aqua science engineers inc.

August 10, 1999

REPORT
of
SOIL AND GROUNDWATER ASSESSMENT
ASE JOB NO. 3457
at
5725 Thornhill Drive
Oakland, California

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

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1.0 INTRODUCTION

This report presents the results of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater assessment for the property located at 5725 Thornhill Drive in Oakland, California (Figures 1 and 2). The site assessment activities were initiated by Mr. Mo Mashhoon, operator of the site, to meet the requirements of the Alameda County Health Care Services Agency (ACHCSA) as outlined in their letters dated April 27 and June 11, 1999 (Appendix A). Although the June 11, 1999 letter requests groundwater monitoring wells be installed, the ACHCSA has stated during discussions with ASE that a soil boring located adjacent to the former waste oil underground storage tank (UST) would be acceptable.

2.0 SITE HISTORY

The subject site has been a gasoline service station since the 1950s. The station dispenses gasoline and has conducted auto repair at the site. A 550-gallon steel UST for the storage of waste oil was removed from the site by Penn Environmental in November 1998. Soil samples collected from the excavation contained up to 1,100 ppm total petroleum hydrocarbons as gasoline (TPH-G), 2,700 ppm total petroleum hydrocarbons as diesel (TPH-D) and 4,200 ppm total petroleum hydrocarbons as motor oil (TPH-MO).

On February 4, 1999, Penn Environmental overexcavated contaminated soil surrounding the former waste oil tank. This soil was previously removed but was placed back into the excavation temporarily. This soil was once again removed from the excavation to be transported for disposal. On February 5, 1999, ASE senior geologist Robert Kitay collected confirmation soil samples from two sidewalls of the excavation. Sidewall samples were collected since the bottom of the excavation was saturated. These samples were collected from a backhoe bucket from the capillary zone at a depth of approximately 5.5-feet below ground surface (bgs). The soil samples were analyzed for TPH-G, TPH-D, TPH-MO, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020. These analyses were requested by Mr. Hernan Gomez of the Oakland Fire Department in a telephone conversation on February 4, 1999. The only compound detected in these two soil samples was 0.040 parts per million (ppm) MTBE in one of the two samples.

3.0 SCOPE OF WORK (SOW)

Based on the requirements of the ACHCSA, ASE's scope of work was to:

1) Prepare a workplan for approval by ACHCSA.

2) Obtain drilling permits from the Alameda County Public Works Agency (ACPWA). ASE will also notify Underground Service Alert (USA) to have all known public utility lines marked.

3) Drill one (1) soil boring at the site using a Geoprobe drill rig in a location near the former waste oil UST. Collect soil and groundwater samples from the boring for analysis.

4) Analyze one soil sample from the boring at a CAL-EPA certified environmental laboratory for halogenated volatile organic compounds (HVOCs) by EPA Method 8010, semi-volatile organic compound (SVOCs) by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 6010.

5) Analyze a groundwater sample collected from the boring for TPH-G, by modified EPA Method 5030/8015, TPH-D and TPH-MO by modified EPA Method 3550/8015, BTEX and MTBE by EPA Method 8020, HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 6010.

6) If groundwater is encountered deeper than 6-feet bgs in the boring, a second boring was to be drilled north of the UST for the collection of soil samples only.

7) Prepare a report detailing the methods and findings of the sampling.

4.0 DRILL SOIL BORINGS AND COLLECT SAMPLES

Prior to drilling, ASE obtained a drilling permit from the Alameda County Public Works Agency (ACPWA). A copy of this permit is presented in Appendix A.

On July 22, 1999, Vironex, Inc. of Hayward, California drilled soil boring BH-A at the site using a Geoprobe hydraulic sampling rig (Figure 2). The drilling was directed by ASE associate geologist Ian Reed and senior geologist Robert E. Kitay, R.G. Mr. Don Hwang of the ACHCSA was present during some of the drilling and sampling activities.

Undisturbed soil samples were collected continuously as drilling progressed for lithologic and hydrogeologic description and for possible chemical analysis. The samples were collected by driving a sampler lined with acetate tubes using hydraulic direct push methods. Selective soil samples were immediately trimmed, sealed with Teflon tape, plastic end caps and duct tape, labeled, sealed in plastic bags 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 the site geologist using the Unified Soil Classification System and was screened for volatile compounds using 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 volatile compounds 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. OVM readings can be found on the boring log located in Appendix B.

Groundwater samples were removed from the boring with a peristaltic pump and bailer. The groundwater samples to be analyzed for volatile compounds were contained in 40-ml volatile organic analysis (VOA) vials (pre-preserved with hydrochloric acid) and sealed without headspace. The samples to be analyzed for TPH-D, TPH-MO, SVOCs, PCBs and metals were contained in 1-liter amber glass containers. The samples were labeled and stored on ice for transport to Chromalab under chain of custody. Upon completion of the soil and groundwater sampling, the boring was backfilled with neat cement to the ground surface. The laboratory was instructed to filter and preserve the sample to be analyzed for metals immediately upon receipt.

Drilling equipment was cleaned with a TSP solution between sampling intervals and between borings to prevent potential cross-contamination.

Sediments encountered during drilling generally consisted of sandy silt beneath the asphalt surface to 2-feet bgs, sandy gravel from 2-feet bgs to 4-feet bgs, sandy silt from 4-feet bgs to 6-feet bgs, and clayey silt from 6-feet bgs to the total depth explored of 16-feet bgs. Groundwater was encountered at 6-feet bgs. There was a thin sheen on the groundwater surface and hydrocarbon odors below 5-feet bgs. A boring log is presented as Appendix B.

5.0 ANALYTICAL RESULTS FOR SOIL

Following a discussion between Robert Kitay of ASE and Mr. Don Hwang of the ACHCSA as to which soil sample to analyze, the soil sample from 8-feet bgs was chosen since it had the strongest hydrocarbon odor and since this was the depth of the soil sample beneath the UST which contained elevated concentration of total petroleum hydrocarbons. The soil sample from 8-feet bgs was analyzed by Chromalab for HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and the metals cadmium, chromium, lead, zinc and nickel (collectively known as the LUFT 5 metals) by EPA Method 6010. These analyses represent the analyses that were not performed in soil at the time of the UST removal. The analytical results are tabulated in Table One, and the certified analytical report and chain of custody form are included in Appendix C.

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

Boring	Sample Depth	HVOCs	SVOCs	PCBs	Cd	Cr	Pb	Ni	Zn
BH-A	8.0'	ND	ND	< 0.050	< 0.5	**21**	**5.5**	**24**	**53**
PRG		NE	NE	0.2	9.0	210	130	150	22,000

Notes:

Non-detectable concentrations are noted by the less than symbol (<) followed by the detection limit or are indicated by ND if various detection limits are used for multiple compounds. Please see the original laboratory reports in Appendix C for detection limits for these compounds..

Detectable concentrations are in **bold**.

PRG is the United States Environmental Protection Agency (US EPA) Region IX Preliminary Remediation Goal (PRG) for residential soil.

No HVOCs, SVOCs or PCBs were detected in the soil sample. None of the metal concentrations detected exceeded United States Environmental Protection Agency (US EPA) Preliminary Remediation Goals (PRGs) for residential soil.

6.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for TPH-G by modified EPA Method 5030/8015, TPH-D and TPH-MO by EPA Method 3550/8015, BTEX and MTBE by EPA Method 8020, HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and dissolved LUFT 5 metals by EPA Method 6010. The analytical results are tabulated in Tables Two and Three, and the certified analytical report and chain of custody forms are included in Appendix C.

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

Boring	TPH Gasoline	TPH Diesel	TPH Motor Oil	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
BH-A	**1,700**	**10,000**	**4,700**	< 0.5	< 0.5	**1.5**	**2.6**	**180**
DHS MCL	NE	NE	NE	1.0	150	700	1,750	13

Notes:
Non-detectable concentrations are noted by the less than symbol (<) followed by the detection limit.

Detectable concentrations are in **bold**.

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

NE = DHS MCLs are not established.

TABLE THREE
Summary of Chemical Analysis of **GROUNDWATER** Samples
HVOCs, SVOCs, PCBs and LUFT 5 Metals
All results are in **parts per billion**

Boring	HVOCs	SVOCs	PCBs	Cd	Cr	Pb	Ni	Zn
BH-A	ND	ND	ND	**27**	**31**	**11**	**35**	**100**
MCL	Various	Various	0.5	5	50	15	100	5,000

Notes:
Non-detectable concentrations are noted by the less than symbol (<) followed by the detection limit or are indicated by ND if various detection limits are used for multiple compounds. Please see the original laboratory reports in Appendix C for detection limits for these compounds..

Detectable concentrations are in **bold**.

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

Total petroleum hydrocarbons were detected in groundwater samples collected from the site at 1,700 parts per billion (ppb) in the gasoline range, 10,000 ppb in the diesel range and 4,700 ppb in the motor oil range. There are currently no regulations based on total petroleum hydrocarbon concentrations; all of the current regulations are based on individual compounds such as BTEX, HVOCs, SVOCs and PCBs. The only compounds that were detected at concentrations exceeding California Department of Health Services (DHS) maximum contaminant levels (MCLs) for drinking water were MTBE and cadmium. The concentrations from both of these compounds are, although over DHS MCLs for drinking water, still relatively low, and would present a low risk to human health in a non-drinking water scenario.

