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

91 MAY 22 AM 11:07

May 20, 1991

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Ms. Cynthia Chapman

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

Dear Ms. Chapman:

Per the request of Mr. Rick Sisk of Unocal Corporation, enclosed please find our report and work plan/proposal, both dated April 22, 1991, as well as our report dated April 26, 1991, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Rick Sisk, Unocal Corporation

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September 11, 1991

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Ms. Cynthia Chapman

RE: Unocal Service Station #3135
845 - 66th Avenue
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Dear Ms. Chapman:

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KEI-P88-1203.QR3
September 11, 1991

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

Attention: Mr. Rick Sisk

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

Dear Mr. Sisk:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's proposal KEI-P88-1203.P4 dated April 22, 1991. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI during August 1991 concerning ground water monitoring and sampling activities.

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 from sometime 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 the building, pump islands, and underground fuel storage tank locations, are indicated on the attached Site Plan, Figure 5, 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 below grade. 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 from 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 all made of steel and no apparent cracks or holes were observed in any of the tanks.

Water was initially encountered in the fuel tank pit at a depth of approximately 10.5 feet below grade, 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; each 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 below grade. 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 4.

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 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 8010 constituents, and less than 5.0 ppm of TPH as gasoline for all three samples. Metals concentrations were as indicated in Table 5.

KEI collected 11 pipe trench samples, labeled D1 through D6 and P1 through P5, at depths ranging from 3.5 to 6 feet below grade, on

November 29, December 5, and December 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 below grade, 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 5.

After the 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 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 8010 constituents. Analytical results of the water sample are summarized in Table 6. 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 Regional Water Quality Control Board (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 and 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 (as 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 and as shown on the attached Site Plan, Figure 1. 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 below grade. The exploratory borings were drilled and/or sampled to depths of 8.5 and 10.5 feet below grade. 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 were 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 was detected 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 monitoring well MW3 showed non-detectable levels of all constituents analyzed. Results of the soil analyses are summarized in Table 4, and the water analyses in Table 2.

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 that 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 Plan, Figure 1) were installed at the site. The three wells were each drilled and completed to a total depth of 26 feet below grade except for well MW4, which was completed at a depth of 25 feet below grade. 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 of the 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 wells MW2 and MW6 at levels of 3,100 ppb and 1,000 ppb, respectively. Results of the soil analyses are summarized in Table 3, and the water analyses in Table 2.

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. Documentation of well installation protocol, sampling techniques, and analytical results are presented in KEI's report (KEI-P88-1203.R8) dated September 24, 1990.

On January 19 and 20, 1991, CHIPS Environmental Consultants, Inc. (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. After sample collection, 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 a non-detectable level of TPH as diesel. Analytical results of the ground water samples are summarized in Table 7. Documentation of sampling methods and analytical results are presented in KEI's report (KEI-P88-1203.R9) dated April 22, 1991.

As previously recommended, 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 of 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, KEI collected two soil samples, labeled SW1 and SW2, from the sidewalls of the former fuel tank pit excavation at depths of 6 to 12 inches above ground water. Sample point locations are as shown on the attached Site Plan, Figure 2.

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; each 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. Sample point locations are as shown on the attached Site Plan, Figure 2.

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. Sample point locations are as indicated on the attached Site Plan, Figure 2.

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. Sample point locations are as shown on the attached Site Plan, Figure 2.

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 on April 11, 1991.

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California. All soil samples were analyzed for TPH as gasoline and BTX&E. In addition, all soil samples, except samples SW2(30) and SW6(5), were also analyzed for TOG.

Analytical results of the soil samples SW1 and SW9, collected from the former fuel tank pit excavation, indicated non-detectable levels of TPH as gasoline. Analytical results of soil samples SW2, SW2(12), SW3, SW4, SW5 and SW6, indicated 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 2), indicated 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, which were collected after the initial excavation, indicated 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, indicated 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 indicated non-detectable levels of TOG for all three samples. Results of the soil analyses are summarized in Table 9. The results of the excavation and soil sampling activities are presented in KEI's report (KEI-J88-1203.R10) dated April 26, 1991.

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 have been 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.

RECENT FIELD ACTIVITIES

The six wells (MW1 through MW6) were monitored and sampled once during the quarter. During monitoring, the wells were checked for depth to water and presence of free product and sheen. No free product or sheen was noted in any of the wells during the quarter. Monitoring data are summarized in Table 1.

Water samples were collected from the wells on August 5, 1991. Prior to sampling, the wells were purged of between 12 and 14 gallons each, using a surface pump. Samples were then collected by using a clean Teflon bailer. Samples were decanted into clean VOA vials and/or one liter amber bottles, as appropriate, which were sealed with Teflon-lined screw caps, and stored in a cooler, on ice, until delivery to the state certified laboratory.

HYDROLOGY AND GEOLOGY

Based on the water level data gathered during the quarter, ground water flow direction appeared to be generally toward the north and northeast at an average gradient of about 0.004 on August 5, 1991, relatively unchanged from the previous quarter. Water levels have fluctuated during the quarter. Monitoring wells MW2, MW3, MW5, and MW6 showed a net decrease of 0.01 to 0.68 feet, and monitoring wells MW1 and MW4 both showed a net increase of 0.06 feet, since February 21, 1991. The measured depth to ground water at the site on August 5, 1991, ranged between 9.15 and 11.70 feet below grade.

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 that might have been related to tidal effects. All six monitoring wells were monitored 13 times for depth to water. All monitoring data is presented as Table 8. 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. 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, 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 highly expansive silty clay materials, which appears 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 below grade. Locally, the fill materials extend to depths of at least 8.5 and 10.5 feet below grade in the vicinity of borings EB1 and EB2 (the 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 most 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 in turn 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 in turn 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).

ANALYTICAL RESULTS

Ground water samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline using EPA method 5030 in conjunction with modified 8015, BTX&E using EPA method 8020, and TPH as diesel using EPA method 3510 in conjunction with modified 8015. The water samples collected from monitoring wells MW2 and MW6 were also analyzed for TOG using Standard Method 5520B&F.

Analytical results of the ground water samples collected from monitoring wells MW3 and MW5 indicate non-detectable levels of TPH as gasoline and BTX&E. Analytical results of the ground water samples collected from monitoring wells MW1, MW2, MW4, and MW6 indicate levels of TPH as gasoline at concentrations of 1,200 ppb, 33,000 ppb, 37,000 ppb, and 860 ppb, respectively, with levels of benzene at concentrations of 95 ppb, 2,900 ppb, 310 ppb, and 130 ppb, respectively. In monitoring wells MW1, MW2, MW3, MW4, and MW6, TPH as diesel was detected at concentrations of 200 ppb, 4,200 ppb, 63 ppb, and 6,200 ppb, and 130 ppb, respectively. TOG was non-detectable in ground water samples collected from wells MW2 and MW6. Concentrations of TPH as gasoline, benzene and TPH as diesel detected in ground water samples collected on August 5, 1991, are shown on the attached Site Plan, Figure 1a. Results of the water analyses are summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results collected and evaluated to date and no evidence of free product or sheen in any of the wells, KEI recommends the continuation of the current monitoring and sampling program of the existing wells per KEI's proposal (KEI-P88-1203.P4) dated April 22, 1991. Based on the levels of TPH as diesel detected in monitoring wells MW1, MW2, MW3, MW4, and MW6, KEI also recommends that samples collected from all monitoring wells during the next quarter continue to be analyzed for TPH as diesel by EPA method 3510 in conjunction with modified 8015.

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, KEI recommended the installation of three off-site monitoring wells to verify the non-detectable levels of hydrocarbon contamination that were found downgradient of the site in the Hydropunch study, and one on-site monitoring well in the vicinity of probe P1 to verify the low level of ground water contamination previously detected in this probe (KEI's work plan/proposal KEI-P88-1203.P4 dated April 22, 1991).

KEI is in the process of obtaining the necessary permits and access permission to install the proposed wells (the locations of which are shown on the attached Site Vicinity Map), and will proceed with the recommended well installations once all permits and access permission are received. Once the extent of ground water contamination is verified (by the installation of the previously proposed monitoring wells), KEI will begin the design process for a ground water remediation system for the site.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Care Services Agency, 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.

If you have any questions regarding this report, please do not hesitate to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

Joel G. Greger
Certified Engineering Geologist

License No. 1633
Exp. Date 4/30/92

Don R. Braun
Certified Engineering Geologist

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

Timothy R. Ross
Project Manager

\jad

Attachments: Tables 1 through 9
Location Map
Site Vicinity Map
Site Plans - Figures 1, 1a, 2, 3, 4 & 5
Laboratory Analyses
Chain of Custody documentation

KEI-P88-1203.QR3
September 11, 1991

TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on August 5, 1991)					
MW1	-6.34	11.52	0	No	13
MW2	-6.24	10.07	0	No	13
MW3	-5.85	9.15	0	No	12
MW4	-6.43	11.70	0	No	13
MW5	-6.38	10.99	0	No	13
MW6	-6.37	10.68	0	No	14

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 (MSL).

KEI-P88-1203.QR3
September 11, 1991

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
			(Collected on August 5, 1991)				
MW1	200	1,200	95	6.2	180	230	--
MW2	4,200	33,000	2,900	190	7,900	3,400	ND
MW3	63	ND	ND	ND	ND	ND	--
MW4	6,200	37,000	310	70	9,700	3,600	--
MW5	ND	ND	ND	ND	ND	ND	--
MW6	130	860	130	11	150	92	ND
			(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	--

KEI-P88-1203.QR3
September 11, 1991

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Sample Number	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
			(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

ND = Non-detectable.

-- Indicates analysis not performed.

* "MW7" is a duplicate sample from MW1.

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

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

KEI-P88-1203.QR3
September 11, 1991

TABLE 3

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)	13.0	--	ND	ND	0.010	ND	ND	--
MW6(5)	5.0	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-P88-1203.QR3
September 11, 1991

TABLE 4

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-P88-1203.QR3
September 11, 1991

TABLE 5

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

TABLE 5 (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-P88-1203.QR3
September 11, 1991

TABLE 6

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.

KEI-P88-1203.QR3
September 11, 1991

TABLE 7

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	0.5	0.5	0.5	0.5

ND = Non-detectable.

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

KEI-P88-1203.QR3
September 11, 1991

TABLE 8

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

TABLE 8 (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-P88-1203.QR3
September 11, 1991

TABLE 9

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.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
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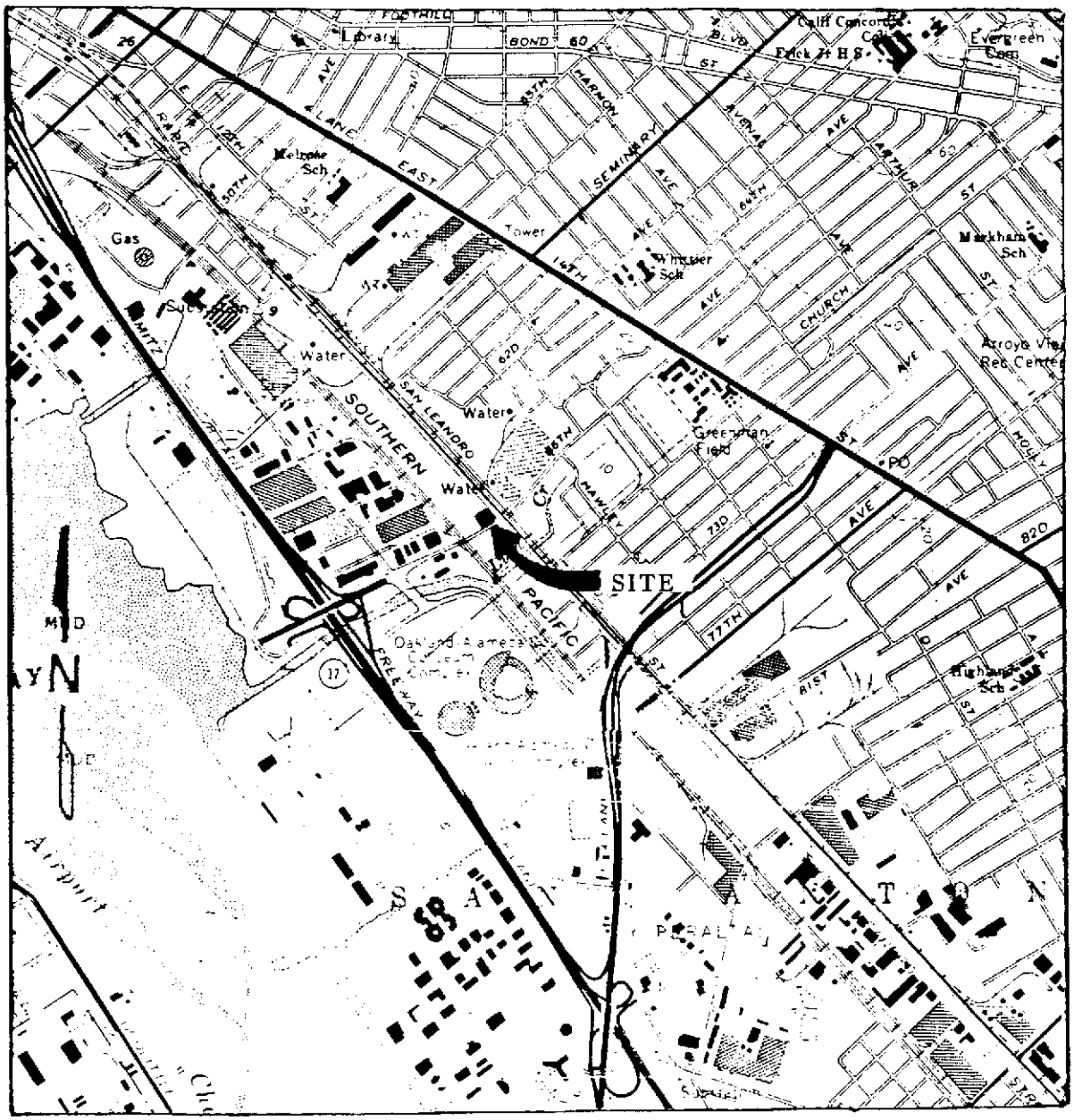
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



LOCATION MAP

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

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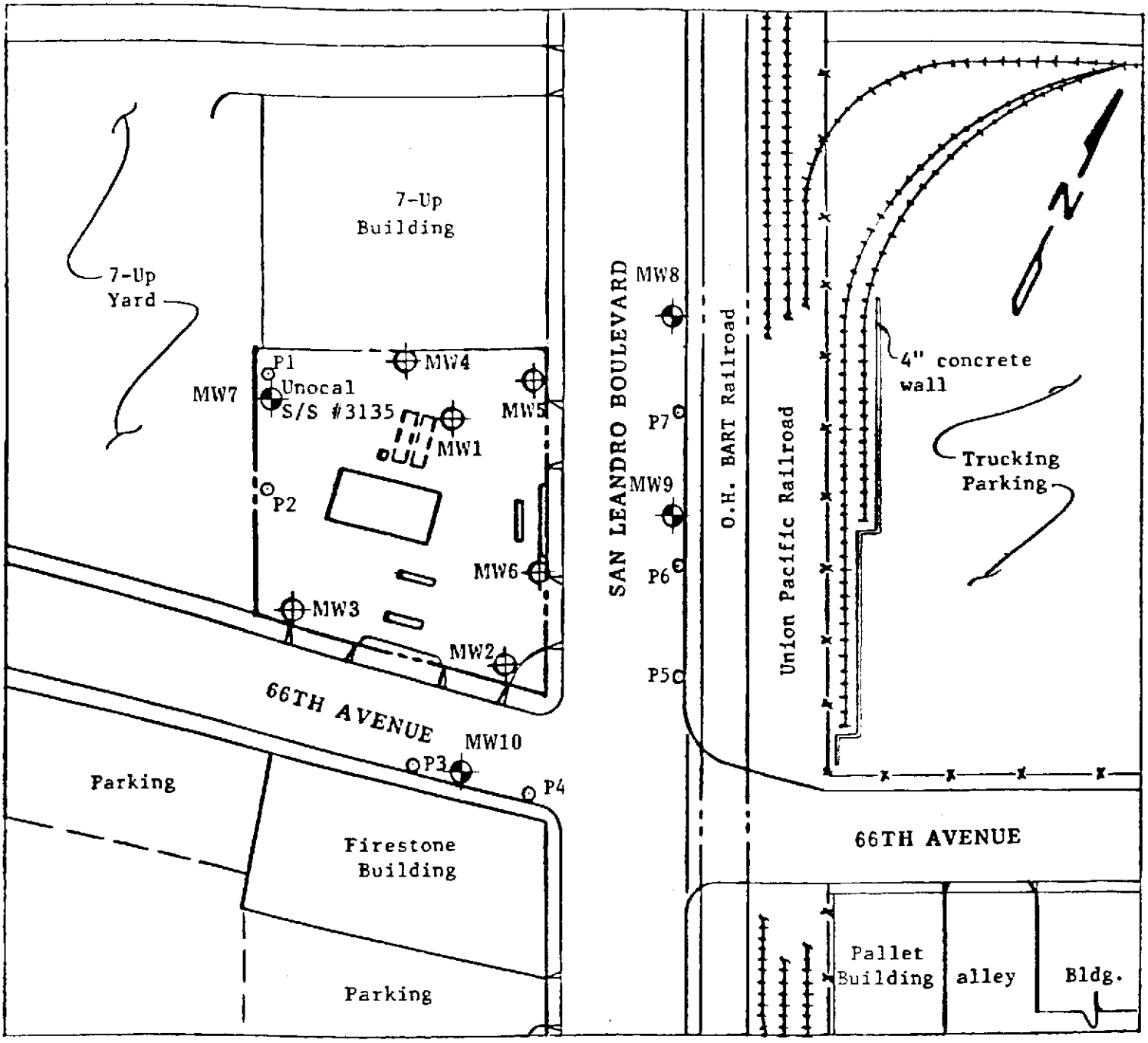

