

PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

*Reviewed on 6/2/95 G. Reed  
Mag left w/ R. Battino re:  
Construction/Remediation plans.*

95 MAY 26 PM 1:17

May 19, 1995  
Project 310-058.3B

Ms. Susan Keach  
Oro Loma Sanitary District  
2600 Grant Avenue  
San Lorenzo, California 94580

Re: Oro Loma Sanitary District Discharge Permit Application  
Unocal Service Station 5760  
376 Lewelling Boulevard at Usher Street  
San Lorenzo, California

Dear Ms. Keach:

Pacific Environmental Group, Inc. (PACIFIC) has been retained by Unocal Corporation (Unocal) to provide environmental services at the referenced site. This letter was prepared by PACIFIC to transmit a Special Discharge Permit application and provide the Oro Loma Sanitary District (OLSD) with additional information associated with the permit application. The completed Special Discharge Permit Application is presented as Attachment A.

## **PERMIT APPLICATION, SECTION 2: SITE INFORMATION**

### **Background - Site Description**

Two 12,000-gallon fiberglass underground storage tanks (USTs) and one 550-gallon waste oil tank were installed in 1987 to replace the original steel USTs and waste oil tank. Additional excavation and soil sampling was conducted in 1987 when product piping was excavated and removed. In September 1993, 12 borings were drilled as part of a property divestment program. Because hydrocarbon-impacted soils were encountered, three of the borings were converted to groundwater monitoring wells. In March 1994, the delineation of hydrocarbon-impacted soils was completed with the installation of two soil borings.

### **Geology/Hydrogeology**

Lithology beneath the site consists of stratified alluvial deposits of sand and silty sand from grade to approximately 6 to 14 feet below ground surface (bgs). A silt and silty clay zone extends to approximately 19 to 21 feet bgs and overlays a sand zone that extends to approximately 21 to 34 feet bgs. A basal clay unit extends to the total explored depth in each boring. Depth of water below the site has varied from approximately 14.5 to 22.5 feet bgs, and may fluctuate as much as 5 feet.

### **Reason for Dewatering**

PACIFIC proposes to dewater the site to open the saturated zone to air flow and allow effective use of soil vapor extraction (SVE) to reduce the subsurface petroleum hydrocarbon mass. Extracted groundwater will be treated with activated carbon, and discharged to the OLSO sewer system. Dewatering is required because most of the hydrocarbon mass beneath the site is contained in the capillary fringe and immediately below the groundwater table. Relevant information regarding the groundwater elevation and dissolved hydrocarbon concentrations beneath the site is presented in Attachment B (The First Quarter 1995 Quarterly Monitoring Report).

### **Discharge Alternatives**

The maximum treated groundwater discharge flow rate is expected to be 10 gallons per minute or 14,400 gallons per day. PACIFIC anticipates that dewatering will be necessary for a six month period. Discharging to the OLSO was considered according to guidance provided by the San Francisco Bay Regional Water Quality Control Board (RWQCB). RWQCB guidance requires that treated groundwater discharge to a POTW be pursued as the primary discharge method before other alternatives are considered.

## **PERMIT APPLICATION, SECTION 3: TREATMENT SYSTEM INFORMATION**

### **Dewatering System Description**

The dewatering system will be comprised of two extraction wells (Wells U-1 and U-3) equipped with 1/3-horsepower electric submersible pumps (General Pump Manufacturing, Inc.), a prefiltration bag filter (Rosedale Model 6-30), two aqueous-phase granular activated carbon vessels (Westates ASC-200 or equivalent) plumbed in series, and an effluent flow totalizer (Omega Model FTB6110).

Groundwater will be extracted from each groundwater extraction well using the electric submersible pumps. Each well head will be equipped with a check valve, a sample port, and shut-off valve. Extracted groundwater will be conveyed through a common header to the equipment compound. Extracted groundwater will then be conveyed through the bag filter and carbon vessels. After the groundwater passes through both carbon vessels, it is passed through an effluent totalizer and then discharged to the sanitary sewer.

The dewatering system will be controlled by a remedial system control panel, which controls the operation of the submersible pumps in each extraction well and terminates operation if alarm conditions occur. The following alarm conditions will initiate system shut-down:

- High liquid level in the secondary containment area.
- High pressure condition at the influent to the bag filter housing.
- High pressure condition at the influent to the carbon vessels.

A process flow and instrumentation diagram of the dewatering system is shown on Figure 3. Manufacturer equipment specifications for the groundwater remediation system components are presented as Attachment C.