7.0 CONCLUSIONS AND RECOMMENDATIONS

No HVOCs, SVOCs or PCBs were detected in either soil or groundwater samples collected from the site. None of the metal concentrations detected in the soil sample exceeded US EPA PRGs for residential soil.

Total petroleum hydrocarbons were detected in groundwater samples collected from the site at 1,700 ppb in the gasoline range, 10,000 ppb in the diesel range and 4,700 ppb in the motor oil range. There are currently no regulations based on total petroleum hydrocarbon

concentrations, and all of the current regulations are based on individual compounds such as BTEX, HVOCs, SVOCs and PCBs. The only compounds that were detected at concentrations above DHS MCLs for drinking water were MTBE and cadmium. Although these compounds were detected above drinking water standards, they still represent relatively low concentrations which would not present a threat to human health in non-drinking water scenarios.

Based on this information, ASE recommends that this case be closed by the ACHCSA and RWQCB. ASE also recommends that the three site groundwater monitoring wells be properly destroyed.

8.0 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.

This report 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 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,

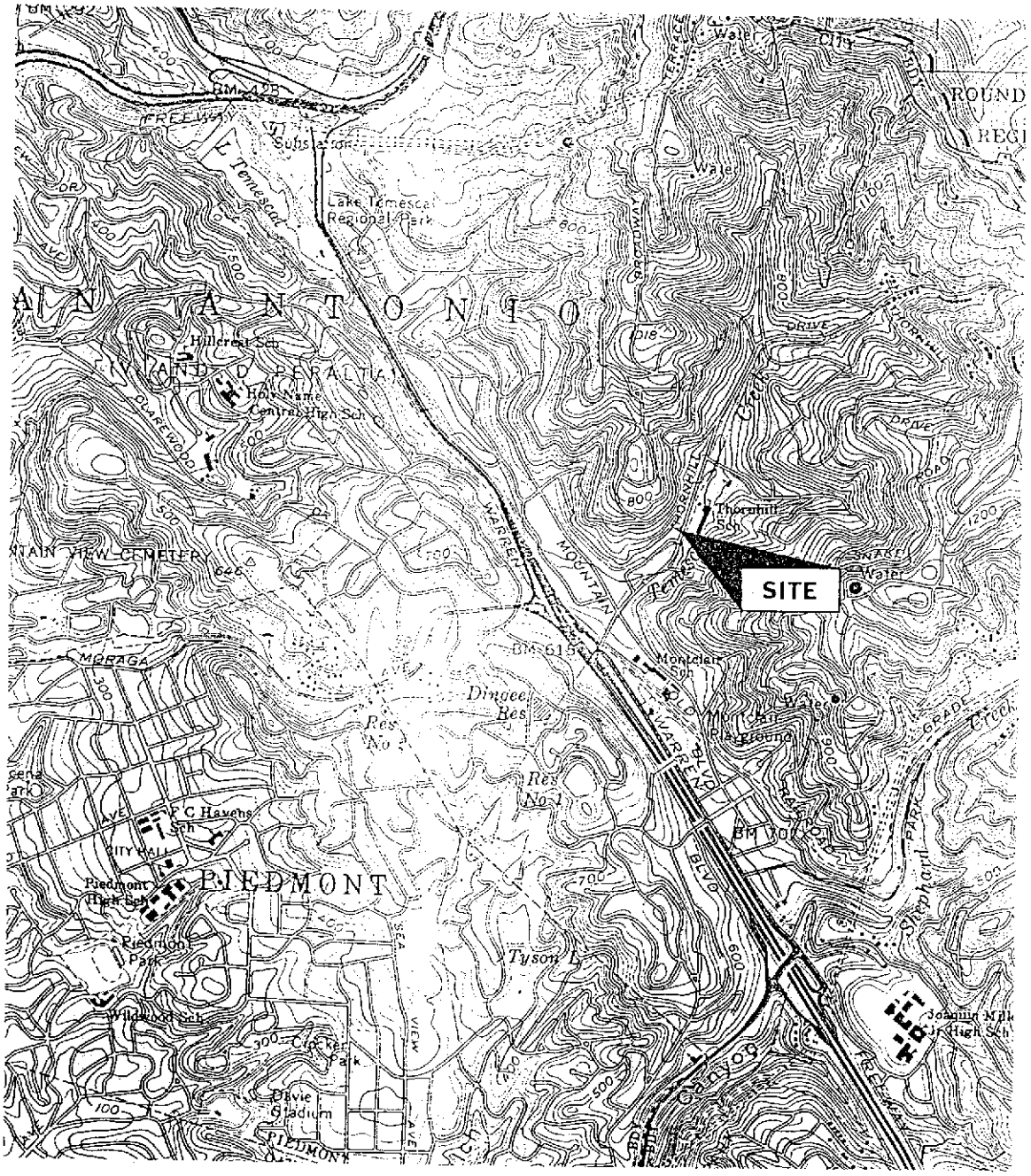
AQUA SCIENCE ENGINEERS, INC.

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

Attachments: Figures 1 and 2
Appendices A through C

cc: Mr. Mo Mashhoon, Mash Petroleum
Mr. Don Hwang, Alameda County Health Care Services Agency
Mr. Chuck Headlee, RWQCB

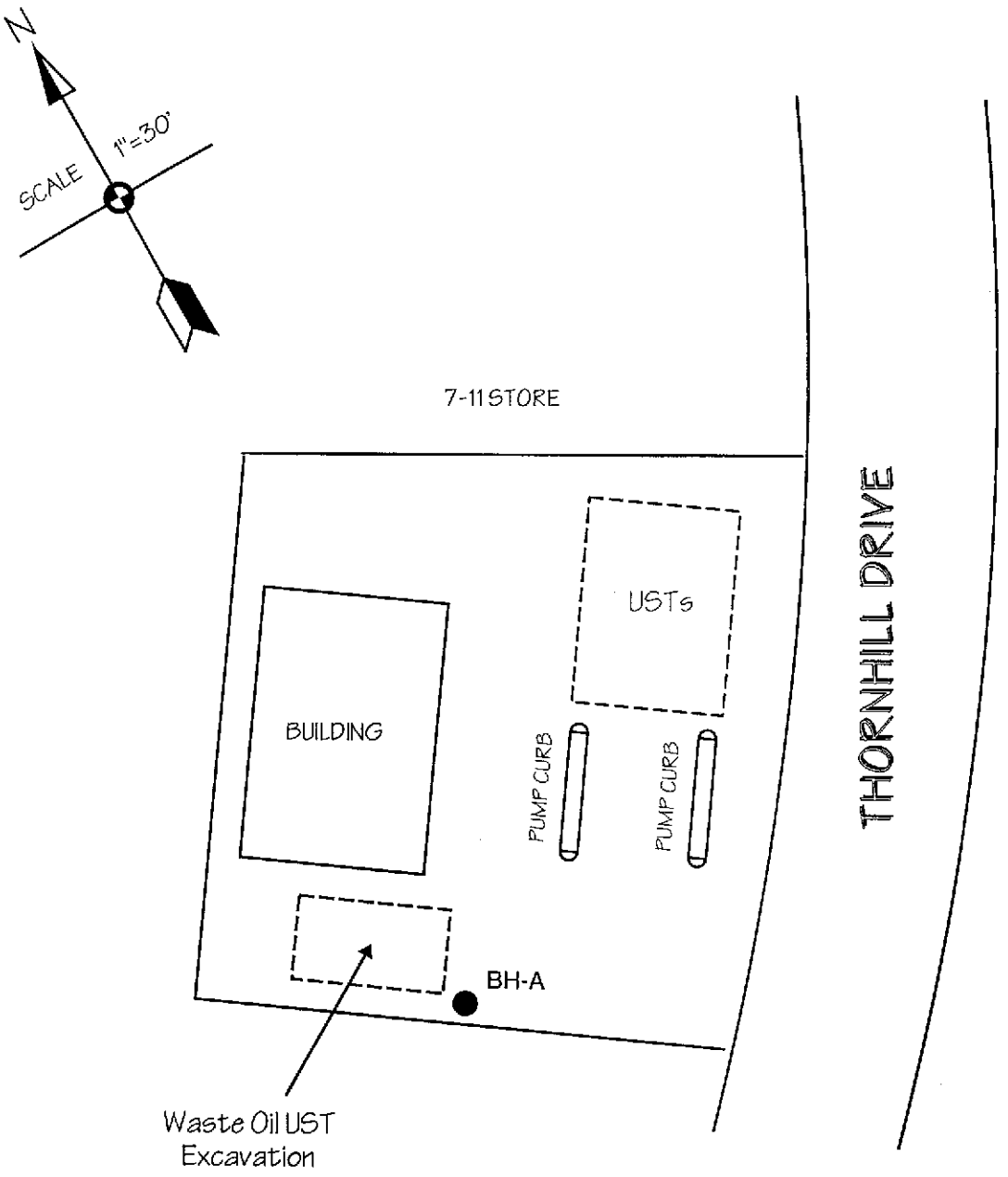
NORTH



SITE LOCATION MAP

Mash Petroleum
5725 Thornhill Street
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 1



Legend
● Soil boring location

SITE MAP	
Mash Petroleum 5725 Thornhill Drive Oakland, CA	
Aqua Science Engineers	Figure 2

APPENDIX A

Drilling Permit

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) 670-5261
(510) 670-5245 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 5725 Thornhill Dr. Oakland, CA

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

CLIENT
Name Mr. Mashhoon
Address 5725 Thornhill Dr. Phone ____
City Oakland, CA Zip 94611

APPLICANT
Name Aqua Science Engineers
Attn: Robert Kitay Fax 925-933-4853
Address 208 West El Pintado Phone 925-820-9391
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 487000

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum
Casing Diameter ____ in. Depth ____ ft.
Surface Seal Depth ____ ft. Number ____

GEOTECHNICAL PROJECTS
Number of Borings 1 Maximum
Hole Diameter 2 in. Depth 20 ft.

