

March 6, 1995

95 MAR -9 PM 1:40

Mr. Steve Chrissanthos  
Alameda Cellars  
1709 Otis Drive  
Alameda, CA 94501

RE: Biannual Groundwater Sampling  
901 Lincoln Avenue, Alameda, California

Dear Mr. Chrissanthos:

The attached report describes the materials and procedures used during groundwater sampling of the monitoring wells located at 901 Lincoln Avenue, Alameda, California.


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

Groundwater samples obtained from monitoring wells MW-1 and MW-4 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 groundwater analysis indicated non-detectable concentrations in monitoring well MW-4. Sample analysis results from monitoring well MW-1 indicated detectable levels of Total Petroleum Hydrocarbons (TPH) as gasoline, Benzene, and Total Xylenes (BTEX).

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

INSTALLATION OF ADDITIONAL MONITORING WELL AND  
BIANNUAL GROUNDWATER SAMPLING

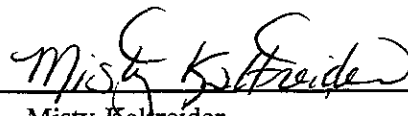
901 LINCOLN AVENUE  
ALAMEDA, CALIFORNIA

March 1995

Prepared for:  
Mr. Steve Chrissanthos  
Alameda Cellars  
1709 Otis Drive  
Alameda, CA 94501

*Project Number 6039-2b*

Prepared by:



Misty Kalreider  
Project Geologist

Reviewed by:



David R. DeMent, RG #5874  
Registered Geologist



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## **1.0 INTRODUCTION**

This report presents the procedures and findings of biannual groundwater sampling conducted by ACC Environmental Consultants, Inc., (ACC) on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 901 Lincoln Avenue, Alameda, California. The project objective is to evaluate extent of petroleum hydrocarbons in the groundwater by obtaining samples from the existing monitoring wells.

## **2.0 BACKGROUND**

The site is owned by Mr. Steve Chrissanthos and is presently occupied by E-Z Liquors, a commercial liquor store. In March, 1990, two 10,000-gallon gasoline tanks and one 2,000-gallon diesel tank were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

According to a request from the Alameda County Health Care Services - Hazardous Materials Division, a preliminary Site Assessment was conducted to further evaluate soil contamination from the gasoline release onsite. ACC was retained by Mr. Chrissanthos to perform the work requested by the Alameda County Health Care Services.

On December 4, 1992, three monitoring wells were installed onsite. Analytical results of soil collected during drilling indicated 56 parts per million (ppm) of TPH as gasoline with benzene, toluene, ethylbenzene, and total xylenes (BTEX) from monitoring well MW-1, adjacent to the former tank excavation. Soil samples collected from the other borings indicated constituents below detectable levels. Initial groundwater samples collected from the onsite monitoring wells on December 15, 1992, indicated below detectable levels of constituents.

In February 24, 1993, ACC performed a soil investigation on the property to evaluate the lateral and vertical extent of soil contamination adjacent to monitoring well MW-1. Analytical results of soil samples collected indicated below detectable levels of hydrocarbon constituents in the soil. It was concluded that hydrocarbon impact onsite is limited to soil around monitoring well MW-1.

In October 1993, monitoring well MW-4 was installed downgradient of monitoring well MW-1 on-site. Laboratory analysis of soil samples collected during drilling indicated below detectable levels of constituents. Laboratory analysis of groundwater samples collected from the onsite monitoring wells indicated below detectable levels of constituents in monitoring wells MW-2, MW-3, and MW-4.

In December 1993, Alameda County Health Care Services Agency approved a reduction in groundwater sampling. The revised groundwater sampling and monitoring program included performing monitoring on all four wells onsite and collecting groundwater samples from only monitoring wells MW-1 and MW-4 on a biannual basis. Groundwater samples from these wells were analyzed for TPH as gasoline with BTEX.