SITE VICINITY MAP

0 80 160
Approx. scale feet

LEGEND

- Monitoring well (existing)
- Ground water sample point location
- Monitoring well (proposed)

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

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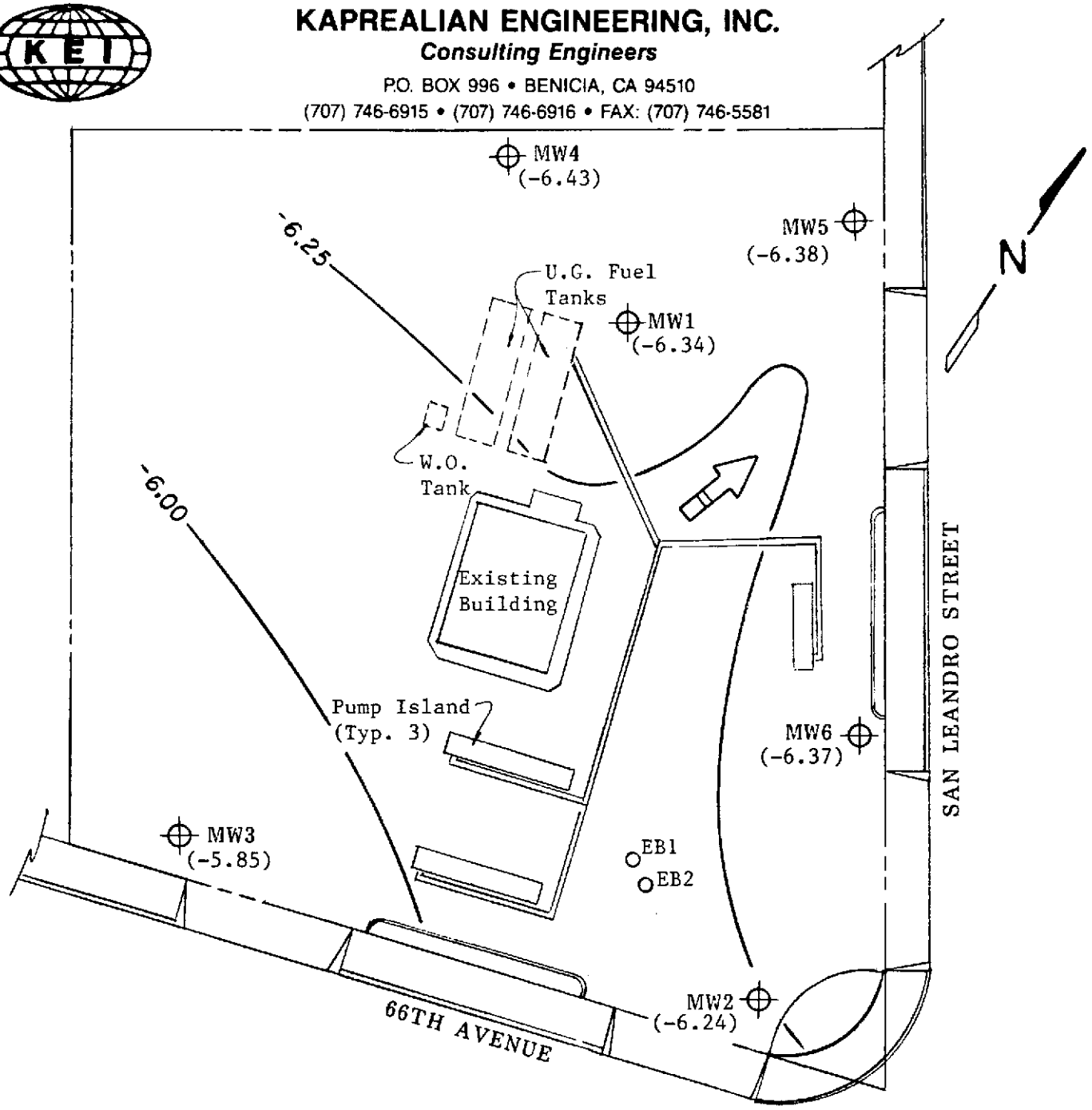

SITE PLAN
Figure 1

LEGEND

- Monitoring well
- Exploratory boring
- Direction of ground water flow
- ( ) Ground water elevation in feet above Mean Sea Level on 8/5/91
- Contours of ground water elevation

0 30 60
Approx. scale feet

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

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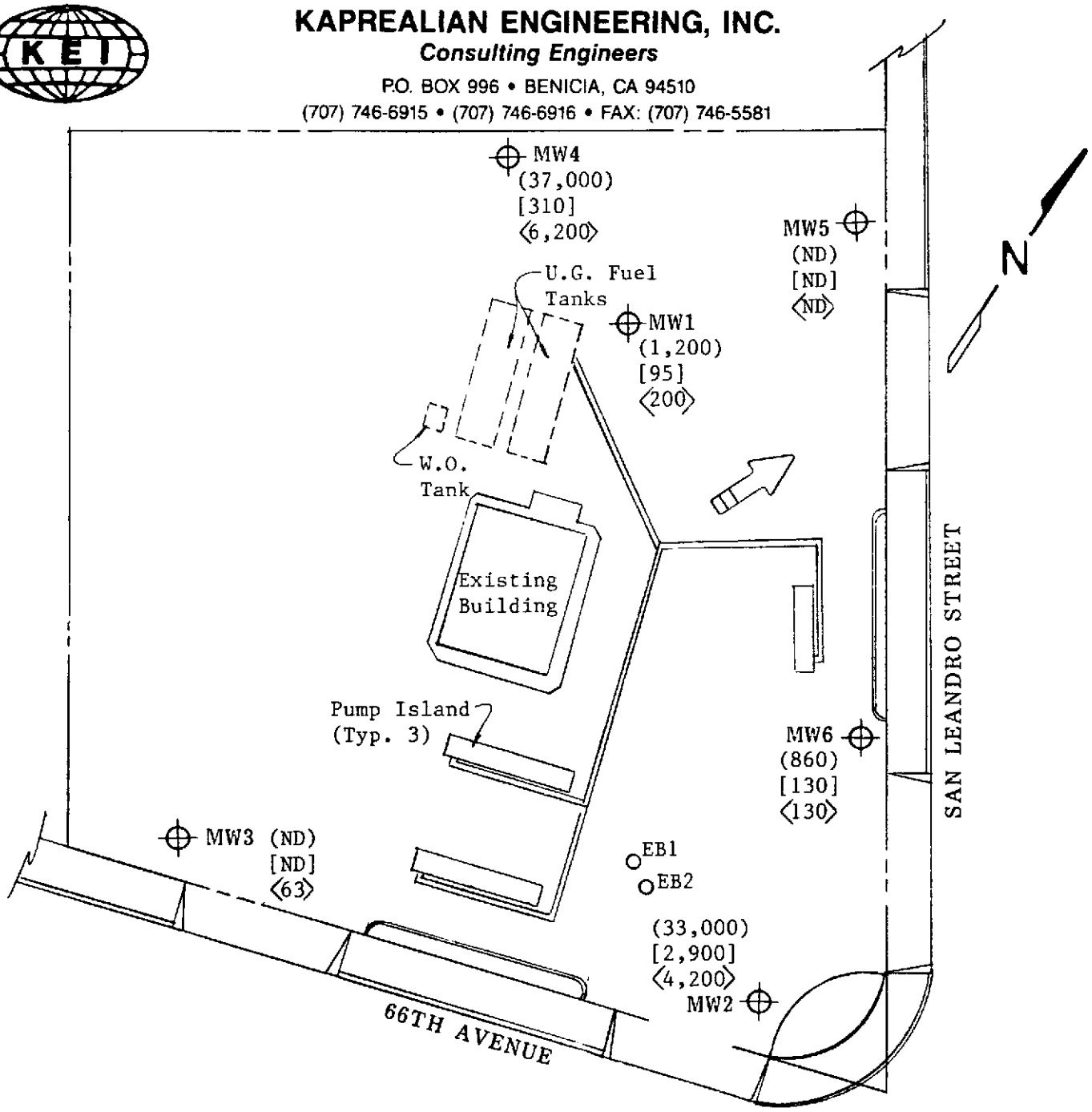

SITE PLAN
Figure 1a

LEGEND

- ⊕ Monitoring well
- ○ Exploratory boring
- ⇨ Direction of ground water flow
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- ⟨ ⟩ Concentration of TPH as diesel in ppb

ND = Non-detectable NA = Not analyzed

0 30 60
Approx. scale feet

Unocal S/S #3135
845 - 66th Avenue
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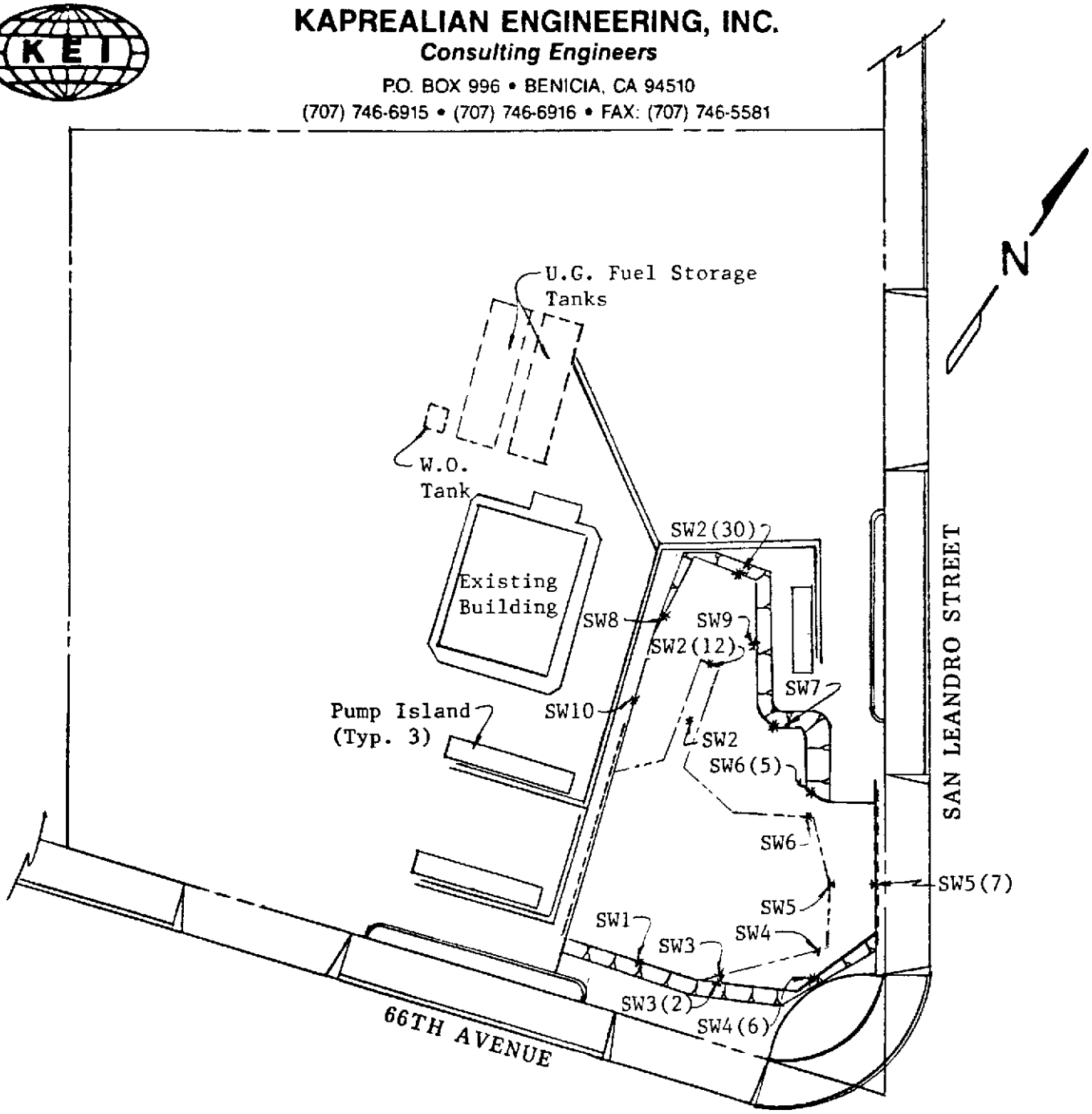

SITE PLAN
Figure 2

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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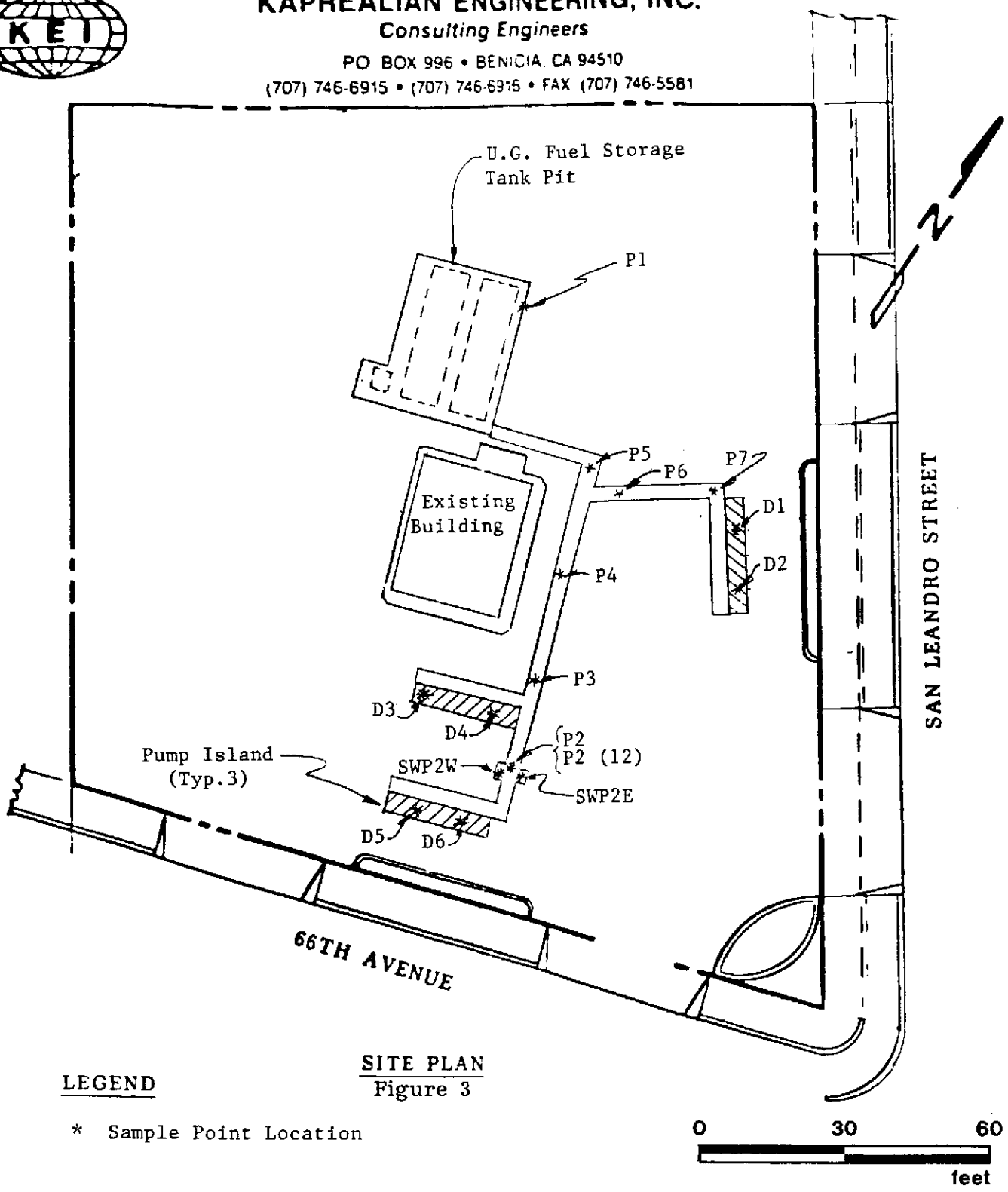

