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Alameda County  
Environmental Health

## **Soil Gas Survey Results**

**UNOCAL Service Station 3737  
1400 Powell St  
Emeryville, California**

Prepared for

Tosco Marketing Company

October 29, 1997

Prepared by

Pacific Environmental Group, Inc.  
2025 Gateway Place, Suite 440  
San Jose, California 95110

Project 311-163.1A



PACIFIC  
ENVIRONMENTAL  
GROUP INC.

**SOIL GAS SURVEY RESULTS  
FOR  
UNOCAL SERVICE STATION 3737  
EMERYVILLE, CALIFORNIA**

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**INTRODUCTION**

This report presents the results of a soil gas survey completed at UNOCAL Service Station 3737. The soil gas survey was performed by Pacific Environmental Group, Inc. (PACIFIC) on September 10, 1997. The work was performed in accordance with a scope of work prepared by Tosco Marketing Company (Tosco), dated August 25, 1997.

The purpose of the soil gas survey is to provide baseline data regarding the occurrence of petroleum hydrocarbon vapors in soil near potential source areas at the site referenced above. This report presents a discussion of field data collection methods and analytical procedures, and the survey results. The following information is attached to this report; a Field Data Sheet, a Site Plan, a Soil Gas Sampling Analysis Report, and chain-of-custody documentation for the soil gas samples.

**FIELD AND LABORATORY PROCEDURES**

The scope of work included the following procedures: (1) perform a presurvey site visit to mark soil gas probe locations for utility clearance, (2) collect organic vapor measurements from beneath product dispensers and within manways for the underground storage tank (UST) turbines, (3) collect soil vapor samples from near USTs, product islands, and product lines, and (4) submit soil gas samples to Sequoia Analytical Laboratories for chemical analyses. These procedures are described below in further detail.

**Prefield Preparation**

Prior to initiating the soil gas survey, PACIFIC personnel performed a site visit to mark proposed probe locations, check accessibility, and to notify the UNOCAL station manager of the proposed survey schedule. Probe locations were selected based on PACIFIC's understanding of underground facilities as shown on the attached Site Plan which was provided by Tosco. In some cases probe locations were adjusted in the field to avoid overhead or under-

ground obstructions that were not noted on the site plan. Underground Service Alert was notified to clear each probe location for underground utilities.

### **Field Data Collection**

The level of volatile organic vapors were measured from beneath product dispensers and within turbine manways using a HNU PI-101 photo-ionization detector (PID). A PACIFIC field technician opened each product dispenser and turbine manway and collected a PID measurement from soil immediately below each dispenser or turbine at a height of approximately 1/2-inch above the exposed soil. If native soil was not exposed, then this observation was recorded on the Field Data Sheet and PID measurements were not collected.

PID measurements and field observations are recorded on the attached Field Data Sheet. The location of each PID reading is shown on the attached site plan.

### **Soil Gas Survey**

On September 10, 1997, a PACIFIC staff technician directed the installation of 6 soil gas probes in the vicinity of USTs, product islands, and product lines at the site referenced above. The approximate location and designation of each soil gas probe is shown on the attached Site Plan. Sample collection depths are noted on the attached Field Data Sheet.

Two samples were collected from the area of the UST complex at depths ranging from 3 feet to 15 feet. Because shallow groundwater was encountered at the deeper UST probe location, its occurrence was noted and the sample was collected from as close as possible to the depth of the capillary zone overlying the water table.

Four soil gas samples were collected adjacent to the product dispenser islands at depths of approximately 3 feet. Soil gas samples were not collected along the product lines because either line locations could not be field verified, or less than 20 linear feet of product exists between the UST complex and product island.

