samples collected beneath the 3,000-gallon diesel tank although no odors or staining was present during this tank removal. The residual contamination related to the 3,000-gallon tank was determined by the ACHCSA to not be a significant threat to the environment and was not addressed during this assessment.

3.0 SCOPE OF WORK (SOW)

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

- 1) Prepare a site safety plan;
- 2) Obtain permits from the appropriate agencies to install monitoring wells;
- 3) Drill two soil borings to no greater than 50-feet below ground surface (bgs) downgradient of the former tanks;

- 4) Collect soil samples at least every 5-feet from the borings and analyze at least two soil samples from each boring for TPH-D and BTEX;
- 5) Complete the borings described in task 3 as 2-inch diameter groundwater monitoring wells;
- 6) Develop the groundwater monitoring wells;
- 7) Collect groundwater samples from the wells for analyses;
- 8) Analyze the groundwater samples for TPH-D and BTEX;
- 9) Report the subsurface investigation results.

4.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES

Prior to drilling, ASE obtained an Alameda County Flood Control and Water Conservation District (Zone 7) well construction permit (Appendix A).

On March 2 and 3, 1995, Soils Exploration Services of Benicia, California drilled soil borings BH-A and BH-B at the site using a F-10 drill rig equipped with 8-inch diameter hollow-stem augers. Groundwater monitoring wells MW-1 and MW-2 were subsequently constructed in the borings (*Figure 2*). The drilling was directed by ASE project geologist Robert E. Kitay. The borings were located to assess the extent of soil and groundwater contamination in the assumed downgradient direction of the former tanks. Groundwater is assumed to flow to the south or west based on the obvious surface gradient in the vicinity of the former tanks.

Undisturbed soil samples were collected every 5-feet as drilling progressed to the total depth explored 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 stainless steel 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 American Environmental Network (AEN) of Pleasant Hill, California (DHS #1172) under chain of custody. Soil from the remaining tubes was described by the site 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.

The only OVM readings above zero were 9.8 parts per million by volume (ppmv) collected at 15-foot bgs in both borings. The soil at both of these locations had a slight hydrocarbon odor and was mottled olive indicating hydrocarbon staining. None of the other samples contained hydrocarbon odors or staining.

Drilling equipment was steam-cleaned prior to use, and sampling equipment was washed with a TSP solution between sampling intervals to prevent cross-contamination. Rinsate was contained on-site in sealed and labeled Department of Transportation approved 55-gallon (DOT 17H) drums.

Sediments encountered during the drilling of boring BH-A consisted of gravelly sand from the base of the asphaltic concrete surface to 1.5-foot bgs, clayey silt from 1.5-foot bgs to 14.0-foot bgs, silty sand from 14.0-foot bgs to 18.0-foot bgs, silt from 18.0-foot bgs to 24.5-foot bgs, and silty clay from 24.5-foot bgs to the total depth explored of 26.5-foot. Sediments encountered during the drilling of boring BH-B consisted of clayey silt from the base of the asphaltic concrete surface to 8.5-foot bgs, sandy silt from 8.5-foot bgs to 11.0-foot bgs, and clayey silt from 11.0-foot bgs to the total depth explored of 21.5-foot. The boring logs and well construction details are included as Appendix B. Drill cuttings were placed on and covered with plastic sheeting on-site for future disposal by the client.

5.0 ANALYTICAL RESULTS FOR SOIL

The soil samples collected from 11.0-foot bgs and 16.0-foot bgs in boring BH-A and from 10.0-foot bgs and 16.0-foot bgs in boring BH-B were analyzed by AEN for TPH-D by modified EPA Method 3510/8015 and benzene, toluene, ethylbenzene and total xylenes (BTEX) 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 is included as Appendix C.

150 ppm TPH-D was detected in the soil sample collected from 16.0-foot bgs in boring BH-A. Total xylenes were detected at 0.006 ppm in the soil

sample collected from boring BH-B, which is just above the detection limit of 0.005 ppm. No hydrocarbons were detected in the soil samples collected from 11.0-foot bgs in boring BH-A and from 10.0-foot bgs in boring BH-B.

