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KEI-J88-1203.R10
April 26, 1991

Unocal Corporation
2000 Crow Canyon Place, Suite 400
San Ramon, CA 94583

Attention: Mr. Rick Sisk

RE: Soil Sampling Report
Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

Dear Mr. Sisk:

This report summarizes the soil sampling performed by Kaprealian Engineering, Inc. (KEI) at the referenced site. The soil sampling was performed in conjunction with the excavation of contaminated soil from a former fuel tank pit in the vicinity of previously drilled exploratory borings EB1 and EB2, as initially recommended in KEI's report (KEI-P88-1203.R7) dated May 31, 1990. All work was performed in compliance with the guidelines established by the Regional Water Quality Control Board (RWQCB), and Alameda County Department of Health Care Services.

The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies.

Collection of soil samples from the former fuel tank pit excavation sidewalls at the southeastern corner of the site.

Delivery of samples, including proper Chain of Custody documentation, to a certified analytical laboratory.

Technical review and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The vicinity of the site is characterized by gently sloping, southwest trending topography, and is located approximately 3,400 feet northeast of the present shoreline of San Leandro Bay and approximately 500 feet northwest of Lion Creek. A Location Map, Site Vicinity Map, and Site Plans are attached to this report.

Available historical data indicate that the subject site has been used as a service station for some time prior to 1967. During 1967, the gasoline station, as it probably existed for approximately 20 years, was demolished and a more modern facility was constructed in its place. At this time, a strip of land approximately 11 feet wide along the northeasterly property line was dedicated to the Bay Area Rapid Transit District (BART) and a strip of land approximately 40 feet wide located along the southwesterly property line was added to the site. The station layout has not significantly changed other than building modifications since 1967. The service station facilities, including building, pump islands, and underground fuel storage tank locations, are indicated on the attached Site Plan, Figure 4, for both the station as it existed prior to 1967 and the station as it currently exists.

KEI's initial work at the site began on December 8, 1988 during modifications to the pump island located along San Leandro Street. Three soil samples were collected from undisturbed soil at depths ranging from 2 to 3 feet. The samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). Analytical results of the soil samples collected beneath the pump island indicated non-detectable levels of all constituents for all three samples. This work was previously presented in KEI's report (KEI-J88-1203.R1) dated December 16, 1988.

KEI returned to the site on November 29, 1989 when two 10,000 gallon underground fuel storage tanks, and one 280 gallon waste oil tank were removed from the site. The gasoline tanks and the waste oil tank were made of steel and no apparent holes or cracks were observed in any of the tanks.

Water was initially encountered in the fuel tank pit at a depth of approximately 10.5 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 18 to 30-inches above the water table. One soil sample, labeled WO1, was collected from beneath the waste oil tank at a depth of 8.5 feet. The area beneath the waste oil tank was then excavated to ground water and two sidewall soil samples, labeled SWA and SWB, were collected from the waste oil tank pit sidewalls approximately 12-inches above the water table. Sample point locations are as shown on the attached Site Plan, Figure 2.

All soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California. All of the fuel tank pit sidewall samples were analyzed for TPH as gasoline and BTX&E. Analytical results of the samples collected from the fuel tank pit showed TPH

as gasoline levels ranging from non-detectable to 32 ppm, with benzene levels ranging from non-detectable to 1.2 ppm. The waste oil tank bottom and sidewall samples were analyzed for TPH as gasoline, BTX&E, TPH as diesel, total oil and grease (TOG), EPA method 8010 constituents, and the metals - cadmium, chromium, lead and zinc. Analytical results of the waste oil pit soil samples indicated less than 50 ppm of TOG, non-detectable levels of BTX&E, TPH as diesel and EPA method 8010 constituents, and less than 5.0 ppm of TPH as gasoline for all three samples. Metal concentrations were as indicated in Table 7.

KEI collected 11 pipe trench samples, labeled D1 through D6 and P1 through P5, at depths ranging from 3.5 to 6 feet on November 29, and December 5 and 29, 1989. Upon review of the analytical results for sample P2, KEI returned to the site on January 9, 1990, to collect additional soil samples. Following the trench excavation to a depth of 12 feet, one sample, labeled P2(12), was collected at a depth of 12 feet, and two samples, labeled SWP2E and SWP2W, were collected at a depth of 11 feet from the easterly and westerly sidewalls of the trench adjacent to sample point location P2(12). KEI completed the pipe trench sampling on January 10, 1990 when two samples, labeled P6 and P7, were collected at depths of 3 and 4 feet, respectively. Pipe trench sample point locations are as shown on the attached Site Plan, Figure 3. Analytical results of soil samples collected from the pipe trench indicated TPH as gasoline levels ranging from non-detectable to 15 ppm, with non-detectable to 0.13 ppm benzene for all samples except sample P2, which showed TPH as gasoline at 3,800 ppm and benzene at 6.1 ppm. Following the additional excavation in the area of sample point P2, analytical results of samples P2(12), SWP2E and SWP2W indicated non-detectable levels of TPH as gasoline and benzene for samples P2(12) and SWP2W, while sample SWP2E showed TPH as gasoline at 20 ppm with non-detectable levels of benzene. Analytical results of the soil samples are summarized in Table 7.

After fuel tank pit soil sampling was completed, approximately 5,000 gallons of ground water were pumped from the fuel tank pit. On December 5, 1989, one water sample, labeled W1, was collected from the fuel tank pit. The water sample was analyzed for TPH as gasoline, BTX&E and EPA method 8010 constituents. Analytical results of the water sample collected from the fuel tank pit indicated 7,900 ppb of TPH as gasoline, 850 ppb of benzene, and non-detectable levels of EPA method 8010 constituents. Analytical results of the water sample are summarized in Table 8. The details of the soil and water sampling activities are presented in KEI's report (KEI-J88-1203.R2) dated January 15, 1990.

Based on the analytical results and in accordance with the guidelines established by the RWQCB, KEI recommended the installation of three monitoring wells at the site to begin to define the extent of the soil and ground water contamination, and to determine the ground water flow direction.

On April 26 & 27, 1990, three two-inch diameter monitoring wells, designated as MW1, MW2 and MW3, were installed at the site. During drilling, an attempt was made to install MW2 near the pump island, however, drill bit refusal was encountered, and MW2 was installed at the modified location indicated on the attached Site Plan, Figure 1. The earlier attempts to install well MW2 resulted in the drilling of two shallow exploratory borings, designated as EB1 and EB2 on the attached Site Plans, Figures 1c and 1d. The exploratory borings were backfilled to the surface with neat cement.

The three monitoring wells were drilled and completed to total depths ranging from 22 to 23 feet. The exploratory borings were drilled and/or sampled to depths of 8.5 and 10.5 feet. Ground water was encountered at depths ranging from 9.5 to 14.5 feet beneath the surface during drilling. The wells were developed on May 3 and 4, 1990, and initially sampled on May 11, 1990.

Water and selected soil samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California, for TPH as gasoline, and BTX&E. In addition, sample EB2(9), collected from boring EB2, was analyzed for TPH as diesel and TOG.

Analytical results of the soil samples, collected from the borings for monitoring wells MW1 and MW3, indicated non-detectable levels of TPH as gasoline in all soil samples. Analytical results of the soil samples, collected from the boring for monitoring well MW2, indicated levels of TPH as gasoline ranging from 2.2 ppm to 6.8 ppm. However, analytical results of the soil samples collected from boring EB2 indicated levels of TPH as gasoline ranging from 2,400 ppm to 12,000 ppm. In sample EB2(9), TPH as diesel was detected at 1,400 ppm, and TOG at 7,000 ppm. Benzene was detected in all soil samples collected from MW1, MW2 and MW3, except for samples MW2(10) and MW2(12), at levels ranging from 0.0075 ppm to 0.012 ppm. However, benzene was detected in samples EB2(7) and EB2(9) at concentrations of 5.0 ppm and 84 ppm, respectively.

Analytical results of the ground water samples, collected from monitoring wells MW1 and MW2, indicated levels of TPH as gasoline at 22,000 ppb and 65,000 ppb, respectively. Benzene was detected in samples MW1 and MW2, at levels of 590 ppb and 3,300 ppb, respectively. Analytical results of the ground water sample collected from MW3 showed non-detectable levels of all constituents analyzed. Results of the soil analyses are summarized in Table 6, and the water analyses in Table 4.

Based on the analytical results, KEI recommended implementation of a monthly monitoring and quarterly sampling program. In addition, KEI recommended the installation of three additional monitoring wells to further define the extent of ground water contamination. Also, KEI recommended additional soil excavation be conducted in the vicinity of borings EB1 and EB2 because of the level of the soil contamination detected. Details of the subsurface exploration and monitoring well installation activities are summarized in KEI's report (KEI-P88-1203.R7) dated May 31, 1990.

On August 14, 1990, three additional two-inch diameter monitoring wells (designated as MW4, MW5 and MW6 on the attached Site Plans, Figures 1c and 1d) were installed at the site. The three wells were each drilled and completed to a total depth of 26 feet except for well MW4, which was completed at a depth of 25 feet. Ground water was encountered at depths ranging from 13.5 to 16.5 feet beneath the surface during drilling. The new wells were developed on August 21, 1990, and all wells were sampled on August 28, 1990. Water from all wells and selected soil samples from MW4, MW5 and MW6 were analyzed at Sequoia Analytical Laboratory in Concord, California, for TPH as gasoline and BTX&E. In addition, soil samples collected from the boring for monitoring well MW6 and water samples collected from monitoring well MW2 and MW6 were analyzed for TPH as diesel and TOG.

The analytical results of the soil samples collected from the borings for wells MW4, MW5 and MW6 showed non-detectable levels of TPH as gasoline and benzene in all samples analyzed, except for MW6(10), MW6(12.5) and MW6(15.5), which showed levels of TPH as gasoline at 18 ppm, 160 ppm and 2.5 ppm, respectively, and levels of benzene at 0.24 ppm, 3.4 ppm and 0.43 ppm, respectively. In addition, TPH as diesel was detected only in samples MW6(10) and MW6(12.5), at levels of 5.1 ppm and 93 ppm, respectively. Also, TOG was detected in sample MW6(12.5) at a level of 200 ppm.

The analytical results of the water samples collected from monitoring wells MW3 and MW5 indicated non-detectable levels of TPH as gasoline and benzene. Levels of TPH as gasoline and benzene were detected in wells MW1, MW2, MW4 and MW6 at concentrations ranging from 1,700 ppb to 62,000 ppb for TPH as gasoline, with benzene concentrations ranging from 140 ppb to 2,600 ppb. Also, TPH as diesel was detected in MW2 and MW6 at levels of 3,100 ppb and 1,000 ppb, respectively. Results of the soil analyses are summarized in Table 5, and the water analyses in Table 4. Based on these results, KEI recommended that a Hydropunch study be performed at the site and its vicinity to aid in determining the extent of ground water contamination in the vicinity of the site. Also, KEI proposed that the possible influence of tidal action on the ground water table gradient be evaluated. For further details, refer to KEI's report (KEI-P88-1203.R8) dated September 24, 1990.

On January 19 and 20, 1991, CEC of Sunnyvale, California, conducted a ground water sampling study under the direction of KEI. Sampling methods and the analytical results are presented in the CEC report dated February, 1991, and are summarized below.

Ground water samples were collected from seven locations, designated as P1 through P7 on the attached Site Vicinity Map. The ground water samples were collected from depths of about 14 to 17 feet below grade. Each temporary sampling probe was constructed of one-inch diameter galvanized pipe, and was driven into the soil using an air actuated percussion driver. A 1-1/2 inch pilot probe was driven to a depth approximately 1 foot above the anticipated ground water level. The pilot probe was removed and a sampling probe was inserted into the pilot hole and driven an additional 3 to 4 feet, so that the temporary sampling probe was situated below ground water level. Water was extracted using a clean glass or plastic micro-bailer. All wells were removed after sample collection, and the holes were grouted with a bentonite cement mixture.

Ground water samples collected from the probe holes were analyzed at CEC's laboratory in Sunnyvale, California. The samples were analyzed for TPH as diesel, TPH as gasoline, and BTX&E.

