CLOSURE REPORT
SOIL REMEDIATION
2410-2420 MARINER SQUARE DRIVE
ALAMEDA, CALIFORNIA
SCI 554.001

Prepared for:

Mr. Ariu Levy
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By:

Jeriann N. Alexander by fax

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Civil Engineer 40469 (expires 3/31/91)

R. William Rudolph

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Geotechnical Engineer 741 (expires 12/31/92)

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171 12th Street, Suite 201
Oakland, California 94607
(415) 268-0461

March 2, 1990

I INTRODUCTION

This report presents the results of soil remediation activities that have been performed at the former Mariner Warehouse site in Alameda, California. Subsurface Consultants, Inc. (SCI) conducted an environmental assessment of the property and presented the results in a report dated May 23, 1989. SCI was subsequently retained by the property owner, Mariner Warehouse, a California Limited Partnership, to prepare and oversee implementation of site remediation.

A work plan, dated August 29, 1989, outlined a scope of services designed to address the following remedial activities:

A. Remediation of petroleum hydrocarbon soil contamination.

B. Waste disposal.

C. Hydraulic oil tank disposal.

D. Remediation of PNA soil contamination.

E. Extent of groundwater contamination.

PENDING

Site remediation for activities A and D involve soil removal. This report documents the extent of soil removal and the results of certified analytical testing of soils left in place.

II EXCAVATION

Four separate areas at the site were identified as having either petroleum hydrocarbon or polynuclear aromatic hydrocarbon soil contamination. The general location of these areas are shown on the attached Site Plan, Plate 1. During site remediation, these areas were designated as follows:

Table 1. GENERAL LOCATION OF AREAS

Area	Soil Contamination
Service Warehouse	Petroleum hydrocarbons, as oil & grease
Car Wash Facility	Petroleum hydrocarbons, as kerosene/diesel
Undercoating Booth	Petroleum hydrocarbons, as oil & grease
Test Boring 18	Polynuclear aromatic hydrocarbons

In general, the site is blanketed by a 3- to 7-foot thick layer of clayey gravel fill which is underlain by native marsh and bay deposits (Bay Mud). Groundwater appears to exist at or near the fill/native soil interface. Soil contamination in each area is limited to the fill. The underlying native deposits are of relatively very low permeability and have acted as a barrier to downward contaminant migration.

The extent of soil removal was directed by our field engineer using an organic vapor meter (OVM) and visual observations. Hazardous Substance Removal, Inc. (HSR), a

activities utilizing a track-mounted excavator and a loader. Soil removal continued vertically until the underlying native soils were encountered. In areas of petroleum hydrocarbon contamination, soil removal continued laterally until the level of contamination exposed in the sidewalls and bottom were below 100 parts per million (ppm) as either total oil and grease (TOG) or total extractable hydrocarbons (TEH). In the polynuclear aromatic hydrocarbon area, a 250 square foot, 5-foot-deep excavation was made. The conditions exposed in the excavation were observed and samples of the sidewalls and bottom were analyzed. The horizontal limits of soil removal in each area are shown on Plates 2 through 5. The approximate quantity of soil removed from each area is summarized in Table 2.

Table 2. QUANTITY OF SOIL REMOVED

Area	Quantity of Soil Removal (cubic yards)
Service Area	3250
Car Wash Facility	5000
Undercoating Booth	1200
Test Boring 18	40
	9490

III SAMPLING AND ANALYTICAL TESTING

Soil samples from the bottom and sidewalls of all excavations were obtained and analytically tested for the contaminants previously identified. The following procedure was used to obtain samples.

> Approximately 3 inches of soil was removed from the exposed surface and a new 2-inch-diameter brass sample liner was pushed or driven into the soil with a rubber mallet. The liner was removed, and the ends were covered with Teflon sheeting, capped and sealed with duct tape. The samples were promptly placed in an ice-filled cooler and transported to the analytical laboratory.

Sidewall samples were obtained within the fill just above the fill/native soil interface or water surface, whichever was shallower. Bottom samples were obtained of the native soils. Sampling locations and depths are shown on Plates 2 through 5.

Soil samples were transmitted along with the appropriate Chain-of-Custody documents to Curtis & Tompkins, Ltd., a Department of Health Services certified analytical laboratory. The analytical testing program included the following analyses.

1. TEH, sample preparation using EPA Method 3550 (sonication extraction); analysis using EPA Method 8015, modified;

2. TOG, sample preparation using EPA Method 3550 (Freon extraction); analyses using standard method 503E (gravimetric determination); and

3. Polynuclear aromatic hydrocarbons (PNA), sample preparation using EPA Method 3550 (sonication extraction); analyses using EPA Method 8100 (gas chromatography coupled with a flame ionization detector).

A summary of the types of analyses performed for each area is presented below:

Table 3. ANALYSES PERFORMED

Area	Analyses Performed
Service Warehouse	TEH, TOG
Carwash Facility	TEH
Undercoating Booth	TEH, TOG
Test Boring 18	PNA's

Analytical results are presented on Plates 2 through 5. The results for samples obtained from the perimeter and bottom of the final excavations are summarized in Tables 4 through 7. Some of the test results presented on the plates represent intermediate phases during soil removal and are not presented in the tables. Laboratory test reports are presented in the Appendix.

