



8/15/01  
- talked to Keith Gabriel  
(low on property owner)  
need to be (closed).

July 25, 2001

AUG 02 2001

- talked to Katriel Kibay  
case handled by  
want to close it as  
soon as possible  
Cabrera needs to transfer the  
case to county  
person

- Create CO # w/ K Gabriel as RP ✓

- Get Hernandez to transfer ✓

REPORT  
of  
SOIL AND GROUNDWATER ASSESSMENT  
ASE JOB NO. 3757  
at

- File out

Oil Changers  
3418 Park Boulevard  
Oakland, California

- Water from boring BH-A and BH-B appear to be perched w/in fill material. Actual GW maybe at 26' bgs, as in BH-D? Maybe not, as 3310 Park had GW at 5-10' bgs

- Check DTW at nearby site e.g. Shell. 5-10' bgs at 3310 Park GW at 3310 Park. Check flows NW toward Park. DTW at 5-10' bgs.

Prepared for:  
Jackson Federal Bank  
145 S. State College Boulevard, Suite 600  
Brea, CA 92821

- will still be an Oil Changer

- DSTs were removed in 1982

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

## 1.0 INTRODUCTION

This report presents the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater assessment at the property located at 3418 Park Boulevard in Oakland, California (Figure 1). The site assessment activities were initiated by Mr. Keith Gabriel, owner of the property, as requested by Jackson Federal Bank as part of a pre-loan environmental due diligence.

## 2.0 BACKGROUND INFORMATION

The property is currently occupied by Oil Changers, which operates an oil changing operation and car wash on the property. A gasoline service station previously occupied the site prior to the Oil Changers.

In September 1986, ASE conducted a limited environmental assessment at the property for a potential purchaser of the property. This assessment included drilling two soil borings at the site and collecting soil and groundwater samples from the borings for analysis. These borings were drilled west and northwest of the assumed location of the former underground storage tanks (USTs). The former UST locations were apparently obvious from surface patching. These borings were drilled in the assumed downgradient location, assuming groundwater flows along the obvious topographic gradient to the west. The highest hydrocarbon concentrations detected in the soil samples were 3.5 parts per million (ppm) total motor fuel (TMF), 0.020 ppm benzene, 0.10 ppm toluene and 0.46 ppm xylenes. The highest hydrocarbon concentrations detected in the groundwater samples were 600 parts per billion (ppb) TMF, 31 ppb benzene, 5 ppb toluene and 87 ppb xylenes. No further environmental activities were conducted at the site.

The current property owner, Mr. Keith Gabriel, is seeking a loan on the property. The lender, Jackson Federal Bank and their consultant, Bachelor Environmental, requested an additional environmental assessment at the site as part of their environmental due diligence. They requested that one boring be placed at the property line between the site and the Shell Service Station to the northeast, one boring through the former UST excavation, and one boring downgradient of the former UST excavation. A soil and a groundwater sample were to be collected from each of these borings. In addition, they requested that a soil boring be drilled adjacent to the current car wash clarifier for the collection of a soil sample only. ASE was retained to conduct this work, and this report presents the results of this assessment.

### **3.0 SCOPE OF WORK (SOW)**

Based on the site history and requirements of Jackson Federal Bank, ASE's scope of work was to:

- 1) Obtain a drilling permit from the Alameda County Public Works Agency.
- 2) Drill four (4) soil borings at the site for the collection of soil samples. Advance three of the four soil borings (all borings except for the one near the car wash clarifier) into groundwater for the collection of groundwater samples.
- 3) Analyze one soil sample from each boring for total petroleum hydrocarbons as gasoline (TPH-G), benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8260, and total petroleum hydrocarbons as diesel (TPH-D) and motor oil (TPH-MO) by modified EPA Method 8015. In addition, analyze the soil sample collected near the car wash clarifier for hydrocarbon oil and grease (O&G) by EPA Method 1664.
- 4) Analyze each groundwater sample collected for TPH-G, BTEX and MTBE by EPA Method 8260, and TPH-D and TPH-MO by modified EPA Method 8015.
- 5) Following collection of the soil and groundwater samples, backfill each boring with neat cement to the ground surface.
- 6) Prepare a report presenting results from this sampling.

Details of the assessment are presented below.

### **4.0 DRILL SOIL BORINGS AND COLLECT SAMPLES**

#### **4.1 Permits**

Prior to drilling, ASE obtained a drilling permit from the ACPWA. A copy of this permit is presented in Appendix A.

#### 4.2 Drilling and Soil Sample Collection

On July 6, 2001, Vironex, Inc. of San Leandro, California drilled soil borings BH-A through BH-D at the site using a Geoprobe hydraulic sampling rig (Figure 2). Boring BH-A was located near the existing site building in the location of the former UST excavation. Boring BH-B was drilled west of the former UST location (assumed downgradient direction based on the fairly steep surface topography) near the property line. Boring BH-C was drilled near the car wash clarifier for the collection of a soil sample only. It should be noted that the bottom of the clarifier is 1.5-feet below grade. Boring BH-D was drilled near the property line along MacArthur Boulevard since a Shell Station is located to the northeast in this location. The drilling was directed by ASE senior geologist Robert Kitay, R.G.

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 cut, sealed with Teflon tape and plastic end caps, labeled and chilled with ice for transport to Kiff Analytical of Davis, California (ELAP #2236) 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 VOCs 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 OVM readings are shown on the boring logs presented in Appendix B.

#### 4.3 Groundwater Sample Collection

Groundwater samples were collected from borings BH-A, BH-B and BH-D. Groundwater samples were removed from the boring with a pre-cleaned bailer. The groundwater samples were contained in 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid, and sealed without headspace. The samples were then labeled and chilled with ice for transport to Kiff Analytical under chain of custody.

#### 4.4 Decontamination and Borehole Backfilling

Drilling equipment was cleaned with a TSP solution between sampling intervals and between borings to prevent potential cross-contamination. Following collection of the soil and groundwater samples, each boring was backfilled with neat cement to the ground surface.