### 3.0 PROCEDURES

#### 3.2 Groundwater Sampling

Groundwater samples were collected from monitoring wells MW-1 and MW-4 on February 15, 1995. Prior to groundwater monitoring the depth to the surface of the water table was measured from the top of the PVC casing in each on-site monitoring well using a Solinst Water Level Meter. Information regarding depths of wells, well elevations and groundwater levels are 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 - 18.99 MSL</u>		
12/15/92	10.27	8.72
01/06/93	8.67	10.32
02/09/93	6.98	12.01
03/10/93	6.94	12.05
04/08/93	7.25	11.74
05/17/93	8.67	10.32
06/23/93	9.58	9.41
07/13/93	10.21	8.78
08/10/93	10.78	8.21
09/10/93	11.21	7.78
10/25/93	11.58	7.41
11/12/93	11.74	7.25
02/16/94	8.94	10.05
03/10/94	8.71	10.32
05/16/94	9.76	9.23
08/29/94	11.28	7.71
02/15/95	6.76	12.23
<u>Well No. MW-2 - 19.03 MSL</u>		
12/15/92	10.14	8.89
01/06/93	8.50	10.53
02/09/93	6.66	12.37
03/10/93	6.53	12.50
04/08/93	6.83	12.20
05/17/93	8.34	10.69
06/23/93	9.36	9.67
07/13/93	9.99	9.04
08/10/93	10.54	8.49
09/10/93	11.08	7.95
10/25/93	11.41	7.62
11/12/93	11.58	7.45
02/16/94	8.71	10.32
03/10/94	7.93	11.10
05/16/94	9.58	9.45

**TABLE 1 - Groundwater Depth Information (cont'd.)**

<u>Date Sampled</u>	<u>Depth to Groundwater (ft)</u>	<u>Groundwater Elevation (ft)</u>
<u>Well No. MW-2 - 19.03 MSL</u>		
08/29/94	11.16	7.87
02/15/95	6.32	12.71
<u>Well No. MW-3 - 19.35 MSL</u>		
12/15/92	10.44	8.91
01/06/93	8.91	10.44
02/09/93	7.26	12.09
03/10/93	7.16	12.19
04/08/93	7.49	11.86
05/17/93	9.01	10.34
06/23/93	10.22	9.13
07/13/93	10.58	8.77
08/10/93	11.12	8.23
09/10/93	11.68	7.67
10/25/93	11.98	7.37
11/12/93	12.12	7.23
02/16/94	9.18	10.17
03/10/94	8.32	10.83
05/16/94	10.28	9.07
08/29/94	11.77	7.58
02/15/95	6.85	12.50
<u>Well No. MW-4 - 18.51 MSL</u>		
10/25/93	11.43	7.08
11/12/93	11.59	6.92
02/16/94	7.80	10.71
03/10/94	8.36	10.15
05/16/94	9.66	8.85
08/29/94	11.11	7.4
02/15/95	6.75	11.76

Notes: All measurements in feet; MSL = Mean Sea Level

During sampling, after water-level measurements were taken, monitoring well MW-1 and MW-4 were 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. Two 40 ml VOA vials, without headspace, were filled from the water collected from each monitoring well to be sampled.

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

Groundwater samples were collected from monitoring wells MW-1 and MW-4 on February 15, 1995. The sample were analyzed for TPH as gasoline and BTEX by EPA test method 8015/8020. Laboratory analytical results are summarized in Table 2 and attached in Appendix B.

**TABLE 2 - Analytical Results, Groundwater**

Well Number	Date Sampled	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	12/15/92	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	03/10/93	100	0.86	< 0.5	< 0.5	6.3
	06/23/93	6,800	2,500	1,100	100	560
	09/10/93	15,000	4,400	620	850	630
	10/25/93	NT	NT	NT	NT	NT
	11/12/93	5,400	1,900	1.1	700	20
	02/16/94	69	1.5	< 0.5	< 0.5	3.1
	03/10/94	NT	NT	NT	NT	NT
	05/16/94	520	14	1.1	9.0	8.9
	08/29/94	500	12	1.3	2.2	4.6
	02/15/95	80	1.9	< 0.5	< 0.5	3.6
MW-2	12/15/92	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	03/10/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	06/23/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	09/10/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	10/25/93	NT	NT	NT	NT	NT
	11/12/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	02/16/94	NT	NT	NT	NT	NT
	03/10/94	NT	NT	NT	NT	NT
	05/16/94	NT	NT	NT	NT	NT
	08/29/94	NT	NT	NT	NT	NT
	02/15/95	NT	NT	NT	NT	NT
MW-3	12/15/92	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	03/10/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	06/23/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	09/10/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	10/25/93	NT	NT	NT	NT	NT
	11/12/93	< 50	< 0.5	< 0.5	< 0.5	< 0.5
	02/16/94	NT	NT	NT	NT	NT
	03/10/94	NT	NT	NT	NT	NT

