



January 8, ~~1998~~ 1999

ENVIRONMENTAL  
PROTECTION  
50 JAN 12 PM 9:25

REPORT  
of  
SOIL AND GROUNDWATER ASSESSMENT  
ASE JOB NO. 3412  
at  
Chan Property  
726 Harrison Street  
Oakland, California

Submitted by:  
AQUA SCIENCE ENGINEERS, INC.  
208 West El Pintado Road  
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 former Chan's Shell Station located at 726 Harrison Street in Oakland, California (Figure 1). The proposed site assessment activities were initiated by Daisy and Kin Chan, owners of the property, as required in letters from the Alameda County Health Care Services Agency (ACHCSA) dated September 23, 1997 and October 6, 1998 (Appendix A).

## 2.0 SITE HISTORY

### 2.1 October 1995 Underground Storage Tank Removal

In October 1995, All Environmental, Inc. removed four gasoline underground storage tanks (USTs) and one waste oil UST from the site. Up to 470 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G) were detected in soil samples collected beneath the former gasoline USTs. 340 ppm total oil and grease (TOG) was detected in the soil sample collected beneath the waste oil UST.

### 2.2 December 1995 Overexcavation and Soil Disposal

In December 1995, approximately 530 tons of contaminated soil was removed from the UST excavation areas to a depth of 20-feet below ground surface (bgs). This soil was subsequently disposed of at the Vasco Road Sanitary Landfill. Seven confirmation soil samples were collected from the bottom and sidewalls of the excavation. One sample collected near the northern portion of the excavation contained 20 ppm TPH-G, 2.9 ppm benzene, 0.33 ppm toluene, 3.7 ppm ethylbenzene, 22 ppm total xylenes and 16 ppm methyl tertiary butyl ether (MTBE). Another sample collected near the southern portion of the excavation contained 5,100 ppm TPH-G, 15 ppm benzene, 110 ppm toluene, 82 ppm ethylbenzene and 510 ppm total xylenes. All of the other samples contained low or non-detectable concentrations of hydrocarbons. Additional overexcavation was not possible due to the location of the building to the southeast and the street to the northwest.

### 2.3 July 1997 Monitoring Well Installation

In July 1997, Lowney Associates drilled one soil boring at the site and installed a groundwater monitoring well in the boring. A soil sample collected from the boring at a depth near the capillary zone contained

650 ppm TPH-G, 1.2 ppm benzene, 2.2 ppm ethylbenzene and 2.8 ppm total xylenes. A groundwater sample collected from the well contained 18,000 parts per billion (ppb) TPH-G, 2,700 ppb benzene, 350 ppb toluene, 450 ppb ethylbenzene, 900 ppb total xylenes and 7,400 ppb MTBE.

### 3.0 SCOPE OF WORK (SOW)

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

- 1) Prepare a workplan and a health and safety plan for approval by the ACHCSA.
- 2) Obtain a drilling permit from the Alameda County Public Works Agency (ACPWA).
- 3) Drill three (3) soil borings to approximately 30-feet bgs at the site.
- 4) Analyze at least one soil sample from each boring at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015 and benzene, toluene, ethylbenzene and total xylenes (BTEX) and MTBE by EPA Method 8020.
- 5) Install 2-inch diameter groundwater monitoring wells in each boring described in task 3.
- 6) Develop the monitoring wells.
- 7) Collect groundwater samples from each monitoring well for analyses.
- 8) Analyze the groundwater samples at a CAL-EPA certified analytical laboratory for TPH-G, BTEX and MTBE.
- 9) Survey the top of casing elevation of each well, and determine the groundwater flow direction and gradient beneath the site.
- 10) Prepare a report detailing the methods and findings of this assessment.

Details of this assessment follow.

## 4.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES

### 4.1 Drilling and Collection of Soil Samples

Prior to drilling, ASE obtained an Alameda County Public Works Agency (ACPWA) drilling permit (Appendix B). ASE also notified Underground Service Alert (USA) to have underground public utilities in the vicinity of the site marked prior to drilling.

On December 7, 1998, V&W Drilling of Rio Vista, California drilled soil borings MW-2, MW-3 and MW-4 at the site using a Mobile B-61 drill rig equipped with 8-inch diameter hollow-stem augers (Figure 2). Groundwater monitoring wells MW-2, MW-3 and MW-4 were subsequently constructed in these borings. The drilling was directed by ASE staff geologist Greg Schramm and ASE senior geologist Robert E. Kitay, R.G.

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

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

## 4.2 Site Specific Geology

Sediments encountered during drilling generally consisted of silty and clayey sand from beneath the asphalt surface to the total depth explored of 31.5-feet bgs. Groundwater was encountered at approximately 20-feet bgs and subsequently stabilized at 18-feet bgs. The boring logs and well construction details are included as Appendix C.

## 5.0 ANALYTICAL RESULTS FOR SOIL

The soil sample collected from 16.0-feet bgs in each boring was analyzed by Chromalab, Inc. for TPH-G by modified EPA Method 5030/8015, and BTEX and MTBE by EPA Method 8020. The analytical results are tabulated in Table One, and a copy of the certified analytical report and chain of custody form are included in Appendix D. No hydrocarbons were detected in any of the soil samples analyzed.

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

Boring	Depth Sampled	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
MW-2	16.0'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW-3	16.0'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW-4	16.0'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Notes:

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

## 6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

### 6.1 Monitoring Well Construction

Groundwater monitoring wells MW-2, MW-3 and MW-4 were constructed in borings MW-2, MW-3 and MW-4, respectively. The wells were constructed with 2-inch diameter, 0.020-inch slotted, flush-threaded, Schedule 40 PVC well screen and blank casing. Each well is screened

between 10-foot bgs and 30-foot bgs to monitor the first water bearing zone encountered. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to approximately 2-feet above the well screen. A 0.5-foot thick hydrated bentonite layer separates the sand from the overlying cement surface seal. The wellheads are secured with locking wellplugs beneath at-grade traffic-rated vaults.

## 6.2 Monitoring Well Development

On December 10 and 11, 1998, ASE staff geologist Greg Schramm developed monitoring wells MW-2, MW-3 and MW-4 using at least two episodes of surge-block agitation and bailer evacuation. Over ten well casing volumes of water were removed from each well during development, and evacuation continued until the water was relatively clear. Well development purge water was contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged. No free-floating hydrocarbons or sheen were present on the surface of groundwater during well development.

## 6.3 Monitoring Well Sampling

On December 15, 1998, ASE staff geologist Greg Schramm collected groundwater samples from all four site monitoring wells for analysis. ~~No free-floating hydrocarbons or sheen were present on the surface of groundwater in any of the monitoring wells.~~ Prior to sampling, the wells were purged of four well casing volumes of groundwater. The pH, temperature and conductivity of the purge water were monitored during evacuation, and samples were not collected until these parameters stabilized. Samples were collected from each well using pre-cleaned polyethylene bailers. The groundwater samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid, labeled, placed in protective foam sleeves, and stored on ice for transport to Chromalab, Inc. of Pleasanton, California under chain of custody. Well sampling purge water was contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged. See Appendix E for a copy of the Field Logs.

