KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

2/24/89

ALAMEDA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS

February 21, 1989

Alameda County Department of
Environmental Health
470 27th Street, Room 322
Oakland, CA 94612

RE: Unocal Station #5366
7375 Amador Valley Road
Dublin, California

Gentlemen:

Per the request of Unocal's Mr. Tim Ross, enclosed please find our report dated February 15, 1989 for the above referenced site.

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

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

Judy A. Dewey

Enclosure

cc: Tim Ross, Unocal

KAPREALIAN ENGINEERING, INC.
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KEI-P88-0205.QR3
February 15, 1989

Unocal Corporation
2175 N. California Blvd., Suite 650
Walnut Creek, CA 94569

Attention: Mr. Tim Ross

RE: Quarterly Report
Unocal Service Station #5366
7375 Amador Valley Blvd.
Dublin, California

Dear Mr. Ross:

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 our proposal dated May 12, 1988. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from November, 1988 through January, 1989.

BACKGROUND

Kaprealian Engineering, Inc.'s (KEI) work at the site began February 18, 1988, and consisted of soil sampling following the removal of three underground fuel storage tanks. Six samples of native soil from the sidewalls of the fuel tank pit, and one ground water sample were collected. The analytical results provided by HAZCAT Mobile Organics Laboratory showed detectable total petroleum hydrocarbon (TPH) and benzene, toluene, xylenes and ethylbenzene (BTX&E) for the soil samples.

Based on the analytical results, KEI recommended the installation of four monitoring wells to begin to determine the lateral and vertical extent of the soil and ground water contamination. The wells were installed by KEI on April 14, 1988. Water samples, initially collected from the four wells, had benzene levels ranging from non-detectable to 2.7 ppb, except well MW-1 which showed benzene levels of 960 ppb. KEI proposed a nine month program of monthly monitoring and quarterly sampling of the four wells. This report represents the third quarter of this program.

FIELD ACTIVITIES

The four wells were monitored three times and sampled once during the quarter. During monitoring, the wells were checked for depth to water and visual presence of free product. After monitoring, the wells were purged and allowed to recover. Monitoring data are summarized in Table 1. No free product or sheen was noted in any of the wells during the quarter.

Water samples were taken from the wells on January 26, 1989. Prior to sampling, the wells were purged using an acrylic surface bailer. Samples were then collected 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 on ice until delivery to the state certified laboratory.

HYDROLOGY

Based on the water level data gathered during the quarter, ground water flow direction has shifted from a northeasterly direction at the beginning to toward the east at the end of the quarter. Water levels have remained relatively constant during the quarter.

ANALYTICAL RESULTS

Water samples were analyzed at Sequoia Analytical Laboratory in Redwood City, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline using EPA methods 5030 in conjunction with modified 8015, and BTX&E using EPA methods 5030 and 8020. In addition, the sample from MW-3 was analyzed for TPH as diesel using EPA method 3550 with modified 8015 and EPA method 8010.

The analytical results show non-detectable levels of TPH and BTX&E in wells MW-2 and MW-3 (unchanged from the previous sampling in October, 1988). In well MW-4, the benzene level was 0.67 ppb, and in well MW-1, the benzene level was 240 ppb. Results of the analyses are summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Past activities at the site have led to the situation where minor residual soil contamination is still present in the vicinity of the tank pit/pump islands. As much contaminated soil as possible was removed during tank replacement in February, 1988 without tearing down the pump islands. Based on the present ground water flow direction and water table level, it appears that the residual soil contamination may be causing persistent low levels of TPH as gasoline and BTX&E in MW-1.

Three of the four corners at the intersection of Village Parkway and Amador Valley Blvd. have active service stations (Mobil, Arco, Unocal). The fourth corner (southwest) was recently a Shell station which has been converted into an oil changing store. During a site visit by KEI, it was determined that several monitoring wells have been installed at the former Shell station site.

Based on investigations either in progress or proposed for other stations in the area and the relatively low levels of TPH and BTX&E in MW-1, KEI recommends continuation of the monitoring and sampling program of the existing monitoring wells at the site. KEI also recommends further research into other investigations in the area.

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 investigations. 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, 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.