The soil gas survey consisted of driving a 1/2-inch diameter hollow steel probe into unsaturated soils at each sampling location. The end of the driven probe was fitted with a small screened interval with protective cover. The probes were driven into the soil with pneumatic equipment. Upon reaching the desired depth the outer protective casing was retracted to allow the screened interval to be exposed to the soils. Soil gas samples were drawn from the probe by means of a vacuum pump through a probe head fitting and a silastic tubing sample line. The soil gas probe was purged of vapors for approximately 3 minutes prior to sample collection. A soil gas sample was then collected into a clean 1-liter Tedlar bag. Each Tedlar bag was labeled with the appropriate sample designation, date of sample, and UNOCAL station number and stored in a cool dark box. The samples were submitted to Sequoia Analytical Laboratories within 24 hours of sample collection.

Upon completion of the sampling procedures the probes were removed and the probe holes were backfilled to the surface with a neat cement seal.

### **Laboratory Procedures**

Soil gas samples were submitted under appropriate chain-of-custody documentation to Sequoia Analytical Laboratories, a Tosco-approved state-certified analytical laboratory. The samples were analyzed for total purgeable petroleum hydrocarbons calculated as gasoline in accordance with EPA Method 8015 (modified), and benzene, toluene, ethylbenzene, xylenes, and methyl-tert butyl ether (MtBE) in accordance with EPA Method 8020. Additionally, if MtBE was detected, the soil gas sample indicating the highest MtBE concentration by EPA Method 8020, was analyzed in accordance with EPA Method 8260, to confirm the presence of MtBE.

### **FINDINGS**

The soil gas survey findings are presented on the attached Field Data Sheet and Soil Gas Sample Analysis Report.

### **CLOSING**

This report and all field activities described within were performed by the staff of PACIFIC under the professional supervision of the project geologist whose signature appears hereon.

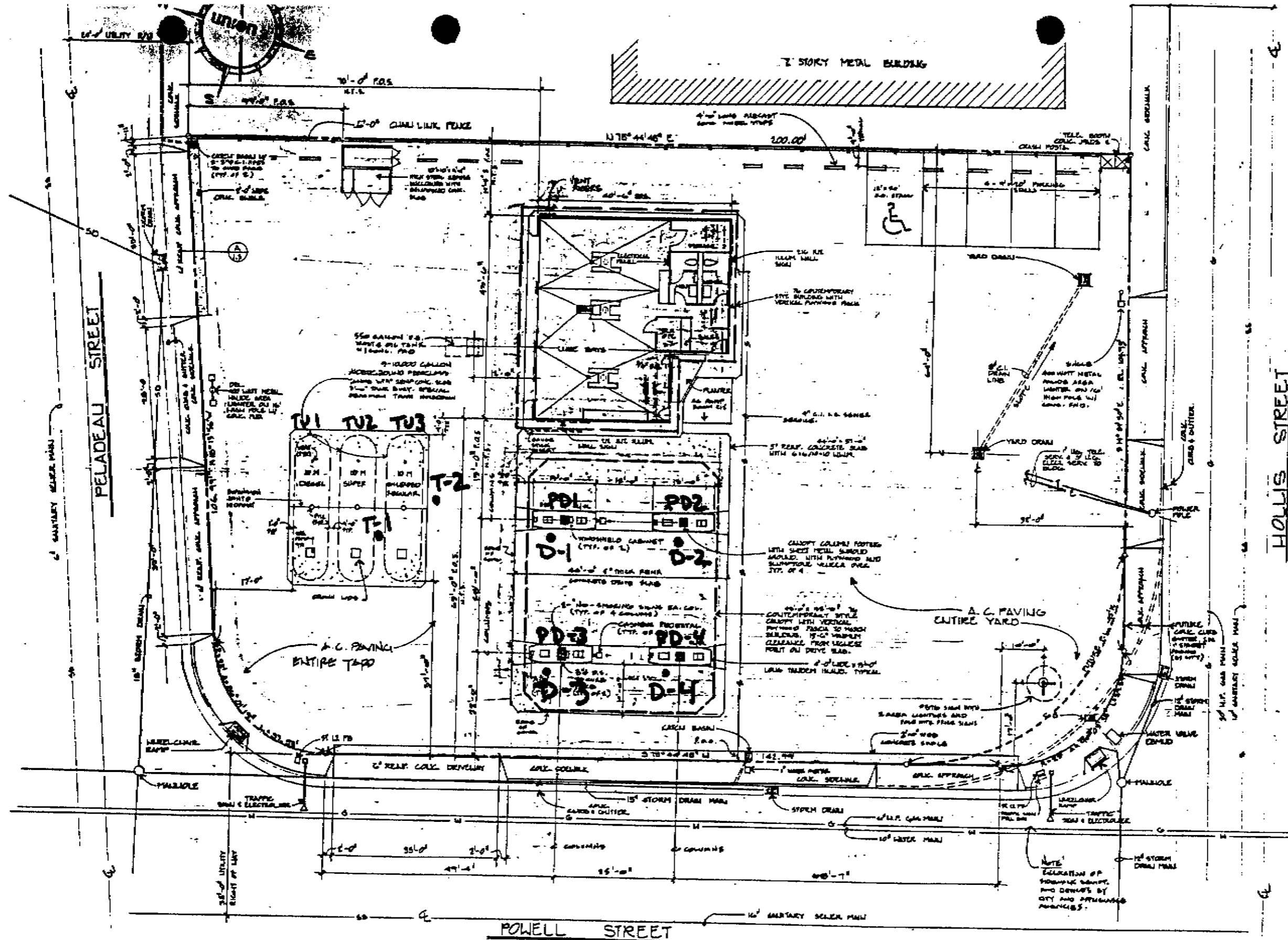
Should you have any questions concerning the contents of this report, please call.