## 7.0 GROUNDWATER ELEVATIONS

### 7.1 Top of Casing Elevation Survey

On December 23, 1998, ASE surveyed the top of casing elevation of each site well relative to monitoring well MW-4 on the neighboring former Arco Station property at 706 Harrison Street. Permission to survey the top of casing elevation was granted to ASE by Mr. David Elias of Cambria Environmental Technology (CET), the environmental consultant for the 706 Harrison Street property. Based on information provided to ASE by CET (Appendix F), the top of casing elevation of monitoring well MW-4 at 706 Harrison Street is 31.18-feet above mean sea level (msl).

### 7.2 Groundwater Elevations and Gradient

Depths to groundwater were measured in each site well prior to sampling on December 15, 1998 with an electric water level sounder. Top of casing elevations, depth to groundwater measurements and groundwater elevations are presented in Table Two, and groundwater elevation (potentiometric surface) contours are plotted on Figure 3. On December 15, 1998, groundwater appeared to flow to the southwest beneath the site at a gradient of 0.01-feet/foot.

**TABLE TWO**  
Summary of Groundwater Well Survey Data

Well I.D.	Date of Measurement	Top of Casing Elevation (feet above msl)	Depth to Water (feet)	Groundwater Elevation (feet above msl)
MW-1	12-15-98	31.95	17.32	14.63
MW-2	12-15-98	32.40	18.03	14.37
MW-3	12-15-98	31.61	17.26	14.35
MW-4	12-15-98	32.53	17.59	14.94

## 8.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for TPH-G by modified EPA Method 5030/8015, and BTEX and MTBE by EPA Method 8020. The analytical results are tabulated in Table Three, and copies of

the certified analytical report and chain of custody form are included in Appendix G.

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

Well	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
MW-1	<b>18,000</b>	<b>1,500</b>	<b>270</b>	<b>260</b>	<b>560</b>	<b>14,000</b>
MW-2	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-3	<b>6,500</b>	<50	<b>50</b>	<b>60</b>	<b>50</b>	<b>3,900</b>
MW-4	<b>880</b>	<b>3.4</b>	<0.5	<0.5	<0.5	<b>950</b>
DTSC MCL	NE	1.0	150	700	1,750	35*

Notes:

DTSC MCL is the California Department of Toxic Substances Control maximum contaminant level for drinking water.

NE = DTSC MCLs are not established.

\* = DTSC interim action level for drinking water; MCL not established.

Detectable concentrations are in **bold**.

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

Up to 18,000 ppb TPH-G, 1,500 ppb benzene, 270 ppb toluene, 260 ppb ethylbenzene, 560 ppb total xylenes and 14,000 ppb MTBE were detected in groundwater samples collected from monitoring well MW-1. Much lower hydrocarbon concentrations were detected in groundwater samples collected from monitoring wells MW-3 and MW-4. No hydrocarbons were detected in groundwater samples collected from monitoring well MW-2.

Benzene concentrations in groundwater samples collected from monitoring wells MW-1 exceeded the California Department of Toxic Substances (DTSC) maximum contaminant level (MCL) for drinking water. The toluene concentration in groundwater samples collected from monitoring well MW-1 also exceeded the DTSC MCL for drinking water. The MTBE concentrations in groundwater samples collected from



monitoring wells MW-1, MW-3 and MW-4 exceeded the DTSC interim action level of 35 ppb.

## **9.0 CONCLUSIONS AND RECOMMENDATIONS**

No hydrocarbons were detected in any of the soil samples analyzed.

Benzene concentrations in groundwater samples collected from monitoring wells MW-1 and MW-4 exceeded DTSC MCLs for drinking water. The toluene concentration in groundwater samples collected from monitoring well MW-1 also exceeded the DTSC MCL for drinking water. MTBE concentrations exceeded the DTSC interim action level for drinking water in groundwater samples collected from monitoring wells MW-1, MW-3 and MW-4. The highest hydrocarbon concentrations were in groundwater samples collected from monitoring well MW-1, south of the former UST, which contained 18,000 ppb TPH-G, 1,500 ppb benzene, 270 ppb toluene and 14,000 ppb MTBE. No hydrocarbons were detected in groundwater samples collected from crossgradient monitoring well MW-2.

Based on the potentiometric surface contours, groundwater appears to flow to the southwest beneath the site at a gradient of 0.01-feet/foot. This groundwater flow direction is consistent with the groundwater flow direction at several neighboring sites.

ASE recommends that groundwater samples be collected from all four site wells on a quarterly basis. Based on a quarterly groundwater sampling schedule, the next sampling event should take place in March 1999.

## **10.0 REPORT LIMITATIONS**

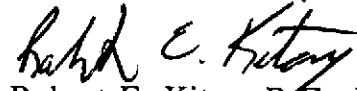
The results of this assessment represent conditions at the time of the soil and groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory.

It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data. -

Aqua Science Engineers appreciates the opportunity to assist Kin and Daisy Chan with their environmental needs. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