SITE PLAN
Figure 3

LEGEND

* Sample Point Location

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

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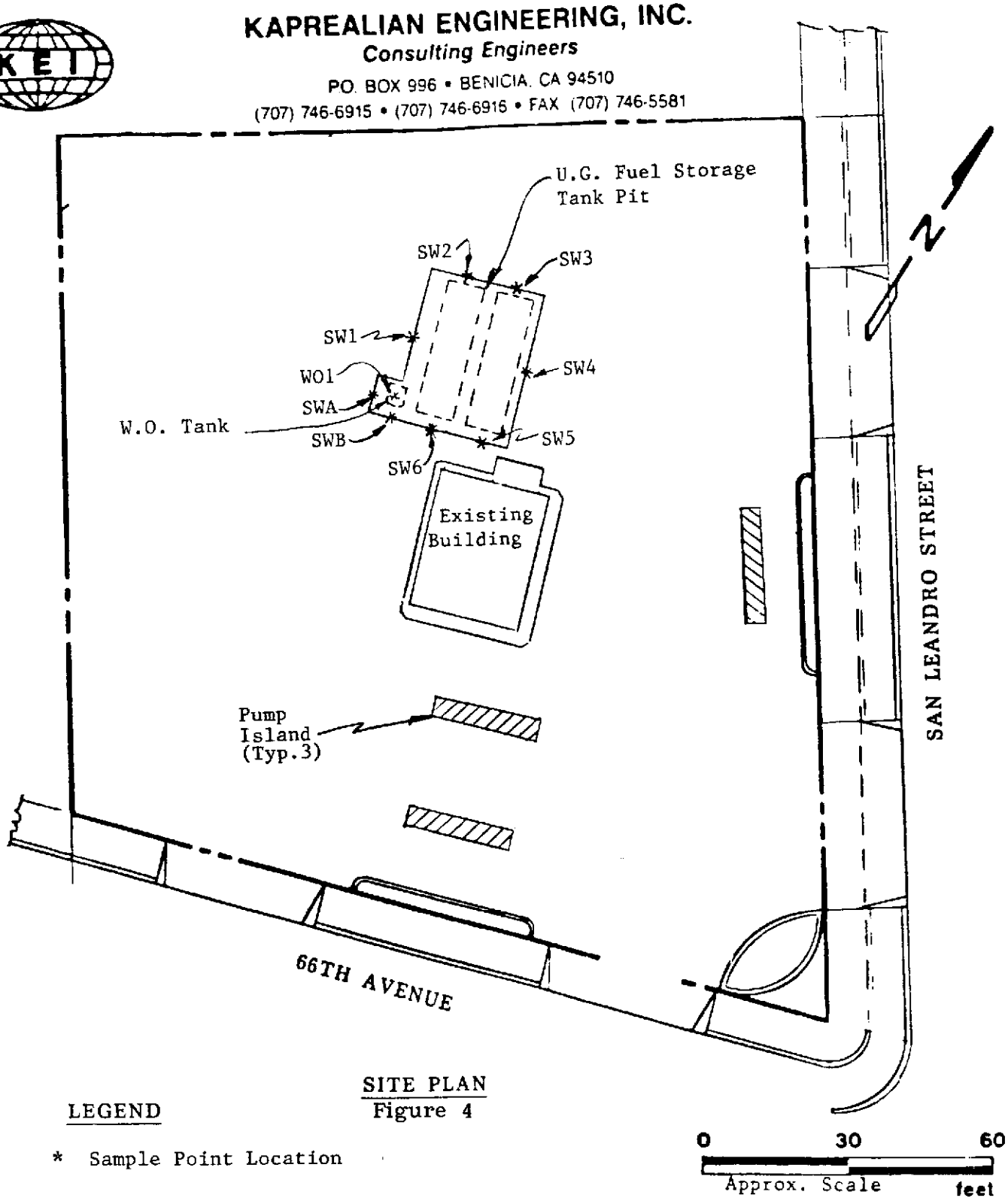

SITE PLAN
Figure 4

LEGEND

* Sample Point Location

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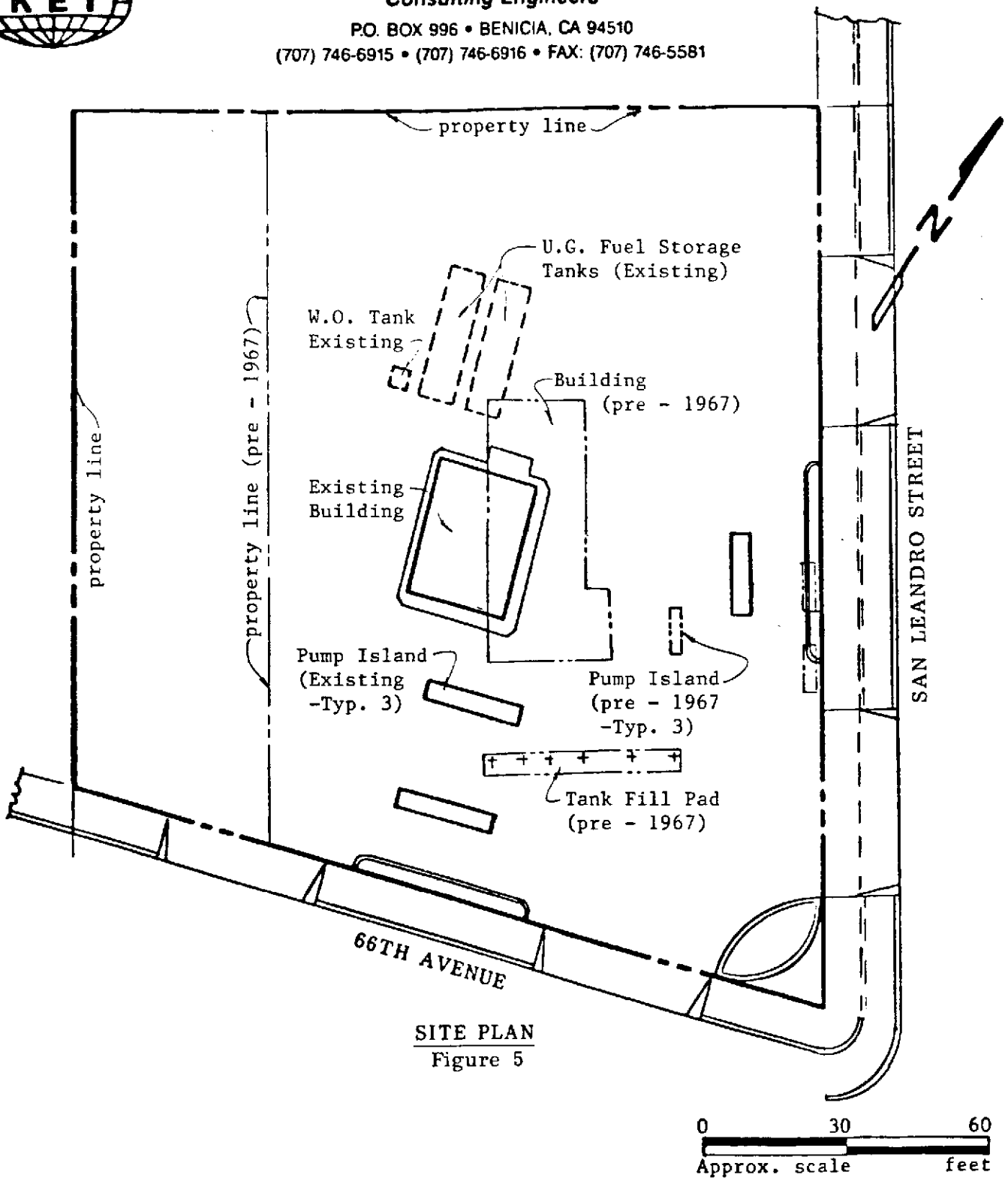

SITE PLAN
Figure 5

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: Aug 5, 1991
P.O. Box 996	Matrix Descript:	Water	Received: Aug 5, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: 8/13-14/91
Attention: Mardo Kaprealian, P.E.	First Sample #:	108-0193 AB	Reported: Aug 16, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
108-0193 AB	MW1	1,200	95	6.2	230	180
108-0194 AB	MW2	33,000	2,900	190	3,400	7,900
108-0195 AB	MW3	N.D.	N.D.	N.D.	N.D.	N.D.
108-0196 AB	MW4	37,000	310	70	3,600	9,700
108-0197 AB	MW5	N.D.	N.D.	N.D.	N.D.	N.D.
108-0198 AB	MW6	860	130	11	92	150
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

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
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1080193-98 Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991
QC Sample #:	BLK081391	BLK081391	BLK081391	BLK081391
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	25	24	25	75
Matrix Spike % Recovery:	130	120	130	130
Conc. Matrix Spike Dup.:	27	25	27	80
Matrix Spike Duplicate % Recovery:	140	130	140	130
Relative % Difference:	7.7	4.1	7.7	6.5

Laboratory blank contained the following analytes: None Detected

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: 1080193-98

Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H.	R.H.	R.H.	R.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991
QC Sample #:	108-0572	108-0572	108-0572	108-0572
Sample Conc.:	N.D.	0.018	0.015	0.097
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.37	0.38	0.39	1.2
Matrix Spike % Recovery:	93	91	94	92
Conc. Matrix Spike Dup.:	0.40	0.42	0.41	1.3
Matrix Spike Duplicate % Recovery:	100	100	99	100
Relative % Difference:	7.8	10	5.0	8.0

Laboratory blank contained the following analytes: None Detected

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Belinda C. Vega
Laboratory Director

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

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

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Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1080193-98
Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R.H.	R.H.	R.H.	R.H.	R.H.	R.H.	R.H.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991	Aug 14, 1991
Sample #:	108-0193	108-0194	108-0195	108-0196	108-0197	108-0198	Blank
Surrogate % Recovery:	120	130	110	95	97	120	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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Aug 5, 1991
P.O. Box 996	Matrix Descript:	Water	Received:	Aug 5, 1991
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Extracted:	Aug 6, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	108-0193 C	Analyzed:	Aug 13, 1991
			Reported:	Aug 16, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
108-0193 C	MW1	200
108-0194 C	MW2	4,200
108-0195 C	MW3	63
108-0196 C	MW4	6,200
108-0197 C	MW5	N.D.
108-0198 C	MW6	130

Detection Limits:	**50**

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

1080193.KEI <5>

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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: 1080193-98
Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE
Diesel

Method:	EPA 8015
Analyst:	A. Tuzon
Reporting Units:	µg/L
Date Analyzed:	Aug 13, 1991
QC Sample #:	BLK080691

Sample Conc.:	N.D.
Spike Conc. Added:	300
Conc. Matrix Spike:	220
Matrix Spike % Recovery:	72
Conc. Matrix Spike Dup.:	240
Matrix Spike Duplicate % Recovery:	81
Relative % Difference:	11

Laboratory blank contained the following analytes: None Detected

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: 1080193-98
Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015	EPA 8015
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon
Reporting Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991	Aug 13, 1991
Sample #:	108-0193	108-0194	108-0195	108-0196	108-0197	108-0198	Blank
Surrogate % Recovery:	93	96	96	110	92	91	90

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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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Aug 5, 1991
P.O. Box 996	Matrix Descript:	Water	Received:	Aug 5, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted:	Aug 7, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	108-0194 D	Analyzed:	Aug 8, 1991
			Reported:	Aug 16, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
108-0194 D	MW2	N.D.
108-0198 D	MW6	N.D.

Detection Limits:	**5.0**

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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(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: 1080193-98
Reported: Aug 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 B&F
Analyst:	D. Newcomb
Reporting Units:	mg/L
Date Analyzed:	Aug 8, 1991
QC Sample #:	Matrix Blank 080791M
Sample Conc.:	N.D.
Spike Conc. Added:	100
Conc. Matrix Spike:	93
Matrix Spike % Recovery:	93
Conc. Matrix Spike Dup.:	95
Matrix Spike Duplicate % Recovery:	95
Relative % Difference:	2.1

Laboratory blank contained the following analytes: None Detected

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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: [illegible]

WITNESSING AGENCY:

SITE NAME & ADDRESS: [illegible]

ANALYSES REQUESTED

TURN AROUND TIME: [illegible]

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION
[illegible]	9-5			✓	✓		3	[illegible]
[illegible]	"			✓	✓		3	[illegible]
[illegible]	"			✓	✓		3	[illegible]
[illegible]	"			✓	✓		3	[illegible]
[illegible]	"			✓	✓		3	[illegible]
[illegible]	"			✓	✓		3	[illegible]

REMARKS

1080193 AC
194 AD
195 AC
196 AC
197 AC
198 AD

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	9-5-91	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	[illegible]	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	9/5/91 2240	[illegible]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

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

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

Signature _____ Title _____ Date _____

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

91 JUN 14 AM 11:11

June 13, 1991

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Ms. Cynthia Chapman

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

Dear Ms. Chapman:

Per the request of Mr. Rick Sisk of Unocal Corporation, enclosed please find our reports, both dated May 23, 1991, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Rick Sisk, Unocal Corporation

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

KEI-J88-1203.R12
June 10, 1991

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

Attention: Rick Sisk

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

Dear Mr. Sisk:

This letter report summarizes the results of the stockpiled soil sampling and laboratory analyses for the referenced site. The soil analyses were conducted to comply with the County Health Department requirements for proper disposal of contaminated soil.

On May 21, 1991, soil samples were collected from approximately 250 cubic yards of stockpiled soil excavated from the fuel tank pit and the pump island area to determine proper disposal of the soil. Five composite soil samples (designated as Comp T, Comp U, Comp V, Comp W and Comp X) were taken. Each composite sample consisted of four individual grab samples taken at various locations and at depths of approximately 2 feet. The samples were collected in two-inch diameter, clean brass tubes, which were then sealed with aluminum foil, plastic caps and tape, and placed in a cooled ice chest for subsequent delivery to a certified laboratory for analysis. All samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Sample point locations are as shown on the attached Site Plan, Figure 1.

On May 23, 1991, Kaprealian Engineering, Inc. (KEI) returned to collect soil samples from approximately 200 cubic yards of additional stockpiled soil excavated from the fuel tank pit and the pump island area. Four composite samples (designated as Comp Y, Comp Z, Comp AA and Comp BB) were collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 2.

On May 28, 1991, KEI again returned to collect soil samples from approximately 700 cubic yards of stockpiled soil additionally excavated from the fuel tank pit and the pump island area. Fourteen composite soil samples (designated as Comp CC through

Comp PP) were collected and stored as described above. Sample point locations are as shown of the attached Site Plan, Figure 3.

On June 4, 1991, soil samples from approximately 50 cubic yards of aerated stockpiled soil (previously sampled as Comp X) were taken. One composite soil sample (designated as Comp 18) was collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 4.

Soil samples were analyzed to determine concentrations of total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015; benzene, toluene, xylenes and ethylbenzene using EPA method 8020; TPH as diesel using EPA method 3550 in conjunction with modified 8015; and total oil and grease (TOG) using Standard Method 5520E&F.

Analytical results of the soil samples (Comp T through Comp W, Comp Y, Comp Z and Comp AA through Comp PP) indicate levels of TPH as gasoline ranging from 1.9 ppm to 88 ppm. However, the analytical result of the soil sample (Comp X) indicates a level of TPH as gasoline at 370 ppm. After aeration of soil previously sampled as Comp X, the analytical result of the soil sample (Comp 18) indicates a level of TPH as gasoline at 4.4 ppm.

Analytical results of the soil samples (Comp T through Comp Z and Comp AA through Comp PP) indicate levels of TPH as diesel ranging from 2.0 ppm to 120 ppm and levels of TOG ranging from non-detectable to 540 ppm, except for Comp U with a level of TOG at 1,200 ppm. 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.

Based on the analytical results of the soil samples, approximately 1,100 cubic yards of stockpiled soil, represented by samples Comp T, Comp V, Comp W, Comp Y, Comp Z, Comp AA through Comp PP and Comp 18, were disposed of at BFI Waste Systems in Livermore, California, an approved Class III disposal site, by Paradiso Construction. However, prior to loading and off-hauling of the stockpiled soil, KEI recommended than when obvious isolated high contamination is detected within the stockpiled soil, that portion of the soil be separately stockpiled for further treatment and sampling.

Based on the high levels of TOG, approximately 50 cubic yards of stockpiled soil, represented by Comp U, were disposed of at Laidlaw Environmental Services, and approved Class II disposal site, by Dillard Trucking.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

Should you have any questions on this report, please do not hesitate to contact me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

KBMascarenas

Kristin B. Mascarenas

\kbm

Attachments: Table 1
Site Plans - Figures 1 through 4
Laboratory Results
Chain of Custody documentation

KEI-J88-1203.R12
June 10, 1991

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(Collected on May 21, 23, 28 and June 4, 1991)

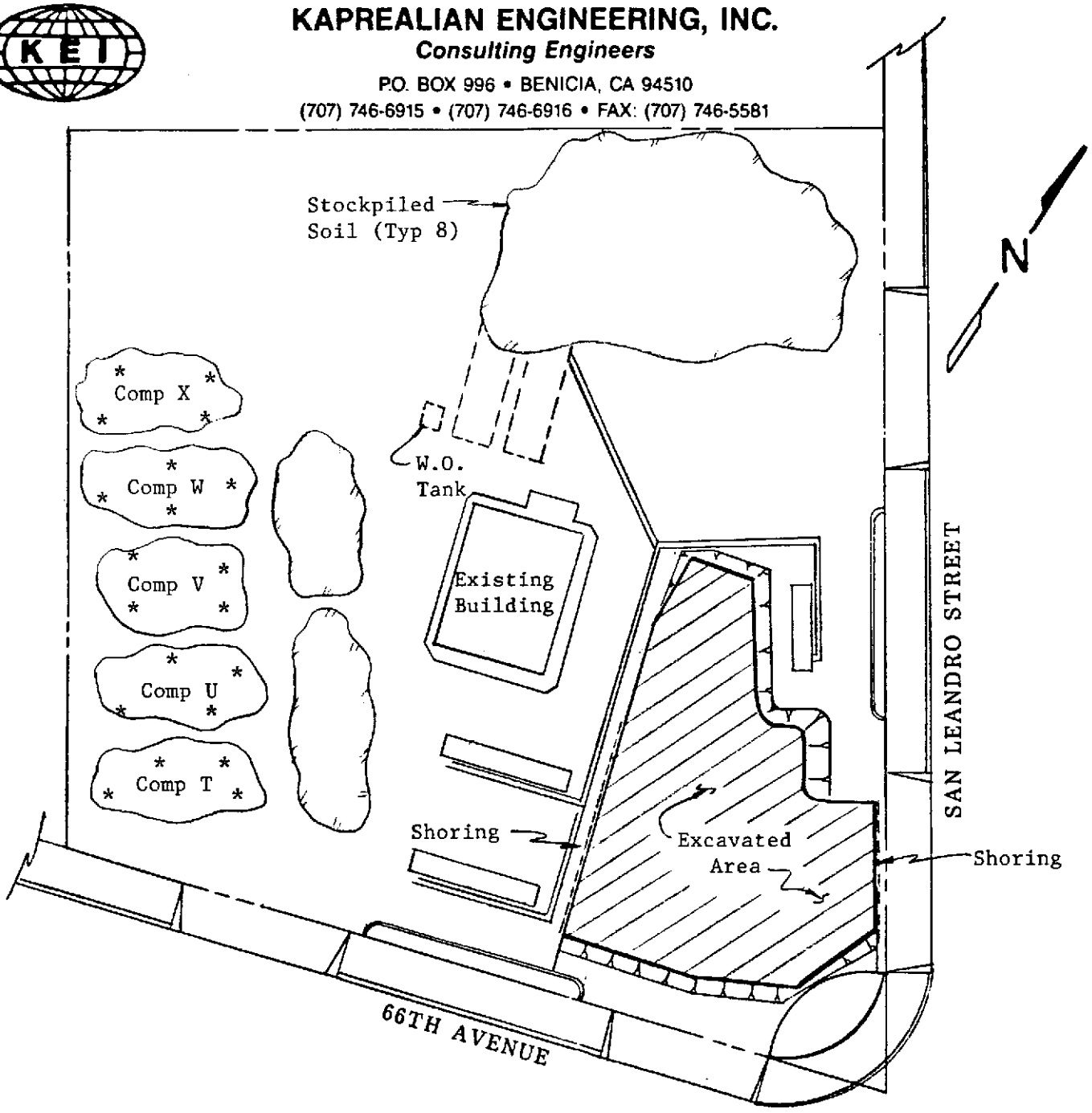
Sample	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
Comp T	9.1	4.4	ND	0.018	0.061	ND	450
Comp U	37	58	0.084	0.12	0.97	0.07	1,200
Comp V	8.4	72	0.15	0.86	5.8	0.91	450
Comp W	15	88	0.33	1.1	5.7	1.0	540
Comp X	17	370	2.1	16	38	8.2	300
Comp Y	40	1.9	ND	ND	0.10	0.013	ND
Comp Z	15	19	0.39	0.22	1.8	0.33	ND
Comp AA	120	27	0.073	0.23	1.9	0.40	ND
Comp BB	45	26	0.11	0.35	2.0	0.46	ND
Comp CC	2.2	4.2	ND	0.025	0.053	0.018	210
Comp DD	2.0	3.0	ND	ND	0.022	ND	100
Comp EE	8.9	4.0	ND	0.028	0.076	0.024	260
Comp FF	4.5	16	0.062	0.056	0.68	0.12	240
Comp GG	12	52	0.10	0.50	3.3	0.49	430
Comp HH	12	14	0.044	0.052	0.33	0.094	260
Comp II	81	19	ND	ND	0.064	0.053	230
Comp JJ	17	5.4	ND	0.23	0.13	0.047	370
Comp KK	13	2.4	ND	ND	0.023	ND	300
Comp LL	11	37	0.091	0.11	1.4	0.28	110
Comp MM	23	30	0.011	0.054	0.32	0.14	200
Comp NN	20	32	0.024	0.054	0.050	0.062	190
Comp OO	20	44	0.089	0.092	0.74	0.34	210
Comp PP	24	33	0.054	0.094	0.49	0.12	280
Comp 18	--	4.4	ND	ND	ND	ND	--
Detection Limits	1.0	1.0	0.0050	0.0050	0.0050	0.0050	30

