



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

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

KEI-P88-0205.QR13
September 16, 1991

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

Attention: Mr. Ron Bock

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

Dear Mr. Bock:

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 report KEI-P88-0205.QR3 dated February 15, 1989. The wells are currently being monitored monthly, and only downgradient well MW1 is being sampled on a quarterly basis. This report covers the work performed by KEI from June through August, 1991.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The site is located near the center of the southeast end of San Ramon Valley. The site is situated at the west corner of the intersection of Village Parkway and Amador Valley Boulevard in Dublin, California. A BP Service Station, an Arco Service Station, and a former Shell Station are located at the other three corners of this intersection. A Location Map, a Site Vicinity Map, and Site Plans are attached to this report.

KEI's initial work at the site began on February 18, 1988, and consisted of soil sampling following the removal of three underground fuel storage tanks. The tanks consisted of one 10,000 gallon unleaded fuel tank, one 10,000 gallon super unleaded fuel tank, and one 10,000 gallon diesel fuel tank. The tanks were made of steel and had various sized holes at the bottom of the tanks, ranging from a quarter-inch to one-inch in diameter. Ground water was encountered in the tank pit at a depth of 10.5 feet below grade, thus prohibiting the collection of soil samples from beneath the tanks. Six soil samples, labeled S1 through S4, S2D, and S4D,

were collected from the sidewalls of the fuel tank pit. The soil sample collection points are shown on the attached Site Plan, Figure 2. The fuel tank pit was then excavated to a depth of approximately 13 feet below grade. After 9,000 gallons of water were pumped from the former tank pit, one ground water sample, labeled W1, was collected. In addition, a second water sample, labeled W2, was collected from a second excavation, where the new tanks were installed.

Samples were analyzed at HAZCAT Mobile Organics Laboratory in San Carlos, California, a state-certified hazardous waste testing laboratory. Soil samples S2, S3, and S4, and the water samples, were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes, and ethylbenzene (BTX&E). Soil samples S1, S2D, and S4D, and the water samples were analyzed for TPH as diesel. The analytical results of soil samples S2, S3, and S4 showed levels of TPH as gasoline at 14 ppm, 14 ppm, and 1,700 ppm, respectively. The analytical results of the water samples showed 91,000 ppb of TPH as gasoline and 8,200 ppb of benzene in sample W1, and 120 ppb of TPH as gasoline with a non-detectable level of benzene in sample W2. Analytical results of the soil and water samples are listed in Table 3. Documentation of sample collection techniques and sample results are presented in KEI's report (KEI-J88-025) dated February 25, 1988. Based on the analytical results, KEI recommended the installation of four monitoring wells to begin to determine the extent of the soil and ground water contamination, and to determine the direction of ground water flow.

On April 14, 1988, four two-inch diameter monitoring wells, designated as MW1 through MW4 on the attached Site Plan, Figure 1, were installed at the site. The wells were drilled and completed to total depths of 20 feet below grade. Ground water was encountered at depths ranging from 14 to 16 feet beneath the surface during drilling. The wells were developed on April 26, 1988, and were initially sampled on April 29, 1988. A total of six soil samples were collected at depths ranging from 5 to 10 feet below grade. The samples were analyzed at HAZCAT Organics Laboratory in San Carlos, California, for TPH as gasoline and BTX&E. In addition, the soil samples collected from boring MW3 were analyzed for TPH as diesel, total oil and grease (TOG), and EPA method 8010 compounds. The soil sample results showed low to non-detectable levels of TPH as gasoline and BTX&E in all wells, except well MW1, which showed a TPH as gasoline level of 340 ppm in the soil sample collected at a depth of 10 feet below grade. Analytical results of the soil samples are summarized in Table 4.

The analytical results of the water samples, initially collected on April 29, 1988, indicated non-detectable levels of TPH as gasoline and benzene in wells MW3 and MW4. Analytical results of the water samples collected from wells MW1 and MW2 showed TPH as gasoline at levels of 10,000 ppb and 170 ppb, respectively, with benzene levels of 960 ppb and 2.7 ppb, respectively. Analytical results of the water samples are summarized in Table 2. Documentation of monitoring well installation protocol, sampling techniques, and sample results are presented in KEI's report (KEI-J88-025A-1) dated May 11, 1988. Based on the sample results, KEI recommended a monthly monitoring and quarterly sampling program for the four wells. The four wells have been monitored monthly since April 29, 1988. In addition, all four wells were sampled quarterly from April 29, 1988, until May 18, 1990. Since that time, wells MW2, MW3, and MW4 have not been sampled because previous samples collected from these wells indicated non-detectable levels of TPH as gasoline and benzene for three consecutive quarters. Beginning on August 15, 1990, only well MW1 has been sampled quarterly.