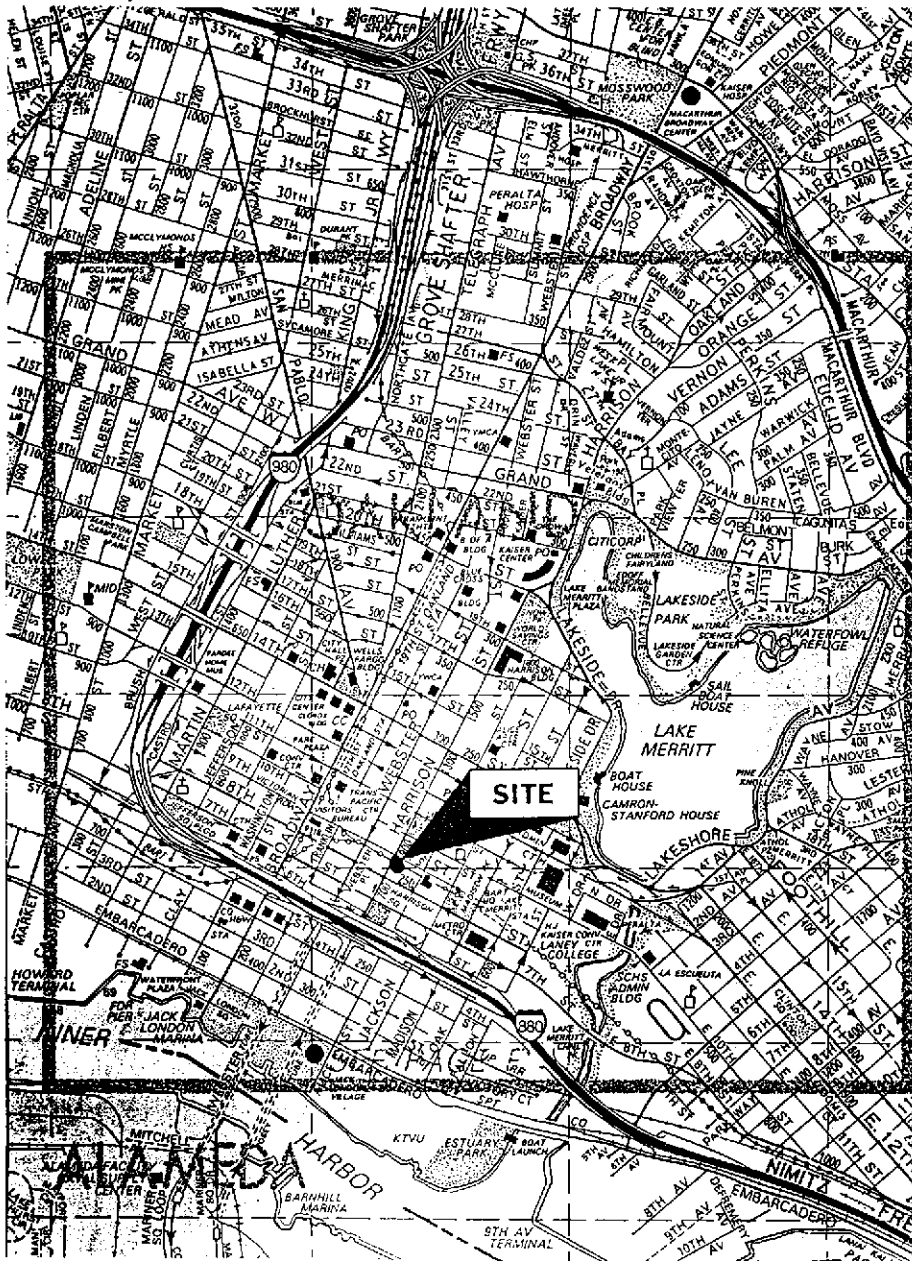
AQUA SCIENCE ENGINEERS, INC.



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



Attachments: Figures 1 through 3  
Appendices A through G

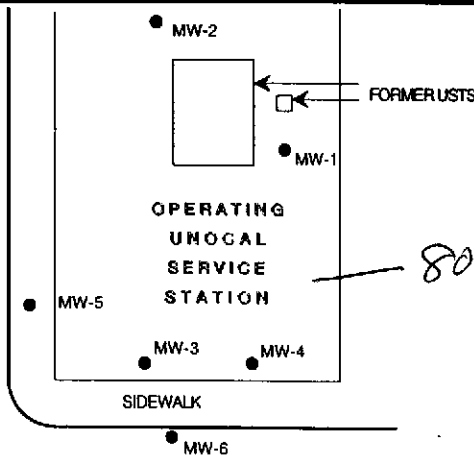


SITE LOCATION MAP	
726 HARRISON STREET OAKLAND, CALIFORNIA	
AQUA SCIENCE ENGINEERS, INC.	Figure 1

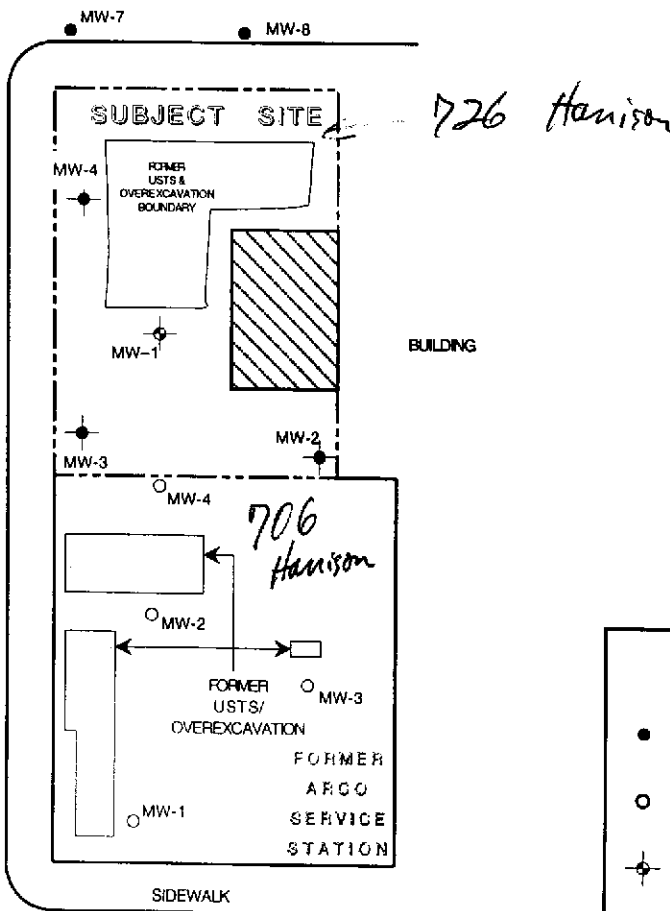


NORTH

SCALE  
1" = 50'



8TH STREET



HARRISON STREET

FORMER UNOCAL SERVICE STATION

MW-7

MW-6

7TH STREET

MW-5

### LEGEND

- MONITORING WELL INSTALLED AT UNOCAL STATION
- MONITORING WELL INSTALLED AT FORMER ARCO STATION
- ⊕ MONITORING WELL INSTALLED AT SUBJECT SITE IN JULY 1997
- ⊖ MONITORING WELL INSTALLED AT SUBJECT SITE IN DECEMBER 1998

### MONITORING WELL LOCATION MAP

1/7/99

726 HARRISON STREET  
OAKLAND, CALIFORNIA

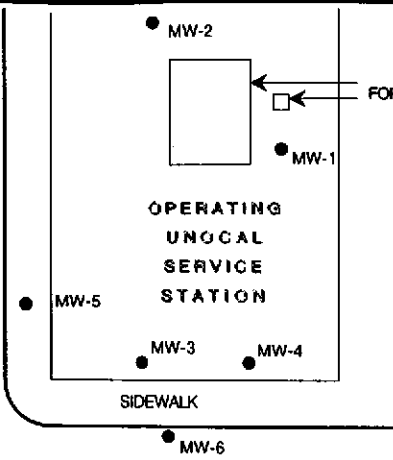
AQUA SCIENCE ENGINEERS, INC.