ESTIMATED STARTING DATE 7-22-99
ESTIMATED COMPLETION DATE 7-22-99

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

APPLICANT'S SIGNATURE Robert E. Kitay DATE 7-15-99

FOR OFFICE USE
PERMIT NUMBER 99WR424
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 7-16-99

** TOTAL PAGE.02 **

APPENDIX B

Boring Log

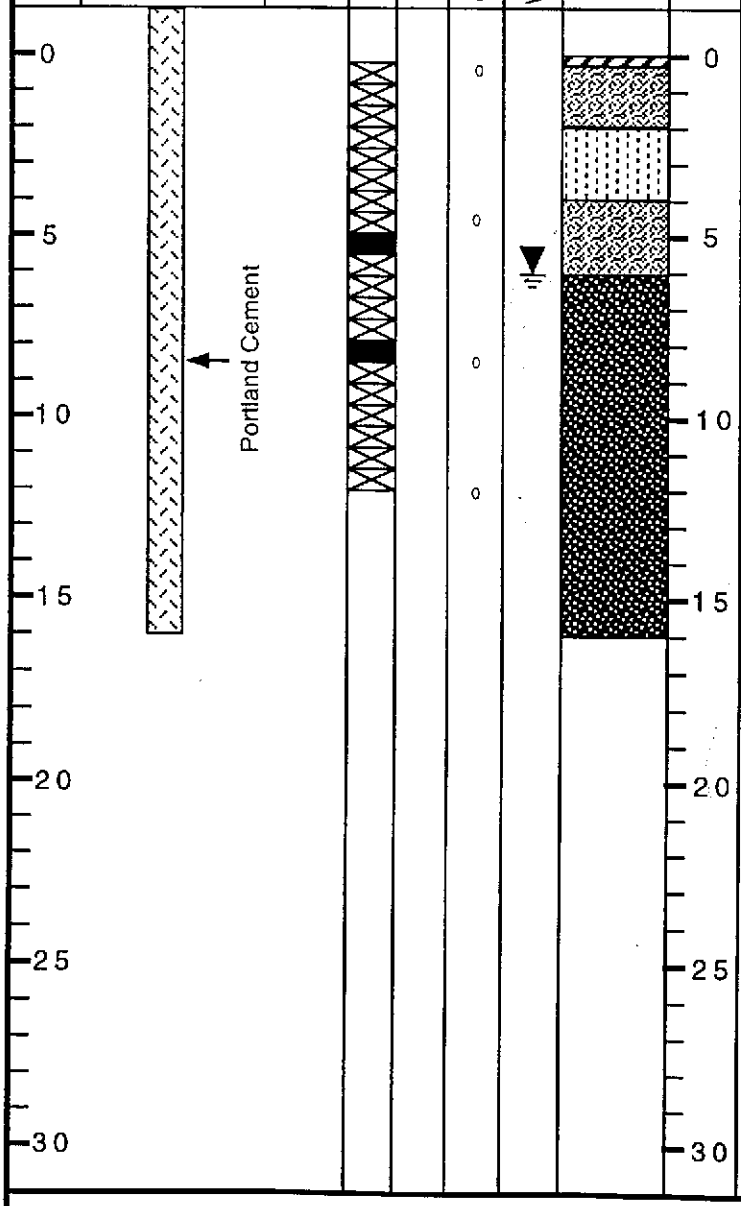
SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS

Boring: BH-A

Project Name: Mashhoon-Thornhill	Project Location: 5725 Thornhill Drive, Oakland, CA	Page 1 of 1
Driller: Vironex	Type of Rig: Geoprobe	Size of Drill: 2.0" Diameter
Logged By: Robert E. Kitay, R.G.	Date Drilled: July 22, 1999	Checked By: Robert E. Kitay, R.G.

WATER AND WELL DATA

Depth of Water First Encountered: 6.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 16'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 2.0" I.D. Macro Sampler



DESCRIPTION OF LITHOLOGY

standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.

Asphalt

Sandy SILT (ML); dark yellow brown; medium stiff; damp; 80% silt; 15% fine sand; 5% subangular gravel to 0.2" diameter; non-plastic; medium estimated K; no odor

Sandy GRAVEL (GW); gray; medium dense; damp; 60-90% angular gravel to 2" diameter; 10-40% fine sand and silt; non-plastic; high estimated K; no odor

Sandy SILT (ML); brown; medium stiff; damp; 80% silt; 20% fine sand; trace clay; low plasticity; low estimated K; no odor

Clayey SILT (MH); brown; stiff; wet; 70% silt; 30% clay; high plasticity; very low estimated K; slight hydrocarbon odor
gray mottling at 8'

End of boring at 16'

AQUA SCIENCE ENGINEERS, INC.

APPENDIX C

Analytical Report and Chain of Custody Form
For Soil and Groundwater Samples

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

Attn.: Mr. Robert Kitay

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Dear Mr. Kitay,

Attached is our report for your samples received on Friday July 23, 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 August 22, 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

Gas/BTEX and MTBE

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BHA	Water	07/22/1999 16:45	3

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

Attn.: Robert Kitay

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	BHA	Lab Sample ID:	1999-07-0370-003
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 17:14
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/26-01.01
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	1700	50	ug/L	1.00	07/26/1999 17:17	
Benzene	ND	0.50	ug/L	1.00	07/26/1999 17:17	
Toluene	ND	0.50	ug/L	1.00	07/26/1999 17:17	
Ethyl benzene	1.5	0.50	ug/L	1.00	07/26/1999 17:17	
Xylene(s)	2.6	0.50	ug/L	1.00	07/26/1999 17:17	
MTBE	180	5.0	ug/L	1.00	07/26/1999 17:17	
Surrogate(s)						
Trifluorotoluene	100.9	58-124	%	1.00	07/26/1999 17:17	
4-Bromofluorobenzene-FID	128.2	50-150	%	1.00	07/26/1999 17:17	

To: Aqua Science Engineers, Inc.

Attn.: Robert Kitay

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report
Gas/BTEX and MTBE

Method Blank **Water** **QC Batch # 1999/07/26-01.01**

MB: 1999/07/26-01.01-001 Date Extracted: 07/26/1999 06:33

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	07/26/1999 06:33	
Benzene	ND	0.5	ug/L	07/26/1999 06:33	
Toluene	ND	0.5	ug/L	07/26/1999 06:33	
Ethyl benzene	ND	0.5	ug/L	07/26/1999 06:33	
Xylene(s)	ND	0.5	ug/L	07/26/1999 06:33	
MTBE	ND	5.0	ug/L	07/26/1999 06:33	
Surrogate(s)					
Trifluorotoluene	81.0	58-124	%	07/26/1999 06:33	
4-Bromofluorobenzene-FID	76.4	50-150	%	07/26/1999 06:33	

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn: Robert Kitay

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/07/26-01.01**

LCS: 1999/07/26-01.01-002 Extracted: 07/26/1999 07:00 Analyzed: 07/26/1999 07:00

LCSD: 1999/07/26-01.01-003 Extracted: 07/26/1999 07:53 Analyzed: 07/26/1999 07:53

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	532	537	500	500	106.4	107.4	0.9	75-125	20		
Benzene	92.6	91.6	100.0	100.0	92.6	91.6	1.1	77-123	20		
Toluene	92.9	98.3	100.0	100.0	92.9	98.3	5.6	78-122	20		
Ethyl benzene	89.9	90.3	100.0	100.0	89.9	90.3	0.4	70-130	20		
Xylene(s)	264	265	300	300	88.0	88.3	0.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	467	445	500	500	93.4	89.0		58-124			
4-Bromofluorobenzene-FI	465	478	500	500	93.0	95.6		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-07-0370

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn.: Robert Kitay

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Matrix Spike (MS / MSD) Water **QC Batch # 1999/07/26-01.01**

Sample ID: **BHA** Lab Sample ID: 1999-07-0370-003

MS: 1999/07/26-01.01-004 Extracted: 07/26/1999 17:41 Analyzed: 07/26/1999 17:41 Dilution: 1.0