As previously indicated, past activities at the site have led to a situation where some residual soil contamination is still present in the area between the old tank pit and the southwest side of the pump islands. As much contaminated soil as possible was removed during tank replacement in February of 1988 without compromising the structural integrity of the pump islands.

Three of the four corners at the intersection of Village Parkway and Amador Valley Boulevard have active service stations (BP, Arco, and Unocal). The fourth corner (southwest) was previously a Shell Station, and has been converted into an oil changing facility. The respective locations of the service stations are shown on the attached Site Vicinity Map. In addition, immediately adjacent to and south of the former Shell Station is a facility referred to as the Dodge Property, located at 7400 Amador Valley Boulevard, which also contained underground fuel storage tanks. During a site visit by KEI, it was determined that several monitoring wells have been installed at the former Shell Station site, located south-southeast of the subject site, and at the BP Station, located east-southeast of the subject site. In addition, KEI reviewed the files of the Regional Water Quality Control Board (RWQCB) on March 5, 1991, to obtain information regarding any subsurface investigations conducted at the above mentioned sites. The following is a summary of the file reviews:

1. Former Shell Service Station, located at 7194 Amador Valley Boulevard (southwest corner).

Shell has installed 11 monitoring wells (six off-site) and one recovery well. One monitoring well was subsequently destroyed. Levels of TPH as gasoline have been detected in the ground water samples collected from the on-site wells at concentrations ranging from non-detectable to 200,000 ppb. The levels of TPH as gasoline detected in ground water samples collected from on-site wells on August 21, 1990, (most recent data reviewed) ranged from non-detectable to 5,100 ppb. The ground water flow direction, as measured on August 20, 1990, appeared to be towards the north at the northern portion of the site and to the south at the southern portion of the site.

2. BP Service Station, located at 7197 Village Parkway (southeast corner).

BP has installed six monitoring wells on-site. The levels of TPH as gasoline detected in ground water samples collected from the six wells on September 6, 1990, (most recent data reviewed) ranged from non-detectable to 470 ppb. One monitoring well has consistently detected free product. The ground water flow direction is reportedly to the south-southwest.

3. Arco Service Station, located at northeast corner of Amador Valley Boulevard and Village Parkway.

It is presently unknown to KEI whether any subsurface investigations have been conducted at the Arco site. The site is not currently listed on the RWQCB's fuel leak list.

4. Former Dutch Pride Dairy facility (currently referred to as the Dodge Property), located at 7400 Amador Valley Boulevard, adjacent to and south of the former Shell Station.

Two 10,000 gallon gasoline storage tanks were removed from the site in January of 1990. The analytical results of soil samples collected from the gasoline tank pit indicated levels of TPH as gasoline at concentrations ranging from non-detectable to 6,000 ppm. It is presently unknown to KEI whether any monitoring wells have been installed by the property owner or any tenants. A monitoring well installed by Shell (now destroyed) at the site showed levels of TPH as gasoline detected in ground water samples at concentrations ranging from non-detectable to 3,300 ppb.

RECENT FIELD ACTIVITIES

The four wells (MW1, MW2, MW3, and MW4) were monitored three times during the quarter. Well MW1 was purged of 53 to 55 gallons during

each monthly monitoring event. 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.

A water sample was collected from monitoring well MW1 on August 12, 1991. Prior to sampling, the well was purged of 53 gallons using a surface pump. A sample was then collected using a clean Teflon bailer. The sample was 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 to the east-northeast on August 12, 1991, relatively unchanged from the previous quarters, with an approximate hydraulic gradient of 0.006. Water levels have fluctuated during the quarter, showing a net decrease in all wells of 0.75 to 0.81 feet, since May 15, 1991. The measured depth to ground water at the site on August 12, 1991, ranged between 11.15 and 11.51 feet below grade.