**TABLE 2 - Analytical Results, Groundwater, Cont.**

Well Number	Date Sampled	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-3	05/16/94	NT	NT	NT	NT	NT
	08/29/94	NT	NT	NT	NT	NT
	02/15/95	NT	NT	NT	NT	NT
MW-4	10/25/93	<50	<0.5	<0.5	<0.5	<0.5
	11/12/93	<50	<0.5	<0.5	<0.5	<0.5
	02/16/94	---	---	---	---	---
	03/10/94	<50	<0.5	<0.5	<0.5	<0.5
	05/16/94	<50	<0.5	<0.5	<0.5	<0.5
	08/29/94	<50	<0.5	<0.5	<0.5	<0.5
	02/15/95	<50	<0.5	<0.5	<0.5	<0.5

Notes: ug/L = micrograms per liter (ppb); NT = not tested  
 NT = Not tested

#### 4.2 Groundwater Gradient

Prior to calculating the groundwater gradient, elevations for the onsite 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 curb on the northwest corner of the intersection of Ninth Street and Pacific Avenue in Alameda, California.

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

Groundwater elevations were collected from the wells on February 15, 1995 and are illustrated on Figure 2, Groundwater Gradient Map. 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 onsite.



**TABLE 3 - Historic Groundwater Gradient**

<u>Date Monitored</u>	<u>Gradient (foot/foot)</u>	<u>Direction</u>
12/15/92	0.002	west-southwest
01/06/93	0.004	northwest
02/09/93	0.008	northwest
03/10/93	0.009	northwest
04/08/93	0.011	northwest
05/17/93	0.008	northwest
06/23/93	0.008	north-northwest
07/13/93	0.006	northwest
08/10/93	0.006	northwest
09/10/93	0.006	northwest
10/25/93	0.007	northwest
11/12/93	0.006	northwest
02/16/94	0.01	northwest
03/10/94	0.01	northwest
05/16/94	0.016	northwest
08/29/94	0.006	northwest
02/15/95	0.009	northwest

## **5.0 CONCLUSIONS**

~~Biannual groundwater monitoring was conducted on monitoring wells MW-1 and MW-4 onsite. Laboratory analysis of the groundwater samples indicated a decrease in constituents in monitoring well MW-1 from previous groundwater monitoring events.~~

