

ALCO
HAZMAT

94 FEB 16 AM 11:50

February 10, 1994

Mr. Robert Deluca
Alameda Unified School District
2200 Central Avenue
Alameda, CA 94501

RE: Quarterly Groundwater Sampling
Encinal High School, Alameda, California

Dear Mr. Deluca:

The attached report describes the materials and procedures used during groundwater sampling of the monitoring wells located at Encinal High School, 210 Central Avenue, Alameda, California.

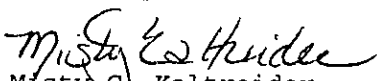
This work was performed to evaluate the presence or absence of residual hydrocarbon concentrations in groundwater by obtaining samples from existing monitoring wells.

Groundwater samples obtained from each monitoring well were submitted to ChromaLab, Inc. for petroleum hydrocarbon analysis, in accordance with the "Tri-Regional Guidelines for Underground Storage Tank Sites".

The results of the chemical analysis indicated non-detectable concentrations in monitoring wells MW-1, MW-2 and MW-3.

If you have any comments regarding this report, please call me.

Sincerely,


Misty C. Kaltreider
Geologist

cc: Ms. Juliet Shin - Alameda County Health Care Services - Division of
Hazardous Materials

QUARTERLY GROUNDWATER SAMPLING

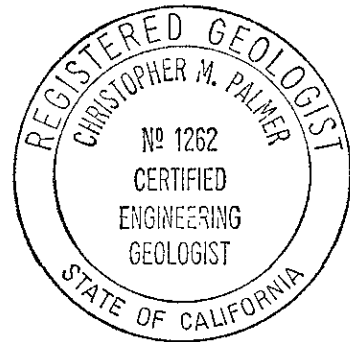
ENCINAL HIGH SCHOOL
210 CENTRAL AVENUE
ALAMEDA, CALIFORNIA

Project No. 6029-5

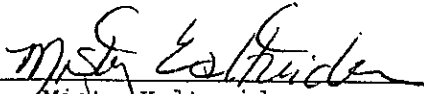
February 1994

Prepared for:
Mr. Robert Deluca
Alameda Unified School District
2200 Central Avenue
Alameda, CA 94501

Prepared by:



Prepared by:


Misty Kaltreider,
Project Geologist

Reviewed by:

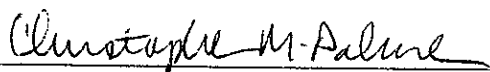

Christopher M. Palmer CEG # 1262
Certified Engineering Geologist

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Appendix A	Notes of Well Sampling
Appendix B	Chain of Custody Forms and Analytical Test Results

1.0 INTRODUCTION

This report presents the procedures and findings of quarterly groundwater sampling conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Alameda Unified School District, site owner of Encinal High School, 210 Central Avenue, Alameda, California. The project objective is to evaluate the presence or absence of petroleum hydrocarbons in the groundwater by obtaining samples from the existing monitoring wells.

2.0 BACKGROUND

Semco, tank removal contractor, removed one 1,500-gallon capacity underground heating oil tank from Encinal High School yard in April 1992. Two soil samples and one grab water sample were collected from the tank excavation and analyzed for Total Petroleum Hydrocarbons (TPH) and diesel and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Analysis of the soil samples indicated below detectable levels of the constituents evaluated. Analysis of the water sample identified 640 parts per billion (ppb) of TPH as diesel.

Per request of Alameda County Health Care Services - Hazardous Materials Division, a Preliminary Site Assessment was conducted on-site in June 1993 to further evaluate the groundwater contamination from the heating oil release.

In June 1993, three monitoring wells were installed on-site (Figure 1 illustrates locations of the monitoring wells). Analytical results of soil and groundwater samples collected from the monitoring wells indicated below detectable levels of the constituents evaluated.

Analysis of groundwater samples collected in September 1993 indicated detectable levels of TPH as diesel in monitoring well MW-1. Other results indicated levels below the laboratory detectable limits of the constituents evaluated.

3.0 GROUNDWATER SAMPLING

Quarterly groundwater samples are collected on January 11, 1994 from monitoring wells MW-1, MW-2, and MW-3 on-site.

Prior to groundwater monitoring the depth to the surface of the water table was measured from the top of the PVC casing using a Solinst Water Level Meter. Information regarding depths of wells, well elevations and groundwater levels is summarized in Table 1.