6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Groundwater monitoring wells MW-1 and MW-2 were installed in borings BH-A and BH-B, respectively. The wells were constructed with 2-inch diameter, 0.020-inch slotted, flush-threaded, schedule 40 PVC well screen and blank casing. Monitoring well MW-1 is screened between 10 and 25-foot bgs, and monitoring well MW-2 is screened between 5 and 20-foot bgs. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to 1 or 2-feet above the well screen. A 1-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. Both wells were screened to monitor the first water bearing zone encountered. The first sediments that appeared saturated were encountered at 16.5-foot bgs. Groundwater subsequently rose to approximately 7.7-foot bgs. It is unknown whether the water level rose due to artesian conditions or whether the sediments encountered produced water too slow to appear saturated during the drilling. Since water level measurements collected following the installation of monitoring well MW-1 showed that the potentiometric surface was much higher than anticipated during that wells installation, monitoring well MW-2 was screened 5-feet higher than MW-1 to allow the entire water bearing zone to be screened.

On March 6, 1995, ASE project geologist Robert Kitay developed the monitoring wells using two episodes of surge-block agitation and evacuation with bailers and an electric PVC pump. Ten well casing volumes of water were removed from each well during development, and evacuation continued until the water was relatively clear. Both wells were evacuated dry during development. Monitoring well MW-1 recovered to 80% of its static water level in approximately 45 minutes, and monitoring well MW-2 recovered to 80% of its static water level in approximately 30 minutes.

On March 8, 1995, ASE collected groundwater samples from the monitoring wells. Prior to sampling, each well was purged of four well casing volumes of groundwater. The pH, temperature and conductivity of the purged groundwater was monitored during the purging, and samples were not collected until these parameters stabilized. After the wells recovered to at

least 80% of their static water level, groundwater samples were collected from each well using a disposable polyethylene bailer. The groundwater samples were decanted from the bailer into three (3) 40-ml volatile organic analysis (VOA) vials and two (2) 1-liter amber glass bottles. All of the samples were preserved with hydrochloric acid, labeled, placed in protective foam sleeves, and stored on ice for transport to AEN under chain of custody. Well development and sampling purge water were contained in a labeled, 55-gallon, steel, DOT 17H drum and stored on-site for handling by the client at a later date. See Appendix D for a copy of the Field Log.

7.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by AEN for TPH-D by modified EPA Method 3510/8015 and BTEX by EPA Method 8020. The analytical results are tabulated in Table Two, and a copy of the certified analytical report and chain of custody form is included as Appendix E.

2,500 and 300 ppb TPH-D were detected in groundwater samples collected from monitoring wells MW-1 and MW-2, respectively. No BTEX was detected in groundwater samples collected from either monitoring well.

8.0 CONCLUSIONS AND RECOMMENDATIONS

150 ppm TPH-D was detected in the soil sample collected from 16.0-foot bgs in boring BH-A. No other significant hydrocarbons were detected in any other soil sample. 2,500 and 300 ppb TPH-D were detected in groundwater samples collected from monitoring wells MW-1 and MW-2, respectively. No BTEX was detected in groundwater samples collected from either monitoring well. These TPH-D concentrations are elevated; however, no BTEX were detected, and the California Department of Toxic Substances Control (DTSC) has not established a maximum contaminant level (MCL) for diesel. ASE recommends that groundwater samples be collected from both site monitoring wells on a quarterly basis for at least three additional quarters. ASE does not recommend any remedial action at this time.

9.0 REPORT LIMITATIONS


The results of this assessment represent conditions at the time of the soil and 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 Eden Medical Center with its environmental needs. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