The site is situated within the Dublin Subbasin of the Livermore Valley Ground Water Basin, as defined by the Alameda County Flood Control and Water Conservation District, and by the California Department of Water Resources Bulletin 118-2. Regionally, the ground water flow direction is toward the southeast based on ground water contours presented in the Zone 7 Fall 1990 Ground Water Level Report.

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is situated at a mapped geologic contact separating Holocene-age Fine-grained Alluvium (Qhaf) and Late-Pleistocene Alluvium (Qpa). The Fine-grained Alluvium is described as typically consisting of unconsolidated silt and clay materials rich in organic material and is generally less than 10 feet thick. The Late-Pleistocene Alluvium is described as typically consisting of irregular interbedded clay, silt, sand, and gravel, which has a maximum thickness up to 150 feet.

The results of our previous subsurface study indicate that the site is apparently underlain predominantly by clay and silty clay soil materials to the maximum depth explored (20 feet below grade), which locally contain a trace of gravel.

ANALYTICAL RESULTS

The ground water sample from MW1 was analyzed at Sequoia Analytical Laboratory in Concord, California, and was accompanied by properly executed Chain of Custody documentation. The sample was analyzed for TPH as gasoline using EPA method 5030 in conjunction with modified 8015, and BTX&E using EPA method 8020.

Analytical results of the water sample collected from monitoring well MW1 indicated a level of TPH as gasoline at 1,100 ppb, and a level of benzene at 68 ppb. Toluene, xylenes, and ethylbenzene levels in MW1 were 2.6 ppb, 9.3 ppb, and 210 ppb, respectively. Results of the ground water analysis is summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

As discussed above, the reported ground water flow directions at the Unocal, BP, and former Shell Service Stations vary from east-northeast at the Unocal site, to south-southeast at the BP site, to north and south at the former Shell Service Station site. As reported previously, KEI is attempting to arrange a meeting between Unocal, Shell, BP, and possibly Arco, to exchange recent water level and water quality data, and to set up a joint monitoring at the sites (to a common datum) in order to determine the regional ground water flow direction in the vicinity of the sites.

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 monthly monitoring program of the existing wells, per KEI's report (KEI-P88-0205.QR3) dated February 15, 1989. In addition, KEI recommends that quarterly sampling of downgradient monitoring well MW1 be continued. KEI also recommends the continuation of monthly purging of 55 gallons from MW1.

DISTRIBUTION

A copy of this report should be sent to 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.

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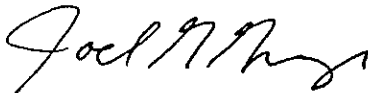
If you have any questions regarding this report, please do not hesitate to call me at (707) 746-6915.

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

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

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 September 16, 1991

TABLE 1

SUMMARY OF MONITORING DATA

<u>Well No.</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>	<u>Product Purged</u>
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(Monitored and Sampled on August 12, 1991)

MW1	88.21	11.15	0	No	53	0
MW2	88.72	11.28	0	No	0	0
MW3	88.68	11.46	0	No	0	0
MW4	88.17	11.51	0	No	0	0

(Monitored on July 16, 1991)

MW1	88.70	10.66	0	No	55	0
MW2	89.26	10.74	0	No	0	0
MW3	89.14	11.00	0	No	0	0
MW4	88.64	11.04	0	No	0	0

(Monitored on June 17, 1991)

MW1	88.67	10.69	0	No	53	0
MW2	89.17	10.83	0	No	0	0
MW3	89.10	11.04	0	No	0	0
MW4	88.62	11.06	0	No	0	0

<u>Well #</u>	<u>Surface Elevation* (feet)</u>
MW1	99.36
MW2	100.00
MW3	100.14
MW4	99.68

* Elevation of top of well covers surveyed relative to Mean Sea Level (MSL)

