

ENVIRONMENTAL
PROTECTION



Chevron

October 8, 1996

96 OCT 10 PM 3:29

103

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Chevron U.S.A. Products Company
6001 Bollinger Canyon Road
Building L
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing - Northwest Region
Phone 510 842 9500

**Re: Chevron Service Station #9-0076
4265 Foothill Blvd.
Oakland, California**

Dear Mr. Chan:

Enclosed is the Off-Site Monitoring Well Installation Report, that were prepared by our consultant Pacific Environmental Group, Inc. that was conducted at the above noted site. This investigation was conducted to determine the downgradient extent of a dissolved petroleum hydrocarbon plume.

The groundwater monitoring well was installed downgradient of monitoring well MW-7 in the Lucky Supermarket parking lot. The boring was installed to a depth of 45 feet and converted to a 2 inch monitoring well. Soil samples were taken at four levels, 10, 20 30 and 45 feet. Samples were analyzed for TPHH-g and BTEX constituents. BTEX was below method detection limits in all four samples and TPHH-g was detected in only two samples, at 1.2 and 1.1 ppm, and noted as unidentified hydrocarbons. Groundwater was detected at about 28 feet and a water sample taken, and analyzed for TPHH-g, BTEX and MtBE. All constituents were below method detection limits.

It appears that the extent of the petroleum hydrocarbon plume has been determined and no further investigation needs to be conducted. Chevron will add this monitoring well to our existing monitoring program and it will be sampled quarterly, for the same constituents. If you have any questions, call me at (51) 842-9136.

Sincerely,
CHEVRON PRODUCTS COMPANY

Philip R. Briggs
Site Assessment and Remediation Project Manager

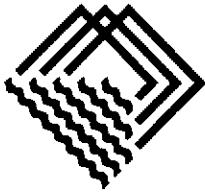
Enclosure

Mr. Barney Chan
Chevron Service Station # 9-0076
October 8, 1996
Page 2

cc. Mr. Bill Scudder, Chevron

Mr. Jeff Granberry
Shell Oil Company
P.O. Box 4023
Concord, CA 94524

American Stores Properties, Inc.
348 East South Temple Street
Salt Lake City, UT 84111
Attn.: Ms. Barbara Russell



PACIFIC
ENVIRONMENTAL
GROUP, INC.

ENVIRONMENTAL
PROTECTION
96 OCT 10 PM 3:29

October 2, 1996
Project 325-024.1B

Mr. Phil Briggs
Chevron Products Company
P.O. Box 5004
San Ramon, California 94583-0804

Re: Off-Site Monitoring Well Installation Report
Chevron Service Station 9-0076
4265 Foothill Boulevard at High Street
Oakland, California

Dear Mr. Briggs:

This letter, prepared by Pacific Environmental Group, Inc. (PACIFIC) on behalf of Chevron Products Company (Chevron), presents the results of a soil and groundwater investigation conducted at the site referenced above (Figure 1). The purpose of this work was to investigate the downgradient extent of a dissolved hydrocarbon plume. The plume may be commingled with plumes originating at three gasoline stations (Chevron, BP/Mobil, and Shell) located at the corner of Foothill Boulevard and High Street in Oakland, California. The work was performed in accordance with PACIFIC's *Work Plan* dated June 29, 1995. This letter includes a discussion of site background, previous investigations, scope of work, and findings.

Field and laboratory procedures, boring log, and field data sheets are presented as Attachment A. Certified analytical reports and chain-of-custody documentation are presented as Attachment B.

SITE BACKGROUND

The site is located at the northwest corner of the intersection of Foothill Boulevard at High Street in Oakland, California. Land use near the site is commercial and residential including several known fuel leak cases, as described above.

In December 1987, the station was remodeled and three steel underground storage tanks (USTs) and one fiberglass waste oil tank were removed from the site. Soil samples collected beneath these tanks contained low or non-detectable concentrations of hydro-

carbons. The excavation, based on available data, included the removal of the fill materials associated with the tanks. The three steel USTs were replaced with 10,000-gallon double-walled fiberglass tanks. The fiberglass waste oil tank was intact and placed back into the excavation.

