

# ALL ENVIRONMENTAL, INC.

Environmental Engineering & Construction

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June 20, 1995  
Job No. 1031

Ms. Jennifer Eberle  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Room 250  
Alameda, CA 94502-6577

Subject: 3635 13th Avenue, Oakland, CA  
Third Quarterly Groundwater Monitoring Report

Dear Ms. Chu:

We are enclosing one copy of the referenced report for your review, which presents the results of the fourth quarter of groundwater monitoring at 3635 13th Avenue, Oakland, California. If you have any questions or comments regarding the findings presented in this report, please call at (510) 820-3224.

Sincerely,

Michael J. Killoran  
Project Geologist

cc: John Williamson

6-19-95

**THIRD QUARTERLY  
GROUNDWATER MONITORING REPORT  
3635 13th Avenue  
Oakland, CA**

**Prepared For**

**Mr. John Williamson  
1511 Wellington Street  
Oakland, CA 94602**

**Prepared By**

**All Environmental, Inc.  
2641 Crow Canyon Road, Suite 5  
San Ramon, CA 94583**

**June 19, 1995**

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WITH CHAIN OF CUSTODY DOCUMENTATION

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## **1.0 INTRODUCTION**

This report presents the results of the quarterly groundwater sampling activities conducted at 3635 13th Avenue in Oakland, California on May 24, 1995. The purpose of this activity is to monitor groundwater quality in the vicinity of previous underground storage tanks for a period of at least one year. This quarterly monitoring program is being conducted at the request of the Alameda County Health Care Services Agency (ACHCSA). The monitoring was accomplished using three monitoring wells which were installed by All Environmental Inc. (AEI) on March 24, 1994, as reported by AEI (Ref. 3). AEI was contracted by John Williamson to conduct these sampling activities on a quarterly basis for one year. This report summarizes results of the third quarter of groundwater monitoring and sampling.

