

# Ultramar

## Ultramar Inc.

525 W. Third Street  
P.O. Box 466  
Hanford, California 93232  
(209) 582-0241

April 30, 1990

Mr. Scott Seery  
Alameda County  
Environmental Health Department  
80 Swan Way, Room 200  
Oakland, California 94621

**SUBJECT: WORK PLAN FOR LIMITED SUBSURFACE ENVIRONMENTAL INVESTIGATION  
AT FORMER BEACON STATION SITE NO. 574, 22315 REDWOOD ROAD,  
CASTRO VALLEY, CALIFORNIA**

Dear Mr. Seery:

As per our telephone conversation of April 11, 1990, I have revised the enclosed work plan for the above referenced site to include the installation of one ground-water monitoring well. I have also inclosed a check, in the amount of \$1,116.00, for oversight cost.

The enclosed work plan summarizes work necessary to evaluate the possible presence of hydrocarbon constituents in the soil and ground water beneath the site. The proposed work will be performed by an environmental consulting firm selected by Ultramar Inc. (Ultramar) and includes conducting a soil vapor survey; drilling a minimum of two soil borings at the site to a depth of approximately 20 feet; collecting soil samples from the borings for visual inspection and laboratory analysis; constructing a 4-inch-diameter ground-water monitoring well in one of the borings; purging the monitoring well and collecting a water sample for laboratory analysis; and preparing a Preliminary Report (PR) documenting field methodologies and presenting the findings, and conclusions.

The preparation of this work plan is in response to an agreement between Ultramar and Leslie A. Johnson (attorney representing the current owner of the site), dated February 21, 1990. In our opinion, the work described in the enclosed work plan will yield the data necessary to evaluate the presence of hydrocarbon constituents in the soil and ground water beneath the site.



A Member of the Ultramar Group of Companies

**BEACON**

#1 Quality and Service

**WORK PLAN  
LIMITED SUBSURFACE ENVIRONMENTAL INVESTIGATION**

at

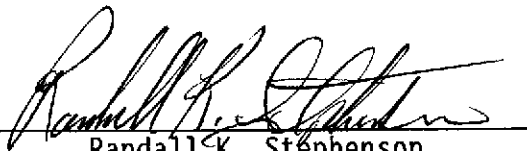
Former Beacon Station No. 574  
22315 Redwood Road.  
Castro Valley, California

Prepared for

Alameda County  
Environmental Health Department  
Oakland, California

by

ULTRAMAR INC.  
525 West Third Street  
Hanford, California 93230



Randall K. Stephenson  
Environmental Specialist  
REA 832


90 MAY -3 PM 2:49  
April 30, 1990

Mr. Scott Seery  
April 30, 1990  
Page ii

Please do not hesitate to call if you have any questions regarding this project or work plan.

Sincerely,

ULTRAMAR INC.



Randall K. Stephenson  
Environmental Specialist

Enclosure : Work Plan

cc w/ encl:

F574-wp

WORK PLAN  
LIMITED SUBSURFACE ENVIRONMENTAL INVESTIGATION  
at  
Former Beacon Station Site No. 574  
22315 Redwood Road  
Castro Valley, California

**INTRODUCTION**

This work plan describes the work necessary to evaluate the possible presence of hydrocarbon constituents in the soil and ground water beneath former Beacon Station Site No. 574, Castro Valley, California. The proposed work includes: 1) conducting a soil vapor survey; 2) drilling a minimum of two approximately 20 foot soil borings at the site; 3) collecting soil samples from the borings for field evaluation and laboratory analysis; 4) constructing a 4-inch-diameter ground-water monitoring well in one of the borings; 5) developing, purging, and collecting a water sample from the well; 6) analyzing selected soil samples obtained from the borings and the water sample collected from the monitoring well for gasoline constituents benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons (TPH) as gasoline; and 7) preparing a Preliminary Report (PR) documenting field methodologies and presenting the findings, and conclusions. The proposed work will be performed by an environmental consulting firm under the supervision of a registered geologist or engineer.