TABLE 1
Groundwater Depth Information

<u>Date Sampled</u>	<u>Depth to Groundwater (ft)</u>	<u>Groundwater Elevation (ft)</u>
<u>Well No. MW-1</u> Elevation of Top of Casing-10.06 MSL		
06/25/93	5.77	4.29
09/23/93	6.13	3.93
01/11/94	5.80	4.26
<u>Well No. MW-2</u> Elevation of Top of Casing-8.41 MSL		
06/25/93	4.30	4.11
09/23/93	4.62	3.79
01/11/94	4.34	4.07
<u>Well No. MW-3</u> Elevation of Top of Casing- 9.55 MSL		
06/25/93	5.34	4.21
09/23/93	5.67	3.88
01/11/94	5.36	4.19

Notes: All measurements in feet
MSL = Mean Sea Level

During sampling, after water-level measurements were taken, each on-site well was purged by hand using a designated disposable Teflon bailer for each well. Groundwater pH, temperature and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Four well volumes were removed to purge each well. Worksheets of groundwater conditions monitored during purging are attached in Appendix A.

After the groundwater had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using the designated disposable Teflon bailer. For each monitoring well, two liter amber jars and two 40 ml VOA vials, without headspace, were filled from the water collected from the monitoring well.

The samples were preserved on ice and submitted to ChromaLab Inc. under chain of custody protocol. Laboratory results with chain of custody forms are attached in Appendix B.

4.0 FINDINGS

4.1 Analytical Results - Groundwater

One groundwater sample from each on-site groundwater monitoring well has been collected quarterly and submitted to ChromaLab for analysis for TPH as diesel by EPA test method 8015-Modified and BTEX by EPA test method 602. Analysis results from the groundwater samples are illustrated in Table 2. Copies of the analytical results are attached in Appendix B.

TABLE 2
Analytical Results - Groundwater

Well Number	Date Sampled	TPH-diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	06/25/93	<50	<0.5	<0.5	<0.5	<0.5
	09/23/93	69	<0.5	<0.5	<0.5	<0.5
	01/11/94	<50	<0.5	<0.5	<0.5	<0.5
MW-2	06/25/93	<50	<0.5	<0.5	<0.5	<0.5
	09/23/93	<50	<0.5	<0.5	<0.5	<0.5
	01/11/94	<50	<0.5	<0.5	<0.5	<0.5
MW-3	06/25/93	<50	<0.5	<0.5	<0.5	<0.5
	09/23/93	<50	<0.5	<0.5	<0.5	<0.5
	01/11/94	<50	<0.5	<0.5	<0.5	<0.5

Notes:

ug/L = micrograms per liter (ppb)

4.2 Groundwater Gradient

Prior to calculating the groundwater gradient, elevations for the on-site monitoring wells were surveyed by Ron Archer Civil Engineer, Inc. to an accuracy of one-hundredth of a foot. The well elevation was surveyed at the top of the PVC well casing. The elevations of the monitoring wells were established relative to a nearby benchmark located in the west curb line of Lincoln and Central Avenues in Alameda, California.

The groundwater gradient was calculated using measurements from the on-site monitoring wells. The location of the wells is shown in Figure 1 - Site Plan.

Groundwater elevation collected from the wells on January 11, 1994 is illustrated on Figure 2. The gradient was evaluated by triangulation using the elevation of the potentiometric surface measured with respect to Mean Sea Level datum.

Table 3 summarizes the historic groundwater gradient and the direction of groundwater flow on-site.

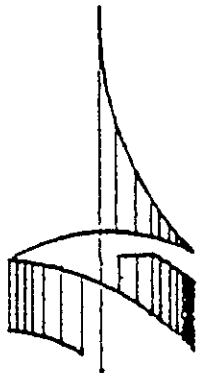
TABLE 3
Historic Groundwater Gradient

<u>Date Monitored</u>	<u>Gradient (foot/foot)</u>	<u>Direction</u>
06/25/93	0.003	west-southwest
09/23/93	0.003	southwest
01/11/94	0.003	southwest