PREVIOUS INVESTIGATIONS

Soil and groundwater investigations at the site have included: the installation of one soil boring (C-A) and eight groundwater monitoring wells (C-1 through C-8); soil sampling of the former UST excavations; operation of a groundwater extraction system (Well C-2); limited off-site data collection and evaluation; separate-phase hydrocarbon (SPH) bailing (Well C-2); and quarterly groundwater monitoring (initiated in 1989). The findings of these investigations are summarized below:

- Evaluation of subsurface data collected from the three fuel leak cases that exist at the corner of Foothill Boulevard and High Street indicate that these sites and downgradient of these sites may be underlain by three or four separate water bearing zones. The distinct water bearing zones are due to sand lenses interbedded with silt and clay to a depth of approximately 55 feet below ground surface (bgs).
- Recent depth to groundwater measurements (June 1996) collected from Chevron site wells indicate that groundwater occurs on site at depths ranging from approximately 14 to 20 feet bgs, and off site at depths ranging from approximately 23-1/2 to 28 feet bgs.
- During the June 1996 sampling event groundwater flow direction was to the southwest. Gradient was approximately 0.05 ft/ft.
- Hydrocarbon concentrations in soils beneath the former USTs and waste oil tank at the Chevron site were low or not detected. Hydrocarbon impact to soil was identified at a maximum concentration in soil samples collected at a depth of approximately 10 feet bgs from Boring C-A and the boring for Well C-2 located downgradient of the station product facilities. Hydrocarbons identified in soils at this depth are interpreted to be a result of capillary fringe impact associated with dissolved hydrocarbons within groundwater.
- Dissolved hydrocarbons occur beneath the Chevron site. Total purgeable petroleum hydrocarbons calculated as gasoline (TPPH-g) concentrations ranged from none detected to 26,000 parts per billion (ppb) during the June 1996 sampling event. Benzene concentrations ranged from none detected to 4,400 ppb. The highest TPPH-g and benzene

concentrations were observed in on-site Well C-4, located downgradient of Well C-2 which contained 0.02 foot of SPH.

SCOPE OF WORK

To supplement the previous work at the site and to complete delineation of dissolved hydrocarbons downgradient of Well C-7, PACIFIC completed the following scope of work:

- **Permit:** A permit for well installation was obtained from the Alameda County of Health Care Services - Department of Environmental Health prior to the commencement of field work.
- **Groundwater Monitoring Well Installation.** Groundwater Monitoring Well C-9 was installed on July 10, 1996, downgradient of Well C-7 in the Lucky Supermarket parking lot. The boring for Well C-9 was continuously cored to better define subsurface lithology. The well location is shown on Figure 1.
- **Soil Analyses.** Selected soil samples were submitted to a California State-certified laboratory and analyzed for the presence of TPPH-g, benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). Soil analytical data are presented in Table 1.
- **Well Elevation Survey, Well Development, and Well Sampling.** The new well will be surveyed to mean sea level by a state-certified surveyor. The well was developed and sampled by Blaine Tech Services, Inc. (Blaine). Blaine's field data sheets are presented in Attachment A. The well was developed and sampled on September 13, 1996. Groundwater analytical data are presented in Table 2.

FINDINGS

Subsurface Conditions

Subsurface soils consisted of asphalt and surficial fill to 1-1/2 feet bgs, and overlying clay to approximately 4-1/2 feet bgs. Sandy or silty clay of varying compositions was then encountered to approximately 35 feet bgs. Beneath the fine-grained unit, a clayey sand to approximately 40-1/2 feet, a clayey gravel to 40-1/2 feet, and a gravel to 45 feet bgs. Groundwater was first encountered during drilling at approximately 5, 21, and 34 feet bgs. and stabilized at approximately 28-1/2 feet bgs.

Soil Analytical Results

TPPH-g was detected in soil samples collected from the boring for Well C-9 at 1.2 and 1.1 ppm at 10 and 20 feet bgs, respectively. The concentrations were due to unidentified hydrocarbons less than C8. BTEX compounds were not detected in any of the soil samples analyzed. Soil analytical data are presented in Table 1.

