

PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

JAN 5 '92 T.L.H.

20-195

January 2, 1992  
Project 325-10.01

Ms. Nancy Vukelich  
Chevron USA, Inc.  
P.O. Box 5004  
San Ramon, California 94583

Re: Chevron Service Station 9-0290  
1802 Webster Street at Buena Vista Avenue  
Alameda, California

Dear Ms. Vukelich:

This letter presents the results of groundwater monitoring and ~~weekly separate-phase hydrocarbon (SPH) removal~~ performed by Pacific Environmental Group, Inc. (PACIFIC), for Chevron USA, Inc. (Chevron) at the above referenced site (Figures 1 and 2).

#### **SITE DESCRIPTION AND BACKGROUND**

The service station is currently active with four underground fuel storage tanks and one underground waste-oil tank located in the south central portion of the site. Two tank backfill wells (A-1 and A-2) and four groundwater monitoring wells (B-3 through B-6) are located on site and extend to an approximate depth of 20 feet below the ground surface. The service station layout is presented on Figure 2.

As a result of an apparent fuel leak from an underground storage tank, six monitoring wells were installed at the site during an initial site investigation performed by IT Enviroscience in January 1982. No chemical analyses were performed on soil or groundwater. On September 19, 1991, approximately 1,400 gallons of diesel fuel were inadvertently pumped into Backfill Well A-1 during tank testing activities. Approximately 4,900 gallons of SPH and water were removed on that day with the use of a vacuum truck. At the request of Chevron, PACIFIC sampled groundwater from the wells that did not contain SPH (Wells A-2, B-4, B-5, and B-6) and began a weekly SPH removal program.

## FINDINGS

Groundwater from site monitoring wells was sampled on September 20, 1991 and analyzed for oil and grease, low-boiling hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene and xylenes (BTEX compounds), and for high-boiling hydrocarbons calculated as diesel. Following the sampling event, the wells were checked weekly for SPH and bailed or purged of product if necessary. The depth to groundwater at the site during this monitoring period ranged from approximately 5-1/2 to 7-1/2 feet below the surface. ~~The groundwater flow direction was consistently to the east with an approximate gradient between 0.01 and 0.02.~~ A summary of groundwater elevations and product thicknesses is presented in Table 1. A groundwater contour map based on the elevation measurements obtained on the sampling date is presented on Figure 2.

~~Dissolved hydrocarbons were only detected in groundwater from Wells A-2 and B-4 at concentrations of 3,100 and 19,000 parts per billion (ppb) gasoline, respectively.~~ Although diesel was detected in Wells A-2 and B-4, the chromatograph pattern was noted by the laboratory to be typical of gasoline and not necessarily indicative of a diesel source. A summary of the groundwater analytical results is presented in Table 2 and Figure 3. Sampling and laboratory procedures are presented in Attachment A. Certified laboratory analytical reports and chain-of-custody documentation are presented in Attachment B.

SPH has been noted consistently in Wells A-1 and A-2 since the fourth week in October 1991 with thicknesses ranging from 0.5 to 0.65 feet in Well A-1 and 0.09 to 0.24 feet in Well A-2. Product odor and sheen was also consistently noted in Wells B-3 and B-4. SPH has been noted twice in Well B-3 at a thickness less than or equal to 0.01 feet. ~~A vacuum truck was used for initial SPH removal on September 19 and 24, 1991 removing a total of 7,616 gallons of SPH and water from the wells.~~ The estimated volume of SPH recovered during these two days is approximately 1,600 gallons. During subsequent weekly purging events using a centrifugal pump, an additional 300 gallons of product is estimated to have been removed. Cumulatively, approximately 8,056 gallons of SPH and water were removed with an estimated 1,888 gallons of SPH recovered since implementation of the SPH removal program in September 1991.

January 2, 1992

Page 3

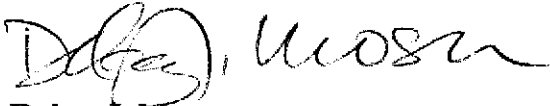
If you have any questions or comments regarding this letter, please call.