The analytical results of the water samples collected from the sample probes P2 through P7 showed non-detectable levels of TPH as gasoline, BTX&E and TPH as diesel, except for sample P2 which showed 0.6 ppb of xylenes. The analytical results of the water sample collected from probe P1 indicated a level of TPH as gasoline at 92 ppb, a level of benzene at 0.8 ppb, and TPH as diesel was non-detectable. Analytical results of the ground water samples are summarized in Table 2. Documentation of sampling methods and analytical results are presented in KEI's report (KEI-P88-1203.R9) dated April 22, 1991.

HYDROLOGY AND GEOLOGY

Based on recent water level data gathered from the existing monitoring wells, ground water flow direction appeared to be generally toward the north-northeast on February 21, 1991. The measured depth to ground water at the site on February 21, 1991 ranged between 8.47 and 11.76 feet. The most recent monitoring data collected is presented in Table 3.

In response to a letter dated August 1, 1990 from the Alameda County Health Care Services Agency, KEI evaluated the effects of tidal action on ground water levels at the subject site. On January 18, 1991, a representative of KEI was at the site for an approximate seven-hour period to monitor any changes in the ground water table elevation which might be related to tidal effects. All six monitoring wells were monitored 13 times for depth to water.

All monitoring data is presented as Table 3a. The water table continuously decreased in each well during the seven hour monitoring period, from 0.09 feet to 0.11 feet, which represents only a 0.02 feet differential. The constant decrease in the water table at the site may be related to tidal action; however, the near uniform decrease in the wells indicates that the ground water flow direction does not change appreciably in response to any tidal actions and therefore KEI recommended that no further study be conducted at the site in relation to the possible effects of tidal actions.

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", 1979), the subject site is underlain by relatively unconsolidated alluvial deposits described as fine-grained alluvium (Qhaf) typically consisting of clay and silt materials. In addition, the site is closely adjacent to a mapped geologic contact with Bay Mud (Qhbm) to the west.

Based on inspection of the tank pit excavation located at the northwest portion of the site during November, 1989, the site is underlain by artificial fill materials to a depth of about 7.5 feet below grade. The fill materials are underlain by about 1.5 feet of adobe-type silty clay soil materials, which appeared to inturn be underlain by light brown sandy silt containing a trace of fine gravel and light brown very fine-grained sand.

The results of our subsurface study from the borings for MW1, MW2 and MW3 indicated the site is underlain by artificial fill materials to depths of about 7 to 8 feet. Locally, the fill materials extend to depths of at least 8.5 and 10.5 feet in the vicinity of borings EB1 and EB2 (maximum depth explored). The fill materials are generally underlain by a 1.5 to 2 foot thick bed of silt which is inturn underlain by a persistent coarse-grained sequence of clayey to sandy gravel interbedded with clayey to silty sand to the maximum depth explored (23 feet).

The results of our recent subsurface study from the borings for MW4, MW5 and MW6 indicated that the site is underlain by artificial fill materials to depths below grade of about 2.5 to 4.4 feet. The fill materials are inturn underlain by silty clay materials to depths below grade of about 8 to 12.7 feet. This silty clay zone is inturn underlain by a coarse-grained zone composed of clayey gravel and/or clayey sand materials extending to depths below grade of about 12.1 to 14.3 feet. This coarse-grained zone is inturn underlain by a clayey silt bed varying from about 1 to 3 feet in thickness and extending to depths below grade of about 14.2 to 14.8 feet in wells MW4 and MW5, and about 17.3 feet in MW6. The ground water table encountered during drilling activities was detected

within or immediately below the silt bed. This relatively thin clayey silt bed is underlain by a generally thick sequence of silty to clayey sand and gravel lenses extending to the maximum depth explored (26 feet), except in the boring for well MW5 where a second clayey silt bed was encountered at depths below grade of about 15.6 to 19.5 feet and where a clay bed was encountered at approximately 24 feet extending to the total depth drilled (26 feet).

RECENT FIELD ACTIVITIES

A representative of KEI was present at the site on March 12, 1991, to observe excavation of contaminated soil in the immediate vicinity of the previously drilled exploratory borings EB1 and EB2. Excavation revealed two large concrete slabs (each approximately 13 feet long by 5.5 feet wide and 1 foot thick, which were located at depths of about 8.5 feet and 10 feet below grade). Inspection of the slab surfaces showed evidence of the previous boring attempts in this area (EB1 and EB2).

KEI returned to the site on March 19, 1991, to observe removal of the above mentioned concrete slabs. Removal had been scheduled to permit the installation of shoring along the northeasterly side of the 66th Avenue pump islands. The shoring was necessary to avoid potential damage to the product piping since this area had been over-excavated during the fuel tank replacement during November and December, 1989. Concrete removal and subsequent soil excavation to a depth of about 1 foot below ground water (which was encountered at a depth of approximately 11 feet below grade), confirmed the previous removal of underground fuel storage tanks from this area.

Also on March 19, ~~1990~~ 1991, KEI collected two soil samples, labeled SW1 and SW2 from the sidewalls of the former fuel tank pit excavation at a depth of 6 to 12 inches above ground water. 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, plastic caps and tape, and stored in a cooled ice chest for delivery to a certified laboratory. Sample point locations are as shown on the attached Site Plan, Figure 1a.

KEI returned to the site on March 21 and 22, 1991, to observe the continuing excavation of contaminated soil from the former fuel tank pit. On March 21, 1991, two soil samples, labeled SW3 and SW4, were collected from the sidewalls of the excavation approximately 6 to 12 inches above ground water level. Three soil samples, labeled SW5, SW6 and SW2(12), were collected from the sidewalls of the excavation approximately 6 to 12 inches above the level of the ground water on March 22, 1991. Samples were collected and handled as previously described. Sample point locations are as shown on the attached Site Plan, Figure 1a.

KEI again returned to the site on April 3, 4 and 5, 1991. One soil sample, labeled SW5(7), was collected on April 3; one soil sample, labeled SW7, was collected on April 4; and three soil samples, labeled SW4(6), SW3(2) and SW10, were collected on April 5. All samples were collected from the excavation sidewalls approximately 6 to 12 inches above the level of the ground water. Samples were collected and handled as previously described. Sample point locations are as indicated on the attached Site Plans, Figures 1a and 1b.

KEI collected four soil samples, labeled SW2(30), SW6(5), SW8 and SW9, from the sidewalls of the excavation approximately 6 to 12 inches above the level of the ground water on April 11, 1991. Again, samples were collected and handled as previously described. Sample point locations are as shown on the attached Site Plans, Figures 1a and 1b.

On March 27, 1991, approximately 10,000 gallons of ground water were pumped prior to backfilling a portion of the excavation along the northeasterly side of 66th Avenue pump islands. An additional 10,000 gallons of ground water were pumped from the excavation after completion of the soil sampling activities of April 11, 1991.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California and were accompanied by properly executed Chain of Custody documentation. All soil samples were analyzed for total TPH as gasoline using EPA method 5030 in conjunction with modified 8015, and BTX&E using EPA method 8020. In addition, all soil samples except samples SW2(30) and SW6(5) were also analyzed for TOG using Standard Method 5520E&F.

Analytical results of the soil samples, SW1 and SW9 collected from the former fuel tank pit excavation, indicate non-detectable levels of TPH as gasoline. Analytical results of soil samples SW2, SW2(12), SW3, SW4, SW5 and SW6, indicate levels of TPH as gasoline at 1,000 ppm, 2,400 ppm, 310 ppm, 1,400 ppm, 2,200 ppm and 260 ppm, respectively. Analytical results of the final soil samples {SW1, SW2(30), SW3(2), SW4(6), SW5(7), SW6(5), SW7, SW8, SW9 and SW10}, collected from the boundaries of the excavation (see the attached Site Plan, Figure 1b), indicate levels of TPH as gasoline ranging from non-detectable to 53 ppm, except for samples SW2(30), SW8 and SW10, which indicate levels of TPH as gasoline at 340 ppm, 310 ppm and 1,400 ppm, respectively. However, KEI was unable to further excavate laterally in the vicinity of sample point SW10 due to limited access (product pipes).

Analytical results of sidewall soil samples SW1, SW3 and SW6 through SW9, collected after the initial excavation, indicate non-detectable levels of TOG for all samples. Analytical results of sidewall soil samples SW2, SW4, SW5 and SW10, also collected after the initial excavation, indicate levels of TOG at concentrations of 58 ppm, 160 ppm, 85 ppm and 60 ppm, respectively. However, the analytical results of soil samples collected after additional excavation at sample point locations SW2, SW4 and SW5, indicate non-detectable levels of TOG for all three samples. Results of the soil analyses are summarized in Table 1. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

The review of site historical data indicated that borings EB1 and EB2 had been drilled in the area of the former underground fuel storage tank pit as it existed prior to 1967. The previous work at the site had shown that the site is underlain by artificial fill materials to a depth of about 7.5 feet below grade. This layer of fill coupled with the drill bit refusal experienced at depths of about 8.5 and 10.5 feet for borings EB1 and EB2, respectively, suggested that this area may have been filled with assorted refuse from the pre-1967 version of the station.

In all, approximately 2,000 cubic yards of contaminated soil were removed from the area in the vicinity of the pre-1967 tank pit. All soil in the pre-1967 tank pit was excavated laterally until the sidewall soil samples indicated less than 100 ppm of both TPH as gasoline and TOG, except at sample point locations SW2(30), SW8, and SW10, where the excavation was terminated because the existing product piping prevented further excavation. In addition, soil was not excavated from the southwesterly end of the pre-1967 tank pit due to its location between the existing pump islands located along 66th Avenue.

The analytical results of previous ground water sampling studies conducted at the site indicated that the extent of the ground water contamination lies between the boundaries of the subject service station site and the contamination limits defined by probes P3 through P7 in the recent Hydropunch study, as shown on the attached Site Vicinity Map. Based on the analytical results of ground water samples collected from monitoring wells MW1 through MW6 on February 21, 1991 (see the attached Site Plan, Figure 1c), KEI recommended the installation of three off-site monitoring wells to verify the non-detectable levels found downgradient in the Hydropunch study, and one on-site monitoring well in the vicinity of probe P1 to verify the levels of contamination detected. Our work plan/proposal (KEI-P88-1203.P4) dated April 22, 1991 for the additional well installations was recently submitted. In addition,

KEI also proposed to investigate the adjacent property for possible sources of off-site contamination. Once all permits and access permission is obtained KEI will proceed with the recommended well installations.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Care Services, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state certified laboratory. We have analyzed this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

Should you have any questions regarding this report, please feel free to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Richard M. Bradish
Project Engineer

Thomas J. Berkins
Senior Environmental Engineer

Don R. Braun
Certified Engineering Geologist

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

Timothy R. Ross
Project Manager

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Attachments: Tables 1 through 8
Location Map
Site Vicinity Map
Site Plans - Figures 1a, 1b, 1c, 1d, 2 & 3 & 4
Laboratory Analyses
Chain of Custody documentation

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TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL - FUEL TANK PIT
PRE-1967

Date	Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
3/19/91	SW1	10.5	ND	ND	ND	ND	ND	ND
3/19/91	SW2	11.0	1,000	14	65	98	19	58
3/22/91	SW2(12)	11.0	2,400	38	180	280	54	ND
4/11/91	SW2(30)	11.0	340	1.6	1.2	21	9.9	--
3/21/91	SW3	10.5	310	3.3	4.8	26	6.5	ND
4/05/91	SW3(2)	10.5	5.3	ND	ND	0.14	0.13	ND
3/21/91	SW4	10.5	1,400	14	41	110	30	160
4/05/91	SW4(6)	10.5	53	0.023	1.4	4.1	0.85	ND
3/22/91	SW5	10.5	2,200	28	140	260	52	85
4/03/91	SW5(7)	10.5	29	0.44	0.052	2.8	0.89	ND
3/22/91	SW6	10.5	260	3.6	7.5	29	7.2	ND
4/11/91	SW6(5)	10.5	44	0.34	0.32	2.5	1.1	--
4/04/91	SW7	11.0	2.5	0.41	0.0070	0.018	0.15	ND
4/11/91	SW8	11.0	310	1.9	2.9	8.1	2.8	ND
4/11/91	SW9	11.0	ND	0.17	ND	0.0052	0.0062	ND
4/05/91	SW10	11.0	1,400	18	130	200	36	60
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050	30

-- Indicates analysis not performed.