#### 4.5 Subsurface Lithology and Hydrogeology

Sediments encountered during the drilling of borings BH-A and BH-B consisted primarily of sand believed to be fill material. Groundwater was encountered at a depth of approximately 8-feet below ground surface (bgs) in boring BH-A and 4-feet bgs in boring BH-B. Please note that boring BH-A is located at an elevation several feet higher than boring BH-B. This water is believed to be perched (water trapped in the fill material). Sediments encountered in borings BH-C and BH-D generally consisted of low permeability sandy clay and/or silty clay. Groundwater was encountered at 27.5-feet bgs in boring BH-D in a sandy material. No groundwater was encountered in boring BH-C, which was advanced to a depth of 10-feet bgs. Boring logs are presented as Appendix B.

### **5.0 ANALYTICAL RESULTS FOR SOIL**

One soil sample collected from each boring was analyzed by Kiff Analytical for TPH-D and TPH-MO by modified EPA Method 8015, and TPH-G, BTEX and MTBE by EPA Method 8260. The soil sample collected from 3.5-feet bgs in boring BH-C was also analyzed for O&G by EPA Method 1664. The soil sample from each boring that appeared to be the most contaminated based on odors, staining and/or OVM readings was selected for analysis. The analytical results are tabulated in Table One, and the certified analytical report and chain of custody forms are included in Appendix C.

**TABLE ONE**  
**Summary of Chemical Analysis of SOIL Samples**  
**TPH-G, TPH-D, TPH-MO, BTEX, and MTBE**  
**All results are in parts per million**

Boring	Depth Sampled	TPH Gasoline	TPH Diesel	TPH Motor Oil	Benzene	Ethyl Toluene	Total Benzene	Xylenes	MTBE
BH-A	7.5'	<b>1.3</b>	<b>23</b>	<b>310</b>	< 0.0050	< 0.0050	< 0.0050	< 0.0050	<0.0050
BH-B	3.5'	< 1.0	< 1.0	<b>48</b>	< 0.0050	< 0.0050	< 0.0050	< 0.0050	<0.0050
BH-C	3.5'	< 1.0	< 1.0	<b>14</b>	< 0.0050	< 0.0050	< 0.0050	< 0.0050	<0.0050
BH-D	25.0'	< 1.0	< 1.0	< 10	< 0.0050	< 0.0050	< 0.0050	< 0.0050	<0.0050
PRG		NE	NE	NE	0.62	520	230	210	NE

Notes:

Detectable concentrations are in **bold**.

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

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

NE = PRG is not established.

The soil sample collected from 7.5-foot bgs in boring BH-A contained 1.3 ppm TPH-G, 23 ppm TPH-D and 310 ppm TPH-MO. The soil sample collected from 3.5-foot bgs in boring BH-B contained 48 ppm TPH-MO. The soil sample collected from 3.5-foot bgs in boring BH-C contained 14 ppm TPH-MO. No BTEX or MTBE were detected in any of these samples. No hydrocarbons were detected in the soil sample collected from 25-foot bgs in boring BH-D.

All of the hydrocarbon concentrations detected are considered relatively low and ASE does not anticipate the need for any further assessment or remediation related to the hydrocarbon concentrations in soil.

## 6.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Kiff Analytical for TPH-D and TPH-MO by modified EPA Method 8015, and TPH-G, BTEX and MTBE by EPA Method 8260. The analytical results are tabulated in Table Two, and the certified analytical report and chain of custody forms are included in Appendix C.

**TABLE TWO**  
**Summary of Chemical Analysis of GROUNDWATER Samples**  
**TPH-G, TPH-D, TPH-MO, BTEX, and MTBE**  
**All results are in parts per billion**

Boring	TPH Gasoline	TPH Diesel	TPH Motor Oil	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
BH-A	<b>14,000</b>	< 50,000*	740**	<b>120</b>	12	<b>220</b>	<b>590</b>	< 1.0
BH-B	<b>230</b>	< 50	< 100**	<b>0.53</b>	< 0.50	< 0.50	<b>0.78</b>	< 0.50
BH-D	< 50	< 50	< 100	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MCL	NE	NE	NE	1.0	150	700	1,750	5

Notes:

Detectable concentrations are in **bold**.

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

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

NE = MCL is not established.

\* = Detection limit raised due to interference from the gasoline range hydrocarbons.

\*\* = These samples were centrifuged prior to analysis to avoid interference in the motor oil range due to high sediment content.

The laboratory noted that the detection limit for TPH-D in the groundwater samples collected from boring BH-A was raised due to interference from gasoline range hydrocarbons. In addition, the groundwater samples collected from borings BH-A and BH-B had a very high sediment content and were centrifuged prior to analysis for TPH-MO to avoid interference in the motor oil range from the sediment.

The groundwater sample collected from boring BH-A contained 14,000 ppb TPH-G, 740 ppb TPH-MO, 120 ppb benzene, 12 ppb toluene, 220 ppb ethylbenzene, and 590 ppb total xylenes. The groundwater sample collected from boring BH-B contained 230 ppb TPH-G, 0.53 ppb benzene and 0.78 ppb total xylenes. No hydrocarbons were detected in the groundwater samples collected from boring BH-D.

The analytical results for the groundwater sample collected from boring BH-A indicates elevated TPH-G and benzene concentrations. The benzene concentration exceeded the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water. None of the other compounds detected exceeded DHS MCLs for drinking water. The

low percentage of BTEX verses the TPH-G concentration suggests that this is from an old release and that the BTEX concentrations have been reduced, likely from biodegradation. All of the hydrocarbon concentrations detected in groundwater samples collected from boring BH-B were relatively low and did not exceed DHS MCLs for drinking water.