Sincerely,

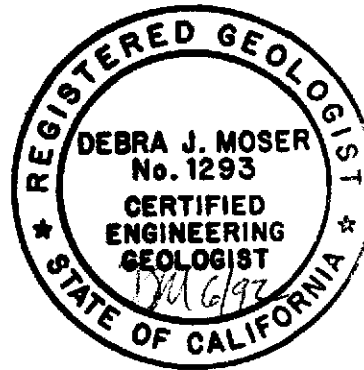
**Pacific Environmental Group, Inc.**



Jerry W. Mitchell  
Project Geologist



Debra J. Moser  
Senior Geologist  
CEG 1293



Attachments: Table 1 - Groundwater Elevation Data  
Table 2 - Groundwater Analytical Data  
Figure 1 - Site Location Map  
Figure 2 - Liquid Surface Elevation Contour Map  
Figure 3 - Dissolved Gasoline/Benzene Concentration Map  
Attachment A - Sampling and Laboratory Procedures  
Attachment B - Certified Laboratory  
Analytical Reports and Chain-of-Custody  
Documentation

**Table 1  
Groundwater Elevation Data**

Chevron Service Station 9-0290  
1802 Webster Street  
Alameda, California

Well Number	Sample Date	Well Elevation, TOB (feet, MSL)	Depth to Liquid, TOB (feet)	Depth to Water, TOB (feet)	Hydrocarbon Thickness (feet)	Liquid Elevation (feet, MSL)	
A-1	09/20/91	8.41	7.93	9.51	1.58	0.48	
	10/09/91			6.95		1.46	
	10/17/91			6.98		0.58	1.43
	10/23/91			7.05		0.65	1.36
	11/01/91			6.92		0.50	1.49
	11/07/91			6.91		0.51	1.50
	11/15/91			6.94		0.53	1.47
	11/21/91			7.02		0.54	1.28
	12/12/91			7.12		0.49	1.29
	A-2			09/20/91		8.32	
10/09/91		6.93	1.39				
10/17/91		6.98	1.34				
10/23/91		7.03	0.09	1.29			
11/01/91		6.87	0.15	1.45			
11/07/91		6.87	0.21	1.45			
11/15/91		6.94	0.19	1.38			
11/21/91		7.01	0.24	1.31			
12/12/91		7.08	0.15	1.24			

Table 1 (continued)  
Groundwater Elevation Data

Chevron Service Station 9-0290  
1802 Webster Street  
Alameda, California

Well Number	Sample Date	Well Elevation, TOB (feet, MSL)	Depth to Liquid, TOB (feet)	Depth to Water, TOB (feet)	Hydrocarbon Thickness (feet)	Liquid Elevation (feet, MSL)
B-3	09/20/91	8.27	7.19	7.20	0.01	1.08
	10/09/91			6.61		1.66
	10/17/91			6.70		1.57
	10/23/91			6.74		1.53
	11/01/91			6.57		1.70
	11/07/91			6.58		1.69
	11/15/91			6.65		1.62
	11/21/91			6.70		1.57
	12/12/91			7.08		7.08
B-4	09/20/91	8.17		6.95		1.22
	10/09/91			6.76		1.41
	10/17/91			6.97		1.20
	10/23/91			7.00		1.17
	11/01/91			6.83		1.34
	11/07/91			6.86		1.31
	11/15/91			6.96		1.21
	11/21/91			6.97		1.20
	12/12/91			7.00		7.00