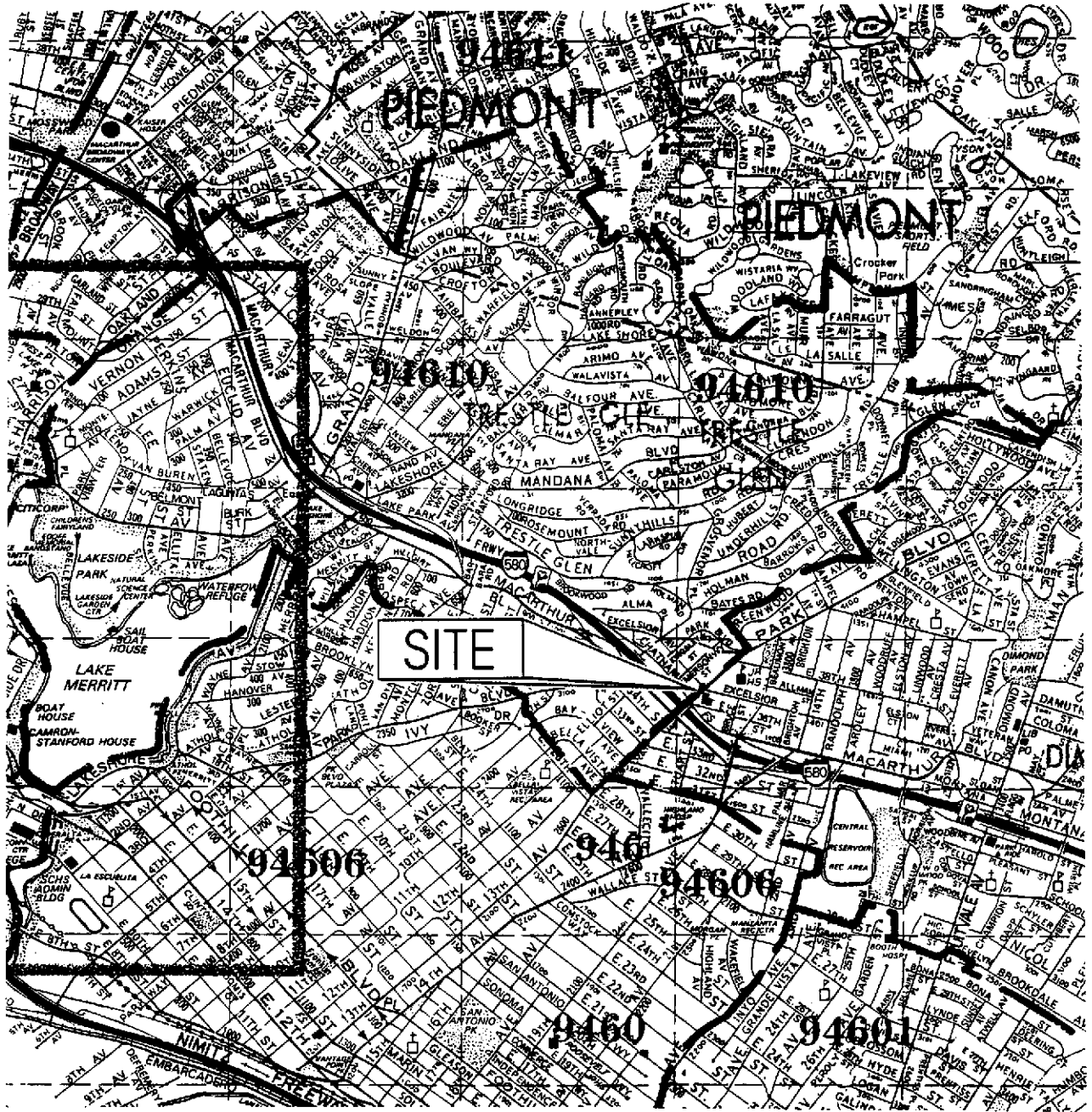
## **2.0 SITE DESCRIPTION**

The site is located in a largely residential zone of Oakland approximately 100 yards east of Highway 580, at the northwest corner of 13th Avenue and Excelsior, as shown in Figure 1, Site Location Map. The property slopes gently toward the southeast, is currently paved with asphalt, and is surrounded by a cyclone fence. The nearest significant surface water is Lake Merritt, located approximately one mile to the west.

## **3.0 BACKGROUND**

All Environmental, Inc. (AEI) was contracted by John Williamson to conduct a soil and groundwater investigation at 3635 13th Avenue in Oakland, California. Two underground gasoline tanks, with capacities of 500 and 1000 gallons, and one 250-gallon waste oil tank were removed from the site by Aqua Science Engineers, Inc. in December, 1992. Excavation and removal of an additional 360 cubic yards of soil was performed by AEI in September, 1993. The initial levels of contamination found in the soils during the tank removal and subsequent excavation led to the requirement of performing this groundwater investigation, as per the orders of the ACHCSA. Three monitoring wells, MW-1 through MW-3, were installed on the site for the purpose of monitoring groundwater contamination.

AEI prepared a Work Plan, dated December 9, 1993 to outline the soil and groundwater investigation. This was approved by the ACHCSA prior to initiation of the work. The three monitoring wells were installed on March 24, 1994 at the locations shown in Figure 2, Site



0 2200  
Scale, feet

ALL ENVIRONMENTAL, INC.  
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REVISED BY:

DATE:

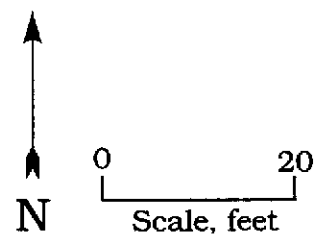
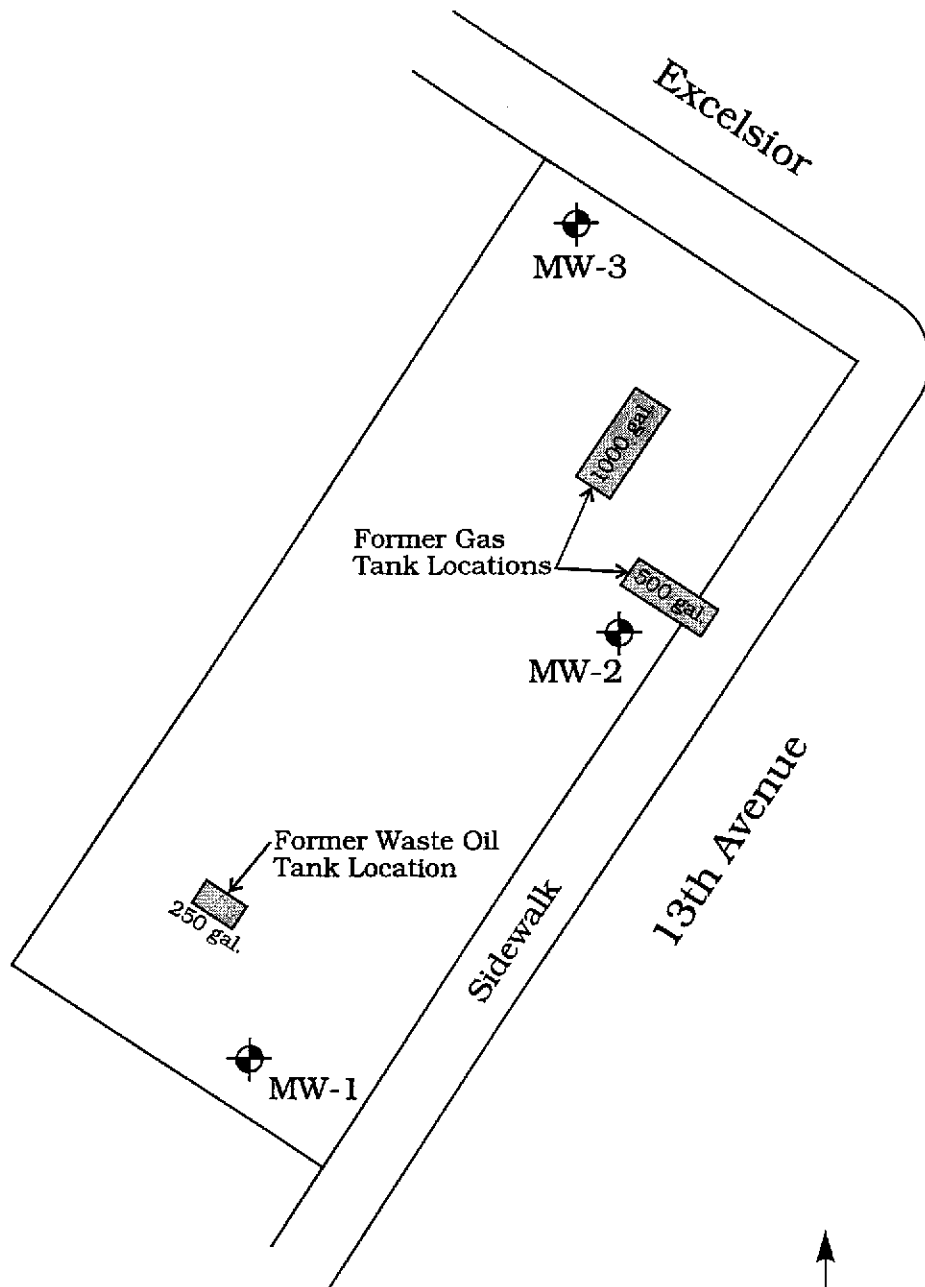
APPROVED BY:

SITE LOCATION MAP - Williamson

From Thomas Bro's. - 1993

3635 13th Avenue, Oakland

FIGURE 1



**Explanation**

⊕ Monitoring Well, Installed by AEI on 3/24/94.

Note: Well locations and property boundaries surveyed accurately, tank locations approximate.

<b>ALL ENVIRONMENTAL, INC.</b>	
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<b>SITE PLAN - Williamson</b>	
3635 13th Avenue, Oakland	FIGURE 2

Plan. Because of funding delays, the wells were not developed and sampled until November, 1994.

#### 4.0 GEOLOGY AND HYDROGEOLOGY

The geology at the site consists of early Pleistocene older alluvium deposits of mostly silty and sandy clay. Based on the borings drilled at the site, the subsurface materials consist mostly of silty and sandy clays of relatively low permeability, with discontinuous layers of silty sand, up to 4 feet thick.

The direction of the groundwater flow direction, based on the most recent measurements, is toward the southeast, as shown in Figure 3, Groundwater Gradient. The flow direction has remained essentially the same in all three quarterly groundwater episodes. Groundwater level measurements are tabulated in Table 1 below.