Gary S. Johnson
Registered Geologist

License #4315
Exp. Date 6/30/90

Mardo Kaprealian
President

Attachment: Tables 1 and 2
Location Map
Site Plan
Laboratory Analyses
Chain of Custody documentation

KEI-P88-0205.QR3
February 15, 1989

TABLE 1

SUMMARY OF MONITORING DATA

Date	Well No.	Water Depth (feet)	Product Thickness	Sheen	Water Bailed (gallons)
1/26/89	MW-1	10.58	None	None	50
	MW-2	10.87	None	None	10
	MW-3	10.87	None	None	10
	MW-4	10.85	None	None	10
12/28/88	MW-1	10.49	None	None	55
	MW-2	10.90	None	None	0
	MW-3	11.11	None	None	0
	MW-4	10.98	None	None	0
11/22/88	MW-1	10.75	None	None	50
	MW-2	11.17	None	None	0
	MW-3	11.33	None	None	0
	MW-4	11.25	None	None	0

KEI-P88-0205.QR3
February 15, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES

(All results in ppb)

Date	Sample Well #	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
1/26/89	MW-1	10.67	1900	240	1.8	30	81
	MW-2	10.92	<50	<0.5	<0.5	<0.5	<0.5
	MW-3*	11.08	<50	<0.5	<0.5	<0.5	<0.5
	MW-4	10.92	<50	0.67	<0.5	<0.5	<0.5
10/28/88	MW-1	10.88	5200	150	ND	12	--
	MW-2	11.17	<50	<0.5	<0.5	<0.5	--
	MW-3*	11.25	--	<0.5	<0.5	<0.5	--
	MW-4	11.25	<50	<0.5	<0.5	<0.5	--
7/25/88	MW-1	10.88	6100	170	2.1	94	--
	MW-2	11.09	<50	<0.5	<0.5	<0.5	--
	MW-3*	11.25	--	<0.5	<0.5	<0.5	--
	MW-4	11.08	<50	<0.5	<0.5	<0.5	--
4/29/88	MW-1	10.25	10,000	960	17	1500	--
	MW-2	10.48	170	2.7	0.6	13	--
	MW-3*	10.60	<50	<0.5	<0.5	<0.5	--
	MW-4	10.54	<50	<0.5	<0.5	<0.5	--

*TPH as diesel and EPA 8010 were non-detectable.

KAPREALIAN ENGINEERING, INC.
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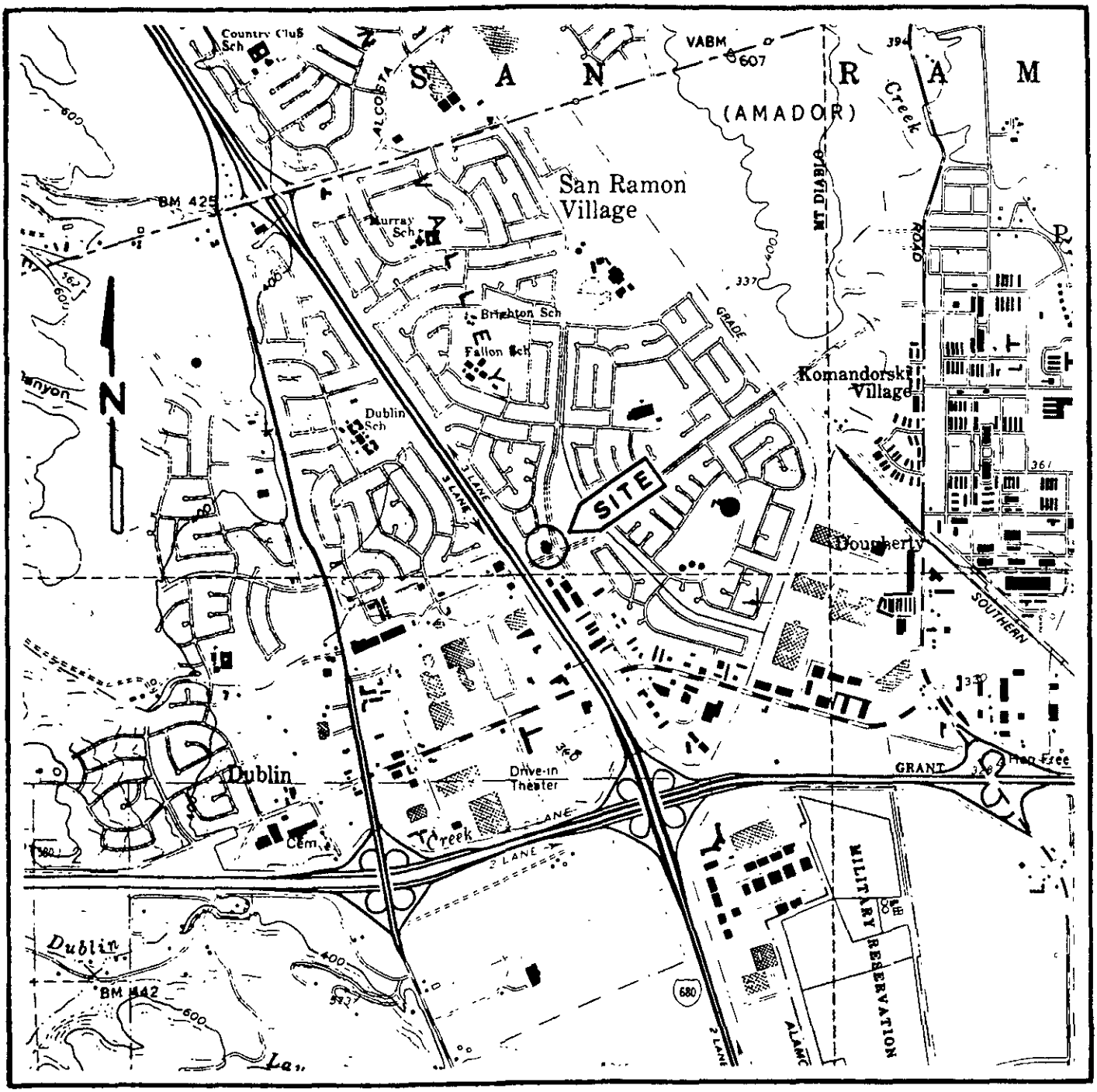