Table 1 (continued)  
Groundwater Elevation Data

Chevron Service Station 9-0290  
1802 Webster Street  
Alameda, California

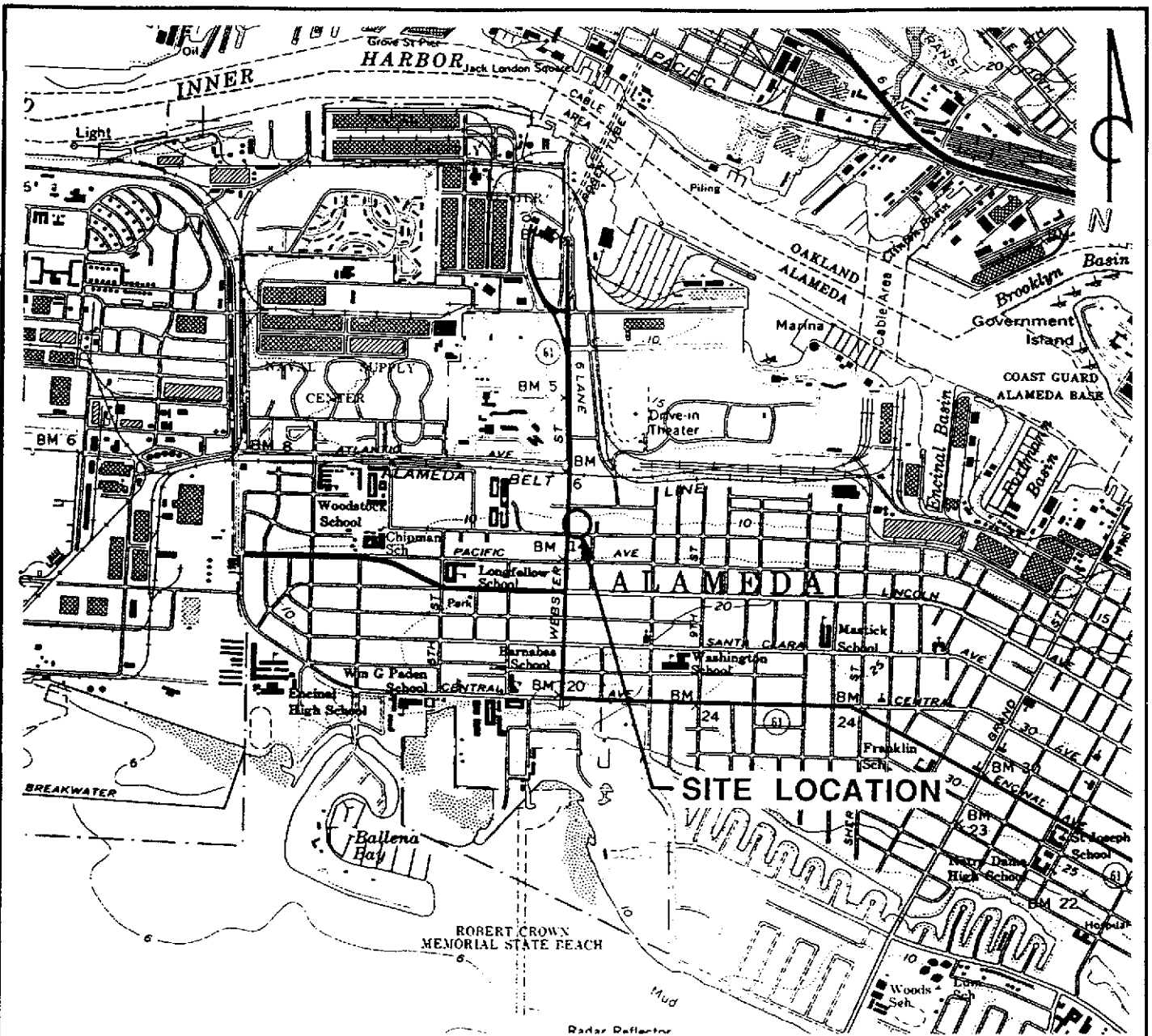
Well Number	Sample Date	Well Elevation, TOB (feet, MSL)	Depth to Liquid, TOB (feet)	Depth to Water, TOB (feet)	Hydrocarbon Thickness (feet)	Liquid Elevation (feet, MSL)
B-5	09/20/91	7.86		5.66		2.20
	10/09/91			5.44		2.42
	10/17/91			5.77		2.09
	10/23/91			5.81		2.05
	11/01/91			5.62		2.24
	11/07/91			5.67		2.19
	11/15/91			5.76		2.10
	12/12/91			5.81		2.05
B-6	09/20/91	8.65		6.95		1.70
	10/09/91			6.93		1.72
	10/17/91			7.00		1.65
	10/23/91			7.03		1.62
	11/01/91			6.88		1.77
	11/07/91			6.91		1.74
	11/15/91			6.98		1.67
	11/21/91			7.05		1.60
	12/12/91		7.24	1.41		

