

September 22, 1994

Mr. Steve Chrissanthos Alameda Cellars 1702 Lincoln Avenue Alameda, CA 94501

RE: Quarterly 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.

91, OCT -5 PH 2: 2

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 on-site.

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 and Benzene, Toluene, Ethylbenzene, 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 QUARTERLY GROUNDWATER SAMPLING

901 LINCOLN AVENUE ALAMEDA, CALIFORNIA

September 1994

Prepared for: Mr. Steve Chrissanthos Alameda Cellars 1702 Lincoln Avenue Alameda, CA 94501

Prepared by:

Misty Kaltreider

Project Geologist

Reviewed by:

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Nº 1262

CERTIFIED ENGINEERING **GEOLOGIST**

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Certified Engineering Geologist



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1.0 INTRODUCTION

This report presents the procedures and findings of quarterly 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 presently occupied by E-Z Liquors, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. 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.

Per request of Alameda County Health Care Services - Hazardous Materials Division, a preliminary Site Assessment was conducted to further evaluate the soil contamination from the gasoline release on-site.

ACC was retained by Mr. Chrissanthos to perform the work requested by the Alameda County Health Care Services.

In December 4, 1992, three monitoring wells were installed on-site. Analytical results of soil collected during drilling indicated 55.96 parts per million (ppm) of TPH as gasoline with benzene, toluene, ethylbenzene, and total xylenes (BTEX) from monitoring well MW-1. Soil samples collected from the other borings indicated constituents below detectable levels.

Initial groundwater samples collected from the on-site 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 on-site 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 on-site monitoring wells indicated below detectable levels of constituents in monitoring wells MW-2, MW-3, and MW-4. Detectable levels of TPH as gasoline with BTEX was reported in the groundwater sample from monitoring well MW-1.

Laboratory results of groundwater collected from monitoring wells MW-2 and MW-3 indicated non-detect for five consecutive quarters.

In December 1993, Alameda County Health Care Services Agency approved a reduction in groundwater sampling on-site. The revised groundwater sampling and monitoring program included performing monitoring on all four wells on-site and collecting groundwater samples from only monitoring wells MW-1 and MW-4. 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 August 29, 1994. 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

Date Sampled	Depth to Groundwater (ft)	Groundwater Elevation (ft)
Well No. MW-1 - 18.99 M	<u>SL</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
Well No. MW-2 - 19.03 M	<u>SL</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

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

Date Sampled	Depth to Groundwater (ft)	Groundwater Elevation (ft)
Well No. MW-2 - 19.03	MSL	
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
08/29/94	11.16	7. 87
Well No. MW-3 - 19.35	MSL	
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
Well No. MW-4 - 18.51	MSL	
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

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 August 29, 1994. The sample were analyzed for TPH as gasoline by EPA test method 5030 and BTEX by EPA test method 602. Laboratory analytical results are summarized in Table 2 and attached in Appendix B.

TABLE 2 - Analytical Results, Groundwater

Well	Date Sampled	TPH-gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Numbe	<u>r</u>	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(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
		. 50		- 0 #	.0.5	-0.5
MW-2		<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

TABLE 2 - Analytical Results, Groundwater, Cont.

Well Date Sampled Number	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
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
05/16/94	NT	NT	NT	NT	NT
08/29/94	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

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 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 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 on-site monitoring wells. The location of the wells is shown in Figure 1 - Site Plan.

Groundwater elevations were collected from the wells on August 25, 1994 and are 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

Date Monitored	Gradient (foot/foot)	Direction
12/15/92	0.00175	west-southwest
01/06/93	0.004	northwest
02/09/93	0.008	northwest
03/10/93	0.009	northwest

TABLE 3 - Historic Groundwater Gradient, Cont.

Date Monitored	Gradient (foot/foot)	Direction
04/08/93	0.011	northwest
05/17/93	0.008	northwest
06/23/93	0.008	north-northwest
07/13/93	0.0064	northwest
08/10/93	0.0064	northwest
09/10/93	0.0064	northwest
10/25/93	0.0071	northwest
11/12/93	0.0056	northwest
02/16/94	0.01	northwest
03/10/94	0.01	northwest
05/16/94	0.016	northwest
08/29/94	0.0064	northwest