## **7.0 CONCLUSIONS**

The soil sample collected from 7.5-foot bgs in boring BH-A contained 1.3 ppm TPH-G, 23 ppm TPH-D and 310 ppm TPH-MO. The soil sample collected from 3.5-foot bgs in boring BH-B contained 48 ppm TPH-MO. The soil sample collected from 3.5-foot bgs in boring BH-C contained 14 ppm TPH-MO. No BTEX or MTBE were detected in any of these samples. No hydrocarbons were detected in the soil sample collected from 25-foot bgs in boring BH-D. All of the hydrocarbon concentrations detected are considered relatively low, and ASE does not anticipate the need for any further assessment or remediation related to the hydrocarbon concentrations in soil.

The groundwater sample collected from boring BH-A contained 14,000 ppb TPH-G, 740 ppb TPH-MO, 120 ppb benzene, 12 ppb toluene, 220 ppb ethylbenzene, and 590 ppb total xylenes. These TPH-G and benzene concentrations are considered elevated, and the benzene concentration exceeds the DHS MCL for drinking water. The groundwater sample collected from boring BH-B contained 230 ppb TPH-G, 0.53 ppb benzene, and 0.78 ppb total xylenes. All of these concentrations are relatively low and do not exceed DHS MCLs for drinking water. This boring is located on the downgradient edge of the site and suggests that hydrocarbons are not leaving the site at concentrations above DHS MCLs for drinking water. No hydrocarbons were detected in the groundwater samples collected from boring BH-D, indicating that there does not appear to be an upgradient source for the contamination.

The low percentage of BTEX verses the TPH-G concentration suggests that this is from an old release and that the BTEX concentrations have been reduced from biodegradation.

## **8.0 RECOMMENDATIONS**

A copy of this report should be forwarded to the Alameda County Health Care Services Agency to determine whether a "no further action" letter can be issued. If a "no further action" letter can not be issued with the existing data, ASE would anticipate that only the installation of monitoring



wells and quarterly groundwater monitoring would be required. ASE does not foresee the need for groundwater remediation at the site since, (a) the contamination appears to be limited to the sandy fill in the former UST location, (b) groundwater does not appear to have left the site with hydrocarbon concentrations above DHS MCLs for drinking water, (c) it is unlikely that any domestic or municipal water supply wells are located in the site vicinity, and (d) it appears that, based on the relatively low BTEX concentrations compared to the TPH-G concentration, that the release is old and that the BTEX concentrations are decreasing by natural attenuation.

## 9.0 REPORT LIMITATIONS

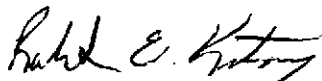
The results of this assessment represent conditions at the time of the soil and groundwater sampling, at the specific locations at which the samples were collected, and for the specific parameters analyzed by the laboratory.

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.

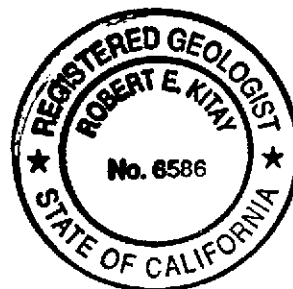
Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



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



Attachments: Figures 1 and 2  
Appendices A through C

cc: Keith Gabriel, 1826 18<sup>th</sup> Avenue, San Francisco, CA 94122

Jackson Federal Bank, 145 S. State Collage Boulevard, Suite 600,  
Brea, CA 92821

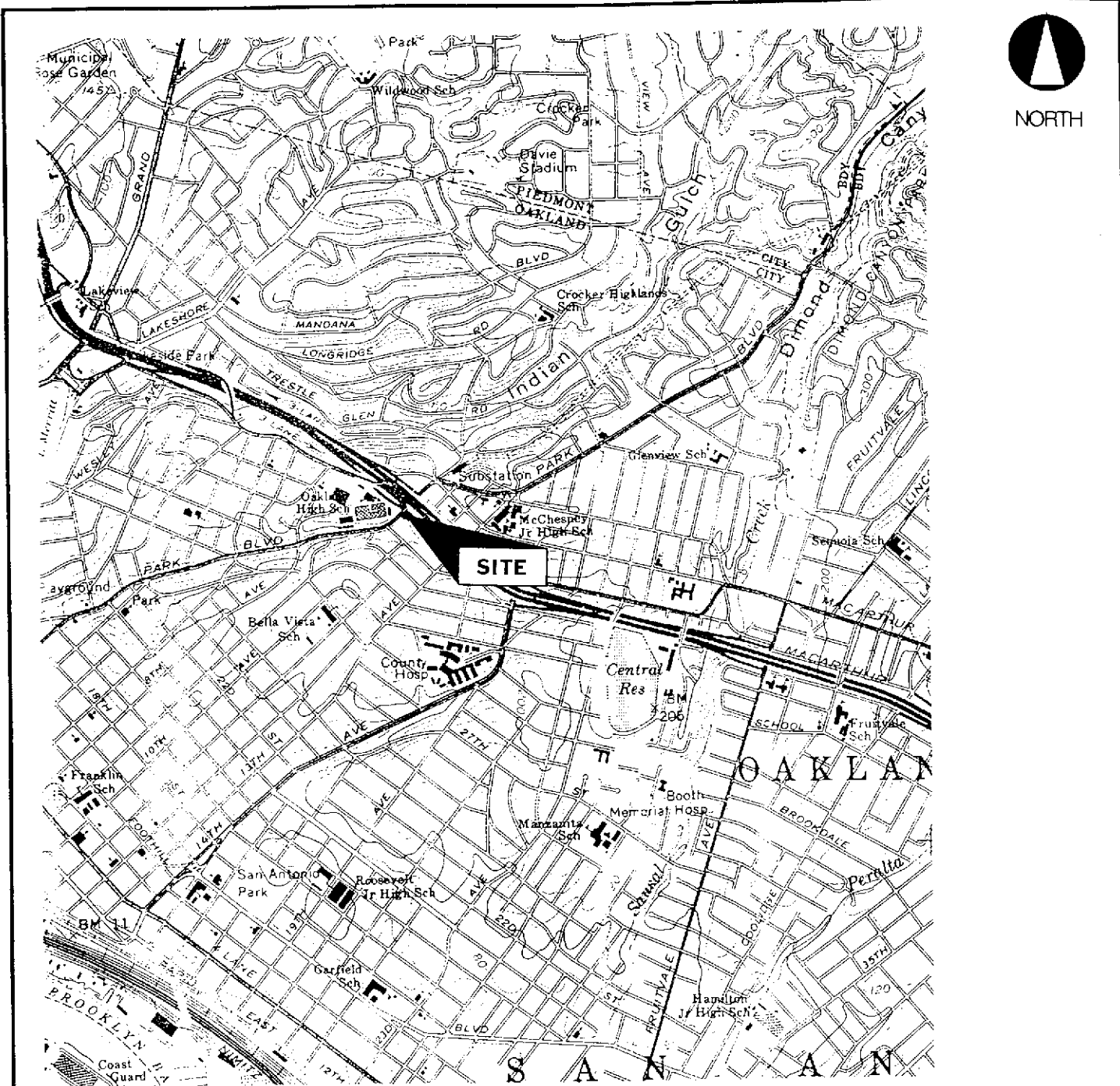
Mr. Charlie Pass, Oil Changers, 4511 Willow Road, Suite 1,  
Pleasanton, CA 94588