TOB = Top of box  
MSL = USGS mean sea level datum

**Table 2  
Groundwater Analytical Results**

Chevron Service Station 9-0290  
1802 Webster Street  
Alameda, California

Well Number	Sample Date	TPH-Gasoline (ppb)	TPH-Diesel (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
A-2	09/20/91	8,100	5,100*	860	14	110	53
B-4	09/20/91	19,000	1,400*	710	160	650	2,000
B-5	09/20/91	ND	ND	ND	ND	ND	ND
B-6	09/20/91	ND	NA	ND	ND	ND	ND
<b>Detection Limits:</b>		50	50	0.5	0.5	0.5	0.5
TPH = Total petroleum hydrocarbons ppb = Parts per billion ND = Not detected NA = Not analyzed * = Chromatograph pattern in diesel range typical of gasoline							

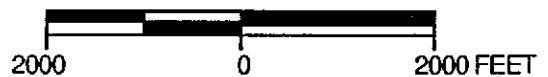


QUADRANGLE  
LOCATION

**REFERENCES:**

USGS 7.5 MIN. TOPOGRAPHIC MAP  
TITLED: OAKLAND WEST, CALIFORNIA  
DATED: 1959 REVISED: 1980

**SCALE**



PACIFIC  
ENVIRONMENTAL  
GROUP INC.

CHEVRON USA STATION 9-0290  
1802 Webster Street at Buena Vista Avenue  
Alameda, California

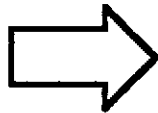
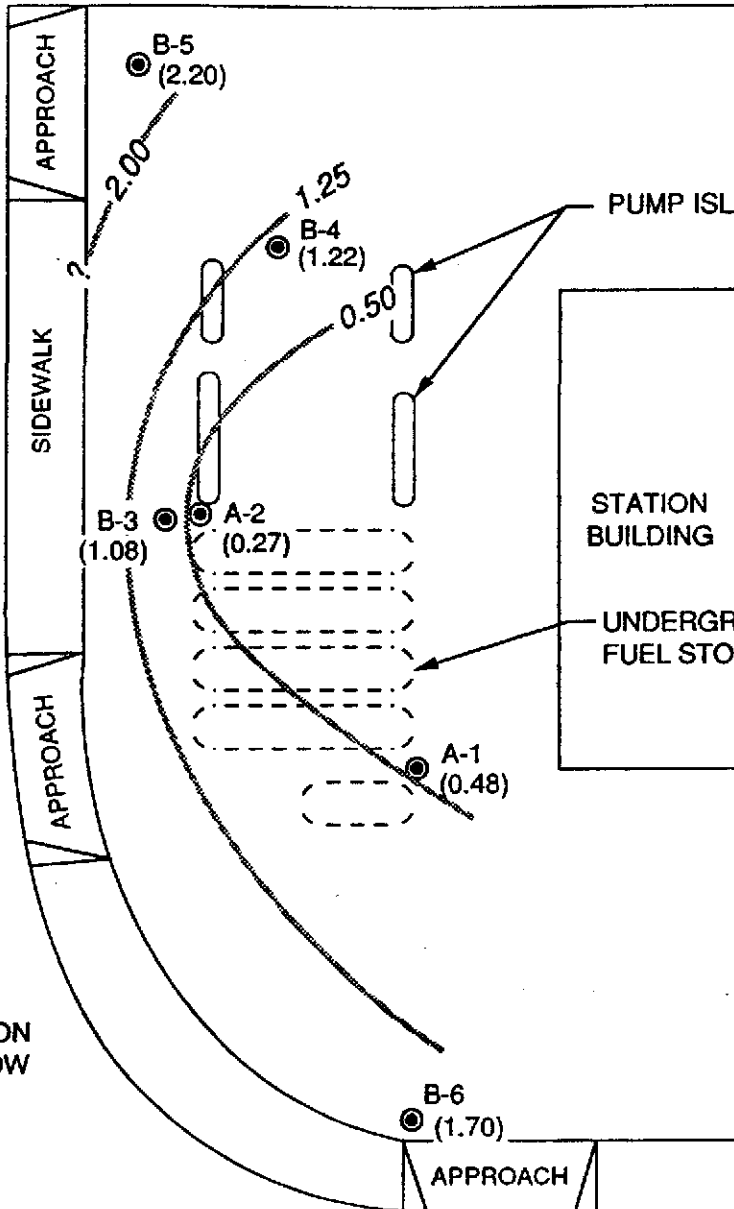
**SITE LOCATION MAP**