Figure 2

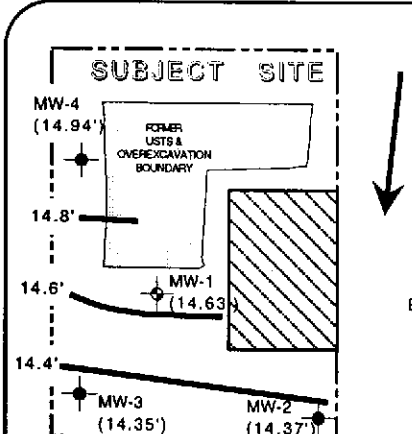


NORTH

SCALE  
1" = 50'



8TH STREET



Estimated  
Groundwater  
Flow Direction

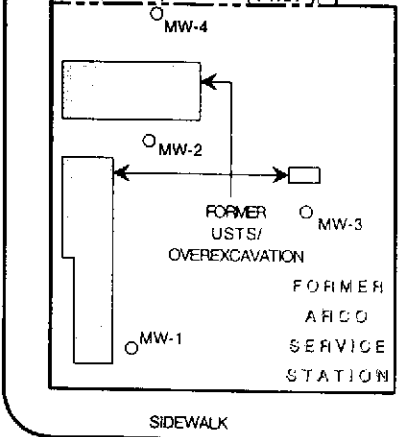
BUILDING

HARRISON STREET

FORMER UNOCAL SERVICE STATION

**LEGEND**

- MONITORING WELL INSTALLED AT UNOCAL STATION
- MONITORING WELL INSTALLED AT FORMER ARCO STATION
- ⊕ MONITORING WELL INSTALLED AT SUBJECT SITE IN JULY 1997
- ⊕ MONITORING WELL INSTALLED AT SUBJECT SITE IN DECEMBER 1998
- 14.94' GROUNDWATER ELEVATION
- GROUNDWATER ELEVATION CONTOUR



SIDEWALK

7TH STREET

MW-6

MW-5

GROUNDWATER ELEVATION  
CONTOUR MAP - 12/15/98

1/7/99

726 HARRISON STREET  
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

Figure 3

# **APPENDIX A**

ACHCSA Letters

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION (LOP)  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-9335

September 23, 1997

Daisy & Kin Chan  
4328 Edgewood Ave.  
Oakland, CA 94602

STID 39, 726 Harrison St., Oakland, 94607

Dear Daisy & Kin Chan:


This office has received and reviewed a Soil and Groundwater Evaluation Report dated July 31, 1997 by Lowney Associates. The following are comments concerning this report:

1. The levels of TPHg, benzene, and MTBE discovered in your new well MW-1 are very high and certainly indicate that your tanks leaked. However, all data is basically linear in a downgradient direction. To adequately characterize your plume you need to have more data points, especially in both cross gradient directions. You will need to submit another workplan for this continued investigation. You are reminded that quarterly monitoring of the existing well is required.
2. It would be very wise for you to work together with the two other sites that you already researched and cited in your report. Simultaneous monitoring is best to see what is actually happening. It is not reasonable to compare contaminant numbers in the shallow zone from over a year apart.
3. You should **not** submit reports to the Regional Board as the report suggests on page 6.
4. Your figure 2 portrays the sample results for off-site wells MW-7 and MW-8 as being taken on 7-9-97 when they were actually taken on 7-9-96. This should be corrected.

Please be advised that this letter constitutes a formal request for technical reports pursuant to California Water Code Section 13267(b) and the Health and Safety Code Sections 25299.37 and 25299.78.

This case will be assigned to Larry Seto of this office. Please contact him at (510) 567-6774 if you have any questions regarding this letter.

Sincerely,



Thomas Peacock, Manager

c: Brock Foster, Lowney Associates, 405 Clyde Ave., Mountain View, CA 94043-2209  
Gordon Coleman - Files

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY

DAVID J. KEARS, Agency Director

Certified Mailer # Z 115 363 869

October 6, 1998

ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION (LOP)  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-9335

Kin & Daisy Chan  
4328 Edgewood Ave.  
Oakland, CA 94602  
STID 39

NOTICE OF VIOLATION

RE: Shell, 726 Harrison Street, Oakland, CA 94607

Dear Mr. & Ms. Chan:

A letter dated September 23, 1997 requested a workplan be submitted to this office to delineate the extent of contamination on your site. The State Water Board and this office are concerned that hydrocarbons from your site are migrating onto your neighbor's site at 706 Harrison Street, Oakland. Your consultant, David Allen of Aqua Science Engineers Inc. faxed me a draft of the proposed locations for the installation of three additional monitoring wells on February 9, 1998. I have not received the formal workplan as of this date. **Please submit an additional subsurface workplan approval within 30 days of the receipt of this letter.**

If you have any questions, please contact me at (510) 567-6774.

Sincerely,

Larry Seto  
Sr. Hazardous Materials Specialist

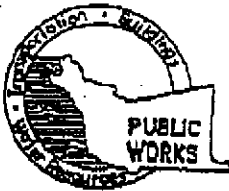
Cc: David Allen, Aqua Science Engineers, 208 West El Pintado Road,  
Danville, CA 94526  
Bo Gin, 288 11<sup>th</sup> Street, Oakland, CA 94706  
Bob Chambers, Alameda County District Attorney's Office,  
Consumer & Environmental Protection

Files



# **APPENDIX B**

Permits



**ALAMEDA COUNTY PUBLIC WORKS AGENCY**

**WATER RESOURCES SECTION**  
 951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651  
 PHONE (510) 670-5375 ANDREAS GODFREY FAX (510) 670-5262  
 (510) 670-5245 ALVIN KAN

**DRILLING PERMIT APPLICATION**

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Former China's Shell Station  
726 Harrison Street  
Oakland, CA

California Coordinates Source \_\_\_\_\_ ft. Accuracy 2  
 CCN \_\_\_\_\_ ft. CCE \_\_\_\_\_  
 APN \_\_\_\_\_

CLIENT  
 Name Kia Chan  
 Address 4328 Edgewood Ave Phone \_\_\_\_\_  
 City Oakland, CA Zip 94602

APPLICANT  
 Name Atma Sivanee Engineers, Inc.  
Atma Sivanee Kirtaj Fax 925-837-4853  
 Address 208 West Catena Rd. Phone 925-837-4853  
 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: 8 in. Maximum \_\_\_\_\_  
 Casing Diameter: 7 in. Depth: 20 ft.  
 Surface Seal Depth: 3 ft. Number: 2

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

ESTIMATED STARTING DATE 12-7-98  
 ESTIMATED COMPLETION DATE 12-7-98

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

APPLICANT'S SIGNATURE Atma Sivanee Kirtaj DATE 11-19-98

FOR OFFICE USE

PERMIT NUMBER 98WRS11  
 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 PIZOMETERS**

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, treated 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