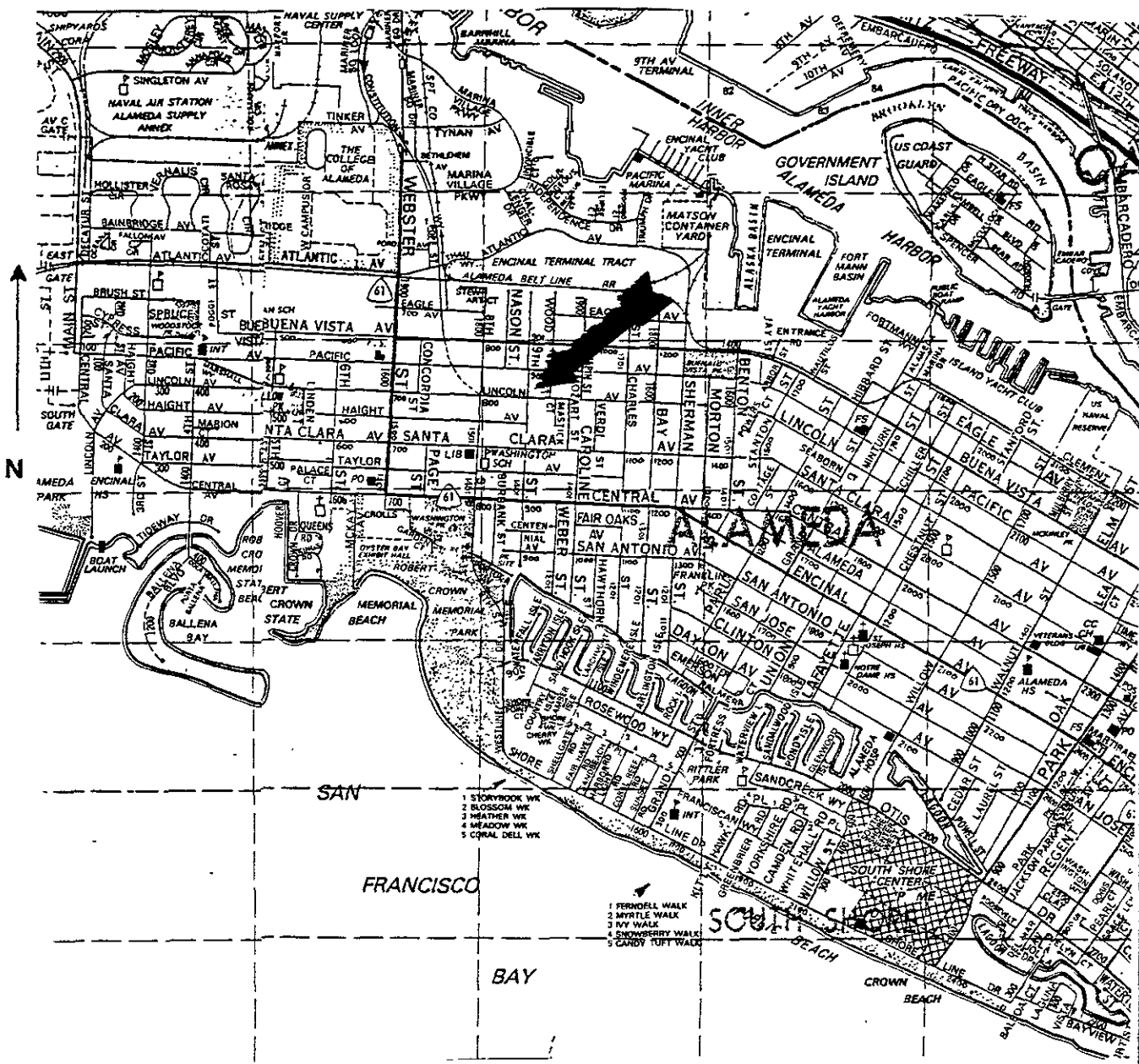
In our opinion, constituents reported in the groundwater from the onsite monitoring well MW-1 is likely a result of remnant impacted soil and/or groundwater concentrated around the former gasoline tank excavation which was not obtained during overexcavation and water removal procedures. Based on the groundwater investigation, the constituents around monitoring well MW-1 are limited in extent. Historic observations indicate that impacted groundwater is not mobile and concentrations will likely fluctuate and degrade overtime.

## **6.0 RECOMMENDATIONS**

Pursuant to the Tri-Regional Board guidelines, ACC recommends that one additional groundwater monitoring be performed for monitoring wells MW-1 and MW-4 onsite. The monitoring should be conducted in August 1995. Additional monitoring will help to demonstrate that "No Further Action" is required at the site.

Environmental investigation work performed to date has demonstrated that adequate source removal has been accomplished, constituent migration is limited and presently minor in areal extent, and any active remediation efforts would not be cost effective or successful at significantly reducing the minor concentrations observed from groundwater monitoring analytical results.

ACC request that "No Further Action" be requested at the site, assuming August groundwater sampling analytical results continue to demonstrate extremely minor hydrocarbon concentrations.



(Source: Thomas Bros.)

**Vicinity Map**

Scale: 1" = 2200'

ACC Environmental Consultants, Inc.  
 1000 Atlantic Avenue, Suite 110  
 Alameda, California 94501

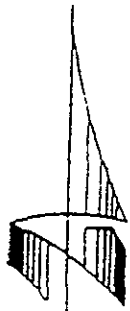
Vicinity Map  
 901 Lincoln Ave.  
 Alameda, California