ND = Non-detectable.

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

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

(Collected on January 9 through 11, 1991 by CEC)

Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
P1	15	ND	90.0	0.8	0.6	2.4	0.5
P2	15	ND	ND	ND	ND	0.6	ND
P3	16	ND	ND	ND	ND	ND	ND
P4	17	ND	ND	ND	ND	ND	ND
P5	14	ND	ND	ND	ND	ND	ND
P6	15	ND	ND	ND	ND	ND	ND
P7	14	ND	ND	ND	ND	ND	ND
Detection Limits		1,000	50	0.5	0.5	0.5	0.5

ND = Non-detectable.

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

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TABLE 3

SUMMARY OF MONITORING DATA

Date	Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness	Sheen	Water Bailed (gallons)
2/21/91	MW1	-6.40	11.58	0	None	55
	MW2	-6.23	10.06	0	None	55
	MW3	-5.17	8.47	0	None	15
	MW4	-6.49	11.76	0	None	55
	MW5	-6.35	10.96	0	None	15
	MW6	-6.24	10.55	0	None	55
1/21/91	MW1	-7.33	12.51	0	None	0
	MW2	-7.26	11.09	0	None	55
	MW3	-6.09	9.39	0	None	0
	MW4	-7.38	12.65	0	None	55
	MW5	-7.33	11.94	0	None	0
	MW6	-7.32	11.63	0	None	55
12/21/90	MW1	-7.48	12.66	0	None	55
	MW2	-7.27	11.10	0	None	55
	MW3	-6.59	9.89	0	None	0
	MW4	-7.59	12.86	0	None	55
	MW5	-7.43	12.04	0	None	0
	MW6	-7.29	11.60	0	None	55

Well #	Surface Elevation* (feet)
MW1	5.18
MW2	3.83
MW3	3.30
MW4	5.27
MW5	4.61
MW6	4.31

* Elevation of top of well covers surveyed to Mean Sea Level.

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TABLE 3a

SUMMARY OF MONITORING DATA

(Conducted on January 18, 1991)

Well #	Time	Ground Water Elevation (feet)	Depth to Water (feet)
MW1	9:55 a.m.	-7.27	12.45
	10:22	-7.27	12.45
	10:34	-7.27	12.45
	10:55	-7.25	12.43
	11:29	-7.24	12.42
	11:57	-7.23	12.41
	12:29 p.m.	-7.21	12.39
	1:04	-7.21	12.39
	1:27	-7.21	12.39
	1:58	-7.20	12.38
	2:29	-7.18	12.36
	4:36	-7.19	12.37
	5:01	-7.19	12.37
MW2	9:37 a.m.	-7.21	11.04
	10:08	-7.20	11.03
	10:25	-7.20	11.03
	10:46	-7.18	11.01
	11:20	-7.17	11.00
	11:49	-7.15	10.98
	12:23 p.m.	-7.14	10.97
	12:55	-7.13	10.96
	1:18	-7.14	10.97
	1:50	-7.12	10.95
	2:22	-7.11	10.94
	4:24	-7.10	10.93
	4:53	-7.10	10.93
MW3	9:34 a.m.	-6.13	9.43
	10:04	-6.12	9.42
	10:23	-6.11	9.41
	10:43	-6.11	9.41
	11:18	-6.09	9.39
	11:47	-6.08	9.38
	12:21 p.m.	-6.07	9.37
	12:53	-6.06	9.36
	1:16	-6.06	9.36
	1:48	-6.05	9.35
	2:20	-6.04	9.34
	4:21	-6.02	9.32
	4:51	-6.02	9.32

KEI-J88-1203.R10
April 26, 1991

TABLE 3a (Continued)

SUMMARY OF MONITORING DATA

(Conducted on January 18, 1991)

Well #	Time	Ground Water Elevation (feet)	Depth to Water (feet)
MW4	9:51	-7.31	12.58
	10:17	-7.31	12:58
	10:31	-7.31	12.58
	10:53	-7.30	12.57
	11:27	-7.28	12:55
	11:55	-7.27	12.54
	12:27 p.m.	-7.24	12.51
	1:01	-7.24	12.51
	1:25	-7.25	12.52
	1:56	-7.23	12.50
	2:28	-7.22	12.49
	4:34	-7.22	12.49
	4:59	-7.22	12.49
MW5	9:47 a.m.	-7.27	11.88
	10:14	-7.27	11.88
	10:29	-7.26	11.87
	10:50	-7.25	11.86
	11:25	-7.23	11.84
	11:53	-7.22	11.83
	12:25 p.m.	-7.20	11.81
	1:00	-7.20	11.81
	1:23	-7.20	11.81
	1:54	-7.19	11.80
	2:26	-7.17	11.78
	4:30	-7.17	11.78
	4:57	-7.17	11.78
MW6	9:42 a.m.	-7.24	11.55
	10:11	-7.23	11.54
	10:27	-7.22	11.53
	10:48	-7.21	11.52
	11:23	-7.19	11.50
	11:50	-7.18	11.49
	12:24 p.m.	-7.17	11.48
	12:57	-7.17	11.48
	1:21	-7.17	11.48
	1:53	-7.14	11.45
	2:23	-7.14	11.45
	4:26	-7.14	11.45
	4:55	-7.14	11.45

KEI-J88-1203.R10
April 26, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
			(Collected on February 21, 1991)				
MW1	690	26,000	280	39	1,900	1,200	--
MW2	7,000	3,400	160	61	490	200	ND
MW3	--	ND	ND	ND	0.64	ND	--
MW4	4,100	33,000	210	21	12,000	3,800	--
MW5	--	56	ND	ND	4.7	ND	--
MW6	160	750	77	14	140	23	ND
MWD*	--	740	74	12	140	33	--
			(Collected on November 26, 1990)				
MW1	--	2,900	160	2.3	320	330	--
MW2	3,800	15,000	1,600	450	2,100	1,100	ND
MW3	--	ND	ND	ND	ND	ND	--
MW4	--	49,000	360	36	11,000	3,800	--
MW5	--	ND	ND	ND	ND	ND	--
MW6	320	4,800	1,000	200	650	340	ND
"MW7"*	--	4,000	800	120	440	250	--
			(Collected on August 28, 1990)				
MW1	--	1,700	140	1.4	150	180	--
MW2	3,100	27,000	2,600	1,300	3,000	1,900	ND
MW3	--	ND	ND	ND	0.70	ND	--
MW4	--	62,000	810	72	4,600	4,400	--
MW5	--	ND	ND	ND	1.2	ND	--
MW6	1,000	12,000	1,700	1,400	2,100	230	16
"MW7"**	--	2,600	180	3.0	270	810	--
			(Collected on May 11, 1990)				
MW1	--	22,000	590	42	3,600	1,200	--
MW2	--	65,000	3,300	3,300	12,000	4,100	--
MW3	--	ND	ND	ND	ND	ND	--
Detection Limits	50	30	0.30	0.30	0.3	0.3	5.0

KEI-J88-1203.R10
April 26, 1991

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

ND = Non-detectable.

-- Indicates analysis not performed.

* "MW7" and MWD are duplicate samples from MW6.

** "MW7" is a duplicate sample from MW1.

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

KEI-J88-1203.R10
April 26, 1991

TABLE 5

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on August 14, 1990)

Sample Number	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
MW4(14.5)	14.5	--	ND	ND	ND	ND	ND	--
MW5(13)	13	--	ND	ND	0.010	ND	ND	--
MW6(5)	5	ND	ND	ND	0.042	ND	ND	ND
MW6(10)		5.1	18	0.26	0.22	1.2	0.34	ND
MW6(12.5)	12.5	93	160	3.4	12	3.6	20	200
MW6(15.5)	15.5	ND	2.5	0.43	0.41	0.12	0.50	ND
Detection Limits		1.0	1.0	0.0050	0.0050	0.0050	0.0050	30

-- Indicates analysis not performed.

ND = Non-detectable.

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

KEI-J88-1203.R10
April 26, 1991

TABLE 6

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on April 26 & 27, 1990)

Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
MW1(5)	5	ND	0.012	0.16	ND	ND
MW1(10)	10	ND	0.0094	0.024	ND	ND
MW1(14)	14	ND	0.0075	0.031	ND	ND
MW2(5)	5	2.4	0.075	0.0071	ND	ND
MW2(10)	10	2.2	ND	0.017	0.018	0.0088
MW2(12)	12	6.8	ND	0.028	0.015	0.10
MW3(5)	5	ND	0.0094	0.048	ND	ND
MW3(10)	10	ND	0.0088	0.015	ND	ND
EB2(7)	7	2,400	5.0	16	230	62
EB2(9)*	9	12,000	84	12	860	360
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

* TPH as diesel was 1,400 ppm, and TOG was 7,000 ppm.

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

KEI-J88-1203.R10
April 26, 1991

TABLE 7

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on November 29, and
December 5 & 29, 1989)

Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
SW1	9.0	--	1.6	ND	ND	ND	ND
SW2	9.0	--	3.8	ND	ND	ND	ND
SW3	9.0	--	5.6	ND	ND	2.3	0.42
SW4	9.0	--	32	1.2	ND	1.0	2.1
SW5	9.0	--	4.8	0.20	ND	0.11	ND
SW6	8.0	--	ND	ND	ND	ND	ND
D1	3.5	--	ND	ND	ND	ND	ND
D2	3.5	--	1.5	0.08	ND	ND	ND
D3	3.5	--	6.6	0.14	ND	0.31	ND
D4	3.5	--	7.4	0.11	ND	0.1	ND
D5	3.5	--	1.9	ND	ND	ND	ND
D6	3.5	--	2.0	ND	0.17	0.25	ND
P1	6.0	--	15	0.086	ND	8.5	0.18
P2	5.5	--	3,800	6.1	290	750	140
P2(12)	12.0	--	ND	ND	ND	ND	ND
P3	5.0	--	11	0.13	ND	1.3	0.18
P4	4.5	--	1.4	ND	ND	0.23	ND
P5	4.5	--	ND	ND	ND	ND	ND
P6	3.0	--	ND	ND	ND	ND	ND
P7	4.0	--	ND	ND	ND	ND	ND
SWP2E	11.0	--	20	ND	0.16	3.1	0.50
SWP2W	11.0	--	ND	ND	ND	ND	ND
WO1*	8.5	ND	1.6	ND	ND	ND	ND

KEI-J88-1203.R10
April 26, 1991

TABLE 7 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on November 29, and
December 5 & 29, 1989)

Sample	Depth (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
SWA**	9.5	ND	2.1	ND	ND	ND	ND
SWB***	9.5	ND	3.9	ND	ND	ND	ND
Detection Limits		1.0	1.0	0.05	0.1	0.1	0.1

* TOG was <50 ppm, and all 8010 constituents were non-detectable. Metal concentrations were as follows: cadmium non-detectable, chromium 20 ppm, lead 75 ppm, and zinc 65 ppm.

** TOG was <50 ppm, and all 8010 constituents were non-detectable. Metals concentrations were as follows: cadmium non-detectable, chromium 20 ppm, lead 5.9 ppm and zinc 44 ppm.

*** TOG was <50 ppm and all 8010 constituents were non-detectable. Metals concentrations were as follows: cadmium non-detectable, chromium 15 ppm, lead 5.0 ppm, an zinc 39 ppm.

-- Indicates analysis not performed.

ND = Non-detectable.

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

KEI-J88-1203.R10
April 26, 1991

TABLE 8

SUMMARY OF LABORATORY ANALYSES
WATER

(Collected on December 5, 1989)

Sample #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
W1	7,900	850	150	720	ND
Detection Limits	30.0	0.3	0.3	0.3	0.3

NOTE: All EPA method 8010 constituents were non-detectable.

ND = Non-detectable.