ND = Non-detectable.

-- Indicates analysis not performed.

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

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



SITE PLAN
Figure 1

LEGEND

* Sample Point Location

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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

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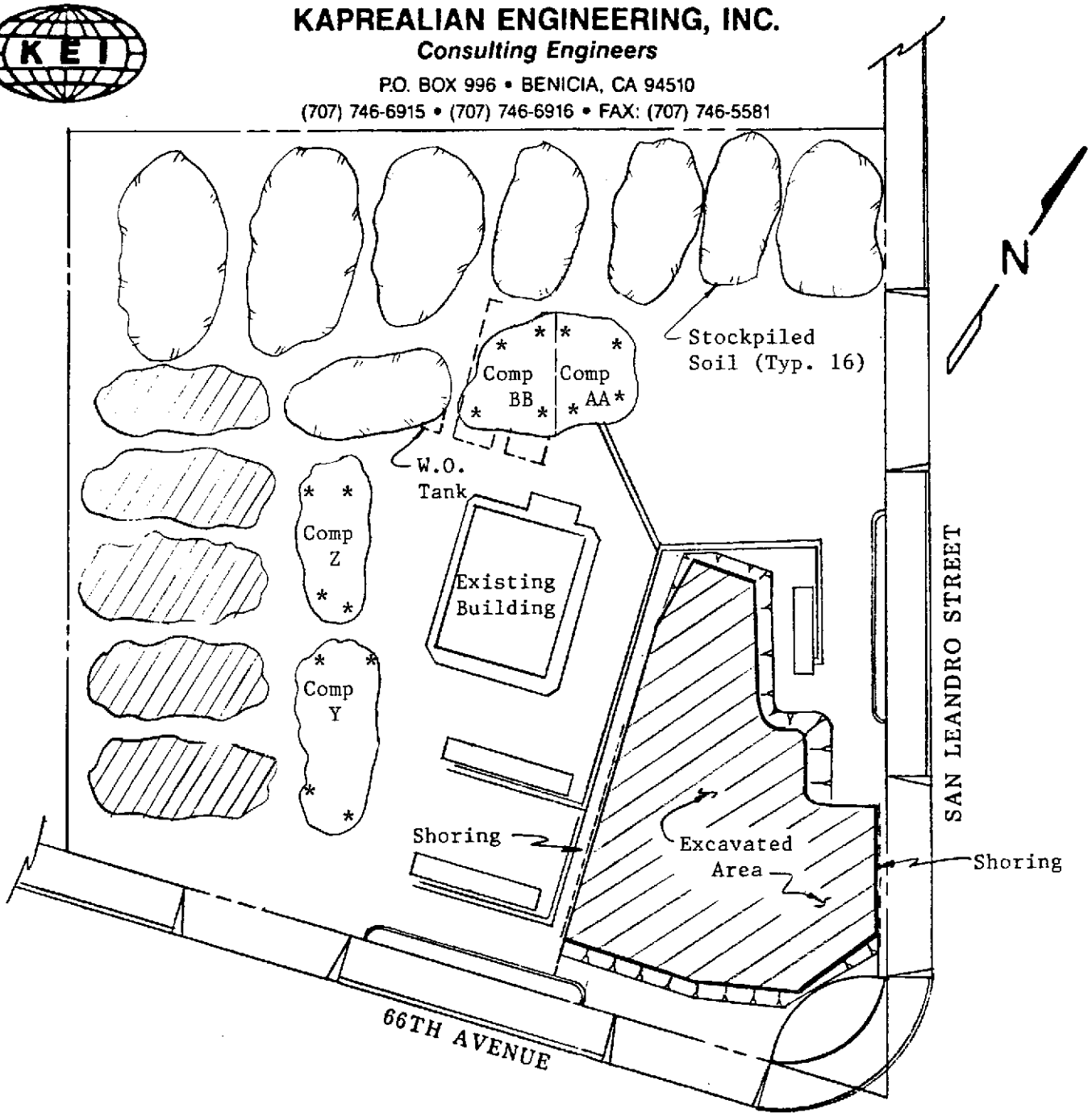
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 2

LEGEND

* Sample Point Location

Previously sampled soil

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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

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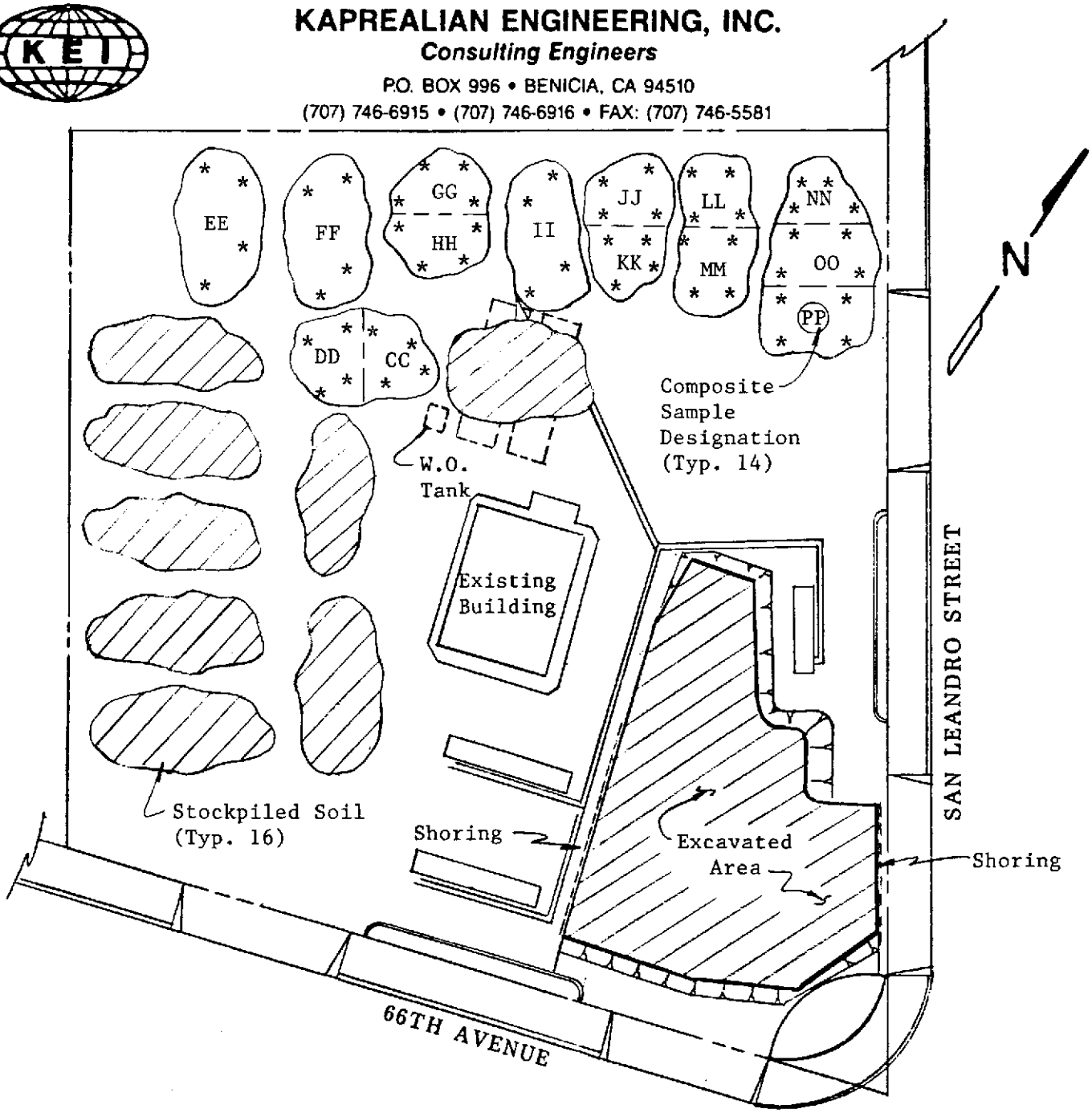
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 3

LEGEND

* Sample Point Location

Previously sampled soil

0 30 60
Approx. scale feet

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

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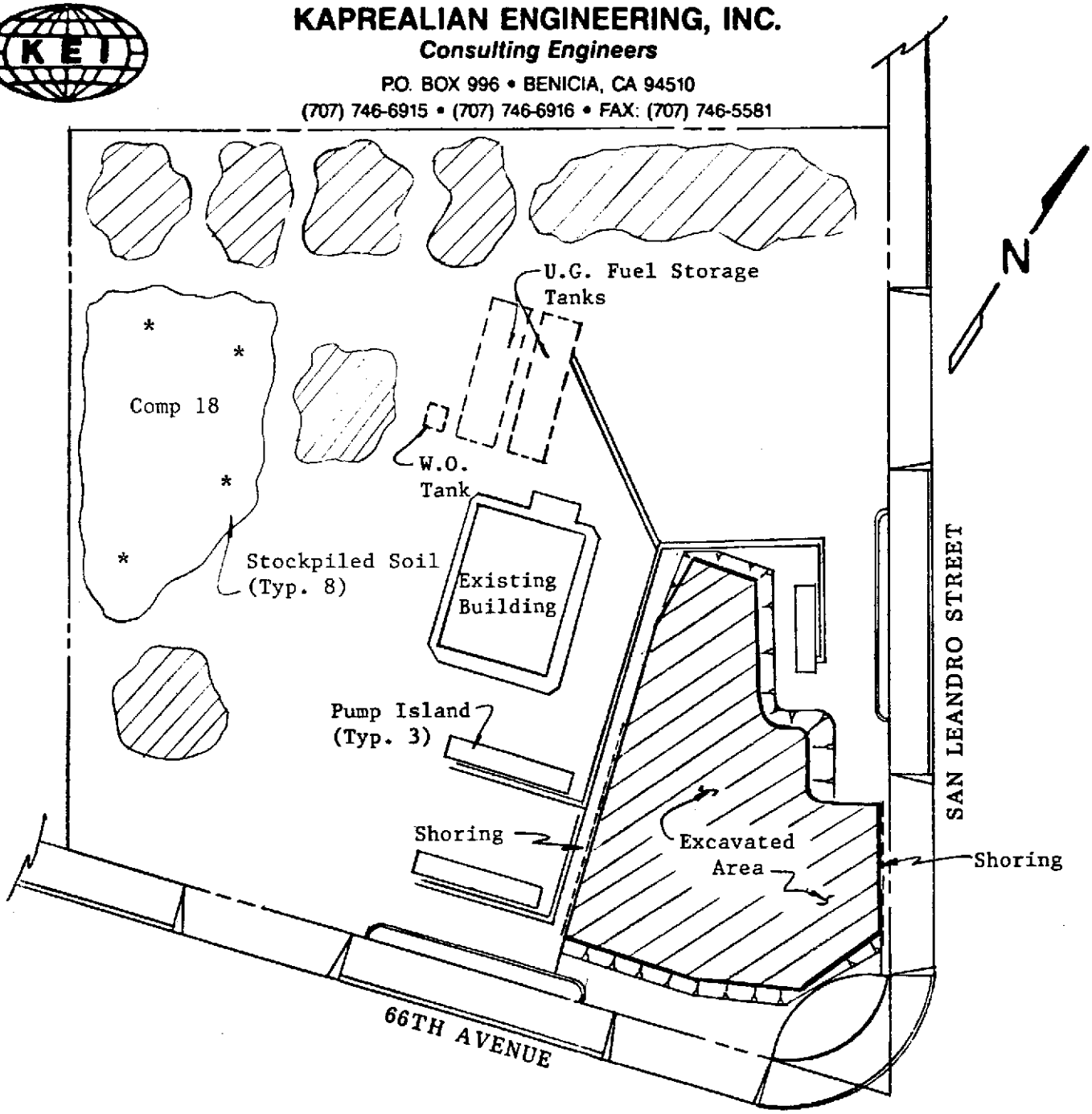
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 4

LEGEND

* Sample Point Location

Previously Sampled Soil

0 30 60
Approx. scale feet

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:	May 21, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 21, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 21, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0710 A-D	Reported:	May 24, 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)
105-0710 A-D	Comp T	4.4	N.D.	0.018	N.D.	0.061
105-0711 A-D	Comp U	58	0.084	0.12	0.070	0.97
105-0712 A-D	Comp V	72	0.15	0.86	0.91	5.8
105-0713 A-D	Comp W	88	0.33	1.1	1.0	5.7
105-0714 A-D	Comp X	370	2.1	16	8.2	38
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

1050710.KEI <1>

SEQUOIA ANALYTICAL

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland		
P.O. Box 996	Sample Descript.:	Matrix Blank		
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 21, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1050710-14	Reported:	May 24, 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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(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: 1050710-14
Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. L./J.F.	K. L./J.F.	K. L./J.F.	K. L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 21, 1991	May 21, 1991	May 21, 1991	May 21, 1991
QC Sample #:	105-0518	105-0518	105-0518	105-0518
Sample Conc.:	0.024	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.38	0.34	0.36	1.1
Matrix Spike % Recovery:	89	85	90	92
Conc. Matrix Spike Dup.:	0.36	0.34	0.34	1.0
Matrix Spike Duplicate % Recovery:	84	85	85	83
Relative % Difference:	5.4	0	5.7	9.5

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

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1050710-14
Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K. L./J.F.	K. L./J.F.	K. L./J.F.	K. L./J.F.	K. L./J.F.	K. L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 21, 1991	May 21, 1991	May 21, 1991	May 21, 1991	May 21, 1991	May 21, 1991
Sample #:	105-0710	105-0711	105-0712	105-0713	105-0714	Blank
Surrogate % Recovery:	101	88	91	100	108	103

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:	May 21, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 21, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 22, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0710 A-D	Analyzed:	May 23, 1991
			Reported:	May 24, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0710 A-D	Comp T	9.1
105-0711 A-D	Comp U	37
105-0712 A-D	Comp V	8.4
105-0713 A-D	Comp W	15
105-0714 A-D	Comp X	17

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

1050710.KEI <5>

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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: 1050710-14
Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	High Boiling Point Compounds (as Diesel)
Method:	EPA 8015
Analyst:	K.L./J.R.M.
Reporting Units:	mg/kg
Date Analyzed:	May 22, 1991
QC Sample #:	BLK052291
Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	8.1
Matrix Spike % Recovery:	81
Conc. Matrix Spike Dup.:	7.0
Matrix Spike Duplicate % Recovery:	70
Relative % Difference:	15

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:	------
P.O. Box 996	Matrix Descript:	Matrix Blank	Received:	------
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 22, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	------	Analyzed:	May 23, 1991
			Reported:	May 24, 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.