Alvin Kan

DATE 11/24/98

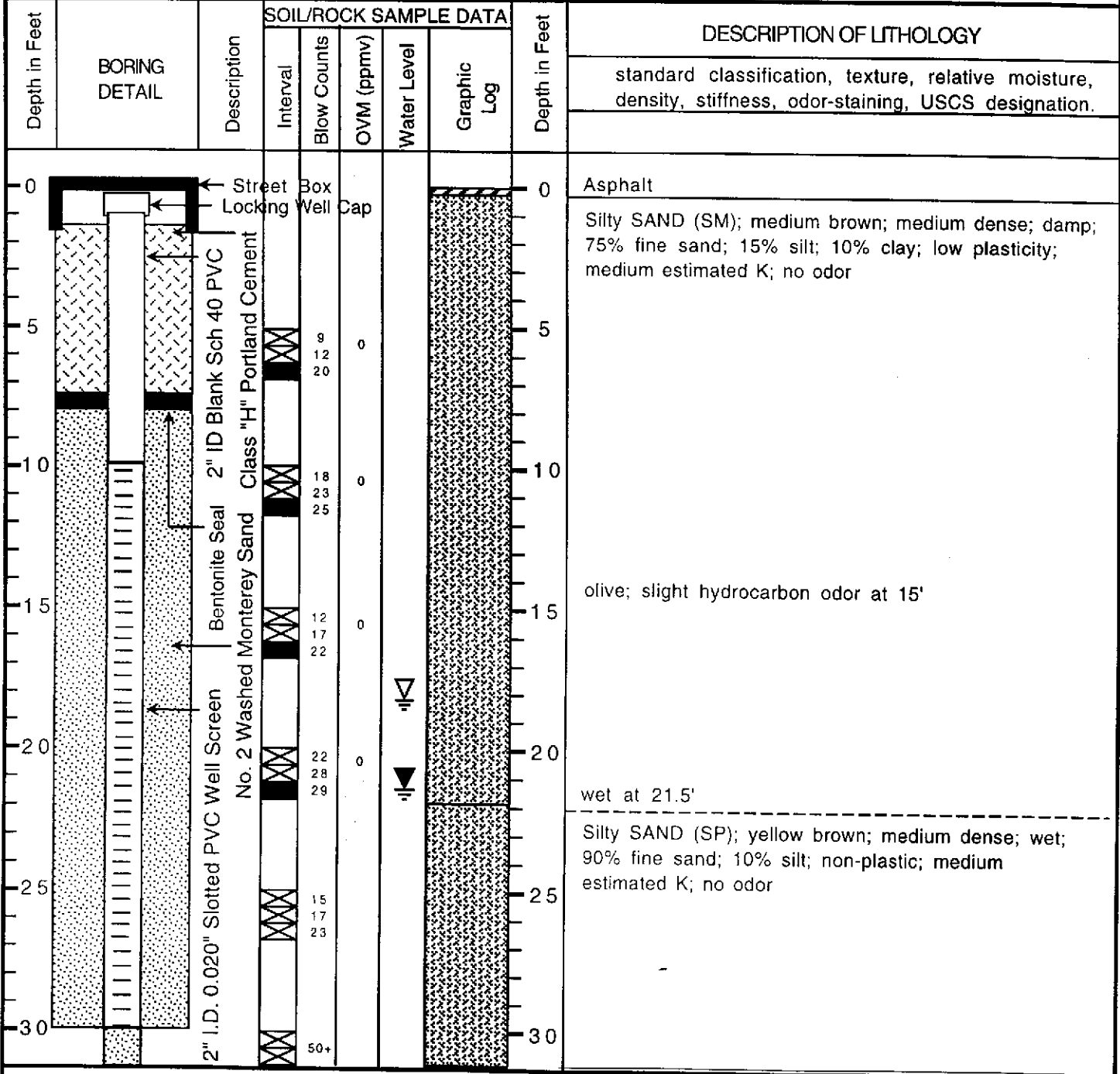
## **APPENDIX C**

### **Boring Logs and Well Construction Details**

**SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS** Well MW-2

Project Name: Chan Property	Project Location: 726 Harrison Street, Oakland, CA	Page 1 of 1
Driller: V&W Drilling, Rio Vista, CA	Type of Rig: Hollow-Stem Auger	Size of Drill: 8.0" Diameter
Logged By: Robert E. Kitay, R.G.	Date Drilled: December 7, 1998	Checked By: Robert E. Kitay, R.G.

<b>WATER AND WELL DATA</b>	Total Depth of Well Completed: 30.0'
Depth of Water First Encountered: 21.5'	Well Screen Type and Diameter: 2" Diameter PVC Casing
Static Depth of Water in Well: 18'	Well Screen Slot Size: 0.020"
Total Depth of Boring: 31.5'	Type and Size of Soil Sampler: 2.0" I.D. Split-Barrel Sampler



SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS						Well MW-3		
Project Name: Chan Property			Project Location: 726 Harrison Street, Oakland, CA			Page 1 of 1		
Driller: V&W Drilling, Rio Vista, CA			Type of Rig: Hollow-Stem Auger		Size of Drill: 8.0" Diameter			
Logged By: Greg Schramm			Date Drilled: December 7, 1998		Checked By: Robert E. Kitay, R.G.			
<b>WATER AND WELL DATA</b>				Total Depth of Well Completed: 30.0'				
Depth of Water First Encountered: 20.0'				Well Screen Type and Diameter: 2" Diameter PVC Casing				
Static Depth of Water in Well: 17.5'				Well Screen Slot Size: 0.020"				
Total Depth of Boring: 31.5'				Type and Size of Soil Sampler: 2.0" I.D. Split-Barrel 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		Street Box Locking Well Cap					0	Asphalt
5		2" ID Blank Sch 40 PVC Class "H" Portland Cement	19 23 27	0			5	olive brown at 4'
10		Bentonite Seal	15 17 25	0			10	yellow brown; 85% fine sand; 15% silt; trace clay at 10'
15		No. 2 Washed Monterey Sand	30 50+	0			15	olive; slight hydrocarbon odor at 15'
20		2" I.D. 0.020" Slotted PVC Well Screen	16 24 36	0			20	wet at 20'
25			16 23 30				25	
30			10 12 17				30	Clayey SAND (SC); olive brown; medium dense; wet; 65-70% fine sand; 20-25% clay; 10% silt; medium plasticity; low estimated K; no odor

# SOIL BORING LOG AND MONITORING WELL COMPLETION DETAILS

Well MW-4

Project Name: Chan Property

Project Location: 726 Harrison Street, Oakland, CA

Page 1 of 1

Driller: V&W Drilling, Rio Vista, CA

Type of Rig: Hollow-Stem Auger

Size of Drill: 8.0" Diameter

Logged By: Greg Schramm

Date Drilled: December 7, 1998

Checked By: Robert E. Kitay, R.G.