MSD: 1999/07/26-01.01-005 Extracted: 07/26/1999 18:35 Analyzed: 07/26/1999 18:35 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	1900	2040	1680	500	500	44.0	72.0	48.3	65-135	20	mso	mso
Benzene	88.2	122	ND	100.0	100.0	88.2	122.0	32.2	65-135	20		mso
Toluene	88.9	103	ND	100.0	100.0	88.9	103.0	14.7	65-135	20		
Ethyl benzene	81.4	86.8	1.54	100.0	100.0	79.9	85.3	6.5	65-135	20		
Xylene(s)	224	239	2.57	300	300	73.8	78.8	6.6	65-135	20		
Surrogate(s)												
Trifluorotoluene	302	552		500	500	60.4	110.4		58-124			
4-Bromofluorobenzene-	709	749		500	500	141.8	149.8		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-07-0370

Metals

Aqua Science Engineers, Inc.	208 West El Pintado Road Danville, CA 94526
Attn: Robert Kitay	Phone: (925) 820-9310 Fax: (925) 837-4853
Project #:	Project: Mashhoon-Thornhill
Site: 5725 Thornhill, Oakland, Ca	

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BHA	Water	07/22/1999 16:45	3

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

Attn.: Robert Kitay

Test Method: 6010A

Prep Method: 3010A

Metals

Sample ID:	BHA	Lab Sample ID:	1999-07-0370-003
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/28/1999 08:06
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/28-01.15
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Cadmium	0.027	0.0020	mg/L	1.00	07/28/1999 12:11	
Chromium	0.031	0.0050	mg/L	1.00	07/28/1999 12:11	
Lead	0.011	0.0050	mg/L	1.00	07/28/1999 12:11	
Nickel	0.035	0.0050	mg/L	1.00	07/28/1999 12:11	
Zinc	0.10	0.010	mg/L	1.00	07/28/1999 12:11	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 6010A
Prep Method: 3010A

Batch QC Report
Metals

Method Blank | Water | **QC Batch # 1999/07/28-01.15**

MB: 1999/07/28-01.15-015 | Date Extracted: 07/28/1999 08:06

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Cadmium	ND	0.0020	mg/L	07/28/1999 11:45	
Chromium	ND	0.0050	mg/L	07/28/1999 11:45	
Lead	ND	0.0050	mg/L	07/28/1999 11:45	
Nickel	ND	0.0050	mg/L	07/28/1999 11:45	
Zinc	ND	0.010	mg/L	07/28/1999 11:45	

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 6010A

Prep Method: 3010A

Batch QC Report

Metals

Laboratory Control Spike (LCS/LCSD) Water **QC Batch # 1999/07/28-01.15**

LCS: 1999/07/28-01.15-016 Extracted: 07/28/1999 08:06 Analyzed: 07/28/1999 11:49

LCSD: 1999/07/28-01.15-017 Extracted: 07/28/1999 08:06 Analyzed: 07/28/1999 11:54

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Cadmium	0.511	0.502	0.500	0.500	102.2	100.4	1.8	80-120	20		
Chromium	0.486	0.477	0.500	0.500	97.2	95.4	1.9	80-120	20		
Lead	0.501	0.499	0.500	0.500	100.2	99.8	0.4	80-120	20		
Nickel	0.504	0.497	0.500	0.500	100.8	99.4	1.4	80-120	20		
Zinc	0.502	0.507	0.500	0.500	100.4	101.4	1.0	80-120	20		

Total Extractable Petroleum Hydrocarbons (TEPH)

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BHA	Water	07/22/1999 16:45	3

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

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

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	BHA	Lab Sample ID:	**1999-07-0370-003**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 09:00
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/26-01.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	10000	50	ug/L	1.00	07/26/1999 16:50	ed
Motor Oil	4700	560	ug/L	1.00	07/26/1999 16:50	
Surrogate(s)						
o-Terphenyl	112.6	60-130	%	1.00	07/26/1999 16:50	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

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

Batch QC Report

Total Extractable Petroleum Hydrocarbons (TEPH)

Method Blank **Water** **QC Batch # 1999/07/26-01.10**

MB: 1999/07/26-01.10-001 Date Extracted: 07/26/1999 09:19

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	07/26/1999 12:28	
Motor Oil	ND	500	ug/L	07/26/1999 12:28	
Surrogate(s)					
o-Terphenyl	89.5	60-130	%	07/26/1999 12:28	

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 8015m

Prep Method: 3510/8015M

Batch QC Report

Total Extractable Petroleum Hydrocarbons (TEPH)

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/07/26-01.10**

LCS: 1999/07/26-01.10-002 Extracted: 07/26/1999 09:19 Analyzed: 07/26/1999 11:59

LCSD: 1999/07/26-01.10-003 Extracted: 07/26/1999 09:19 Analyzed: 07/26/1999 12:32

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	976	991	1250	1250	78.1	79.3	1.5	60-130	25		
Surrogate(s)											
o-Terphenyl	21.8	18.1	20.0	20.0	109.0	90.5		60-130			

To: **Aqua Science Engineers, Inc.**
Attn: Robert Kitay

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

Legend & Notes

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte Flags

ed

Hydrocarbon reported is in the early Diesel range, and does not match our Diesel standard

Halogenated Volatile Organic Compounds

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BHA	Water	07/22/1999 16:45	3

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

Attn.: Robert Kitay

Test Method: 8010

Prep Method: 5030

Halogenated Volatile Organic Compounds

Sample ID:	BHA	Lab Sample ID:	1999-07-0370-003
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 12:33
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/26-01.25
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	1.00	07/26/1999 12:33	
Vinyl chloride	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Chloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Trichlorofluoromethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,1-Dichloroethene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Methylene chloride	ND	5.0	ug/L	1.00	07/26/1999 12:33	
trans-1,2-Dichloroethene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
cis-1,2-Dichloroethene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,1-Dichloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Chloroform	ND	3.0	ug/L	1.00	07/26/1999 12:33	
1,1,1-Trichloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Carbon tetrachloride	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,2-Dichloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Trichloroethene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,2-Dichloropropane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Bromodichloromethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
2-Chloroethylvinyl ether	ND	0.50	ug/L	1.00	07/26/1999 12:33	
trans-1,3-Dichloropropene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
cis-1,3-Dichloropropene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,1,2-Trichloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Tetrachloroethene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Dibromochloromethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Chlorobenzene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Bromoform	ND	2.0	ug/L	1.00	07/26/1999 12:33	
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,3-Dichlorobenzene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,4-Dichlorobenzene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
1,2-Dichlorobenzene	ND	0.50	ug/L	1.00	07/26/1999 12:33	
Trichlorotrifluoroethane	ND	2.0	ug/L	1.00	07/26/1999 12:33	
Chloromethane	ND	1.0	ug/L	1.00	07/26/1999 12:33	
Bromomethane	ND	1.0	ug/L	1.00	07/26/1999 12:33	
Surrogate(s)						
1-Chloro-2-fluorobenzene	69.9	50-150	%	1.00	07/26/1999 12:33	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8010
Prep Method: 5030

Batch QC Report

Halogenated Volatile Organic Compounds

Method Blank | **Water** | **QC Batch # 1999/07/26-01.25**

MB: 1999/07/26-01.25-001 | Date Extracted: 07/26/1999 07:38

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	07/26/1999 07:38	
Vinyl chloride	ND	0.5	ug/L	07/26/1999 07:38	
Chloroethane	ND	0.5	ug/L	07/26/1999 07:38	
Trichlorofluoromethane	ND	0.5	ug/L	07/26/1999 07:38	
1,1-Dichloroethene	ND	0.5	ug/L	07/26/1999 07:38	
Methylene chloride	ND	5.0	ug/L	07/26/1999 07:38	
trans-1,2-Dichloroethene	ND	0.5	ug/L	07/26/1999 07:38	
cis-1,2-Dichloroethene	ND	0.5	ug/L	07/26/1999 07:38	
1,1-Dichloroethane	ND	0.5	ug/L	07/26/1999 07:38	
Chloroform	ND	3.0	ug/L	07/26/1999 07:38	
1,1,1-Trichloroethane	ND	0.5	ug/L	07/26/1999 07:38	
Carbon tetrachloride	ND	0.5	ug/L	07/26/1999 07:38	
1,2-Dichloroethane	ND	0.5	ug/L	07/26/1999 07:38	
Trichloroethene	ND	0.5	ug/L	07/26/1999 07:38	
1,2-Dichloropropane	ND	0.5	ug/L	07/26/1999 07:38	
Bromodichloromethane	ND	0.5	ug/L	07/26/1999 07:38	
2-Chloroethylvinyl ether	ND	0.5	ug/L	07/26/1999 07:38	
trans-1,3-Dichloropropene	ND	0.5	ug/L	07/26/1999 07:38	
cis-1,3-Dichloropropene	ND	0.5	ug/L	07/26/1999 07:38	
1,1,2-Trichloroethane	ND	0.5	ug/L	07/26/1999 07:38	
Tetrachloroethene	ND	0.5	ug/L	07/26/1999 07:38	
Dibromochloromethane	ND	0.5	ug/L	07/26/1999 07:38	
Chlorobenzene	ND	0.5	ug/L	07/26/1999 07:38	
Bromoform	ND	2.0	ug/L	07/26/1999 07:38	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	07/26/1999 07:38	
1,3-Dichlorobenzene	ND	0.5	ug/L	07/26/1999 07:38	
1,4-Dichlorobenzene	ND	0.5	ug/L	07/26/1999 07:38	
1,2-Dichlorobenzene	ND	0.5	ug/L	07/26/1999 07:38	
Trichlorotrifluoroethane	ND	2.0	ug/L	07/26/1999 07:38	
Chloromethane	ND	1.0	ug/L	07/26/1999 07:38	
Bromomethane	ND	1.0	ug/L	07/26/1999 07:38	
Surrogate(s)					
1-Chloro-2-fluorobenzene	73.5	50-150	%	07/26/1999 07:38	