## BACKGROUND AND PREVIOUS WORK

The subject Beacon service station was located at 22315 Redwood Road (Southwest corner of Redwood Road and Grove Way) in Castro Valley, California. The site location is shown on the Site Vicinity Map (Plate P-1). The approximate former location of the underground storage tanks are shown on the Generalized Site Plan (Plate P-2). During May, 1987, Beacon Oil Company (Beacon) excavated and removed five underground storage tanks and associated dispensers and piping from the subject property. The excavation was conducted as part of a lease agreement between Beacon (lessee of the property) and Mr. Ron Pilkington (lessor of the property) at which time Beacon ceased operation of the service station.

Soil samples were collected from the tank excavation for laboratory analysis of BTEX, total volatile hydrocarbons (TVH), and total extractable hydrocarbons (TEH). The laboratory analyses indicated that hydrocarbon constituents were present in the soil adjacent and beneath the tank site. As a result, additional soil was excavated from the tank area to the limit of the available equipment and aerated on site. Soil samples could not be retrieved after deepening the excavation to greater than 22 feet. During July and August, 1987, laboratory analysis confirmed that the aeration process was complete. The results of the laboratory analyses are presented in Tables 1 and 2. The approximate soil sample locations are shown on the Soil Sample Location Map (Plate P-3).

Prior to Beacon vacating the property, all surface and subsurface improvements were removed, the tank excavation was backfilled, and the property was leveled and cleaned. It is Ultramar's understanding that the property is now being used as a convenient store location.

#### **GROUND WATER DATA**

Based on information supplied by Mr. Scott Seery, of the Alameda County Environmental Health Department, the depth to ground water in the vicinity of the site is approximately 16 to 20 feet below ground surface and the direction of flow is to the southwest. According to Mr. Seery, this information was obtained from an environmental investigation report prepared for Chevron U.S.A., Inc., dated January, 1990. The investigation involved a Chevron station at the northeast corner of the intersection of Grove Way and Redwood Road (up-gradient of the former Beacon site).

#### **DISCUSSION**

The preparation of this work plan is in response to an agreement between Ultramar and Leslie A. Johnson (attorney representing the current owner of the site), dated February 2, 1990. The agreement indicates that Ultramar will prepare a work plan and implement the scope of work presented in the work plan. The proposed scope of work should be sufficient to supply the necessary information to evaluate the possible presence of hydrocarbon constituents in the soil and ground water beneath the subject site.

TABLE 1  
 LABORATORY RESULTS OF SOIL SAMPLES  
 COLLECTED FROM THE TANK EXCAVATION AT  
 Former Beacon Station Site No. 574  
 33215 Redwood Road  
 Castro Valley, California  
 Samples Collected during May, 1987

Sample Number (See Plate P-3)	Total Volatile Hydrocarbons	Total Extractable Hydrocarbons	MDL
S-10-T1N	3.09	ND	0.05
S-13-T2N	4.38	ND	0.05
S-13-T2S	3264.00	2898.00	1.0
S-13-T3N	35.23	NA	0.05
S-13-T3S	4.58	NA	0.05
S-13-T4N	1725.00	1846.00	1.0
S-13-T4S	122.50	201.00	0.2
S-13-T5N	687.00	NA	1.0
S-13-T5S	3.95	NA	0.05
S-20-T2S	0.73	NA	0.05
S-20-T2Nb	8.67	NA	0.2
S-20-T4N	125.5	NA	0.05
S-20-T4Nb	0.98	NA	0.05
S-20-T4d	1989.0	1192.0	0.05
S-20-T4F	208.7	53.0	0.2
S-20-T5N	1.27	NA	2.0

Sample Number	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MDL
S-10-T1N	ND	ND	0.07	0.14	0.05
S-13-T2N	ND	0.08	0.21	0.49	0.05
S-13-T2S	89.0	81.0	148.0	559.0	1.0
S-13-T3N	ND	0.7	0.62	5.5	0.05
S-13-T3S	ND	0.15	0.13	0.64	0.05
S-13-T4N	78.0	90.0	248.0	386.0	1.0
S-13-T4S	2.8	5.5	13.3	27.6	0.2
S-13-T5N	23.0	20.0	76.0	181.0	1.0
S-13-T5S	ND	0.09	0.18	0.37	0.05

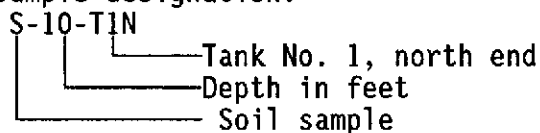
Results are in parts per million (ppm)

MDL = Method detection limit

NA = Not analyzed

ND = Not detected at or above the method detection limit

Sample designation:



*Remaining in the ground*

TABLE 2  
 LABORATORY RESULTS OF SOIL SAMPLES  
 COLLECTED FROM THE EXCAVATED SOIL  
 Former Beacon Station Site No. 574  
 33215 Redwood Road  
 Castro Valley, California  
 Samples Collected during June, 1987

Sample Number	Total Volatile Hydrocarbons
S-NW	289.4
S-SW	2.14
S-SE	104.4
S-NE	2.89
S1(Hi,Avg 1,Avg 2)	14.85
S2(Hi,Avg 1,Avg 2)	38.63
S0710-1(ABC)	0.46
S0710-2(ABC)	0.85
S0710-2(ABC)	0.50
S0721(1,2,3)A	4.76
S0721(4,5,6)A	0.47
S0721(7,8,9)A	1.79
S0824-1(ABC)	0.94
S0824-2(ABC)	0.35
S0824-3(ABC)	0.53

Results are in parts per million (ppm)

### PROPOSED WORK

The proposed work is recommended to evaluate the possible presence of hydrocarbon constituents in the soil and ground water beneath the site.

The following tasks will be performed by an environmental consulting selected by Ultramar:

- 1) Prepare a Site Safety Plan discussing the precautions and protective equipment required for work at the site.
- 2) Conduct a soil vapor survey on the northeast side of the former underground storage tank area where relatively high concentration of hydrocarbons may be present in the soil. *up gradient*
- 3) Acquire all necessary permits from the appropriate regulatory agencies to drill the proposed borings and install the proposed monitoring well.



- 4) Drill a minimum of two 10- to 12-inch diameter soil borings to a maximum depth of approximately 20 feet.
- 5) Collect and classify relatively undisturbed soil samples from the borings at 5 foot intervals beginning at 5 feet below ground surface. An organic vapor monitor (OVM) or similar device will be used in the field to subjectively evaluate the potential concentration of hydrocarbon vapors in the soil samples collected above the saturated zone.
- 6) Submit selected soil samples from each boring for laboratory analysis (samples associated with OVM readings >100 ppm). The samples will be analyzed for the purgeable gasoline constituents BTEX, and TPH as gasoline and diesel.
- 7) Construct one 4-inch-diameter, PVC cased ground-water monitoring well in one of the borings and develop the new well for sampling.
- 8) Collect a ground-water sample from the monitoring well and submit the sample for laboratory analysis for BTEX and TPH.
- 9) Prepare a PR summarizing field and laboratory procedures, findings, interpretations, and conclusions.

*all samples collected should be analyzed, OVM readings may be low (<100) due to age*

### Site Safety Plan

Field work performed by Ultramar's consultant at the site will be conducted in accordance with a Site Safety Plan. This safety plan will describe the basic safety requirements for the subsurface environmental investigation and drilling the soil borings. The Site Safety Plan is applicable to personnel and subcontractors of the consultant. The consultant's personnel (and subcontractors) scheduled to perform work at the site will be briefed on the contents of the Site Safety Plan before work begins. A copy of the Site Safety Plan will be kept at the site and will be available for reference by appropriate parties during work at the site. A Site Safety Officer will be appointed for the duration of the work at the site.

*What is it?*

### Soil Vapor Survey

A soil vapor survey will be conducted using 1/2-inch diameter steel pipe ("probe"). The probes will be installed to evaluate the possible presence of hydrocarbon vapors in the soil beneath the site. Soil vapors will be extracted from each probe and analyzed onsite for total volatile hydrocarbons (TVH). The probe holes will be filled with bentonite to grade upon completion of the survey. The information obtained from the survey will be plotted on a site map to determine the areas of highest TVH vapors. These areas will then be used to locate the soil borings.

### Drilling and Soil Sampling

Appropriate permits will be acquired prior to commencement of drilling. Underground Service Alert will be contacted prior to drilling to delineate public utility lines. Initially, each borehole will be hand-augered to a minimum depth of 5 feet. The soil borings will be drilled using continuous-flight, hollow-stem augers and a truck-mounted drill rig. The auger flights will be steam-cleaned prior to each use to minimize the possibility of cross-contamination between borings. Drilling will be performed under the guidance of a field geologist or engineer, and the earth materials encountered in the borings will be logged as drilled. Soil samples will be logged according to the Unified Soil Classification System and recorded onto a boring log form. During drilling, soil samples from the borings will be collected at 5 foot intervals using a California-modified, split-spoon sampler (2.5-inch-inside-diameter) equipped with clean brass sleeves using the protocols described in the appendix.

The boring located in the area with the highest TVH, as determined by the soil vapor survey, will be advanced approximately 15 feet beyond the depth that ground water is encountered and a monitoring well will be constructed following the procedures presented in the attached appendix. Subsequent water sampling will be conducted following the procedures presented in the appendix.

### Laboratory Analyses

<sup>2</sup>  
Selected soil samples from each borehole drilled at the site (e.g., samples associated with OVM readings >100 ppm) will be selected for laboratory analysis. The selected samples will be analyzed in a DHS certified laboratory for BTEX, using EPA approved methods, and TPH as gasoline and diesel by modified LUFT Guideline methodologies. Detection limits suitable for the soil tests requested and concentrations present will be stated on the laboratory reports. Copies of the laboratory reports will be included in final report.

A ground-water sample will be collected from the monitoring well installed at the site. The sample will be submitted for laboratory analysis for BTEX and TPH as gasoline and diesel using approved EPA methods. Detection limits suitable for the water tests requested and concentrations present will be stated on the laboratory reports. Copies of the laboratory reports will be included in the final report.

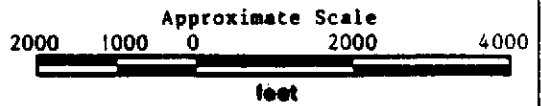
Report Preparation

A report prepared by the consultant summarizing the soil conditions encountered during the drilling, field and laboratory procedures, ground-water conditions, analytical results, and conclusions will be presented to Ultramar approximately 45 days after field work is completed. After Ultramar review, the report will be forwarded to the Alameda County Environmental Health Department.

*within 30 days*



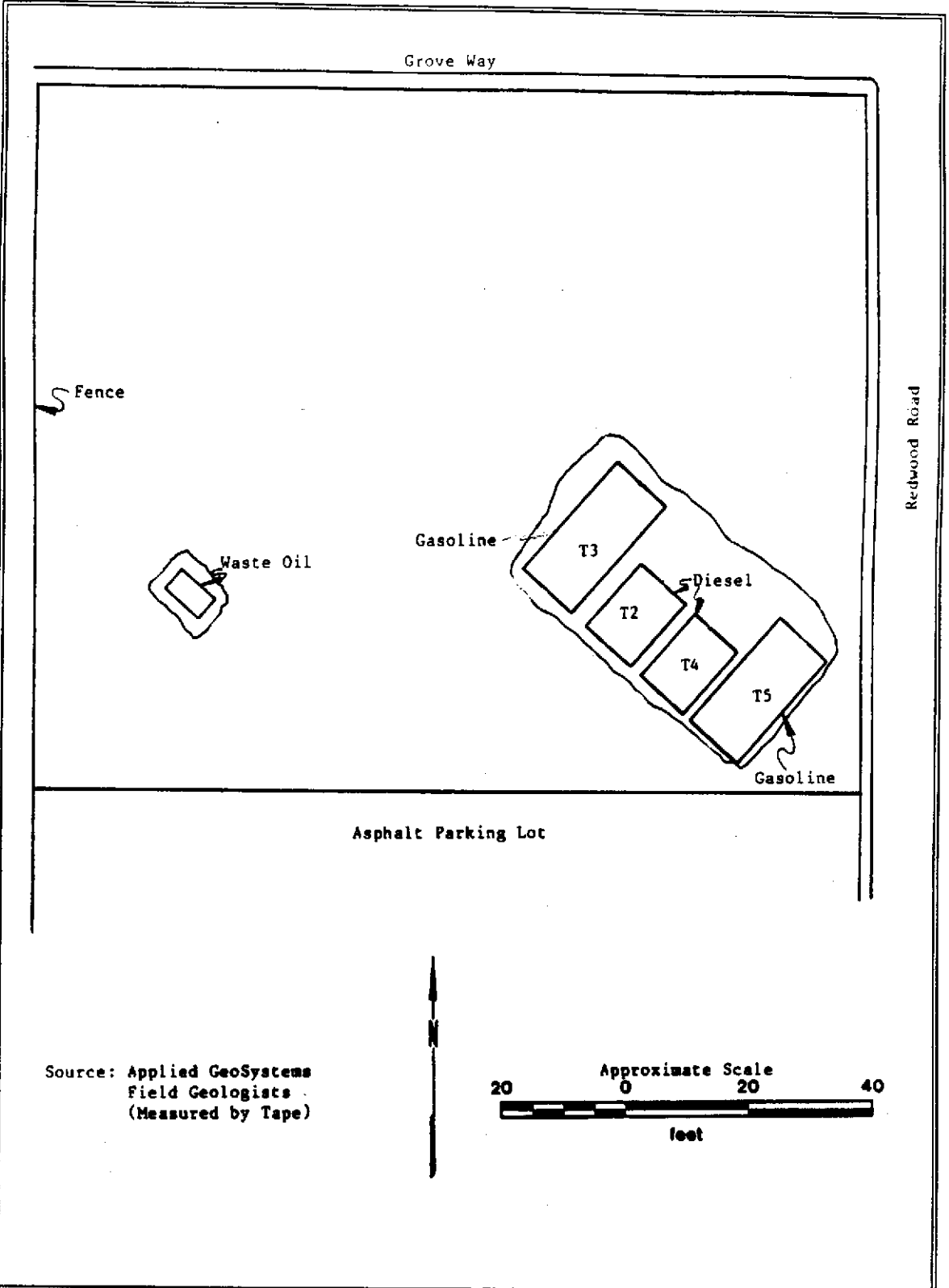
Source: U.S. Geological Survey  
Hayward  
7.5 Minute Quadrangle



SITE VICINITY MAP  
Former Beacon Station No. 574  
22315 Redwood Road  
Castro Valley, California

3/16/90

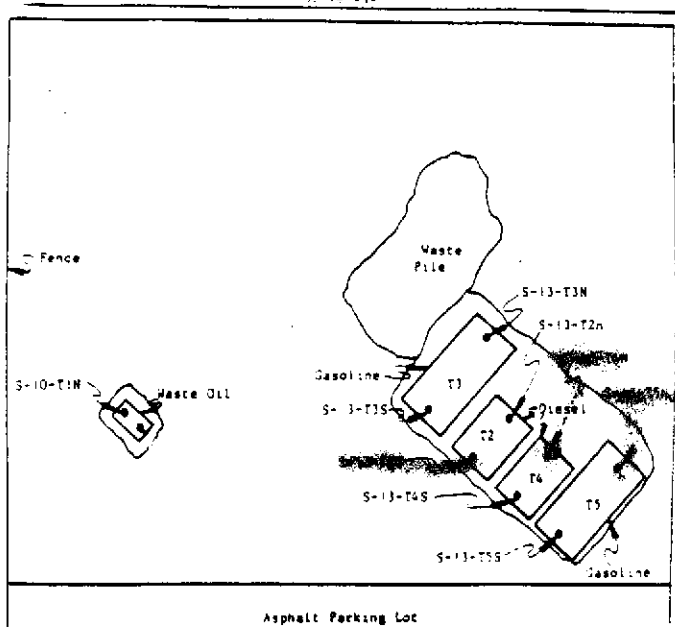
Plate  
P-1



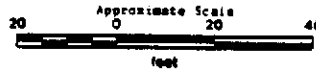
Source: Applied GeoSystems  
 Field Geologists  
 (Measured by Tape)



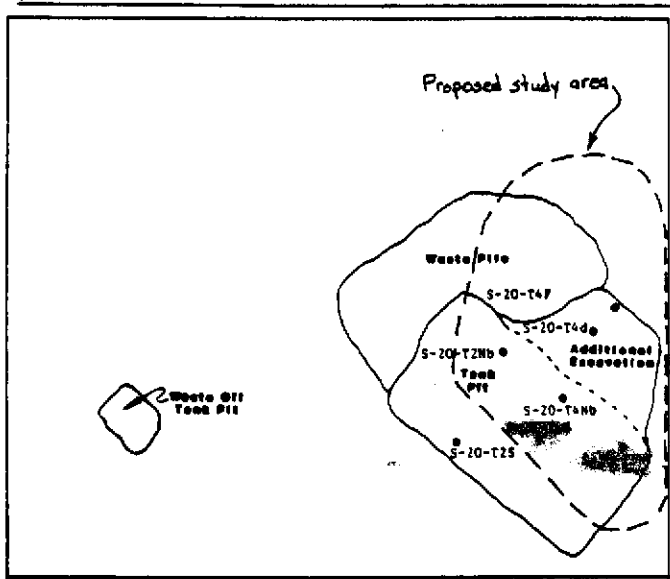
<p>GENERALIZED SITE MAP          Former Beacon Station No. 574          22315 Redwood Road          Castro Valley, California</p>	<p>3/16/90</p>
	<p>Plate          P-2</p>



Source: Applied GeoSystems  
Field Geologists  
(Measured by Tape)



Grove Map



• Soil sample Location Asphalt Parking Lot

SOIL SAMPLE LOCATION MAP  
Former Beacon Station No. 574  
22315 Redwood Road  
Castro Valley, California

3/16/90

Plate  
P-3

# APPENDIX



## FIELD PROTOCOLS

### Soil Sampling

The soil samples obtained from the borings will be collected by advancing each boring to a point immediately above the sampling depth, then driving the sampler into the native soil through the hollow center of the auger. The sampler will be driven 18 inches with a standard 140-pound hammer dropped 30 inches per blow. The number of blows required to drive the sampler each successive 6 inches will be counted and recorded on the boring log to give an indication of soil consistency. A soil sample from each recovered sample interval, above the saturated portion of the boring, will be analyzed in the field with a photoionization detector or a similar instrument. The data will be recorded on the boring logs.

Soil samples selected for chemical analysis will be sealed with teflon sheets or aluminum foil, plastic end caps, and airtight tape. The samples will then be labeled and immediately placed in iced storage for transport to a California State Certified laboratory which will perform the required chemical analyses. A Chain of Custody Record will be initiated in the field and will accompany the samples to the laboratory. A copy of the Chain of Custody Record will be included in the final report.

### Monitoring Well Construction

The monitoring well will be constructed of flush thread-jointed, Schedule 40 PVC casing. No chemical cements, glues, or solvents will be used in well construction.

The screened portion of the well will consist of factory-perforated casing with 0.020-inch-wide slots. The well screen will extend from the total depth of the well to a depth of approximately 5 feet above measured ground-water levels at the site to allow monitoring throughout the year despite expected seasonal fluctuations of ground water. The annulus of the well will be packed with #16 Monterey sand, or similar, to approximately 2 feet above the screened interval. A 1- to 2-foot-thick bentonite plug will be placed above the sand as a seal against cement entering the sand pack. The remaining annulus will be backfilled with a slurry of water, neat cement, and 5 percent bentonite to a few inches below grade. A locking well cap and padlock will be installed on each well head, and a traffic-rated, cast-aluminum utility box with a PVC apron will be placed over each well and set with concrete flush with the surrounding station pad. The box has a watertight seal to protect against surface-water infiltration and requires a specially-designed wrench to open. This design discourages vandalism and reduces the possibility of accidental disturbance of the well.

### Ground-Water Sampling

Prior to developing, the well will be subjectively analyzed for floating product and/or product sheen by lowering a bailer approximately halfway through the air/water interface in the well. Depth to water in the well will also be measured. The well will then be developed by swabbing, surge-pumping, or another suitable method until the discharge from the

All samples  
are to be  
properly sealed  
as though to be  
analyzed.

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How?

well is relatively clean and free of suspended sediment. Following development, the well will be purged of approximately three to four well volumes of water or until temperature, pH, and conductivity readings stabilize, and subjectively analyzed.

Any floating product observed in the well will be removed prior to sampling, using a bailer. If the product can not be removed a final measurement of the product thickness will be made and the well will not be sampled.

The ground water level will be allowed to recover to approximate static conditions in the well, and the water level will again be measured. If the water level is at or greater than 80% of the initial measured level, a clean bailer will be used to obtain a sample from the surface of the water in the well. Any subjective evidence of product detected in the well will be recorded.

Water samples will be collected using a Teflon bailer cleaned with Alconox and rinsed with tap and deionized water. The water samples will be sealed in laboratory-cleaned, 40-milliliter glass vials with Teflon-lined lids. The samples will then be labeled and immediately placed in iced storage. A Chain of Custody Record will be initiated by the field geologist or engineer and will accompany the samples to a laboratory certified in the State of California for the analyses requested. A copy of the Chain of Custody Record will be included in our final report.