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1050710.KEI <7>

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	May 21, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 21, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	May 22, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0710 A-D	Analyzed:	May 23, 1991
			Reported:	May 24, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0710 A-D	Comp T	450
105-0711 A-D	Comp U	1,200
105-0712 A-D	Comp V	450
105-0713 A-D	Comp W	540
105-0714 A-D	Comp X	300

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: 1050710-14
Reported: May 24, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	S.L.
Reporting Units:	ppm
Date Analyzed:	May 23, 1991
QC Sample #:	BLK052291
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,500
Matrix Spike % Recovery:	90
Conc. Matrix Spike Dup.:	4,500
Matrix Spike Duplicate % Recovery:	90
Relative % Difference:	0

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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: Harry

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland, 845 66th Ave

ANALYSES REQUESTED: TPH-D, BTXE, TPH-D, TPH-D

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
Comp T	5/21/91		✓			✓	4	STOCKPILE	105071O A-D
Comp U	5/21/91		✓			✓	4		711
Comp V	5/21/91		✓			✓	4		712
Comp W	5/21/91		✓			✓	4		713
Comp X	5/21/91		✓			✓	4		714

Relinquished by: (Signature) Harry Revel	Date/Time 5/21 5:00	Received by: (Signature) Jon Weiner
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
'nquished by: (Signature)	Date/Time	Received by: (Signature)
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: JW Title: SL Date: 5/21

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	May 23, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 24, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 24, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0745 A-D	Reported:	May 28, 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)
1050745 A-D	Comp Y	1.9	N.D.	N.D.	0.013	0.10
1050746 A-D	Comp Z	19	0.039	0.22	0.33	1.8
1050747 A-D	Comp AA	27	0.073	0.23	0.40	1.9
1050748 A-D	Comp BB	26	0.11	0.35	0.46	2.0
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

Julia R. Malerstein
Project Manager

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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: 1050745-748
Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	R. Eastman	R. Eastman	R. Eastman	R. Eastman
Reporting Units:	ng	ng	ng	ng
Date Analyzed:	May 24, 1991	May 24, 1991	May 24, 1991	May 24, 1991
QC Sample #:	GBLK052491	GBLK052491	GBLK052491	GBLK052491
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	100	100	100	300
Conc. Matrix Spike:	93	93	94	280
Matrix Spike % Recovery:	93	93	94	93
Conc. Matrix Spike Dup.:	93	93	94	280
Matrix Spike Duplicate % Recovery:	93	93	94	93
Relative % Difference:	0	0	0	0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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, 66th & San Leandro, Oakland	
P.O. Box 996	Sample Descript.:	Matrix Blank	
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 24, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1050745-748	Reported: May 28, 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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Julia R. Malerstein
Project Manager

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	May 23, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 24, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 24, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0745 A-D	Analyzed:	May 24, 1991
			Reported:	May 28, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
1050745 A-D	Comp Y	40
1050746 A-D	Comp Z	15
1050747 A-D	Comp AA	120
1050748 A-D	Comp BB	45

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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Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland		
P.O. Box 996	Matrix Descript:	Matrix Blank		
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 24, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	105745-748	Analyzed:	May 24, 1991
			Reported:	May 28, 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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Julia R. Malerstein
Project Manager

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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: 1050745-748
Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	R. Lee
Reporting Units:	ng
Date Analyzed:	May 24, 1991
QC Sample #:	DBLK052491
Sample Conc.:	N.D.
Spike Conc. Added:	900
Conc. Matrix Spike:	630
Matrix Spike % Recovery:	70
Conc. Matrix Spike Dup.:	660
Matrix Spike Duplicate % Recovery:	73
Relative % Difference:	4.6

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Julia R. Malerstein
Project Manager

% 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, 66th & San Leandro, Oakland	Sampled:	May 23, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 24, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	May 24, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0745	Analyzed:	May 24, 1991
			Reported:	May 28, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0745	Comp Y	N.D.
105-0746	Comp Z	N.D.
105-0747	Comp AA	N.D.
105-0748	Comp BB	N.D.

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Kaprealian Engineering, Inc. Client Project ID: Unocal, 66th & San Leandro, Oakland
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050745-48 Reported: May 28, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	L. Laikhtman
Reporting Units:	mg/kg
Date Analyzed:	May 24, 1991
QC Sample #:	BLK052491
Sample Conc.:	N.D.
Spike Conc. Added:	100
Conc. Matrix Spike:	92
Matrix Spike % Recovery:	92
Conc. Matrix Spike Dup.:	96
Matrix Spike Duplicate % Recovery:	96
Relative % Difference:	4.3

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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. Bradash

WITNESSING AGENCY:

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

ANALYSES REQUESTED: TPH-4 BTXE; TPH-D; TOG

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
Comp Y	5-23-91		✓		✓	✓	4	Fogueo Fuel Tk Pit Area	1050745 A-D
Comp Z	"		✓			✓	4	"	746
Comp AA	"		✓			✓	4	"	747
Comp BB	"		✓			✓	4	"	748

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
L.M. Bradash	5-24 8:40	M. Lant DDH

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? —

M. Lant DDH — Signature; Analyst — Title; 5-24-91 — Date

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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: May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received: May 29, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0830 A-D	Reported: May 31, 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)
105-0830 A-D	Comp CC	4.2	N.D.	0.025	0.018	0.053
105-0831 A-D	Comp DD	3.0	N.D.	N.D.	N.D.	0.022
105-0832 A-D	Comp EE	4.0	N.D.	0.028	0.024	0.076
105-0833 A-D	Comp FF	16	0.062	0.056	0.12	0.68
105-0834 A-D	Comp GG	52	0.10	0.50	0.49	3.3
105-0835 A-D	Comp HH	14	0.044	0.052	0.094	0.33
105-0836 A-D	Comp II	19	N.D.	N.D.	0.053	0.064
105-0837 A-D	Comp JJ	5.4	N.D.	0.023	0.047	0.13
105-0838 A-D	Comp KK	2.4	N.D.	N.D.	N.D.	0.023
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

Julia R. Malerstein
Project Manager

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: May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received: May 29, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0839 A-D	Reported: May 31, 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)
105-0839 A-D	Comp LL	37	0.091	0.11	0.28	1.4
105-0840 A-D	Comp MM	30	0.011	0.054	0.14	0.32
105-0841 A-D	Comp NN	32	0.024	0.054	0.062	0.050
105-0842 A-D	Comp OO	44	0.089	0.092	0.34	0.74
105-0843 A-D	Comp PP	33	0.054	0.094	0.12	0.49
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

Julia R. Malerstein
Project Manager

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	
P.O. Box 996	Sample Descript.:	Matrix Blank	
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 29, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1050830-43	Reported: May 31, 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

Julia R. Malerstein
Project Manager

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
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43 Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
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	0.40	0.41	1.2
Matrix Spike % Recovery:	100	100	100	100
Conc. Matrix Spike Dup.:	0.40	0.41	0.42	1.3
Matrix Spike Duplicate % Recovery:	100	100	110	110
Relative % Difference:	0	2.4	2.4	8.0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

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

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

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

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

Client Project ID: Unocal, 66th & San Leandro, Oakland
QC Sample Group: 1050830-43
Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991
Sample #:	105-0830	105-0831	105-0832	105-0833	105-0834	105-0835	105-0836
Surrogate % Recovery:	100	100	100	96	77	97	97

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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, 66th & San Leandro, Oakland
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43 Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.	K.L./J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991	May 29, 1991
Sample #:	105-0837	105-0838	105-0839	105-0840	105-0841	105-0842	105-0843
Surrogate % Recovery:	100	100	84	84	91	83	86

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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, 66th & San Leandro, Oakland
QC Sample Group: 1050830-43
Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020
Analyst:	K.L./J.F.
Reporting Units:	mg/kg
Date Analyzed:	May 29, 1991
Sample #:	Blank

Surrogate % Recovery:	96

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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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1900 Bates Avenue • Suite LM • Concord, California 94520
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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 29, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0830 A-D	Analyzed:	May 29, 1991
			Reported:	May 31, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0830 A-D	Comp CC	2.2
105-0831 A-D	Comp DD	2.0
105-0832 A-D	Comp EE	8.9
105-0833 A-D	Comp FF	4.5
105-0834 A-D	Comp GG	12
105-0835 A-D	Comp HH	12
105-0836 A-D	Comp II	81
105-0837 A-D	Comp JJ	17
105-0838 A-D	Comp KK	13

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

Julia R. Malerstein
Project Manager

1050830.KEI <8>

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 29, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0839 A-D	Analyzed:	May 29, 1991
			Reported:	May 31, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
105-0839 A-D	Comp LL	11
105-0840 A-D	Comp MM	23
105-0841 A-D	Comp NN	20
105-0842 A-D	Comp OO	20
105-0843 A-D	Comp PP	24

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

Julia R. Malerstein
Project Manager

1050830.KEI <9>

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	------
P.O. Box 996	Matrix Descript:	Matrix Blank	Received:	------
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	------	Analyzed:	May 29, 1991
			Reported:	May 31, 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.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

1050830.KEI <10>

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Kaprealian Engineering, Inc. Client Project ID: Unocal, 66th & San Leandro, Oakland
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050830-43 Reported:

QUALITY CONTROL DATA REPORT

ANALYTE

Method:	EPA 8015
Analyst:	JRM
Reporting Units:	mg/kg
Date Analyzed:	May 28, 1991
QC Sample #:	BLK052391

Sample Conc.:	N.D.
Spike Conc. Added:	10
Conc. Matrix Spike:	7.6
Matrix Spike % Recovery:	76
Conc. Matrix Spike Dup.:	6.4
Matrix Spike Duplicate % Recovery:	64
Relative % Difference:	17

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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, 66th & San Leandro, Oakland	Sampled:	May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 29, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0830 A-D	Analyzed:	May 29, 1991
			Reported:	May 31, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0830 A-D	Comp CC	210
105-0831 A-D	Comp DD	100
105-0832 A-D	Comp EE	260
105-0833 A-D	Comp FF	240
105-0834 A-D	Comp GG	430
105-0835 A-D	Comp HH	260
105-0836 A-D	Comp II	230
105-0837 A-D	Comp JJ	370
105-0838 A-D	Comp KK	300

Detection Limits:	**30**

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

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Julia R. Malerstein
Project Manager

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 66th & San Leandro, Oakland	Sampled:	May 28, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 29, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	May 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0839 A-D	Analyzed:	May 29, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
105-0839 A-D	Comp LL	110
105-0840 A-D	Comp MM	200
105-0841 A-D	Comp NN	190
105-0842 A-D	Comp OO	210
105-0843 A-D	Comp PP	280

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

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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: 1050830-43
Reported: May 31, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520 E&F
Analyst:	R. Halsne
Reporting Units:	mg/kg
Date Analyzed:	May 29, 1991
QC Sample #:	Matrix Blank 052991M
Sample Conc.:	N.D.
Spike Conc. Added:	5,000
Conc. Matrix Spike:	4,600
Matrix Spike % Recovery:	92
Conc. Matrix Spike Dup.:	4,700
Matrix Spike Duplicate % Recovery:	94
Relative % Difference:	2.2

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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. Braddock (HAIG)

WITNESSING AGENCY:

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

ANALYSES REQUESTED: TPH-G/BTXE; TPH-D; T04

TURN AROUND TIME: 24 HR

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
CompCC	5-28-91		✓			✓	4	Former Fuel Tk Pit Exc.	10508301
" DD	"		✓			✓	4	"	831
" EE	"		✓			✓	4	"	832
" FF	"		✓			✓	4	"	833
" GG	"		✓			✓	4	"	834
" HH	"		✓			✓	4	"	835
" II	"		✓			✓	4	"	836
" JJ	"		✓			✓	4	"	837
" KK	"		✓			✓	4	"	838

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	5-29-91 0930	[signature]
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] — Signature; Analyst — Title; 5-29-91 — Date

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: R.M. Braddock HP&G

WITNESSING AGENCY

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

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
Comp LL	5-28-91		✓			✓	4	Former Fuel Tk Pipe Elec.
" MM	"		✓			✓	4	"
" NN	"		✓			✓	4	"
" OO	"		✓			✓	4	"
" PP	"		✓			✓	4	"

REMARKS: (0530839 A-D; 840; 841; 842; 843

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	5-24-91 0930	[signature]
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] — Signature; analyst — Title; 5-24-91 — 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, 845 - 66th Ave., Oakland	Sampled:	Jun 4, 1991
P.O. Box 996	Sample Descript.:	Soil, Comp 18	Received:	Jun 4, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	106-0027 A-D	Reported:	Jun 5, 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**	**4.4**
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

Please Note:
The above samples do not appear to contain gasoline.

SEQUOIA ANALYTICAL
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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 - 66th Ave., Oakland		
P.O. Box 996	Sample Descript.:	Matrix Blank		
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 4, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	106-0027	Reported:	Jun 5, 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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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc. Client Project ID: Unocal, 845 - 66th Ave., Oakland
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 106-0027 Reported: Jun 5, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991	Jun 4, 1991
QC Sample #:	Matrix	Matrix	Matrix	Matrix
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.41	0.42	0.47	1.4
Matrix Spike % Recovery:	100	100	120	120
Conc. Matrix Spike Dup.:	0.42	0.43	0.48	1.5
Matrix Spike Duplicate % Recovery:	100	110	120	120
Relative % Difference:	2.4	2.3	2.1	6.9

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

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

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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: 106-0027
Reported: Jun 5, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm
Date Analyzed:	Jun 4, 1991	Jun 4, 1991
Sample #:	106-0027	Blank
Surrogate % Recovery:	100	100

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Haug

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal - Oakland
845 - 66th Ave

ANALYSES REQUESTED: TPH-D; BTXE

TURN AROUND TIME: 24 Hrs

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-D	BTXE	REMARKS
Comp18	6/4/91		✓			✓	4	Aerated soil	✓	✓	10600027A-D

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	6/4/91 1430	[signature] DDFL
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] Signature — Analyst Title — 6/4/91 Date

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

KEI-J88-1203.R11
May 23, 1991

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

Attention: Mr. Rick Sisk

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

Dear Mr. Sisk:

This letter report summarizes the results of the stockpiled soil sampling and laboratory analyses for the referenced site. The soil analyses were conducted to comply with the County Health Department requirements for proper disposal of contaminated soil.

On March 26, 1991, soil samples from approximately 950 cubic yards of stockpiled soil excavated from the former fuel tank pit were collected to determine proper disposal of the soil. Nineteen composite soil samples (designated as Comp A through Comp S) were taken. Each composite sample consisted of four individual grab samples taken at various locations and at depths of approximately 2 feet. The samples were collected in two-inch diameter, clean brass tubes, which were then sealed with aluminum foil, plastic caps and tape, and placed in a cooled ice chest for subsequent delivery to a certified laboratory for analysis. All samples were analyzed at Sequoia Analytical Laboratory in Concord, California, and were accompanied by properly executed Chain of Custody documentation. Sample point locations are as shown on the attached Site Plan, Figure 1.

Upon review of the analytical results of the above mentioned stockpiled soil (Comp A through Comp S), an aeration permit was obtained and approximately 850 cubic yards of stockpiled soil represented by composite soil samples Comp A through Comp K, Comp M through Comp P, Comp R and Comp S were aerated.

On April 29, 1991, Kaprealian Engineering, Inc. (KEI) collected soil samples from approximately 250 cubic yards of aerated stockpiled soil (previously sampled as Comp A, Comp B, Comp C, Comp H and Comp R). Five composite soil samples, designated as Comp 1 through Comp 5, were taken. Samples were collected and stored as

described above. Sample point locations are as shown on the attached Site Plan, Figure 2.

On May 2, 1991, soil samples were collected from approximately 200 cubic yards of aerated stockpiled soil (previously sampled as Comp D, Comp I, Comp J and Comp P). Four composite soil samples designated as Comp 6 through Comp 9 were collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 3.

On May 7, 1991, soil samples from approximately 300 cubic yards of aerated stockpiled soil (previously sampled as Comp E, Comp F, Comp G, Comp K, Comp N and Comp S) were taken. Five composite soil samples, designated as Comp 10 through Comp 14, were collected and stored as described above. Sample point locations are as shown on the attached Site Plan, Figure 4.

On May 15, 1991, KEI again returned to collect soil samples from approximately 150 cubic yards of aerated stockpiled soil (previously samples as Comp M, Comp O and Comp 12). Three composite soil samples, designated as Comp 15, Comp 16 and Comp 17, were collected and stored as described above. Sample point locations are as indicated on the attached Site Plan, Figure 5.

Soil samples were analyzed to determine concentrations of total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020. In addition, samples Comp M and Comp Q were analyzed for STLC lead, reactivity, corrosivity and ignitability. Sample Comp K was analyzed further for STLC metals. Finally, samples Comp A through Comp S were analyzed also for total oil and grease (TOG) using Standard Method 5520E&F, and TPH as diesel using EPA method 3550 in conjunction with 8015.

Analytical results of the soil samples Comp L and Comp Q indicate levels of TPH as gasoline at 92 ppm and 54 ppm, respectively; however, analytical results of the soil samples (Comp A through Comp K, Comp M through Comp P, Comp R and Comp S) indicate levels of TPH as gasoline ranging from 110 ppm to 1,500 ppm. Analytical results of the soil samples (Comp A through Comp S) indicate levels of TOG ranging from 110 ppm to 830 ppm, with levels of TPH as diesel ranging from 17 ppm to 930 ppm.

After aeration, approximately 850 cubic yards of stockpiled soil were resampled. Analytical results of the soil samples Comp 1 through Comp 16 (previously sampled as Comp A through Comp F, and Comp H through Comp S), indicate levels of TPH as gasoline ranging

from 6.2 ppm to 47 ppm for all samples except Comp 12, which showed a level of TPH as gasoline at 240 ppm. Because of the high level of TPH as gasoline, the soil represented by Comp 12 was aerated further. Analytical results of the soil sample Comp 17 (collected after further aeration) indicate a level of TPH as gasoline at 12 ppm.

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.

Based on the analytical results of the soil samples, approximately 950 cubic yards of stockpiled soil, represented by samples Comp L, Comp Q and Comp 1 through Comp 17, were disposed of at BFI Waste Systems in Livermore, California, an approved Class III disposal site, by Paradiso Construction. However, prior to loading and off-hauling of the stockpiled soil, KEI recommended than when obvious isolated high contamination is detected within the stockpiled soil, that portion of the soil be separately stockpiled for further treatment and sampling.

DISTRIBUTION

A copy of this report should be sent to Ms. Cynthia Chapman of the Alameda County Health Care Services Agency, and to the Regional Water Quality Control Board, San Francisco Bay Region.