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 8010

Prep Method: 5030

Batch QC Report

Halogenated Volatile Organic Compounds

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/07/26-01.25**

LCS: 1999/07/26-01.25-002 Extracted: 07/26/1999 08:26 Analyzed: 07/26/1999 08:26

LCSD: 1999/07/26-01.25-003 Extracted: 07/26/1999 09:14 Analyzed: 07/26/1999 09:14

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
1,1-Dichloroethene	20.8	20.8	20.0	20.0	104.0	104.0	0.0	50-140	20		
Trichloroethene	21.9	22.1	20.0	20.0	109.5	110.5	0.9	50-150	20		
Chlorobenzene	21.6	21.9	20.0	20.0	108.0	109.5	1.4	50-150	20		
Surrogate(s)											
1-Chloro-2-fluorobenzen	16.7	17.1	20	20	83.5	85.5		50-150			

Semi-volatile Organic Compounds

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BH-A 8.0'	Soil	07/22/9919 08:40	2
BHA	Water	07/22/1999 16:45	3

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	**BH-A 8.0**	Lab Sample ID:	**1999-07-0370-002**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 09:00
Sampled:	07/22/9919 08:40	QC-Batch:	1999/07/26-01.11
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Phenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Bis(2-chloroethyl)ether	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2-Chlorophenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
1,3-Dichlorobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
1,4-Dichlorobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Benzyl alcohol	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
1,2-Dichlorobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2-Methylphenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Bis(2-chloroisopropyl) ether	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
4-Methylphenol	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
N-Nitroso-di-n-propylamine	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Hexachloroethane	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Nitrobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Isophorone	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2-Nitrophenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4-Dimethylphenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Bis(2-chloroethoxy) methane	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4-Dichlorophenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
1,2,4-Trichlorobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Naphthalene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
4-Chloroaniline	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Hexachlorobutadiene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
4-Chloro-3-methylphenol	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
2-Methylnaphthalene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Hexachlorocyclopentadiene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4,6-Trichlorophenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4,5-Trichlorophenol	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2-Chloronaphthalene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2-Nitroaniline	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Dimethyl phthalate	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Acenaphthylene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
3-Nitroaniline	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Acenaphthene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4-Dinitrophenol	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
4-Nitrophenol	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	**BH-A 8.0'**	Lab Sample ID:	**1999-07-0370-002**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 09:00
Sampled:	07/22/9919 08:40	QC-Batch:	1999/07/26-01.11
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dibenzofuran	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,4-Dinitrotoluene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
2,6-Dinitrotoluene	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Diethyl phthalate	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
4-Chlorophenyl phenyl ether	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Fluorene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
4-Nitroaniline	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
2-Methyl-4,6-dinitrophenol	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
N-Nitrosodiphenylamine	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
4-Bromophenyl phenyl ether	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Hexachlorobenzene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Pentachlorophenol	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Phenanthrene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Anthracene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Di-n-butyl phthalate	ND	2.0	mg/Kg	1.00	07/26/1999 21:21	
Fluoranthene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Pyrene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Butyl benzyl phthalate	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
3,3-Dichlorobenzidine	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Benzo(a)anthracene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
bis(2-Ethylhexyl) phthalate	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Chrysene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Di-n-octyl phthalate	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Benzo(b)fluoranthene	ND	0.10	mg/Kg	1.00	07/26/1999 21:21	
Benzo(k)fluoranthene	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Benzo(a)pyrene	ND	0.020	mg/Kg	1.00	07/26/1999 21:21	
Indeno(1,2,3-c,d)pyrene	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Dibenzo(a,h)anthracene	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Benzo(g,h,i)perylene	ND	0.20	mg/Kg	1.00	07/26/1999 21:21	
Benzoic acid	ND	0.50	mg/Kg	1.00	07/26/1999 21:21	
Surrogate(s)						
Nitrobenzene-d5	89.2	23-120	%	1.00	07/26/1999 21:21	
2-Fluorobiphenyl	94.0	30-115	%	1.00	07/26/1999 21:21	
p-Terphenyl-d14	92.0	18-137	%	1.00	07/26/1999 21:21	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	BH-A 8.0'	Lab Sample ID:	**1999-07-0370-002**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/26/1999 09:00
Sampled:	07/22/9919 08:40	QC-Batch:	1999/07/26-01.11
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Surrogate(s)						
Phenol-d5	88.7	24-113	%	1.00	07/26/1999 21:21	
2-Fluorophenol	84.7	25-121	%	1.00	07/26/1999 21:21	
2,4,6-Tribromophenol	81.3	19-122	%	1.00	07/26/1999 21:21	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	BHA	Lab Sample ID:	1999-07-0370-003
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/27/1999 09:00
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/27-01.11
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Phenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Bis(2-chloroethyl)ether	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2-Chlorophenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
1,3-Dichlorobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
1,4-Dichlorobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Benzyl alcohol	ND	5.0	ug/L	1.00	07/27/1999 15:04	
1,2-Dichlorobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2-Methylphenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Bis(2-chloroisopropyl) ether	ND	2.0	ug/L	1.00	07/27/1999 15:04	
4-Methylphenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
N-Nitroso-di-n-propylamine	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Hexachloroethane	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Nitrobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Isophorone	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2-Nitrophenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,4-Dimethylphenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Bis(2-chloroethoxy) methane	ND	5.0	ug/L	1.00	07/27/1999 15:04	
2,4-Dichlorophenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Naphthalene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
4-Chloroaniline	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Hexachlorobutadiene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
4-Chloro-3-methylphenol	ND	5.0	ug/L	1.00	07/27/1999 15:04	
2-Methylnaphthalene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Hexachlorocyclopentadiene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,4,6-Trichlorophenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,4,5-Trichlorophenol	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2-Chloronaphthalene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2-Nitroaniline	ND	10	ug/L	1.00	07/27/1999 15:04	
Dimethyl phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Acenaphthylene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
3-Nitroaniline	ND	10	ug/L	1.00	07/27/1999 15:04	
Acenaphthene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,4-Dinitrophenol	ND	10	ug/L	1.00	07/27/1999 15:04	
4-Nitrophenol	ND	10	ug/L	1.00	07/27/1999 15:04	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	BHA	Lab Sample ID:	1999-07-0370-003
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/27/1999 09:00
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/27-01.11
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dibenzofuran	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,4-Dinitrotoluene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
2,6-Dinitrotoluene	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Diethyl phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
4-Chlorophenyl phenyl ether	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Fluorene	ND	5.0	ug/L	1.00	07/27/1999 15:04	
4-Nitroaniline	ND	10	ug/L	1.00	07/27/1999 15:04	
2-Methyl-4,6-dinitrophenol	ND	10	ug/L	1.00	07/27/1999 15:04	
N-Nitrosodiphenylamine	ND	2.0	ug/L	1.00	07/27/1999 15:04	
4-Bromophenyl phenyl ether	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Hexachlorobenzene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Pentachlorophenol	ND	10	ug/L	1.00	07/27/1999 15:04	
Phenanthrene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Anthracene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Di-n-butyl phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Fluoranthene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Pyrene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Butyl benzyl phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
3,3-Dichlorobenzidine	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Benzo(a)anthracene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
bis(2-Ethylhexyl) phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Chrysene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Di-n-octyl phthalate	ND	5.0	ug/L	1.00	07/27/1999 15:04	
Benzo(b)fluoranthene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Benzo(k)fluoranthene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Benzo(a)pyrene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Indeno(1,2,3-c,d)pyrene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Dibenzo(a,h)anthracene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Benzo(g,h,i)perylene	ND	2.0	ug/L	1.00	07/27/1999 15:04	
Benzoic acid	ND	10	ug/L	1.00	07/27/1999 15:04	
Surrogate(s)						
Nitrobenzene-d5	94.9	35-114	%	1.00	07/27/1999 15:04	
2-Fluorobiphenyl	81.5	43-116	%	1.00	07/27/1999 15:04	
p-Terphenyl-d14	86.9	33-141	%	1.00	07/27/1999 15:04	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Semi-volatile Organic Compounds

Sample ID:	BHA	Lab Sample ID:	**1999-07-0370-003**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/27/1999 09:00
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/27-01.11
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Surrogate(s)						
Phenol-d5	21.5	10-110	%	1.00	07/27/1999 15:04	
2-Fluorophenol	40.2	25-100	%	1.00	07/27/1999 15:04	
2,4,6-Tribromophenol	96.1	10-123	%	1.00	07/27/1999 15:04	

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

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | Soil | **QC Batch # 1999/07/26-01.11**

