

Mobil Oil Corporation

3800 WEST ALAMEDA AVENUE, SUITE 700
BURBANK, CALIFORNIA 91505-4331

February 19, 1988

• Mr. Greg Zetner
Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94607

MOBIL OIL CORPORATION
S/S #10-LIX
15884 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

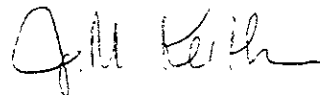
Dear Mr. Zetner:

Attached is our consultant's report relative to the underground tank removal at the referenced location.

During the excavation, soil samples were obtained from the tank cavity. Laboratory analyses indicated that moderate levels of Total Petroleum Hydrocarbons exist in the southern portion of the excavation, therefore additional excavation will be conducted in this area. The existing wells will be monitored and sampled for an additional quarter after the soil has been excavated. Upon completion of this work, a report will be submitted to your office.

Should you have any questions, contact Jane Keith at (818) 953-2519.

Sincerely,



for R. J. Edwards
Region Environmental Manager

JMK:ars
attachment
07360

cc: Mr. T. M. Gerow
Alameda County
Environmental Health Department
470 27th Street, Room 324
Oakland, California 94612



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(415) 676-9100 (707) 746-6915

KEI-J87-128

January 15, 1988

Mobil Oil Corporation
P.O. Box 127
Richmond, CA 94804

Attention: Mr. S. Pao

Re: Soil Sampling Investigation
Mobil Service Station #10-LIX
15884 Hesperian Blvd.
San Lorenzo, California

Dear Mr. Pao:

This report summarizes the preliminary subsurface investigation performed by Kaprealian Engineering, Inc. (KEI) at the referenced site. All work was performed in compliance with the regulations and guidelines established by the Regional Water Quality Control Board (RWQCB), and the Alameda County Department of Environmental Health.

The scope of the work performed in our investigation consisted of the following:

Coordination with the state and local agencies

Collection of samples of native soil beneath the storage tanks

Delivery of soil samples with proper chain of custody to a certified analytical laboratory

Technical review and preparation of this report

BACKGROUND

In March, 1986 three steel underground fuel storage tanks and one waste oil tank were removed and replaced at the site. New fiberglass tanks were installed. Blaine Tech Services collected eight soil samples from beneath the tanks. Analytical results of the samples from the fuel tank pit showed total petroleum hydrocarbon (TPH) levels ranging from 37 to 1100 parts per million (ppm).

Kaprealian Engineering Inc.'s (KEI) investigation at the referenced site began in July, 1986 when four groundwater monitoring wells were installed to ascertain the quality of the subsurface soils and groundwater.

The wells have been monitored monthly and sampled quarterly from the time of drilling to the present. Dissolved petroleum hydrocarbons have been consistently detected in well MW-2.

FIELD INVESTIGATION

KEI's most recent work was conducted on December 21, 1987. Four (4) fiberglass underground storage tanks were removed from the site. The tanks consisted of two 10,000 fuel tanks, one 12,000 gallon fuel tank and one 1000 gallon waste oil tank. Tank removal and the soil sampling were performed in the presence of Mr. James Ferdinand of the San Lorenzo Fire Department. All the tanks appeared to be in good condition.

Eight (8) soil samples, labeled A1, A2, B1, B2, C1, C2, W.O.-1 and W.O.-2 were collected from the native soil beneath the tanks. The undisturbed samples were collected from bulk material excavated by backhoe. The samples were placed in clean, two-inch diameter brass tubes, sealed with aluminum foil and plastic caps, and were stored in a cooled ice chest for delivery to the contracted laboratory. Sampling locations are shown on the attached Location Plan.

SUBSURFACE CONDITIONS

The subsurface soils exposed in the excavations consisted primarily of gravel. The native soil where samples were taken consisted primarily of silty clay. Moderate product odor was present in sample A1.

ANALYTICAL RESULTS

All samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California and were accompanied by proper chain of custody forms. The samples from beneath the fuel tanks were analyzed for total petroleum hydrocarbon (TPH) as gasoline, benzene, toluene and xylene (BTX) concentrations using EPA methods 5020, 8015 and 8020. The samples from beneath the waste oil tank were analyzed for TPH as gasoline, TPH as diesel, total oil and grease (TOG) and EPA 8240 constituents. The analytical results are summarized in Table 1. Copies of the laboratory analyses and the chain of custody forms are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Analytical results of the soil samples from the fuel tank pit indicate elevated levels [greater than 100 parts per million (ppm)] of TPH for samples A1 and A2 (1100 ppm and 110 ppm, respectively). According to the guidelines established by the Regional Water Quality Control Board (RWQCB), additional clean up is necessary at a site where TPH in the soil exceeds 1000 ppm. To comply with the requirements of the RWQCB, KEI recommends excavation of additional soil in the area where sample A1 was collected, in an attempt to remove as much contaminated soil as possible. By removing the contaminated soil, KEI believes that the TPH and benzene levels found in the groundwater of the existing monitoring wells will be reduced. Following the excavation of the contaminated soil, monitoring of the existing wells should be continued to document degradation and the reduction of TPH and benzene levels.