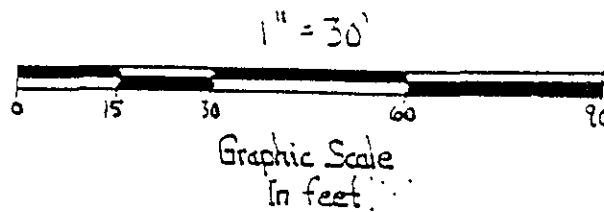
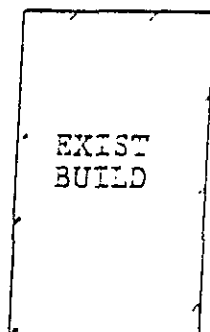
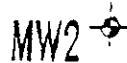
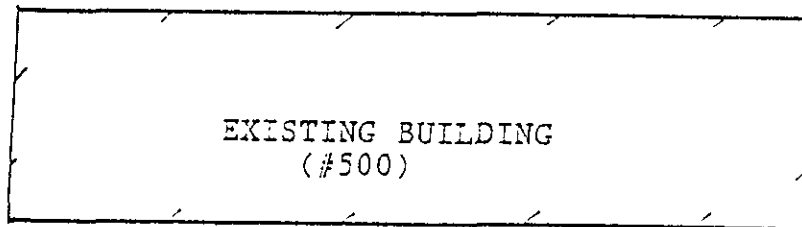
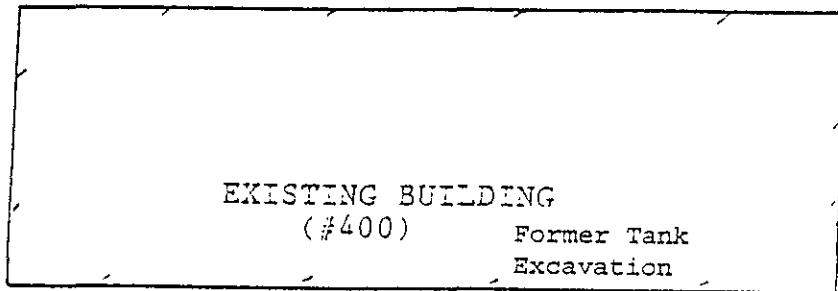
5.0 CONCLUSION

The data and observations discussed herein indicate that groundwater and soil has been impacted due to an unauthorized hydrocarbon release. No levels of TPH as diesel were reported in the soil samples collected during tank removal or drilling. Initial sampling and analysis of the groundwater in June 1993 indicated no release had occurred to impact groundwater. The low concentrations of TPH as diesel observed in MW-1 in September 1993 is interpreted at this time to be a minimal spallage in soil, probably due to historic tank filling.

Pursuant to the Tri-Regional Board guidelines, monitoring of the on-site wells and groundwater sampling will continue on a quarterly basis.



SCALE 1" = 30'



Site Map
Encinal High School
Alameda, California

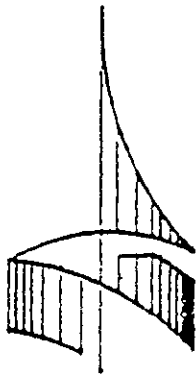
Project #: 6029-4

Drawn By: MCK

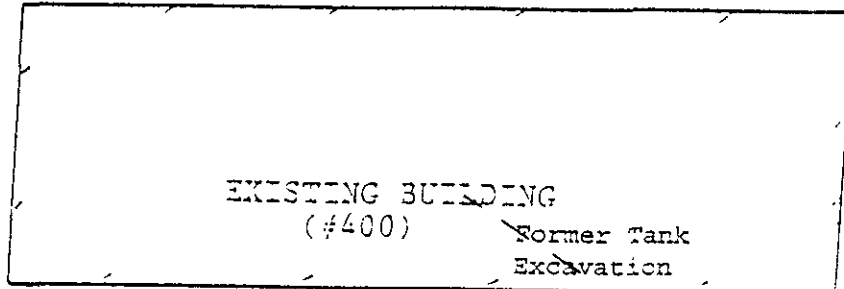
Date: 10/25/93

Figure 1

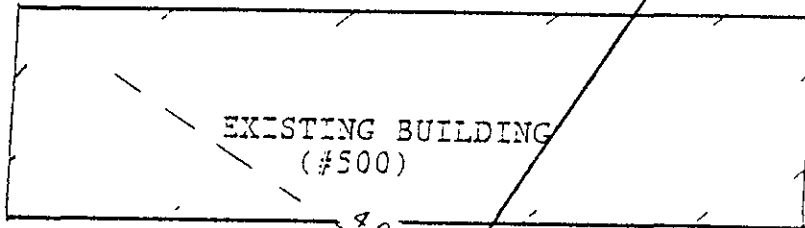
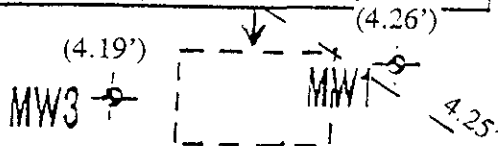
ACC Environmental Consultants • 1000 Atlantic Avenue, Suite 110 • Alameda, CA 94501 • (510) 522-8188