MB: 1999/07/26-01.11-001 | Date Extracted: 07/26/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Phenol	ND	0.10	mg/Kg	07/26/1999 14:35	
Bis(2-chloroethyl)ether	ND	0.10	mg/Kg	07/26/1999 14:35	
2-Chlorophenol	ND	0.10	mg/Kg	07/26/1999 14:35	
1,3-Dichlorobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
1,4-Dichlorobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
Benzyl alcohol	ND	0.20	mg/Kg	07/26/1999 14:35	
1,2-Dichlorobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
2-Methylphenol	ND	0.10	mg/Kg	07/26/1999 14:35	
Bis(2-chloroisopropyl) ether	ND	0.10	mg/Kg	07/26/1999 14:35	
4-Methylphenol	ND	0.20	mg/Kg	07/26/1999 14:35	
N-Nitroso-di-n-propylamine	ND	0.10	mg/Kg	07/26/1999 14:35	
Hexachloroethane	ND	0.10	mg/Kg	07/26/1999 14:35	
Nitrobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
Isophorone	ND	0.10	mg/Kg	07/26/1999 14:35	
2-Nitrophenol	ND	0.10	mg/Kg	07/26/1999 14:35	
2,4-Dimethylphenol	ND	0.10	mg/Kg	07/26/1999 14:35	
Bis(2-chloroethoxy) methane	ND	0.10	mg/Kg	07/26/1999 14:35	
2,4-Dichlorophenol	ND	0.10	mg/Kg	07/26/1999 14:35	
1,2,4-Trichlorobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
Naphthalene	ND	0.10	mg/Kg	07/26/1999 14:35	
4-Chloroaniline	ND	0.20	mg/Kg	07/26/1999 14:35	
Hexachlorobutadiene	ND	0.10	mg/Kg	07/26/1999 14:35	
4-Chloro-3-methylphenol	ND	0.20	mg/Kg	07/26/1999 14:35	
2-Methylnaphthalene	ND	0.10	mg/Kg	07/26/1999 14:35	
Hexachlorocyclopentadiene	ND	0.10	mg/Kg	07/26/1999 14:35	
2,4,6-Trichlorophenol	ND	0.10	mg/Kg	07/26/1999 14:35	
2,4,5-Trichlorophenol	ND	0.10	mg/Kg	07/26/1999 14:35	
2-Chloronaphthalene	ND	0.10	mg/Kg	07/26/1999 14:35	
2-Nitroaniline	ND	0.50	mg/Kg	07/26/1999 14:35	
Dimethyl phthalate	ND	0.50	mg/Kg	07/26/1999 14:35	
Acenaphthylene	ND	0.10	mg/Kg	07/26/1999 14:35	
3-Nitroaniline	ND	0.10	mg/Kg	07/26/1999 14:35	
Acenaphthene	ND	0.10	mg/Kg	07/26/1999 14:35	

To: Aqua Science Engineers, Inc.

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | Soil | QC Batch # 1999/07/26-01.11

MB: 1999/07/26-01.11-001 | Date Extracted: 07/26/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
2,4-Dinitrophenol	ND	0.50	mg/Kg	07/26/1999 14:35	
4-Nitrophenol	ND	0.50	mg/Kg	07/26/1999 14:35	
Dibenzofuran	ND	0.10	mg/Kg	07/26/1999 14:35	
2,4-Dinitrotoluene	ND	0.10	mg/Kg	07/26/1999 14:35	
2,6-Dinitrotoluene	ND	0.20	mg/Kg	07/26/1999 14:35	
Diethyl phthalate	ND	0.50	mg/Kg	07/26/1999 14:35	
4-Chlorophenyl phenyl ether	ND	0.10	mg/Kg	07/26/1999 14:35	
Fluorene	ND	0.10	mg/Kg	07/26/1999 14:35	
4-Nitroaniline	ND	0.50	mg/Kg	07/26/1999 14:35	
2-Methyl-4,6-dinitrophenol	ND	0.50	mg/Kg	07/26/1999 14:35	
N-Nitrosodiphenylamine	ND	0.10	mg/Kg	07/26/1999 14:35	
4-Bromophenyl phenyl ether	ND	0.10	mg/Kg	07/26/1999 14:35	
Hexachlorobenzene	ND	0.10	mg/Kg	07/26/1999 14:35	
Pentachlorophenol	ND	0.50	mg/Kg	07/26/1999 14:35	
Phenanthrene	ND	0.10	mg/Kg	07/26/1999 14:35	
Anthracene	ND	0.10	mg/Kg	07/26/1999 14:35	
Di-n-butyl phthalate	ND	2.0	mg/Kg	07/26/1999 14:35	
Fluoranthene	ND	0.10	mg/Kg	07/26/1999 14:35	
Pyrene	ND	0.10	mg/Kg	07/26/1999 14:35	
Butyl benzyl phthalate	ND	0.50	mg/Kg	07/26/1999 14:35	
3,3-Dichlorobenzidine	ND	0.20	mg/Kg	07/26/1999 14:35	
Benzo(a)anthracene	ND	0.10	mg/Kg	07/26/1999 14:35	
bis(2-Ethylhexyl) phthalate	ND	0.50	mg/Kg	07/26/1999 14:35	
Chrysene	ND	0.10	mg/Kg	07/26/1999 14:35	
Di-n-octyl phthalate	ND	0.50	mg/Kg	07/26/1999 14:35	
Benzo(b)fluoranthene	ND	0.10	mg/Kg	07/26/1999 14:35	
Benzo(k)fluoranthene	ND	0.20	mg/Kg	07/26/1999 14:35	
Benzo(a)pyrene	ND	0.02	mg/Kg	07/26/1999 14:35	
Indeno(1,2,3-c,d)pyrene	ND	0.20	mg/Kg	07/26/1999 14:35	
Dibenzo(a,h)anthracene	ND	0.20	mg/Kg	07/26/1999 14:35	
Benzo(g,h,i)perylene	ND	0.20	mg/Kg	07/26/1999 14:35	
Benzoic acid	ND	0.50	mg/Kg	07/26/1999 14:35	
Surrogate(s)					
Nitrobenzene-d5	87.6	23-120	%	07/26/1999 14:35	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8270A
Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | **Soil** | **QC Batch # 1999/07/26-01.11**

MB: 1999/07/26-01.11-001 | Date Extracted: 07/26/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Surrogate(s)					
2-Fluorobiphenyl	92.4	30-115	%	07/26/1999 14:35	
p-Terphenyl-d14	71.6	18-137	%	07/26/1999 14:35	
Phenol-d5	85.6	24-113	%	07/26/1999 14:35	
2-Fluorophenol	81.4	25-121	%	07/26/1999 14:35	
2,4,6-Tribromophenol	75.0	19-122	%	07/26/1999 14:35	

To: Aqua Science Engineers, Inc.
Attn.: Robert Kitay

Test Method: 8270A
Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | Water | **QC Batch # 1999/07/27-01.11**

MB: 1999/07/27-01.11-001 | Date Extracted: 07/27/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Phenol	ND	2.0	ug/L	07/27/1999 12:31	
Bis(2-chloroethyl)ether	ND	2.0	ug/L	07/27/1999 12:31	
2-Chlorophenol	ND	2.0	ug/L	07/27/1999 12:31	
1,3-Dichlorobenzene	ND	2.0	ug/L	07/27/1999 12:31	
1,4-Dichlorobenzene	ND	2.0	ug/L	07/27/1999 12:31	
Benzyl alcohol	ND	5.0	ug/L	07/27/1999 12:31	
1,2-Dichlorobenzene	ND	2.0	ug/L	07/27/1999 12:31	
2-Methylphenol	ND	2.0	ug/L	07/27/1999 12:31	
Bis(2-chloroisopropyl) ether	ND	2.0	ug/L	07/27/1999 12:31	
4-Methylphenol	ND	2.0	ug/L	07/27/1999 12:31	
N-Nitroso-di-n-propylamine	ND	2.0	ug/L	07/27/1999 12:31	
Hexachloroethane	ND	2.0	ug/L	07/27/1999 12:31	
Nitrobenzene	ND	2.0	ug/L	07/27/1999 12:31	
Isophorone	ND	2.0	ug/L	07/27/1999 12:31	
2-Nitrophenol	ND	2.0	ug/L	07/27/1999 12:31	
2,4-Dimethylphenol	ND	2.0	ug/L	07/27/1999 12:31	
Bis(2-chloroethoxy) methane	ND	5.0	ug/L	07/27/1999 12:31	
2,4-Dichlorophenol	ND	2.0	ug/L	07/27/1999 12:31	
1,2,4-Trichlorobenzene	ND	2.0	ug/L	07/27/1999 12:31	
Naphthalene	ND	2.0	ug/L	07/27/1999 12:31	
4-Chloroaniline	ND	2.0	ug/L	07/27/1999 12:31	
Hexachlorobutadiene	ND	2.0	ug/L	07/27/1999 12:31	
4-Chloro-3-methylphenol	ND	5.0	ug/L	07/27/1999 12:31	
2-Methylnaphthalene	ND	2.0	ug/L	07/27/1999 12:31	
Hexachlorocyclopentadiene	ND	2.0	ug/L	07/27/1999 12:31	
2,4,6-Trichlorophenol	ND	2.0	ug/L	07/27/1999 12:31	
2,4,5-Trichlorophenol	ND	2.0	ug/L	07/27/1999 12:31	
2-Chloronaphthalene	ND	2.0	ug/L	07/27/1999 12:31	
2-Nitroaniline	ND	10	ug/L	07/27/1999 12:31	
Dimethyl phthalate	ND	5.0	ug/L	07/27/1999 12:31	
Acenaphthylene	ND	2.0	ug/L	07/27/1999 12:31	
3-Nitroaniline	ND	10	ug/L	07/27/1999 12:31	
Acenaphthene	ND	2.0	ug/L	07/27/1999 12:31	
2,4-Dinitrophenol	ND	10	ug/L	07/27/1999 12:31	

To: Aqua Science Engineers, Inc.