Respectfully submitted,

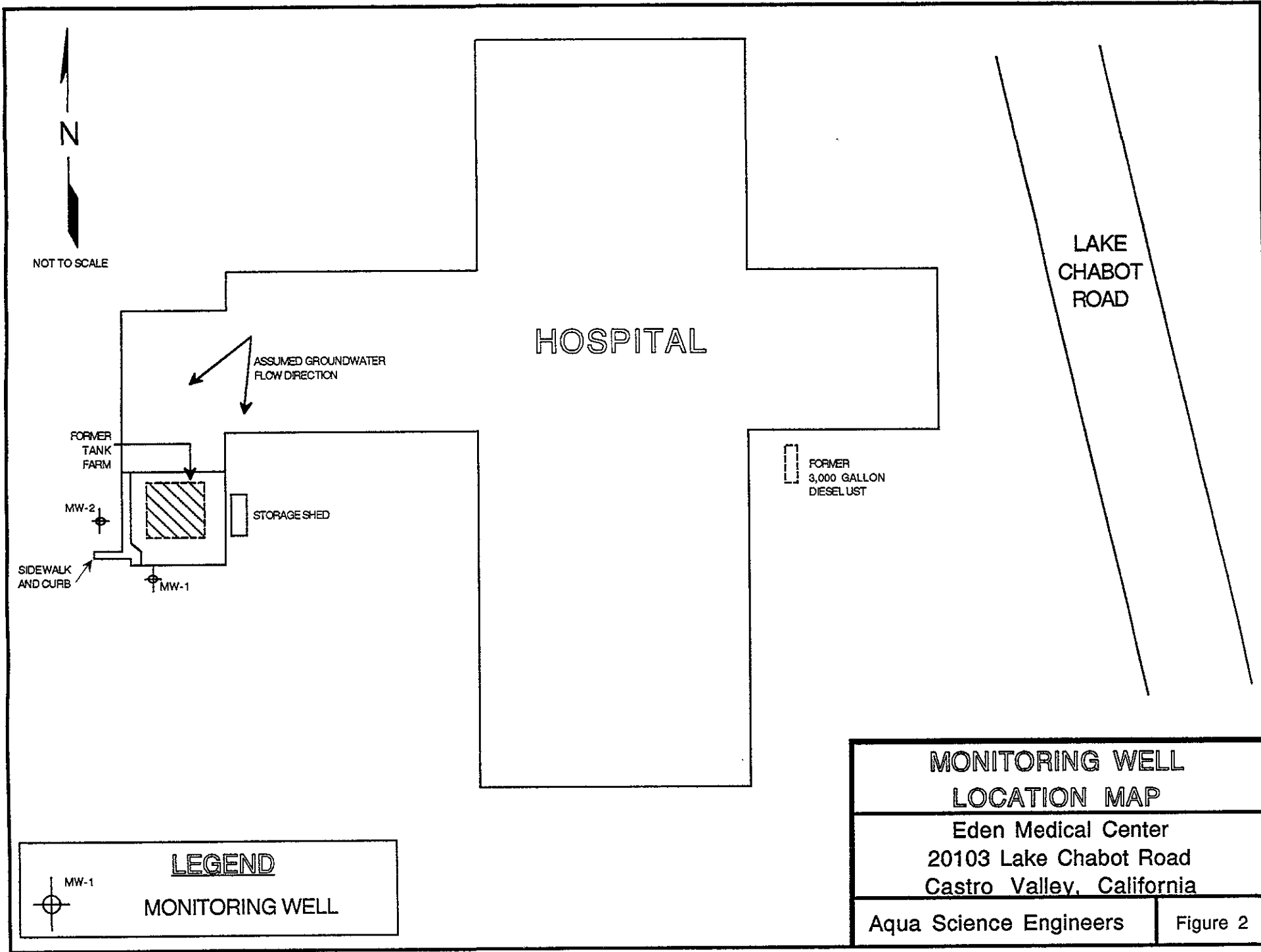
AQUA SCIENCE ENGINEERS, INC.


Robert E. Kitay, R.E.A.
Project Geologist



Attachments: Figures 1 and 2
Tables 1 and 2
Appendices A through E

FIGURES



LEGEND

MW-1

MONITORING WELL

MONITORING WELL LOCATION MAP	
Eden Medical Center 20103 Lake Chabot Road Castro Valley, California	
Aqua Science Engineers	Figure 2

TABLES

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

Boring	Depth BGS	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylenes
BH-A	11.0'	<1	<0.005	<0.005	<0.005	<0.005
	16.0'	150	<0.005	<0.005	<0.005	<0.005
BH-B	10.0'	<1	<0.005	<0.005	<0.005	<0.005
	16.0'	<1	<0.005	<0.005	<0.005	0.006
EPA METHOD		3510/ 8015	8020	8020	8020	8020

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

Well I.D.	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylenes
MW-1	2,500	<0.5	<0.5	<0.5	<0.5
MW-2	300	<0.5	<0.5	<0.5	<0.5
EPA METHOD	3550/ 8015	8020	8020	8020	8020

APPENDIX A

Permits



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94566 (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT Edan Hospital Medical Center
20103 Lake Chabot Road
Castro Valley, California

PERMIT NUMBER 95109
LOCATION NUMBER

CLIENT
Name: Edan Hospital Medical Center
Address: 20103 Lake Chabot Rd Phone
City: Castro Valley Zip: 94596

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT
Name: Agion Science Engineers
Address: 2411 Old Emery Canyon Rd #4 Phone (610) 820-9391
City: San Ramon, CA Zip: 94583

- A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 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 log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.
B. WATER WELLS, INCLUDING PIEZOMETERS
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. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
C. 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.
D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.
E. WELL DESTRUCTION. See attached.