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TABLE 2
SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
8/12/91	MW1	1,100	68	2.6	9.3	210
5/15/91	MW1	2,100	220	ND	27	360
2/14/91	MW1	1,900	150	2.9	43	340
11/14/90	MW1	2,000	110	0.52	16	410
8/15/90	MW1	2,200	160	ND	45	570
5/18/90	MW1	2,000	140	1.8	19	460
	MW2	ND	ND	ND	ND	ND
	MW3+	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
2/06/90	MW1	2,700	170	ND	29	350
	MW2	ND	ND	ND	ND	ND
	MW3+	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
10/20/89	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3*	ND	ND	ND	ND	0.38
	MW4	ND	ND	ND	ND	ND
7/27/89	MW1	1,900	130	6.3	68	ND
	MW2	ND	ND	ND	ND	ND
	MW3**	ND	ND	ND	ND	ND
	MW4	ND	0.34	ND	ND	ND
5/22/89	MW3	ND	ND	ND	ND	ND
4/28/89	MW1	1,000	97	0.8	24	170
	MW2	ND	ND	ND	ND	ND
	MW3***	880	9.6	9.7	12.7	19
	MW4	ND	0.3	ND	ND	ND
1/26/89	MW1	1,900	240	1.8	30	81
	MW2	ND	ND	ND	ND	ND
	MW3****	ND	ND	ND	ND	ND
	MW4	ND	0.67	ND	ND	ND

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TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
10/28/88	MW1	5,200	150	ND	12	250
	MW2	ND	ND	ND	ND	ND
	MW3****	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
7/25/88	MW1	6,100	170	2.1	94	94
	MW2	ND	ND	ND	ND	ND
	MW3****	--	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND
4/29/88	MW1	10,000	960	17	1,500	870
	MW2	170	2.7	0.6	13	ND
	MW3	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND

+ TPH as diesel, all EPA method 8010 constituents, and TOG were non-detectable.

* TPH as diesel and all EPA method 8010 constituents were non-detectable. TOG showed 2.5 ppm.

** TPH as diesel and all EPA method 8010 constituents were non-detectable. TOG showed 1.6 ppm.

*** TPH as diesel was 72 ppb, TOG, and all EPA method 8010 constituents were non-detectable.

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

ND = Non-detectable.

-- Indicates analysis not performed.

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

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TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

<u>Date</u>	<u>Sample #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
2/18/88	S1	<10	--	--	--	--	--
	S2	--	14	0.8	<0.1	2.7	4.6
	S2D	<10	--	--	--	--	--
	S3	--	14	1.1	<0.1	0.7	7.1
	S4	--	1,700	8.0	22	340	62
	S4D	83	--	--	--	--	--

-- Indicates analysis not performed.

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

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
2/19/88	W1	91,000	8,200	1,200	5,300	4,300
	W2	120	<0.5	5.0	12	2.4

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

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TABLE 4
SUMMARY OF LABORATORY ANALYSES
SOIL

<u>Date</u>	<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
4/14/88	MW1(10)	10	340	<0.1	<0.1	<0.1	<0.1
	MW1(15)	15	11	<0.1	<0.1	<0.1	<0.1
	MW2(10)	10	<1.0	<0.1	<0.1	<0.1	<0.1
	MW3(5)*	5	<1.0	<0.1	<0.1	<0.1	<0.1
	MW3(10)*	10	--	--	--	--	--
	MW4(10)	10	4.9	<0.1	<0.1	<0.1	<0.1

* TOG and TPH as diesel were non-detectable; MW3(10) had non-detectable levels of EPA methods 8010 and 8020 priority pollutants.