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

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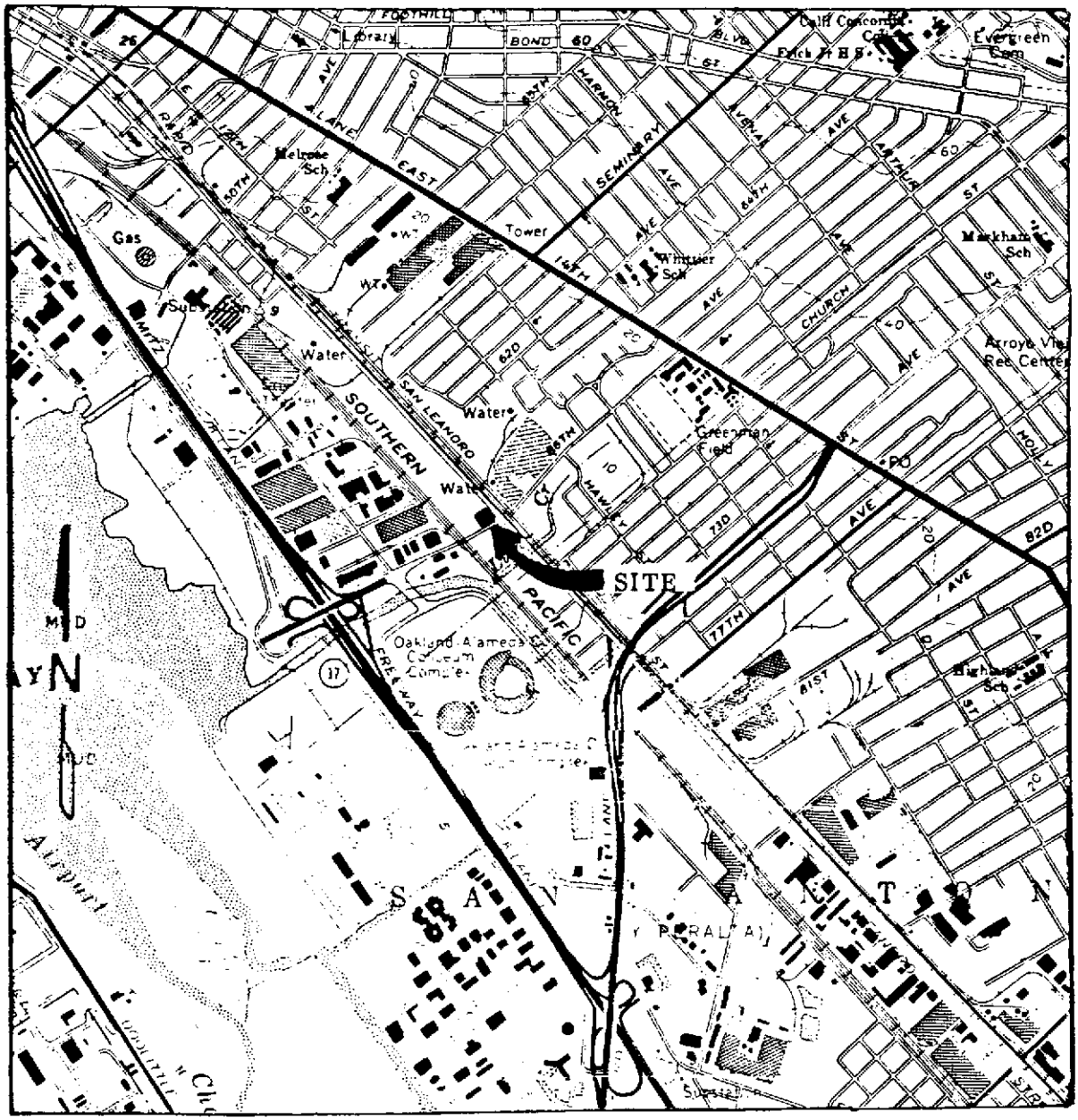

LOCATION MAP

Unocal S/S #3135
845-66th Avenue
Oakland, CA

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Consulting Engineers
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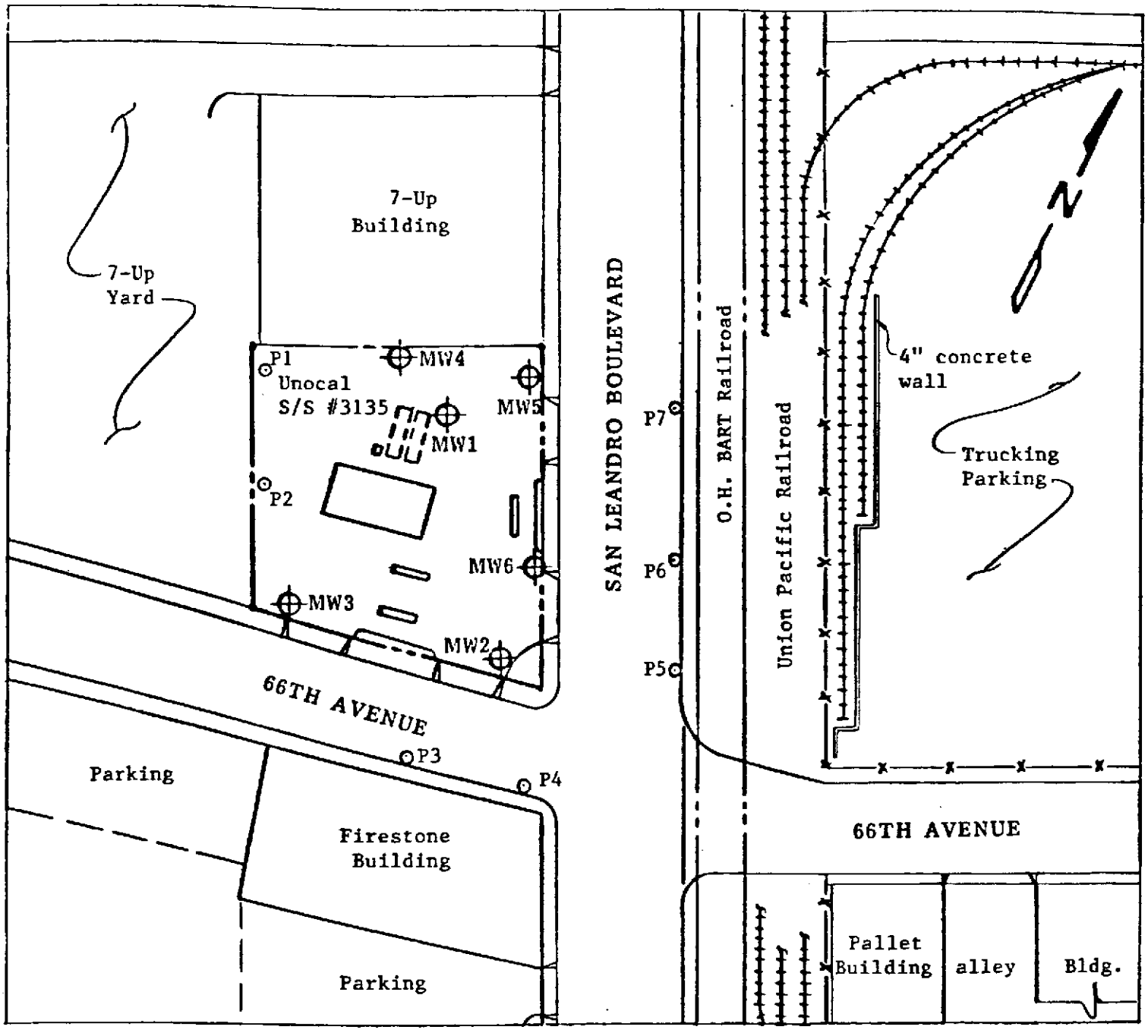

SITE VICINITY MAP

0 80 160
Approx. scale feet

LEGEND

⊕ Monitoring well

⊙ Ground water sample point location

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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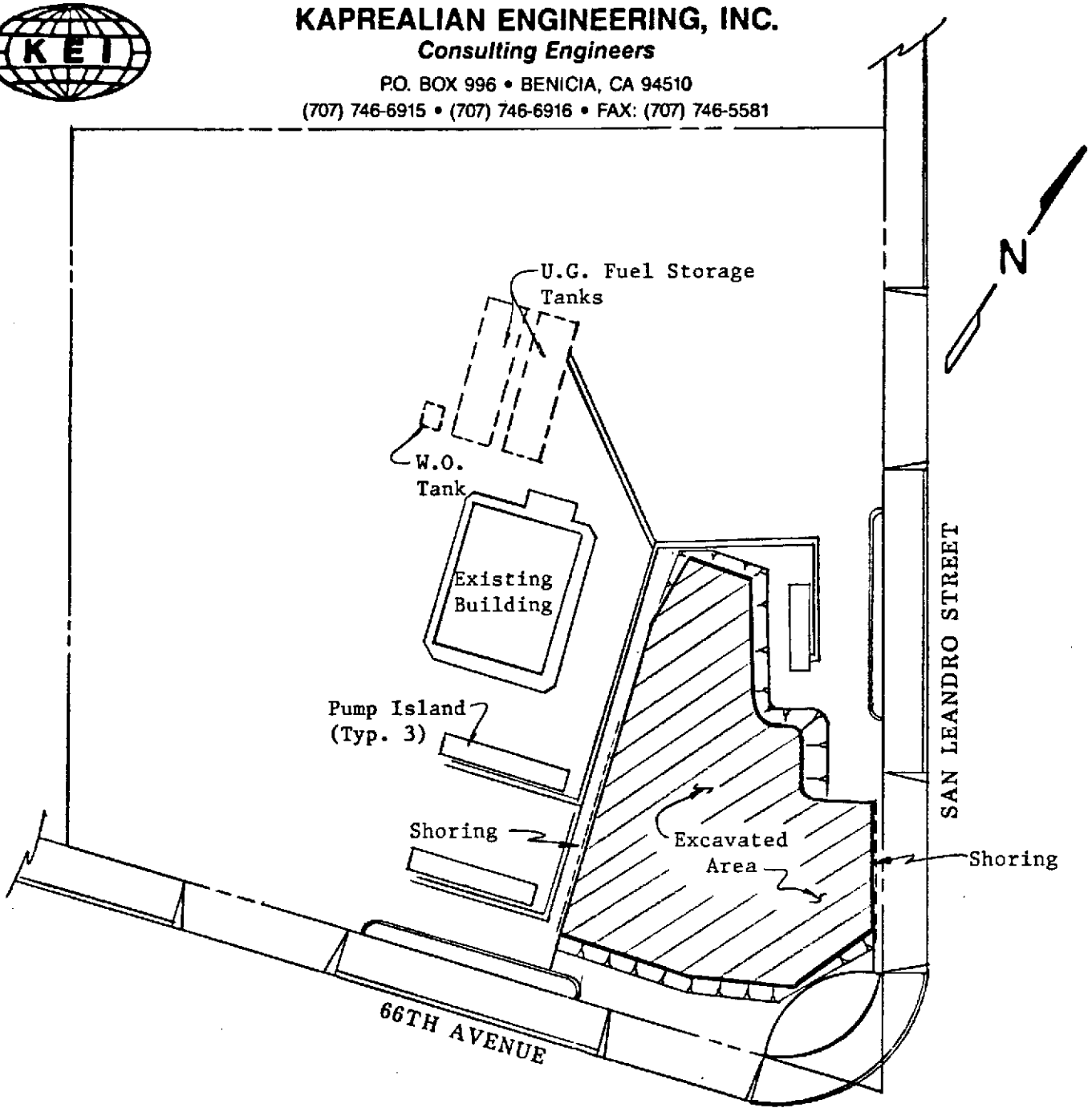