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring X Well Destruction

PROPOSED WATER SUPPLY WELL USE
Domestic Industrial Other
Municipal Irrigation

DRILLING METHOD:
Mud Rotary Air Rotary Auger X
Cable Other

DRILLER'S LICENSE NO. 457 582696

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 50 ft.
Surface Seal Depth 20 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings Maximum
Hole Diameter in. Depth 20 ft.

ESTIMATED STARTING DATE 3-1-95
ESTIMATED COMPLETION DATE 3-15-95

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

APPLICANT'S SIGNATURE Paul E. Kohn Date 2-24-95

Approved Wyman Hong Date 28 Feb 95
121989

APPENDIX B

Boring Log and Well Construction Details

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DETAILS

Boring BH-A/Well MW-1

Project Name: Eden Hospital

Project Location: 20103 Lake Chabot Rd., Castro Valley, CA

Page 1 of 1

Driller: Soils Exploration Services

Type of Rig: F-10

Type and Size of Auger: 8-inch O.D. Hollow-stem.

Logged By: Robert E. Kitay

Date Drilled: March 2, 1995

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Depth of Water First Encountered: 16.5'

Total Depth of Well Completed: 25.0'

Static Depth of Water in Well: 7.71'

Well Screen Type and Diameter: 2" Diameter Schedule 40 PVC

Well Screen Slot Size: 0.020"

Total Depth of Boring: 26.5'

Type and Size of Soil Sampler: 2" I.D., Calif. Split-barrel

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	DYM (ppmv)	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0		Street Box Locking Well Cap					Asphaltic Concrete	
0 - 5		Bentonite Seal					Gravelly SAND (SW); black; medium dense; damp; 75% fine to medium sand; 15% subangular to subrounded pebbles to 0.25" diameter; 10% silt; high estimated K; no odor	
5 - 10		Portland Cement					Clayey SILT (ML); yellow brown; stiff; damp; 85% silt; 15% clay; moderate plasticity; low estimated K; no odor	
10 - 15		2" ID Blank Sch 40 PVC						
15 - 16.5		Class "H" Monterey Sand	7 8 13		0		Silty SAND (SM); yellow brown mottled olive; moist; medium dense; 65-70% fine to medium sand; 25% silt; 5-10% clay; slight plasticity; medium estimated K; no odor wet at 16.5'	
16.5 - 20		No. 3 Washed Monterey Sand	14 32 40		0		SILT (ML); yellow brown; dense; 100% silt; non-plastic; low estimated K; no odor	
20 - 25		2" I.D. 0.020" Slotted PVC Well Screen	11 20 18		9.8		Silty CLAY (CH); yellow brown; stiff; dry; 80% clay; 20% silt; high plasticity; very low estimated K; no odor	
25 - 26.5			13 15 27		0		End of boring at 26.5'	
26.5			17 23 40		0			

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DETAILS Boring BH-B/Well MW-2

Project Name: Eden Hospital Project Location: 20103 Lake Chabot Rd., Castro Valley, CA Page 1 of 1
 Driller: Soils Exploration Services Type of Rig: F-10 Type and Size of Auger: 8-inch O.D. Hollow-stem.
 Logged By: Robert E. Kitay Date Drilled: March 3, 1995 Checked By: David M. Schultz, P.E.

WATER AND WELL DATA
 Total Depth of Well Completed: 20.0'
 Depth of Water First Encountered: 11.5'
 Well Screen Type and Diameter: 2" Diameter Schedule 40 PVC
 Static Depth of Water in Well: 7.74'
 Well Screen Slot Size: 0.020"
 Total Depth of Boring: 21.5'
 Type and Size of Soil Sampler: 2" I.D., Calif. Split-barrel