Attn.: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | **Water** | **QC Batch # 1999/07/27-01.11**

MB: 1999/07/27-01.11-001

Date Extracted: 07/27/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
4-Nitrophenol	ND	10	ug/L	07/27/1999 12:31	
Dibenzofuran	ND	2.0	ug/L	07/27/1999 12:31	
2,4-Dinitrotoluene	ND	2.0	ug/L	07/27/1999 12:31	
2,6-Dinitrotoluene	ND	5.0	ug/L	07/27/1999 12:31	
Diethyl phthalate	ND	5.0	ug/L	07/27/1999 12:31	
4-Chlorophenyl phenyl ether	ND	2.0	ug/L	07/27/1999 12:31	
Fluorene	ND	5.0	ug/L	07/27/1999 12:31	
4-Nitroaniline	ND	10	ug/L	07/27/1999 12:31	
2-Methyl-4,6-dinitrophenol	ND	10	ug/L	07/27/1999 12:31	
N-Nitrosodiphenylamine	ND	2.0	ug/L	07/27/1999 12:31	
4-Bromophenyl phenyl ether	ND	5.0	ug/L	07/27/1999 12:31	
Hexachlorobenzene	ND	2.0	ug/L	07/27/1999 12:31	
Pentachlorophenol	ND	10	ug/L	07/27/1999 12:31	
Phenanthrene	ND	2.0	ug/L	07/27/1999 12:31	
Anthracene	ND	2.0	ug/L	07/27/1999 12:31	
Di-n-butyl phthalate	ND	5.0	ug/L	07/27/1999 12:31	
Fluoranthene	ND	2.0	ug/L	07/27/1999 12:31	
Pyrene	ND	2.0	ug/L	07/27/1999 12:31	
Butyl benzyl phthalate	ND	5.0	ug/L	07/27/1999 12:31	
3,3-Dichlorobenzidine	ND	5.0	ug/L	07/27/1999 12:31	
Benzo(a)anthracene	ND	2.0	ug/L	07/27/1999 12:31	
bis(2-Ethylhexyl) phthalate	ND	5.0	ug/L	07/27/1999 12:31	
Chrysene	ND	2.0	ug/L	07/27/1999 12:31	
Di-n-octyl phthalate	ND	5.0	ug/L	07/27/1999 12:31	
Benzo(b)fluoranthene	ND	2.0	ug/L	07/27/1999 12:31	
Benzo(k)fluoranthene	ND	2.0	ug/L	07/27/1999 12:31	
Benzo(a)pyrene	ND	2.0	ug/L	07/27/1999 12:31	
Indeno(1,2,3-c,d)pyrene	ND	2.0	ug/L	07/27/1999 12:31	
Dibenzo(a,h)anthracene	ND	2.0	ug/L	07/27/1999 12:31	
Benzo(g,h,i)perylene	ND	2.0	ug/L	07/27/1999 12:31	
Benzoic acid	ND	10	ug/L	07/27/1999 12:31	
Surrogate(s)					
Nitrobenzene-d5	74.4	35-114	%	07/27/1999 12:31	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8270A
Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Method Blank | **Water** | **QC Batch # 1999/07/27-01.11**

MB: 1999/07/27-01.11-001 | Date Extracted: 07/27/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Surrogate(s)					
2-Fluorobiphenyl	74.0	43-116	%	07/27/1999 12:31	
p-Terphenyl-d14	80.0	33-141	%	07/27/1999 12:31	
Phenol-d5	18.5	10-110	%	07/27/1999 12:31	
2-Fluorophenol	34.0	25-100	%	07/27/1999 12:31	
2,4,6-Tribromophenol	81.8	10-123	%	07/27/1999 12:31	

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Laboratory Control Spike (LCS/LCSD) Soil **QC Batch # 1999/07/26-01.11**

LCS: 1999/07/26-01.11-002 Extracted: 07/26/1999 09:00 Analyzed: 07/26/1999 15:19

LCSD: 1999/07/26-01.11-003 Extracted: 07/26/1999 09:00 Analyzed: 07/26/1999 22:05

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Phenol	1.54	1.49	2.00	2.00	77.0	74.5	3.3	20-90	35		
2-Chlorophenol	1.49	1.46	2.00	2.00	74.5	73.0	2.0	27-123	35		
1,4-Dichlorobenzene	0.840	0.810	1.000	1.000	84.0	81.0	3.6	28-104	30		
N-Nitroso-di-n-propylamin	0.840	0.820	1.000	1.000	84.0	82.0	2.4	25-114	39		
1,2,4-Trichlorobenzene	0.840	0.820	1.000	1.000	84.0	82.0	2.4	38-107	35		
4-Chloro-3-methylphenol	1.65	1.58	2.00	2.00	82.5	79.0	4.3	26-103	33		
Acenaphthene	0.860	0.830	1.000	1.000	86.0	83.0	3.6	49-102	30		
4-Nitrophenol	1.54	1.35	2.00	2.00	77.0	67.5	13.1	17-109	35		
2,4-Dinitrotoluene	0.860	0.800	1.000	1.000	86.0	80.0	7.2	28-89	38		
Pentachlorophenol	1.66	1.49	2.00	2.00	83.0	74.5	10.8	11-114	35		
Pyrene	0.880	0.840	1.000	1.000	88.0	84.0	4.7	25-117	35		
Surrogate(s)											
Nitrobenzene-d5	22.0	21.1	25	25	88.0	84.4		23-120			
2-Fluorobiphenyl	22.8	22.0	25	25	91.2	88.0		30-115			
p-Terphenyl-d14	18.6	17.7	25	25	74.4	70.8		18-137			
Phenol-d5	42.8	41.3	50	50	85.6	82.6		24-113			
2-Fluorophenol	41.4	40.2	50	50	82.8	80.4		25-121			
2,4,6-Tribromophenol	43.3	40.0	50	50	86.6	80.0		19-122			

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 8270A

Prep Method: 3510/8270A
3550/8270A

Batch QC Report

Semi-volatile Organic Compounds

Laboratory Control Spike (LCS/LCSD) — **Water** — **QC Batch # 1999/07/27-01.11**

LCS: 1999/07/27-01.11-002 Extracted: 07/27/1999 09:00 Analyzed: 07/27/1999 13:22

LCSD: 1999/07/27-01.11-003 Extracted: 07/27/1999 09:00 Analyzed: 07/27/1999 14:13

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Phenol	12.4	12.0	60.0	60.0	20.7	20.0	3.4	12-89	35		
2-Chlorophenol	44.3	41.6	60.0	60.0	73.8	69.3	6.3	23-134	25		
1,4-Dichlorobenzene	21.6	22.7	30.0	30.0	72.0	75.7	5.0	36-97	30		
N-Nitroso-di-n-propylamin	24.5	23.9	30.0	30.0	81.7	79.7	2.5	10-130	34		
1,2,4-Trichlorobenzene	22.7	23.2	30.0	30.0	75.7	77.3	2.1	44-142	35		
4-Chloro-3-methylphenol	49.4	49.8	60.0	60.0	82.3	83.0	0.8	22-147	31		
Acenaphthene	23.6	21.8	30.0	30.0	78.7	72.7	7.9	56-118	30		
4-Nitrophenol	12.8	13.3	60.0	60.0	21.3	22.2	4.1	1-51	35		
2,4-Dinitrotoluene	27.9	27.8	30.0	30.0	93.0	92.7	0.3	39-139	35		
Pentachlorophenol	41.8	39.0	60.0	60.0	69.7	65.0	7.0	45-125	35		
Pyrene	29.8	27.2	30.0	30.0	99.3	90.7	9.1	52-115	35		
Surrogate(s)											
Nitrobenzene-d5	25.3	26.7	25	25	101.2	106.8		35-114			
2-Fluorobiphenyl	24.9	23.7	25	25	99.6	94.8		43-116			
p-Terphenyl-d14	31.2	28.4	25	25	124.8	113.6		33-141			
Phenol-d5	12.2	12.6	50	50	24.4	25.2		10-110			
2-Fluorophenol	21.5	22.8	50	50	43.0	45.6		25-100			
2,4,6-Tribromophenol	57.6	49.9	50	50	115.2	99.8		10-123			

Metals

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BH-A 8.0`	Soil	07/22/9919 08:40	2

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 6010B
Prep Method: 3050B

Metals

Sample ID:	BH-A 8.0`	Lab Sample ID:	1999-07-0370-002
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/27/1999 09:02
Sampled:	07/22/9919 08:40	QC-Batch:	1999/07/27-03.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Cadmium	ND	0.50	mg/Kg	1.00	07/27/1999 13:34	
Chromium	21	1.0	mg/Kg	1.00	07/27/1999 13:34	
Lead	5.5	1.0	mg/Kg	1.00	07/27/1999 13:34	
Nickel	24	1.0	mg/Kg	1.00	07/27/1999 13:34	
Zinc	53	1.0	mg/Kg	1.00	07/27/1999 13:34	

To: Aqua Science Engineers, Inc.