Mr. Dan Baker, Loopnet, 2650 18<sup>th</sup> Street, First Floor, San Francisco,  
CA 94110

Mr. Bob Bachelor, Bachelor Environmental, FAX (949) 756-0384



NORTH



Site Location Map	
Oil Changers 3418 Park Boulevard Oakland, California	
AQUA SCIENCE ENGINEERS, INC.	Figure 1

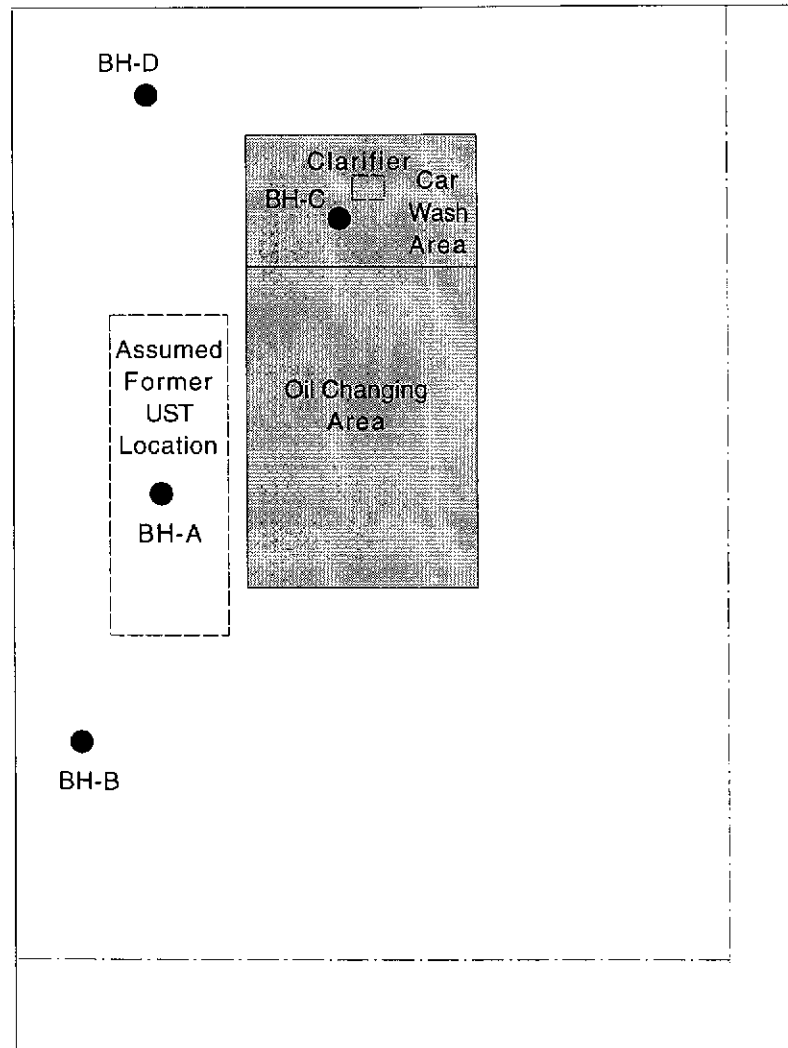


NORTH

SCALE  
1" = 30'

MACARTHUR BOULEVARD

PARK BOULEVARD



### Boring Location Map

Oil Changers  
3418 Park Boulevard  
Oakland, California

#### LEGEND



Boring Location

AQUA SCIENCE ENGINEERS, INC.

Figure 2

# **APPENDIX A**

Drilling Permit

Jul 03 01 11:16a

925-837-4853

P. 1

Received. Aug-15-00 03:06pm

from 5107821939 - AQUA SCIENCE

page 3

AUG-15-00 TUE 03:11 PM

ALAMEDA COUNTY PWA RM239

FAX NO. 5107821939

P. 03



### ALAMEDA COUNTY PUBLIC WORKS AGENCY

#### WATER RESOURCES SECTION

309 ELMHURST ST. HAYWARD CA. 94544-1395

PHONE (510) 676-5554 MARLON MAGAT, JAMES/FRANK CODD (510) 676-5700

FAX (510) 783-1939

### DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 3418 Park Blvd  
Oakland, CA

PERMIT NUMBER WD1-531  
WELL NUMBER \_\_\_\_\_  
APN \_\_\_\_\_

#### CLIENT

Name Oil Changes & Repair  
Address 3418 Park Blvd Phone 415-216-2853  
City Oakland, CA Zip \_\_\_\_\_