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	QVM (ppmv)	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0		Street Box Locking Well Cap					Asphaltic Concrete	
0 - 5		2" ID Blank Sch 40 PVC Bentonite Seal					Clayey SILT (ML); yellow brown; medium stiff; damp; 85% silt; 15% clay; moderate plasticity; low estimated K; no odor	
5 - 10		2" ID Blank Sch 40 PVC Class "H" Portland Cement	6 7 8		0			
10 - 15		2" ID Blank Sch 40 PVC Monterey Sand	17 17 24		0		Sandy SILT (ML); yellow brown; stiff; damp; 60% silt; 35% fine sand; 5% clay; low plasticity; medium estimated K; no odor	
15 - 20		2" ID Blank Sch 40 PVC Slotted PVC Well Screen No. 3 Washed Monterey Sand	11 12 15		9.8		Clayey SILT (ML); yellow brown; stiff; moist; 70% silt; 30% clay; moderate plasticity; very low estimated K; no odor yellow brown mottled olive; wet; 60% silt; 30% clay; 10% fine to medium sand; [REDACTED]	
20 - 21.5		2" ID Blank Sch 40 PVC Slotted PVC Well Screen	14 15 28		0		yellow brown; 75% silt; 25% clay; no odor at 20'	
21.5							End of boring at 21.5'	

APPENDIX C

**Analytical Report and Chain of Custody Forms
For Soil Samples**

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

AQUA SCIENCE ENGINEERS, INC
2411 OLD CROW CANYON RD. #4
SAN RAMON, CA 94583

REPORT DATE: 03/19/95

DATE(S) SAMPLED: 03/02/95-03/03/95

DATE RECEIVED: 03/06/95

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2807
CLIENT PROJ. NAME: EDEN HOSPITAL

AEN WORK ORDER: 9503094

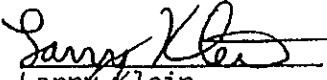
PROJECT SUMMARY:

On March 6, 1995, this laboratory received 9 soil sample(s).

Client requested 4 sample(s) be analyzed for organic parameters; five samples were placed on hold. 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: 9503094
 DATE SAMPLED: 03/02-03/95
 DATE RECEIVED: 03/06/95
 CLIENT PROJ. ID: 2807

Client Sample Id.	AEN Lab Id.	Extractable Hydrocarbons as Diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)
BH-A 11.0'	02	ND	ND	ND	ND	ND
BH-A 16.0'	03	150	ND	ND	ND	ND
BH-B 10.0'	07	ND	ND	ND	ND	ND
BH-B 16.0'	08	ND	ND	ND	ND	0.006
Reporting Limit		1	0.005	0.005	0.005	0.005
EPA Method:		3550 GCFID	8020	8020	8020	8020
Instrument:		C	E	E	E	E
Date(s) Extracted:		03/10/95 03/14/95	NA	NA	NA	NA
Date(s) Analyzed:		03/13/95 03/15/95	03/13/95	03/13/95	03/13/95	03/13/95

NA = Not Applicable
 ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9503094

CLIENT PROJECT ID: 2807

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 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 3550 GCFID

AEN JOB NO: 9503094
 DATE(S) EXTRACTED: 03/10-14/95
 INSTRUMENT: C
 MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
03/13/95	BH-A 11.0'	02	91
03/13/95	BH-A 16.0'	03	91
03/15/95	BH-B 10.0'	07	72
03/15/95	BH-B 16.0'	08	71
QC Limits:			70-138

DATE EXTRACTED: 03/09/95
 DATE ANALYZED: 03/11/95
 SAMPLE SPIKED: 9503135-01
 INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/kg)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	40	59	12	44-108	13

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

QUALITY CONTROL DATA

METHOD: EPA 8020

AEN JOB NO: 9503094
 INSTRUMENT: E
 MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			1-Chloro-2-Fluorobenzene	
03/13/95	BH-A 11.0'	02		103
03/13/95	BH-A 16.0'	03		101
03/13/95	BH-B 10.0'	02		100
03/13/95	BH-B 16.0'	02		108
QC Limits:				92-110

DATE ANALYZED: 03/13/95
 SAMPLE SPIKED: 9503094-02
 INSTRUMENT: E

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	35.5	92	5	79-113	26
Toluene	100.9	92	4	84-110	20