Should you have any questions on this report, please do not hesitate to contact me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Kristin B. Mascarenas

\bam:jad

Attachments: Table 1
Site Plans - Figures 1 through 5
Laboratory Results
Chain of Custody documentation

KEI-J88-1203.R11
May 23, 1991

TABLE 1

SUMMARY OF LABORATORY ANALYSES

(Collected on March 26, April 29, and May 2, 7, 15 & 21, 1991)

Sample	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	TOG
Comp A	110	130	0.072	0.48	10	0.64	270
Comp B	400	180	0.16	2.6	15	2.7	110
Comp C	230	180	0.070	1.1	18	2.6	460
Comp D	210	290	0.18	0.94	44	3.7	270
Comp E	340	410	2.4	8.2	33	6.2	390
Comp F	930	910	0.53	2.4	46	5.9	220
Comp G	69	400	0.25	1.2	18	2.6	830
Comp H	270	190	0.058	0.20	4.1	0.33	540
Comp I	220	350	0.67	3.4	24	3.2	260
Comp J	290	220	0.26	0.36	6.8	1.1	630
Comp K*	130	520	2.6	0.74	18	5.6	210
Comp L	17	92	0.13	0.16	3.4	0.31	160
Comp M**	360	1,500	1.1	3.0	140	8.2	430
Comp N	270	380	0.21	0.38	15	0.62	410
Comp O	150	1,400	0.54	8.3	170	13	300
Comp P	92	320	0.24	1.1	30	1.4	370
Comp Q***	30	54	0.086	0.21	2.6	0.41	120
Comp R	130	110	0.13	0.18	2.8	0.17	540
Comp S	31	390	2.0	11	66	13	270
Comp 1	--	33	0.046	0.017	0.79	0.086	--
Comp 2	--	23	0.091	0.019	0.43	0.046	--
Comp 3	--	10	0.030	0.016	0.14	0.028	--
Comp 4	--	7.6	0.028	0.016	0.13	0.058	--
Comp 5	--	6.2	0.011	0.031	0.071	0.019	--
Comp 6	--	24	0.017	0.048	0.35	0.049	--
Comp 7	--	20	0.024	0.046	0.12	0.035	--
Comp 8	--	9.7	0.026	ND	0.16	0.047	--
Comp 9	--	9.0	0.064	0.0070	0.12	0.021	--
Comp 10	--	12	0.076	0.007	0.16	0.032	--
Comp 11	--	39	0.023	0.048	1.1	0.11	--
Comp 12	--	240	0.20	0.17	26	3.2	--
Comp 13	--	47	0.079	0.14	0.62	0.12	--
Comp 14	--	32	0.16	ND	0.43	0.066	--
Comp 15	--	6.8	0.057	0.019	0.22	0.051	--
Comp 16	--	20	0.013	0.022	0.18	0.041	--
Comp 17	--	12	0.020	0.029	0.32	0.062	--
Detection Limits	1.0	1.0	0.0050	0.0050	0.0050	0.0050	30

KEI-J88-1203.R11
May 23, 1991

TABLE 1 (Continued)

SUMMARY OF LABORATORY ANALYSES

* STLC metals: See attached analyses.

** STLC lead was detected at 0.81 ppm; For reactivity, corrosivity and ignitability, see attached analyses.

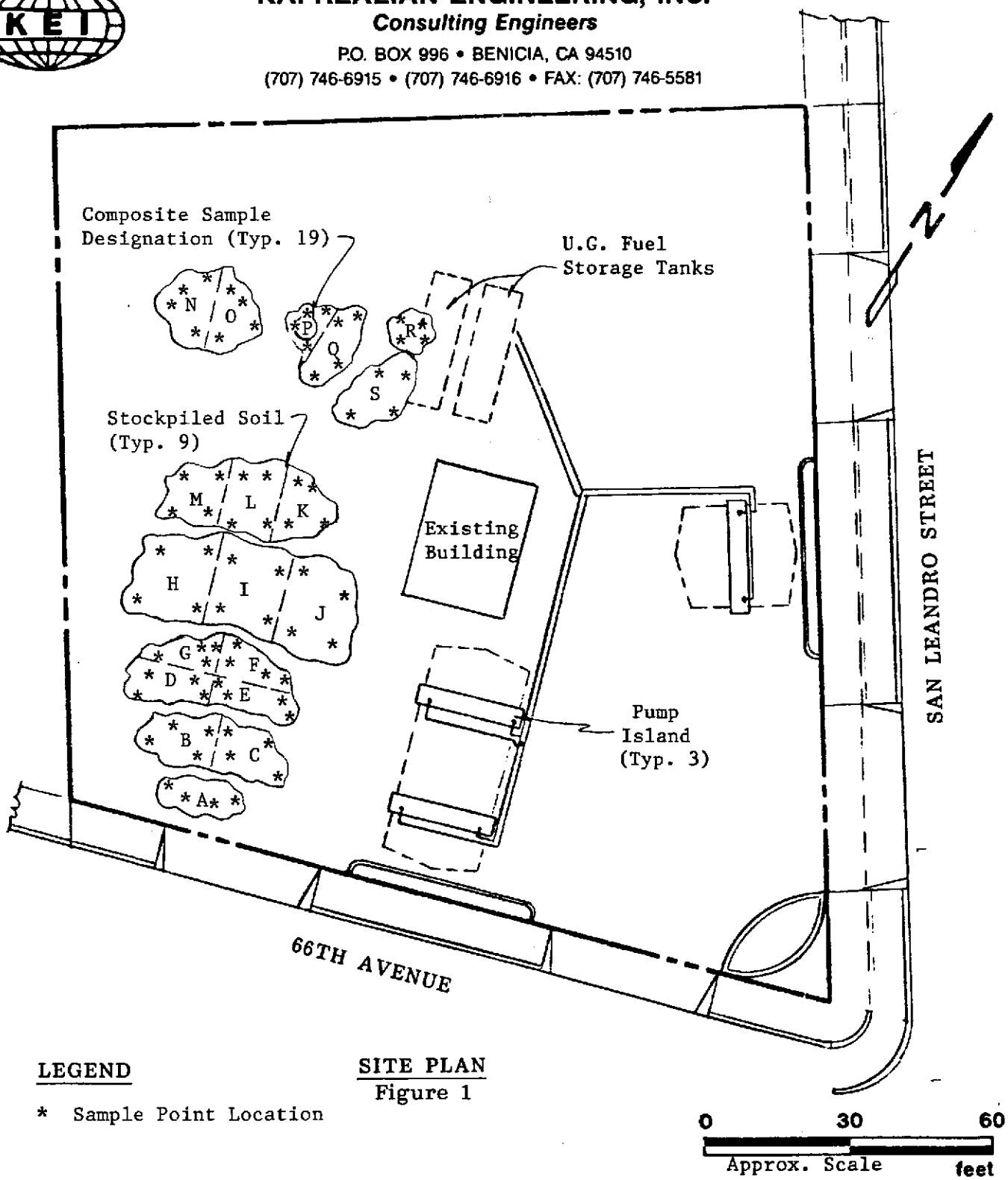
*** STLC lead was detected at 0.11 ppm; For reactivity, corrosivity and ignitability, see attached analyses.

ND = Non-detectable.

-- Indicates analyses not performed.

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

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



LEGEND

* Sample Point Location

SITE PLAN
Figure 1

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

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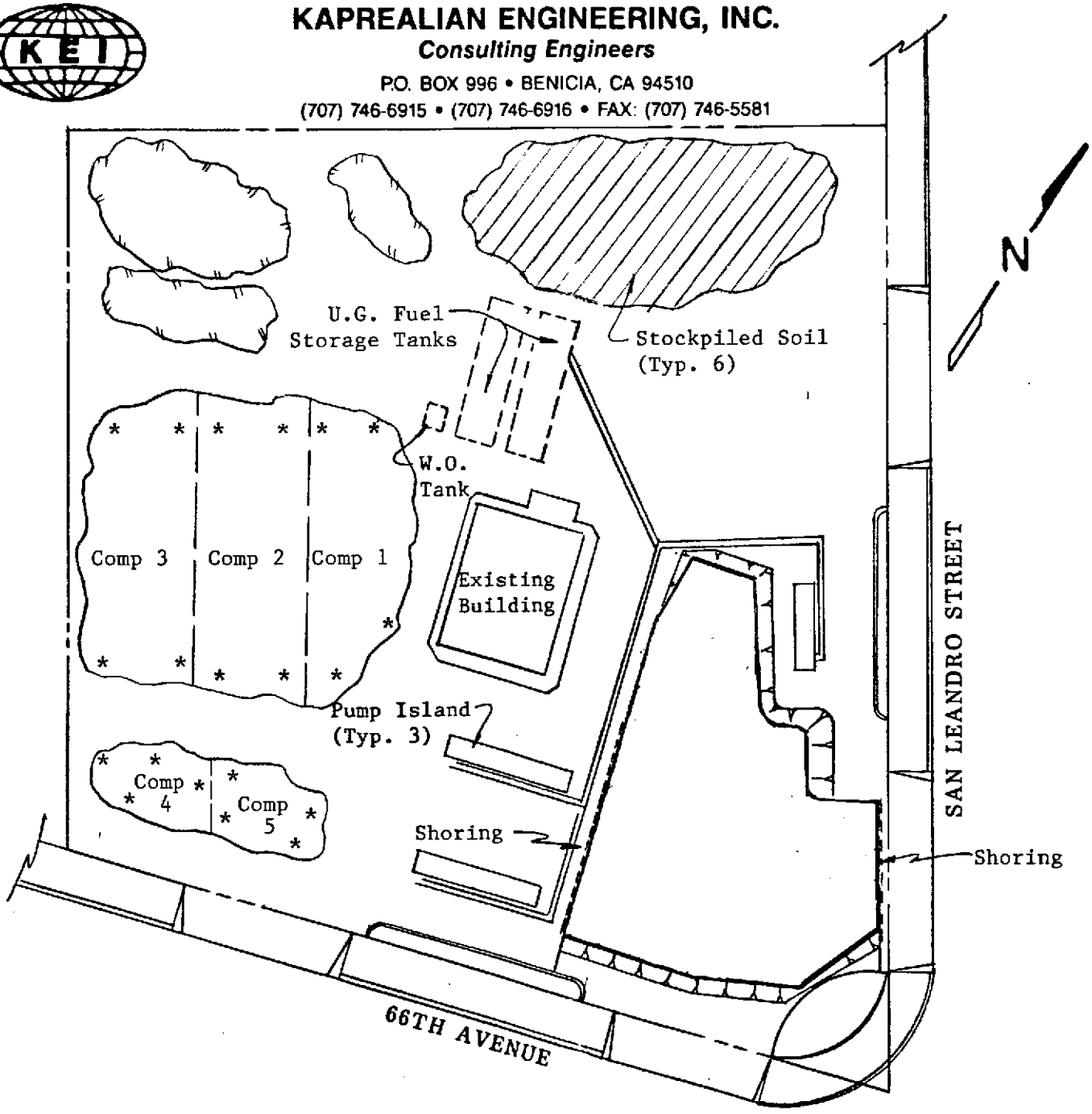
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 2

LEGEND

* Sample Point Location

Previously sampled soil

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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

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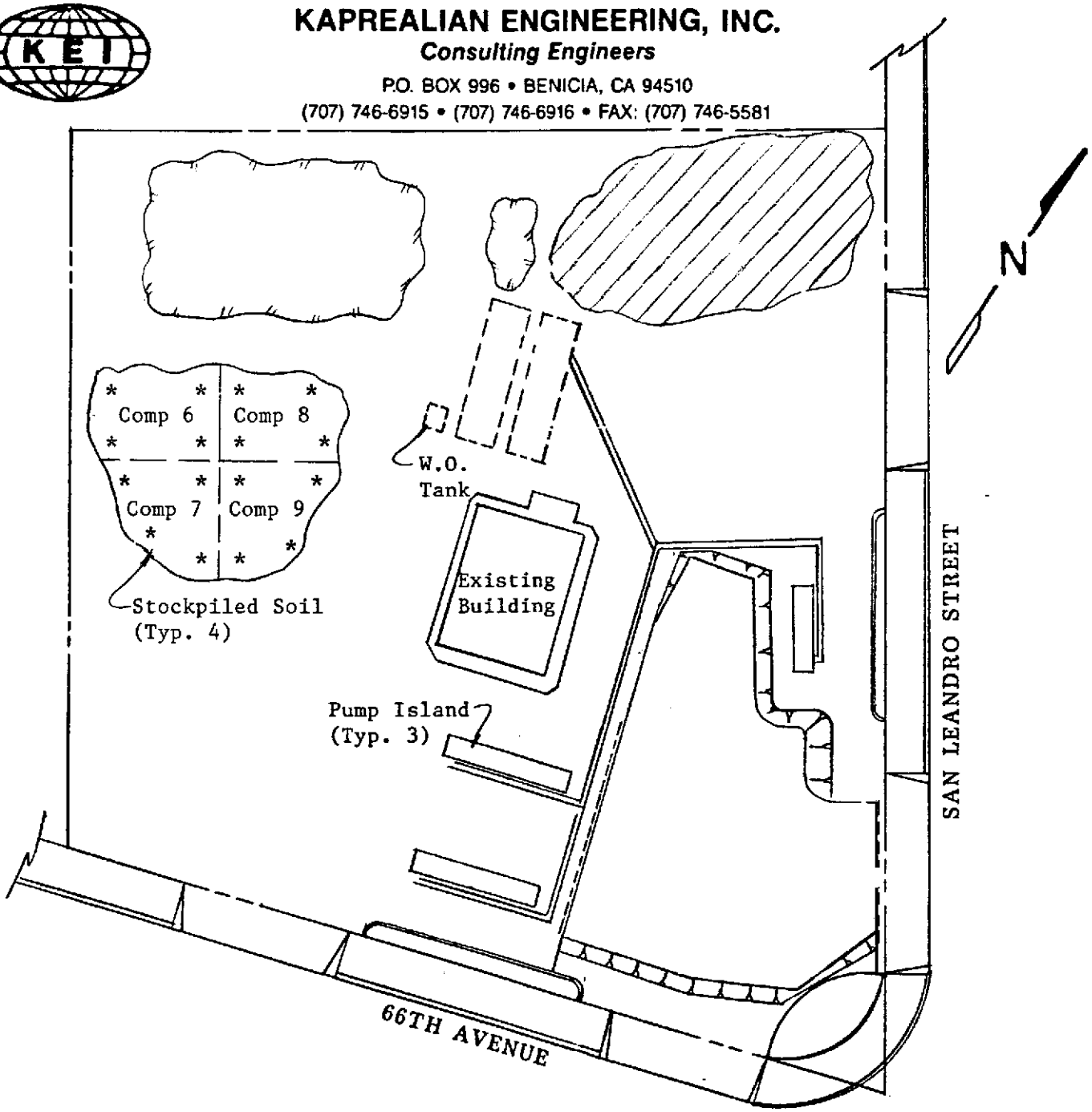
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 3

LEGEND

* Sample Point Location

Previously sampled soil

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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

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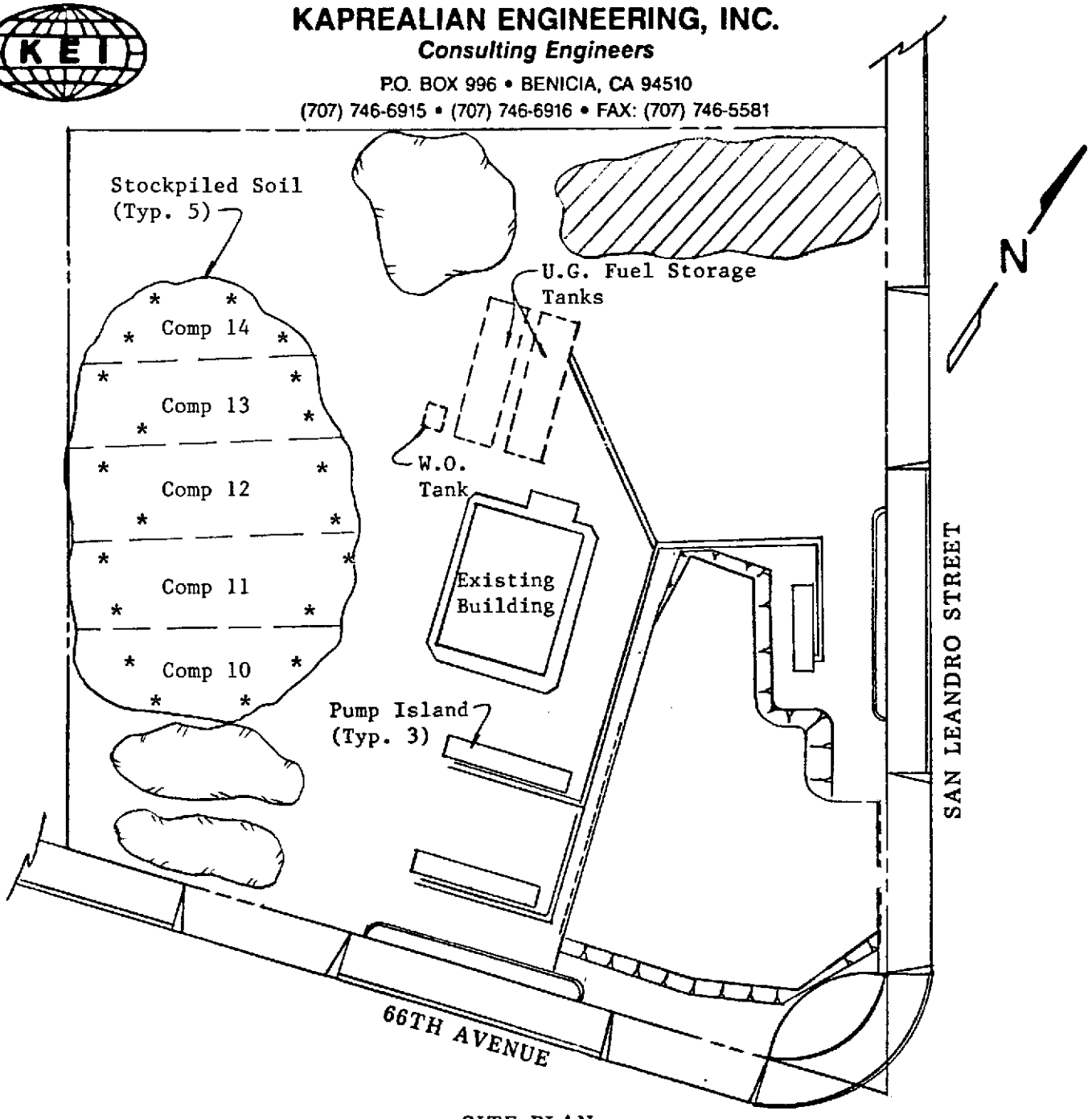
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 4