Table 1 - Groundwater Elevations

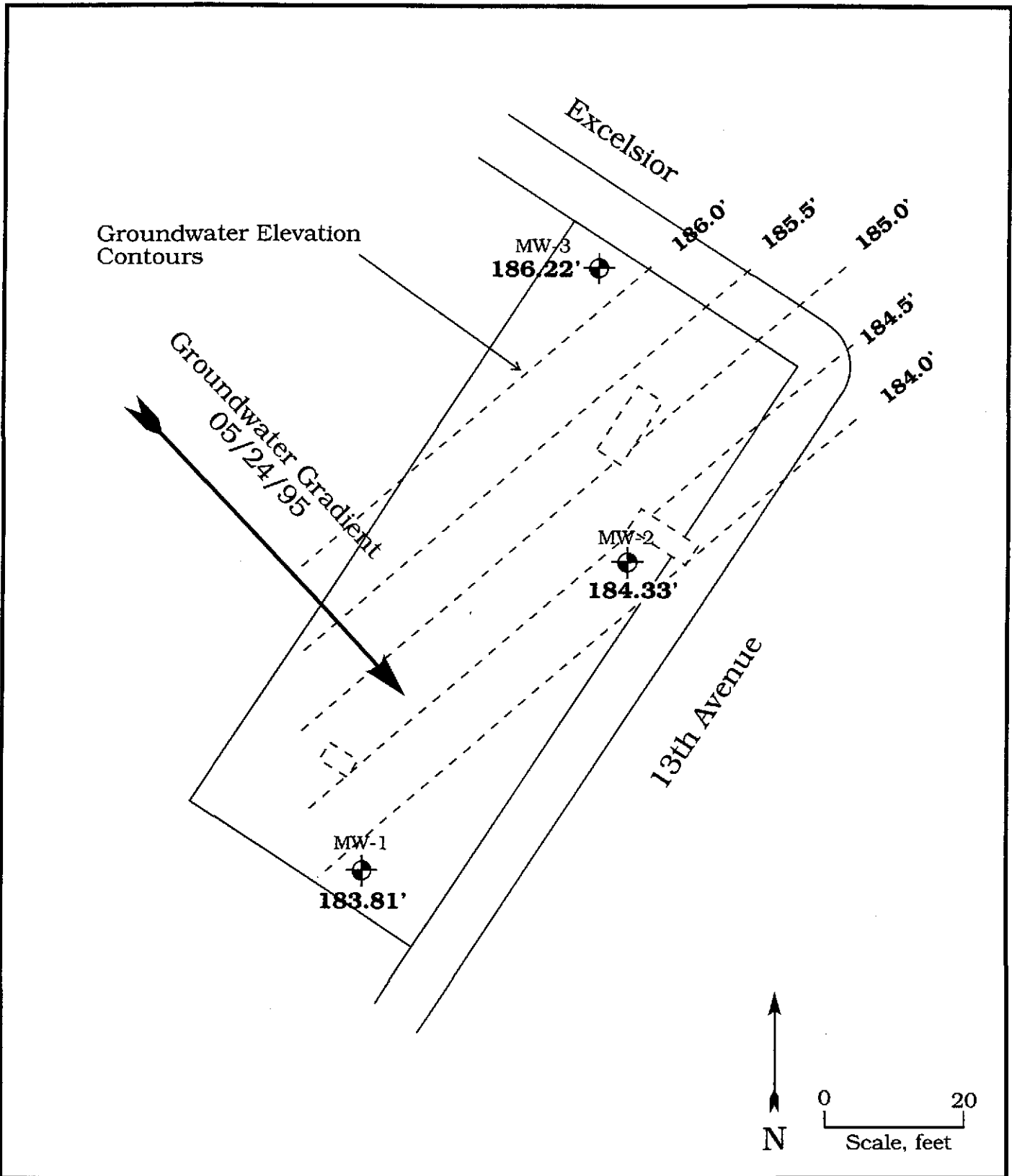
Well Number	Groundwater Elevations (Feet above Mean Sea Level)		
	November, 1994	February, 1995	May, 1995
MW-1	183.83	184.17 ✓	183.81 ↓
MW-2	183.90	184.09 ✓	184.33 ↑
MW-3	187.40	187.04 ✓	181.22 ↓