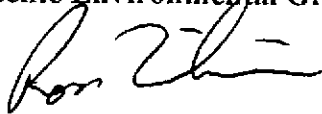
Groundwater Analytical Results

Groundwater Monitoring Well C-9 was developed and sampled on August 13, 1996. TPPH-g, BTEX compounds, and methyl tert-butyl ether were not detected in the groundwater sample collected from Well C-9. Groundwater analytical data are presented in Table 2.

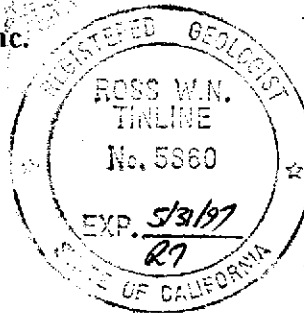
If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.



Ross W.N. Tinline
Project Geologist
RG 5860



- Attachments:
- Table 1 - Soil Analytical Data - Total Petroleum Hydrocarbons (TPPH as Gasoline and BTEX Compounds)
 - Table 2 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPPH as Gasoline, BTEX Compounds, and MtBE)
 - Figure 1 - Extended Site Map
 - Attachment A - Field and Laboratory Procedures, Boring Log, and Field Data Sheets
 - Attachment B - Certified Analytical Reports and Chain-of-Custody Documentation

Table 1
Soil Analytical Data
 Total Petroleum Hydrocarbons
 (TPPH as Gasoline and BTEX Compounds)

Chevron Service Station 9-0076
 4265 Foothill Boulevard at High Street
 Oakland, California

Sample ID	Sample Depth (feet)	Date Sampled	TPPH as			Ethyl-benzene (ppm)	Xylenes (ppm)
			Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)		
C-9	10	07/10/96	1.2 a	ND	ND	ND	ND
	20		ND	ND	ND	ND	ND
	30		1.1 a	ND	ND	ND	ND
	45		ND	ND	ND	ND	ND
TPPH = Total purgeable petroleum hydrocarbons ppm = Parts per million ND = Not detected a. Unidentified hydrocarbons <C8							

Table 2
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPPH as Gasoline, BTEX Compounds, and MtBE)

Chevron Service Station 9-0076
 4265 Foothill Boulevard at High Street
 Oakland, California

Sample ID	Date Sampled	TPPH as			Ethyl-benzene (ppb)	Xylenes (ppb)	MtBE (ppb)
		Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)			
C-9	08/13/96	ND	ND	ND	ND	ND	ND
TPPH = Total purgeable petroleum hydrocarbons MtBE = Methyl tert-butyl ether ppb = Parts per billion ND = Not detected							



EAST 17th STREET

C-8

Residential

C-6

BOND STREET

C-7

C-9

LUCKY'S SUPERMARKET

SITE LOCATION

C-5

C-1

C-3

C-2

C-4

KIOSK

PRODUCT ISLANDS

MW-8

FOOTHILL BOULEVARD

BP SERVICE STATION

MW-2

MW-4

STATION BUILDING

MW-6

PRODUCT ISLANDS

MW-3

MW-5

MW-9

HIGH STREET

CANOPY

S-3

S-2

PRODUCT ISLANDS

UNDERGROUND FUEL STORAGE TANKS

FORMER WASTE OIL TANK

S-1

CANOPY

SHELL SERVICE STATION

STATION BUILDING

PRODUCT ISLANDS

LEGEND

- C-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (CHEVRON)
- S-3 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (SHELL)
- MW-5 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (BP)
- C-2 ● GROUNDWATER EXTRACTION WELL LOCATION AND DESIGNATION



PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE



CHEVRON SERVICE STATION 9-0076
4265 Foothill Boulevard at High Street
Oakland, California

EXTENDED SITE MAP

FIGURE:
1
PROJECT:
325-024.1B

ATTACHMENT A

**FIELD AND LABORATORY PROCEDURES,
BORING LOG, AND
FIELD DATA SHEETS**

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

Groundwater Monitoring Well Drilling Procedures

The soil boring for the groundwater monitoring well was drilled using 8-inch hollow-stem auger drilling equipment and logged by a Pacific Environmental Group, Inc. geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging were collected continuously using a 5-foot continuous core barrel. Soil samples for chemical analysis were retained in brass liners, capped with Teflon® squares and plastic end caps, and sealed in clean zip-lock bags. The samples were placed on ice for transport to the laboratory accompanied by chain-of-custody documentation. All down-hole drilling and sampling equipment was steam-cleaned following the completion of the soil boring. Down-hole sampling equipment was washed in a tri-sodium phosphate solution between samples.

