

Mobil Oil Corporation

September 25, 1986

RECEIVED

SEP 30 1986

612 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90051

**ENVIRONMENTAL HEALTH
ADMINISTRATION**

*See
TANKS*

Mr. Dale C. Bowyer
California Regional Water
Quality Control Board
1111 Jackson St., Room 6040
Oakland, California 94607

RE: MOBIL OIL CORPORATION
SERVICE STATION 10-LIX
15884 HESPERIAN BLVD.
SAN LORENZO, CALIFORNIA

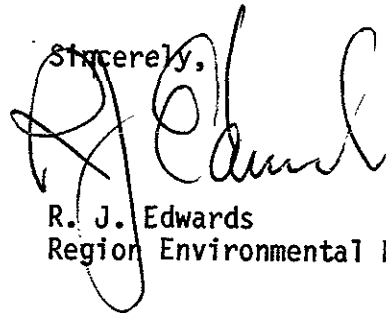
Dear Mr. Bowyer:

Enclosed for your agency's information is our consultant's report for the above location. This report discusses actions completed in the installation of four (4) monitoring wells. The installation of the wells was a result of soil and water samples obtained during the removal of the previous storage tanks.

As discussed in the report, only one well contained dissolved levels of hydrocarbons. Based on the water results obtained in monitoring well #2, our consultant has recommended additional monitoring in accordance with your office's guidelines. A copy of our consultant's proposal is also enclosed.

If you have any questions, please call my office at (213) 683-6335 or C. E. Galloway at 213, 683-5520.

Sincerely,



R. J. Edwards
Region Environmental Manager

CEG:ram
Enclosures
(73010)

c.c.: Mr. T. M. Gerow
Div. of Environmental Health
Alameda County
470 - 27th St., Room 324
Oakland, California 94612

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September 16, 1986
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All invoicing will be based upon actual time and material expended for the project in accordance with KEI's current fee schedule. Based on this, we estimate that our charges would not exceed \$6,000.00 .



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

535 Main Street

Martinez, Ca. 94553

(415) 372-5444

KEI-P86-0310B

September 16, 1986

PROPOSAL
MOBIL STATION # 10-LIX
15884 Hesperian Blvd.
San Lorenzo, California

GROUNDWATER MONITORING, SAMPLING AND ANALYSIS

INTRODUCTION

Preliminary investigation of the groundwater beneath the referenced site conducted in August 1986 showed gasoline volatile hydrocarbons concentrations ranging from <0.001 parts per million (ppm) to 58 ppm. Per our recommendations described in our report dated September 15, 1986, additional sampling is necessary to document degradation, minimal impact and to meet the Regional Water Quality Control Board current guidelines. Therefore, KEI proposes the sampling of the existing wells as outlined below.

PROPOSED TASK

1. Purge two of the existing monitoring wells (MW1 & MW2) on a monthly basis. Record the elevation of water table prior to pumping and any abnormal condition noted during inspection.
2. Purge and sample groundwater for dissolved total hydrocarbons and BTX (Benzene, Toluene and Xylene) on a quarterly basis. Prior to sampling water elevation will be recorded as well as presence of any floating product.
3. Submit quarterly report, describing field observations and sampling results.
4. Final report summarizing field investigation, water analyses and sampling with conclusion and recommendations.

The purging of groundwater and sampling should continue for six (6) months. This proposed monitoring program should be re-evaluated after six months.



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

535 Main Street

Martinez, Ca. 94553

(415) 372-5444

KEI-P86-0310A
September 15, 1986

Mobil Oil Corporation
P.O. Box 127
Richmond, CA 94807

Attn: Mr. Bill Johnson

RE: Groundwater Monitoring System at
Mobil S/S #10-LIX Located at 15884 Hesperian Blvd.
San Lorenzo, California

Dear Mr. Johnson:

This report presents KEI's investigation for monitoring groundwater in accordance with our proposal dated April 21, 1986 for the referenced site. The purpose of the investigation was to assess the extent of subsurface gasoline contamination and to comply with state and local agencies requirements. The work performed consisted of the following:

1. Coordination with the Regulatory Agencies for the installation of four (4) monitoring wells.
2. Drilling and installation of the four (4) monitoring wells.
3. Groundwater purging/sampling.
4. Laboratory analyses.
5. Data analyses, interpretation and report preparation.