SITE PLAN
Figure 1

0 30 60
Approx. scale feet

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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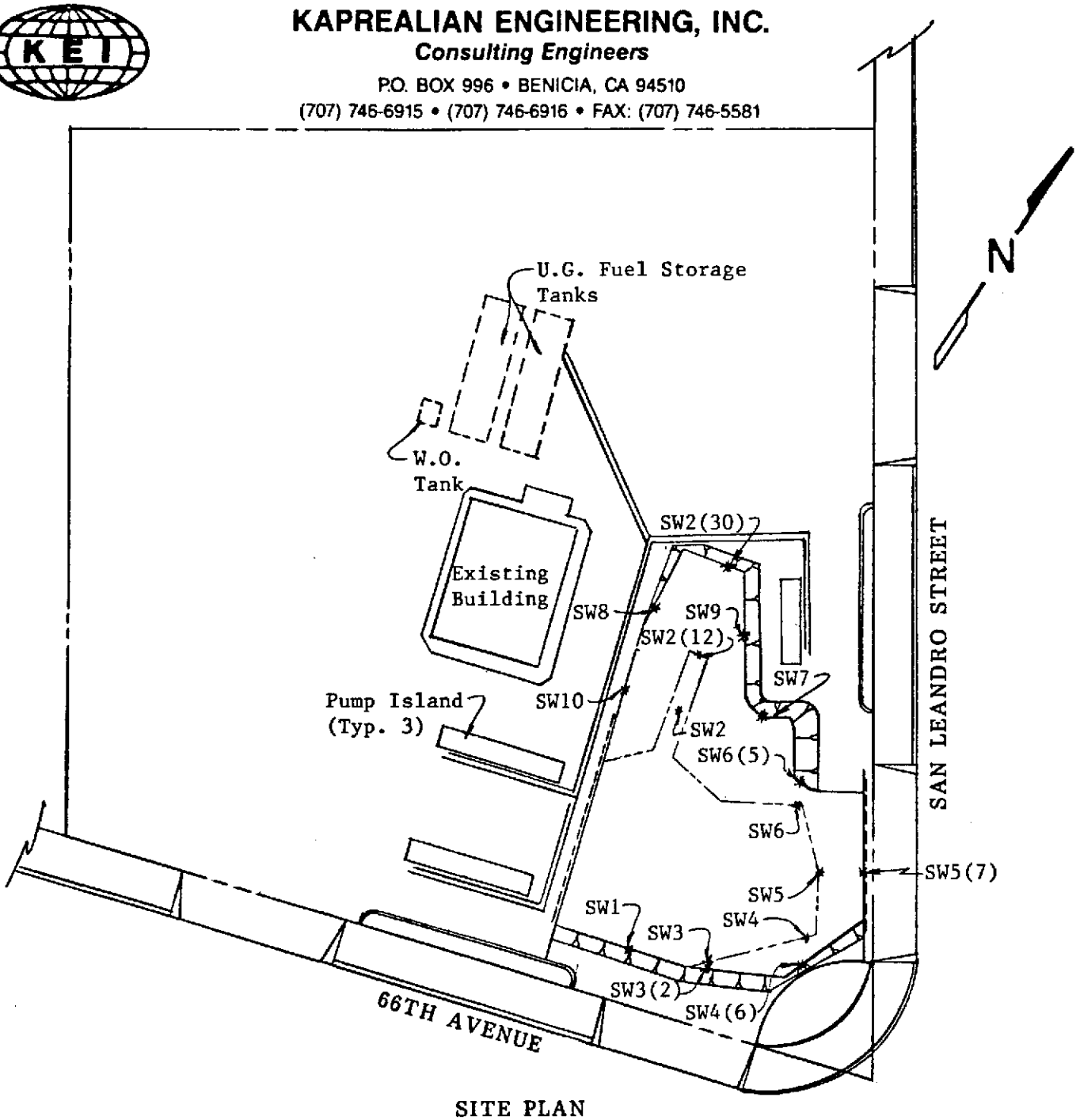

SITE PLAN
Figure 1a

LEGEND

Shoring

Intermediate Excavation Boundary

* Sample Point Location

0 30 60
Approx. scale feet

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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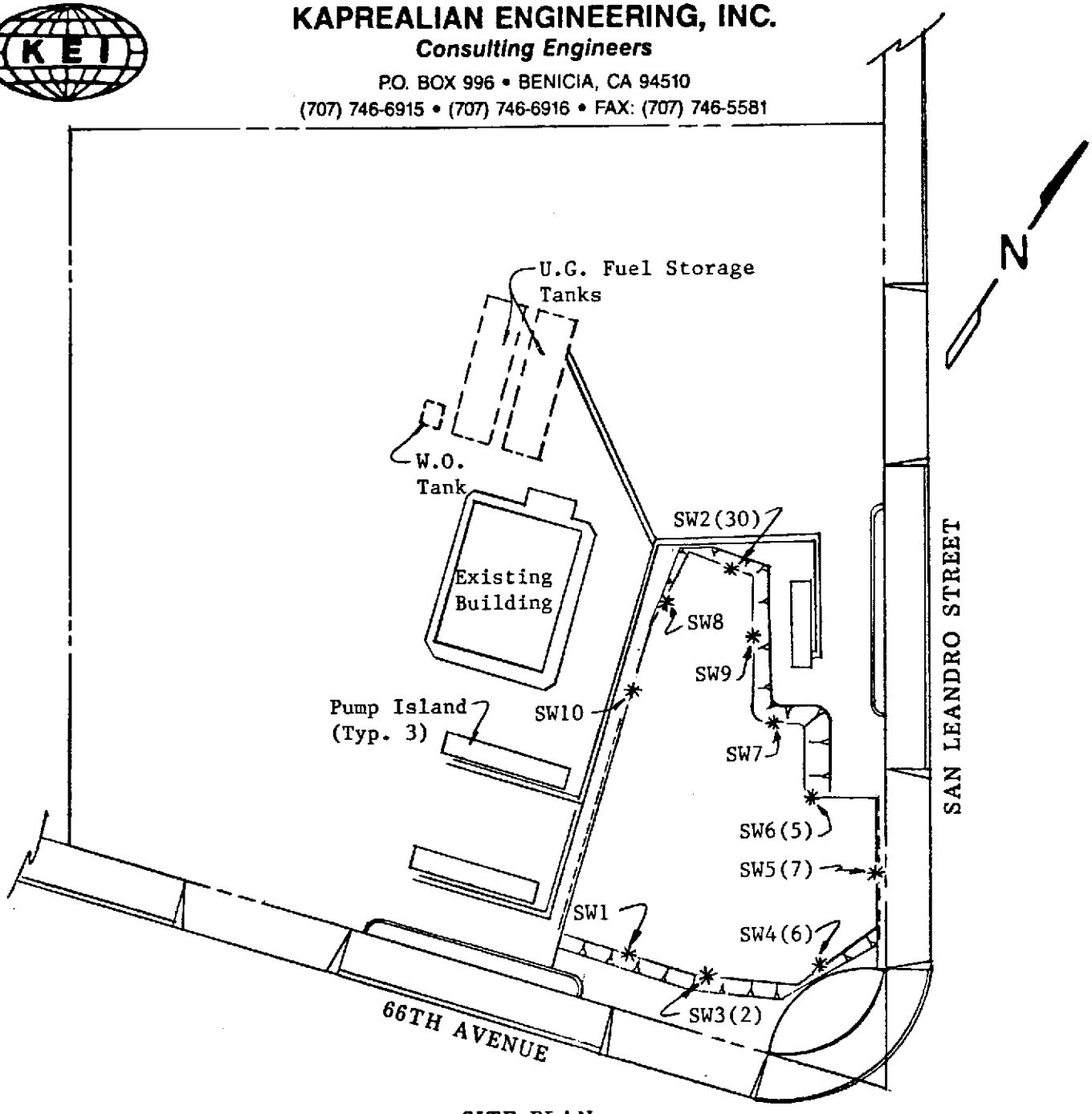

SITE PLAN
Figure 1b

LEGEND

0 30 60
Approx. scale feet

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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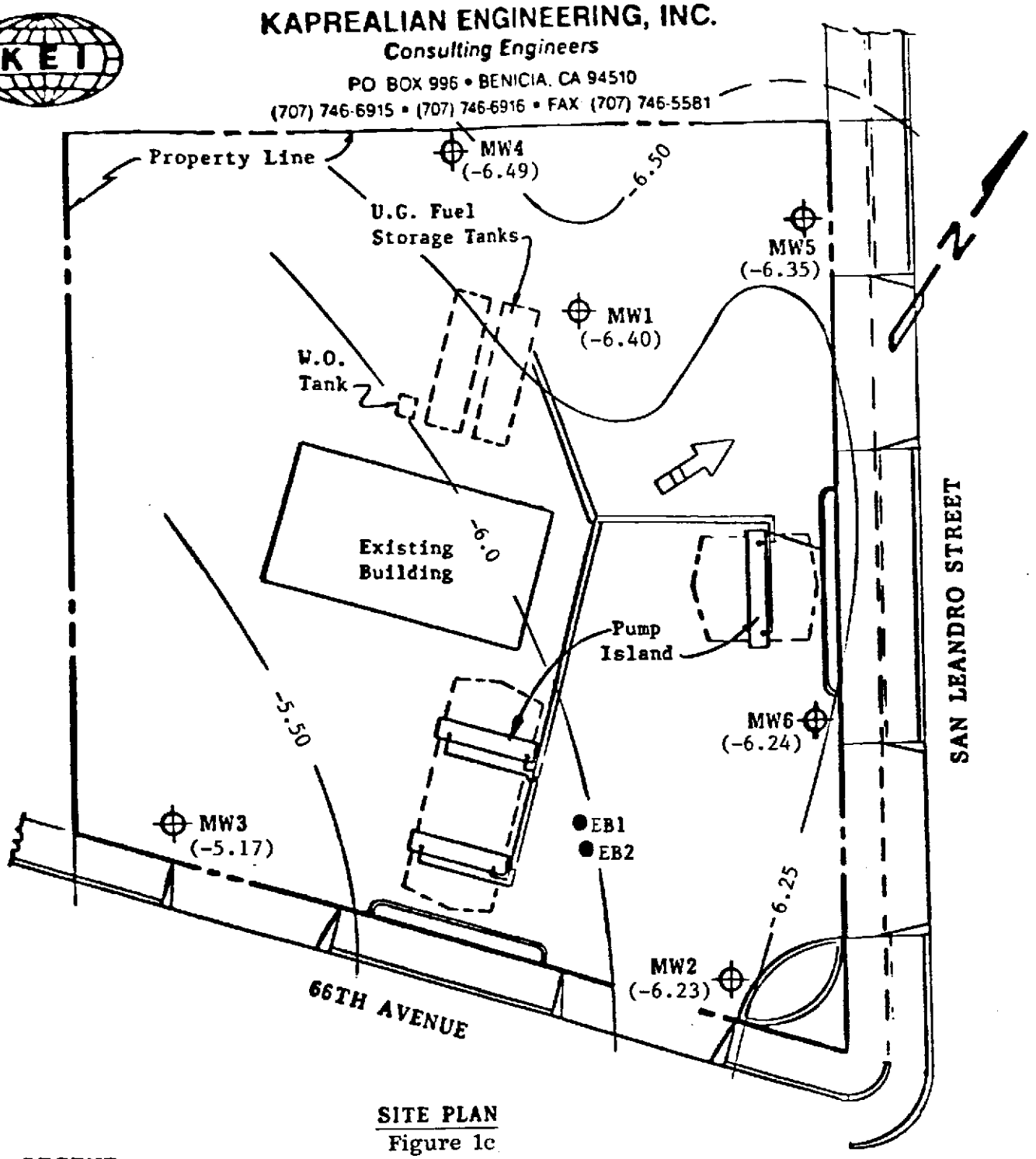

SITE PLAN
Figure 1c

LEGEND

- Monitoring Well
- Exploratory Boring
- ( ) Ground Water Elevation in feet above Mean Sea Level on 2/21/91
- Direction of ground water flow
- Contours of ground water surface in feet above Mean Sea Level