Project No. 6039-2b

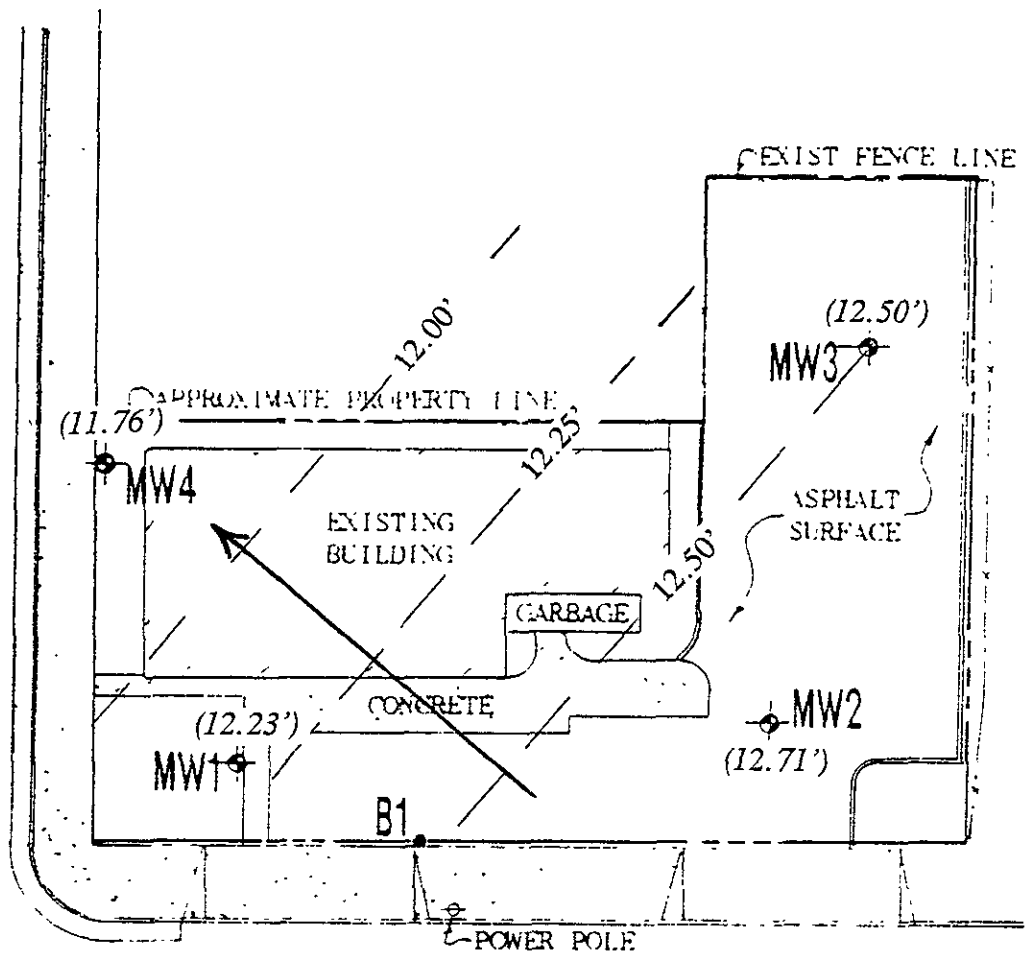
Date: 7/16/93

Dn by: CS

Figure 1



NINTH STREET

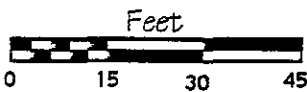


LINCOLN AVENUE

**LEGEND**

Monitoring Well MW1

Groundwater Flow Direction



Scale: 1" = 30'

Elevations in Feet Above Mean Sea Level Measured on 02/15/95

02/14/1995	Drawn By: MCK	Project: 6039-2b	Figure 2:	<b>Groundwater Gradient</b> 901 Lincoln, Alameda, CA
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**APPENDIX A**

**LITHOLOGIC LOGS AND**

**UNIFIED SOIL**

**CLASSIFICATION SYSTEM**

6.85: MW-3

Well Sampling  Well Development

check one

6.32: MW-2

Well Number: MW-1

Job Number: \_\_\_\_\_

Job Name: 901 Lincoln

Date: 2-15-95

Sampler: Bret Culbert

Depth to Water (measured from TOC): 6.76'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/purging: Bail

Amount of Water Bailed/Pumped from well: 69

Depth to Water after well development: \_\_\_\_\_

Depth to water prior to sampling: \_\_\_\_\_

Bailed water stored on-site? How? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope? New

Water Appearance:

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

Gallons Removed	pH	EC	Temp
5	8.40	1.99	62.1
10	7.16	1.99	61.8
15	7.06	1.90	61.8
20	7.10	1.90	61.8
25			
30			
35			
40			
45			
50			

Samples 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-4

Job Number: \_\_\_\_\_

Job Name: 901 Lincoln

Date: \_\_\_\_\_

Sampler: \_\_\_\_\_

Depth to Water (measured from TOC): 6.75'