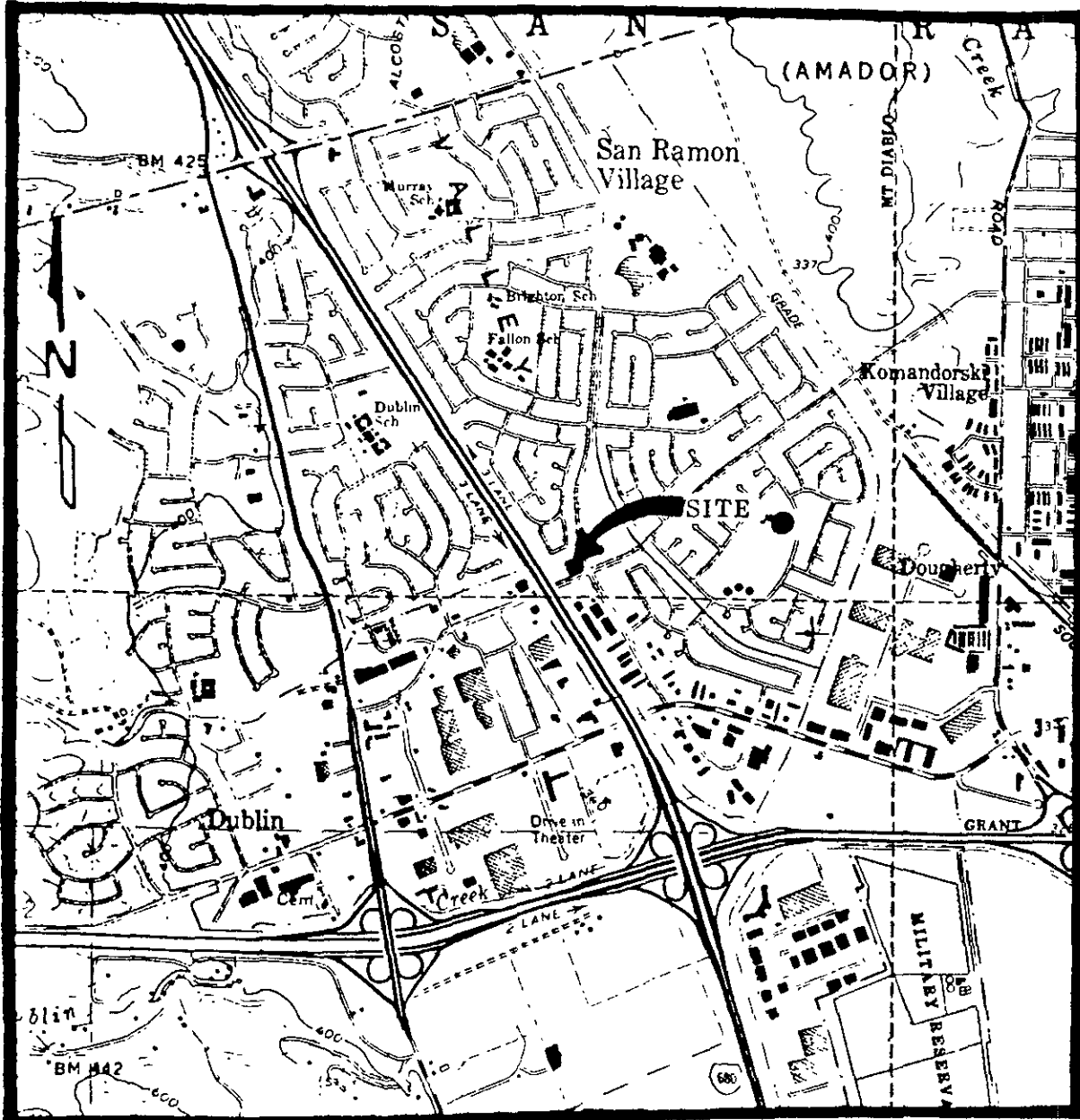
-- Indicates analysis not performed.