#### APPLICANT

Name Aqua Science Engineers  
Address 308 W. El Camino Phone 925-837-4853  
City Peninsula, CA Zip 94526

#### TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input checked="" type="checkbox"/>	Contamination	<input checked="" type="checkbox"/>
Monitoring	<input type="checkbox"/>	Well Destruction	<input type="checkbox"/>

#### PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

#### DRILLING METHOD(S):

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<u>by computer</u>		

DRILLER'S NAME Vicorax

DRILLER'S LICENSE NO. C-57 705927

#### WELL PROJECTS

Drill Hole Diameter	_____ in.	Maximum	_____ ft.
Casing Diameter	_____ in.	Depth	_____ ft.
Surface Seal Depth	_____ ft.	Owner's Well Number	_____

#### GEO TECHNICAL PROJECTS

Number of Borings	<u>4</u>	Maximum	_____ ft.
Hole Diameter	<u>2</u> in.	Depth	<u>25</u> ft.

ESTIMATED STARTING DATE 7-3-01

ESTIMATED COMPLETION DATE 9-28-01

APPROVED [Signature] DATE 7-30-01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 13-08

APPLICANT'S SIGNATURE Robert E. Kirby DATE 7-2-01

PLEASE PRINT NAME Robert E. Kirby Rev. 6-5-00

#### PERMIT CONDITIONS

Circled Permit Requirements Apply

##### A. GENERAL

1. A permit application should be submitted to us in drive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
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 explicitly 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. GEO TECHNICAL

Backfill bore hole by tremie with cement grout or cement grout and aggregate. Upper two-three feet replaced in kind or with compacted cuttings.

##### E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

##### F. WELL DESTRUCTION






See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 25 feet.

##### G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigation.

# **APPENDIX B**

Boring Logs

SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS							Boring: BH-A	
Project Name: Oil Changers			Project Location: 3418 Park Blvd, 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 6, 2001		Checked By: Robert E. Kitay, R.G.			
<b>WATER AND WELL DATA</b>					Total Depth of Well Completed: NA			
Depth of Water First Encountered: 8'					Well Screen Type and Diameter: NA			
Static Depth of Water in Well: NA					Well Screen Slot Size: NA			
Total Depth of Boring: 12'					Type and Size of Soil Sampler: 2.0" I.D. Macro Core Sampler			
Depth in Feet	BORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Counts	OVM (ppmv)	Water Level		Graphic Log
0	 Portland Cement		 28 582	 8'		0	Asphalt	
5						5	moderate hydrocarbon odor at 5'	
10						10	wet at 8'	
							Sandy SILT (MH); olive-brown; medium stiff; moist; 50% silt; 30% fine sand; 20% clay; high plasticity; low estimated K; moderate hydrocarbon odor	
15						15	End of Boring at 12'	
20						20		
25						25		
30						30		



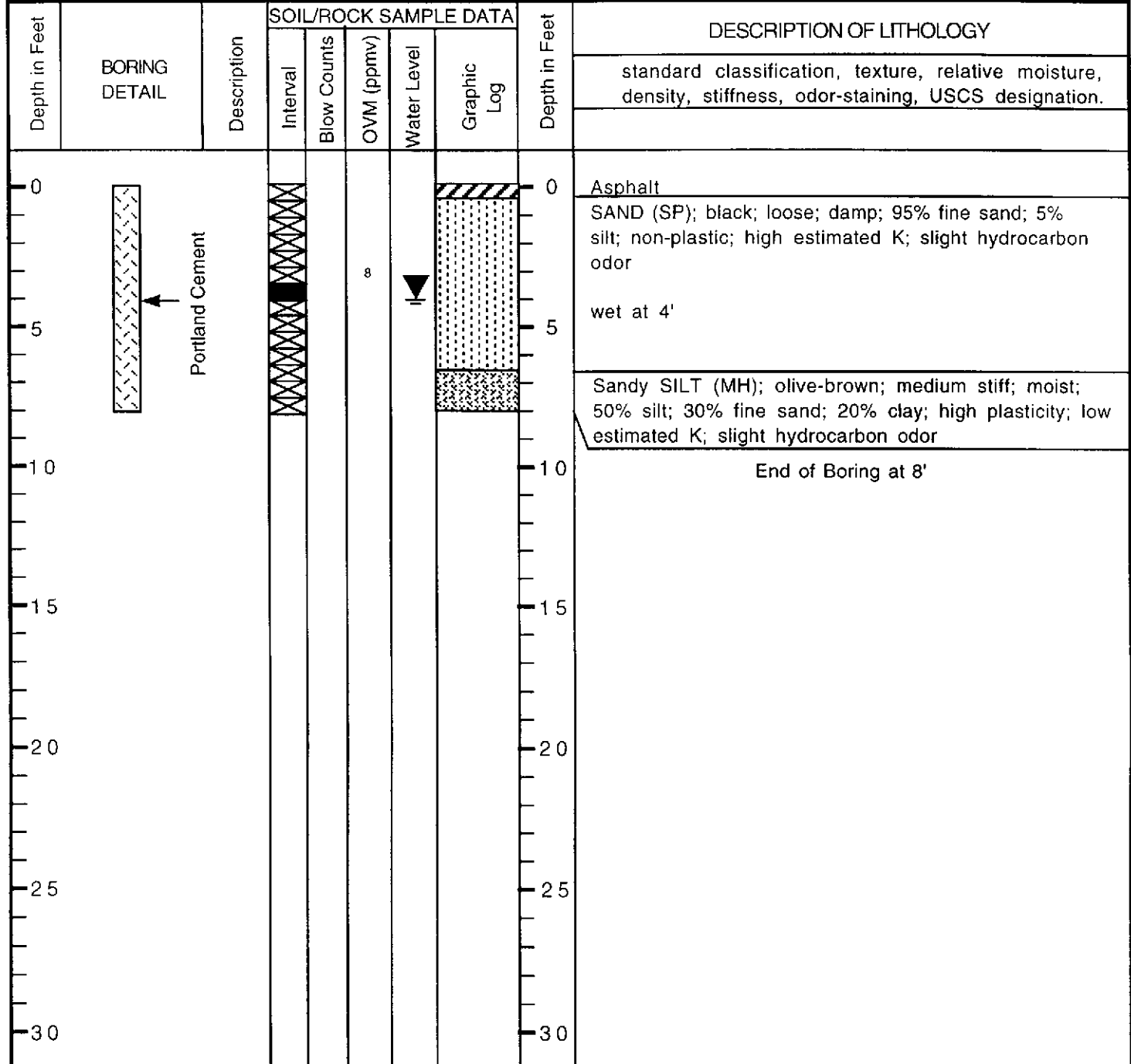
<b>SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS</b>	Boring: BH-B
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Project Name: Oil Changers	Project Location: 3418 Park Blvd, Oakland, CA	Page 1 of 1
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Driller: Vironex	Type of Rig: Geoprobe	Size of Drill: 2.0" Diameter
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Logged By: Robert E. Kitay, R.G.	Date Drilled: July 6, 2001	Checked By: Robert E. Kitay, R.G.
----------------------------------	----------------------------	-----------------------------------