The boring was converted to a groundwater monitoring well by installing 2-inch diameter, flush-threaded, Schedule 40 PVC casing with 0.020-inch factory-slotted screen. Approximately 15 feet of screen was placed in the bottom of the boring. A Lonestar #3 sand pack was placed in the annular space across the entire screened interval, and extends approximately 1 foot above the top of the screen for the well. A bentonite and Portland cement seal extends from the sand pack to the ground surface.

Following well completion, the vault box elevation and the elevation of the top of the PVC well casing of the monitoring wells were surveyed to the nearest 0.01 foot, relative to mean sea level, by a licensed surveyor. The boring log shows well construction details.


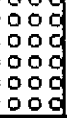













Organic Vapor Procedures

Soil samples collected during field work were analyzed in the field for ionizable organic compounds using the HNU Model PI 101 PID with a 10.2 eV lamp. The test procedure involved measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar was then warmed for approximately 20 minutes, then the foil was pierced and the head-space within the jar was tested for total organic vapor measured in parts

per million as benzene (ppm; volume/volume). The instrument was previously calibrated using a 100-ppm isobutylene standard (in air) and a sensitivity factor of 0.7, which relates the photo-ionization sensitivity of benzene (7.0 ppm) to that of isobutylene.

Laboratory Procedures

Selected soil and groundwater samples from the soil borings were analyzed in the laboratory for the presence of total purgeable petroleum hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene, and xylenes by modified EPA Methods 8015 and 8020. All analyses were performed by a California State-certified laboratory.

Primary Divisions		Group Symbol/Graphic		Typical Names
COARSE GRAINED SOILS more than half is larger than #200 sieve	GRAVELS half of coarse fraction larger than #4 sieve	CLEAN GRAVELS (less than 5% fines)	GW 	Well graded gravels, gravel-sand mixtures; little or no fines
			GP 	Poorly graded gravels or gravel-sand mixtures; little or no fines
		GRAVEL WITH FINES	GM 	Silty gravels, gravel-sand-silt mixtures
			GC 	Clayey gravels, gravel-sand-clay mixtures
	SANDS half of coarse fraction smaller than #4 sieve	CLEAN SANDS (less than 5% fines)	SW 	Well graded sands, gravelly sands, little or no fines
			SP 	Poorly graded sands or gravelly sands; little or no fines
		SANDS WITH FINES	SM 	Silty sands, sand-silt mixtures
			SC 	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS more than half is smaller than #200 sieve	SILTS AND CLAYS liquid limit less than 50%	ML 	Inorganic silts and very fine sand, rock flour, silty or clayey fine sands or clayey silts, with slight plasticity	
		CL 	Inorganic clays of low to medium plasticity; gravelly clays, sandy clays, silty clays, lean clays	
		OL 	Organic silts and organic silty clays of low plasticity	
	SILTS AND CLAYS liquid limit more than 50%	MH 	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		CH 	Inorganic clays of high plasticity, fat clays	
		OH 	Organic clays of medium to high plasticity, organic silts	
HIGHLY ORGANIC SOILS		Pt 	Peat and other highly organic soils	



PACIFIC ENVIRONMENTAL GROUP, INC.

Unified Soil Classification System

WELL LOG KEY TO ABBREVIATIONS

Drilling Method

HSA - Hollow stem auger
CFA - Continuous flight auger
Air - Reverse air circulation

Gravel Pack

CA - Coarse aquarium sand

Sampling Method

Cal. Mod. - California modified split-spoon sampler (2" inner diameter) driven 18" by a 140-pound hammer having a 30" drop. Where penetration resistance is designated "P", sampler was instead pushed by drill rig.
Disturbed - Sample taken from drill-return materials as they surfaced.
Shelby - Shelby Tube thin-walled sampler (3" diameter), where sampler is pushed by drill-rig.