A copy of this report should be sent to the Alameda County Department of Environmental Health, and to the Regional Water Quality Control Board.

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in groundwater 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.

KEI-J87-128
January 15, 1988
Page 4

Should you have any questions regarding this report, please feel free to call me at (415) 676-9100 or (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.



Mardo Kaprealian

License #C29326
Exp. date 3/31/91

Attachments: Location plan
Laboratory analyses
Chain of custody forms
Table 1

cc: J. Keith

TABLE 1

SUMMARY OF LABORATORY ANALYSES

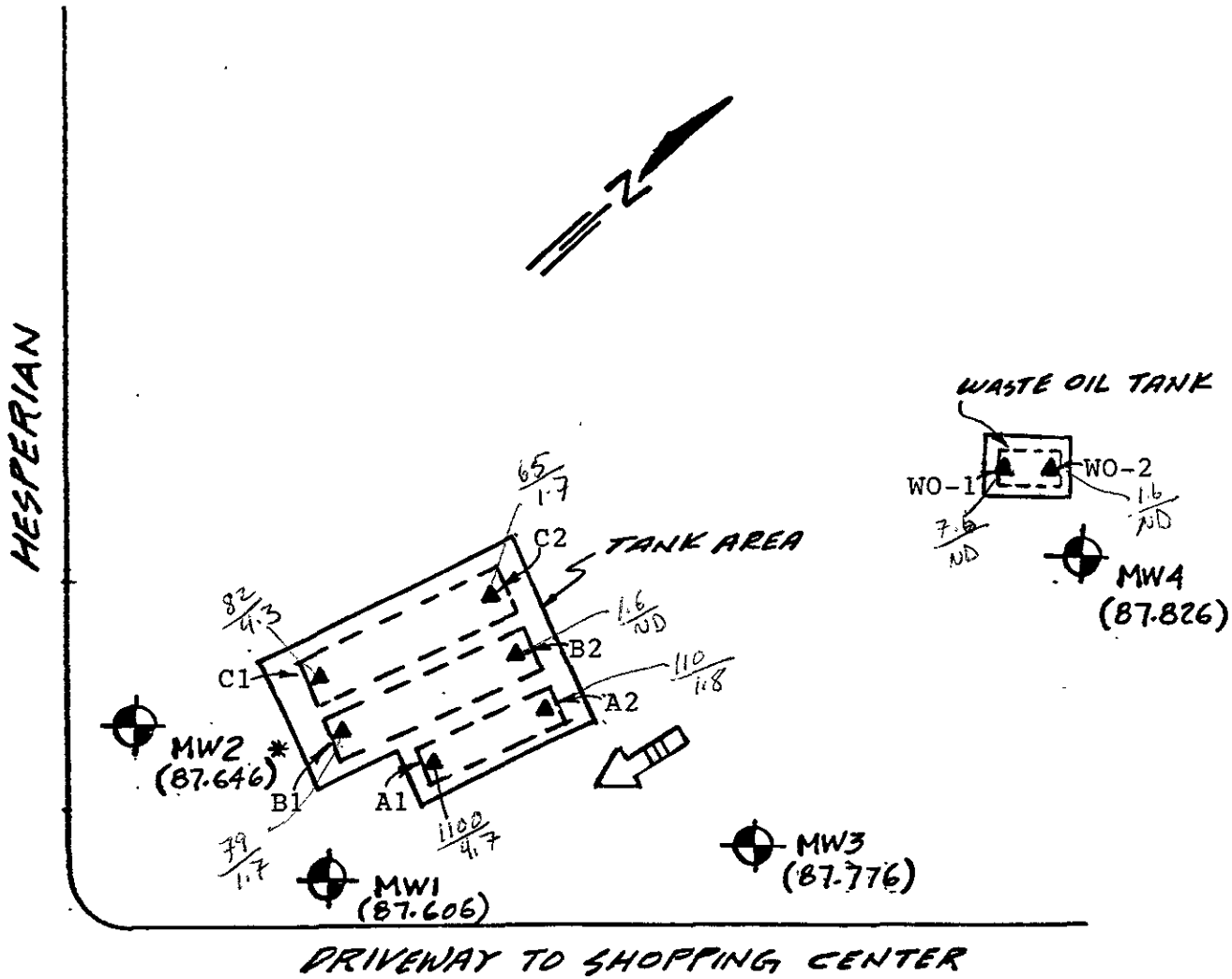
(all analyses are in parts per million)