*gradient?*

#### 5.0 GROUNDWATER SAMPLE ANALYSES

Groundwater samples were collected from the three wells on May 24, 1995. A log detailing the well sampling is included in Appendix A, Current Laboratory Analyses and Chain of Custody Documentation. Note that the wells were purged on May 23, but were not sampled until May 24, due to the slow groundwater recharge in MW-2 and MW-3. The groundwater samples were analyzed by Priority Environmental Labs (State Certification #1708) in Milpitas, California. Samples from all three wells were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) (EPA Method 5030/8015); Total Petroleum Hydrocarbons as diesel (TPHd) (EPA Method 3510/8015); benzene, toluene, ethylbenzene, and total xylenes (BTEX) (EPA Method 8020/602); and Total Oil & Grease (TOG) (EPA Method 5520 C&F).





**183.81'** = Groundwater Elevation  
 = Monitoring Well  
 MW-1 = Monitoring Well Number

**ALL ENVIRONMENTAL, INC.**  
 2641 CROW CANYON ROAD, SAN RAMON, CA

<small>DRAWN BY:</small>	<small>REVISED BY:</small>
<small>DATE:</small>	<small>APPROVED BY:</small>

Groundwater Gradient - Williamson

3635 13th Avenue, Oakland	FIGURE 3
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Contaminants were not detected in any of the water samples obtained from MW-1. TPHd and TOG were not detected in samples from any of the wells.

Sample analyses indicated moderate levels of TPHg in wells MW-2 and MW-3. BTEX was detected at elevated levels in these wells. Benzene was detected at levels of up to 95 ppb. Current groundwater sample analyses with chain of custody documentation are included in Appendix A. Analytical data and chain of custody documentation for the previous sampling are included in Appendix B.

Tables 2 through 4 present the results of this sampling, along with results from the previous sampling episodes.

**Table 2 - Water Sample Analysis Results, Well No. MW-1**

<b>Compound</b>	<b>Nov. 1994</b>	<b>Feb. 1995</b>	<b>May 1995</b>
<b>TPHg (ug/L)</b>	210	140	ND ✓
<b>TPHd (ug/L)</b>	ND	ND	ND ✓
<b>Benzene (ug/L)</b>	ND	ND	ND ✓
<b>Toluene (ug/L)</b>	ND	ND	ND ✓
<b>Et. Benz. (ug/L)</b>	ND	0.6	ND ✓
<b>Xylene (ug/L)</b>	2.3	1.5	ND ✓
<b>Oil &amp; Grease (mg/L)</b>	ND	1.2	ND ✓

ug/L = ppb;

mg/L = ppm;

ND = not detected

**Table 3 - Water Sample Analysis Results, Well No. MW-2**

<b>Compound</b>	<b>Nov. 1994</b>	<b>Feb. 1995</b>	<b>May 1995</b>
<b>TPH-G (ug/L)</b>	11,000	4400	8600 ✓
<b>TPH-D (ug/L)</b>	ND	ND	ND ✓
<b>Benzene (ug/L)</b>	35	ND	95 ✓
<b>Toluene (ug/L)</b>	21	ND	37 ✓
<b>Et. Benz. (ug/L)</b>	7.2	2.5	37 ✓
<b>Xylene (ug/L)</b>	50	5.7	70 ✓
<b>Oil &amp; Grease (mg/L)</b>	ND	1.6	ND ✓

ug/L = ppb;

mg/L = ppm;

ND = not detected

**Table 4 - Water Sample Analysis Results, Well No. MW-3**

<b>Compound</b>	<b>Nov. 1994</b>	<b>Feb. 1995</b>	<b>May 1995</b>
<b>TPH-G (ug/L)</b>	200	1500	710 ✓
<b>TPH-D (ug/L)</b>	ND	ND	ND ✓
<b>Benzene (ug/L)</b>	ND	6.6	2.5 ✓
<b>Toluene (ug/L)</b>	ND	6.4	3.2 ✓
<b>Et. Benz. (ug/L)</b>	ND	4.2	3.1 ✓
<b>Xylene (ug/L)</b>	2.0	13	16 ✓
<b>Oil &amp; Grease (mg/L)</b>	3.0	0.9	ND ✓

ug/L = ppb;

mg/L = ppm;

ND = not detected

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

The groundwater samples taken on May 24, 1995, as part of this, the third quarter of the quarterly sampling program, showed nondetectable to moderate levels of TPHg, only nondetectable levels of TOG and TPHd, and nondetectable to high levels of BTEX.