## WATER AND WELL DATA

Depth of Water First Encountered: 20.0'

Total Depth of Well Completed: 30.0'

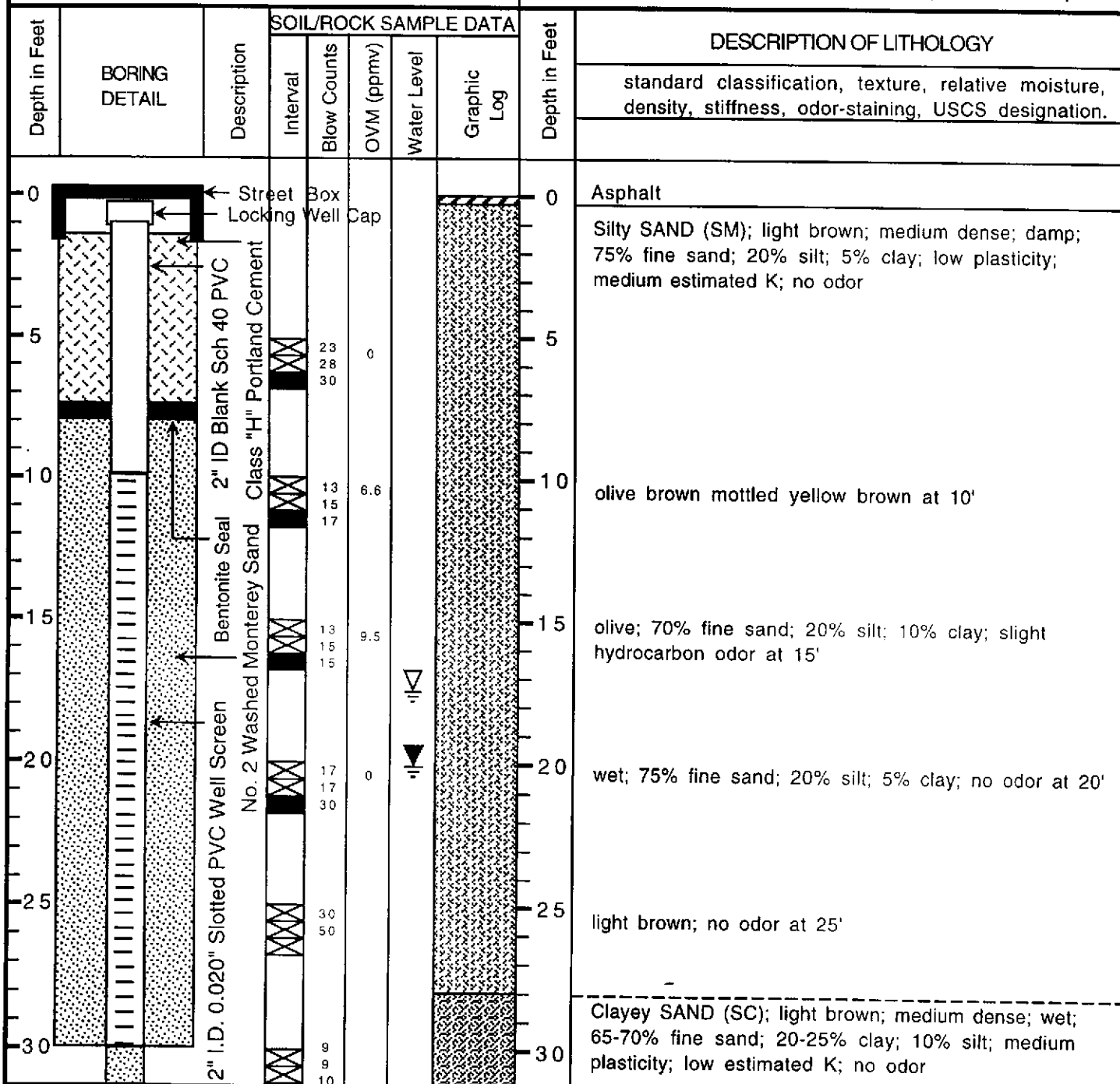
Well Screen Type and Diameter: 2" Diameter PVC Casing

Static Depth of Water in Well: 18'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 31.5'

Type and Size of Soil Sampler: 2.0" I.D. Split-Barrel Sampler



## **APPENDIX D**

Analytical Report and Chain of Custody Form  
For Soil Samples

# CHROMALAB, INC.

Environmental Services (SDB)

December 10, 1998

Submission #: 9812134

AQUA SCIENCE ENGINEERS, INC

Atten: Robert Kitay

Project: CHAN PROPERTY  
Received: December 8, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-2 16.0'

Spl#: 220034

Matrix: SOIL

Sampled: December 7, 1998

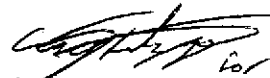
Run#:16407

Analyzed: December 9, 1998.

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	105	1
MTBE	N.D.	0.0050	N.D.	125	1
BENZENE	N.D.	0.0050	N.D.	103	1
TOLUENE	N.D.	0.0050	N.D.	100	1
ETHYL BENZENE	N.D.	0.0050	N.D.	100	1
XYLENES	N.D.	0.0050	N.D.	99	1



Vincent Vancil  
Analyst



Michael Verona  
Operations Manager



# CHROMALAB, INC.

Environmental Services (SDB)

December 10, 1998

Submission #: 9812134

AQUA SCIENCE ENGINEERS, INC

Atten: Robert Kitay

Project: CHAN PROPERTY  
Received: December 8, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-3 16.0'

Spl#: 220035


Matrix: SOIL

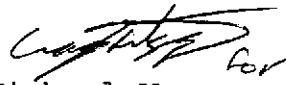
Sampled: December 7, 1998

Run#:16407

Analyzed: December 9, 1998

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	105	1
MTBE	N.D.	0.0050	N.D.	125	1
BENZENE	N.D.	0.0050	N.D.	103	1
TOLUENE	N.D.	0.0050	N.D.	100	1
ETHYL BENZENE	N.D.	0.0050	N.D.	100	1
XYLENES	N.D.	0.0050	N.D.	99	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

December 10, 1998

Submission #: 9812134

AQUA SCIENCE ENGINEERS, INC

Atten: Robert Kitay

Project: CHAN PROPERTY  
Received: December 8, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-4 16.0'

Spl#: 220036

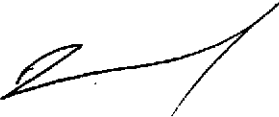
Matrix: SOIL

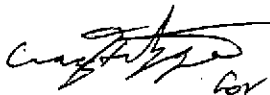
Sampled: December 7, 1998

Run#:16407

Analyzed: December 9, 1998

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	105	1
MTBE	N.D.	0.0050	N.D.	125	1
BENZENE	N.D.	0.0050	N.D.	103	1
TOLUENE	N.D.	0.0050	N.D.	100	1
ETHYL BENZENE	N.D.	0.0050	N.D.	100	1
XYLENES	N.D.	0.0050	N.D.	99	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

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

C

SURM #: 9812134 REP: PM  
 CLIENT: ASE  
 DUE: 12/15/98  
 REF #: 43530

ody

PAGE 1 OF 2

SAMPLER (SIGNATURE) Robert E. Kitey (PHONE NO.) (925) 820-9391

PROJECT NAME Chan Property JOB NO. 3412  
 ADDRESS 726 Harrison Street, Oakland, CA DATE 12-7-98