LOCATION MAP

Unocal Station #5366
7375 Amador Valley Blvd.
Dublin, California

KAPREALIAN ENGINEERING, INC.
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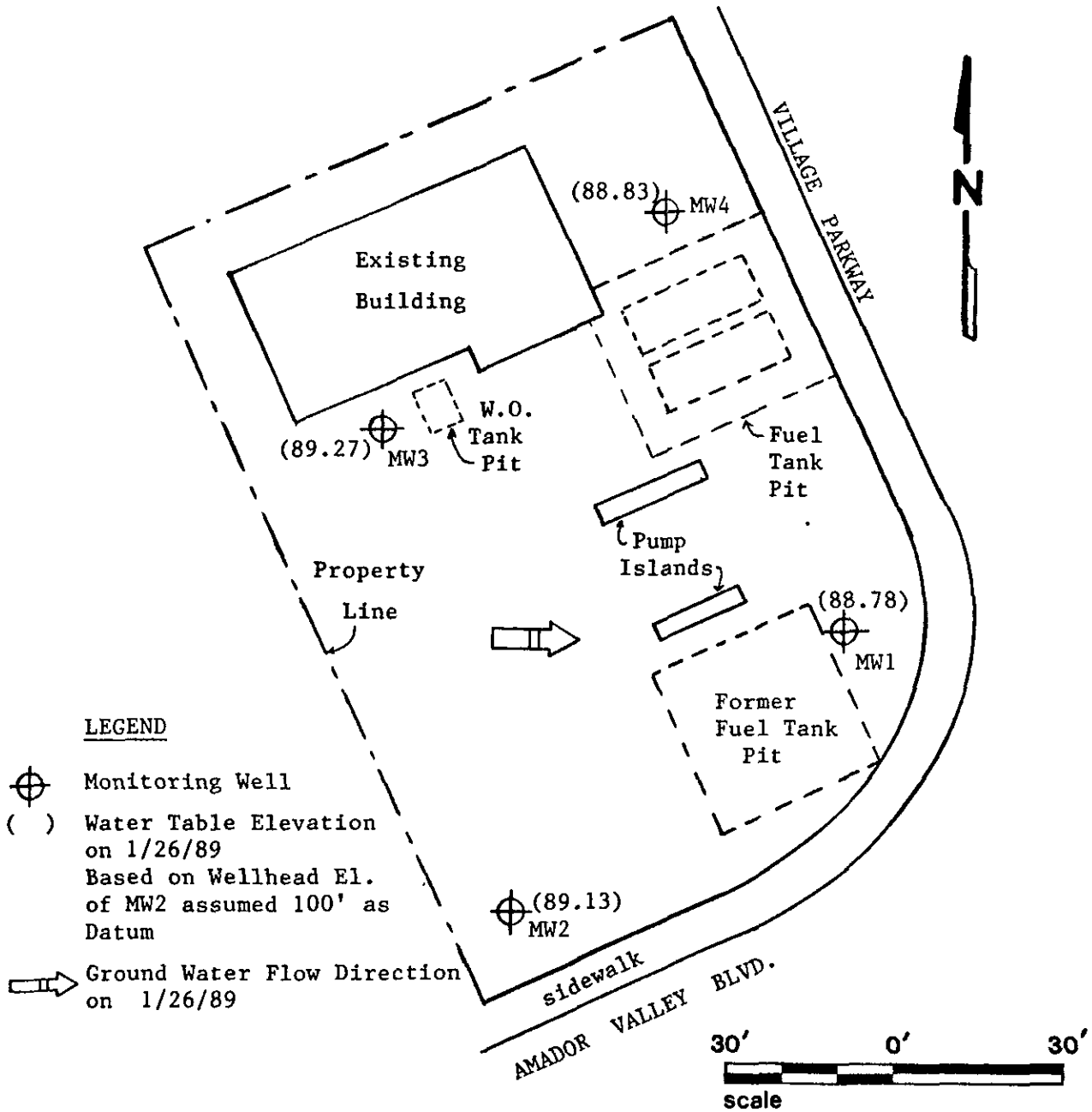