LEGEND

* Sample Point Location

Previously sampled soil

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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

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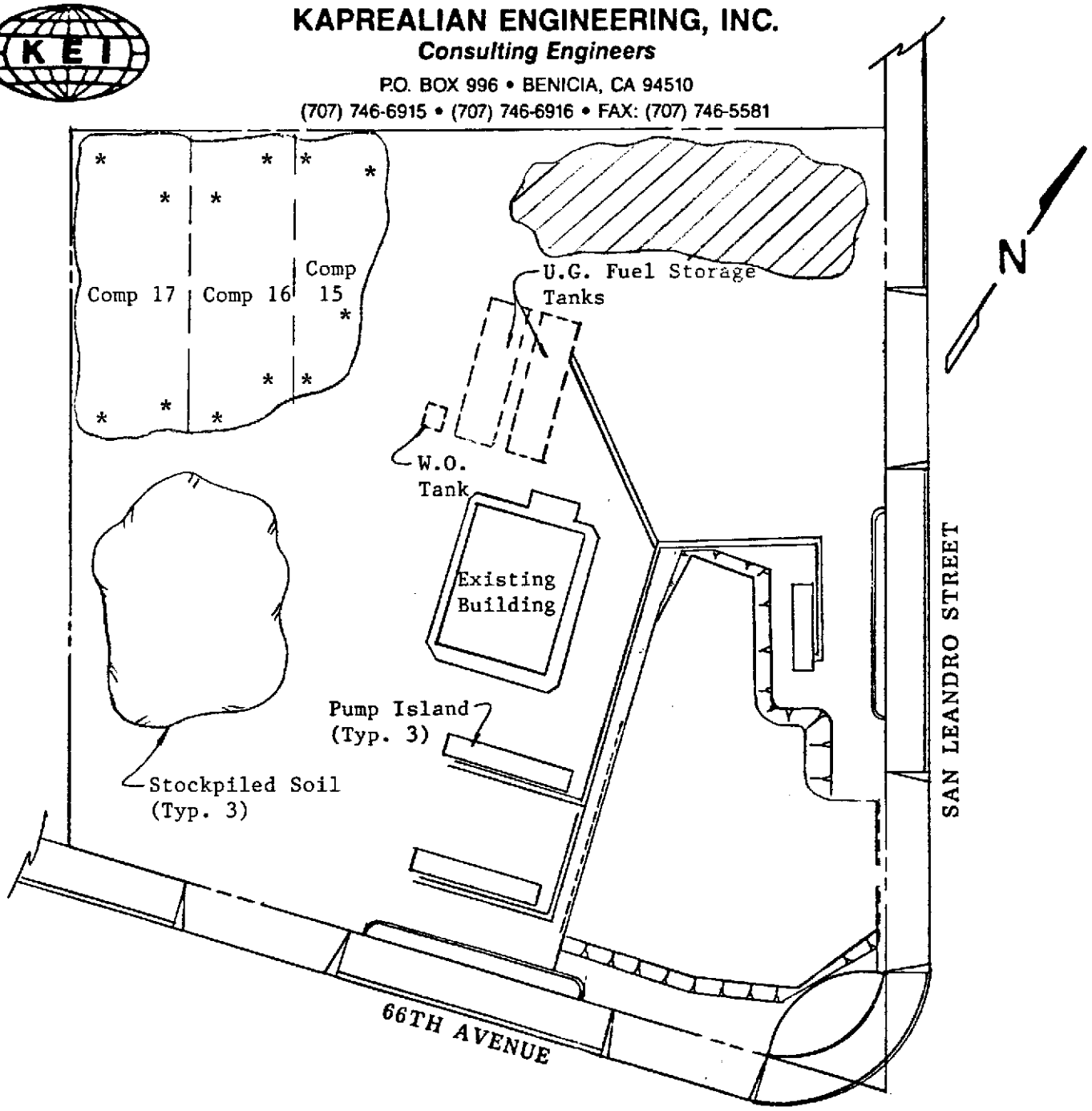
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 5

LEGEND

* Sample Point Location

Previously sampled soil

Soil to be sampled at a later date

0 30 60
Approx. scale feet

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 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 27, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0827 A-D	Reported:	Mar 29, 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)
103-0827 A-D	Comp A	130	0.072	0.48	0.64	10
103-0828 A-D	Comp B	180	0.16	2.6	2.7	15
103-0829 A-D	Comp C	180	0.070	1.1	2.6	18
103-0830 A-D	Comp D	290	0.18	0.94	3.7	44
103-0831 A-D	Comp E	410	2.4	8.2	6.2	33
103-0832 A-D	Comp F	910	0.53	2.4	5.9	46
103-0833 A-D	Comp G	400	0.25	1.2	2.6	18
103-0834 A-D	Comp H	190	0.058	0.20	0.33	4.1
103-0835 A-D	Comp I	350	0.67	3.4	3.2	24
103-0836 A-D	Comp J	220	0.26	0.36	1.1	6.8
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

Julia R. Malerstein
Project Manager

1030827.KEI <1>

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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 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 27, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0837 A-D	Reported:	Mar 29, 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)
103-0837 A-D	Comp K	520	2.6	0.74	5.6	18
103-0838 A-D	Comp L	92	0.13	0.16	0.31	3.4
103-0839 A-D	Comp M	1,500	1.1	3.0	8.2	140
103-0840 A-D	Comp N	380	0.21	0.38	0.62	15
103-0841 A-D	Comp O	1,400	0.54	8.3	13	170
103-0842 A-D	Comp P	320	0.24	1.1	1.4	30
103-0843 A-D	Comp Q	54	0.086	0.21	0.41	2.6
103-0844 A-D	Comp R	110	0.13	0.18	0.17	2.8
103-0845 A-D	Comp S	390	2.0	11	13	66
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

Julia R. Malerstein
Project Manager

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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 27, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: Mar 29, 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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Julia R. Malerstein
Project Manager

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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: 1030827-45
Reported: Mar 29, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991
Sample #:	103-0827	103-0828	103-0829	103-0830	103-0831	103-0832	103-0833
Surrogate % Recovery:	83	83	77	97	93	67	120

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Julia R. Malerstein
Project Manager

% 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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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: 1030827-45
Reported: Mar 29, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991
Sample #:	103-0834	103-0835	103-0836	103-0837	103-0838	103-0839	103-0840
Surrogate % Recovery:	87	110	93	83	73	100	70

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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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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: 1030827-45
Reported: Mar 29, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH	JRM/EH
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991
Sample #:	103-0841	103-0842	103-0843	103-0844	103-0845	Blank
Surrogate % Recovery:	96	70	77	70	100	100

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Julia R. Malerstein
Project Manager

% 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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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: 1030827-845
Reported: Mar 29, 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:	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991	Mar 27, 1991
QC Sample #:	103-0726	103-0726	103-0726	103-0726
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.37	0.35	0.55	1.8
Matrix Spike % Recovery:	93	88	140	150
Conc. Matrix Spike Dup.:	0.38	0.36	0.34	1.0
Matrix Spike Duplicate % Recovery:	95	90	85	83
Relative % Difference:	2.7	2.8	47	57

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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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1900 Bates Avenue • Suite LM • Concord, California 94520
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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Mar 27, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0827 A-D	Analyzed:	Mar 28, 1991
			Reported:	Mar 29, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
103-0827 A-D	Comp A	110
103-0828 A-D	Comp B	400
103-0829 A-D	Comp C	230
103-0830 A-D	Comp D	210
103-0831 A-D	Comp E	340
103-0832 A-D	Comp F	930
103-0833 A-D	Comp G	69
103-0834 A-D	Comp H	270
103-0835 A-D	Comp I	220
103-0836 A-D	Comp J	290

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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Julia R. Malerstein
Project Manager

1030827.KEI <8>

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Mar 27, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0837 A-D	Analyzed:	Mar 28, 1991
			Reported:	Mar 29, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
103-0837 A-D	Comp K	130
103-0838 A-D	Comp L	17
103-0839 A-D	Comp M	360
103-0840 A-D	Comp N	270
103-0841 A-D	Comp O	150
103-0842 A-D	Comp P	92
103-0843 A-D	Comp Q	30
103-0844 A-D	Comp R	130
103-0845 A-D	Comp S	31

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

Julia R. Malerstein
Project Manager

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	Matrix Descript:	Matrix Blank	Received:	- - - - - -
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Extracted:	Mar 27, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	- - - - - -	Analyzed:	Mar 28, 1991
			Reported:	Mar 29, 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.

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

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: 1030827-45
Reported: Mar 29, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	M.R.
Reporting Units:	ng
Date Analyzed:	Mar 28, 1991
QC Sample #:	Matrix
Sample Conc.:	N.D.
Spike Conc. Added:	900
Conc. Matrix Spike:	790
Matrix Spike % Recovery:	87
Conc. Matrix Spike Dup.:	830
Matrix Spike Duplicate % Recovery:	93
Relative % Difference:	5.8

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Julia R. Malerstein
Project Manager

% 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 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Mar 28, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0827 A-D	Analyzed:	Mar 28, 1991
			Reported:	Mar 29, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
103-0827 A-D	Comp A	270
103-0828 A-D	Comp B	110
103-0829 A-D	Comp C	460
103-0830 A-D	Comp D	270
103-0831 A-D	Comp E	390
103-0832 A-D	Comp F	220
103-0833 A-D	Comp G	830
103-0834 A-D	Comp H	540
103-0835 A-D	Comp I	260
103-0836 A-D	Comp J	630
Detection Limits:		**30**

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

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Julia R. Malerstein
Project Manager

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(415) 686-9600 • FAX (415) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 26, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Mar 27, 1991
Benicia, CA 94510	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Mar 28, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	103-0837 A-D	Analyzed:	Mar 28, 1991
			Reported:	Mar 29, 1991

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
103-0837 A-D	Comp K	210
103-0838 A-D	Comp L	160
103-0839 A-D	Comp M	430
103-0840 A-D	Comp N	410
103-0841 A-D	Comp O	300
103-0842 A-D	Comp P	370
103-0843 A-D	Comp Q	120
103-0844 A-D	Comp R	540
103-0845 A-D	Comp S	270

Detection Limits:	**30**

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

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

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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: 1030827-45
Reported: Mar 29, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	5520 E&F
Analyst:	L. Laikhtman
Reporting Units:	mg/kg
Date Analyzed:	Mar 28, 1991
QC Sample #:	BLK032891
Sample Conc.:	N.D.
Spike Conc. Added:	100
Conc. Matrix Spike:	87
Matrix Spike % Recovery:	87
Conc. Matrix Spike Dup.:	88
Matrix Spike Duplicate % Recovery:	88
Relative % Difference:	1.1

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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

Laboratory Director

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
Tom Mascarenas	UNOCAL- Oakland #3135 845 66th Ave	TPH-G, BTEX, TPH-D, TOG	24 hrs.
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX	TPH-D	TOG	REMARKS
Comp A	3-26-91		✓			✓	4	Fuel tank pit S+Kpl.	✓	✓	✓	✓	Prep 8350 [illegible] 828
Comp B	"		✓			✓	4	"	✓	✓	✓	✓	829
Comp C	"		✓			✓	4	"	✓	✓	✓	✓	830
Comp D	"		✓			✓	4	"	✓	✓	✓	✓	831
Comp E	"		✓			✓	4	"	✓	✓	✓	✓	832
Comp F	"		✓			✓	4	"	✓	✓	✓	✓	833
Comp G	"		✓			✓	4	"	✓	✓	✓	✓	834
Comp H	"		✓			✓	4	"	✓	✓	✓	✓	835
Comp I	"		✓			✓	4	"	✓	✓	✓	✓	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	[illegible signature]
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
[illegible signature]	SR	3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER Tom Mascarenas
WITNESSING AGENCY

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
8456 6th Ave.

ANALYSES REQUESTED: TPH-G; BTEX; TPH-D; TCLP

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
Comp J	3-26-91		✓			✓	4	fuel tank pit 5 to pl.	Report Results.
Comp K	"		✓			✓	4	"	837
Comp L	"		✓			✓	4	"	838
Comp M	"		✓			✓	4	"	839
Comp N	"		✓			✓	4	"	840
Comp O	"		✓			✓	4	"	841
Comp P	"		✓			✓	4	"	842
Comp Q	"		✓			✓	4	"	843
Comp R	"		✓			✓	4	"	844

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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
	SC	3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas
WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
8456 6th Ave

TURN AROUND TIME: 24hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX	TPH-D	TCLP	REMARKS
COMP1S	3-26-91		✓			✓	4	Fuel tank pit SW Pl.	✓	✓	✓	✓	Rush 5 day results.

ANALYSES REQUESTED: TPH-G; BTEX; TPH-D; TCLP

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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: 3/27

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 26, 1991
P.O. Box 996	Sample Descript:	Soil, Comp K	Relogged:	Apr 19, 1991
Benicia, CA 94510			Extracted:	Apr 24, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	103-0837	Reported:	Apr 25, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.0050	0.0075	500	0.0050	-
Arsenic	5	0.010	0.079	500	0.0050	-
Barium	100	0.10	-	10,000	0.10	-
Beryllium	0.75	0.010	0.011	75	0.010	-
Cadmium	1	0.010	0.084	100	0.010	-
Chromium (VI)	5	0.0050	-	500	0.0050	-
Chromium (III)	560	0.0050	0.17	2,500	0.0050	-
Cobalt	80	0.050	-	8,000	0.050	-
Copper	25	0.010	0.82	2,500	0.010	-
Lead	5	0.0050	-	1,000	0.0050	-
Mercury	0.2	0.00040	N.D.	20	0.00020	-
Molybdenum	350	0.050	-	3,500	0.050	-
Nickel	20	0.050	0.90	2,000	0.050	-
Selenium	1	0.010	N.D.	100	0.0050	-
Silver	5	0.010	0.31	500	0.010	-
Thallium	7	0.0050	N.D.	700	0.0050	-
Vanadium	24	0.050	-	2,400	0.050	-
Zinc	250	0.010	1.9	5,000	0.010	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
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: 103-0837
Reported: Apr 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Mercury	Arsenic	Selenium	Antimony	Thallium	Nickel	Silver
Method:	EPA 245.1	EPA 206.2	EPA 270.2	EPA 204.2	EPA 279.2	EPA 6010	EPA 6010
Analyst:	C. Medefesser	R. Sharma	R. Sharma	R. Sharma	R. Sharma	R. Sharma	R. Sharma
Reporting Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/kg
Date Analyzed:	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991
QC Sample #:	104-3458	104-3306	104-3306	104-3306	104-3306	104-3306	104-3306
Sample Conc.:	0.0022	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.0020	0.25	0.25	0.20	0.20	5.0	5.0
Conc. Matrix Spike:	0.0044	0.24	0.23	0.20	0.19	4.4	4.4
Matrix Spike % Recovery:	110	96	92	100	95	88	88
Conc. Matrix Spike Dup.:	0.0044	0.25	0.25	0.20	0.19	4.5	5.1
Matrix Spike Duplicate % Recovery:	110	100	100	100	95	90	100
Relative % Difference:	0	4.1	8.3	0	0	2.2	15

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

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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: 103-0837
Reported: Apr 25, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Zinc	Beryllium	Cadmium	Chromium	Copper
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Analyst:	R. Sharma	R. Sharma	S. Foster	S. Foster	S. Foster
Reporting Units:	mg/L	mg/kg	mg/L	mg/L	mg/L
Date Analyzed:	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991	Apr 24, 1991
QC Sample #:	104-3306	104-3306	104-3300	104-3300	104-3300
Sample Conc.:	0.045	N.D.	0.014	0.11	0.29
Spike Conc. Added:	5.0	5.0	5.0	5.0	5.0
Conc. Matrix Spike:	4.7	4.6	4.5	4.6	4.7
Matrix Spike % Recovery:	93	92	90	90	88
Conc. Matrix Spike Dup.:	5.0	5.7	5.0	5.2	5.4
Matrix Spike Duplicate % Recovery:	99	110	100	100	100
Relative % Difference:	6.2	21	11	12	14

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: Tom Mascarenas

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135 — 845 66th Ave.