<b>WATER AND WELL DATA</b>	Total Depth of Well Completed: NA
Depth of Water First Encountered: 4'	Well Screen Type and Diameter: NA
Static Depth of Water in Well: NA	Well Screen Slot Size: NA
Total Depth of Boring: 8'	Type and Size of Soil Sampler: 2.0" I.D. Macro Core Sampler



SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS							Boring: BH-C	
Project Name: Oil Changers			Project Location: 3418 Park Blvd, 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 6, 2001		Checked By: Robert E. Kitay, R.G.			
<b>WATER AND WELL DATA</b>					Total Depth of Well Completed: NA			
Depth of Water First Encountered: Not Encountered					Well Screen Type and Diameter: NA			
Static Depth of Water in Well: NA					Well Screen Slot Size: NA			
Total Depth of Boring: 10'					Type and Size of Soil Sampler: 2.0" I.D. Macro Core Sampler			
Depth in Feet	BORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Counts	OVM (ppmv)	Water Level		
0	 Portland Cement						0	Concrete
5							Sandy SILT (ML); dark brown; medium stiff; dry; 90% silt; 10% fine sand; trace clay; low plasticity; low estimated K; no odor	
10							Sandy CLAY (CH); brown; stiff; dry; 70% clay; 15-20% fine to medium sand; 10-15% silt; high plasticity; very low estimated K; no odor	
15							End of Boring at 10'	
20								
25								
30								

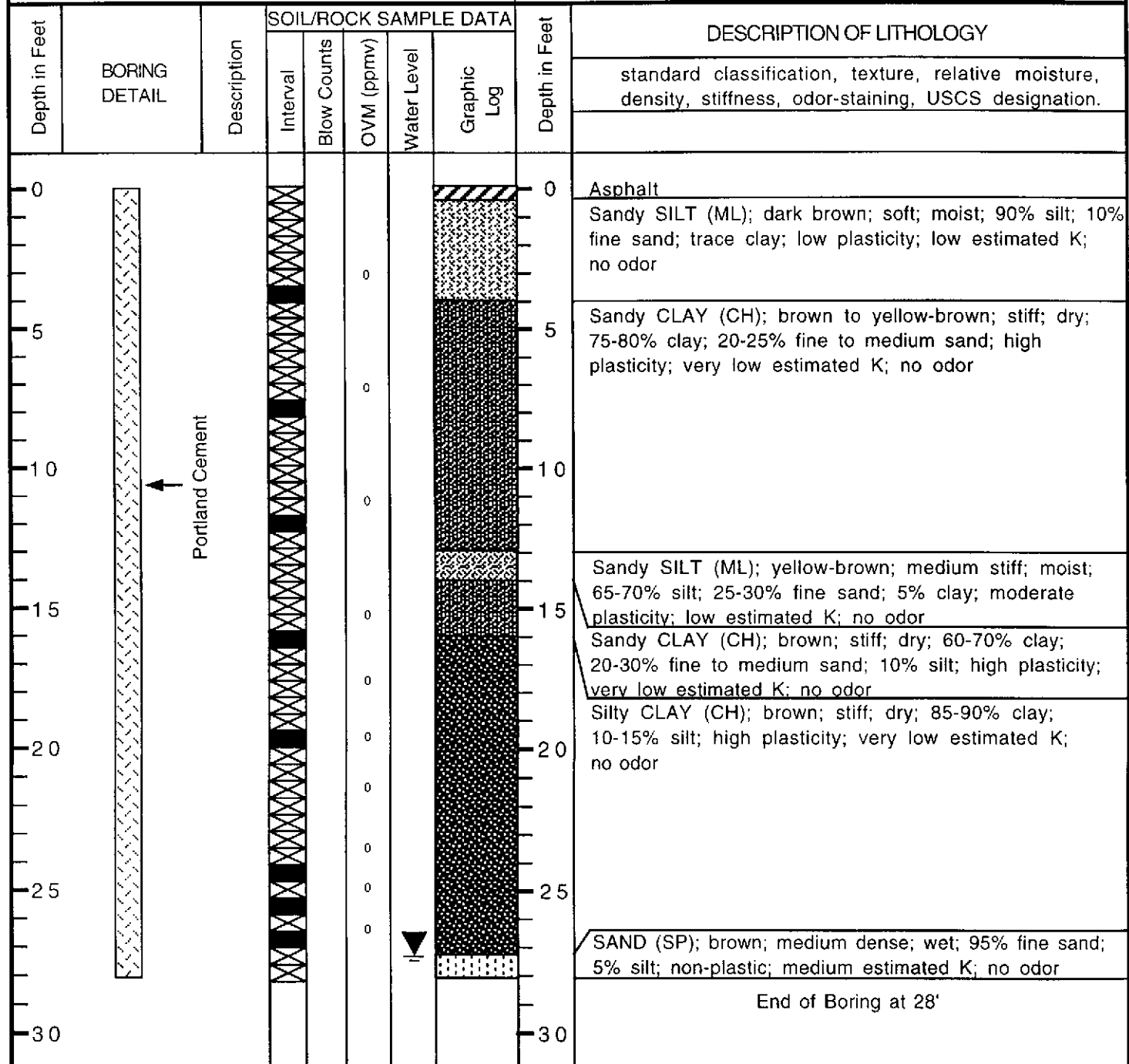
<b>SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS</b>	Boring: BH-D
---	--------------