Molsture Content

Dry - Dry
Dp - Damp
Mst - Moist
Wt - Wet
Sat - Saturated

Sorting

PS - Poorly sorted
MS - Moderately sorted
WS - Well sorted

Plasticity

L - Low
M - Moderate
H - High

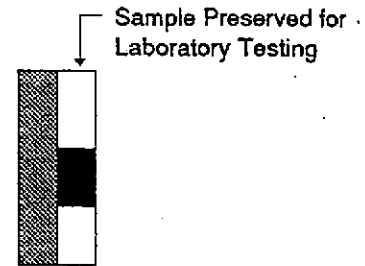
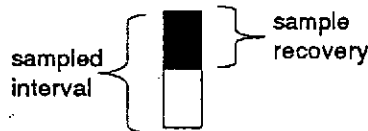
H-NU (ppm)

ND - No detection

Symbols

▽ - First encountered ground water

▼ - Static ground water level



Density (Blows/Foot - Cal Mod Sampler)

Sands and gravels

0 - 5 - Very Loose
5 - 13 - Loose
13 - 38 - Medium dense
38 - 63 - Dense
over 63 - Very dense

Silts and Clays

0 - 2 - Very Soft
2 - 4 - Soft
4 - 9 - Firm
9 - 17 - Stiff
17 - 37 - Very Stiff
37 - 72 - Hard
over 72 - Very Hard

GRAIN - SIZE SCALE

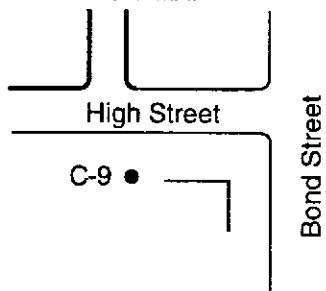
GRADE LIMITS

U.S. Standard

GRADE NAME

inch	sieve size	
12.0		Boulders
3.0	3.0 in.	Cobbles
0.19	No. 4	Gravels
0.08	No. 10	coarse
	No. 40	medium
	No. 200	fine
		Silt
		Clay Size

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. C-9
PAGE 1 OF 1

PROJECT NO. 325-024.1B
LOGGED BY: CWR
DRILLER: MDE
DRILLING METHOD: HSA
SAMPLING METHOD: CORE
CASING TYPE: SCH 40 PVC
SLOT SIZE: 0.020"
SAND PACK: #3 SAND

CLIENT: CHEVRON
DATE DRILLED: 7-10-96
LOCATION: 4265 Foothill Blvd.
HOLE DIAMETER: 8"
HOLE DEPTH: 45'
WELL DIAMETER: 2"
WELL DEPTH: 45'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
	Dp			2			GC	ASPHALT 4"
	Mst-Wt	0		4			CL	CLAYEY GRAVEL - FILL: dark yellowish brown; 15-20% clay; 10% medium sand; 70-75% subangular gravel to 2" diameter; wood chips; no product odor.
				6			CL	CLAY: dark yellowish brown; moderate plasticity; 90% clay with minor silt; 10% medium sand; no product odor.
	Dp	0		8			CL	SANDY CLAY: dark yellowish brown; moderate plasticity; 60-70% clay; 30-40% coarse subangular sand to fine subangular gravel; no product odor.
				10			CL	@10': as above; yellowish brown with pervasive gray and black mottling in thin horizontal bands; low to moderate plasticity; 60% clay; 20% silt; 20% medium sand; blocky fractures; manganese oxide streaks and specks; no product odor.
	Dp	0		12			CL	
				14			CL	SILTY CLAY: dark yellowish brown; moderate plasticity; 60% clay; 30% silt; 10% fine sand; manganese oxide specks; some fracturing; no product odor.
	Dp	0		16			CL	
	Dp	0		18			CL	@21': as above; yellowish brown with light gray mottling; moderate plasticity; trace manganese oxide specks; blocky fractures; no product odor.
	Mst	0		20			CL	SANDY CLAY: yellowish brown; pervasive orange brown and gray mottling; moderate plasticity; 60% clay; 10% silt; 30% fine sand; manganese oxide specks; some fracturing; no product odor.
	Dp	0		22			CL	
	Dp	0		24			CL	@30': gray with yellowish brown; moderate plasticity; manganese oxide specks; 70% clay; 10% silt; 20% fine sand; trace fine gravel; extensive blocky fractures; no product odor.
				26			CL	
	Dp	0		28			CL	@35': as above; yellowish brown with pervasive gray mottling in horizontal bands; low to moderate plasticity; 50% clay; 20% silt; 30% fine sand; trace white mudstone lithic fragments; no product odor.
				30			CL	
	Dp	0		32			CL	CLAYEY SAND: yellowish brown; 30-40% clay; 20% silt; 40-50% fine sand; gray mottling; no product odor.
	Mst	0		34			CL	
				36			SC	CLAYEY GRAVEL: yellowish brown; 20-30% clay; 20% medium to coarse sand; 50-60% subangular to subrounded gravel comprised of predominately weathered clastic and volcanic fragments; no product odor.
	Mst-Wt	0		38			CL	
				40			CL	
	Wt	0		42			GC	GRAVEL: black, brown, and white; trace fines; 10% coarse sand; 85% subrounded to subangular gravel to 4" diameter; clastics and volcanic fragments; no product odor.
				44			GW	