5.0 CONCLUSION

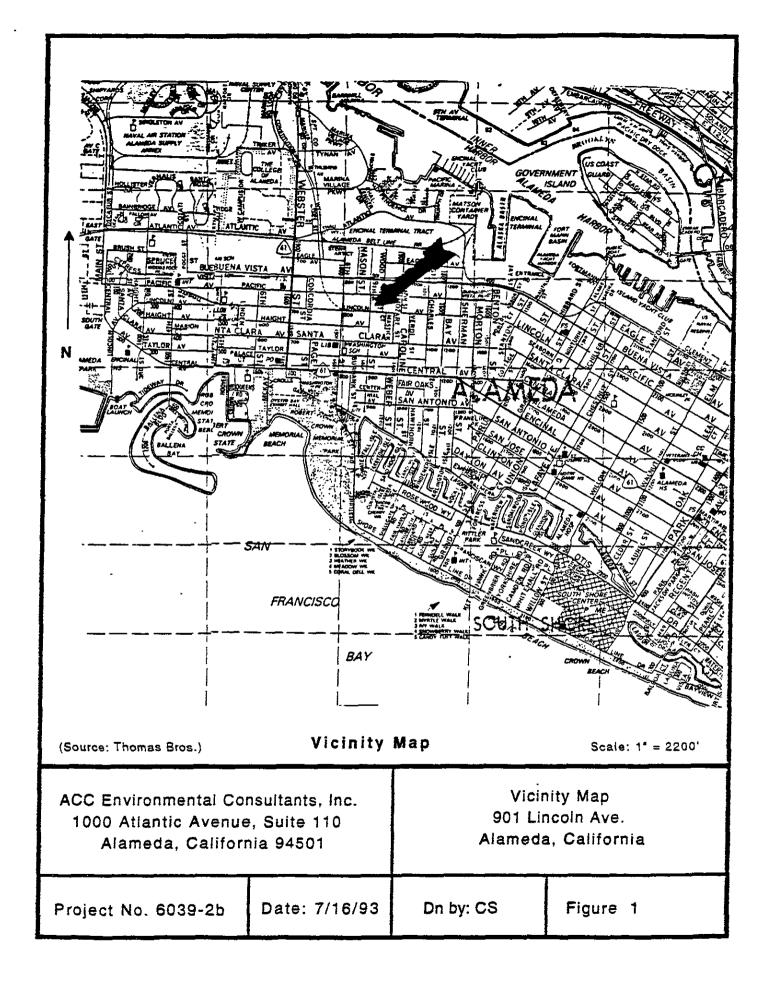
The data and observations discussed herein indicate that groundwater and soil has been impacted due to an unauthorized hydrocarbon release. In December 1992, low levels of Total Petroleum Hydrocarbons (TPH) as gasoline with BTEX were found in the soil sample collected at 11 feet bgs from boring MW-1. Soil staining was also observed in the same boring from 8 to 13 feet below ground surface. Initial sampling and analysis of the groundwater in December 1992 indicated no release had occurred to impact groundwater.

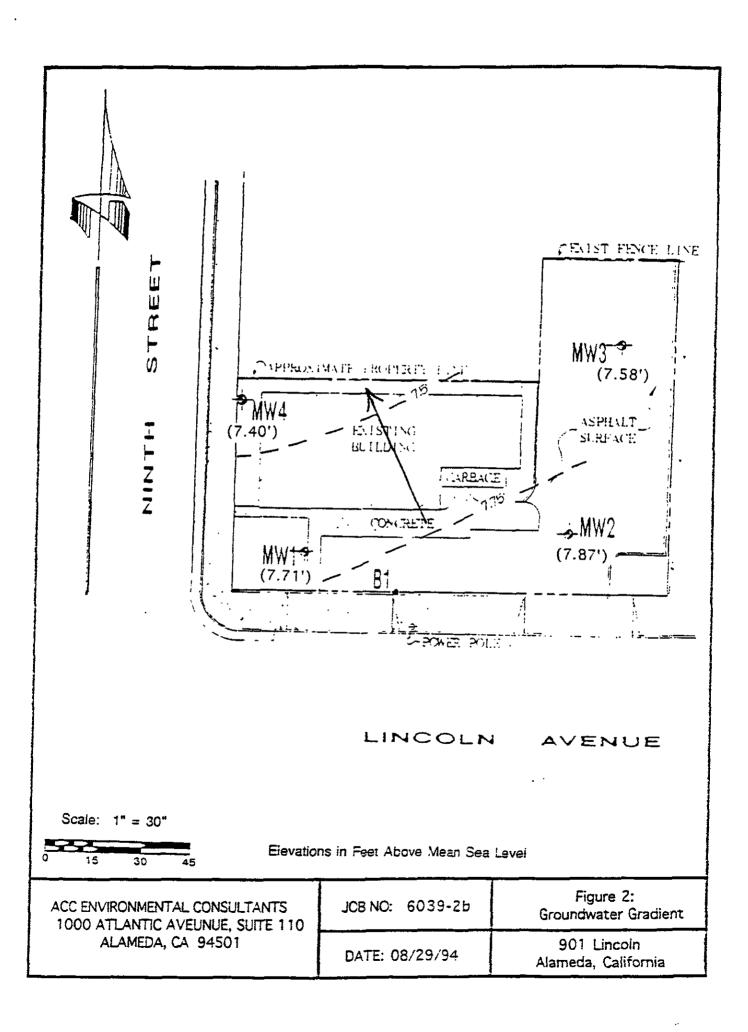
Further soil investigation performed in February 1993, indicated hydrocarbon impact on-site is limited to soil around monitoring well MW-1.