<u>Sample #</u>	<u>TPH as Gasoline</u>	<u>TPH as Diesel</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylene</u>	<u>Ethylbenzene</u>
A1	1100	---	4.7	39	47	15
A2	110	---	1.8	0.36	5.7	1.9
B1	79	---	1.7	0.90	8.5	1.7
B2	1.6	---	<0.1	<0.1	0.60	0.85
C1	82	---	4.3	8.3	10	4.2
C2	65	---	1.7	2.1	4.4	1.7
W.O.-1*	7.6	22	<0.1	<0.1	---	<0.1
W.O.-2*	1.6	<1	---	---	---	---

* Total Oil and Grease
W.O.-1 86 ppm
W.O.-1 <30 ppm



KAPREALIAN ENGINEERING, INC.
Consulting Engineers



LOCATION PLAN

N.T.S.

- ▲ Soil sample location
 - ⊕ MW (MONITORING WELL)
 - () ELEVATION OF GROUNDWATER (FT.)
 - * SURFACE ELEV. OF MW2 ASSUMED 100 FT. (DATUM)
 - ➡ GENERAL DIRECTION OF GROUND-WATER FLOW
- MOBIL S/S #10-LIX
15884 Hesperian Blvd.
San Lorenzo, California



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

Sample Number

7121672

Sample Description

Soil, A-1

	<u>Detection Limit</u> ppm	<u>Sample Results</u> ppm
Low to Medium Boiling Point Hydrocarbons	1	1100
Benzene	0.1	4.7
Toluene	0.1	39
Xylenes	0.1	47
Ethyl Benzene	0.1	15

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

Sample Number

7121673

Sample Description

Soil, A-2

	<u>Detection Limit</u> ppm	<u>Sample Results</u> ppm
Low to Medium Boiling Point Hydrocarbons	1	110
Benzene	0.1	1.8
Toluene	0.1	0.36
Xylenes	0.1	5.7
Ethyl Benzene	0.1	1.9

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

<u>Sample Number</u>	<u>Sample Description</u>	<u>Detection</u> <u>Limit</u> ppm	<u>Sample</u> <u>Results</u> ppm
7121674	Soil, B-1		
	Low to Medium Boiling Point Hydrocarbons	1	79
	Benzene	0.1	1.7
	Toluene	0.1	0.90
	Xylenes	0.1	8.5
	Ethyl Benzene	0.1	1.7

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

<u>Sample Number</u>	<u>Sample Description</u>
7121675	Soil, B-2

	<u>Detection</u> <u>Limit</u> ppm	<u>Sample</u> <u>Results</u> ppm
Low to Medium Boiling Point Hydrocarbons	1	1.6
Benzene	0.1	< 0.1
Toluene	0.1	< 0.1
Xylenes	0.1	0.60
Ethyl Benzene	0.1	0.85

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

Sample Number

7121676

Sample Description

Soil, C-1

	<u>Detection Limit</u> ppm	<u>Sample Results</u> ppm
Low to Medium Boiling Point Hydrocarbons	1	82
Benzene	0.1	4.3
Toluene	0.1	8.3
Xylenes	0.1	10
Ethyl Benzene	0.1	4.2

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 12/23/87
Project: Mobil-San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS
WITH BTX DISTINCTION

<u>Sample Number</u>	<u>Sample Description</u>
7121677	Soil, C-2

	<u>Detection Limit</u> ppm	<u>Sample Results</u> ppm
Low to Medium Boiling Point Hydrocarbons	1	65
Benzene	0.1	1.7
Toluene	0.1	2.1
Xylenes	0.1	4.4
Ethyl Benzene	0.1	1.7

Method of Analysis: EPA 5020/8015/8020

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Heppie KES DATE/TIME OF COLLECTION: 12/21/87 4:30 P.M. TURNAROUND TIME: 24 HRS.
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: MOBIL - SAN LORENZO - 15884 Heppie's

SAMPLE #	ANALYSIS	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
A-1	TPH-G & BTEX & E	Grab	1	S
A-2	" "	"	1	S
B-1	" "	"	1	S
B-2	" "	"	1	S
C-1	" "	"	1	S
C-2	" "	"	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. <u>Heppie KES</u>	<u>12/22/87 9:30 a.m.</u>	<u>Chris Lecce KES</u>	<u>12/22/87 9:30</u>
2. <u>Chris Lecce KES</u>	<u>12/22/87 11:45</u>	<u>A. Naly J.C.E.</u>	<u>12/22/87 1145 A.M.</u>
3. <u>A. Naly J.C.E.</u>	<u>12/22/87 125 PM</u>	<u>KW KES</u>	<u>12/20/87 1:25 PM</u>
4.			