BOTTOM OF BORING AT 45'

WELL DEVELOPMENT DATA SHEET

Project #: 960813-H1	Client: CHEVRON - 90076
Developer: TNH	Date Developed: 8/13/96
Well I.D.: C-9	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 44.36 After 45.38	Depth to Water: Before 28.27 After 28.52
Reason not developed:	If Free Product, thickness:
Additional Notations:	

Volume Conversion Factor (VEF):

$$VEF = (d^2/4) \times \pi / 231$$

Where

- d = diameter (in)
- π = 3.1416
- 231 = gal/cu ft

Well dia. VEF

2"	0.26
3"	0.37
4"	0.51
6"	1.17
8"	2.04
10"	3.14
12"	4.71

2.6	x	10	=	26	gallons
1 Case Volume		Specified Volumes			

Purging Device: Bailor Electric Submersible
 Middleburg Suction Pump

Type of Installed Pump _____

Other equipment used _____

TRZ	TEMP. (F)	pH	COND.	TRZED-TRZ	VOLUME REMOVED:	NOTATIONS:
946	68.4	7.6	1000	7200	2.5	
949	71.0	7.0	920	7200	5.0	DTW = 28.66
952	65.2	6.8	980	7200	7.5	SWABBED WELL
955	67.2	6.8	1000	7200	10	DTW = 28.77
959	67.2	6.8	990	7200	12.5	
1002	65.8	6.8	980	7200	15	DTW = 28.87
1005	68.0	6.7	980	7200	17.5	SWABBED WELL
1008	66.0	6.7	970	7200	20	
1011	65.8	6.6	1000	185.3	22.5	DTW = 28.54
1014	65.2	6.8	980	192.3	25	
1017	66.4	6.6	980	189.2	27.5	

Did Well Dewater? **NO** If yes, note above. Gallons Actually Evacuated: **27.5**

CHEVRON WELL MONITORING DATA SHEET

Project #: <u>960813-H1</u>	Station #: <u>9-0076</u>
Sampler: <u>TNH</u>	Date: <u>8/13/96</u>
Well I.D.: <u>C-9</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth: <u>44.36</u>	Depth to Water: <u>28.27</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius ² * 0.163

Purge Method:	Sampling Method:
Bailer Disposable Bailer Middleburg x Electric Submersible Extraction Pump Other: _____	Bailer Disposable Bailer x Extraction Port Other: _____

<u>2.6</u>	x	<u>3</u>	=	<u>7.8</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Gals. Removed	Observations
<u>1011</u>	<u>65.8</u>	<u>6.6</u>	<u>1000</u>	<u>2.5</u>	
<u>1014</u>	<u>65.2</u>	<u>6.8</u>	<u>980</u>	<u>5.0</u>	
<u>1017</u>	<u>66.4</u>	<u>6.6</u>	<u>980</u>	<u>8.0</u>	

Did well dewater? Yes No Gallons actually evacuated: 8.0

Sampling Time: 1025 Sampling Date: 8/13/96

Sample I.D.: C-9 Laboratory: (Sequoia) GTEL

Analyzed for: (TPH-G) (BTEX) (MTBE) TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