FIELD INVESTIGATION

To achieve the above objectives, KEI installed four (4) two-inch monitoring wells (designated as MW-1, MW-2, MW-3, and MW-4 on attached sketch) on July 29, 1986. The wells were drilled, constructed and completed in accordance with the California Regional Water Quality Control Board Fuel Leak Guidelines dated September 1985.

The subsurface materials penetrated and details of the construction of the wells are described in the attached Exploratory Boring Logs.

MW-1 was drilled and completed to a total of 25.0 feet. Free ground water was encountered at a depth of 14.5 feet and remained at this level following well completion. No evidence of gasoline odor was encountered.

MW-2 was drilled and completed to a total depth of 25.0 feet. Ground water was encountered at a depth of 14.5 feet and rose to 13.0 feet following completion of the well. Faint gasoline odor was found between roughly 6.0 and 10.0 feet in depth.

MW-3 was drilled and completed to a depth of 25.0 feet with ground water being found at 13.5 feet. Following well completion the static water level rose to 13.0 feet. No evidence of gasoline odor was noted during the drilling.

MW-4 was drilled and completed to a total depth of 25.0 feet. Ground water was first encountered at a depth of 13.5 feet and remained at this level following well completion. No evidence of gasoline odor was found.

The wells were installed with locking caps and padlocks. On August 14, 1986 the wells were developed and water samples taken on August 18, 1986. Prior to sampling, water elevation was recorded and each well was purged four (4) well volumes. The samples were collected using a teflon bailer, decanted into clean glass (VOA) vials with teflon septa screw caps, labeled, and stored on ice until delivered to the laboratory. No free floating product or sheen were noted in all the wells. The water samples were analyzed for total dissolved hydrocarbons, benzene, toluene and Xylene. The results of the chemical analyses are summarized in Table 1.

INTERPRETATION OF ANALYTICAL RESULTS

The results of the water analyses indicate very low concentrations of dissolved hydrocarbons, benzene, toluene, and xylene present in MW-2 only. The wells MW-1, MW-3 and MW-4 showed non detectable levels.

HYDROGEOLOGY

The subsurface formations below the site consist of silty sand, clayey sand, and silty clay. The depth of the shallow groundwater was between 13.0 to 14.5 feet below the surface.

According to the Alameda County Health Department and the Department of Water Resources, the shallow groundwater in the area is of poor quality and not used for drinking purposes. No known usable wells exist within a 1/4 mile of the site.

CONCLUSIONS

The results of the groundwater analyses indicate no major gasoline leaks. Low to moderate levels of gasoline constituents were measured in the shallow groundwater sample from one well only (MW-2). The hydrocarbon contamination appears to be localized around well MW-2 as evident by the absence of contamination at wells MW-1, MW-3 and MW-4.

Since the subsurface consists of uniform, tight, and cohesive clay, it would seem unlikely that any of the dissolved contamination spread beyond the property line. Soil adsorption, dilution and natural biodegradation will decrease the concentration and would most likely minimize hydrocarbon migration beyond the property line.

RECOMMENDATIONS

Although the dissolved hydrocarbons level exceeds the Regional Water Quality Control Board guidelines, we do not believe a clean up of the ground water is necessary, as no floating product was noted during our investigation and the contaminants were mainly dissolved hydrocarbons.

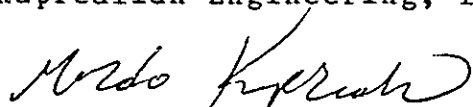
In our opinion, there is no risk to public health as the shallow ground water is not used for domestic purposes. We recommend a self monitoring program for a duration of six (6) months. The monitoring program should consist of monthly observation of the wells including purging and quarterly water sampling. Our proposal for monitoring of the wells is attached.

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September 15, 1986
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Should you have any questions regarding this report, please do not hesitate to call at (415) 228-1882 or 372-5444.

Sincerely,

Kaprealian Engineering, Inc.