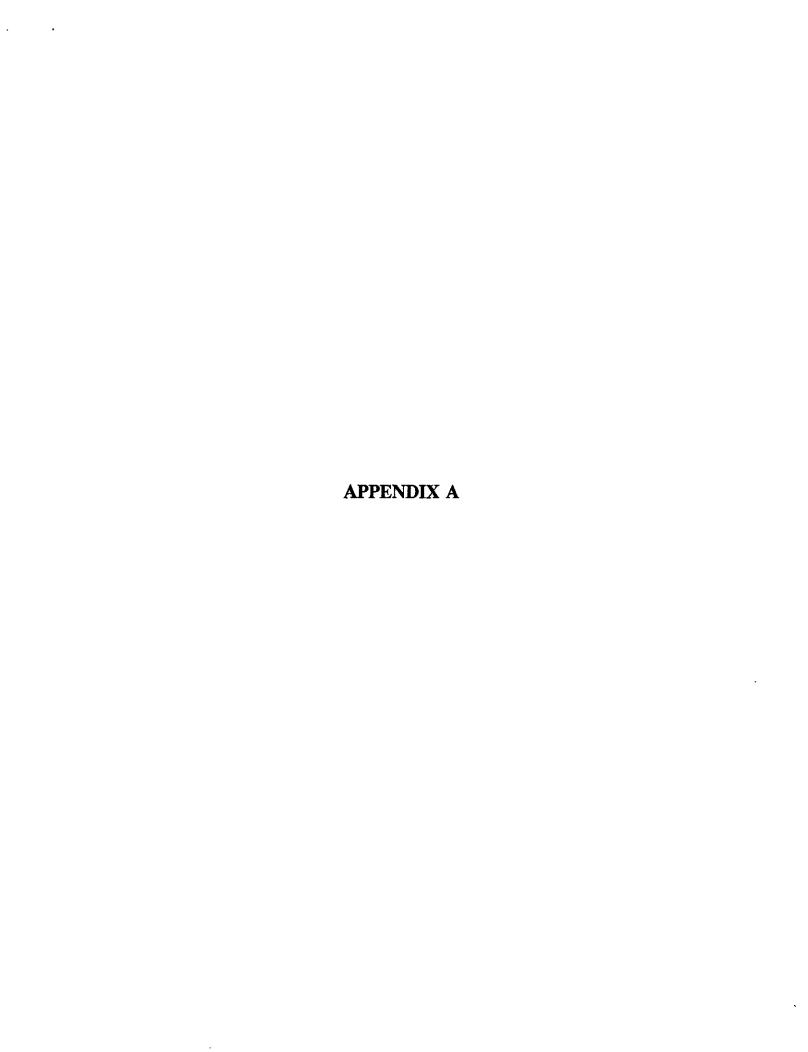
An additional monitoring well (MW-4) was installed in October 1993. This well was located downgradient (northwest) of the former tank excavation to evaluate the extent of groundwater contaminate plume. Laboratory analysis of soil and groundwater samples collected from monitoring well MW-4 indicated below detectable levels of constituents for four quarters.

Fluctuations in rainfall changes the elevation of the groundwater. During times of increased elevation of groundwater, contaminated soil adjacent to monitoring well MW-1 comes into contact with the groundwater. In our opinion, this represents residual contamination around MW-1 since data from monitoring well MW-4 (downgradient) shows soil and groundwater is not contaminated. Historic observations indicate that this contamination is not mobile and ACC anticipates a decline in concentrations overtime.

Based on historic observation, ACC proposes to reduce the amount of groundwater sampling to a semi-annual basis on monitoring wells MW-1 and MW-4. Semi-annual sampling will effectively monitor the degradation of constituents around MW-1 and document fluctuations in groundwater elevations and gradient. Potentiometric measurements will continue to be made in all four wells.







	Well Sampling Well Development	
MW-3 Toc: 11.77' ~	Well Number: MW-4	
Toc: 11.77' ~	Job Number: 6039-1	
1	Job Name: 901 Lincoln	
×	Date: 8-25-94	
	Sampler: Culbert	

ie: <u>8-25-94</u>		
er: <u>Culbert</u>		
Depth to Water (measured from TCC):_	11.11 \(\sqrt{1} \)	
Inside Diameter of Casing:	2"	
Depth of Bonng:_	<u>10'</u>	
Method of well development/purging:_	Pump	-
Amount of Water Bailed/Pumped from well:_	6	
Depth to Water after well development:_		
Depth to water prior to sampling:_	12.01	
Bailed water stored on-site ? How ?	Drams	
Number of well volumes removed:	4	
TSP wash, distilled rinse, new rope ?	TSP/Dishih	ed RINSE
I At Attack Annual Control of Con		

