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June 20, 1996

Mr. Ed Ralston
Unocal Corporation-ERS
P.O. Box 5155
San Ramon, California 94583

RE: Work Plan - Subsurface Investigation
Unocal Service Station No. 7176
7850 Amador Valley Road
Dublin, California

Dear Mr. Ralston:

Enviros, Inc. (Enviros) has prepared this work plan on behalf of Unocal Corporation-ERS (Unocal) to perform a subsurface investigation at the above referenced site. The scope of work presented in this document is proposed in response to Alameda County Health Care Services Agency's (ACHCSA) correspondence dated January 3, 1996 and Unocal's correspondence dated February 9, 1996. The proposed work will be performed in compliance with ACHCSA and Regional Water Quality Control Board (RWQCB) guidelines. The objectives of this work plan are described below:

- Report the findings of the utility trench investigation,
- Delineate the extent of petroleum hydrocarbons in ground water down-gradient and cross-gradient of the subject site,
- Collect soil and ground water samples for laboratory analyses,
- Analyze soil and ground water samples for Total Petroleum Hydrocarbons calculated as gasoline (TPH-G), diesel (TPH-D), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Additionally, ground water samples will be analyzed for Methyl-tertiary-butyl ether (MTBE), and
- Prepare a technical report based on the findings of the investigation.

Site Description and Background

The subject property is located northwest of the 680/580 Freeway interchange on the southwest corner of Amador Valley Road and Regional Street in Dublin, California (Plate 1). The site is currently occupied by Unocal Service Station No. 7176. On-site structures include a service station building, two product dispenser islands covered by one canopy, two 12,000-gallon underground storage tanks containing gasoline, and one 12,000-gallon underground storage tank containing diesel.

In November 1994, four underground storage tanks (USTs) and related product lines and dispensers were removed. One sand/water separator was also decommissioned. Three fuel USTs and related product lines and dispensers were later installed during station remodeling (Plate 2). Approximately 1,860 cubic yards of petroleum hydrocarbon-impacted soils and 5,000 gallons of impacted ground water were removed from the site during UST replacement activities. Due to excavation constraints, however, residual

petroleum hydrocarbons remain beneath the former USTs and the southern dispenser island.

An on-site subsurface investigation was conducted in July 1995. Three monitoring wells (U-1 through U-3) and six soil borings (B-1 through B-6) were drilled. Soil sampling results indicated that no petroleum hydrocarbons were detected in Borings B-2, B-4, and Well U-3. Ground water sample B-2 was non detect (ND) for all petroleum hydrocarbons. The remaining soil and ground water samples, however, contained detectable concentrations of petroleum hydrocarbons.

Oxygen Releasing Compound (ORC) was installed in each well upon completion of the Fourth Quarter 1995 sampling event. Quarterly ground water sampling indicates that petroleum hydrocarbon concentrations have steadily decreased with time. Historically, the depth to ground water ranges from approximately 12 to 18 feet below grade (fbg) and the ground water flow direction is toward the southeast.

Utility Trench Investigation

An underground utility survey of the adjacent area indicates that the storm drain located below the east curb along Regional Street is located approximately 5.5 to 7.5 fbg. All other utilities (sewer, water, electrical, telephone) are located between 2.5 and 6 fbg. The shallowest historical depth to ground water reported is 12.20 feet. Therefore, there is approximately 5 feet of separation between the bottom of the deepest utility and the shallowest reported depth to ground water. Based on these data, the utility trenches surveyed do not intercept the ground water surface and would not provide a preferential pathway for petroleum hydrocarbon migration.

Technical Rationale for Proposed Scope of Work

Review of historical ground water data indicate that petroleum hydrocarbons in ground water appear to be delineated on the northwest (up-gradient) and northeast (cross-gradient) sides of the property. Ground water data up-gradient (Boring B-2 and Well U-3) and cross-gradient (Boring B-4) indicate that petroleum hydrocarbons concentrations are ND or are present in low concentrations. It is our technical opinion that these low concentrations are localized and further delineation in these directions is not necessary. It is anticipated that installation of off-site wells as proposed will delineate petroleum hydrocarbons in the down-gradient (southeast) and cross-gradient (southwest) directions.

Proposed Scope of Work

The scope of work presented in this work plan has been developed to meet Unocal's objectives. Proposed ground water monitoring well locations are shown on Plate 2. The proposed scope of work has been presented as specific tasks.

Task 1: Prepare and submit a Work Plan to the ACHCSA.

Task 2: Obtain all necessary permits and pay fees.

Task 3: Obtain all necessary approvals for off-site access.

Task 4: Prepare a Health and Safety Plan.

Task 5: Locate all known underground utilities and structures utilizing Underground Services Alert (USA) and contract a private utility locator service to inspect each boring location.

Task 6: Drill two exploratory soil borings to approximately 30 fbg using hollow-stem auger drilling equipment. Each boring will be cleared prior to drilling by hand auguring to a depth of approximately 5 fbg.

During drilling, the exploratory soil borings will be lithologically logged by an Enviros geologist and soil samples will be collected at five (5) foot intervals as a maximum with a split-spoon sampler. Retrieved soil samples will be field screened using an Organic Vapor Meter (OVM). Head-space vapor measurements will be recorded on the exploratory boring logs. An exploratory boring log will be prepared for each boring.

consider soil sample for TOC, bulk density, porosity, water content if Tier 2 is appropriate

Soil samples will be labeled, logged onto a Chain-of-Custody record and placed on ice for transport to a Unocal contract environmental laboratory. One soil sample will be collected from each boring at the ground water capillary fringe and submitted for chemical analyses. Soil samples will be analyzed for TPH-G and TPH-D according to EPA Method 8015 (Modified), and BTEX according to EPA Method 8020.

Task 7: Two ground water monitoring wells will be installed upon completion of the soil borings to a total depth of approximately 30 fbg. The wells will be constructed using 2-inch Schedule 40 PVC with 0.02-inch machine slotted well screen. The screened interval will extend from approximately 10 to 30 fbg. Lonestar #2/12 graded sand will be placed in the annular space to approximately two feet above the top of the well screen. A one-foot thick hydrated bentonite seal will be placed above the sand pack. A neat cement seal will be placed from the top of the bentonite seal to approximately 1 fbg. A water-proof locking well cap and lock will be installed on the well casing. Each well will be protected by a traffic-rated vault set in concrete.

Task 8: The monitoring wells will be properly developed following their installation. Development purge water will be contained in 55-gallon storage drums and the volumes will be documented and recorded.

Task 9: Following monitoring well installation and development, each well will be sampled and analyzed for TPH-G, TPH-D, BTEX, and MTBE.

Task 10: Soil cuttings generated from the drilling effort will be either stockpiled or drummed on-site, sampled and analyzed for TPH-G, TPH-D, BTEX, and Total Threshold Limit Concentration (TTLC) lead. These analytical results will be submitted to the appropriate landfill for acceptance. Enviros will coordinate transportation of stockpiled soils.
Ground water generated from well development and sampling activities will be drummed, labeled, and stored on-site. Enviros will recommend disposal based on the ground water analytical results.

Task 11: A level survey including horizontal and vertical control will be performed to determine top of casing (TOC) elevations and locations. TOC elevations will be referenced to Mean Sea Level.

Task 12: A technical report will be prepared documenting field procedures, chemical analytical results, and a discussion of the findings of the investigation.

Schedule And Estimated Costs

Enviros is scheduled to begin work upon approval of this work plan by Unocal and ACHCSA and receipt of appropriate permits.

A cost summary sheet presenting estimated costs is attached. As shown on the summary sheet, the cost to perform the proposed scope of work should not exceed the stated amount. This work plan does not include any additional work that may be required beyond the tasks described above. Enviros will notify the Unocal Engineer for approval of out of scope services prior to performing the work. If our work plan meets your approval, please issue a contract for the stated amount.

If you have any questions or comments, please call.

Sincerely,

Enviros, Inc.

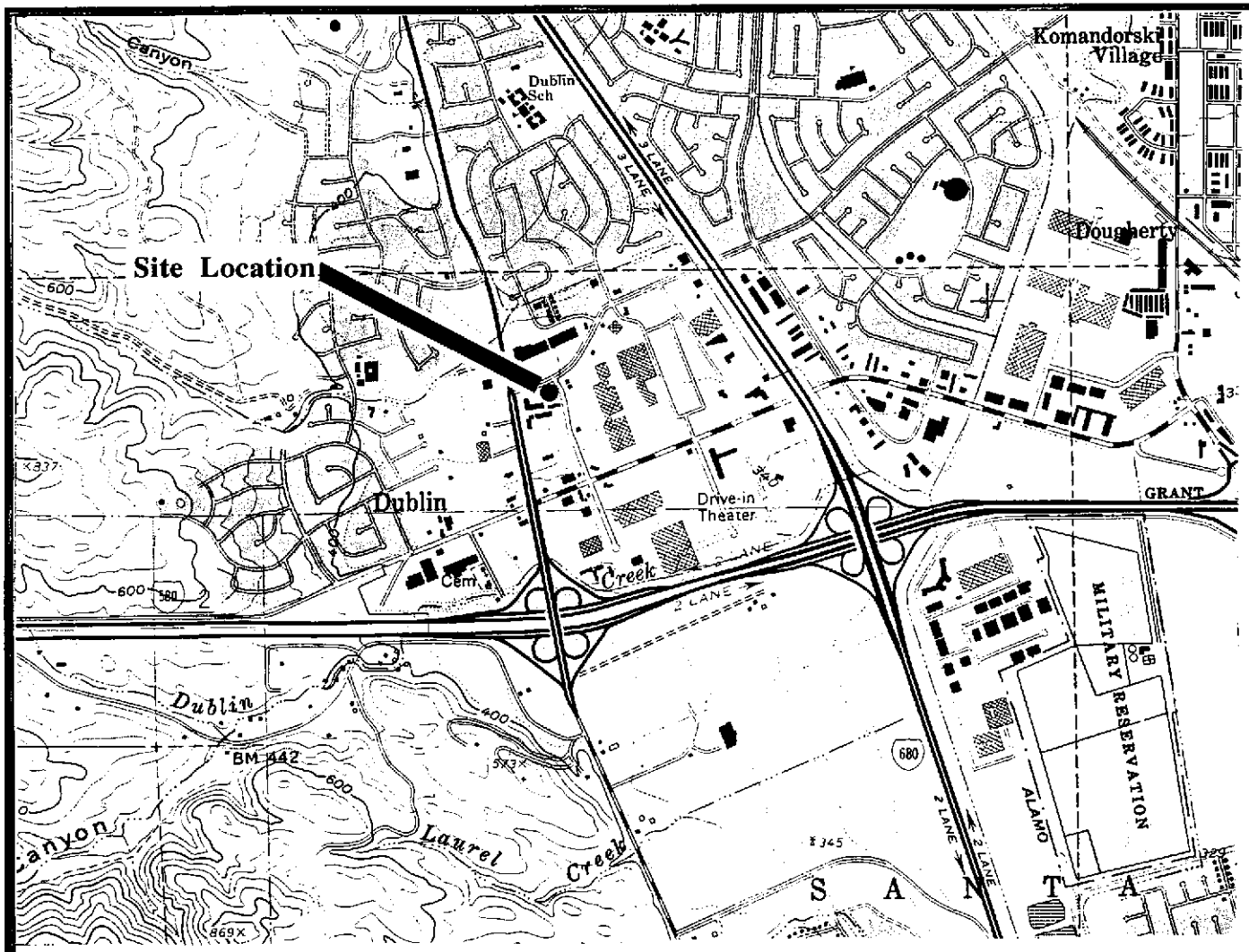
Clyde J. Galantine
Project Geologist

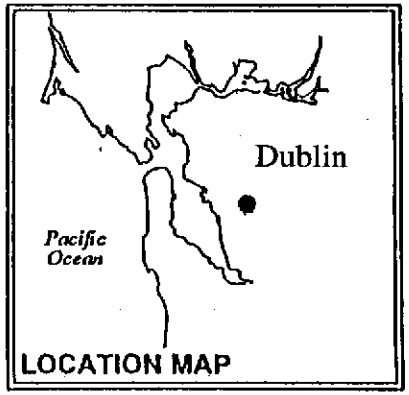
Jeffrey D. Gaarder
Project Manager

Attachment: Cost Summary Sheet

Plate 1: Vicinity Map
Plate 2: Proposed Boring/Well Location Map

cc: Ms. Eva Chu, Alameda County Health Care Services Agency
96132.06 files





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Scale in Feet

Base Map: USGS 7.5 Minute Topographic Map

PLATE

1

VICINITY MAP
Unocal Service Station No. 7176
7850 Amador Valley Road
Dublin, California

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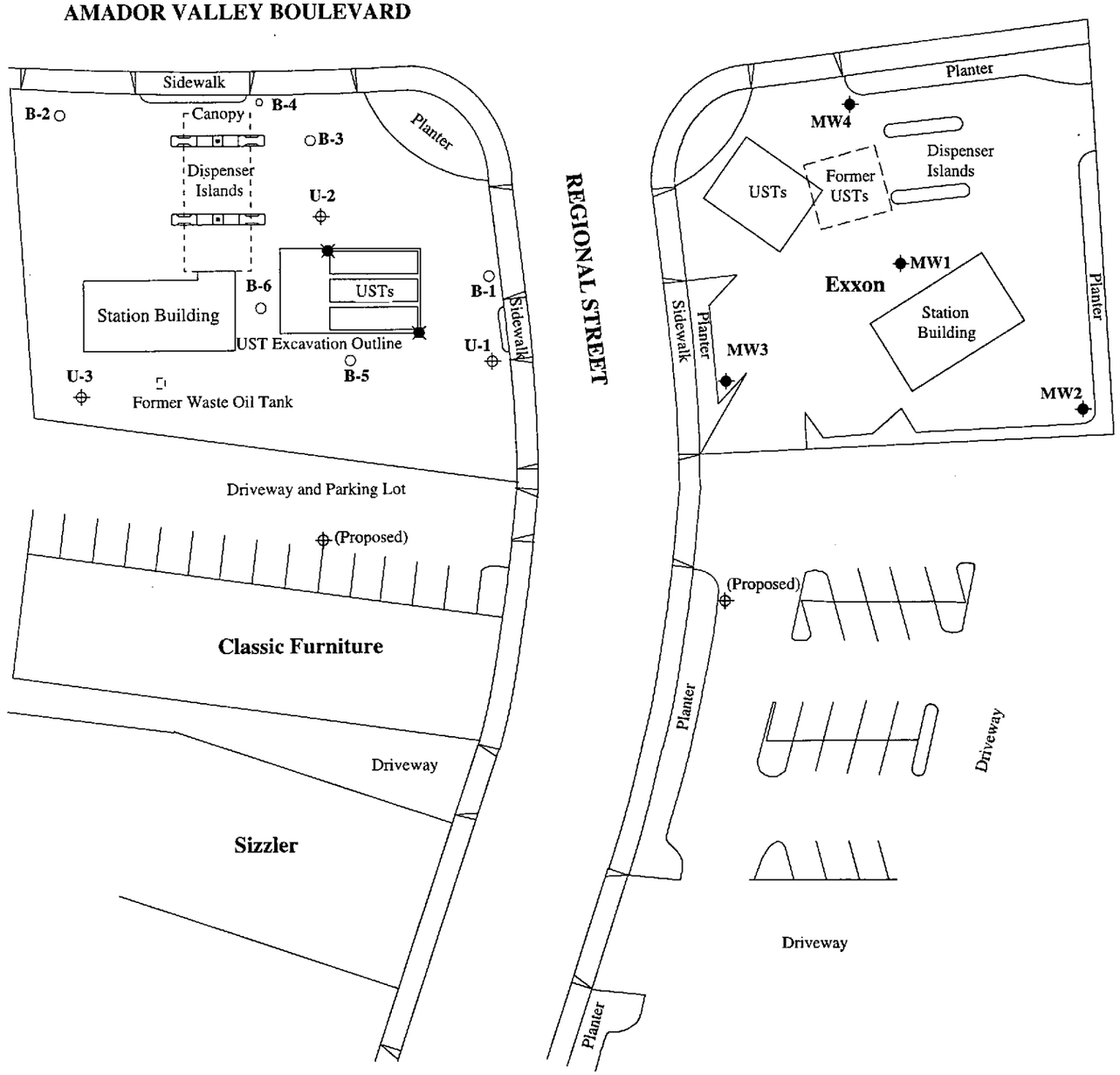
E4/94132

Drawn By: CJG Date: 12-22-94

Approved By: CJG Date: 12/22/94



EXPLANATION

- ○ Soil Boring Location
- ⊕ Proposed Ground Water Monitoring Well Location
- ✱ Conductor Casing Location
- ◆ Abandoned Ground Water Monitoring Well Location

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Scale in Feet

PLATE 2

PROPOSED BORING/WELL LOCATION MAP

Unocal SS No. 7176
7850 Amador Valley Boulevard
Dublin, California

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Drawn By: CJG Date: 6-10-95

Approved By: CJG Date: 6/20/96