Inside Diameter of Casing: 2"

Depth of Boring: 20'

Method of well development/purging: BAIL

Amount of Water Bailed/Pumped from well: 10 g

Depth to Water after well development: \_\_\_\_\_

Depth to water prior to sampling: \_\_\_\_\_

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? new

Water Appearance:

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

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
<u>29</u>	<u>7.16</u>	<u>0.96</u>	<u>64.7</u>
<u>209.85</u>	<u>7.95</u>	<u>1.51</u>	<u>63.1</u>
<u>159.5</u>	<u>7.19</u>	<u>1.09</u>	<u>63.0</u>
<u>209.75</u>	<u>7.10</u>	<u>1.20</u>	<u>63.0</u>
<u>25.0</u>	<u>7.26</u>	<u>1.00</u>	<u>63.0</u>
30			
35			
40			
45			
50			

**APPENDIX B**

**CHAIN OF CUSTODY FORMS**

**AND**

**ANALYTICAL RESULTS**

# CHROMALAB, INC.

Environmental Services (SDB)

February 23, 1995

Submission #: 9502200

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 901 LINCOLN  
Received: February 15, 1995

Project#: 6039-2B

re: 2 samples for Gasoline and BTEX analysis.

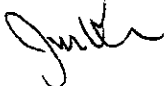
Matrix: WATER

Sampled: February 15, 1995  
Method: EPA 5030/8015M/602/8020

Run#: 5468

Analyzed: February 22, 1995

Sp1 #	CLIENT	SMPL ID	Gasoline (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
77866	MW-1		0.08	1.9	N.D.	N.D.	3.6
77867	MW-4		N.D.	N.D.	N.D.	N.D.	N.D.
Reporting Limits			0.05	0.5	0.5	0.5	0.5
Blank Result			N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)			106	93	100	89	103



Jack Kelly  
Chemist



Ali Kharrazi  
Organic Manager



# CHROMALAB, INC.

DOHS 1094

SUBM #: 9502200  
 CLIENT: ACC  
 DUE: 02/23/95  
 REF #: 20529

200/77866-77867

20529

## Chain of Custody

3

DATE \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_

PROJ. MGR Misty Kaltreider  
 COMPANY Acc Environ  
 ADDRESS 1000 Atlantic Ave, Ste 110  
Alameda, CA 94501  
 SAMPLES (SIGNATURE) Bret Culbert (PHONE NO) 5105228188

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	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, 8+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)	NUMBER OF CONTAINERS	
MW-1	2-15-95	12 noon	H <sub>2</sub> O	Cold		✓																
MW-4	2-15-95	11 noon	H <sub>2</sub> O	Cold		✓																3
																						3

**PROJECT INFORMATION**  
 PROJECT NAME: 901 Lincoln  
 PROJECT NUMBER: 6039-2b  
 P.O. #: 6039-2b  
 TAT: STANDARD 5-DAY  
 SPECIAL INSTRUCTIONS/COMMENTS:

**SAMPLE RECEIPT**  
 TOTAL NO. OF CONTAINERS: 6  
 HEAD SPACE: \_\_\_\_\_  
 REC'D GOOD CONDITION/COLD: ✓  
 CONFORMS TO RECORD: \_\_\_\_\_  
 24 48 72 OTHER

RELINQUISHED BY <u>Bret Culbert</u> 12:30 (SIGNATURE) (TIME) <u>Bret Culbert</u> 2-15-95 (PRINTED NAME) (DATE) ACC (COMPANY)	RELINQUISHED BY _____ (SIGNATURE) (TIME) _____ (PRINTED NAME) (DATE) _____ (COMPANY)	RELINQUISHED BY _____ (SIGNATURE) (TIME) _____ (PRINTED NAME) (DATE) _____ (COMPANY)
RECEIVED BY <u>[Signature]</u> 1:32 (SIGNATURE) (TIME) <u>[Signature]</u> 2-15-95 (PRINTED NAME) (DATE) _____ (COMPANY)	RECEIVED BY _____ (SIGNATURE) (TIME) _____ (PRINTED NAME) (DATE) _____ (COMPANY)	RECEIVED BY (LABORATORY) _____ (SIGNATURE) (TIME) _____ (PRINTED NAME) (DATE) _____ (LAB)