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



KAPREALIAN ENGINEERING, INC.
Consulting Engineers

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LOCATION MAP

Unocal S/S #5366
7375 Amador Valley Blvd.
Dublin, CA

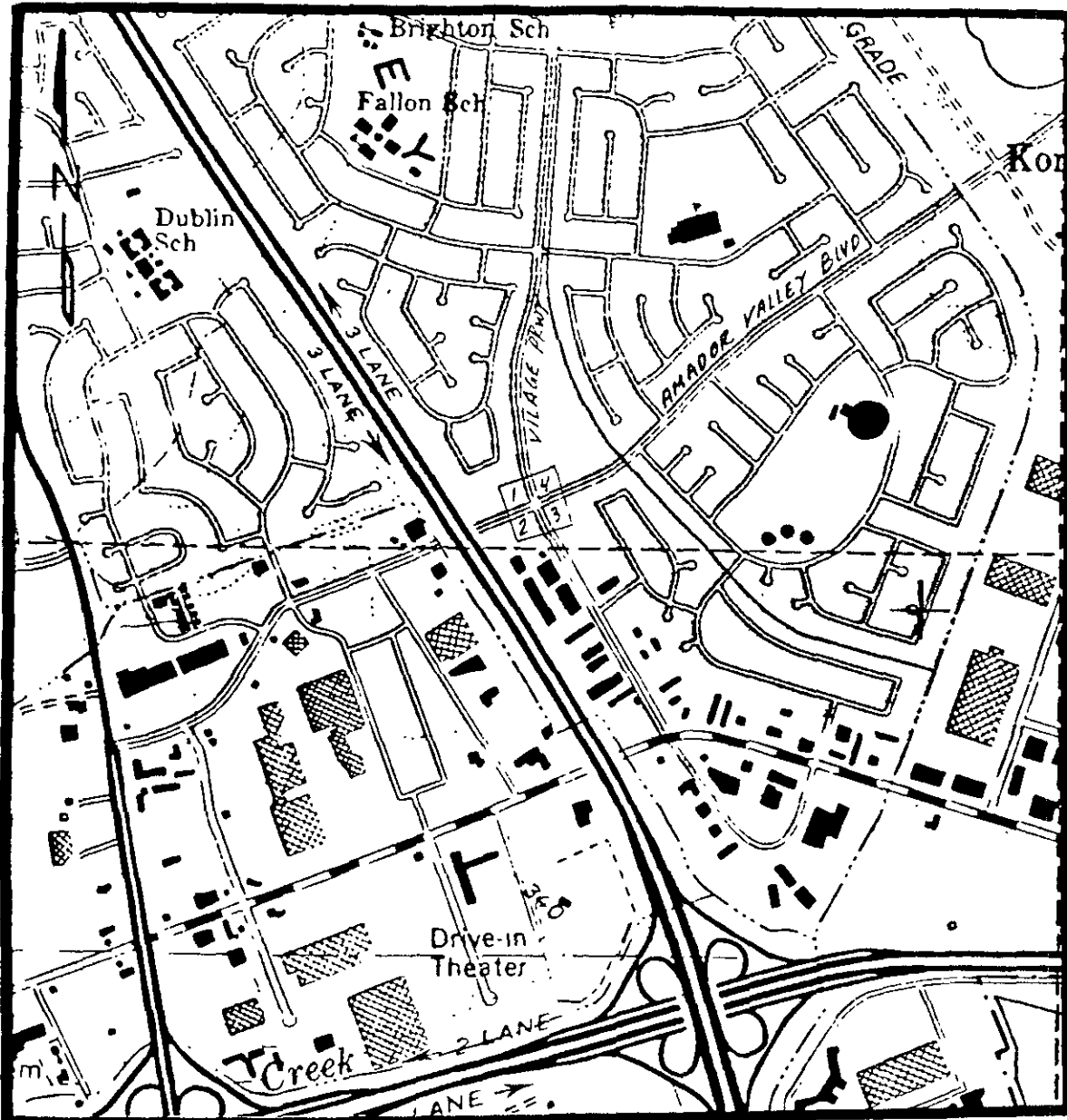


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Consulting Engineers

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SITE VICINITY MAP

LEGEND

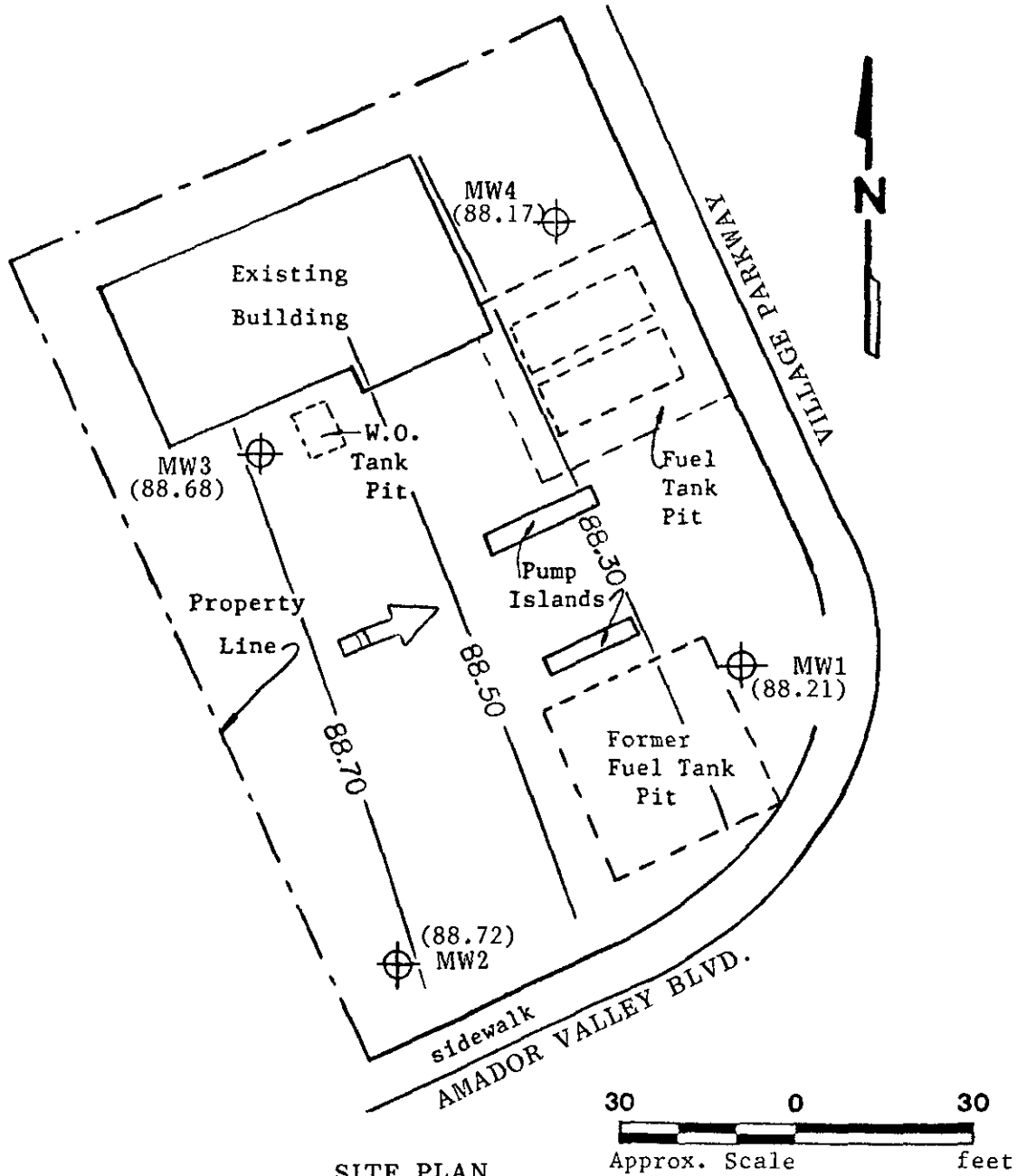
- 1 - Unocal Service Station #5366
- 2 - Former Shell Service Station
- 3 - BP Service Station
- 4 - Arco Service Station

Unocal S/S #5366
7375 Amador Valley Road
Dublin, CA



KAPREALIAN ENGINEERING, INC.
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SITE PLAN
 Figure 1

LEGEND

Monitoring Well

() Water Table Elevation on
 8/12/91. Top of MW2 Well
 Cover assumed 100.00 feet
 as datum.

Ground Water Flow Direction.