All compounds tested for were nondetectable in the samples from MW-1, indicating a marked improvement from the previous monitoring episode. Analyses of samples from MW-2 showed a marked increase in the levels of TPHg and BTEX. Benzene in the samples from MW-2 went from nondetectable levels in the previous monitoring episode to 95 ppb in May, 1995. The Maximum Contaminant Level for benzene in drinking water according to Title 22 of the California Code of Regulations is 1 ppb. However, the groundwater below the site is not potable. Analyses of water samples from MW-3 showed a significant decrease in TPHg, benzene, toluene, and ethylbenzene levels. Xylene concentrations rose slightly.

Tests continue to indicate that the groundwater retrieved from the wells has been impacted by the release of hydrocarbons at the site. The rise in contaminant levels in samples from MW-2 and the fall of contaminant levels in MW-1 probably indicates that the plume of contamination is migrating to the southeast, in the estimated direction of groundwater flow. The next monitoring episode should be conducted in August of 1995, as per the requirements of the ACHCSA.

## **7.0 REFERENCES**

1. Soil Boring and Monitoring Well Installation Final Report - dated December 14, 1994, prepared by All Environmental, Inc.
2. Soil Boring and Monitoring Well Installation Work Plan - dated December 9, 1993, prepared by All Environmental, Inc.
3. Contaminated Soil Over-Excavation Final Report - dated November 18, 1993, prepared by All Environmental, Inc.
4. Underground Storage Tanks Removal Final Report - dated January 20, 1993, prepared by Aqua Science Engineers, Inc.

## 8.0 REPORT LIMITATIONS

This report presents a summary of work completed by All Environmental, Inc., including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses, observations, and governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.

AEI warrants that all services were performed in accordance with the generally accepted practices in the environmental engineering and construction field which existed at the time and location of the work.

**APPENDIX A**

**CURRENT LABORATORY ANALYSES  
WITH CHAIN OF CUSTODY DOCUMENTATION**



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

PEL # 9505077

May 26, 1995

ALL ENVIRONMENTAL, INC.

Attn: Mike Killoren

Re: Three water samples for Gasoline/BTEX, Diesel, and Oil & Grease analyses.

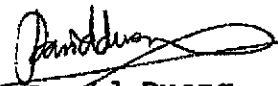
Project name: Williamson ✓  
Project number: 1031

Date sampled: May 23-24, 1995 ✓  
Date extracted: May 24-25, 1995

Date submitted: May 24, 1995  
Date analyzed: May 24-25, 1995

## RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylene (ug/L)	Oil & Grease (mg/L)
MW-1	N.D. ✓	N.D. ✓	N.D. ✓	N.D. ✓	N.D. ✓	N.D. ✓	N.D. ✓
MW-2	8600 ✓	N.D. ✓	95 ✓	37 ✓	37 ✓	70 ✓	N.D. ✓
MW-3	710 ✓	N.D. ✓	2.5 ✓	3.2 ✓	3.1 ✓	16 ✓	N.D. ✓
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	83.7%	94.0%	86.4%	94.2%	88.4%	102.9%	---
Detection limit	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

  
David Duong  
Laboratory Director





**APPENDIX B**

**PREVIOUS LABORATORY ANALYSES  
WITH CHAIN OF CUSTODY DOCUMENTATION**



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

February 27, 1995

PEL # 9502084

ALL ENVIRONMENTAL, INC.

Attn: Charles Kissick

Re: Three water samples for Gasoline/BTEX, Diesel, and Oil & Grease analyses.

Project name: Williamson

Project number: 1031

Date sampled: Feb 22-23, 1995

Date submitted: Feb 24, 1995

Date extracted: Feb 24-25, 1995

Date analyzed: Feb 24-25, 1995

## RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylene (ug/L)	Oil & Grease (mg/L)
MW-1	140	N.D.	N.D.	N.D.	0.6	1.5	1.2
MW-2	4400	N.D.	N.D.	N.D.	2.5	5.7	1.6
MW-3	1500	N.D.	6.6	6.4	4.2	13	0.9
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	106.2%	91.7%	82.0%	103.2%	92.3%	103.1%	---
Detection limit	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong  
Laboratory Director





# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

November 26, 1994

PEL # 9411068

ALL ENVIRONMENTAL, INC.