#### **Dewatering System Efficiency**

In reference to the efficiency of the proposed dewatering system, it should be noted that groundwater treatment with activated carbon is an extremely effective and proven method of removing dissolved hydrocarbons. PACIFIC has several operating systems in Northern Santa Clara County and a 1993 Annual Performance Report from one such site is included to characterize probable treatment conditions. The Annual Report contains historical data concerning influent and effluent analysis of total petroleum hydrocarbons calculated as gasoline (TPH-g), TPH calculated as diesel (TPH-d), 13 priority pollutant metals and cyanide, volatile organic compounds, and a bioassay effluent toxicity analysis. This report is presented as Attachment D. Finally, additional information regarding performance is given in PACIFIC's standard quality control procedures for the operation, maintenance, and compliance sampling (Attachment E).

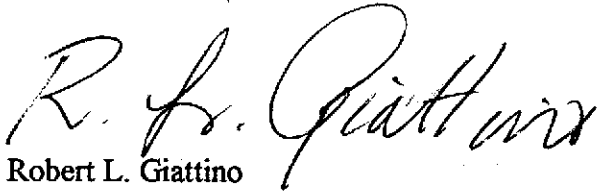
#### **Discharge Location**

The dewatering system discharge line will connect to the service station feeder line as it crosses the parking area to the main sewer line at Usher Street.