Mardo Kaprealian

Attachment: Analytical Results Table 1
Sketch of the Site
Log Borings
Lab Results .

cc: Mr. C. Galloway

KEI-P86-0310A
September 15, 1986

TABLE - 1

Results of Groundwater Analysis

<u>Parameter</u>	<u>MW #1</u>	<u>MW #2</u>	<u>MW #3</u>	<u>MW #4</u>
Petroleum Total Hydrocarbons (ppm)	<0.05	58	<0.05	<0.05
Benzene (ppm)	<0.001	4.3	<0.001	<0.001
Toluene (ppm)	<0.001	0.39	<0.001	<0.001
Xylene (ppm)	<0.001	1.8	<0.001	<0.001
Depth (feet)	14.2	13.5	14.0	14.1
Free Product (inches)	0.0	0.0	0.0	0.0
Odor	ND	Slight	ND	ND
Sheen	ND	ND	ND	ND

ND = None Detected

DRILL RIG Hollow Stem		SURFACE ELEVATION -----			LOGGED BY JCW				
DEPTH TO GROUNDWATER As Noted		BORING DIAMETER 8"			DATE DRILLED 7/29/86				
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST	SOIL TYPE						
ASPHALT AND BASE ROCK									
SILTY SAND; damp	dark brown	loose to medium dense	SM						
CLAYEY SAND; damp to moist Faint product odor	blue-gray	medium dense	SC						
Moist to wet		dense					▽ ≡		
				EXPLORATORY BORING LOG					
				MOBIL OIL CORPORATION SAN LORENZO, CA					
				PROJECT NO.	DATE	BORING NO.			
				H182-22	8/86	MW-1			

DRILL RIG	Hollow Stem	SURFACE ELEVATION	-----	LOGGED BY	JCW
DEPTH TO GROUNDWATER	As Noted	BORING DIAMETER	8"	DATE DRILLED	7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAYEY SAND (CONTD)	blue-gray	dense	SC	25					
SILTY CLAY; damp to dry	tan	very stiff	CL						
TOTAL DEPTH = 25.0 feet									

			EXPLORATORY BORING LOG		
			MOBIL OIL CORPORATION SAN LORENZO, CA		
			PROJECT NO.	DATE	BORING NO.
			H182-22	8/86	MW-1

MOBIL OIL CORPORATION
SAN LORENZO, CALIFORNIA

MW-1

Well completed to 25.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 25.0 feet. 6 X 12 Monterey sand placed from 4.5 to 25.0 feet, bentonite pellets placed from 4.0 to 4.5 feet, and concrete seal placed from 0 to 4.0 feet.

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
ASPHALT AND BASE ROCK									
SILTY SAND; damp	dark brown	loose to medium dense	SM	5					
CLAYEY SAND, grading to sandy clay; damp to moist No product odor	dark gray	medium dense	SC-CL	10					
Increasing sand at 13 feet		dense		15			▽ 		
				20					

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
SAN LORENZO, CA

PROJECT NO.	DATE	BORING NO
H182-22	8/86	NO MW-2

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST	SOIL TYPE						
CLAYEY SAND (CONTD), grading to sandy clay			SC-CL	25					
SILTY CLAY; damp to dry	tan to brown	stiff to very stiff	CL						
TOTAL DEPTH = 25.0 feet									

			EXPLORATORY BORING LOG		
			MOBIL OIL CORPORATION SAN LORENZO, CA		
			PROJECT NO.	DATE	BORING NO.
			H182-22	8/86	MW-2

MOBIL OIL CORPORATION
SAN LORENZO, CALIFORNIA

MW-2

Well completed to 25.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 25.0 feet. 6 X 12 Monterey sand placed from 5.0 to 25.0 feet, bentonite pellets placed from 4.5 to 5.0 feet, and concrete seal placed from 0 to 4.5 feet.

DRILL RIG Hollow Stem		SURFACE ELEVATION -----			LOGGED BY JCW				
DEPTH TO GROUNDWATER As Noted		BORING DIAMETER 8"			DATE DRILLED 7/29/86				
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST	SOIL TYPE						
ASPHALT AND BASE ROCK									
SILTY SAND	dark gray	loose to medium dense	SM						
	brown			5					
SANDY CLAY No product odor	tan	stiff	CL						
Increasing sand; grading to clayey sand	dense	stiff-medium dense (sand)	CL-SC	10					
				15					
				20					
				EXPLORATORY BORING LOG					
				MOBIL OIL CORPORATION SAN LORENZO, CA					
				PROJECT NO.	DATE	BORING NO.			
				H182-22	8/86	NO. MW-3			

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SANDY CLAY (CONTD), grading clayey sand	tan to brown	stiff	CL-SC	25					
SILTY CLAY		very stiff	CL						
TOTAL DEPTH = 25.0 feet									

			EXPLORATORY BORING LOG		
			MOBIL OIL CORPORATION SAN LORENZO, CA		
			PROJECT NO.	DATE	BORING NO.
			H182-22	8/86	MW-3

MOBIL OIL CORPORATION
SAN LORENZO, CALIFORNIA

MW-3

Well completed to 25.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 25.0 feet. 6 X 12 Monterey sand placed from 5.0 to 25.0 feet, bentonite pellets placed from 4.5 to 5.0 feet, and concrete seal placed from 0 to 4.5 feet.