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 (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 6017/8010)	PURGEABLE AROMATICS (EPA 6028/8020)	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	
MW-2 60'	12/7	7:52	S&S	1																	
MW-2 11.0'		7:55																		X	
MW-2 16.0'		8:05			X															X	
MW-2 21.0'		8:07																		X	
MW-3 60'		10:20																		X	
MW-3 11.0'		10:24																		X	
MW-3 16.0'		10:31			X															X	
MW-3 21.0'		10:38																		X	
MW-4 60'		13:19																		X	
MW-4 11.0'		13:22																		X	
MW-4 16.0'	✓	13:25	✓	✓	X															X	

RELINQUISHED BY: <u>Robert E. Kitey</u> 10:30 (signature) (time)	RECEIVED BY: <u>[Signature]</u> 10:30 (signature) (time)	RELINQUISHED BY: <u>[Signature]</u> 10:14 (signature) (time)	RECEIVED BY LABORATORY: <u>A. Paredes</u> 10:20 (signature) (time)	COMMENTS: 5-DAY T.A.T. 12 tubes 3.0 °C AP
<u>Robert E. Kitey</u> 12-8-98 (printed name) (date)	<u>[Signature]</u> 12-8-98 (printed name) (date)	<u>[Signature]</u> 12-8-98 (printed name) (date)	<u>A. Paredes</u> 12/8/98 (printed name) (date)	
Company- <u>ASE</u>	Company- <u>Chromalab</u>	Company- <u>Chromalab</u>	Company- <u>Chromalab</u>	



## **APPENDIX E**

Well Sampling Field Logs



# WELL SAMPLING FIELD LOG

Project Name and Address: Chan, shell  
 Job #: 3412 Date of sampling: 12/15/98  
 Well Name: MW-1 Sampled by: GS  
 Total depth of well (feet): 27.10 Well diameter (inches): 2  
 Depth to water before sampling (feet): 17.32  
 Thickness of floating product if any: —  
 Depth of well casing in water (feet): 9.78  
 Number of gallons per well casing volume (gallons): 1.7  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 6.8  
 Equipment used to purge the well: electric pump  
 Time Evacuation Began: 12:35 Time Evacuation Finished: 12:50  
 Approximate volume of groundwater purged: 7.0  
 Did the well go dry?: — After how many gallons: —  
 Time samples were collected: 12:55  
 Depth to water at time of sampling: —  
 Percent recovery at time of sampling: —  
 Samples collected with: dedicated bailer  
 Sample color: clear Odor: slight HC  
 Description of sediment in sample: none

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity	
<u>1</u>	<u>66.2</u>	<u>6.93</u>	<u>—</u>	<u>9.78</u>
<u>2</u>	<u>68.2</u>	<u>—</u>	<u>—</u>	<u>17</u>
<u>3</u>	<u>68.4</u>	<u>6.72</u>	<u>—</u>	<u>27.46</u>
<u>4</u>	<u>58.2</u>	<u>—</u>	<u>—</u>	<u>16.2</u>

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	leed?	Analysis
<u>mw-1</u>	<u>3</u>	<u>40 ml UOAs</u>	<u>HCl</u>	<input checked="" type="checkbox"/>	<u>TPH<sub>3</sub>/BTEX</u>
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—



## WELL SAMPLING FIELD LOG

Project Name and Address: Chan, shell  
 Job #: 3412 Date of sampling: 12/15/98  
 Well Name: MW-2 Sampled by: GS  
 Total depth of well (feet): 29.78 Well diameter (inches): 2  
 Depth to water before sampling (feet): 18.03  
 Thickness of floating product if any: —  
 Depth of well casing in water (feet): 11.75  
 Number of gallons per well casing volume (gallons): 2.0  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 8.0  
 Equipment used to purge the well: electric pump  
 Time Evacuation Began: 11:20 Time Evacuation Finished: 11:35  
 Approximate volume of groundwater purged: 8  
 Did the well go dry?: — After how many gallons: —  
 Time samples were collected: 11:40  
 Depth to water at time of sampling: —  
 Percent recovery at time of sampling: —  
 Samples collected with: dedicated bailer  
 Sample color: clear Odor: none  
 Description of sediment in sample: lt. brown

### CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>65.3</u>	<u>7.27</u>	<u>315</u>
<u>2</u>	<u>66.0</u>	<u>7.28</u>	<u>458</u>
<u>3</u>	<u>68.3</u>	<u>6.81</u>	<u>598</u>
<u>4</u>	<u>68.4</u>	<u>6.39</u>	<u>580</u>

53  
 11.75  
 17  
 872.5  
 1000

### SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Lead?	Analysis
<u>MW-2</u>	<u>3</u>	<u>40 ml VOA's</u>	<u>HCl</u>	<u>✓</u>	<u>TPH<sub>3</sub>/BTEX</u>

*Handwritten mark*



## WELL SAMPLING FIELD LOG

Project Name and Address: Chan, shell  
 Job #: 3412 Date of sampling: 12/15/98  
 Well Name: MW-3 Sampled by: GS  
 Total depth of well (feet): 29.67 Well diameter (inches): 2  
 Depth to water before sampling (feet): 17.26  
 Thickness of floating product if any: —  
 Depth of well casing in water (feet): 12.41  
 Number of gallons per well casing volume (gallons): 21  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 84  
 Equipment used to purge the well: electric pump  
 Time Evacuation Began: 11:55 Time Evacuation Finished: 12:05  
 Approximate volume of groundwater purged: 10  
 Did the well go dry?: — After how many gallons: —  
 Time samples were collected: 12:10  
 Depth to water at time of sampling: —  
 Percent recovery at time of sampling: —  
 Samples collected with: dedicated bailer  
 Sample color: clear Odor: none  
 Description of sediment in sample: H. brown

### CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>68.2</u>	<u>7.2</u>	<u>1170</u>
<u>2</u>	<u>68.2</u>	<u>7.2</u>	<u>1170</u>
<u>3</u>	<u>68.4</u>	<u>7.2</u>	<u>1140</u>
<u>4</u>	<u>68.4</u>	<u>7.4</u>	<u>1100</u>

12.4  
84  
210

### SAMPLES COLLECTED

Sample	# of containers	Volume & type	Analyzer	Flags	Lead?	Analysis
<u>MW-3</u>	<u>3</u>	<u>40 ml DMS</u>		<u>HCL</u>	<input checked="" type="checkbox"/>	<u>TPH<sub>2</sub>/BTEX</u>