Sincerely,

**Pacific Environmental Group, Inc.**

Joseph Muzzio  
Project Geologist  
CEG 1672

Attachments: Field Data Sheet  
Soil Gas Sample Analysis Report  
Chain-of-Custody Documentation  
Site Plan



SS#3737

DATE: 01-15-80  
 DRAWN BY: J. L. B. ST.  
 CHECKED BY: J. L. B. ST.  
 CITY OF: KERRVILLE, TEXAS

GENERAL ARRANGEMENT  
 SERVICE STATION # 3737  
 1400 POWELL STREET & HOLLIS STREET  
 KERRVILLE, CALIFORNIA

UNION  
 11-21-79

PROPERTY OWNED BY UNION OIL COMPANY  
 DOWNSIDE TRUCK  
 COMPLETION DATE: DEC. 1980  
 PETERSON ENGINEERS

Tosco Marketing Company  
Field Data Sheet

Baseline Augmentation  
Unocal Service Station Sites

Facility No.: #3737  
Location: Powell / Hollis  
Date Sampled: 9.10.97

Sampler: Paul Wenhart  
Time On Site: 14:00  
Weather: Sunny

UST Samples (Sample Designation: T-1, T-2,...)/Former UST Samples (Sample Designation: (FT-1, FT-2,...))

Sample ID	PID Reading (ppm)	Air Sample Collected (Yes/No)	Sample Depth (feet)	Comments (NPO, FPO, MPO, SPO)
T-2	690	Yes	3'	WATER AT 3' STRONG ODOOR on sampling phase
T-1	410	Yes	3	" "

Dispenser Island Samples (Sample Designation: D-1, D-2,...)

Sample ID	PID Reading (ppm)	Air Sample Collected (Yes/No)	Sample Depth (feet)	Comments (NPO, FPO, MPO, SPO)
D-1	—	Yes	3'	—
D-2	—	Yes	3'	—
D-3	—	Yes	3'	—
D-4	—	Yes	3'	—

Product Lines (Sample Designation: P-1, P-2,...)