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Analyzed: 01/05/87
Date Reported: 01/14/88

Project: Mobil - San Lorenzo

Sample Number

7121896

Sample Description

Soil, WO-1

PRIORITY POLLUTANTS

PURGEABLES BY GC/MS

results in ppb

Benzene.....	< 100	1,2-Dichloropropane.....	< 100
Bromomethane.....	< 100	1,3-Dichloropropane.....	< 100
Bromodichloromethane.....	< 100	Ethylbenzene.....	< 100
Bromoform.....	< 100	Methylene chloride.....	< 500
Carbon tetrachloride.....	< 100	1,1,2,2-Tetrachloroethane...	< 100
Chlorobenzene.....	< 100	Tetrachloroethene.....	< 100
Chloroethane.....	< 100	1,1,1-Trichloroethane.....	< 100
2-Chloroethylvinyl ether...	< 500	1,1,2-Trichloroethane.....	< 100
Chloroform.....	< 500	Trichloroethene.....	< 100
Chloromethane.....	< 100	Toluene.....	< 100
Dibromochloromethane.....	< 100	Vinyl chloride.....	< 100
1,1-Dichloroethane.....	< 100		
1,2-Dichloroethane.....	< 100		
1,1-Dichloroethene.....	< 100		
trans-1,2-Dichloroethene...	< 100		

Method of Analysis: EPA 8240

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 01/14/88
Project: Mobil - San Lorenzo

TOTAL PETROLEUM FUEL HYDROCARBONS

<u>Sample Number</u>	<u>Sample Description</u> Soil,	<u>Detection Limit</u> ppm	<u>Low to Medium Boiling Point Hydrocarbons</u> ppm
7121896	WO-1	1	7.6
7121897	WO-2	1	1.6

Method of Analysis: EPA 5020/8015

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 01/14/88
Project: Mobil - San Lorenzo

TOTAL PETROLEUM HYDROCARBONS

<u>Sample Number</u>	<u>Sample Description</u> Soil,	<u>Detection Limit</u> ppm	<u>High Boiling Point Hydrocarbons</u> ppm
7121896	WO-1	1	22
7121897	WO-2	1	< 1

Method of Analysis: EPA 3550/8015

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director



SEQUOIA Analytical Laboratory

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

Kaprealian Engineering, Inc.
P.O. Box 913
Benicia, CA 94510
Attn: Mardo Kaprealian, P.E.
President

Date Sampled: 12/21/87
Date Received: 12/22/87
Date Reported: 01/14/88
Project: Mobil - San Lorenzo

TOTAL OIL AND GREASE

<u>Sample Number</u>	<u>Sample Description</u> Soil,	<u>Detection Limit</u> ppm	<u>Gravimetric Petroleum Oil</u> ppm
7121896	WO-1	30	86
7121897	WO-2	30	< 30

Method of Analysis: EPA 3550 with trichlorotrifluoroethane and gravimetric determination.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: *Wesley* tes DATE/TIME OF COLLECTION: 12/24/87 3:30 p.m. TURNAROUND TIME: 10 DAYS
 (signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: Mobil. - San Lorenzo - 15884
Hesperian

<u>SAMPLE #</u>	<u>ANALYSIS</u>	<u>GRAB OR COMP.</u>	<u>NUMBER OF CONTAINERS</u>	<u>SOIL/ WATER</u>
<u>W0-1</u>	<u>TPH & D, oil & grease</u>	<u>8240 grab</u>	<u>1</u>	<u>S</u>
<u>W0-2</u>	<u>* " "</u>	<u>4</u>	<u>1</u>	<u>S.</u>
-	-	-	-	-
-	<u>Told Kevin not to run</u>			-
-	<u>W0-2 for 8240</u>			-
-	-	-	-	-

<u>RELINQUISH</u>	<u>12-21-87</u>	<u>E/DATE</u>
1. <u><i>[Signature]</i></u>		<u>130</u> <u>12/22/87</u>
2. <u><i>[Signature]</i></u>		<u>12/24/87</u> <u>1145 PM</u>
3.		
4.		

* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: _____