Attn.: Robert Kitay

Test Method: 6010B

Prep Method: 3050B

Batch QC Report

Metals

Method Blank | Soil | **QC Batch # 1999/07/27-03.15**

MB: 1999/07/27-03.15-041 | Date Extracted: 07/27/1999 09:02

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Cadmium	ND	0.50	mg/Kg	07/27/1999 13:20	
Chromium	ND	1.0	mg/Kg	07/27/1999 13:20	
Lead	ND	1.0	mg/Kg	07/27/1999 13:20	
Nickel	ND	1.0	mg/Kg	07/27/1999 13:20	
Zinc	ND	1.0	mg/Kg	07/27/1999 13:20	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-07-0370

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 6010B

Prep Method: 3050B

Batch QC Report

Metals

Laboratory Control Spike (LCS/LCSD) Soil QC Batch # 1999/07/27-03.15

LCS: 1999/07/27-03.15-042 Extracted: 07/27/1999 09:02 Analyzed: 07/27/1999 13:24

LCSD: 1999/07/27-03.15-043 Extracted: 07/27/1999 09:02 Analyzed: 07/27/1999 13:28

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Cadmium	102	101	100.0	100.0	102.0	101.0	1.0	80-120	20		
Chromium	98.2	96.9	100.0	100.0	98.2	96.9	1.3	80-120	20		
Lead	100	99.2	100.0	100.0	100.0	99.2	0.8	80-120	20		
Nickel	99.4	98.5	100.0	100.0	99.4	98.5	0.9	80-120	20		
Zinc	98.7	97.9	100.0	100.0	98.7	97.9	0.8	80-120	20		

PCBs

Aqua Science Engineers, Inc.

208 West El Pintado Road
Danville, CA 94526

Attn: Robert Kitay

Phone: (925) 820-9310 Fax: (925) 837-4853

Project #:

Project: Mashhoon-Thornhill

Site: 5725 Thornhill, Oakland, Ca

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
BH-A 8.0'	Soil	07/22/9919 08:40	2
BHA	Water	07/22/1999 16:45	3

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

PCBs

Sample ID:	**BH-A 8.0'**	Lab Sample ID:	**1999-07-0370-002**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/29/1999
Sampled:	07/22/9919 08:40	QC-Batch:	1999/07/29-01.14
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Aroclor 1016	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1221	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1232	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1242	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1248	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1254	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Aroclor 1260	ND	0.050	mg/Kg	1.00	07/29/1999 14:50	
Surrogate(s)						
2,4,5,6-Tetrachloro-m-xylene	129.0	50-125	%	1.00	07/29/1999 14:50	s
Decachlorobiphenyl	85.9	46-142	%	1.00	07/29/1999 14:50	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

PCBs

Sample ID:	**BHA**	Lab Sample ID:	**1999-07-0370-003**
Project:	Mashhoon-Thornhill	Received:	07/23/1999 13:41
Site:	5725 Thornhill, Oakland, Ca	Extracted:	07/29/1999
Sampled:	07/22/1999 16:45	QC-Batch:	1999/07/29-02.14
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Aroclor 1016	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1221	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1232	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1242	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1248	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1254	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Aroclor 1260	ND	1.0	ug/L	1.00	07/29/1999 16:09	
Surrogate(s)						
2,4,5,6-Tetrachloro-m-xylene	62.4	62-123	%	1.00	07/29/1999 16:09	
Decachlorobiphenyl	79.1	56-136	%	1.00	07/29/1999 16:09	

To: **Aqua Science Engineers, Inc.**
Attn.: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

Batch QC Report
PCBs

Method Blank | **Soil** | **QC Batch # 1999/07/29-01.14**

MB: 1999/07/29-01.14-001 | Date Extracted: 07/29/1999

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Aroclor 1016	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1221	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1232	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1242	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1248	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1254	ND	0.05	mg/Kg	07/29/1999 14:47	
Aroclor 1260	ND	0.05	mg/Kg	07/29/1999 14:47	
Surrogate(s)					
2,4,5,6-Tetrachloro-m-xylene	78.0	50-125	%	07/29/1999 14:47	
Decachlorobiphenyl	66.8	46-142	%	07/29/1999 14:47	

To: Aqua Science Engineers, Inc.
Attn.: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

Batch QC Report
PCBs

Method Blank | Water | **QC Batch # 1999/07/29-02.14**

MB: 1999/07/29-02.14-001 | Date Extracted: 07/29/1999

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Aroclor 1016	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1221	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1232	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1242	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1248	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1254	ND	1.0	ug/L	07/29/1999 14:35	
Aroclor 1260	ND	1.0	ug/L	07/29/1999 14:35	
Surrogate(s)					
2,4,5,6-Tetrachloro-m-xylene	91.6	62-123	%	07/29/1999 14:35	
Decachlorobiphenyl	106.8	56-136	%	07/29/1999 14:35	

To: Aqua Science Engineers, Inc.

Attn: Robert Kitay

Test Method: 8080A

Prep Method: 3510/8080
3550/8080A

Batch QC Report

PCBs

Laboratory Control Spike (LCS/LCSD) Soil **QC Batch # 1999/07/29-01.14**

LCS: 1999/07/29-01.14-002 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:17

LCSD: 1999/07/29-01.14-003 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:47

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Aroclor 1016	57.5	56.3	66.6	66.6	86.3	84.5	2.1	65-135	30		
Aroclor 1260	54.3	59.4	66.6	66.6	81.5	89.2	9.0	65-135	30		
Surrogate(s)											
2,4,5,6-Tetrachloro-m-xyl	15.6	18.1	25	25	62.4	72.4		50-125			
Decachlorobiphenyl	17.2	18.9	25	25	68.8	75.6		46-142			

To: Aqua Science Engineers, Inc.
Attn: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

Batch QC Report

PCBs

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/07/29-02.14**

LCS: 1999/07/29-02.14-002 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:06
LCSD: 1999/07/29-02.14-003 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:37

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Aroclor 1016	2.04	2.05	2.00	2.00	102.0	102.5	0.5	65-135	30		
Aroclor 1260	2.18	2.08	2.00	2.00	109.0	104.0	4.7	65-135	30		
Surrogate(s)											
2,4,5,6-Tetrachloro-m-xyl	21.5	22.2	25	25	86.0	88.8		62-123			
Decachlorobiphenyl	25.9	26.2	25	25	103.6	104.8		56-136			

To: Aqua Science Engineers, Inc.
Attn.: Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

Batch QC Report

PCBs

Matrix Spike (MS / MSD) **Soil** **QC Batch # 1999/07/29-01.14**

Sample ID: BH-A 8.0' Lab Sample ID: 1999-07-0370-002

MS: 1999/07/29-01.14-004 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:23 Dilution: 1.0

MSD: 1999/07/29-01.14-005 Extracted: 07/29/1999 Analyzed: 07/29/1999 15:57 Dilution: 1.0

Compound	Conc [mg/Kg]			Exp.Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Aroclor 1016	57.6	59.7	ND	66.5	66.6	86.6	89.6	3.4	65-135	30		
Aroclor 1260	68.4	66.0	ND	66.5	66.6	102.9	99.1	3.8	65-135	30		
Surrogate(s)												
2,4,5,6-Tetrachloro-m-xy	15.3	17.5		25	25	61.2	70.0		50-125			
Decachlorobiphenyl	21.6	22.6		25	25	86.4	90.4		46-142			

To: Aqua Science Engineers, Inc.
Attn:Robert Kitay

Test Method: 8080A
Prep Method: 3510/8080
3550/8080A

Legend & Notes

PCBs

Analyte Flags

s

One surrogate recovery out of control, but second surrogate within QC limits confirms test performance.

99-07-0370

EDF 4709

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

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE): Robert C. Kitay (PHONE NO.) (925) 820-9391

PROJECT NAME: Mashhoon - Thornhill JOB NO.

ADDRESS: 5725 Thornhill, Oakland, CA DATE: 7-22-99

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-GASOLINE (EPA 5030/8015)	TPH-DIESEL + Motor o.i (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)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)	HOLD			COMPOSITE
BH-A 5.5'	7-22-99	8:30	Soil	1															X			
BH-A 8.0'	7-22-99	8:40	Soil	1				X			X		X		X							
BH-A	7-22-99	16:45	Water	12	X		X	X			X		X		X							

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Robert C. Kitay 11:37				5-DAY T.A.T.
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Robert E. Kitay 7-23-99	Shaft 1315			
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company- Chromalab 7/23	Company-	Company-	