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

*** END OF REPORT ***

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 3-2-95 PAGE 1 OF 1

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

PROJECT NAME Eden Hospital NO. 2807
ADDRESS 20103 Lake Chabot Road, Castro Valley, 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) <u>BTEX Only</u>	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NEUTRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 EAF of B&F)	LUFT METALS (S) (EPA 6010-7000)	TITLE 22 (CM 17) (EPA 6010-7000)	TCLP (EPA 1311/1310)	STLC- CM WET (EPA 1311/1310)	REACTIVITY	CORROSIVITY	IGNITABILITY	
01A BH-A 6.0'	3-2-95	12:30	Soil	1																X
02A BH-A 11.0'		12:36					X	X												
03A BH-A 16.0'		12:48					X	X												
04A BH-A 21.0'		13:23																		X
05A BH-A 26.0'		14:55																		X
06A BH-B 6.0'	3-3-95	9:00																		X
07A BH-B 10.0'		9:14					X	X												
08A BH-B 16.0'		9:25					X	X												
09A BH-B 21.0'		9:50																		X

HOLD

01A
02A
03A
04A
05A
06A
07A
08A
09A

RELINQUISHED BY: <u>Robert E. Kitey</u> 11:25 (signature) (time)	RECEIVED BY: <u>Neil Herrick</u> 11:29 (signature) (time)	RELINQUISHED BY: <u>Neil Herrick</u> 11:50 (signature) (time)	RECEIVED BY LABORATORY: <u>Anna Gillespie</u> 11:50 (signature) (time)	COMMENTS:
<u>Robert E. Kitey</u> 3-6-95 (printed name) (date)	<u>NEIL HERRICK</u> 3-6-95 (printed name) (date)	<u>NEIL HERRICK</u> 3-6-95 (printed name) (date)	<u>Anna Gillespie</u> 3/6/95 (signature) (date)	
Company- <u>ASE</u>	Company- <u>AEU</u>	Company- <u>AEU</u>	Company- <u>AEN</u>	

APPENDIX D

Well Sampling Field Logs



WELL SAMPLING FIELD LOG

Project Name and Address: Eden Hospital, Castro Valley, CA
 Job #: 2807 Date of sampling: 3-8-95
 Well Name: MW-1 Sampled by: PK
 Total depth of well (feet): 25.11 Well diameter (inches): 2
 Depth to water before sampling (feet): 7.71
 Thickness of floating product if any: None
 Depth of well casing in water (feet): 17.40
 Number of gallons per well casing volume (gallons): 2.9
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 11.6
 Equipment used to purge the well: 12 volt PVC pump
 Time Evacuation Began: 14:00 Time Evacuation Finished: 14:32
 Approximate volume of groundwater purged: 12 gals
 Did the well go dry?: Yes After how many gallons: 12
 Time samples were collected: 15:20
 Depth to water at time of sampling: 11.10
 Percent recovery at time of sampling: 80%
 Samples collected with: Disposable polyethylene bottles
 Sample color: None Odor: None
 Description of sediment in sample: small amount of fine brown s.s.

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>Initial</u>	<u>69.0</u>	<u>8.67</u>	<u>2060</u>
<u>3 gals</u>	<u>69.5</u>	<u>8.26</u>	<u>1812</u>
<u>6 gals</u>	<u>69.8</u>	<u>8.02</u>	<u>1725</u>
<u>9 gals</u>	<u>69.7</u>	<u>8.04</u>	<u>1660</u>
<u>12 gals</u>	<u>69.8</u>	<u>7.94</u>	<u>1650</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-1</u>	<u>3</u>	<u>40ml VOA vials</u>	<u>HU</u>	<u>Yes</u>	<u>BTEX</u>
<u>↓</u>	<u>2</u>	<u>1-liter amber glass</u>	<u>↓</u>	<u>↓</u>	<u>TPH-D</u>



WELL SAMPLING FIELD LOG

Project Name and Address: Eden Hospital
 Job #: 2807 Date of sampling: 3-8-95
 Well Name: MW-2 Sampled by: RK
 Total depth of well (feet): 19.75 Well diameter (inches): 2
 Depth to water before sampling (feet): 7.74
 Thickness of floating product if any: None
 Depth of well casing in water (feet): 12.01
 Number of gallons per well casing volume (gallons): 2
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 8
 Equipment used to purge the well: 12 volt PUL pump
 Time Evacuation Began: 15:40 Time Evacuation Finished: 16:00
 Approximate volume of groundwater purged: 8 gals
 Did the well go dry?: No After how many gallons: -
 Time samples were collected: 16:35
 Depth to water at time of sampling: 7.95
 Percent recovery at time of sampling: 98%
 Samples collected with: Disposable polyethylene bottles
 Sample color: None Odor: None
 Description of sediment in sample: small amount of fine brown silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>Initial</u>	<u>66.4</u>	<u>8.49</u>	<u>1600</u>
<u>2 gal</u>	<u>68.0</u>	<u>8.18</u>	<u>1840</u>
<u>4 gal</u>	<u>68.8</u>	<u>8.02</u>	<u>1810</u>
<u>6 gal</u>	<u>68.7</u>	<u>7.98</u>	<u>1800</u>
<u>8 gal</u>	<u>68.9</u>	<u>7.97</u>	<u>1820</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-2</u>	<u>3</u>	<u>40ml VOA vials</u>	<u>141</u>	<u>Yes</u>	<u>BTEX</u>
<u>↓</u>	<u>2</u>	<u>1-liter amber glass</u>	<u>↓</u>	<u>↓</u>	<u>TPH-D</u>