LEGEND

- Monitoring Well
- ( ) Water Table Elevation on 1/26/89 Based on Wellhead El. of MW2 assumed 100' as Datum
- Ground Water Flow Direction on 1/26/89

SITE PLAN

Unocal Station #5366
7375 Amador Valley Blvd.
Dublin, California

SEQUOIA ANALYTICAL

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

Kapreallan Engineering, Inc.	Client Project ID:	Unocal, Dublin, Amador Valley/Village	Sampled:	Jan 26, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jan 26, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 1, 1989
Attention: Mardo Kapreallan, P.E.	First Sample #:	901-2758	Reported:	Feb 3, 1989

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons ug/L (ppb)	Benzene ug/L (ppb)	Toluene ug/L (ppb)	Ethyl Benzene ug/L (ppb)	Xylenes ug/L (ppb)
901-2758	MW1	1,900	240	1.8	81	30
901-2759	MW2	N.D.	N.D.	N.D.	N.D.	N.D.
901-2760	MW3	N.D.	N.D.	N.D.	N.D.	N.D.
901-2761	MW4	N.D.	0.67	N.D.	N.D.	N.D.
Detection Limits:		**50.0**	**0.5**	**0.5**	**0.5**	**0.5**

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, Dublin, Amador Valley/Village	Sampled:	Jan 26, 1989
P.O. Box 913	Matrix Descript:	Water, MW3	Received:	Jan 26, 1989
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Analyzed:	Feb 1, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	901-2760	Reported:	Feb 3, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons ug/L (ppb)
901-2760	MW3	N.D.

Detection Limits:	**50.0**

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

Arthur G. Burton
Laboratory Director

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BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

CHAIN OF CUSTODY

SAMPLER: Ray Kell (signature) DATE/TIME OF COLLECTION: 1/26/89 TURN AROUND TIME: 1 Week

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL DUBLIN AMADOR VALLEY/VILLAGE

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
MW1	TPHG. BTXE	Grab	2V	W
MW2	" "	"	"	"
MW3	TPHG. BTXE	"	"	"
	TPHD as Diesel	"	1L	"
	601	"	2V	"
MW4	TPHG. BTXE	"	2V	"

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Ray Kell	1/26/89 4:30 PM	Derek Newcomb	1/26/89 4:30
2.			
3.			
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS:

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

August 29, 1988

Alameda County Department of
Environmental Health
470 27th Street, Room 322
Oakland, CA 94612

Re: Unocal Station #5366
7375 Amador Valley Rd.
Dublin, California

Gentlemen:

Per the request of Unocal's Mr. Tim Ross, enclosed please find our report dated August 26, 1988 for the above referenced site.

Should you have any questions, please call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Christina L. Lecce

Christina L. Lecce

Enclosure

cc: Tim Ross