Attn: Charles Kissick

Re: Three water samples for Gasoline/BTEX, Diesel, and Oil & Grease analyses.

Project name: Williamson

Project number: 1031

Date sampled: Nov 22, 1994

Date submitted: Nov 22, 1994

Date extracted: Nov 22-25, 1994

Date analyzed: Nov 22-25, 1994

## RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)	Oil & Grease (mg/L)
MW-1	210	N.D.	N.D.	N.D.	N.D.	2.3	N.D.
MW-2	11000	N.D.	35	21	7.2	50	N.D.
MW-3	200	N.D.	N.D.	N.D.	N.D.	2.0	3.0
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	88.5%	101.2%	88.3%	90.2%	91.0%	100.5%	---
Detection limit	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong  
Laboratory Director



**APPENDIX C**  
**GROUNDWATER SAMPLING LOGS**

ALL ENVIRONMENTAL INC. -- GROUNDWATER MONITORING WELL FIELD SAMPLING FORM	
<b>Monitoring Well Number: MW-1</b>	
Project Name	Williamson
Job Number	1031
Project Address	3635 13th Avenue, Oakland, CA
Date of Sampling	05/24/95
Name of Sampler	Dusty Roy
MONITORING WELL DATA	
Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	194.75
Depth of Well	23.10
Depth to Water	10.94
Water Elevation	183.81
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	5.8 gallons
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	10 gallons
Appearance of Purge Water	Clear
GROUNDWATER SAMPLES	
Number of Samples/Container Size	2-1 L; 2-40 ml VOA
Groundwater Temp/pH/Conductivity #1:	77°/7.07/1750
Groundwater Temp/pH/Conductivity #2:	
Groundwater Temp/pH/Conductivity #3:	
Appearance of Groundwater Samples	Clear
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)	
No odor. Fast recharge.	

TD - Total Depth of Well

DTW - Depth To Water

ALL ENVIRONMENTAL INC. -- GROUNDWATER MONITORING WELL FIELD SAMPLING FORM	
Monitoring Well Number: MW-2	
Project Name	Williamson
Job Number	1031
Project Address	3635 13th Avenue, Oakland, CA
Date of Sampling	05/24/95
Name of Sampler	Dusty Roy
MONITORING WELL DATA	
Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	196.44
Depth of Well	36.03
Depth to Water	12.11
Water Elevation	184.33
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	11.5 gallons
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	18
Appearance of Purge Water	Clear
GROUNDWATER SAMPLES	
Number of Samples/Container Size	2-1 L; 2-40 ml VOA
Groundwater Temp/pH/Conductivity #1:	65.7°/6.93/1250
Groundwater Temp/pH/Conductivity #2:	
Groundwater Temp/pH/Conductivity #3:	
Appearance of Groundwater Samples	Clear/sheen.
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)	
Strong odor. Sheen. Slow recharge. Well pumped dry.	

TD - Total Depth of Well  
DTW - Depth To Water



ALL ENVIRONMENTAL INC. -- GROUNDWATER MONITORING WELL FIELD SAMPLING FORM	
<b>Monitoring Well Number: MW-3</b>	
Project Name	Williamson
Job Number	1031
Project Address	3635 13th Avenue, Oakland, CA
Date of Sampling	05/24/95
Name of Sampler	Dusty Roy
MONITORING WELL DATA	
Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	198.93
Depth of Well	35.51
Depth to Water	12.71
Water Elevation	186.22
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	10.9 gallons
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	18
Appearance of Purge Water	Clear
GROUNDWATER SAMPLES	
Number of Samples/Container Size	2-1 L; 2-40 ml VOA
Groundwater Temp/pH/Conductivity #1:	69.9°/7.77/1050
Groundwater Temp/pH/Conductivity #2:	
Groundwater Temp/pH/Conductivity #3:	
Appearance of Groundwater Samples	Clear.
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)	
No odor. Slow recharge. Well pumped dry.	

TD - Total Depth of Well  
DTW - Depth To Water