Project Name: Oil Changers	Project Location: 3418 Park Blvd, Oakland, CA	Page 1 of 1
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Driller: Vironex	Type of Rig: Geoprobe	Size of Drill: 2.0" Diameter
------------------	-----------------------	------------------------------

Logged By: Robert E. Kitay, R.G.	Date Drilled: July 6, 2001	Checked By: Robert E. Kitay, R.G.
----------------------------------	----------------------------	-----------------------------------

<b>WATER AND WELL DATA</b>	Total Depth of Well Completed: NA
Depth of Water First Encountered: 27'	Well Screen Type and Diameter: NA
Static Depth of Water in Well: NA	Well Screen Slot Size: NA
Total Depth of Boring: 28'	Type and Size of Soil Sampler: 2.0" I.D. Macro Core Sampler



## **APPENDIX C**

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



Report Number : 21185

Date : 7/20/2001

Robert Kitay  
Aqua Science Engineers, Inc.  
208 West El Pintado Rd.  
Danville, CA 94526

Subject : 3 Water Samples and 15 Soil Samples  
Project Name : Oil Changers  
Project Number :

Dear Mr. Kitay,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large, stylized "J" and "K".

Joel Kiff



Report Number : 21185

Date : 7/20/2001

Subject : 3 Water Samples and 15 Soil Samples  
Project Name : Oil Changers  
Project Number :

## Case Narrative

The Method Reporting Limit for TPH as Diesel has been increased due to interference from Gasoline-Range Hydrocarbons for the following sample :

BH-A

Samples BH-A and BH-B contained sediment and were centrifuged prior to extraction. The aqueous fractions was decanted and analyzed.

Approved By:  \_\_\_\_\_  
Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 916-297-4800



Report Number : 21185

Date : 7/20/2001

Project Name : Oil Changers

Project Number :

Sample : BH-A

Matrix : Water

Lab Number : 21185-01

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	120	1.0	ug/L	EPA 8260B	7/14/2001
Toluene	12	1.0	ug/L	EPA 8260B	7/14/2001
Ethylbenzene	220	1.0	ug/L	EPA 8260B	7/14/2001
Total Xylenes	590	1.0	ug/L	EPA 8260B	7/14/2001
Methyl-t-butyl ether (MTBE)	< 1.0	1.0	ug/L	EPA 8260B	7/14/2001
TPH as Gasoline	14000	5000	ug/L	EPA 8260B	7/13/2001
Toluene - d8 (Surr)	91.6		% Recovery	EPA 8260B	7/14/2001
4-Bromofluorobenzene (Surr)	109		% Recovery	EPA 8260B	7/14/2001
TPH as Diesel	< 50000	50000	ug/L	M EPA 8015	7/16/2001
TPH as Motor Oil (See Narrative)	740	100	ug/L	M EPA 8015	7/20/2001

Sample : BH-B

Matrix : Water

Lab Number : 21185-02

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.53	0.50	ug/L	EPA 8260B	7/14/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Total Xylenes	0.78	0.50	ug/L	EPA 8260B	7/14/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
TPH as Gasoline	230	50	ug/L	EPA 8260B	7/14/2001
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	7/14/2001
4-Bromofluorobenzene (Surr)	111		% Recovery	EPA 8260B	7/14/2001
TPH as Diesel (See Narrative)	< 50	50	ug/L	M EPA 8015	7/20/2001
TPH as Motor Oil (See Narrative)	< 100	100	ug/L	M EPA 8015	7/20/2001

Approved By:  Joel Kiff



Report Number : 21185

Date : 7/20/2001

Project Name : Oil Changers

Project Number :

Sample : BH-D

Matrix : Water

Lab Number : 21185-03

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	7/14/2001
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	7/14/2001
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	7/14/2001
4-Bromofluorobenzene (Surr)	107		% Recovery	EPA 8260B	7/14/2001
TPH as Diesel	< 50	50	ug/L	M EPA 8015	7/16/2001
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	7/16/2001

Sample : BH-A 7.5'

Matrix : Soil

Lab Number : 21185-05

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
TPH as Gasoline	1.3	1.0	mg/Kg	EPA 8260B	7/11/2001
Toluene - d8 (Surr)	96.2		% Recovery	EPA 8260B	7/11/2001
4-Bromofluorobenzene (Surr)	108		% Recovery	EPA 8260B	7/11/2001
TPH as Diesel	23	1.0	mg/Kg	M EPA 8015	7/16/2001
TPH as Motor Oil	310	10	mg/Kg	M EPA 8015	7/16/2001
1-Chlorooctadecane (Diesel Surrogate)	103		% Recovery	M EPA 8015	7/16/2001

Approved By:  Joel Kiff





Report Number : 21185

Date : 7/20/2001

Project Name : Oil Changers

Project Number :

Sample : BH-B 3.5'

Matrix : Soil

Lab Number : 21185-07

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	7/11/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	7/11/2001
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	7/11/2001
TPH as Diesel	< 1.0	1.0	mg/Kg	M EPA 8015	7/16/2001
TPH as Motor Oil	48	10	mg/Kg	M EPA 8015	7/16/2001
1-Chlorooctadecane (Diesel Surrogate)	120		% Recovery	M EPA 8015	7/16/2001