SCALE 1" = 30'

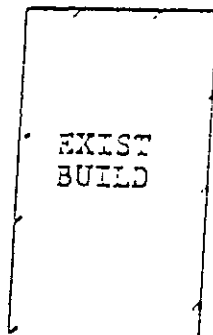


EXISTING BUILDING (#400)
Former Tank Excavation



EXISTING BUILDING (#500)

MW2 (4.07')



EXIST BUILD



1" = 30'
Graphic Scale
In feet

Groundwater Gradient
Encinal High School
Alameda, California

All Elevations in Feet Above Mean Sea Level

January 11, 1994

Drawn By: MCK

Project: 6029-4

Figure 2

APPENDIX A

Well Sampling Well Development check one

Well Number: MW-1

Job Number: Encinal High School

Job Name: _____

Date: 1-11-94

Sampler: Mark Sanchez

Depth to Water (measured from TOC): 5.80'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/purging: Bailed

Amount of Water Bailed/Pumped from well: 6 gal

Depth to Water after well development: _____

Depth to water prior to sampling: 5.82'

Bailed water stored on-site ? How ? 55 gal drums

Number of well volumes removed: 4+

TSP wash, distilled rinse, new rope ? yes

Water Appearance:

	yes	no
froth		✓
irridescence		✓
oil		✓
smell		✓
product		✓
other, describe		

Gallons Removed	pH	EC	Temp
5	8.10	16.78	61.7
10	8.55	16.72	61.3
15	8.65	16.81	61.2
20	8.68	16.80	61.5
25			
30			
35			
40			
45			
50			

Samoles Obtained:

TPH (gasoline)	<input type="checkbox"/>
TPH (diesel)	<input type="checkbox"/>
TPH (motor oil)	<input type="checkbox"/>
BTXE	<input type="checkbox"/>
EPA 624	<input type="checkbox"/>
EPA 625	<input type="checkbox"/>
EPA 608	<input type="checkbox"/>
PCBs only	<input type="checkbox"/>
Metals	<input type="checkbox"/>
Other, specify	<input type="checkbox"/>
Field Blank	<input type="checkbox"/>

Well Sampling Well Development

check one

Well Number: MW-2

Job Number: _____

Job Name: Encinal High School

Date: 1-11-94

Sampler: Mantle Sampler

Depth to Water (measured from TOC): 4.34'

Inside Diameter of Casing: 2"

Depth of Boring: 13'

Method of well development/purging: Bailed

Amount of Water Bailed/Pumped from well: 5.6 gal +

Depth to Water after well development: _____

Depth to water prior to sampling: 4.36'

Bailed water stored on-site ? How ? 55 gal drum

Number of well volumes removed: 4+

TSP wash, distilled rinse, new rope ? yes

Water Appearance:

	yes	no
froth	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
irridescence	<input type="checkbox"/>	<input checked="" type="checkbox"/>
oil	<input type="checkbox"/>	<input checked="" type="checkbox"/>
smell	<input type="checkbox"/>	<input checked="" type="checkbox"/>
product	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other, describe	<input type="checkbox"/>	<input type="checkbox"/>

Gallons Removed	pH	EC	Temp
6	16.31	12.95	60.0
10	8.20	14.17	60.5
15	7.47	14.04	60.5
20	7.41	14.20	60.6
25	7.40	14.21	60.5
30			
35			
40			
45			
50			

Samoles Obtained:

- TPH (gasoline)
- TPH (diesel)
- TPH (motor oil)
- BTXE
- EPA 624
- EPA 625
- EPA 608
- PCBs only
- Metals
- Other, specify
- Field Blank

Well Sampling

Well Development

check one

Well Number: MW-3

Job Number: _____

Job Name: Encinal High School

Date: 1-11-94

Sampler: Mark Sander

Depth to Water (measured from TOC): 5.36'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/purging: Bailed

Amount of Water Bailed/Pumped from well: 10 gal
~~62 gal.~~ +

Depth to Water after well development: _____

Depth to water prior to sampling: 5.44'