FIGURE:  
**1**  
PROJECT:  
325-10.01





**WEBSTER STREET**



APPROXIMATE DIRECTION OF GROUNDWATER FLOW

EAST

**BUENA VISTA AVENUE**

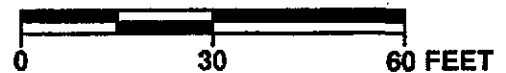
**LEGEND**

A-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

(0.48) LIQUID SURFACE ELEVATION IN FEET - MSL, 9-20-91

0.50 LIQUID SURFACE ELEVATION CONTOUR IN FEET - MSL, 9-20-91

**SCALE**



PACIFIC ENVIRONMENTAL GROUP, INC.

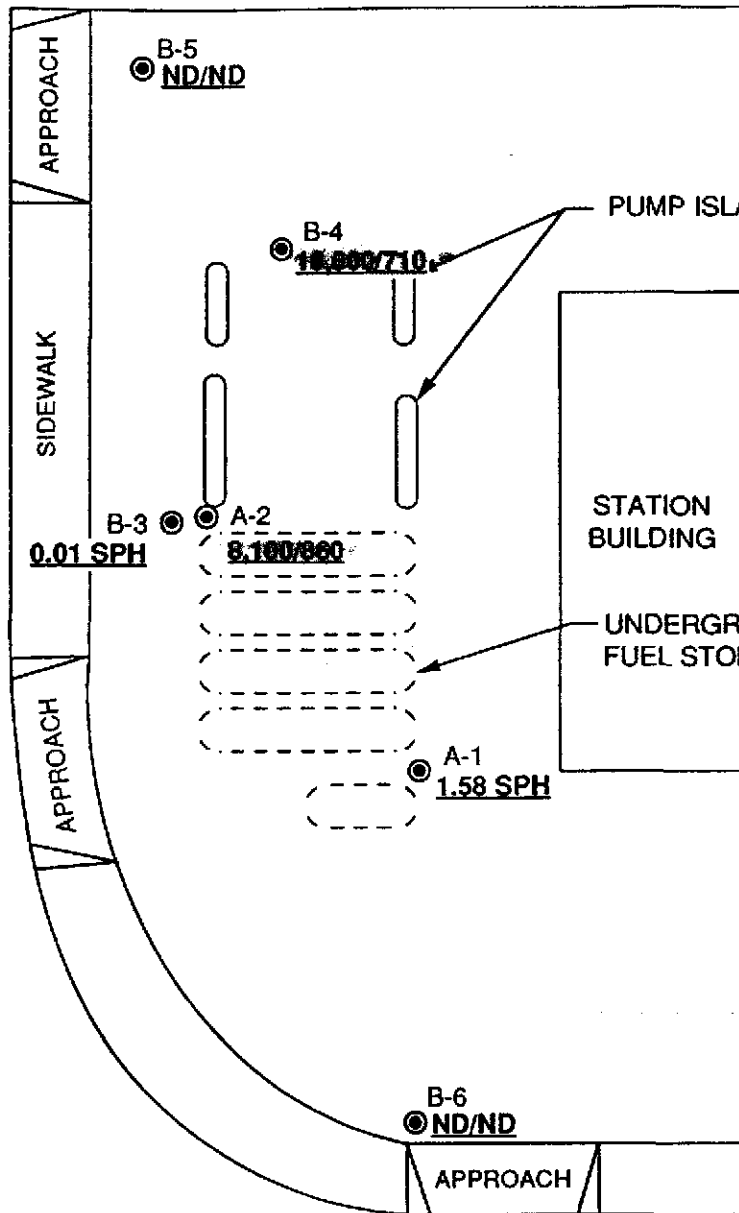
**CHEVRON USA STATION 9-0290**  
1802 Webster Street at Buena Vista Avenue  
Alameda, California

**LIQUID SURFACE ELEVATION CONTOUR MAP**

**FIGURE: 2**  
**PROJECT: 325-10.01**



WEBSTER STREET



BUENA VISTA AVENUE

**LEGEND**

A-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

19,000/710 GASOLINE/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 9-20-91