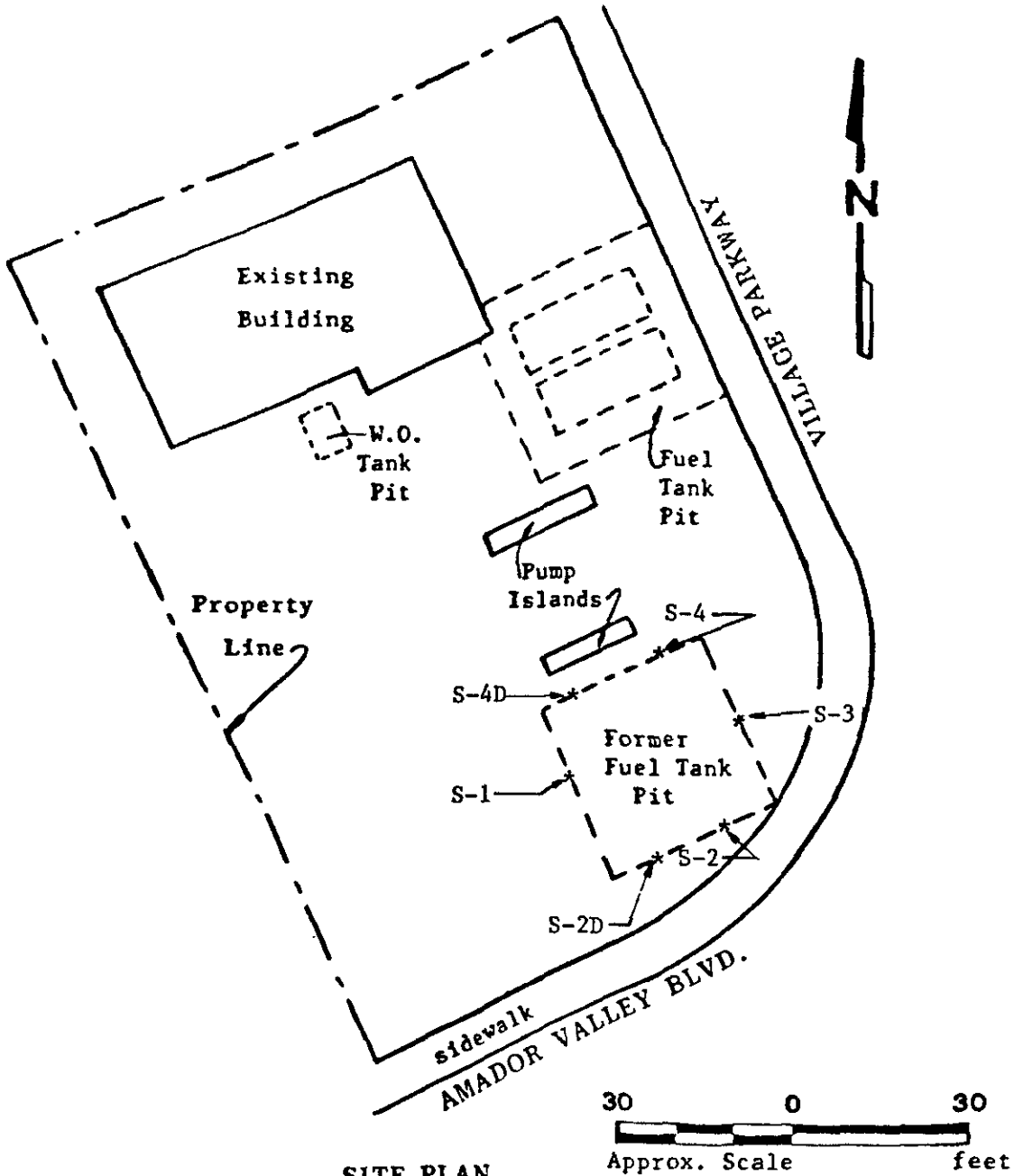
Contours of water table elevation in feet

Unocal S/S #5366
 7375 Amador Valley Boulevard
 Dublin, CA



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SITE PLAN
Figure 2

LEGEND

* Sample Point Location

Unocal S/S #5366
7375 Amador Valley Blvd.
Dublin, 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, 7375 Amador Valley Rd, Dublin	Sampled:	Aug 12, 1991
P.O. Box 996	Sample Descript.:	Water, MW1	Received:	Aug 13, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	Aug 22, 1991
Attention: Mardo Kaprealian, P.E.	Lab Number:	108-0584 AB	Reported:	Aug 27, 1991

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

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons	120	1,100
Benzene	1.2	68
Toluene	1.2	2.6
Ethyl Benzene	1.2	210
Xylenes	1.2	9.3

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard. Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Belinda C. Vega
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, 7375 Amador Valley Rd, Dublin

P.O. Box 996

Benicia, CA 94510

Attention: Mardo Kaprealian, P.E. QC Sample Group: 108-0584

Reported: Aug 27, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
---------	---------	---------	---------------	---------

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	RH/JF	RH/JF	RH/JF	RH/JF
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 22, 1991	Aug 22, 1991	Aug 22, 1991	Aug 22, 1991
QC Sample #:	108-0601	108-0601	108-0601	108-0601

Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	19	19	21	64
Matrix Spike % Recovery:	95	95	110	110
Conc. Matrix Spike Dup.:	20	20	21	64
Matrix Spike Duplicate % Recovery:	100	100	110	110
Relative % Difference:	5.1	5.1	0	0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Belinda C. Vega

Belinda C. Vega
Laboratory Director

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

1080584.KEI <2>



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Kapreallan Engineering, Inc.
P.O. Box 996
Benicia, CA 94510

Client Project ID: Unocal, 7375 Amador Valley Rd, Dublin

Attention: Mardo Kapreallan, P.E. QC Sample Group: 108-0584

Reported: Aug 27, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020
Analyst:	RH/JF	RH/JF
Reporting Units:	µg/L	µg/L
Date Analyzed:	Aug 22, 1991	Aug 22, 1991
Sample #:	108-0584 AB	Blank

Surrogate		
% Recovery:	110	110

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Laboratory Director

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