ANALYSES REQUESTED: TPH-G; BTEX; TPH-D; TCLC

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
CompJ	3-26-91		✓			✓	4	Fuel tank pit stkpl.	Lab to Report Results.
CompK	"		✓			✓	4	"	837
CompL	"		✓			✓	4	"	838
CompM	"		✓			✓	4	"	839
CompN	"		✓			✓	4	"	840
CompO	"		✓			✓	4	"	841
CompP	"		✓			✓	4	"	842
CompQ	"		✓			✓	4	"	843
CompR	"		✓			✓	4	"	844

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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: [illegible] Title: SR Date: 3/27

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 26, 1991
P.O. Box 996	Sample Descript:	Soil, Comp M	Relogged:	Apr 4, 1991
Benicia, CA 94510				
Attention: Mardo Kaprealian, P.E.	Lab Number:	103-0839	Analyzed:	Apr 5, 1991
			Reported:	Apr 10, 1991

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Reactivity		
Cyanide	0.5	N.D.
Sulfide	10.0	N.D.
Reaction w/Water	NA	None
Corrosivity	NA	8.5
Ignitability	NA	>100°C
	mg/L	**mg/L**
STLC Lead	0.0050	0.81

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: 103-0839
Reported: Apr 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Cyanide	pH	STLC Lead
Method:	EPA 335.2	EPA 9045	EPA 239.2
Analyst:	A. Maralit	A. Pannu	R. Eastman
Reporting Units:	mg/kg	NA	mg/L
Date Analyzed:	Apr 5, 1991	Apr 5, 1991	Apr 8, 1991
QC Sample #:	103-3583	104-0827	104-0716
Sample Conc.:	N.D.	8.4	0.18
Spike Conc. Added:	2.5	NA	0.50
Conc. Matrix Spike:	2.3	NA	0.65
Matrix Spike % Recovery:	94	NA	94
Conc. Matrix Spike Dup.:	240	8.4	0.66
Matrix Spike Duplicate % Recovery:	95	NA	96
Relative % Difference:	1.3	0	1.5

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, 845 66th Ave., Oakland	Sampled:	Mar 26, 1991
P.O. Box 996	Sample Descript:	Extract of Soil Sample, Comp M	Relogged:	Apr 4, 1991
Benicia, CA 94510			Extracted:	Apr 8, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	103-0839	Analyzed:	Apr 9, 1991
			Reported:	Apr 10, 1991

TCLP METALS

Analyte	EPA HW No.	Detection Limit	Chronic Toxicity Reference Level	Regulatory Level	Sample Results
		mg/L (ppm)	mg/L (ppm)	mg/L (ppm)	mg/L (ppm)
Arsenic	D004	0.0050	0.05	5.0	N.D.
Barium	D005	0.10	1	100	1.2
Cadmium	D006	0.010	0.01	1.0	N.D.
Chromium	D007	0.0050	0.05	5.0	N.D.
Lead	D008	0.0050	0.05	5.0	0.022
Mercury	D009	0.00020	0.002	0.2	N.D.
Selenium	D010	0.0050	0.01	1.0	N.D.
Silver	D011	0.010	0.05	5.0	0.018

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, 845 66th Ave., Oakland
QC Sample Group: 103-0839
Reported: Apr 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Mercury	Lead TCLP	Barium	Cadmium	Chromium	Silver
Method:	EPA 245.1	EPA 239.2	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
Analyst:	C. Medefesser	R. Eastman	V. Patel	V. Patel	V. Patel	V. Patel
Reporting Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Date Analyzed:	Apr 9, 1991	Apr 9, 1991	Apr 9, 1991	Apr 9, 1991	Apr 9, 1991	Apr 9, 1991
QC Sample #:	103-3833	104-0866	103-3583	103-3583	103-3583	103-3583
Sample Conc.:	N.D.	0.012	1.2	N.D.	N.D.	0.018
Spike Conc. Added:	0.0020	1.0	5.0	5.0	5.0	5.0
Conc. Matrix Spike:	0.0021	0.87	7.0	6.0	4.8	4.3
Matrix Spike % Recovery:	110	86	120	120	96	86
Conc. Matrix Spike Dup.:	0.0021	0.86	5.9	4.9	4.7	4.7
Matrix Spike Duplicate % Recovery:	110	85	94	98	94	94
Relative % Difference:	0	1.2	17	20	2.1	8.9

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

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

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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: 103-0839
Reported: Apr 10, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Arsenic	Selenium
Method:	EPA 206.2	EPA 270.2
Analyst:	R. Sharma	R. Sharma
Reporting Units:	mg/L	mg/L
Date Analyzed:	Apr 9, 1991	Apr 9, 1991
QC Sample #:	103-3583	103-3583
Sample Conc.:	N.D.	N.D.
Spike Conc. Added:	0.10	0.10
Conc. Matrix Spike:	0.091	0.051
Matrix Spike % Recovery:	91	51
Conc. Matrix Spike Dup.:	0.087	0.053
Matrix Spike Duplicate % Recovery:	87	53
Relative % Difference:	4.5	3.8

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: Tom Mascarenas

WITNESSING AGENCY

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 - 66th Ave

ANALYSES REQUESTED: TPH-G, BTEX, TPH-D, TCE

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
Comp A	3-26-91		✓			✓	4	Fuel tank pit S+KAL	Aleph 828
Comp B	"		✓			✓	4	"	829
Comp C	"		✓			✓	4	"	830
Comp D	"		✓			✓	4	"	831
Comp E	"		✓			✓	4	"	832
Comp F	"		✓			✓	4	"	833
Comp G	"		✓			✓	4	"	834
Comp H	"		✓			✓	4	"	835
Comp I	"		✓			✓	4	"	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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: [illegible] Title: SR Date: 3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas
WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 66th Ave.

ANALYSES REQUESTED: TPH-G; BTEX; TPH-D; TCLP

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
CompJ	3-26-91		✓			✓	4	Fuel tank pit St#2.	Please FAX Results.
CompK	"		✓			✓	4	"	837
CompL	"		✓			✓	4	"	838
CompM	"		✓			✓	4	"	839
CompN	"		✓			✓	4	"	840
CompO	"		✓			✓	4	"	841
CompP	"		✓			✓	4	"	842
CompQ	"		✓			✓	4	"	843
CompR	"		✓			✓	4	"	844

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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
[illegible]	SE	3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135, 845 66th Ave

TURN AROUND TIME: 24hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX	TPH-D	TCLP	REMARKS
Comp 1S	3-26-91		✓			✓	4	Fuel tank pit S+RL	✓	✓	✓	✓	Rush 5 Day Results

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
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 SR | Date 3/27

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 26, 1991
P.O. Box 996	Sample Descript:	Soil, Comp Q	Relogged:	Apr 12, 1991
Benicia, CA 94510			Extracted:	Apr 15, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	103-0843	Analyzed:	Apr 15, 1991
			Reported:	Apr 16, 1991

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
STLC Lead	0.0050	0.11

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: 103-0843
Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE
Lead

Method:	EPA 239.2
Analyst:	R. Eastman
Reporting Units:	mg/L
Date Analyzed:	Apr 15, 1991
QC Sample #:	104-0552

Sample Conc.:	0.062
Spike Conc. Added:	1.0
Conc. Matrix Spike:	1.0
Matrix Spike % Recovery:	95
Conc. Matrix Spike Dup.:	0.99
Matrix Spike Duplicate % Recovery:	93
Relative % Difference:	1.0

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	Mar 26, 1991
P.O. Box 996	Sample Descript:	Soil	Relogged:	Apr 12, 1991
Benicia, CA 94510			Extracted:	Apr 15, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	103-0843	Analyzed:	4/12-4/15/91
			Reported:	Apr 16, 1991

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Reactivity		
Cyanide	0.5	N.D.
Sulfide	10.0	N.D.
Reaction with water	NA	None
Ignitability	NA	>100°C
Corrosivity	NA	9.2

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

1030843.KEI <3>

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc. Client Project ID: Unocal, 845 66th Ave., Oakland
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 103-0843 Reported: Apr 16, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	pH	Sulfide
Method:	EPA 9045	EPA 376.1
Analyst:	A. Pannu	Sukthankar D.
Reporting Units:	NA	mg/kg
Date Analyzed:	Apr 14, 1991	Apr 15, 1991
QC Sample #:	103-3587	103-3587
Sample Conc.:	9.2	N.D.
Spike Conc. Added:	NA	10
Conc. Matrix Spike:	NA	11.0
Matrix Spike % Recovery:	NA	110
Conc. Matrix Spike Dup.:	9.2	11.0
Matrix Spike Duplicate % Recovery:	NA	110
Relative % Difference:	0.020	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.

KEI

CHAIN OF CUSTODY

SAMPLER	SITE NAME & ADDRESS	ANALYSES REQUESTED	TURN AROUND TIME:
Tom Mascarenas	UNOCAL- Oakland #3135 845 66th Ave	TPH-G, BTEX, TPH-D, TOG	24 hrs.
WITNESSING AGENCY			

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX	TPH-D	TOG			REMARKS
															Dep[illegible]
Comp A	3-26-91		✓			✓	4	Fuel tank pit S+Kpl.	✓	✓	✓	✓			828
Comp B	11		✓			✓	4	11	✓	✓	✓	✓			829
Comp C	11		✓			✓	4	11	✓	✓	✓	✓			830
Comp D	11		✓			✓	4	11	✓	✓	✓	✓			831
Comp E	11		✓			✓	4	11	✓	✓	✓	✓			832
Comp F	11		✓			✓	4	11	✓	✓	✓	✓			833
Comp G	11		✓			✓	4	11	✓	✓	✓	✓			834
Comp H	11		✓			✓	4	11	✓	✓	✓	✓			835
Comp I	11		✓			✓	4	11	✓	✓	✓	✓			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	[signature]
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
[signature]	SR	3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135 8456 6th Ave.

ANALYSES REQUESTED: TPH-G, BTEX, TPH-D, TOG

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
CompJ	3-26-91		✓			✓	4	Fuel tank pit stkpl.	Please Fax Results.
CompK	"		✓			✓	4	"	837
CompL	"		✓			✓	4	"	838
CompM	"		✓			✓	4	"	839
CompN	"		✓			✓	4	"	840
CompO	"		✓			✓	4	"	841
CompP	"		✓			✓	4	"	842
CompQ	"		✓			✓	4	"	843
CompR	"		✓			✓	4	"	844

	Date/Time	
Relinquished by: (Signature) Tom Mascarenas	3/27 10:15	Received by: (Signature)
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: [illegible] Title: SC Date: 3/27

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas
WITNESSING AGENCY

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 66th Ave

ANALYSES REQUESTED: TPH-G, BTEX, TPH-D, TCLP

TURN AROUND TIME: 24hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION
Comp 1S	3-26-91		✓			✓	4	Fuel tank pit Stkpl.

REMARKS: Rush 3 day results.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	3/27 10:15	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

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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: 3/27

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 29, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	Apr 29, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 29, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	104-0980 A-D	Reported:	May 1, 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)
104-0980 A-D	Comp 1	33	0.046	0.017	0.086	0.79
104-0981 A-D	Comp 2	23	0.091	0.019	0.046	0.43
104-0982 A-D	Comp 3	10	0.030	0.016	0.028	0.14
104-0983 A-D	Comp 4	7.6	0.028	0.016	0.058	0.13
104-0984 A-D	Comp 5	6.2	0.011	0.031	0.019	0.071
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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland		
P.O. Box 996	Sample Descript.:	Matrix Blank		
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 29, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1040980-84	Reported:	May 1, 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

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: 1040980-84

Reported: May 1, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991
QC Sample #:	104-0853	104-0853	104-0853	104-0853
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.52	0.42	0.40	1.2
Matrix Spike % Recovery:	130	110	100	100
Conc. Matrix Spike Dup.:	0.40	0.38	0.40	1.2
Matrix Spike Duplicate % Recovery:	100	95	100	100
Relative % Difference:	26	10	0	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.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 845 66th Ave., Oakland
QC Sample Group: 1040980-84
Reported: May 1, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.	J.F.	J.F.
Reporting Units:	ppm	ppm	ppm	ppm	ppm	ppm
Date Analyzed:	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991	Apr 29, 1991
Sample #:	104-0980	104-0981	104-0982	104-0983	104-0984	Blank
Surrogate % Recovery:	100	100	97	82	100	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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas
WITNESSING AGENCY

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 66th Ave

ANALYSES REQUESTED: TPH-G; BTEX

TURN AROUND TIME: 24hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX
Comp 1	4-29-91		✓			✓	4	Fuel tank pit sample.	✓	✓
Comp 2			✓			✓			✓	✓
Comp 3			✓			✓			✓	✓
Comp 4			✓			✓			✓	✓
Comp 5			✓			✓			✓	✓

REMARKS: Please fax Results.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	4/29 2:55	
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
	SR	4/29

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland	Sampled:	May 2, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 2, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 3, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0042 A-D	Reported:	May 6, 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)
105-0042 A-D	Comp 6	24	0.017	0.048	0.049	0.35
105-0043 A-D	Comp 7	20	0.024	0.046	0.035	0.12
105-0044 A-D	Comp 8	9.7	0.026	N.D.	0.047	0.16
105-0045 A-D	Comp 9	9.0	0.064	0.0070	0.021	0.12
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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 845 66th Ave., Oakland		
P.O. Box 996	Sample Descript.:	Matrix Blank		
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 3, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1050042-45	Reported:	May 6, 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

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: 105-0042
Reported: May 6, 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:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	May 3, 1991	May 3, 1991	May 3, 1991	May 3, 1991
QC Sample #:	105-0061	105-0061	105-0061	105-0061
Sample Conc.:	0.13	0.026	0.032	0.17
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.41	0.34	0.35	1.1
Matrix Spike % Recovery:	85	79	80	78
Conc. Matrix Spike Dup.:	0.41	0.40	0.40	1.2
Matrix Spike Duplicate % Recovery:	85	94	92	86
Relative % Difference:	0	16	13	9.8

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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas
WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 - 66th Ave

ANALYSES REQUESTED: TPH-G, BTEX

TURN AROUND TIME: 24hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	REMARKS
Comp 6	5-2-91		✓			✓	4	Fuel tank Pit Stg. 1.	Please Fax Results.
Comp 7			✓			✓			
Comp 8			✓			✓			
Comp 9			✓			✓			

Relinquished by: (Signature) Tom Mascarenas — Date/Time 5-2 10:20 PM — Received by: (Signature) Ed Hamilton

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? N/A
4. Were samples in appropriate containers and properly packaged? Yes

EH — Signature; Title; 5-2-91 — 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, 845 66th Ave., Oakland	Sampled:	May 7, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 7, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	5/7-5/8/91
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0174 A-D	Reported:	May 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)
105-0174 A-D	Comp 10	12	0.076	0.007	0.032	0.16
105-0175 A-D	Comp 11	39	0.023	0.048	0.11	1.1
105-0176 A-D	Comp 12	240	0.2	0.17	3.2	26
105-0177 A-D	Comp 13	47	0.079	0.14	0.12	0.62
105-0178 A-D	Comp 14	32	0.16	N.D.	0.066	0.43
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

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

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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: May 8, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	- - - - - -	Reported: May 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	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

Arthur G. Burton
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: 1050174-78
Reported: May 9, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm	ppm	ppm
Date Analyzed:	May 8, 1991	May 8, 1991	May 8, 1991	May 8, 1991	May 8, 1991	May 8, 1991
Sample #:	105-0174	105-0175	105-0176	105-0177	105-0178	Blank
Surrogate % Recovery:	87	100	106	97	106	91

SEQUOIA ANALYTICAL

Arthur G. Burton
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: 1050174-78
Reported: May 9, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	May 8, 1991	May 8, 1991	May 8, 1991	May 8, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.4	0.4	0.4	1.2
Conc. Matrix Spike:	0.37	0.36	0.37	1.1
Matrix Spike % Recovery:	92	90	92	92
Conc. Matrix Spike Dup.:	0.38	0.35	0.36	1.1
Matrix Spike Duplicate % Recovery:	95	88	90	92
Relative % Difference:	2.6	2.8	2.7	0

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

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

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

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Tom Mascarenas

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135, 845 66th Ave

ANALYSES REQUESTED: TPH-G, BTEX

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX				REMARKS
Comp10	5-7-91		✓			✓	4	fuel tank PIF Stkpl.	✓	✓	1050	174	A-D	Please fax Results.
Comp11			✓			✓			✓	✓		175		
Comp12			✓			✓			✓	✓		176		
Comp13			✓			✓			✓	✓		177		
Comp14			✓			✓			✓	✓		178		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	5/9/91 2:50	
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
	SR	5/

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:	May 15, 1991
P.O. Box 996	Matrix Descript:	Soil	Received:	May 15, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	May 15, 1991
Attention: Mardo Kaprealian, P.E.	First Sample #:	105-0532 A-D	Reported:	May 17, 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)
105-0532 A-D	Comp 15	6.8	0.057	0.019	0.051	0.22
105-0533 A-D	Comp 16	20	0.013	0.022	0.041	0.18
105-0534 A-D	Comp 17	12	0.020	0.029	0.062	0.32
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

Julia R. Malerstein
Project Manager

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	
P.O. Box 996	Sample Descript.:	Matrix Blank	
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 15, 1991
Attention: Mardo Kaprealian, P.E.	Q.C. Sample Grou	1050532-34	Reported: May 17, 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

Julia R. Malerstein
Project Manager

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
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E. QC Sample Group: 1050532-34 Reported: May 17, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	May 15, 1991	May 15, 1991	May 15, 1991	May 15, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.38	0.38	0.36	1.1
Matrix Spike % Recovery:	95	95	90	92
Conc. Matrix Spike Dup.:	0.37	0.37	0.36	1.1
Matrix Spike Duplicate % Recovery:	92	92	90	92
Relative % Difference:	2.7	2.7	0	0

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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: 1050532-34

Reported: May 17, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Reporting Units:	ppm	ppm	ppm	ppm
Date Analyzed:	May 15, 1991	May 15, 1991	May 15, 1991	May 15, 1991
Sample #:	105-0532	105-0533	105-0534	Blank
Surrogate % Recovery:	100	93	105	96

SEQUOIA ANALYTICAL

Julia R. Malerstein
Project Manager

% 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: Tom Mascarenas

WITNESSING AGENCY:

SITE NAME & ADDRESS: UNOCAL - Oakland #3135
845 - 66th Ave

TURN AROUND TIME: 24 hrs.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-G	BTEX		REMARKS
Comp15	5-15-91		✓			✓	4	Fuel tank pit & Pipel.	✓	✓	1050532A-D	Please fax Results
Comp16	↓		✓			✓	↓	↓	✓	✓	533	↓
Comp17			✓			✓			✓	✓	534	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom Mascarenas	5/15 3:00	[signature]
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
[signature]	SR	5/15