0.01 SPH SEPARATE-PHASE HYDROCARBON THICKNESS IN FEET, 9-20-91

ND NON-DETECTABLE LEVELS

**SCALE**



PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON USA STATION 9-0290  
1802 Webster Street at Buena Vista Avenue  
Alameda, California

DISSOLVED GASOLINE/BENZENE CONCENTRATION MAP

FIGURE: **3**  
PROJECT: 325-10.01

03/02/92

**ATTACHMENT A**  
**SAMPLING AND LABORATORY PROCEDURES**

## **ATTACHMENT A**

### **SAMPLING AND LABORATORY PROCEDURES**

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#### **Sampling Procedures**

The sampling procedure consists of first measuring the water level in each well, and checking each well for the presence of separate-phase hydrocarbons using a clear Teflon bailer. If the wells did not contain separate-phase hydrocarbons they were then purged of approximately four casing volumes (or to dryness) with the use of a bailer. During purging, temperature, pH, and electrical conductivity were monitored in order to document that these parameters were stable prior to collecting samples. After purging, water levels were allowed to partially restabilize before sampling. Groundwater samples were collected using a Teflon bailer, placed into the appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a state-certified laboratory. Chain-of-custody documentation is attached.

#### **Laboratory Analysis**

Groundwater samples were analyzed for the presence of low-boiling hydrocarbons (calculated as gasoline), including benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) according to EPA Methods 8015/5030 and 8020. In addition groundwater samples were analyzed for TPH-diesel by EPA Method 8015 and oil and grease by EPA Method 503E.

**ATTACHMENT B**  
**CERTIFIED LABORATORY ANALYTICAL REPORTS AND**  
**CHAIN-OF-CUSTODY DOCUMENTATION**



# Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 12375  
CLIENT: Pacific Environmental Group  
CLIENT JOB NO.: 325-10.01

DATE RECEIVED: 09/23/91  
DATE REPORTED: 10/02/91

Page 1 of 2

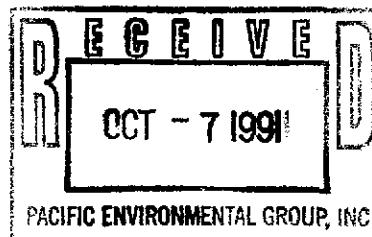
Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
12375- 1	A-2	09/20/91	09/26/91
12375- 2	B-4	09/20/91	09/26/91
12375- 3	B-5	09/20/91	09/26/91
12375- 4	B-6	09/20/91	09/26/91
12375- 5	TB	09/20/91	09/26/91
12375- 6	RINSATE	09/20/91	09/27/91

Laboratory Number:	12375	12375	12375	12375	12375
	1	2	3	4	5

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	ND<5000	ND<5000	ND<5000	ND<5000	NA
TPH/GASOLINE RANGE:	8100	19000	ND<50	ND<50	ND<50
TPH/DIESEL RANGE:	5100*	1400*	ND<50	ND<50	NA
BENZENE:	860	710	ND<0.5	ND<0.5	ND<0.5
TOLUENE:	14	160	ND<0.5	ND<0.5	ND<0.5
ETHYL BENZENE:	110	650	ND<0.5	ND<0.5	ND<0.5
XYLENES:	53	2000	ND<0.5	ND<0.5	ND<0.5

Laboratory Number:	12375
	6

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)
OIL AND GREASE:	NA
TPH/GASOLINE RANGE:	ND<50
TPH/DIESEL RANGE:	NA
BENZENE:	ND<0.5
TOLUENE:	ND<0.5
ETHYL BENZENE:	ND<0.5
XYLENES:	ND<0.5





# Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

## C E R T I F I C A T E   O F   A N A L Y S I S

### ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2  
QA/QC INFORMATION  
SET: 12375

NA = ANALYSIS NOT REQUESTED  
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT  
ug/l = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:  
Minimum Detection Limit in Water: 5000ug/L

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:  
Minimum Quantitation Limit for Diesel in Water: 50ug/l  
Standard Reference: 06/25/91

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:  
Minimum Quantitation Limit for Gasoline in Water: 50ug/l  
Standard Reference: 07/23/91