Water Appearance:

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irridesence		
cil		
smell		
product		
other, describe		

Gailons Removed	1 CH	1 E	Temp
5	6.56	11.15	69.2
10	6.54	11.16	169.2
1.5	6.66	11.12	169.1
20		1	
25		<u> </u>	1 1
30		1	<u> </u>
3.5		1	
40			<u> </u>
45			<u> </u>
50		1	

Samples Obtained:

check one

TPH (gasoline)	
TPH (ciesel)	
TPH (motor cii)	
ETXE	
EPA 624	
EPA 625	
EPA 608	
PCEs only	
Vietais	
Other, specify	
Field Elank	

Well Sampling Well Developme	nt check one
Weil Number: MW-1	
Job Number: 6039-1	
Job Name: 901 Incoln	
Date: 8-25-94	•
Sampler: Pulbert	
	cm TCC): //. 2 8
Depth to Water (measured from .	2."
Inside Diameter o	of Casing:
Depth o	of Boring: 15
Method of well development	Vourging: pump
Amount of Water Bailed/Pumped fr	rom well: 3.7 caller
Depth to Water after well deve	U
Depth to water prior to s	maxi 1110
·	0
Bailed water stored on-site (
Number of well volumes re	v rope? TSP/Dishlad
TSP wasn, distilled rinse, new	v roce? 75 / Dishiba
Water Appearance: ves ro froth irridesence oil	
smell vi	Samples Obtained:
other, describe	TPH (gascline) TPH (diesel)
Gailors Removed CH EC Temp!	TPH (motor cii)
5 17.10 11.78 193.1 10 16.4/11.59 173.1	ETXE EPA 624
15 164411,60 1728	EPA 625
20 16.49 11-87 172.1	EPA 608 PCEs only
25 G. 50 1.65 12.7 30	Metals
35	Other, specify
40	Field Blank
45	
50	

Well Samp	ding 📈	Weil Development	. 7	check one
·	Mw-2	-		
	6039-1			
Job Number:_	901	ucoln		
Jcb Name:_	101 Lin	JCOIN	•	
Date:_		<u>94</u>		
Sampier:_	Culb	ert		
		ter (measured from TC	c;: 11.1	6
·	ı	nside Diameter of Casir	:g:2	<u> </u>
		Depth of Born	ng: 17.	<u> </u>
	Method of v	veil developmentburgin	g: <u>Ba</u> ı	1
Am	cunt of Water f	Bailec/Pumped from we	ed: U	tallins
		r after weil cevelopmer	, ,	,
	,	water prior to sampling		5
		r stored on-site ? How	_	
		f well volumes removed		
		stilled rinse, new rope		<u>)</u>
Water Appearance:				
• •	es 70			
smell			Samples Obt	airect
other, describe			TPH (gasoli TPH (giese)	
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	6 1.33 73.2	-	EPA 624 EPA 625	
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30 1		1	Metals	.
3.5			Other, specif	у —
40		į	Field Elank	
45				
50	1 1	<u>1</u>		



CHROMALAB, INC.

Environmental Services (SDB)

September 6, 1994

Submission #: 9408358

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 901 LINCOLN

Project#: 6039-2B

Received: August 29, 1994

re: 2 samples for Gasoline and BTEX analysis

Matrix: WATER

Sampled: August 25, 1994

Analyzed: September 2, 1994

Method: EPA 5030/M.8015/602

RESULTS:

Sample	Client Sample I.D.	Gasoline (mg/L)	Benzene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)	
61380	MW1	0.50	12	1.3	2.2	4.6
61381	MW4	N.D.	N.D.	N.D.	N.D.	N.D.
Blank		N.D.	N.D.	N.D.	N.D.	N.D.
Blank S	Spike Recovery(%) 116	98	98	98	98
	ng Limit	0.05	0.5	0.5	0.5	0.5

ChromaLab, Inc.

Billy Thach

Analytical Chemist

Ali Kharrazi Organic Manager

kv

SUBM #: 9408358

CLIENT: ACC

09/06/94

DUE: REF #:18162 1CF 181622 -

CHROMALAB, INC.

DOHS 1094

2239 Omega Road,

510/831-178

Chain of Custody

	PROJ. I	MGN.	Misty	r K	KItu	اعط	ev										······································		ANI	V Vala	REPO	DAT	_E 9	129 4	<u> 14</u>		PAGE .		01	F	
	9/	AMPL	ACC 100C ALM SNATURE Call	. 7.	DATE /25/40	Ť		MATE		e NO)		TPH - Casoline (5030, 8015) w/8TEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURCEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	8ASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, 8+F, E+F)	080)		TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	9 8 1	METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)		•		NUMBER OF CONTAINERS
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