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

Sincerely,

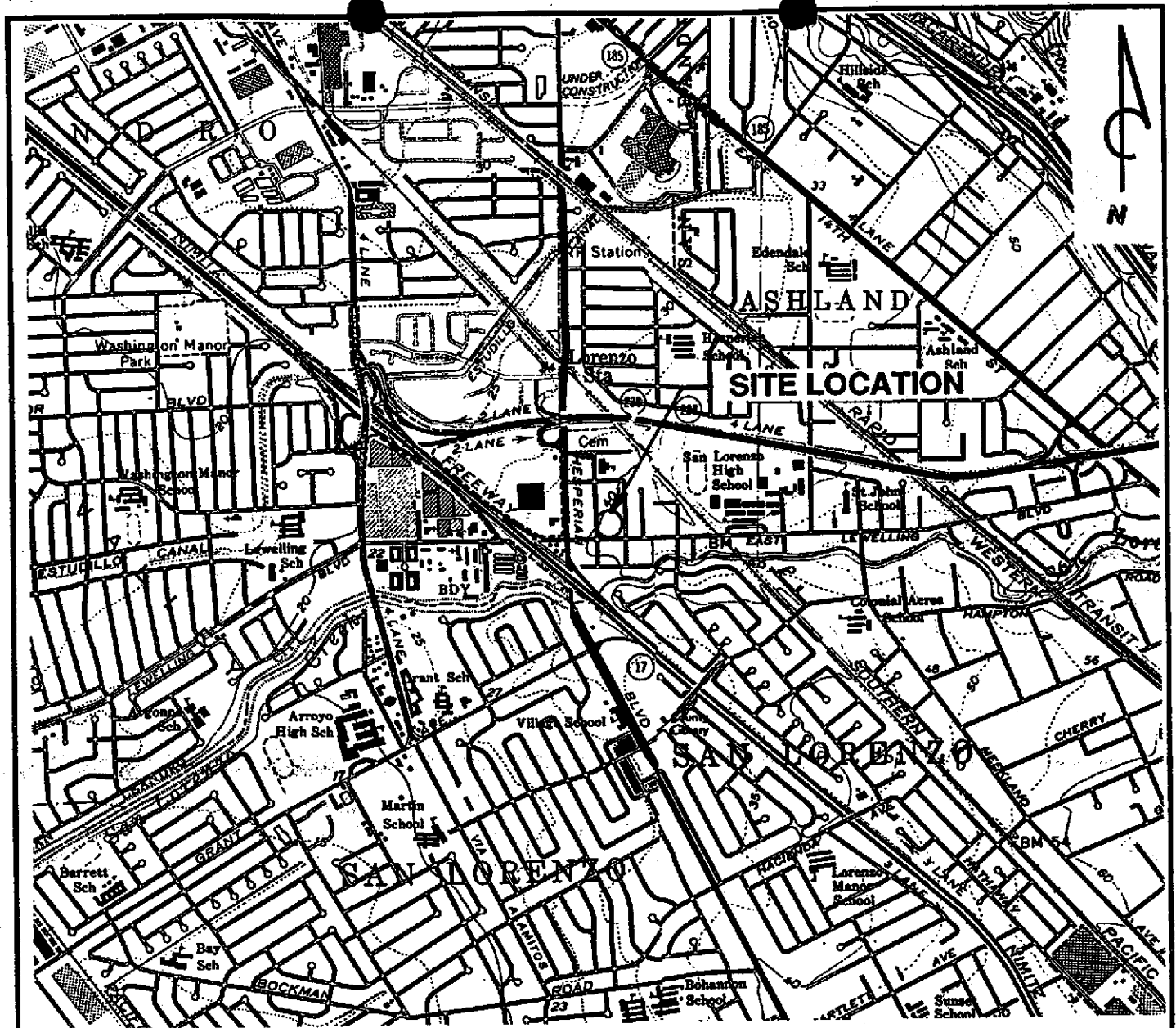
**Pacific Environmental Group, Inc.**



Robert L. Giattino  
Project Engineer

Attachments: Figure 1 - Site Location Map  
Figure 2 - Site Map  
Figure 3 - Groundwater Extraction/Treatment System  
Process Flow Diagram  
Attachment A - Oro Loma Sanitary District  
Special Discharge Permit Application  
Attachment B - Quarterly Report - First Quarter 1995  
Attachment C - Manufacturer's Equipment Specifications  
Attachment D - 1993 NPDES Annual Report  
Attachment E - Field QC Procedures for Groundwater Systems

cc: Ms. Tina Berry, Unocal Corporation  
~~Ms. Juliet Shin, Alameda County Health Care Services Agency~~

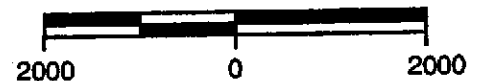


QUADRANGLE LOCATION

**REFERENCES:**

USGS 7.5 MIN. TOPOGRAPHIC MAP  
 TITLED: HAYWARD, CALIFORNIA  
 DATED: 1959 REVISED: 1980  
 TITLED: SAN LEANDRO, CALIFORNIA  
 DATED: 1959 REVISED: 1980

SCALE IN FEET

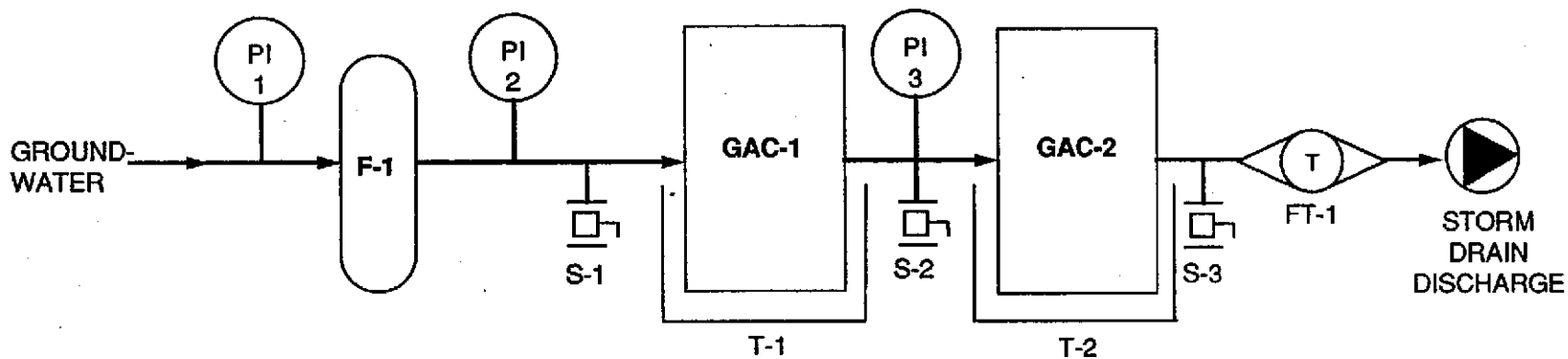


PACIFIC ENVIRONMENTAL GROUP, INC.

UNOCAL SERVICE STATION 5760  
 376 Lewelling Boulevard at Usher Street  
 San Lorenzo, California

SITE LOCATION MAP

FIGURE:  
 1  
 PROJECT:  
 310-058.3B



**LEGEND**

- T-1 SECONDARY CONTAINMENT
- F-1 BAG FILTER
- FT-1 FLOW TOTALIZER
- PI PRESSURE INDICATOR
- S-1 SAMPLE LOCATION
- GAC-1 GRANULATED ACTIVATED CARBON UNIT



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GROUNDWATER EXTRACTION/TREATMENT SYSTEM  
PROCESS FLOW DIAGRAM

FIGURE:  
**3**  
PROJECT:  
310-058.3B

**ATTACHMENT A**

**ORO LOMA SANITARY DISTRICT  
SPECIAL DISCHARGE PERMIT APPLICATION**