Bailed water stored on-site ? How ? 55 gal drum

Number of well volumes removed: 4+

TSP wash, distilled rinse, new rope ? yes

Water Appearance:

	yes	no
froth		✓
irridescence		✓
oil		✓
smell		✓
product		✓
other, describe		

Samples Obtained:

- TPH (gasoline)
- TPH (diesel)
- TPH (motor oil)
- BTXE
- EPA 624
- EPA 625
- EPA 608
- PCBs only
- Metals
- Other, specify
- Field Blank

Gallons Removed	pH	EC	Temp
66.2	9.04	9.64	59.5
10	12.51		60.0
15	9.60	8.04	60.0
20	9.83	7.61	59.5
25	9.78	8.20	60.0
30	9.90	8.35	59.9
35	10.0	8.42	59.9
40			
45			
50			

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

January 17, 1994

ChromaLab File No.: 9401122

ACC ENVIRONMENTAL CONSULTANTS

Attn: Misty Kaltreider

RE: Three water samples for Diesel analysis

Project Name: ENCINAL H.S.

Project Number: 6029-5

Date Sampled: January 11, 1994 Date Submitted: January 12, 1994


Date Extracted: January 14, 1994 Date Analyzed: January 14, 1994


RESULTS:

<u>Sample I.D.</u>	<u>Diesel ($\mu\text{g/L}$)</u>
MW-1	N.D.
MW-2	N.D.
MW-3	N.D.

BLANK	N.D.
SPIKE RECOVERY	73%
DUP SPIKE RECOVERY	83%
DETECTION LIMIT	50
METHOD OF ANALYSIS	3510/8015

ChromaLab, Inc.


Alex Tam
Analytical Chemist


Eric Tam
Laboratory Director

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

January 19, 1994

ChromaLab File#: 9401122

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: ENCINAL H.S.

Project#: 6029-5

Submitted: January 12, 1994

re: 3 samples for BTEX analysis.

Matrix: WATER

Sampled on: January 11, 1994

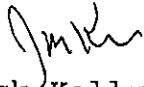
Analyzed on: January 13, 1994

Method: EPA 602

Run#: 2034

Lab #	SAMPLE ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
41332	MW-1	N.D.	N.D.	N.D.	N.D.
41333	MW-2	N.D.	N.D.	N.D.	N.D.
41334	MW-3	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS		0.5	0.5	0.5	0.5
BLANK		N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)		105	102	99	101

ChromaLab, Inc.



Jack Kelly
Chemist



Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

SUBM #: 9401122
 CLIENT: ACC
 DUE: 01/19/94
 REF: 14762

order # 14762
 122/41332-41334

Chain of Custody

DATE 1/11/94 PAGE 1 OF 1

PROJ. MGR. <u>M. Kalthreider</u>					ANALYSIS REPORT															NUMBER OF CONTAINERS			
COMPANY <u>ACC Environmental</u>					TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD		EXTRACTION (TCLP, STLC)		
ADDRESS <u>1050 Atlantic Ave. Suite 110, Alameda, CA 94501</u>					SAMPLERS (SIGNATURE) <u>M. Kalthreider</u>					(PHONE NO.) <u>(510) 522-8188</u>													
SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.																			
MW-1	1/11/94		W				X	X														W	
MW-2							X	X															W
MW-3							X	X															W

PROJECT INFORMATION				SAMPLE RECEIPT				RELINQUISHED BY			RECEIVED BY		
PROJECT NAME: <u>Environ HS</u>	TOTAL NO. OF CONTAINERS <u>9</u>	HEAD SPACE	REC'D GOOD CONDITION/COLD	CONFORMS TO RECORD	RELINQUISHED BY 1 <u>Misty Kalthreider</u> (SIGNATURE) (TIME)	RELINQUISHED BY 2	RELINQUISHED BY 3	RECEIVED BY 1 (SIGNATURE) (TIME)	RECEIVED BY 2	RECEIVED BY (LABORATORY) 3 <u>Chromalab</u> (SIGNATURE) (TIME)			
PROJECT NUMBER: <u>6029-5</u>					(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)			
P.O. # <u>6029-5</u>					(COMPANY) <u>ACC Environmental</u>	(COMPANY)	(COMPANY)	(COMPANY)	(COMPANY)	(COMPANY)			
TAT	STANDARD (5-DAY)	24	48	72	OTHER								
SPECIAL INSTRUCTIONS/COMMENTS:													