Sample ID	PID Reading (ppm)	Air Sample Collected (Yes/No)	Sample Depth (feet)	Comments (NPO, FPO, MPO, SPO)
		NONE		

Product Dispensers (Sample Designation: PD-1, PD-2,...) /UST Turbines (Sample Designation TU-1, TU-2)

Sample ID	PID Reading (ppm)	Air Sample Collected (Yes/No)	Exposed Soil (Yes/No)	Comments (NPO, FPO, MPO, SPO)
TU-1	410	NO	Yes	STRONG ODOOR
TU-2	240	NO	Yes	MODERATE ODOOR
TU-3	—	NO	Yes	Pump NOT visible
PD-1	0	NO	Yes	gravel in Box
PD-2	8	NO	Yes	
PD-3	4	NO	Yes	
PD-4	2	NO	Yes	

FAX (415) 364-9233  
 FAX (510) 988-9673  
 FAX (916) 921-0100

(415) 364-9600  
 (510) 988-9600  
 (916) 921-9600

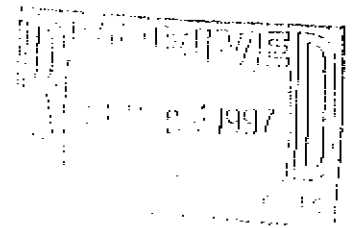
Redwood City, CA 94063  
 Walnut Creek, CA 94598  
 Sacramento, CA 95834  
 680 Chesapeake Drive  
 404 N. Wiget Lane  
 819 Striker Avenue, Suite 8

**Sequoia  
 Analytical**



**SOIL GAS SAMPLE ANALYSIS REPORT**

**TOSCO BASELINE SOIL GAS SURVEY**



Site Number: 3737


Date Sampled: 9/10/97

Date(s) Analyzed: 9/10/97

City / State: Emeryville / CA

Analytical Results From Sequoia Analytical									
Reporting Units: µg/L									
#	Sample ID	TPH - Gas	Benzene	Toluene	Ethyl Benzene	Total Xylenes	GC MTBE	GC/MS MTBE	% RECOVERY GC Surrogate
1	T - 1	16000	110	160	83	230	<2.5	--	196
2	T - 2	40000	1100	410	83	130	<2.5	--	175
3	D - 1	1800	8.1	16	11	32	49	--	180
4	D - 2	3100	17	26	16	46	<2.5	--	255
5	D - 3	5900	43	65	36	100	1000	<20	179
6	D - 4	3400	19	32	21	63	<2.5	--	142
	Method Blank	<10	<0.50	<0.50	<0.50	<0.50	<2.5	<2.5	107

SEQUOIA ANALYTICAL, #1271

  
**Alan B. Kemp**  
 Laboratory Director

Consultant Company: <b>PACIFIC Environmental</b>			Project Name: <b>Powell / Hollis</b>		
Address: <b>2025 GATEWAY PL #440</b>			UNOCAL Project Manager: <b>Tina Berry / Baseline Augmentation</b>		
City: <b>SAN JOSE</b>	State: <b>CA</b>	Zip Code: <b>95110</b>	AFE #: <b>3737</b>		
Telephone: <b>408 441 7500</b>		FAX #: <b>408 441 7539</b>		Site #, City, State: <b>3737 EMERYVILLE CA</b>	
Report To: <b>JOE MUZZIO</b>		Sampler: <b>PAUL WEINHART</b>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours  
 CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure  Other

Drinking Water  
 Waste Water  
 Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments
1. T-1	9.10.97	A	1	BAG	7090681	BIO / 8000 MTBE DESTINATION										CONFIRM
2. T-2	↓	↓	↓	↓	7090682											Highest
3. D-1	↓	↓	↓	↓	7090683											MTBE BY
4. D-2	↓	↓	↓	↓	7090684											8260
5. D-3	↓	↓	↓	↓	7090685											
6. D-4	↓	↓	↓	↓	7090686											
7.																
8.																
9.																
10.																

Relinquished By: <u>Paul Weinhardt</u>	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <u>Alhanna</u>	Date: <u>9/10/97</u>	Time: <u>1615</u>

Were Samples Received in Good Condition?  Yes  No     
 Samples on Ice?  Yes  No     
 Method of Shipment \_\_\_\_\_     
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: \_\_\_\_\_ Signature: \_\_\_\_\_ Company: \_\_\_\_\_ Date: \_\_\_\_\_

Pink - Client  
 Yellow - Laboratory  
 White - Laboratory