0 30 60
Approx. Scale feet

Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

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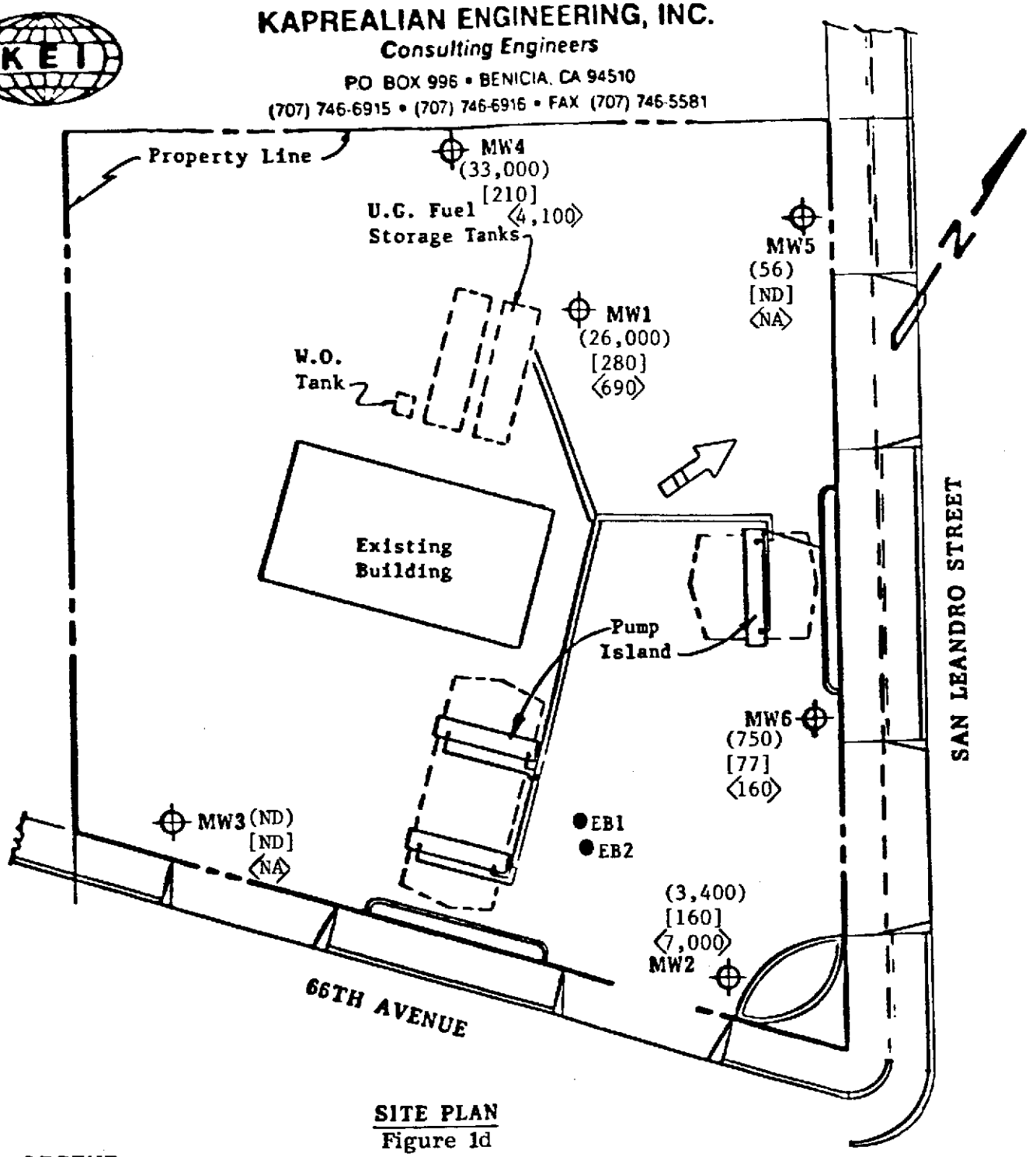

SITE PLAN
Figure 1d

LEGEND

- Monitoring Well
- Exploratory Boring
- ( ) Concentration of TPH as gasoline (ppb) on 2/21/91
- [ ] Concentration of benzene (ppb) on 2/21/91
- ⟨ ⟩ Concentration of TPH as diesel (ppb) on 2/21/91
- Direction of ground water flow
- ND = Non-detectable NA = Not analyzed

0 30 60
Approx. Scale feet

Unocal Service Station #3135
845 - 66th Avenue
Oakland, California

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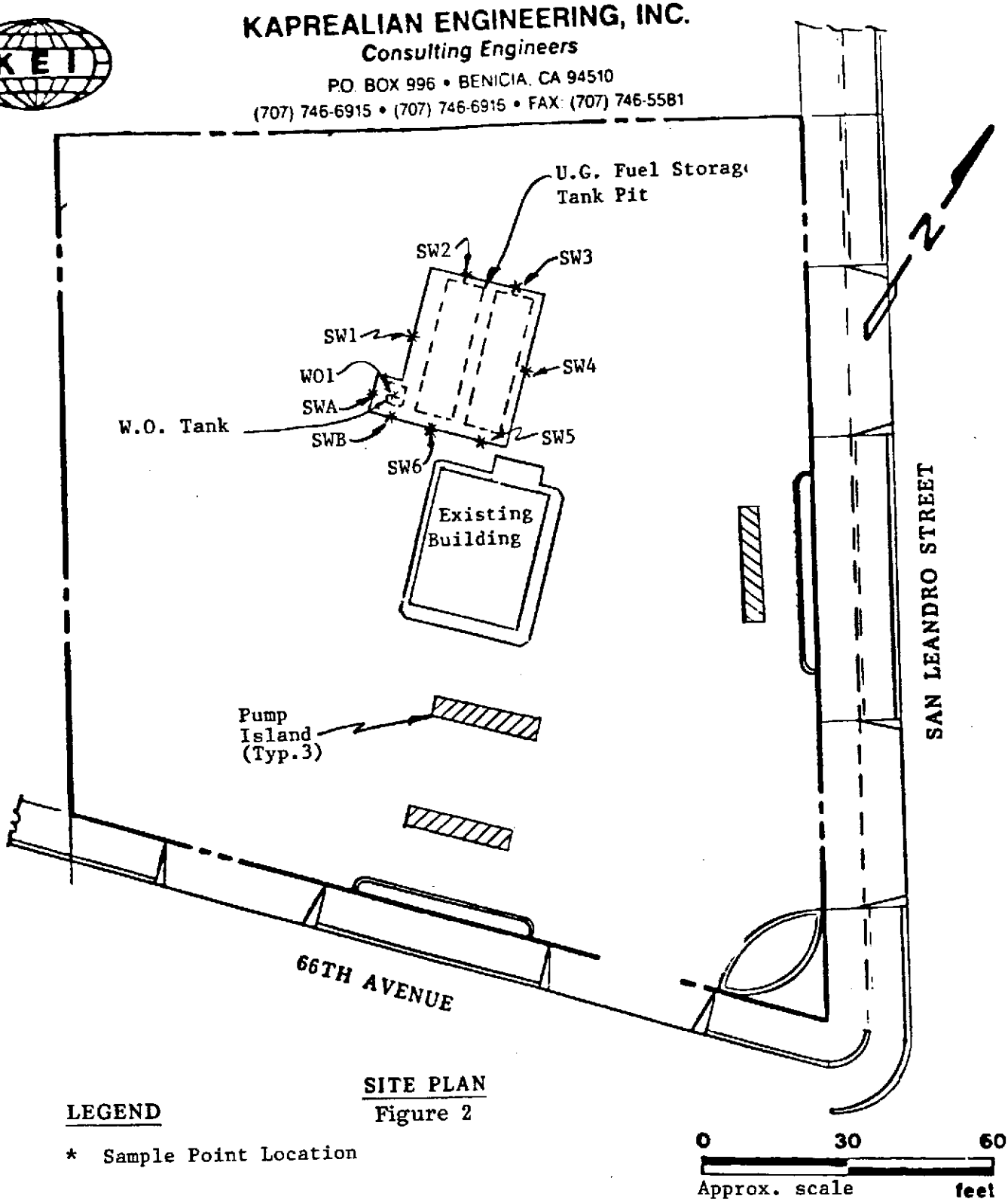

SITE PLAN
Figure 2

LEGEND

* Sample Point Location

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

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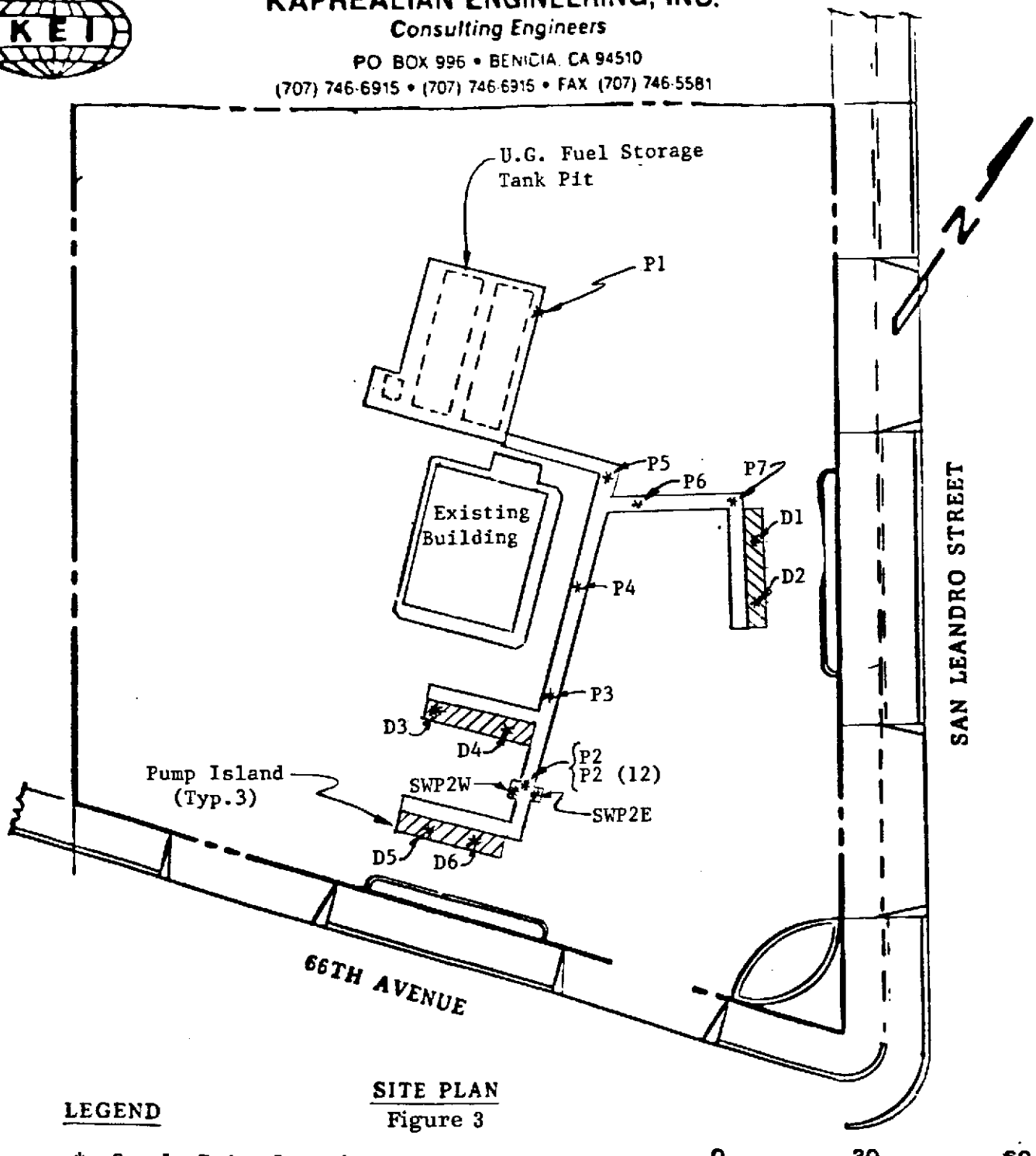