APPENDIX E

**Analytical Report and Chain of Custody Forms
For Groundwater Samples**

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

AQUA SCIENCE ENGINEERS, INC
2411 OLD CROW CANYON RD. #4
SAN RAMON, CA 94583

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2807
CLIENT PROJ. NAME: EDEN HOSPITAL

REPORT DATE: 03/24/95

DATE(S) SAMPLED: 03/08/95

DATE RECEIVED: 03/08/95

AEN WORK ORDER: 9503158


PROJECT SUMMARY:

On March 8, 1995, this laboratory received 2 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: 9503158
 DATE SAMPLED: 03/08/95
 DATE RECEIVED: 03/08/95
 CLIENT PROJ. ID: 2807

Client Sample Id.	AEN Lab Id.	Extractable Hydrocarbons as Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
MW-1	01	2,500	ND	ND	ND	ND
MW-2	02	300	ND	ND	ND	ND
Reporting Limit:		50	0.5	0.5	0.5	2
EPA Method:		3510 GCFID	8020	8020	8020	8020
Instrument:		C	F,H	F,H	F,H	F,H
Date Extracted:		03/17/95	NA	NA	NA	NA
Date Analyzed:		03/18/95	03/17/95 03/18/95	03/17/95 03/18/95	03/17/95 03/18/95	03/17/95 03/18/95

NA = Not Applicable
 ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9503158

CLIENT PROJECT ID: 2807

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 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: 9503158
DATE EXTRACTED: 03/17/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			n-Pentacosane	
03/18/95	MW-1	01	93	
03/18/95	MW-2	02	89	
QC Limits:			73-129	

DATE EXTRACTED: 03/15/95
DATE ANALYZED: 03/17/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	2.02	84	2	65-103	12

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

QUALITY CONTROL DATA

METHOD: EPA 8020

AEN JOB NO: 9503158
 INSTRUMENT: F, H
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
03/18/95	MW-1	01	101
03/17/95	MW-2	02	98
QC Limits:			92-109

DATE ANALYZED: 03/18/95
 SAMPLE SPIKED: 9503153-01
 INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	18.2	88	10	85-109	17
Toluene	52.8	86	13	87-111	16

DATE ANALYZED: 03/17/95
 SAMPLE SPIKED: LCS
 INSTRUMENT: F

Laboratory Control Sample

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits
			Percent Recovery
Benzene	23.2	90	63-117
Toluene	65.8	89	67-114

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

*** END OF REPORT ***

Chain of Custody

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4,
San Ramon, CA 94583
(510) 820-9391 - FAX (510) 837-4853

DATE 3-8-95 PAGE 1 OF 1

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

PROJECT NAME Eden Hospital NO. 2807
ADDRESS 20103 Lake Chabot Rd., Castro Valley, 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) ^{BTEX only}	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NEUTRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F of 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	CORROSIIVITY	IGNITABILITY	
A-E MW-1	3/8	15:20	Water	5			X	X												
A-E MW-2	3/8	16:35	Water	5			X	X												

RELINQUISHED BY:
Robert E. Kitey 16:40
(signature) (time)
Robert E. Kitey 3-8-95
(printed name) (date)
Company- ASE

RECEIVED BY:
Neil Herrick 16:40
(signature) (time)
NEIL HERRICK 3-8-95
(printed name) (date)
Company- AEN

RELINQUISHED BY:
Neil Herrick 17:25
(signature) (time)
NEIL HERRICK 3-8-95
(printed name) (date)
Company- AEN

RECEIVED BY LABORATORY:
Lori L. Pruitt 1725
(signature) (time)
Lori L. Pruitt 3-8-95
(printed name) (date)
Company- AEN

COMMENTS: