



# KAPREALIAN ENGINEERING, INC.

*Consulting Engineers*

P.O. BOX 996 • BENICIA, CA 94510  
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

KEI-J90-0606.P1  
July 16, 1990

Unocal Corporation  
2000 Crow Canyon Place, Suite #400  
P.O. Box 5155  
San Ramon, CA 94583

Attention: Mr. Rick Sisk

RE: Work Plan/Proposal  
Unocal Service Station #5901  
11976 Dublin Boulevard  
Dublin, California

## I. INTRODUCTION

This work plan for Phase I subsurface investigation is prepared in accordance with requirements and format of the San Francisco Bay "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks", as provided by the Alameda County Health Agency (ACHA) in the letter dated January 5, 1990 and concerning the subject site. All work will be performed under the direct supervision of Mr. Don Braun, Certified Engineering Geologist #1310, expiration date 6/30/92.

### A. Statement of Scope of Work

The scope of work in this work plan/proposal entails defining the extent of subsurface contamination at the site.

### B. Site Location

The service station site occupies the northwest corner at the intersection of Dublin Boulevard and San Ramon Road in Dublin, California. The site is situated on relatively gently sloping, eastward trending topography, and is located approximately 700 feet northwest of a channelized portion of Dublin Creek. The site is also located near the southwest end of the San Ramon Valley near Amador Valley. A Location Map and Site Plans are attached to this work plan.

C. Background

Kaprealian Engineering, Inc's. (KEI) field work was conducted on June 13, 1990, when two underground fuel storage tanks and one waste oil tank were removed from the site. The tanks consisted of one 10,000 gallon super unleaded fuel storage tank, one 10,000 gallon regular unleaded fuel storage tank, and one 280 gallon waste oil tank. The tanks were made of steel and at least one hole of 1/4-inch diameter was observed in each of the fuel tanks. Numerous holes up to 1/2-inch in diameter were observed in the waste oil tank. Mr. Ravi Arulanantham of the ACHA was present during tank removal and subsequent soil sampling.

Water was encountered in the fuel tank pit at a depth of approximately 7.0 feet, thus prohibiting the collection of any soil samples from immediately beneath the tanks. Six soil samples, labeled SW1 through SW6, were collected from the sidewalls of the fuel tank pit approximately 6 to 12 inches above the observed water table. One soil sample, labeled WO1, was collected from beneath the waste oil tank at a depth of approximately 6.5 feet. An additional soil sample, labeled SWA, was collected from the waste oil tank pit sidewall at a depth of approximately 6.5 feet. Sample point locations are as shown on the attached Site Plan, Figure 1.

KEI returned to the site on June 15, 1990, in order to collect soil samples from the product pipe trenches. Four samples, labeled P1 through P4, were collected from trenches by using a driven tube-type soil sampler at a depth of 6.0 feet. After the soil sampling was completed, pipe trenches were excavated to ground water over the area indicated on the attached Site Plan, Figure 2. Pipe trench sample point locations are shown on the attached Site Plan, Figure 2.

On June 15, 1990, after reviewing the analytical results of the soil samples (SW1 through SW6), four additional soil samples, labeled SW1(3), SW2(3), SW5(2.5) and SW6(3), were collected from the sidewalls of the fuel tank pit approximately 6 to 12 inches above ground water in the vicinity of sample point locations SW1, SW2, SW5 and SW6, respectively.

After soil sampling was completed, approximately 25,000 gallons of ground water were pumped from the fuel tank pit. On June 20, 1990, one water sample, labeled W1, was collected from the fuel tank pit.

Also on June 20, 1990, based on analytical results of soil samples SW1(3) and SW2(3), two additional soil samples, labeled SW1(6.5) and SW2(6.5), were collected from the northerly sidewall of the fuel tank pit approximately 6 to 12 inches above ground water in the vicinity of sample point locations SW1(3) and SW2(3). The sample point locations and the area excavated are as indicated on the attached Site Plan, Figure 1.

On June 26, 1990, KEI again returned to the site in order to collect soil samples from the sidewalls of the new underground fuel storage tank pit located to the west of the pump islands. Four soil samples, labeled SW11, SW12, SW13 and SW14, were collected from the sidewalls of the excavation 6 to 12 inches above ground water. Sample point locations are as shown on the attached Site Plan, Figure 3.

On July 3, 1990, after having pumped approximately 10,000 gallons of ground water from the new fuel tank pit, a water sample, labeled W2, was collected from the pit.

All samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California and were accompanied by properly executed Chain of Custody documentation. All soil samples, except the waste oil tank pit sidewall sample SWA, were analyzed for total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020. In addition to TPH as gasoline and BTX&E, the soil sample W01, collected from the waste oil tank pit, was analyzed for TPH as diesel using EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) by EPA 503D&E, and EPA 8010 constituents. The waste oil tank pit sidewall sample, SWA, was analyzed for TOG only. In addition to TPH as gasoline and BTX&E, sample SW11 from the new fuel tank pit was also analyzed for TOG.

Both water samples were analyzed for TPH as gasoline and BTX&E. In addition, water sample W2 collected from the new fuel tank pit was analyzed for TOG.

Analytical results of the soil samples SW1, SW2, SW5 and SW6, collected from the sidewalls of the former fuel tank pit, indicate levels of TPH as gasoline ranging from 120 ppm to 5,700 ppm. Samples SW3 and SW4 indicate levels of TPH as gasoline at non-detectable and 8.0 ppm, respectively. However, after additional excavation, analyses of final sidewall soil samples SW1(6.5), SW2(6.5), SW5(2.5) and SW6(3), collected laterally beyond the samples SW1, SW2, SW5 and SW6 at a depth of approximately 6.0 feet, indicated levels of TPH as gasoline ranging from 1.2 ppm to 32 ppm.

Analyses of soil samples collected from the pipe trenches, indicate levels of TPH as gasoline ranging from 2.5 ppm to 37 ppm. Benzene was detected in all pipe trench samples at concentrations ranging from 0.28 ppm to 0.78 ppm.

Analytical results of the soil sample W01, collected from beneath the waste oil tank pit, indicate levels of TPH as gasoline at 36 ppm, TPH as diesel at 120 ppm, and TOG at 1,500 ppm, with non-detectable concentrations of all EPA 8010 constituents, except 1,2-dichlorobenzene at 210 ppb. Analysis of soil sample SWA, collected from the sidewall of the waste oil tank pit, indicate levels of TOG at 3,500 ppm.

Analyses of the soil samples (SW11, SW12, SW13 and SW14), collected from the new fuel tank pit, indicate non-detectable levels of TPH as gasoline and benzene for all samples. Analysis of sample SW11 for TOG indicates 78 ppm. Results of all soil analyses are summarized in Table 1.

Analytical results of the water sample (W1), collected from the former fuel tank pit, indicate levels of TPH as gasoline at 2,300 ppb, and levels of benzene at 3.1 ppb. Analyses of the water samples (W2), collected from the new fuel tank pit, indicate non-detectable levels of TPH as gasoline, TOG, and benzene. The results of the water analyses are summarized in Table 2.

D. Site History

1. The site is used as a gasoline station. Two 10,000 gallon capacity fuel tanks and one 280 gallon waste oil tank were at the site prior to their removal on June 13, 1990.
2. No previous businesses at the site are known to KEI.
3.
  - a. Two underground fuel tanks and one waste oil tank were removed from the site on June 13, 1990. All of the tanks were made of steel. The fuel tanks were each 10,000 gallons in capacity, and contained regular unleaded gasoline, and super unleaded gasoline. The waste oil tank was 280 gallons in capacity and contained waste oil.
  - b. The tanks were removed on June 13, 1990. Holes of approximately 1/4" in diameter were observed in both the regular unleaded and super unleaded gasoline tanks. Numerous holes up to 1/2 inch in diameter were observed in the waste oil tank.
  - c. Tank removal was performed by Paradiso Construction, Inc. of Oakland, California. For tank removal documentation and associated manifests, the reader is referred to Paradiso Construction, Inc.
  - d. An Unauthorized Release Form dated June 21, 1990 has been filed with the ACHA. A copy of the Unauthorized Release Form is attached with this work plan.
  - e. No tank testing results or inventory reconciliation methods or results for this site are known to KEI at this time.
  - f. An unknown quantity of petroleum hydrocarbons was released into the subsurface environment.
4. No other leaks, spills or previously removed tanks at the site are known to KEI.

5. No previous subsurface work at the site or adjacent sites is known to KEI.

## II. SITE DESCRIPTION

### A. Vicinity Description and Hydrogeologic Setting

The subject site is developed and consists of an Unocal Service Station. The station occupies the northwest corner at the intersection of Dublin Boulevard and San Ramon Road in Dublin, California.

The depth of the water table was measured at a depth of about 7.0 feet. The ground water direction of flow is presently unknown at the site, but is assumed to be toward the east; however, the influence of the adjacent active Calaveras Fault on the ground water flow direction and gradient is unknown at this time.

### B. & C. Vicinity Map

A Site Location Map and four Site Plans showing various features of the site are attached with this work plan. Figure 4 shows the locations of subsurface utilities, the former tank locations and affiliated piping. No wells are known to KEI to be located on or near the site.

### D. Existing Soil Contamination and Excavation Results

1. Soil sample collection associated with the removal of the fuel tanks and waste oil tank was performed in the following manner:

The collection of the soil samples taken on June 13, 1990 was witnessed by ACHA personnel. The undisturbed samples were collected from bulk material excavated by backhoe. The samples were placed in clean, two-inch diameter brass tubes, sealed with aluminum foil, and plastic caps, and stored in a cooler on ice prior to delivery to a state-certified laboratory. Chain of Custody procedures were observed.

2. Ground water was encountered in the tank pits at a depth of about 7.0 feet.

3. Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is underlain by Quaternary-age alluvium. The surficial alluvium has been mapped as Holocene coarse-grained alluvium (Qhac) typically consisting of unconsolidated, permeable sand and silt with locally coarse sand and gravel materials and ranges in thickness from less than 10 feet to as much as 50 feet. This coarse-grained alluvium zone appears to have been deposited from sediments generated from erosion within Dublin Canyon situated immediately west of the site. The site is present at the northern perimeter of the Qhac near a mapped geologic contact with Late-Pleistocene alluvium (Qpa). The Late Pleistocene alluvium typically consists of weakly consolidated, irregular interbedded clay, silt, sand, and gravel materials. The overall thickness of the alluvium underlying the site is presently unknown to KEI.

In addition, the site is situated closely adjacent to and east of the mapped trace of the active Calaveras Fault. The Calaveras Fault is a major structural break within the Coast Ranges near San Francisco Bay and most likely forms a significant barrier to the migration of ground water in the alluvial materials from the hillside areas immediately west of the site.

The subsurface soils exposed in the excavations consisted primarily of sandy silt to a depth of about 6.5 feet, which is in turn underlain by silty clay materials.

4. Soil sample collection locations associated with the former tank pit are shown on the attached Site Plan, Figure 1. Pipe trench sample point locations are as shown on the attached Site Plan, Figure 2. Soil sample locations associated with the new fuel tank pit are shown on the attached Site Plan, Figure 3.

Soil and water samples were collected on June 13, 15 and 20, 1990, by Mr. Richard Bradish of KEI. Soil samples were collected on June 26, 1990 by Mr. Nubar Srabian of KEI, and the July 3, 1990 water sample was collected by Mr. Wade Weston of KEI. Tabulated soil and water sample analytical results are provided in Tables 1 and 2, respectively. Sample collection locations are shown on the attached Site Plan, Figure 1. Copies of the signed laboratory data sheets are attached with this work plan.

5. Any known subsurface conduits or utilities are identified on the attached Site Plan, Figure 4.
6. During tank removal, a water pipe was broken, causing water to temporarily appear in the tank pit.
7. All soil excavated, as described in Section I. C., has been disposed of to a Class III disposal site.
8. All required permits for tank removal were acquired by Paradiso Construction, Inc. of Oakland. For copies of such permits, the reader is referred to Paradiso Construction, Inc.

### III. PLAN FOR DETERMINING EXTENT OF SOIL CONTAMINATION ON-SITE

#### A. Method/Technique for Determining Extent of Contamination within the Excavation

The extent of contamination was determined within the fuel tank pit by collecting soil samples from the sidewalls of the pit as described in sections I. C. and II. D. 1. above.

As Phase I subsurface investigation, KEI proposes further excavation of the waste oil tank pit to determine the lateral extent of contamination.

KEI proposes excavation of the easterly, northerly and westerly waste oil tank pit sidewalls to remove as much contaminated soil as possible laterally to the water table. KEI proposes that three sidewall soil samples be collected at 6 to 12 inches above the water table, taking one sample from each sidewall excavated. Samples will be collected after lateral excavation. Sample frequency and depth may be reasonably adjusted



for any sidewall excavated to account for post excavation sidewall face lithology.

One water sample will be collected in four clean, glass VOA vials and two amber one-liter bottles.

All samples will be analyzed for TPH as gasoline (EPA 5030/8015), BTX&E (EPA 5030/8020), TPH as diesel (EPA 3550/8015), TOG (EPA 503D&E), and EPA 8010 constituents.

- B. 2. Instead of soil borings, KEI proposes to install monitoring wells to further define the extent of subsurface contamination as described below in Section IV.
- C. Soil excavated during subsurface investigation will be stockpiled and covered with visqueen on-site until arrangements are completed for appropriate disposal.
- D. Security measures for open excavations are administered by Paradiso Construction, Inc.

#### IV. PLAN FOR DETERMINING GROUND WATER CONTAMINATION

##### A. Placement and Rationale for Location of Monitoring Wells

As Phase I subsurface investigation, KEI proposes the installation of four monitoring wells to determine ground water flow direction. Approximate locations of the wells are shown on the attached Site Plan, Figure 4.

##### B. Drilling Method for Construction of Monitoring Wells, including Decontamination Procedures

KEI proposes to install four two-inch diameter monitoring wells using truck mounted eight-inch outside diameter hollow stem auger drilling equipment. Permits will be obtained from the ACHA as necessary prior to beginning work.

The wells will be drilled 15 feet into the saturated zone of the first encountered ground water unless a 5 foot thick clay aquitard is encountered first, at which time drilling will be terminated.

Soil samples will be collected at a maximum spacing of 5 foot intervals, changes in lithology, and at areas of obvious contamination beginning at a depth of approximately 4 feet. Sampling for laboratory analysis purposes will continue until the first water table is encountered. Sampling for lithologic logging purposes will continue below the ground water table to the maximum depth explored. A representative soil sample from below the ground water table will be collected for a sieve/hydrometer analysis to verify monitoring well slot size and filter pack design. Classification of soil will be done using the Unified Soil Classification System (USCS) by KEI's field engineer or geologist. Samples will be collected in a California modified split-spoon sampler with two-inch diameter brass liners. The sampler will be advanced ahead of the drilling augers at designated depths by dropping a 140 pound hammer 30 inches. Blow counts will be recorded. The samples will be removed from the sampler, retained in the brass liners, and sealed with aluminum foil, plastic caps and tape. They will be labeled and stored in a cooler on ice for delivery to a state certified laboratory.

California modified split-spoon samplers and brass tubes will be decontaminated prior to each use with a trisodium phosphate or Liquinox solution wash followed by a clean water rinse. Hollow stem augers will be steam cleaned prior to each use. Steam cleaning will be performed on visqueen. Water from the steam cleaning will be contained on the visqueen and placed in DOT-approved 55-gallon drums, pending appropriate disposal.

The wells will be constructed in the following manner:

Casing Type: Schedule 40 PVC, flush threaded joints, 0.02 inch factory slot, two-inch diameter. Screen to run from total depth of the well to approximately 3 feet above first encountered ground water. The ground water table was encountered at a depth of 7 feet, and therefore the screened interval is proposed to run from T.D. up to 4 feet below grade. Monterey sand (#3) will fill the annular space from total depth to 1 foot above the screened interval (or approximately 3 feet below grade). A one foot thick bentonite seal will be placed in the annular space on top of the sand pack. Neat cement will be poured from the top of the bentonite seal to the surface.

Well casings will be secured with a waterproof cap and a padlock. A round, watertight, flush-mounted well cover will be concreted in place over the top of the casing. A typical well construction diagram is attached to this work plan.

Drilled cuttings will be stored on-site in DOT-approved, 55-gallon drums, or under visqueen, until appropriate disposal can be determined.

Casing elevations will be surveyed to an established benchmark and to an accuracy of 0.01 feet.

The wells will be developed using a surface pump approximately one week after well completion. Wells will be pumped until expelled water is clear and free of turbidity. Effluent generated during well development will be contained in barrels and hauled from the site by a licensed hazardous waste hauler.

C. Ground Water Sampling Plans

Wells will be checked for depth to the water table, the presence of free product and sheen (using an interface probe and/or paste tape) prior to both development and sampling. Water levels will be measured with an electronic sounder or paste tape.

The wells will be purged with a surface bailer of a minimum of four casing volumes prior to sampling, at least 24 hours after development. Samples will be collected using a clean Teflon bailer and will be promptly decanted into 40 ml VOA vials and/or one liter amber bottles as appropriate. Vials and/or bottles will be sealed with Teflon-lined screw caps, labeled and stored in a cooler on ice for delivery to a state certified laboratory. Properly executed chain of custody documentation will accompany all samples. The sampling bailer will be cleaned with soap and a clean water rinse prior to each use.

One soil sample from each sampling interval (above the water table only) and all water samples will be analyzed by Sequoia Analytical Laboratory in Redwood City, California, a state certified laboratory, for TPH as gasoline and BTX&E using EPA analytical methods (EPA 5030/8015/8020) as recommended by the RWQCB, and specified in the Tri-regional guidelines. In addition, soil and ground water samples collected from the

monitoring well adjacent to the waste oil tank pit will be analyzed for TPH as diesel, TOG, and for EPA 8010 constituents.

For quality assurance purposes, one duplicate water sample will be collected from one well during each sampling event.

Analytical results will be presented in tabular form, showing sample depths, results and detection limits. The results will be used to delineate the vertical and lateral extent of the subsurface contaminants. A cross sectional profile will be constructed as appropriate showing subsurface lithology to depth drilled and first water table depth.

#### V. SITE SAFETY PLAN

A Site Safety Plan for Phase I of the excavation of the waste oil tank pit (prepared by Paradiso Construction Company) is attached to this work plan.

A report documenting field activities and sample results will be submitted within 45 days after the completion of the field work. The report will set out the collected information in an orderly fashion, and include any recommendations for additional needed work.

#### PHASE II

Phase II will discuss the alternatives for continuing the subsurface investigation if Phase I reveals contamination levels in the ground water significantly in excess of action levels.

Phase II will include a proposal for additional monitoring wells to define a zero line of ground water contamination. It will also propose a ground water monitoring and sampling program for the wells installed during Phase I.

The main purpose of Phase II will be to establish a zero line of ground water contamination. The proposal/work plan will be submitted to the regulatory agencies.

#### PHASE III

Once the zero line is established through the completion of Phase II, a final remedial plan will be developed. This plan will also be submitted.

KEI-J90-0606.P1  
July 16, 1990  
Page 13

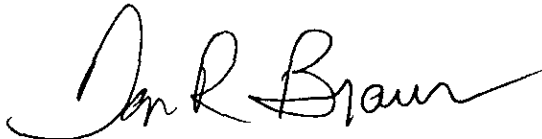
Interpretations of the subsurface stratigraphy will be used in consideration of various remedial options.

PHASE IV

Implementation of the remediation plan.

Sincerely,

Kaprealian Engineering, Inc.



Don R. Braun  
Certified Engineering Geologist

License No. 1310  
Exp. Date 6/30/92



Mardo Kaprealian  
President

jad

Attachments: Tables 1 & 2  
Location Map  
Site Plans - Figures 1 through 4  
Laboratory Analyses  
Chain of Custody documentation  
Unauthorized Release Form  
Well Construction Diagram  
Site Safety Plan

KEI-J90-0606.P1  
 July 16, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES  
 SOIL

(Samples collected on June 13, 15, 20 & 26, 1990)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
SW1	6.0	--	5,700	2.1	41	640	110
SW1(3)	6.0	--	2,200	1.8	6.3	76	30
SW1(6.5)	6.0	--	32	0.020	0.14	0.17	0.13
SW2	6.0	--	1,500	0.35	0.57	56	8.0
SW2(3)	6.0	--	360	ND	1.0	2.0	3.0
SW2(6.5)	6.5	--	6.8	0.020	0.052	0.063	0.029
SW3	6.0	--	ND	ND	ND	ND	ND
SW4	6.0	--	8.0	0.019	0.088	0.16	0.0071
SW5	6.5	--	340	0.80	0.26	3.6	2.5
SW5(2.5)	6.0	--	11	0.027	0.054	0.12	0.070
SW6	6.5	--	120	ND	0.21	0.14	0.19
SW6(3)	6.0	--	1.2	0.0084	0.012	0.021	0.012
P1	6.0	--	2.5	0.099	0.079	0.034	ND
P2	6.0	--	37	0.78	0.14	3.8	0.43
P3	6.0	--	8.5	0.028	0.016	0.080	0.35
P4	6.0	--	16	0.091	ND	1.3	0.52
SW11***	6.0	--	ND	ND	ND	0.0079	ND
SW12	6.0	--	ND	ND	ND	ND	ND
SW13	6.0	--	ND	ND	0.022	ND	ND
SW14	6.0	--	ND	ND	ND	0.020	ND
WO1*	6.5	120	36	0.091	0.17	1.8	0.38
SWA**	6.0	--	--	--	--	--	--
Detection Limits		1.0	1.0	0.0050	0.0050	0.0050	0.0050

-- Indicates analysis not performed.

ND = Non-detectable.

\* TOG was 1,500 ppm, and all EPA 8010 constituents were non-detectable, except 1,2-dichlorobenzene at 210 ppb.

\*\* TOG was 3,500 ppm.

\*\*\* TOG was 78 ppm.

Results in parts per million (ppm), unless otherwise indicated.

KEI-J90-0606.P1  
July 16, 1990

TABLE 2

SUMMARY OF LABORATORY ANALYSES  
WATER

(Samples collected on June 20 & July 3, 1990)

<u>Sample #</u>	<u>TOG</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
W1	--	2,300	3.1	0.88	250	0.39
W2	ND	ND	ND	0.96	ND	ND
Detection Limits		30	0.30	0.30	0.30	0.30

-- Indicates analysis not performed.

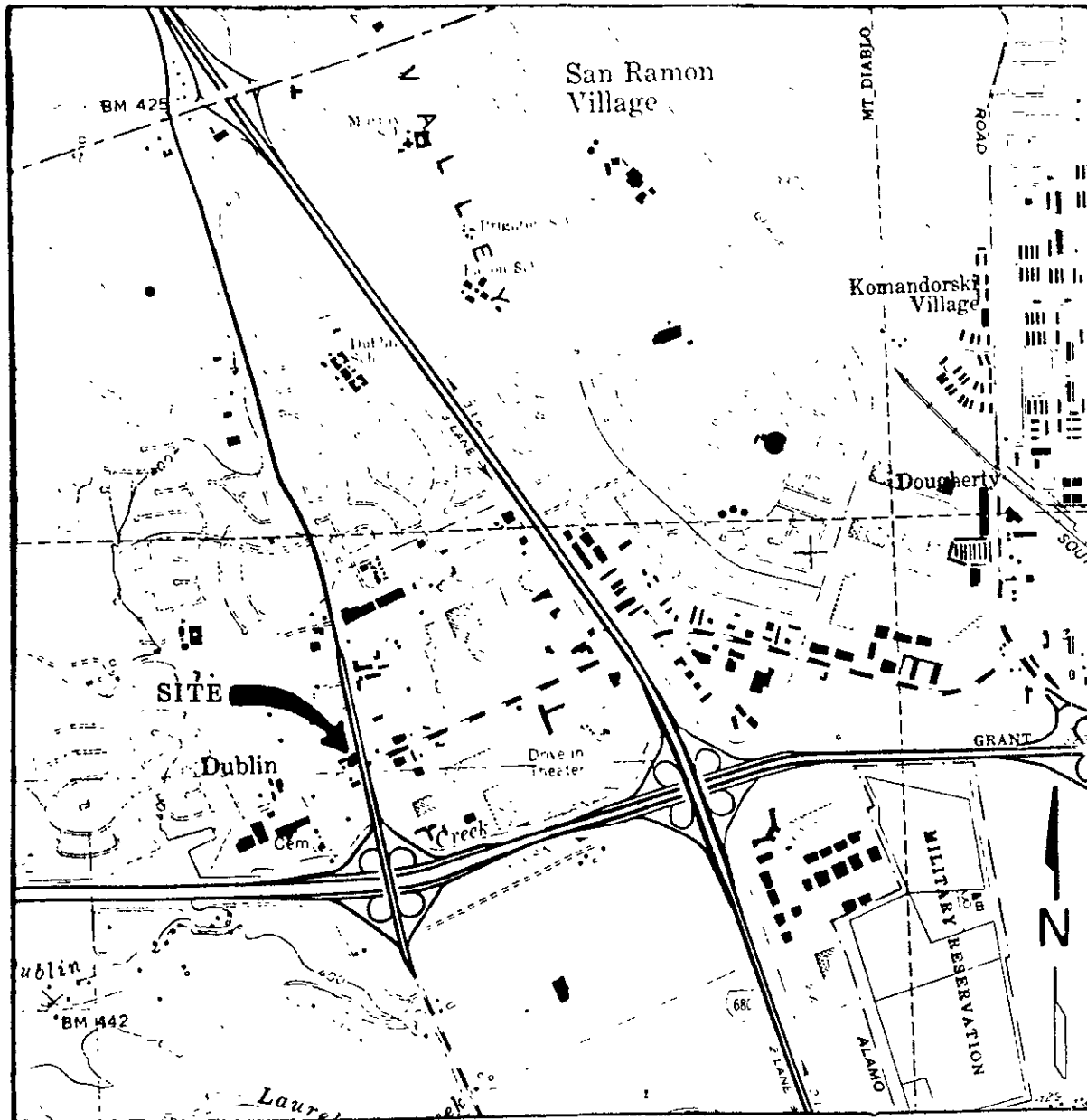
ND = Non-detectable.

Results in parts per billion (ppb), unless otherwise indicated.



**KAPREALIAN ENGINEERING, INC.**  
*Consulting Engineers*

PO BOX 996 • BENICIA, CA 94510  
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



LOCATION MAP

Unocal S/S #5901  
11976 Dublin Blvd.  
Dublin, CA



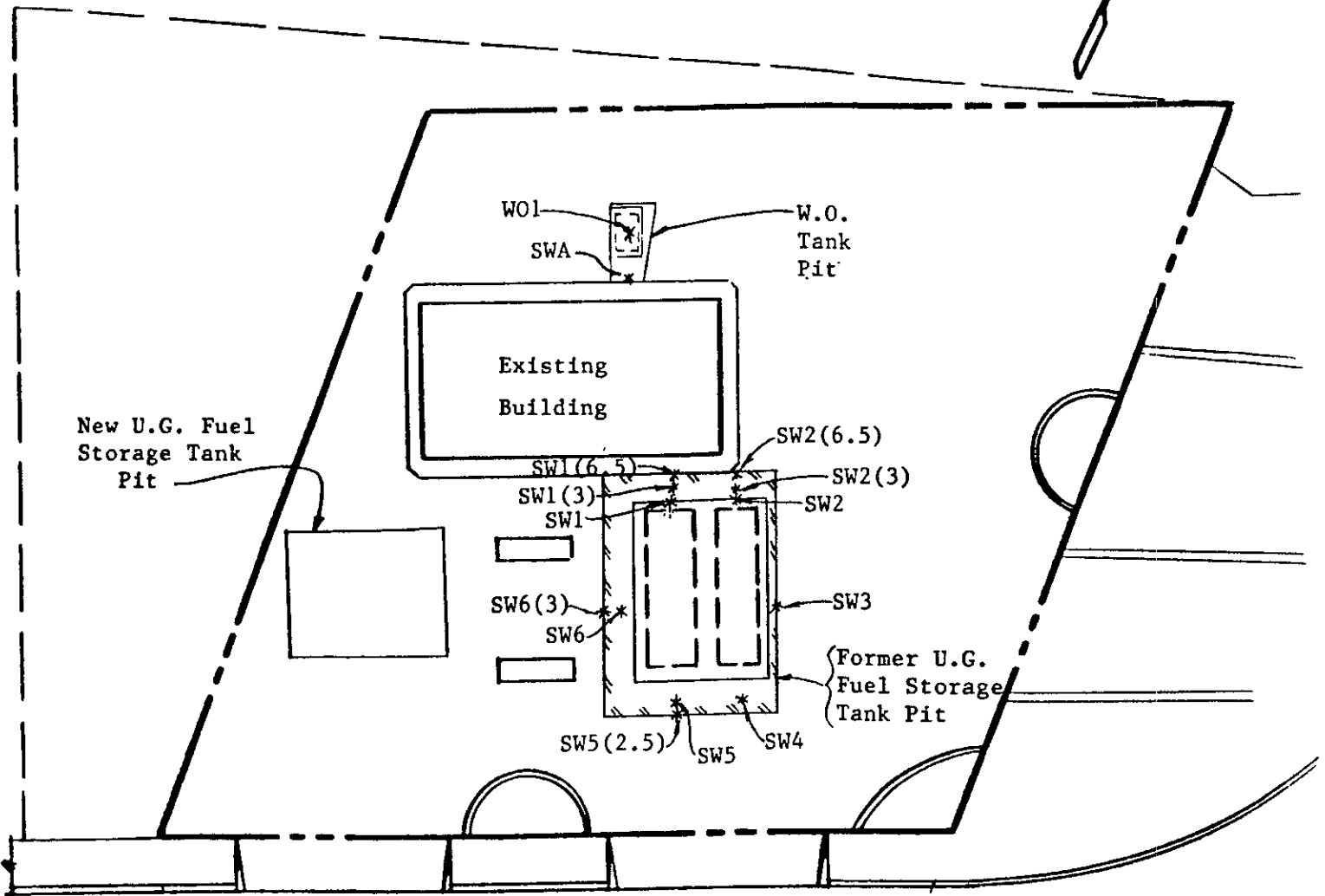


# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

PO BOX 996 • BENICIA, CA 94510

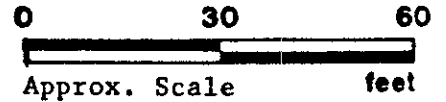
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



DUBLIN BLVD.

## SITE PLAN

Figure 1



### LEGEND

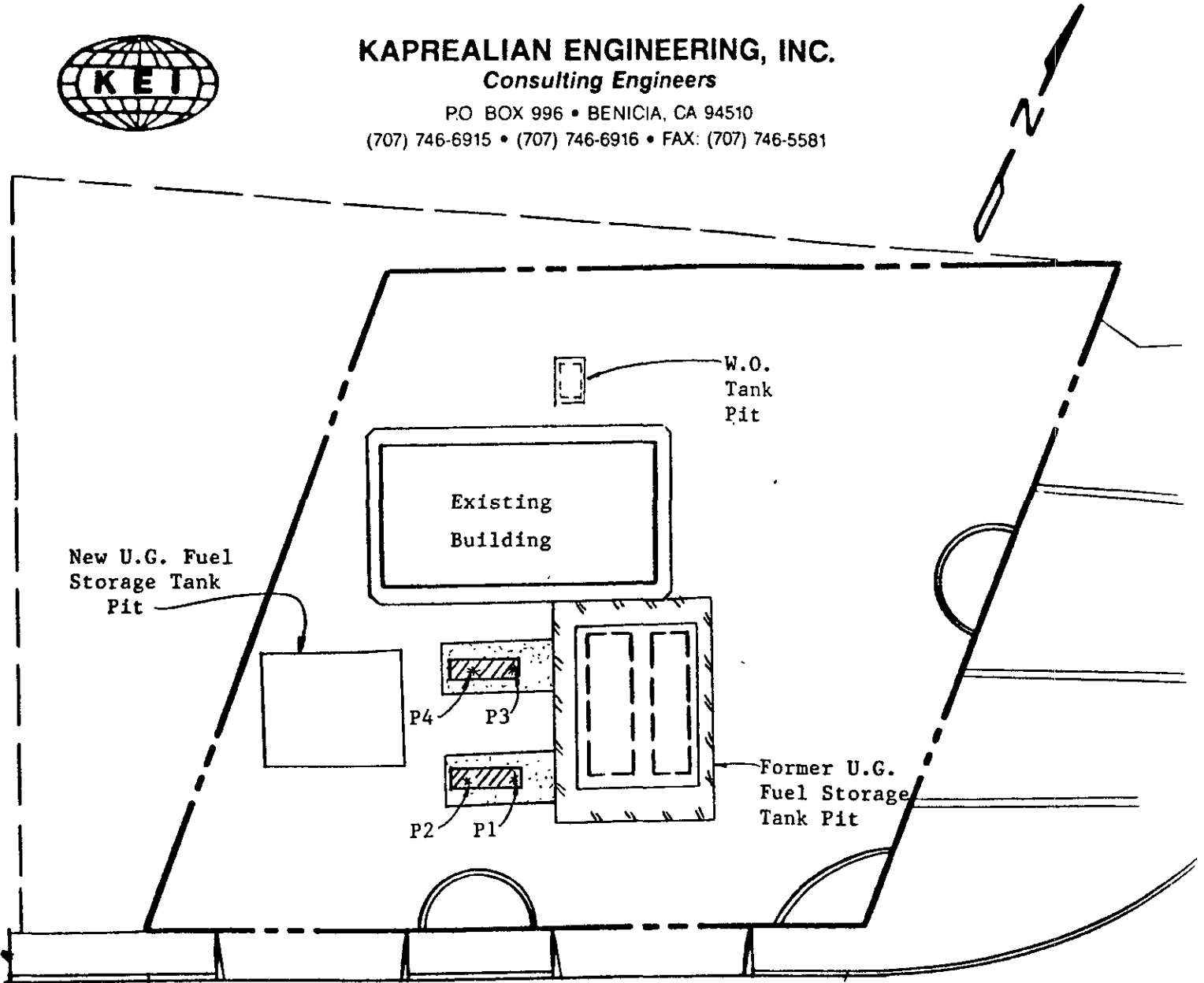
- \* Sample Point Location
- ▣ Additional Area Excavated

Unocal S/S #5901  
11976 Dublin Blvd.  
Dublin, CA



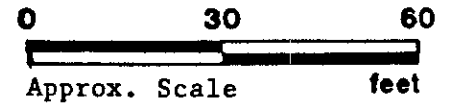
**KAPREALIAN ENGINEERING, INC.**  
*Consulting Engineers*



PO BOX 996 • BENICIA, CA 94510  
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



DUBLIN BLVD.

SITE PLAN  
Figure 2



- \* Sample Point Location
-  Area of Additional Tank Pit Excavation
-  Area of Additional Pipe Trench Excavation

Unocal S/S #5901  
11976 Dublin Blvd.  
Dublin, CA

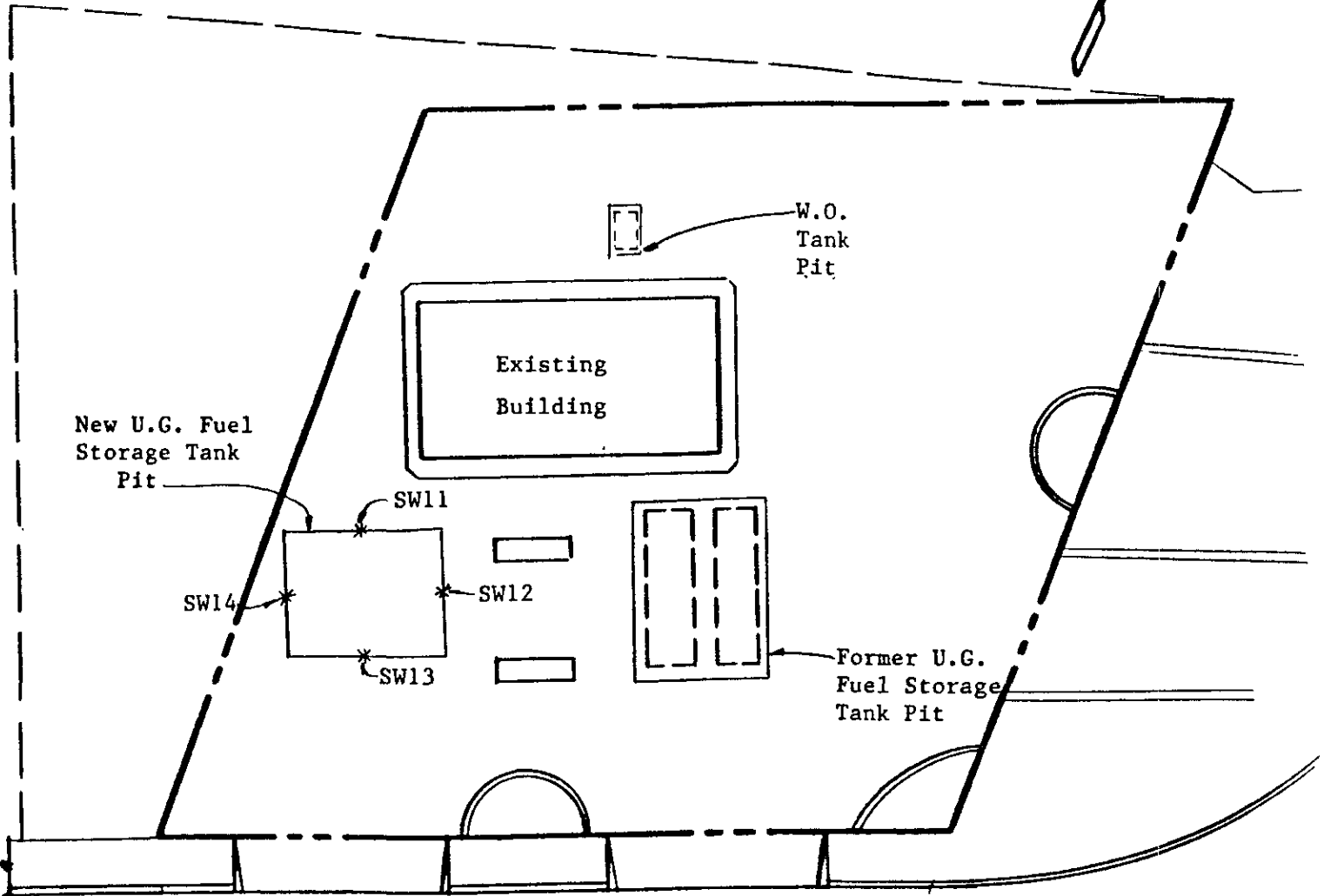


# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

PO BOX 996 • BENICIA, CA 94510

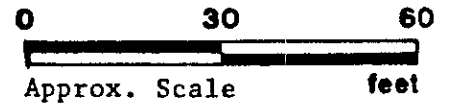
(707) 746-6915 • (707) 746-6916 • FAX. (707) 746-5581



DUBLIN BLVD.

## SITE PLAN

Figure 3



### LEGEND

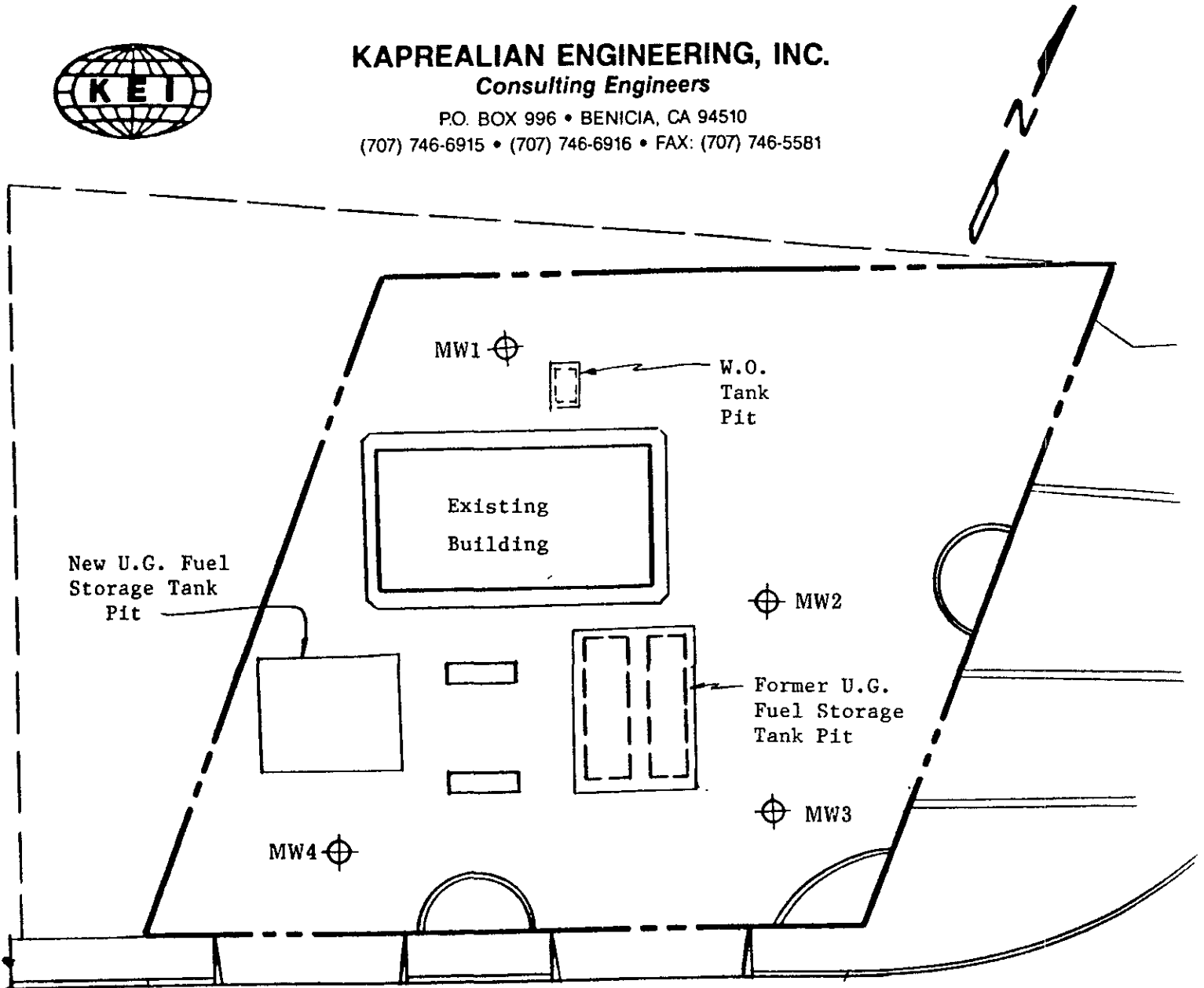
\* Sample Point Location

Unocal S/S #5901  
11976 Dublin Blvd.  
Dublin, CA



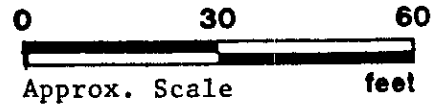
**KAPREALIAN ENGINEERING, INC.**  
**Consulting Engineers**

P.O. BOX 996 • BENICIA, CA 94510  
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581




DUBLIN BLVD.

SITE PLAN  
Figure 4



LEGEND

 Monitoring Well

Unocal S/S #5901  
11976 Dublin Blvd.  
Dublin, CA



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID: Unocal #5901, 11976 Dublin Blvd.	Sampled: Jun 13, 1990
P.O. Box 996	Matrix Descript: Soil	Received: Jun 13, 1990
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Jun 14, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #: 006-1872	Reported: Jun 14, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-1872	SW1	5,700	2.1	41	110	640
006-1873	SW2	1,500	0.35	0.57	8.0	56
006-1874	SW3	N.D.	N.D.	N.D.	N.D.	N.D.
006-1875	SW4	8.0	0.019	0.088	0.071	0.16
006-1876	SW5	340	0.80	0.26	2.5	3.6
006-1877	SW6	120	N.D.	0.21	0.19	0.14

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>
--------------------------	------------	---------------	---------------	---------------	---------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager



# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

<b>SAMPLER</b> <i>E.M. Bradish</i>		<b>SITE NAME &amp; ADDRESS</b> Unocal #5901 11976 Dublin Blvd (xlanford) Dublin, CA					<b>ANALYSES REQUESTED</b>			<b>TURN AROUND TIME:</b> <u>24 HR</u>
<b>WITNESSING AGENCY</b> <i>R. Arulananthan</i> ACHA							TPH, G & BTKL			<b>REMARKS</b>
<b>SAMPLE ID NO.</b>	<b>DATE</b>	<b>TIME</b>	<b>SOIL</b>	<b>WATER</b>	<b>GRAB</b>	<b>COMP</b>				
SW1	6-13-90		✓	✓			1	FUEL TK PIT	✓	006 1872
SW2	"		✓	✓			1	" " "	✓	1873
SW3	"		✓	✓			1	" " "	✓	1874
SW4	"		✓	✓			1	" " "	✓	1875
SW5	"		✓	✓			1	" " "	✓	1876
SW6	"		✓	✓			1	" " "	✓	1877
<b>Relinquished by: (Signature)</b> <i>E.M. Bradish</i>		<b>Date/Time</b> 6/13/90 5:30		<b>Received by: (Signature)</b> <i>Tim McFar</i>		The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? <input checked="" type="checkbox"/> 2. Will samples remain refrigerated until analyzed? <input checked="" type="checkbox"/> 3. Did any samples received for analysis have head space? <u>NO</u> 4. Were samples in appropriate containers and properly packaged? <input checked="" type="checkbox"/>				
<b>Relinquished by: (Signature)</b> <i>Tim McFar</i>		<b>Date/Time</b> 6/13/90 7:15		<b>Received by: (Signature)</b> <i>[Signature]</i>						
<b>Relinquished by: (Signature)</b>		<b>Date/Time</b>		<b>Received by: (Signature)</b>						
<b>Relinquished by: (Signature)</b>		<b>Date/Time</b>		<b>Received by: (Signature)</b>						
						<b>Signature</b> <i>[Signature]</i>		<b>Title</b> SR		<b>Date</b> 6/13



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901, 11976 Dublin, Dublin  
Matrix Descript: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 006-2335

Sampled: Jun 15, 1990  
Received: Jun 15, 1990  
Analyzed: Jun 18, 1990  
Reported: Jun 18, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-2335	SW1 (3)	2,200	1.8	6.3	30	76
006-2336	SW2 (3)	360	N.D.	1.0	3.0	2.0
006-2337	SW5 (2.5)	11	0.027	0.054	0.070	0.12
006-2338	SW6 (3)	1.2	0.0084	0.012	0.012	0.021

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>
--------------------------	------------	---------------	---------------	---------------	---------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega  
Project Manager



# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

SAMPLER <i>R.M. Braded</i>		SITE NAME & ADDRESS Ulocal # 5901 11976 Dublin (San Ramon) Dublin CA			ANALYSES REQUESTED			TURN AROUND TIME: <u>24HR</u>
WITNESSING AGENCY					TPH-G & BITE			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION		REMARKS
SW1(3)	6-15	-90	✓	✓	✓	✓	1	FUEL TR PIT	✓	0062335
SW2(3)	"		✓	✓	✓	✓	1	" " "	✓	2336
SW5(2)	"		✓	✓	✓	✓	1	" " "	✓	2337
SW6(3)	"		✓	✓	✓	✓	1	" " "	✓	2338

*Note* Pick up was for 4:15 NOT READY TILL 5:30

Relinquished by: (Signature) <i>R.M. Braded</i>	Date/Time 6/15/90 5:30	Received by: (Signature) <i>Tim McFar</i>	The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? 2. Will samples remain refrigerated until analyzed? 3. Did any samples received for analysis have head space? 4. Were samples in appropriate containers and properly packaged?
Relinquished by: (Signature) <i>Tim McFar</i>	Date/Time 6/15/90 7:15	Received by: (Signature) <i>[Signature]</i>	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	

Signature: *[Signature]* Title: SR Date: 6/15





# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901, 11976 Dublin, Dublin  
Matrix Descript: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 006-2950

Sampled: Jun 20, 1990  
Received: Jun 20, 1990  
Analyzed: Jun 21, 1990  
Reported: Jun 21, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-2950	SW1 (6.5)	32	0.020	0.14	0.13	0.17
006-2951	SW2 (6.5)	6.8	0.020	0.052	0.029	0.063

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>
--------------------------	------------	---------------	---------------	---------------	---------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager





# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901, 11976 Dublin, Dublin  
Matrix Descript: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 006-2339

Sampled: Jun 15, 1990  
Received: Jun 15, 1990  
Analyzed: Jun 18, 1990  
Reported: Jun 18, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-2339	P1	2.5	0.099	0.079	N.D.	0.034
006-2340	P2	37	0.78	0.14	0.43	3.8
006-2341	P3	8.5	0.028	0.016	0.35	0.080
006-2342	P4	16	0.091	N.D.	0.52	1.3

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>
--------------------------	------------	---------------	---------------	---------------	---------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager



# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

SAMPLER <i>R.M. Bradish</i>		SITE NAME & ADDRESS Unocal #5901 11976 Dublin (x San Ramon) Dublin, CA					ANALYSES REQUESTED TPH-16, BTEX		TURN AROUND TIME: 24 HR		
WITNESSING AGENCY									REMARKS		
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION			
P1	6-15-90		✓	✓			1	Pipe Trench	✓	0062339	
P2	"		✓	✓			1	"	✓	2340	
P3	"		✓	✓			1	"	✓	2341	
PA	"		✓	✓			1	"	✓	2342	
										Note pick up for 415 but not ready till 530	
Relinquished by: (Signature) <i>R.M. Bradish</i>		Date/Time 6/15/90 530		Received by: (Signature) <i>Tom M'Leir</i>		The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? <input checked="" type="checkbox"/> 2. Will samples remain refrigerated until analyzed? <input checked="" type="checkbox"/> 3. Did any samples received for analysis have head space? <input checked="" type="checkbox"/> 4. Were samples in appropriate containers and properly packaged? <input checked="" type="checkbox"/>					
Relinquished by: (Signature) <i>Tom M'Leir</i>		Date/Time 6/15/90 530		Received by: (Signature) <i>[Signature]</i>							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							
						Signature <i>[Signature]</i>		Title <i>JR</i>		Date 6/15	



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901,11976 Dublin Blvd, Dublin  
Sample Descript.: Soil, WO1  
Analysis Method: EPA 5030/8015/8020  
Lab Number: 006-1870

Sampled: Jun 13, 1990  
Received: Jun 13, 1990  
Analyzed: Jun 14, 1990  
Reported: Jun 14, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons.....	1.0	36
Benzene.....	0.0050	0.091
Toluene.....	0.0050	0.17
Ethyl Benzene.....	0.0050	0.38
Xylenes.....	0.0050	1.8

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*Belinda Vega*  
Belinda C. Vega  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901,11976 Dublin Blvd, Dublin  
Matrix Descript: Soil  
Analysis Method: EPA 3550/8015  
First Sample #: 006-1870

Sampled: Jun 13, 1990  
Received: Jun 13, 1990  
Extracted: Jun 14, 1990  
Analyzed: Jun 14, 1990  
Reported: Jun 14, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
006-1870	WO1	120

**Detection Limits:**

**1.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*Belinda C. Vega*  
Belinda C. Vega  
Project Manager

Please Note:

The above samples do not appear to contain diesel.



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901,11976 Dublin Blvd, Dublin  
Sample Descript: Soil, WO1  
Analysis Method: EPA 5030/8010  
Lab Number: 006-1870

Sampled: Jun 13, 1990  
Received: Jun 13, 1990  
Analyzed: Jun 13, 1990  
Reported: Jun 14, 1990

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	50	N.D.
Bromoform.....	50	N.D.
Bromomethane.....	50	N.D.
Carbon tetrachloride.....	50	N.D.
Chlorobenzene.....	50	N.D.
Chloroethane.....	250	N.D.
2-Chloroethylvinyl ether.....	50	N.D.
Chloroform.....	50	N.D.
Chloromethane.....	50	N.D.
Dibromochloromethane.....	50	N.D.
<b>1,2-Dichlorobenzene.....</b>	<b>100</b>	<b>210</b>
1,3-Dichlorobenzene.....	100	N.D.
1,4-Dichlorobenzene.....	100	N.D.
1,1-Dichloroethane.....	50	N.D.
1,2-Dichloroethane.....	50	N.D.
1,1-Dichloroethene.....	50	N.D.
Total 1,2-Dichloroethene.....	50	N.D.
1,2-Dichloropropane.....	50	N.D.
cis-1,3-Dichloropropene.....	50	N.D.
trans-1,3-Dichloropropene.....	50	N.D.
Methylene chloride.....	100	N.D.
1,1,2,2-Tetrachloroethane.....	50	N.D.
Tetrachloroethene.....	50	N.D.
1,1,1-Trichloroethane.....	50	N.D.
1,1,2-Trichloroethane.....	50	N.D.
Trichloroethene.....	50	N.D.
Trichlorofluoromethane.....	50	N.D.
Vinyl chloride.....	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.      Client Project ID: Unocal #5901,11976 Dublin Blvd , Dublin      Sampled: Jun 13, 1990  
P.O. Box 996      Matrix Descript: Soil      Received: Jun 13, 1990  
Benicia, CA 94510      Analysis Method: EPA 418.1 (I.R. with clean-up)      Extracted: Jun 14, 1990  
Attention: Mardo Kaprealian, P.E.      First Sample #: 006-1870      Analyzed: Jun 14, 1990  
Reported: Jun 14, 1990

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample Number	Sample Description	Petroleum Oil mg/kg (ppm)
006-1870	WO1	1,500
006-1871	SWA	3,500

<b>Detection Limits:</b>	<b>50</b>
--------------------------	-----------

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager







# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 11976 Dublin Blvd., Dublin  
Matrix Descript: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 006-4403

Sampled: Jun 26, 1990  
Received: Jun 27, 1990  
Analyzed: Jun 27, 1990  
Reported: Jun 28, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-4403	SW11	N.D.	N.D.	N.D.	N.D.	0.0079
006-4404	SW12	N.D.	N.D.	N.D.	N.D.	N.D.
006-4405	SW13	N.D.	N.D.	0.022	N.D.	N.D.
006-4406	SW14	N.D.	N.D.	N.D.	N.D.	0.020

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>	<b>0.0050</b>
--------------------------	------------	---------------	---------------	---------------	---------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 11976 Dublin Blvd., Dublin

Matrix Descript: Soil

Analysis Method: SM 503 D&E (Gravimetric)

First Sample #: 006-4403

Sampled: Jun 26, 1990

Received: Jun 27, 1990

Extracted: Jun 27, 1990

Analyzed: Jun 27, 1990

Reported: Jun 28, 1990

## TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
006-4403	SW11	78

Detection Limits:

30

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

SEQUOIA ANALYTICAL

Belinda C. Vega  
Project Manager

64403.KEI <2>



# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

TURN AROUND TIME:

24 HRS.

SAMPLER [Signature]  
WITNESSING AGENCY [Signature]

SITE NAME & ADDRESS  
Unocal - Dublin - 11976  
Dublin Blvd.

ANALYSES REQUESTED		
T P H G	B T X E	T O G

REMARKS

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION
SW11	6/26	3 <sup>15</sup>	X		X		1	New Taub P.t.
SW12	6/26	3 <sup>20</sup>	X		X		1	New Taub P.t.
SW13	6/26	3 <sup>25</sup>	X		X		1	New Taub P.t.
SW14	6/26	3 <sup>30</sup>	X		X		1	New Taub P.t.

0064403  
04  
05  
06

Relinquished by: (Signature) <u>[Signature]</u>	Date/Time <u>6/26/90</u>	Received by: (Signature) <u>T. Bolan</u>	<u>0830</u> <u>6-27-90</u>
Relinquished by: (Signature) <u>T. Bolan</u>	Date/Time <u>6/27/90 1055</u>	Received by: (Signature) <u>[Signature]</u>	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	

The following MUST BE completed by the laboratory accepting samples for analysis:

1. Have all samples received for analysis been stored in ice?
  2. Will samples remain refrigerated until analyzed?
  3. Did any samples received for analysis have head space?
  4. Were samples in appropriate containers and properly packaged?
- [Signature] [Signature] 6/27/90  
Signature Title Date



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.  
P.O. Box 996  
Benicia, CA 94510  
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal #5901, 11976 Dublin, Dublin  
Sample Descript.: Water, W1  
Analysis Method: EPA 5030/ 8015/8020  
Lab Number: 006-2995 A-B

Sampled: Jun 20, 1990  
Received: Jun 20, 1990  
Analyzed: Jun 21, 1990  
Reported: Jun 21, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
---------	-------------------------------	------------------------------

Low to Medium Boiling Point Hydrocarbons	30	2,300
Benzene	0.30	3.1
Toluene	0.30	0.88
Ethyl Benzene	0.30	0.39
Xylenes	0.30	250

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega  
Project Manager





# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kapreallan Engineering, Inc.	Client Project ID: Unocal, 11976 Dublin Blvd., Dublin	Sampled: Jul 3, 1990
P.O. Box 996	Sample Descript.: Water, W-2	Received: Jul 3, 1990
Benicia, CA 94510	Analysis Method: EPA 5030/ 8015/8020	Analyzed: Jul 3, 1990
Attention: Mardo Kapreallan, P.E.	Lab Number: 007-0267 A-B	Reported: Jul 9, 1990

## TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons.....	30	N.D.
Benzene.....	0.30	N.D.
<b>Toluene.....</b>	<b>0.30</b>	<b>0.96</b>
Ethyl Benzene.....	0.30	N.D.
Xylenes.....	0.30	N.D.

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*Belinda C. Vega*  
Belinda C. Vega  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kapreallan Engineering, Inc. P.O. Box 996 Benicia, CA 94510 Attention: Mardo Kapreallan, P.E.	Client Project ID: Unocal, 11976 Dublin Blvd., Dublin Matrix Descript: Water Analysis Method: SM 503 A&E (Gravimetric) First Sample #: 007-0267 C	Sampled: Jul 3, 1990 Received: Jul 3, 1990 Extracted: Jul 3, 1990 Analyzed: Jul 5, 1990 Reported: Jul 9, 1990
--	--	---

## TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
007-0267 C	W-2	N.D.

Detection Limits:

5.0

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

SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager

670267.KEI <2>





# KAPREALIAN ENGINEERING, INC.

## CHAIN OF CUSTODY

SAMPLER		SITE NAME & ADDRESS						ANALYSES REQUESTED			TURN AROUND TIME:
Wade Weston		Unocal- Dublin 11976 Dublin Blvd						IPH-G BTEX TOG			24 HR
WITNESSING AGENCY											BERBERS
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION			
W2	7/3/90		✓	✓			2 1/2 gal 1 Liter	New Tank Pit	0070267 A-C		
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							
Wade Weston		7/3/90 3:55		Tim M. Jan							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							
Tim M. Jan		7/3 5:40		[Signature]							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)							

The following MUST BE completed by the laboratory accepting samples for analysis:

- Have all samples received for analysis been stored in ice?
- Will samples remain refrigerated until analyzed?
- Did any samples received for analysis have head space? NO
- Were samples in appropriate containers and properly packaged?

Signature: [Signature] Title: SK Date: 7/3

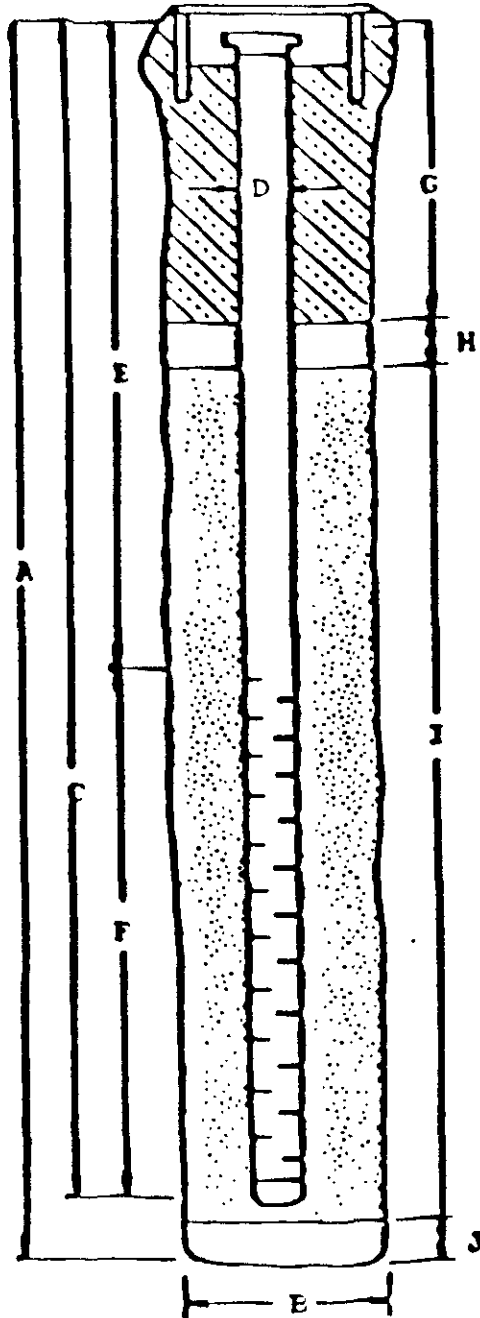
# UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? <input type="checkbox"/> YES <input type="checkbox"/> NO		FOR LOCAL AGENCY USE ONLY I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 2518C7 OF THE HEALTH AND SAFETY CODE.	
REPORT DATE 06/20/90		CASE #		SIGNED _____ DATE _____	
REPORTED BY	NAME OF INDIVIDUAL FILING REPORT Christina Lecce		PHONE (707) 746-6915		SIGNATURE <i>Christina Lecce</i>
	REPRESENTING <input checked="" type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> LOCAL AGENCY <input type="checkbox"/> OTHER _____		COMPANY OR AGENCY NAME Kaprealian Engineering, Inc.		
	ADDRESS 638 1/2 First Street Benicia CA 94510				
RESPONSIBLE PARTY	NAME Unocal Corporation <input type="checkbox"/> UNKNOWN		CONTACT PERSON Rick Sisk		PHONE (415) 277-2341
	ADDRESS 2000 Crow Canyon Pl., #400 San Ramon CA 94583				
SITE LOCATION	FACILITY NAME (IF APPLICABLE) Unocal Service Station #5901		OPERATOR Gary McElroy		PHONE (415) 828-1783
	ADDRESS 11976 Dublin Blvd. Dublin Alameda 94568				
	CROSS STREET San Ramon Blvd.				
IMPLEMENTING AGENCIES	LOCAL AGENCY Alameda County Health Agency		AGENCY NAME Alameda County Health Agency		CONTACT PERSON Ravi Arulanantham
	REGIONAL BOARD San Francisco Bay Region				PHONE (415) 271-4320
SUBSTANCES INVOLVED	(1) NAME gasoline		QUANTITY LOST (GALLONS) <input checked="" type="checkbox"/> UNKNOWN		
	(2) NAME waste oil		<input checked="" type="checkbox"/> UNKNOWN		
DISCOVERY/ABATEMENT	DATE DISCOVERED 06/13/90		HOW DISCOVERED <input type="checkbox"/> INVENTORY CONTROL <input type="checkbox"/> SUBSURFACE MONITORING <input type="checkbox"/> NUISANCE CONDITIONS <input type="checkbox"/> TANK TEST <input checked="" type="checkbox"/> TANK REMOVAL <input type="checkbox"/> OTHER _____		
	DATE DISCHARGE BEGAN <input checked="" type="checkbox"/> UNKNOWN		METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY) <input checked="" type="checkbox"/> REMOVE CONTENTS <input checked="" type="checkbox"/> REPLACE TANK <input type="checkbox"/> CLOSE TANK <input type="checkbox"/> REPAIR TANK <input type="checkbox"/> REPAIR PIPING <input type="checkbox"/> CHANGE PROCEDURE		
	HAS DISCHARGE BEEN STOPPED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, DATE 06/13/90		<input type="checkbox"/> OTHER _____		
SOURCE/CAUSE	SOURCE OF DISCHARGE <input type="checkbox"/> TANK LEAK <input checked="" type="checkbox"/> UNKNOWN <input type="checkbox"/> PIPING LEAK <input type="checkbox"/> OTHER _____		CAUSE(S) <input type="checkbox"/> OVERFILL <input type="checkbox"/> RUPTURE/FAILURE <input type="checkbox"/> SPILL <input type="checkbox"/> CORROSION <input checked="" type="checkbox"/> UNKNOWN <input type="checkbox"/> OTHER _____		
	CHECK ONE ONLY <input checked="" type="checkbox"/> UNDETERMINED <input type="checkbox"/> SOIL ONLY <input type="checkbox"/> GROUNDWATER <input type="checkbox"/> DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)				
CURRENT STATUS	CHECK ONE ONLY <input type="checkbox"/> NO ACTION TAKEN <input type="checkbox"/> PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED <input type="checkbox"/> POLLUTION CHARACTERIZATION <input checked="" type="checkbox"/> LEAK BEING CONFIRMED <input type="checkbox"/> PRELIMINARY SITE ASSESSMENT UNDERWAY <input type="checkbox"/> POST CLEANUP MONITORING IN PROGRESS <input type="checkbox"/> REMEDIATION PLAN <input type="checkbox"/> CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) <input type="checkbox"/> CLEANUP UNDERWAY				
	CHECK APPROPRIATE ACTION(S) <input type="checkbox"/> CAP SITE (CD) <input checked="" type="checkbox"/> EXCAVATE & DISPOSE (ED) <input type="checkbox"/> REMOVE FREE PRODUCT (FP) <input type="checkbox"/> ENHANCED BIO DEGRADATION (IT) <input type="checkbox"/> CONTAINMENT BARRIER (CB) <input checked="" type="checkbox"/> EXCAVATE & TREAT (ET) <input type="checkbox"/> PUMP & TREAT GROUNDWATER (GT) <input type="checkbox"/> REPLACE SUPPLY (RS) <input type="checkbox"/> VACUUM EXTRACT (VE) <input type="checkbox"/> NO ACTION REQUIRED (NA) <input type="checkbox"/> TREATMENT AT HOOKUP (HU) <input type="checkbox"/> VENT SOIL (VS)				
	<input checked="" type="checkbox"/> OTHER (OT) <u>If contamination exists, install monitoring wells.</u>				
COMMENTS	COMMENTS				
	COMMENTS				

WELL COMPLETION DIAGRAM  
(SCHEMATIC)

Flush-mounted Well Cover

WELL DETAILS\*

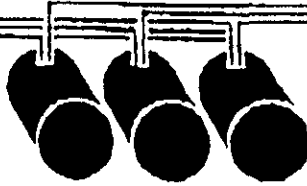


1. Well will be terminated 10 to 15 feet into first ground water unless a five foot thick aquitard is encountered below the water table, in which case the aquitard will be backfilled with bentonite pellets and the well terminated at the top of this aquitard [A].
2. Boring diameter [B] is 9 inches for 2 inch wells and 12 inches for 4 inch wells.
3. Perforated interval [F] will extend from bottom of casing to five feet above first ground water table (unless water <5 feet deep).
4. Schedule 40, PVC casing, 2 inch in diameter [D], will be used [C]. Screen is 0.020 or 0.010 inch factory machined slots, depending on filter pack grain size.
5. Filter pack will be placed from bottom of casing to two feet above perforated interval [I]. (Bottom seal [J] is not installed unless required.) Two feet of bentonite [H] will be placed above the filter pack. Concrete grout [G] will be placed from top of bentonite seal to the surface (unless modified due to shallow water). Blank casing [E] will extend from the top of the perforated casing to the top of the hole.
6. The well will be installed with a waterproof cap, padlock and a flush-mounted well cover.

\* See text for additional information.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

(415) 562-5511

## SOIL AND GROUNDWATER SAMPLING PROCEDURE Gasoline, Diesel and Waste Oil Tank Removal

Underground storage tanks require two soil samples per tank of 1000 gallon capacity or greater. Tanks of a smaller capacity require one sample per tank unless otherwise required by local agencies. Samples are collected at a depth of two feet below the tank backfill.

Soil samples from beneath gasoline storage tanks are analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (low to medium boiling fraction) using EPA method 8020. Samples from beneath diesel fuel storage tanks are analyzed for TPH as diesel (high boiling fraction) using EPA methods 3550 and 8015.

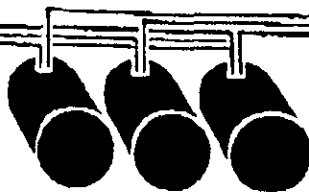
If groundwater is encountered in a fuel tank pit, water sample is collected. The sample is collected in a glass VOA (Volatile Organic Analysis) vial, insuring that no head space remains in the vial. The vial is sealed with a Teflon-lined screw cap. Water from a gasoline tank pit is analyzed for TPH as gasoline and BTX using EPA methods 602 and 5030. Water samples from a diesel tank pit are analyzed for TPH as diesel and BTX using EPA methods 3510 and 8020.

Soil samples collected from beneath waste oil tanks are analyzed for TPH high boiling fraction, using EPA method 3550 and 8015; total oil and grease (TOG) using EPA extraction method 3550 and gravimetric determination method 8010 and 8020 or EPA method 8240. Groundwater samples collected are collected as described above and are analyzed for TPH, high boiling fraction using EPA methods 3510 and 8020, and volatile organic compounds using EPA method 6240.

The analysis for all soil and water samples are done by a state certified lab.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

(415) 562-5511

## GENERAL

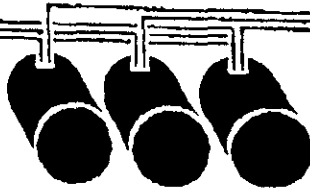
The company will furnish all safety equipment and tools to keep your place of work safe as possible, "use them".

Housekeeping: Keep the jobsite clear of scrap materials and debris especially near the trenches and excavations.

Barricades: The bulk of our work involves underground tanks and piping, so it involves trenching and excavation and a good many sites are kept in operation; we also have to provide safety for the general public. Use an ample amount of barricades and trench covers so that customers that are trying to use the facility are aware of the hazard that exists. Be especially aware of children that come on the site to see what is going on, and keep them well away from the excavation and equipment, or better yet keep them off the site entirely.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

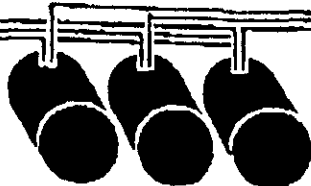
(415) 862-8511

## PERSONAL PROTECTIVE EQUIPMENT

1. EYE PROTECTION: When cutting or burning, chipping or breaking concrete, or anytime you are subjected to eye injury, wear your goggles or safety glasses.
2. HEAD PROTECTION: When you are working in an area where you are subjected to falling objects or the site is a hard hat area, wear your hard hat.
3. BODY PROTECTION: Clothing appropriate for the work must be worn.
4. FOOT PROTECTION: Wear sturdy shoes appropriate to the work you are doing. When using a pavement breaker wear your toe protection devices.
5. HAND PROTECTION: When handling rough materials such as timbers, steel sheets, bars, and scrap; wear your gloves.
6. HEARING PROTECTION: When using a pavement breaker or operating noisy equipment, use your ear protection.
7. RESPIRATORY PROTECTION: Respirators must be worn when working in a confined space where dangerous air contamination exists, when sand blasting where toxic material evolves or when welding where there may be toxic substances.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

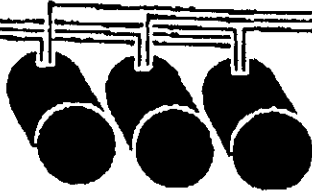
(415) 562-8511

## EQUIPMENT

1. Only trained or experienced employees may operate equipment.
2. Equipment operators must be sure other workers are clear before moving or operating this equipment. When changing buckets, be certain that the workers helping to change the bucket is clear before moving the boom. When using the boom for hoisting or moving equipment and or materials be sure the worker is clear before lifting or taking a strain on rigging.
3. Don't use damaged slings or cables, if they are questionable, call the office for replacement.
4. Avoid operations that expose employees to over head loads.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

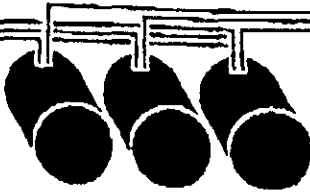
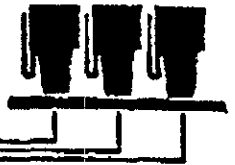
(415) 562-8811

## TOOLS

1. Don't use tools and equipment that are not in good repair; notify the office of the repairs that are needed.
2. All power tools are to be grounded.
3. SKILL SAWS: Saw guard must not be blocked open.
4. AIR COMPRESSORS: Air tank must be drained often, safety valve must be popped daily, all hoses to have safety clasp, and don't disconnect under pressure.
5. LADDERS: Defective or unsafe ladders will not be used, they shall be repaired or scrapped.



**PARADISO CONSTRUCTION CO.**  
GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

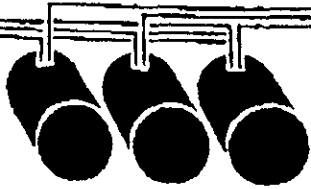
(415) 862-5511

FIRE PROTECTION/PREVENTION

1. SMOKING: No smoking on any service station site except in an approved area away from the islands and tanks.
2. FLAMMABLE LIQUIDS: No sources of ignition are allowed in any work area where there is presence of flammable liquids, gasolining etc...
3. FIRE EXTINGUISHERS: All trucks and heavy equipment are to be equipped with one 5 lb. A.B.C. extinguisher.
4. Gasoline should not be used as a cleaning agent.
5. No burning or welding should be done in an enclosed tank or vessel until it has been determined that there is no possibility of fire or explosion.
6. A gas detection device is available, all persons should be familiar with this device and know how to use it.

# PARADISO CONSTRUCTION CO.

GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

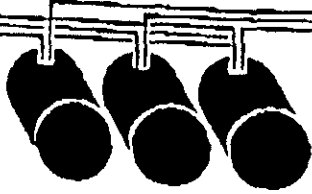
9220 "G" STREET OAKLAND, CA 94603

(415) 562-5511

## EXCAVATION

1. Prior to excavating, the location of underground utilities must be determined and utility owners must be notified. This function will normally be done by the office but if you are not sure, call the office, especially, if you are to excavate in the street or sidewalk area.
2. All excavations 5' or more in depth that are to be entered, must be sloped 3/4 to 1 foot or shored.
3. All excavation must be inspected and monitored for ground movement on a continuing basis.
4. There must be proper qualified supervision at all times during excavation.
5. Safety provisions must be taken while installing and removing shoring, the work can be extremely dangerous if good practice is ignored.
6. Keep spoils well back 2' or more from the edge of all excavations.
7. Effective barriers and barricades are to be used around all excavations for your protection as well as others that may want to see the work going on. Keep all others not involved in the work well back from the excavations, especially children.
8. Watch for overhead power lines, keep at least 10' away from these conductors.
9. Trench covers: A facility that is to be kept in operation, as many are, set up barricades and cover trenches to reduce the possibility of a customer driving or walking into an open trench. When work is done for the day, insure that you leave the site in a safe condition.

**PARADISO CONSTRUCTION CO.**  
GENERAL & PETROLEUM CONTRACTORS



LICENSE NO. 259820

P.O. BOX 6397

9220 "G" STREET OAKLAND, CA 94603

(415) 562-5511

CONFINED SPACES

Before employees are allowed to enter confined spaces:

1. Lines containing hazardous substances must be disconnected, blinded, or blocked.
2. The space must be emptied, flushed or purged.
3. The air must be tested for dangerous contamination or oxygen deficiency. Ventilation is required if testing reveals any hazard.

Working in a confined space where dangerous air contamination exists requires:

1. Appropriate respiratory protection.
2. Safety belt (or harness) protection.
3. One standby employee (with respirator).