SITE PLAN
Figure 3

LEGEND

* Sample Point Location

0 30 60
Approx. scale feet

Unocal S/S #3135
845 66th Avenue
Oakland, CA

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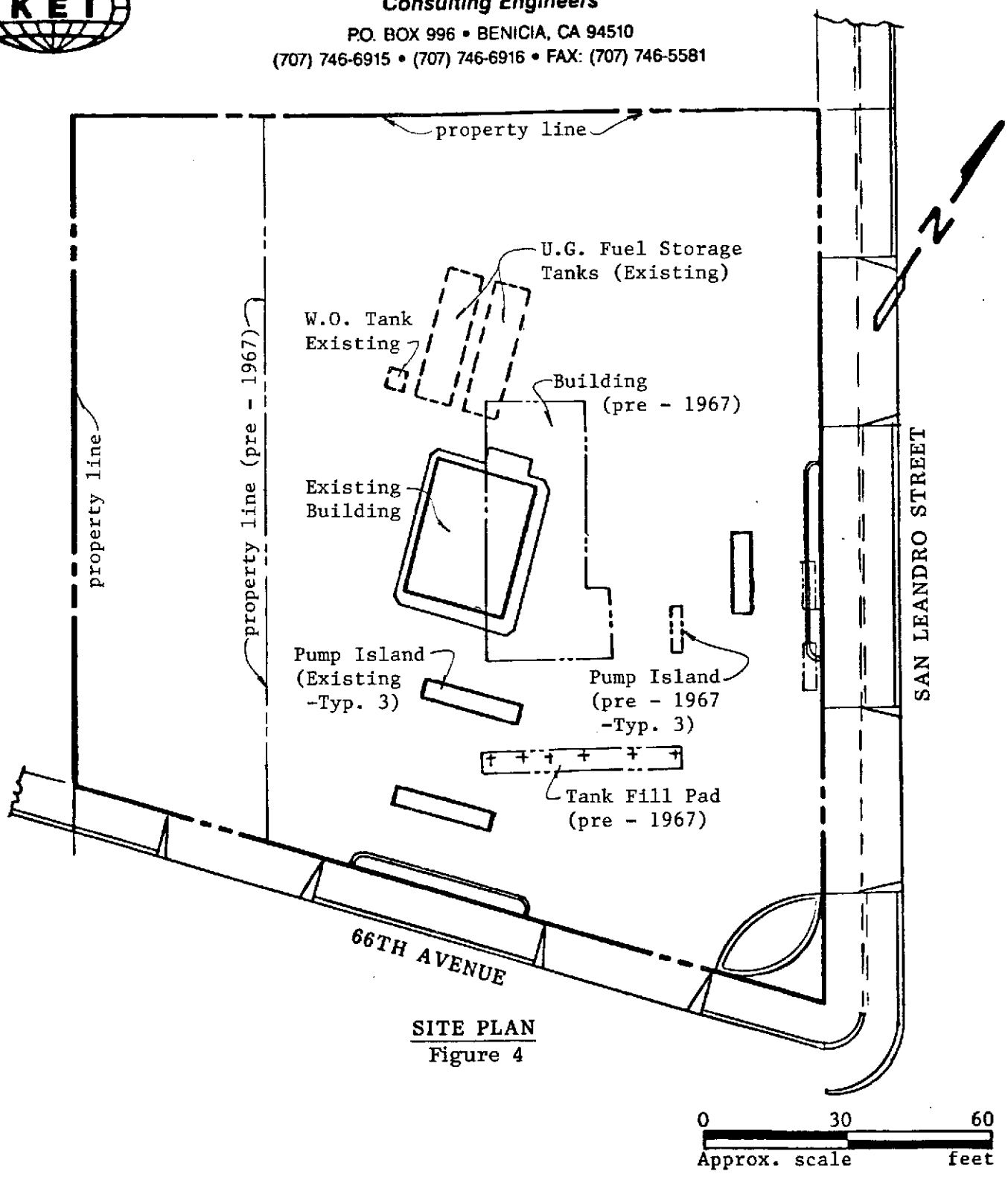

SITE PLAN
Figure 4

Unocal S/S #3135
845 - 66th Avenue
Oakland, CA

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland	Sampled:	Mar 19, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 20, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 20, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0589	Reported:	Mar 21, 1991

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)
103-0589	SW1	N.D.	N.D.	N.D.	N.D.	N.D.
103-0590	SW2	1,000	14	65	19	98
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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
Laboratory Director

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Mar 19, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Mar 21, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	0.0050	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
Laboratory Director

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 845 - 66th Ave., Oakland
QC Sample Group: 1030589-90
Reported: Mar 21, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/kg	µg/kg	µg/kg
Date Analyzed:	Mar 20, 1991	Mar 20, 1991	Mar 20, 1991
Sample #:	103-0589	103-0590	Blank
Surrogate % Recovery:	110	110	120

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 845 - 66th Ave., Oakland
QC Sample Group: 1030589-90
Reported: Mar 21, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E. Hamilton	E. Hamilton	E. Hamilton	E. Hamilton
Reporting Units:	µg/kg	µg/kg	µg/kg	µg/kg
Date Analyzed:	Mar 20, 1991	Mar 20, 1991	Mar 20, 1991	Mar 20, 1991
QC Sample #:	103-0591	103-0591	103-0591	103-0591
Sample Conc.:	0.57	0.91	0.066	0.73
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.87	1.4	0.33	1.8
Matrix Spike % Recovery:	75	120	66	89
Conc. Matrix Spike Dup.:	0.76	1.2	0.32	1.5
Matrix Spike Duplicate % Recovery:	48	73	64	64
Relative % Difference:	13	15	3.1	18

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland	Sampled:	Mar 19, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 20, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Mar 20, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0589	Analyzed:	Mar 20, 1991
			Reported:	Mar 21, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
103-0589	SW1	N.D.

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
Laboratory Director

1030589.KEI <5>

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland	Sampled:	- - - - - -
P.O. Box 996	Matrix Descript:	Matrix Blank	Received:	- - - - - -
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Mar 20, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	- - - - - -	Analyzed:	Mar 20, 1991
			Reported:	Mar 21, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
- - - - - -	Matrix Blank	N.D.

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.

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Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 - 66th Ave., Oakland
QC Sample Group: 1030589-90
Reported: Mar 21, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	K. Lee
Reporting Units:	mg/kg
Date Analyzed:	Mar 20, 1991
QC Sample #:	Matrix BLK032091
Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	9.7
Matrix Spike % Recovery:	97
Conc. Matrix Spike Dup.:	9.2
Matrix Spike Duplicate % Recovery:	92
Relative % Difference:	5.3

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland	Sampled:	Mar 19, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 20, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Mar 20, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0589	Analyzed:	Mar 20, 1991
			Reported:	Mar 21, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
103-0589	SW1	N.D.
103-0590	SW2	58

Detection Limits:	**30**

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

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Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 - 66th Ave., Oakland
QC Sample Group: 1030589-90
Reported: Mar 21, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	503 D & E
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	Mar 20, 1991
QC Sample #:	Matrix
	BLK032091M
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,800
Matrix Spike % Recovery:	96
Conc. Matrix Spike Dup.:	4,700
Matrix Spike Duplicate % Recovery:	94
Relative % Difference:	2.1

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

P.02

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SEQUOIA ANALYTICAL. 6869689

SAMPLER: R.M. Bradish
WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135
845 - 66th Avenue (x San Leandro)
Oakland, Ca

ANALYSES REQUESTED: TPH-G & BTXE; TPH-D; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW1	3-19-91		✓		✓		1	Former Fuel Tk Pit	1030589 590
SW2	"		✓		✓		1	" " " "	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
R.M. Bradish	3/20/91 8:10	Tim McLain
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	3/20/91 9:10	Jan Winer

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? NO
4. Were samples in appropriate containers and properly packaged? ✓

Signature	Title	Date
	SR	3/20

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 21, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 22, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 22, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0660	Reported:	Mar 25, 1991

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)
103-0660	SW3	310	3.3	4.8	6.5	26
103-0661	SW4	1,400	14	41	30	110
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Mar 22, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Mar 25, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	**0.0050**	**0.0099**

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
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1030660-661
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	J.R.M./E.H.	J.R.M./E.H.
Reporting Units:	mg/kg	mg/kg
Date Analyzed:	Mar 22, 1991	Mar 22, 1991
Sample #:	103-0660	103-0661
Surrogate % Recovery:	110	110

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1030660-61
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.R.M.	J.R.M.	J.R.M.	J.R.M.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991
QC Sample #:	103-0721	103-0721	103-0721	103-0721
Sample Conc.:	N.D.	0.0050	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.34	0.32	0.30	0.96
Matrix Spike % Recovery:	85	80	75	80
Conc. Matrix Spike Dup.:	0.35	0.34	0.32	0.98
Matrix Spike Duplicate % Recovery:	88	85	80	82
Relative % Difference:	2.9	6.1	6.5	2.1

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 21, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 22, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Mar 22, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0660	Analyzed:	Mar 24, 1991
			Reported:	Mar 25, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
103-0660	SW3	N.D.
103-0661	SW4	160

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1030660-61
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	5520 E & F
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	Mar 24, 1991
QC Sample #:	Matrix Blank 032291M
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,600
Matrix Spike % Recovery:	92
Conc. Matrix Spike Dup.:	4,600
Matrix Spike Duplicate % Recovery:	92
Relative % Difference:	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish
WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135
845 - 66TH AVE. (x San Leandro)
Oakland

ANALYSES REQUESTED: TPH-Gas/BTEX; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-Gas/BTEX	TOG	REMARKS
SW3	3-21-91		✓		✓		1	Former Fuel Tk Pit	✓	✓	1036666
SW4	"		✓		✓		1	" " "	✓	✓	1036661

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
R.M. Bradish	3/21/91 0900	A.D.D.
Relinquished by: (Signature)	Date/Time	Received by: (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:

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

Signature | Analyst (Title) | 22 Mar 91 (Date)

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	Apr 11, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 12, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 12, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0382	Reported:	Apr 16, 1991

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)
104-0382	SW2(30)	340	1.6	1.2	9.9	21
104-0383	SW6(5)	44	0.34	0.32	1.1	2.5
104-0384	SW8	310	1.9	2.9	2.8	8.1
104-0385	SW9	N.D.	0.17	N.D.	0.0062	0.0052
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 12, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 16, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	**0.0050**	**0.017**

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
Laboratory Director

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1040382-85
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	EH	EH	EH	EH	EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 12, 1991	Apr 12, 1991	Apr 12, 1991	Apr 12, 1991	Apr 12, 1991
Sample #:	104-0382	104-0383	104-0384	104-0385	Blank
Surrogate % Recovery:	93	90	90	93	73

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1040382-85
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	EH	EH	EH	EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 12, 1991	Apr 12, 1991	Apr 12, 1991	Apr 12, 1991
QC Sample #:	Matrix041191	Matrix041191	Matrix041191	Matrix041191
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.5
Conc. Matrix Spike:	0.56	0.53	0.51	1.6
Matrix Spike % Recovery:	110	110	100	110
Conc. Matrix Spike Dup.:	0.63	0.55	0.50	1.5
Matrix Spike Duplicate % Recovery:	130	110	100	100
Relative % Difference:	12	3.7	2.0	6.5

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	Apr 11, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 12, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Apr 12, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0384	Analyzed:	Apr 15, 1991
			Reported:	Apr 16, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
104-0384	SW8	N.D.
104-0385	SW9	N.D.