## WELL SAMPLING FIELD LOG

Project Name and Address: Chan, shell  
 Job #: 3412 Date of sampling: 12/15/98  
 Well Name: MW-4 Sampled by: GS  
 Total depth of well (feet): 29.93 Well diameter (inches): 2  
 Depth to water before sampling (feet): 17.59  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 12.34  
 Number of gallons per well casing volume (gallons): 2.1  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 8.4  
 Equipment used to purge the well: electric pump  
 Time Evacuation Began: 10:50 Time Evacuation Finished: 11:00  
 Approximate volume of groundwater purged: 8.4  
 Did the well go dry?: — After how many gallons: \_\_\_\_\_  
 Time samples were collected: 11:05  
 Depth to water at time of sampling: \_\_\_\_\_  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: dedicated bailer  
 Sample color: clear Odor: none  
 Description of sediment in sample: lt. brown

### CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	66.0	7.2	300
2	66.0	7.2	300
3	66.0	7.2	300
4	66.0	6.60	377

### SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pre-filtrated?	Analysis
MW-4	3	40 ml UOAs	Yes	TPH <sub>5</sub> /BTEX

## **APPENDIX F**

Top of Casing Elevations for Wells at  
Neighboring Former Arco Station

**To:** Robert Kitay  
**Fax #:** 925-837-4853  
**Re:** Former Arco Station TOC's  
**Date:** December 29, 1998  
**Pages:** 1, including this page

**FACSIMILE**

**FAXED**  
12/29

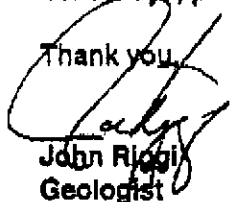
Robert,

Here are the TOC's you requested.

MW-1 29.15	MW-2 30.51
MW-3 29.77	MW-4 31.18
MW-5 28.04	MW-6 29.10
MW-7 29.67	

As always, please call me with any questions you may have.

Thank you,



John Riggi  
Geologist

From the desk of...

**John A. Riggi**  
 Geologist  
 Cambria Environmental Technology, Inc.  
 1144 65th Street, Suite C  
 Oakland, CA 94608

(510) 420-3340  
 Fax: (510) 420-9170

## **APPENDIX G**

Analytical Report and Chain of Custody Form  
For Groundwater Samples

# CHROMALAB, INC.

Environmental Services (SDB)

December 30, 1998

Submission #: 9812295

AQUA SCIENCE ENGINEERS, INC

Atten: Greg Schramm

Project: CHAN

Project#: 3412

Received: December 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-1

Spl#: 221960

Matrix: WATER


Sampled: December 15, 1998

Run#:16680

Analyzed: December 22, 1998

<u>ANALYTE</u>	<u>RESULT</u> (ug/L)	<u>REPORTING</u> <u>LIMIT</u> (ug/L)	<u>BLANK</u> <u>RESULT</u> (ug/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
GASOLINE	18000	12000	120	110	250
MTBE	14000	1200	N.D.	88	250
BENZENE	1500	120	N.D.	97	250
TOLUENE	270	120	N.D.	97	250
ETHYL BENZENE	260	120	N.D.	100	250
XYLENES	560	120	N.D.	92	250

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

December 29, 1998

Submission #: 9812295

AQUA SCIENCE ENGINEERS, INC

Atten: Greg Schramm

Project: CHAN  
Received: December 17, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-2

Spl#: 221961

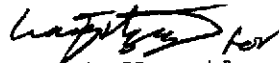
Matrix: WATER

Sampled: December 15, 1998

Run#:16680

Analyzed: December 22, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	120	110	1
MTBE	N.D.	5.0	N.D.	88	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	97	1
ETHYL BENZENE	N.D.	0.50	N.D.	100	1
XYLENES	N.D.	0.50	N.D.	92	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

December 30, 1998

Submission #: 9812295

AQUA SCIENCE ENGINEERS, INC

Atten: Greg Schramm

Project: CHAN  
Received: December 17, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-3

Spl#: 221962


Matrix: WATER

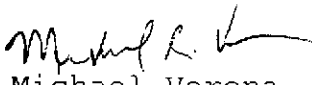
Sampled: December 15, 1998

Run#:16680

Analyzed: December 22, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	6500	5000	120	110	100
MTBE	3900	500	N.D.	88	100
BENZENE	N.D.	50	N.D.	97	100
TOLUENE	50	50	N.D.	97	100
ETHYL BENZENE	60	50	N.D.	100	100
XYLENES	50	50	N.D.	92	100

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

925-837-4853

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

PM V132 O:BTEXQC02  
CRAIG 143

# CHROMALAB, INC.

Environmental Services (SDB)

December 30, 1998

Submission #: 9812295

AQUA SCIENCE ENGINEERS, INC

Atten: Greg Schramm

Project: CHAN  
Received: December 17, 1998

Project#: 3412

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-4

Spl#: 221963


Matrix: WATER

Sampled: December 15, 1998

Run#:16623

Analyzed: December 21, 1998

<u>ANALYTE</u>	<u>RESULT</u> (ug/L)	<u>REPORTING</u> <u>LIMIT</u> (ug/L)	<u>BLANK</u> <u>RESULT</u> (ug/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
GASOLINE	880	50	N.D.	96	1
MTBE	950	5.0	N.D.	85	1
BENZENE	3.4	0.50	N.D.	111	1
TOLUENE	N.D.	0.50	N.D.	115	1
ETHYL BENZENE	N.D.	0.50	N.D.	113	1
XYLENES	N.D.	0.50	N.D.	113	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager



941215 / 0100

43726

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

QUIN #: 9812295 REP: PM  
CLIENT: ASE  
DATE: 12/24/98  
REF. #: 43726

ody

PAGE 1 OF 1

SAMPLER (SIGNATURE) (PHONE NO.)

PROJECT NAME CHAN

JOB NO. 3412

ADDRESS 726 Harrison St., Oakland, CA

DATE 12/15

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

ATTN: Greg Silvano

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS/ANTHRA & BTEX (EPA 503/601/602)	TPH-GASOLINE (EPA 503/8015)	TPH-DIESEL (EPA 351/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	PURGEABLE AROMATICS (EPA 602/8020)	VOLATILE ORGANICS (EPA 62/48240)	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)	COMPOSITE
MW-1	12/15	12:55	water	3	X														
MW-2	↓	11:40	↓	↓	X														
MW-3	↓	12:10	↓	↓	X														
MW-4	↓	11:05	↓	↓	X														

RELINQUISHED BY:  
*Robert E. Kitey* 12-10  
(signature) (time)  
Robert E. Kitey 12-17-98  
(printed name) (date)  
Company- ASE

RECEIVED BY:  
*B. Marlow* 12-10  
(signature) (time)  
B. Marlow 12-17-98  
(printed name) (date)  
Company- Chromal

RELINQUISHED BY:  
*B. Marlow* 12-10  
(signature) (time)  
B. Marlow 12-17-98  
(printed name) (date)  
Company- Chromal

RECEIVED BY LABORATORY:  
*A. Paredes* 12-10  
(signature) (time)  
A. Paredes 12-17-98  
(printed name) (date)  
Company- Chromal

COMMENTS:  
5 day T.D.T.  
5.9°C APD  
12 VOBAS