SW-846 Method 8020/BTXE  
Minimum Quantitation Limit in Water: 0.5ug/l  
Standard Reference: 06/13/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	04/02/91	10mg	104/84	10.6	50-125
Diesel	06/25/91	1000ug	93/95	1.0	80-120
Gasoline	07/23/91	200ng	95/90	5.2	59-121
Benzene	06/13/91	200ng	85/87	2.3	70-125
Toluene	06/13/91	200ng	85/87	2.3	74-116
Ethyl Benzene	06/13/91	200ng	86/87	1.7	75-120
Total Xylene	06/13/91	600ng	92/89	3.1	75-119

\* Diesel range concentration reported. The pattern of peaks observed in the chromatogram is typical of gasoline.

Richard Srna, Ph.D.

*Richard Srna*  
Laboratory Director



# Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

## MOCK INVOICE

Chevron USA  
P.O. Box 5004  
San Ramon, CA 94583

Date: 10/02/91  
Date Rcvd: 09/23/91  
Date Rptd: 10/02/91  
Our Job #: 12375  
Invoice #: 12375

Pacific Environmental Group Job # 325-10.01  
Chevron USA Release # Facility #: 9-0290

QTY/MATRIX	ANALYSIS	EXT. PRICE
4 WATER	sample(s) for O&G @ \$0.00 (NORMAL)	0.00
4 WATER	sample(s) for TPHLL @ \$0.00 (NORMAL)	0.00
6 WATER	sample(s) for VPH-BTXE @ \$0.00 (NORMAL)	0.00
TOTAL INVOICE		0.00

Please Send Payment To:  
Superior Analytical Labs  
P.O. Box 1545  
Martinez, CA 94553

TERMS: NET 30

A charge of 1.5% per month may be applied to unpaid balances



12375

Chain-of-Custody-Record

Chevron U.S.A. Inc.  
P.O. BOX 5004  
San Ramon, CA 94583  
FAX (415)842-9591

Chevron Facility Number 7-0290  
Facility Address 1802 Webster @ Buena Vista, Alameda  
Consultant Project Number 325-10.01  
Consultant Name Pacific Environmental Group  
Address 1601 Civic Center Dr Santa Clara  
Project Contact (Name) Lainie Demian  
(Phone) 408 984 6536 (Fax Number) 408 243 3911

Chevron Contact (Name) Nancy Vukelich  
(Phone) (415) 842 9581  
Laboratory Name Superior  
Laboratory Release Number TBD  
Samples Collected by (Name) Rich Ignatowicz  
Collection Date 9/20/91  
Signature Richard Ignatowicz

Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed										Remarks	
							BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Chlorinated HC (8010)	Non Chlorinated HC (8020)	Total Lead (AA)	Metals Cd, Cr, Pb, Zn, Ni (ICAP or AA)					
A-2	3	W	G	1635	HCl	Yes	X											
	2			↓	NP			X										
	2			↓	NP				X									
B-4	3			1655	HCl		X											
	2			↓	NP			X										
	2			↓	NP				X									
B-5	3			1615	HCl		X											
	2			↓	NP			X										
	2			↓	NP				X									
b-6	3			1600	HCl		X											
	2			↓	NP			X										
	2			↓	NP				X									
TB	2			✓	HCl		X											
Rinsette	23	✓	✓	1710	HCl	✓	X											

Notes:  
 - Samples stored in ice. ✓  
 - Appropriate containers. ✓  
 - Samples preserved. ✓  
 - VOA's without headspace. ✓  
 Comments: \_\_\_\_\_

COC-1.DWG/11 80/HCH

Relinquished By (Signature) <u>Richard Ignatowicz</u>	Organization <u>PEG</u>	Date/Time <u>9-23-91 1:00pm</u>	Received By (Signature) <u>M. Robbins</u>	Organization <u>Express-IT</u>	Date/Time <u>9/23/91 1:00pm</u>	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <input checked="" type="checkbox"/> As-Contracted
Relinquished By (Signature) <u>Joe Chew</u>	Organization <u>ECS</u>	Date/Time <u>9-23-91</u>	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>Lainie Demian</u>		Date/Time <u>9/23/91/1800</u>	