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1040382-85
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	S. Le
Reporting Units:	ppm
Date Analyzed:	Apr 15, 1991
QC Sample #:	BLK041291
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,800
Matrix Spike % Recovery:	96
Conc. Matrix Spike Dup.:	4,500
Matrix Spike Duplicate % Recovery:	90
Relative % Difference:	6.5

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: L. M. Bradish

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135, 66th & San Leandro, Oakland, CA

ANALYSES REQUESTED: TPH-G & BTXE; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G & BTXE	TOG	REMARKS
SW2(30)	4-11-91		✓		✓		1	Former Fuel Tk Pit	✓		1040382
SW6(5)	"		✓		✓		1	" " " "	✓		383
SW8	"		✓		✓		1	" " " "	✓	✓	384
SW9	"		✓		✓		1	" " " "	✓	✓	385

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
L. M. Bradish	4/12/91 10:43	Jon Wimer
Relinquished by: (Signature)	Date/Time	Received by: (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:

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? NO
4. Were samples in appropriate containers and properly packaged? ✓

RW — Signature; SK — Title; 4/12 — Date

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	Mar 22, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 22, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 23, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0700	Reported:	Mar 25, 1991

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)
103-0700	SW2(12)	2,400	38	180	54	280
103-0701	SW5	2,200	28	140	52	260
103-0702	SW6	260	3.6	7.5	7.2	29
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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

for Belinda C. Vega
Laboratory Director

1030700.KEI <1>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Mar 23, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Mar 25, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	0.0050	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

for Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1030700-02
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.R.M.	J.R.M.	J.R.M.	J.R.M.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991
Sample #:	103-0700	103-0701	103-0702	Blank
Surrogate % Recovery:	90	85	85	88

SEQUOIA ANALYTICAL

for Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1030700-02
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.R.M.	J.R.M.	J.R.M.	J.R.M.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991	Mar 23, 1991
QC Sample #:	103-0721	103-0721	103-0721	103-0721
Sample Conc.:	N.D.	0.0050	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.34	0.32	0.30	0.96
Matrix Spike % Recovery:	85	80	75	80
Conc. Matrix Spike Dup.:	0.35	0.34	0.32	0.98
Matrix Spike Duplicate % Recovery:	88	85	80	82
Relative % Difference:	2.9	6.1	6.5	2.1

SEQUOIA ANALYTICAL

for Belinda C. Vega
Laboratory Director

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	Mar 22, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 22, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Mar 24, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0700	Analyzed:	Mar 24, 1991
			Reported:	Mar 25, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
103-0700	SW2(12)	N.D.
103-0701	SW5	85
103-0702	SW6	N.D.

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

for Belinda C. Vega
Laboratory Director

1030700.KEI <5>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1030700-02
Reported: Mar 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	5520 E&F
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	Mar 24, 1991
QC Sample #:	Matrix Blank 032491M
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	90
Conc. Matrix Spike Dup.:	4,300
Matrix Spike Duplicate % Recovery:	86
Relative % Difference:	4.5

SEQUOIA ANALYTICAL

for Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: K. M. Bradford

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135, 66th & San Leandro, Oakland, CA

ANALYSES REQUESTED: TPH-G & BTXE; TDG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW2(12)	3-22-91		✓		✓		1	Former Fuel Tk Pit	
SW5	"		✓		✓		1		
SW6	"		✓		✓		1		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
K. M. Bradford	3/22/91 17:00	
Relinquished by: (Signature)	Date/Time	Received by: (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:

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? NO
4. Were samples in appropriate containers and properly packaged? ✓

Signature	Title	Date
	SL	3/22

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 3, 1991
P.O. Box 996	Sample Descript.:	Soil, SW5(7)	Received:	Apr 3, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 3, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	104-0080	Reported:	Apr 8, 1991

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	29
Benzene	0.0050	0.44
Toluene	0.0050	0.052
Ethyl Benzene	0.0050	0.89
Xylenes	0.0050	2.8

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 C. Vega
Laboratory Director

SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 3, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 8, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	**0.0050**	**0.0060**

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
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0080
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	JRMEH	JRMEH
Reporting Units:	mg/kg	mg/kg
Date Analyzed:	Apr 3, 1991	Apr 3, 1991
Sample #:	104-0080	Blank
Surrogate % Recovery:	73	100

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0080
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	JRM/EH	JRM/EH	JRM/EH	JRM/EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 3, 1991	Apr 3, 1991	Apr 3, 1991	Apr 3, 1991
QC Sample #:	104-0066	104-0066	104-0066	104-0066
Sample Conc.:	0.038	0.014	0.0074	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.36	0.36	0.36	1.1
Matrix Spike % Recovery:	81	87	88	92
Conc. Matrix Spike Dup.:	0.34	0.34	0.32	0.94
Matrix Spike Duplicate % Recovery:	76	82	78	78
Relative % Difference:	5.7	5.7	12	16

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 3, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 3, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Apr 4, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0080	Analyzed:	Apr 5, 1991
			Reported:	Apr 8, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
104-0080	SW5(7)	N.D.

Detection Limits:	30

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL
1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0080
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	5520 E&F
Analyst:	S. Le
Reporting Units:	ppm
Date Analyzed:	Apr 5, 1991
QC Sample #:	BLK040491
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,200
Matrix Spike % Recovery:	83
Conc. Matrix Spike Dup.:	4,200
Matrix Spike Duplicate % Recovery:	84
Relative % Difference:	0.60

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: R.M. Bradish

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135, 845 - 66TH AVE. (@ San Leandro) Oakland

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	ANALYSES REQUESTED: TPH-G & BTXE	ANALYSES REQUESTED: TOG	REMARKS
SWS(7)	4-3-91		✓		✓		1	Former Fuel Tk Pit	✓	✓	1040080

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
R.M. Bradish	505	Rouse
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	4/3 5:30	

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? NO
4. Were samples in appropriate containers and properly packaged? ✓

Signature	Title	Date
	SR	4/3

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 4, 1991
P.O. Box 996	Sample Descript.:	Soil, SW7	Received:	Apr 5, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 6, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	104-0138	Reported:	Apr 8, 1991

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	2.8
Benzene	0.0050	0.41
Toluene	0.0050	0.0070
Ethyl Benzene	0.0050	0.15
Xylenes	0.0050	0.018

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
Laboratory Director

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 6, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 8, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	0.0050	0.0052

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
Laboratory Director

SEQUOIA ANALYTICAL
1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0138
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	K.Lee	K.Lee
Reporting Units:	mg/kg	mg/kg
Date Analyzed:	Apr 5, 1991	Apr 5, 1991
Sample #:	104-0138	Blank
Surrogate % Recovery:	90	93

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0138
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. Lee	K. Lee	K. Lee	K. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 5, 1991	Apr 5, 1991	Apr 5, 1991	Apr 5, 1991
QC Sample #:	103-1002	103-1002	103-1002	103-1002
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.40	0.38	0.34	1.1
Matrix Spike % Recovery:	100	95	85	92
Conc. Matrix Spike Dup.:	0.44	0.40	0.38	1.1
Matrix Spike Duplicate % Recovery:	110	100	95	92
Relative % Difference:	95	5.1	11	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 4, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 5, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Apr 5, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0138	Analyzed:	Apr 6, 1991
			Reported:	Apr 8, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
104-0138	SW7	N.D.

Detection Limits:	30

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

SEQUOIA ANALYTICAL
1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0138
Reported: Apr 8, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	5520 E&F
Analyst:	S. Le
Reporting Units:	ppm
Date Analyzed:	Apr 6, 1991
QC Sample #:	BLK040591
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	91
Conc. Matrix Spike Dup.:	2,700
Matrix Spike Duplicate % Recovery:	54
Relative % Difference:	52

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: R. M. Bradish
WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135
845 - 66TH AVE (x SAN LEANDRO)
OAKLAND

ANALYSES REQUESTED: TPH-GAS/BTXE; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW7	4-4-91		✓		✓		1	FORMER FUEL TK PIT	1040138

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
R. M. Bradish		M. Johnson
	4/4 18:40	Jean Winer

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? NO
4. Were samples in appropriate containers and properly packaged? ✓

Signature | Title: SR | Date: 4/4

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 5, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 5, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 7, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0191	Reported:	Apr 9, 1991

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)
104-0191	SW4(6)	53	0.023	1.4	0.85	4.1
104-0192	SW3(2)	5.3	N.D.	N.D.	0.13	0.14
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

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
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 7, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 9, 1991

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	N.D.
Benzene	**0.0050**	**0.066**
Toluene	0.0050	N.D.
Ethyl Benzene	**0.0050**	**0.038**
Xylenes	0.0050	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.

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Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1040191-92
Reported: Apr 9, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. Lee	K. Lee	K. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 7, 1991	Apr 7, 1991	Apr 7, 1991
Sample #:	104-0191	104-0192	Blank
Surrogate % Recovery:	73	80	93

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Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1040191-92
Reported: Apr 9, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. Lee	K. Lee	K. Lee	K. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Apr 7, 1991	Apr 7, 1991	Apr 7, 1991	Apr 7, 1991
QC Sample #:	103-0826	103-0826	103-0826	103-0826
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.31	0.40	0.40	1.2
Matrix Spike % Recovery:	78	100	100	100
Conc. Matrix Spike Dup.:	0.31	0.40	0.40	1.2
Matrix Spike Duplicate % Recovery:	78	100	100	100
Relative % Difference:	0	0	0	0

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Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 5, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 5, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Apr 8, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0191	Analyzed:	Apr 9, 1991
			Reported:	Apr 9, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
104-0191	SW4(6)	N.D.
104-0192	SW3(2)	N.D.

Detection Limits:	**30**

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

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Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1040191-92
Reported: Apr 9, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	S. Le
Reporting Units:	ppm
Date Analyzed:	Apr 9, 1991
QC Sample #:	BLK040891
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	90
Conc. Matrix Spike Dup.:	4,400
Matrix Spike Duplicate % Recovery:	88
Relative % Difference:	2.1

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Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: L. M. Bradish
WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135
845 - 66th Avenue
Oakland, CA

ANALYSES REQUESTED: TPH-G & BTEX; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
SW4(6)	4-5-91		✓		✓		1	Former Fuel Tk Pit	1040191
SW3(2)	"		✓		✓		1	" " "	192

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
L. M. Bradish	4-5-91 5:32 PM	J. Kastel 352
J. Kastel 352	4-5-91 7:30	Ed Lewis

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

1. Have all samples received for analysis been stored in ice? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? N/A
4. Were samples in appropriate containers and properly packaged? Yes

Ed — Signature; Title; 4-5-91 — Date

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 5, 1991
P.O. Box 996	Sample Descript.:	Soil, SW10	Received:	Apr 15, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 15, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	104-0434	Reported:	Apr 16, 1991

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	1,400
Benzene	0.0050	18
Toluene	0.0050	130
Ethyl Benzene	0.0050	36
Xylenes	0.0050	200

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. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Belinda C. Vega
Laboratory Director

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	Matrix Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: Apr 15, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Apr 16, 1991

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	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes	0.0050	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.

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Belinda C. Vega
Laboratory Director

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0434
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	E.H./S.L.	E.H./S.L.
Reporting Units:	ppm	ppm
Date Analyzed:	Apr 15, 1991	Apr 15, 1991
Sample #:	104-0434	Blank
Surrogate % Recovery:	87	97

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0434
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H./S.L.	E.H./S.L.	E.H./S.L.	E.H./S.L.
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	Apr 15, 1991	Apr 15, 1991	Apr 15, 1991	Apr 15, 1991
QC Sample #:	104-0100	104-0100	104-0100	104-0100
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.42	0.40	0.40	1.2
Matrix Spike % Recovery:	110	100	100	100
Conc. Matrix Spike Dup.:	0.38	0.38	0.34	1.1
Matrix Spike Duplicate % Recovery:	95	95	85	92
Relative % Difference:	10	5.1	16	8.7

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Apr 5, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 15, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Apr 15, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0434	Analyzed:	Apr 16, 1991
			Reported:	Apr 16, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
104-0434	SW-10	60

Detection Limits:	30

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 104-0434
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	S.L.
Reporting Units:	ppm
Date Analyzed:	Apr 16, 1991
QC Sample #:	BLK041591
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	90
Conc. Matrix Spike Dup.:	4,600
Matrix Spike Duplicate % Recovery:	92
Relative % Difference:	2.2

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Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: L.M. Gadsch
WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal #3135, 845 - 66th Avenue, Oakland, CA

ANALYSES REQUESTED: TPH-G / BTEX; TOG

TURN AROUND TIME: Hold

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
~~SW9~~	4-5-91		✓		✓		1	Fosters Fuel Tk Pit	1040434
SW10									

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
L.M. Gadsch	4-5-91 5:32 P.M.	Custody Seal 354
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Custody Seal 354	4-1-91 7:30	Cal Kwik
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? Yes
2. Will samples remain refrigerated until analyzed? Yes
3. Did any samples received for analysis have head space? N/A
4. Were samples in appropriate containers and properly packaged? Yes

Signature _____ Title _____ Date 4-5-91