ATTACHMENT B

**CERTIFIED ANALYTICAL REPORTS AND
CHAIN-OF-CUSTODY DOCUMENTATION**

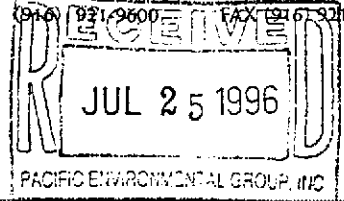


**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600 FAX (415) 364-9233
(510) 988-9600 FAX (510) 988-9673
(916) 871-9600 FAX (916) 871-0100



Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110

Client Proj. ID: 325-024.1B/9-0076, Oakland
Sample Descript: C-9 @10'
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9607730-01

Sampled: 07/10/96
Received: 07/11/96
Extracted: 07/17/96
Analyzed: 07/18/96
Reported: 07/23/96

Attention: Mark Sullivan

QC Batch Number: GC071796BTEXEXA
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	1.2
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern: Unidentified HC		<C8
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	103

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Claudia Hirotsu
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: Mark Sullivan	Client Proj. ID: 325-024.1B/9-0076, Oakland Sample Descript: C-9 @20' Matrix: SOLID Analysis Method: 8015Mod/8020 Lab Number: 9607730-02	Sampled: 07/10/96 Received: 07/11/96 Extracted: 07/17/96 Analyzed: 07/17/96 Reported: 07/23/96
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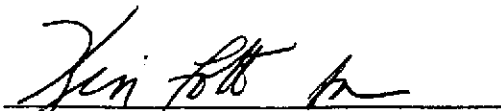
QC Batch Number: GC071796BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	83

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210



Claudia Hirotsu
Project Manager





Pacific Environmental Group	Client Proj. ID: 325-024.1B/9-0076, Oakland	Sampled: 07/10/96
2025 Gateway Place, Suite 440	Sample Descript: C-9 @30'	Received: 07/11/96
San Jose, CA 95110	Matrix: SOLID	Extracted: 07/17/96
Attention: Mark Sullivan	Analysis Method: 8015Mod/8020	Analyzed: 07/17/96
	Lab Number: 9607730-03	Reported: 07/23/96

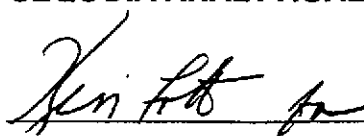
QC Batch Number: GC071796BTEXEXA
 Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	1.1
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern: Unidentified HC		<C8
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	91

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


 Claudia Hirotsu
 Project Manager





Pacific Environmental Group	Client Proj. ID: 325-024.1B/9-0076, Oakland	Sampled: 07/10/96
2025 Gateway Place, Suite 440	Sample Descript: C-9 @45'	Received: 07/11/96
San Jose, CA 95110	Matrix: SOLID	Extracted: 07/17/96
Attention: Mark Sullivan	Analysis Method: 8015Mod/8020	Analyzed: 07/17/96
	Lab Number: 9607730-04	Reported: 07/23/96

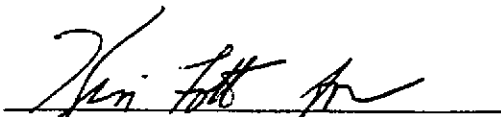
QC Batch Number: GC071796BTEXEXA
 Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	93

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210



Claudia Hirotsu
 Project Manager





Sequoia
Analytical

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FAX (510) 988-9673
FAX (916) 921-0100

Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: Mark Sullivan	Client Proj. ID: 325-024.1B/9-0076, Oakland Lab Proj. ID: 9607730	Received: 07/11/96 Reported: 07/23/96
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LABORATORY NARRATIVE

No issues.