DRILL RIG Hollow Stem		SURFACE ELEVATION ----			LOGGED BY JCW				
DEPTH TO GROUNDWATER As Noted		BORING DIAMETER 8"			DATE DRILLED 7/29/86				
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
ASPHALT AND BASE ROCK	tan	loose to medium dense	SM	5					
SILTY SAND									
SILTY CLAY; damp No product odor	gray	firm to stiff	CL	10					
Sandy; no product odor									
				15					
				20					
							▽ 		
EXPLORATORY BORING LOG									
MOBIL OIL CORPORATION SAN LORENZO, CA									
PROJECT NO.		DATE		BORING NO.					
H182-22		8/86		MW-4					

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SILTY CLAY with some sand (contd)	gray	stiff	CL	25					
SILTY CLAY	tan to brown	stiff to very stiff							
TOTAL DEPTH = 25.0 feet									

EXPLORATORY BORING LOG		
MOBIL OIL CORPORATION SAN LORENZO, CA		
PROJECT NO.	DATE	BORING NO.
H182-22	8/86	MW-4

MOBIL OIL CORPORATION
SAN LORENZO, CALIFORNIA

MW-4

Well completed to 25.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 25.0 feet. 6 X 12 Monterey sand placed from 5.0 to 25.0 feet, bentonite pellets placed from 4.5 to 5.0 feet, and concrete seal placed from 0 to 4.5 feet.



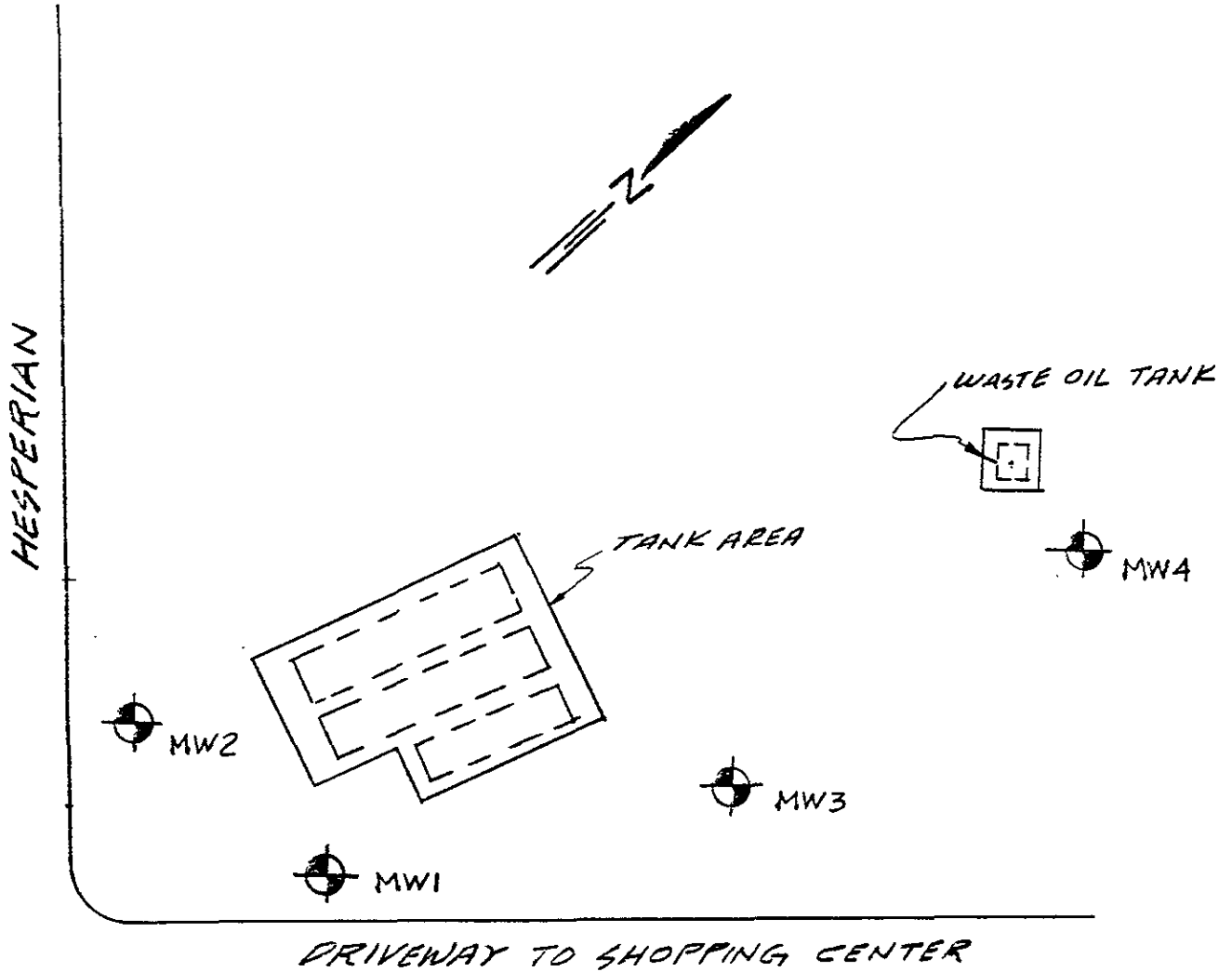
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