Sample : BH-C 3.5'

Matrix : Soil

Lab Number : 21185-08

Sample Date :7/6/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Total Xylenes	< 0.010	0.010	mg/Kg	EPA 8260B	7/11/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	7/11/2001
Toluene - d8 (Surr)	94.3		% Recovery	EPA 8260B	7/11/2001
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	7/11/2001
TPH as Diesel	< 1.0	1.0	mg/Kg	M EPA 8015	7/15/2001
TPH as Motor Oil	14	10	mg/Kg	M EPA 8015	7/15/2001
1-Chlorooctadecane (Diesel Surrogate)	189		% Recovery	M EPA 8015	7/15/2001

Approved By:  Joel Kiff



Report Number : 21185

Date : 7/20/2001

Project Name : Oil Changers

Project Number :

Sample : BH-D 25.0'

Matrix : Soil

Lab Number : 21185-17

Sample Date :7/8/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	7/11/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	7/11/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	7/11/2001
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	7/11/2001
TPH as Diesel	< 1.0	1.0	mg/Kg	M EPA 8015	7/15/2001
TPH as Motor Oil	< 10	10	mg/Kg	M EPA 8015	7/15/2001
1-Chlorooctadecane (Diesel Surrogate)	89.1		% Recovery	M EPA 8015	7/15/2001

Approved By:  Joel Kiff

21185

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

# Chain of Custody

PAGE 1 OF 2

SAMPLER (SIGNATURE) Robert E. Kitey (PHONE NO.) (925) 820-9391 PROJECT NAME Oil Changers JOB NO. \_\_\_\_\_  
ADDRESS 3418 Park Blvd, Oakland, CA

ANALYSIS REQUEST					TPH-GAS / MTBE & BTEX (EPA 8000/8015-8080) 8260	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240/8260)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LIFT METALS (5) (EPA 6010+7000)	CANNED METALS (EPA 6010+7000)	PCBS & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140 EPA 608/8080)	FUEL OXYGENATES (EPA 8260)	Pb (TOTAL or DISSOLVED) (EPA 6010)	TPH-G/BTEX/5 OXY'S (EPA 8260)	TPH-G/BTEX/7 OXY'S / HYDROCS (EPA 8260)	HOLD	COMPOSITE			
SAMPLE ID.*	DATE	TIME	MATRIX	NO. OF SAMPLES																				
✓ BH-A*	7/10/01	6:17	Water	5	X		X																-01	
✓ BH-B		6:50	↓	↓	X		X																	-02
✓ BH-D		9:20	↓	↓	X		X																	-03
✓ BH-A 3.5'		5:40	Soil	1																X				-04
✓ BH-A 7.5'		5:44			X		X																	-05
✓ BH-A 11.5'		5:47																		X				-06
✓ BH-B 3.5'		6:36			X		X																	-07
✓ BH-C 3.5'		7:15			X		X				X													-08
✓ BH-C 7.5'		7:19																		X				-09
✓ BH-C 9.5'		7:27																		X				-10
✓ BH-D 3.5'		7:55																		X				-11

RELINQUISHED BY: <u>Robert E. Kitey</u> 7/19/01 (signature) (date)	RECEIVED BY: <u>John Cutler</u> (signature) (time) 1154	RELINQUISHED BY: <u>Robert E. Kitey</u> 7/19/01 (signature) (time)	RECEIVED BY LABORATORY: <u>JOHN CUTLER</u> 070901 (signature) (time)	COMMENTS:
Company: <u>ASE</u>	Company:	Company:	Company: <u>KIFF ANALYTICAL</u>	TURN AROUND TIME STANDARD 24H 48H 72H OTHER: <u>Must have results by 7/17 9:00am</u>

21185

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

# Chain of Custody

PAGE 2 OF 2

SAMPLER (SIGNATURE) Robert E. Kitey (PHONE NO.) (925) 820-9391 PROJECT NAME Oil Changers JOB NO. \_\_\_\_\_  
 ADDRESS 3418 Park Blvd, Oakland, CA

## ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:					TPH-GAS / MTBE & BTEX (EPA 8210/8015-8080) <u>2-60</u>	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 6011/8010)	VOLATILE ORGANICS (EPA 624/8240/8260)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LIGHT METALS (5) (EPA 6010+7000)	HEAVY METALS (EPA 6010+7000)	PCBs & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140 EPA 608/8080)	FUEL OXYGENATES (EPA 8260)	Pb (TOTAL or DISSOLVED) (EPA 6010)	TPH-G/BTEX/5 OXY'S (EPA 8260)	TPH-G/BTEX/7 OXY'S / HYOC5 (EPA 8260)	HOLD	COMPOSITE		
SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES																			
✓ BH-D 75'	7/6/01	8:04	Soil	1																X		12	
✓ BH-D 115'		8:05																			X		13
✓ BH-D 155'		8:16																			X		14
✓ BH-D 195'		8:31																			X		15
✓ BH-D 240'		8:49																			X		16
✓ BH-D 250'		9:05			X	X																	17
✓ BH-D 275'		9:11																			X		18

RELINQUISHED BY: <u>Robert E. Kitey</u> 11:54 (signature) (time)	RECEIVED BY: (signature) (time)	RELINQUISHED BY: (signature) (time)	RECEIVED BY LABORATORY: <u>John Cottle</u> 1154 (signature) (time)	COMMENTS:  TURN AROUND TIME STANDARD 24Hr 48Hr 72Hr OTHER: <u>Must have results by 7/17 9:00am</u>
<u>Robert E. Kitey</u> 7/19/01 (printed name) (date)	(printed name) (date)	(printed name) (date)	<u>JOHN COTTLE</u> 0700 (printed name) (date)	
Company: <u>ASE</u>	Company:	Company:	Company: <u>KICE ANALYTICAL</u>	