SEQUOIA ANALYTICAL

Claudia Hirotsu
Project Manager





Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110
Attention: Mark Sullivan

Client Project ID: 325-024.1B / 9-0076, Oakland
Matrix: SOLID

Work Order #: 9607730 01-04

Reported: Jul 24, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC071796BTEXEXA	GC071796BTEXEXA	GC071796BTEXEXA	GC071796BTEXEXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst: E. Cunanan E. Cunanan E. Cunanan E. Cunanan
MS/MSD #:
Sample Conc.:
Prepared Date:
Analyzed Date:
Instrument I.D.#:
Conc. Spiked:

Result:
MS % Recovery:

Dup. Result:
MSD % Recov.:

RPD:
RPD Limit:

LCS #:	BLK071796	BLK071796	BLK071796	BLK071796
Prepared Date:	7/17/96	7/17/96	7/17/96	7/17/96
Analyzed Date:	7/17/96	7/17/96	7/17/96	7/17/96
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
LCS Result:	0.19	0.19	0.19	0.54
LCS % Recov.:	95	95	95	90

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Claudia Hirotsu
Claudia Hirotsu
Project Manager

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: PEG
 REC. BY (PRINT): Michael

WORKORDER: 9607730
 DATE OF LOG-IN: 7/15/96

CIRCLE THE APPROPRIATE RESPONSE.		LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION(ETC.)
1. Custody Seal(s)	Present / <u>Absent</u> Intact / Broken*	1	A	C-9 @ 5'	Core	S	7-10	
2. Custody Seal Nos.:	Put In Remarks Section			10				
3. Chain-of-Custody Records:	<u>Present</u> / Absent*	2	A	15				
4. Traffic Reports or Packing List:	Present / <u>Absent</u>	3	A	20				
5. Airbill:	Airbill / Sticker Present / <u>Absent</u>			25				
6. Airbill No.:		4	A	30				
7. Sample Tags:	<u>Present</u> / Absent*			35				
8. Sample Condition:	<u>Intact</u> / Broken* / Leaking*			40				
9. Does information on custody reports, traffic reports and sample tags agree?	<u>Yes</u> / No*			45				
10. Proper preservatives used:	<u>Yes</u> / No*							
11. Date Rec. at Lab:	<u>7-11-96</u>							
12. Temp. Rec. at Lab:	<u>16°C</u>							
13. Time Rec. at Lab:	<u>1156</u>							

* If Circled, contact Project manager and attach record of resolution



Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Chevron 9-0076/960813-H1 Sample Descript: C-9 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9608765-01	Sampled: 08/13/96 Received: 08/14/96 Analyzed: 08/22/96 Reported: 08/27/96
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QC Batch Number: GC082296BTEX21A
Instrument ID: GCHP21

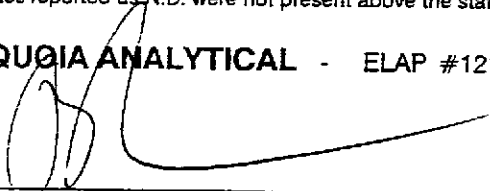
Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		N.D.

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	91

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Peggy Penner
Project Manager





Blaine Technical Services 985 Timothy Drive San Jose, CA 95133	Client Proj. ID: Chevron 9-0076/960813-H1 Sample Descript: TB Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9608765-02	Sampled: 08/13/96 Received: 08/14/96 Analyzed: 08/22/96 Reported: 08/27/96
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QC Batch Number: GC082296BTEX21A
Instrument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		N.D.

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	88

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Peggy Penner
Project Manager





Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Chevron 9-0076 / 960813-H1
Matrix: Liquid

Work Order #: 9608765 -01-02

Reported: Aug 28, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082296BTEX21A	GC082296BTEX21A	GC082296BTEX21A	GC082296BTEX21A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	D. Jirsa	D. Jirsa	D. Jirsa	D. Jirsa
MS/MSD #:	960880603	960880603	960880603	960880603
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/22/96	8/22/96	8/22/96	8/22/96
Analyzed Date:	8/22/96	8/22/96	8/22/96	8/22/96
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.4	9.7	9.7	32
MS % Recovery:	94	97	97	107
Dup. Result:	8.6	8.7	8.7	28
MSD % Recov.:	86	87	87	93
RPD:	8.9	11	11	13
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK082296	BLK082296	BLK082296	BLK082296
Prepared Date:	8/22/96	8/22/96	8/22/96	8/22/96
Analyzed Date:	8/22/96	8/22/96	8/22/96	8/22/96
Instrument I.D.#:	GCHP21	GCHP21	GCHP21	GCHP21
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.6	9.5	9.6	32
LCS % Recov.:	96	95	96	107

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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