535 Main Street

Martinez, Ca. 94553

(415) 372-5444



LOCATION PLAN

N.T.S.

 MW (MONITORING WELL)



SEQUOIA Analytical Laboratory

2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Kaprealian Engineering, Inc.
535 Main Street, Suite 309
Martinez, CA 94553
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 08/15/86
Date Received: 08/15/86
Date Reported: 09/04/86

Sample Number

6080093

Sample Description

Mobil-Hesperian in
San Lorenzo, MW #1
Water

ANALYSIS

	<u>Detection</u>	
	<u>Limit</u>	
Total Hydrocarbons, ppm	0.05	< 0.05
Benzene, ppm	0.001	< 0.001
Toluene, ppm	0.001	< 0.001
Xylenes, ppm	0.001	< 0.001

NOTE: Analysis was performed using EPA methods 5020 and 602.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls



SEQUOIA Analytical Laboratory

2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Kaprealian Engineering, Inc.
535 Main Street, Suite 309
Martinez, CA 94553
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 08/15/86
Date Received: 08/15/86
Date Reported: 09/04/86

Sample Number
6080935

Sample Description
Mobil-Hesperian in
San Lorenzo, MW#2
Water

ANALYSIS

	<u>Detection Limit</u>	
Total Hydrocarbons, ppm	0.05	58
Benzene, ppm	0.001	4.3
Toluene, ppm	0.001	0.39
Xylenes, ppm	0.001	1.8

NOTE: Analysis was performed using EPA methods 5020 and 602.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls



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Redwood City, CA 94063 • (415) 364-9222

Kaprealian Engineering, Inc.
535 Main Street, Suite 309
Martinez, CA 94553
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 08/15/86
Date Received: 08/15/86
Date Reported: 09/04/86

Sample Number

6080937

Sample Description

Mobil-Hesperian in
San Lorenzo, MW #3
Water

ANALYSIS

	<u>Detection</u> <u>Limit</u>	
Total Hydrocarbons, ppm	0.05	< 0.05
Benzene, ppm	0.001	< 0.001
Toluene, ppm	0.001	< 0.001
Xylenes, ppm	0.001	< 0.001

NOTE: Analysis was performed using EPA methods 5020 and 602.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls



SEQUOIA Analytical Laboratory

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Redwood City, CA 94063 • (415) 364-9222

Kaprealian Engineering, Inc.
535 Main Street, Suite 309
Martinez, CA 94553
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 08/15/86
Date Received: 08/15/86
Date Reported: 09/04/86

Sample Number

6080938

Sample Description

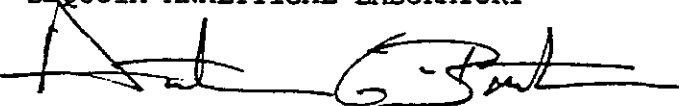
Mobil-Hesperian in
San Lorenzo, MW #4
Water

ANALYSIS

	<u>Detection</u> <u>Limit</u>	
Total Hydrocarbons, ppm	0.05	< 0.05
Benzene, ppm	0.001	< 0.001
Toluene, ppm	0.001	< 0.001
Xylenes, ppm	0.001	< 0.001

NOTE: Analysis was performed using EPA methods 5020 and 602.

SEQUOIA ANALYTICAL LABORATORY


Arthur G. Burton
Laboratory Director

sls