Table 4. DOCUMENTATION TEST RESULTS SERVICE BUILDING

Sample Designation	Depth (feet)	TOG[1] (ppm)[3]	TEH[2] (ppm)
W-1	7.0	ND[4]	47
W-2	7.0	62	39
W-3	12.0	61	46
W-4	7.0	ND	ND
W-5	7.0	ND	ND
W-6	10.0	98	ND
W-7	7.0	ND	34
W-8	7.0	90	36
W-9	7.0	50	35
W-10	7.0	61	48
W-11B	4.5	ND	ND
W-12B	4.5	82	ND
W-13B	4.5	ND	ND
W-14B	5.5	ND	ND
W-15B	4.0	60	ND
W-16	5.5	110	ND
W-17	6.5	ND	ND
W-18	5.5	63	ND
W-19	4.0	ND	ND
W-20C	3.5	ND	ND
W-21B	3.0	ND	ND
W-22C	3.0	ND	ND
W-23	4.0	57	ND

---

1 TOG = Total oil and grease
2 TEH = Total extractable hydrocarbons
3 ppm = parts per million = milligrams per kilogram - mg/kg
4 ND = None detected, chemicals not present at concentrations above detection limits

Table 5. DOCUMENTATION TEST RESULTS CARWASH FACILITY After excavat.

Sample Designation	Depth (feet)	TEH[1] (ppm)[2]
1	5.5	77
2	5.5	ND[3]
3	3.0	65
4	4.0	ND
CK-1B	6.5	ND
CK-1C	6.5	ND
CK-1F	5.0	ND
CK-1G	5.0	ND
CK-1H	5.5	ND
CK-1I	5.0	ND
CK-3C	5.0	ND
CK-3D	5.0	ND
CK-3E	6.0	44
CK-4	4.0	ND
CK-5	3.0	ND
CK-6	3.0	ND
CK-7	6.0	ND
CK-8	6.0	29
CK-9	7.0	40
CK-10	7.0	106
CK-11	7.0	47
CK-12	7.0	ND
CK-13	4.0	ND
CK-14	6.0	ND
CK-15	7.0	89
CK-16	7.0	42
CK-17	7.0	44
CK-18	7.0	42
CK-19	6.0	ND
CK-20	4.5	ND
CK-21	6.0	ND
CK-22	7.0	ND
CK-23	7.0	ND
CK-24	7.0	ND
CK-25	7.0	ND
CK-26	6.0	ND
CK-27	3.0	31
CK-28	6.0	ND
CK-29	4.0	ND
CK-30	5.0	ND
CK-31	5.0	ND
CK-32	3.5	ND
CK-33	5.0	ND
CK-34	3.0	ND

[1] TEH = Total extractable hydrocarbons
[2] ppm = Parts per million = milligrams per kilogram = mg/kg
[3] ND = None detected, chemicals not present at concentrations above the detection limits

Table 6. DOCUMENTATION TEST RESULTS UNDERCOATING BOOTH

Sample Designation	Depth (feet)	TOG[1] (ppm)[3]	TEH[2] (ppm)
CU-1	4.0	ND[4]	45
CU-2	5.5	51	39
CU-3	5.0	ND	ND
CU-4	3.0	ND	ND
CU-5	4.0	ND	ND
CU-6	4.0	ND	ND
CU-7	3.5	ND	ND
CU-9	4.0	ND	ND
CU-10	3.5	ND	ND
CU-11	2.0	ND	ND
CU-12	2.0	ND	ND
CU-13	1.5	ND	ND
CU-14	1.5	ND	ND
CU-17	5.0	100	ND
CU-18	2.0	80	ND
CU-20	2.0	75	ND
CU-21	2.0	ND	ND

1 TOG = Total oil and grease
2 TEH = Total extractable hydrocarbons
3 ppm = parts per million = milligrams per kilogram = mg/kg
4 ND = None detected, chemicals not present at concentrations above detection limits

Table 7. DOCUMENTATION TEST RESULTS NEAR TEST BORING 18

Sample Designation	Depth (feet)	Total PNA's (ppm)
PN	1	ND
PS	1	ND
PE	1	ND
PB	5	ND
PW	0.5	1.4

IV CONCLUSIONS

A. General

Based on our observations and analytical test results, we believe that excavation activities have successfully removed the source of contamination from the site. Relatively low concentrations of contaminants have been left in place. However, we believe these low concentrations do not represent an ongoing threat of groundwater degradation nor a health nuisance. Average concentrations of contaminants which remain in place beyond the limits of excavation at each of the areas is summarized in the following sections.

B. Petroleum Hydrocarbon Soil Contamination

The average petroleum hydrocarbon concentrations left in place are summarized in Table 8. These low levels indicate that the source material has been adequately removed. The excavated soil is presently being remediated on-site.

Table 8. PETROLEUM HYDROCARBONS

	Average Concentration of Petroleum Hydrocarbons Left-in-Place	
Service Warehouse	TEH (ppm)	TOG (ppm)
Service Warehouse	41	72
Carwash Facility	56	NT
Undercoating Booth	42	75

C. PNA Soil Contamination

PNA compounds were not detected with samples analyzed from the bottom and north, south and east side walls of the excavation. In addition, samples of the soils removed, do not contain detectable concentrations of PNA's. However, detectable concentrations of PNA's were left in place along the west wall of the excavation. The concentration is very low. The only PNA source we could identify in the excavation is an old tarmac pavement surface. Various types of oils, some of which likely contained PNA's, were commonly used to oil down roadways and runways creating Tarmac surfaces.

The site is to be developed with a new office complex this year. Proposed site improvements will provide sufficient cover in this area, thereby eliminating the risk of human contact after the site is developed.

D. Future Study

Additional investigation is required to evaluate the impact of soil contamination on groundwater. The scope of the investigation will include (1) installing at least 8 groundwater monitoring wells, (2) quarterly sampling and analysis of water samples, and (3) determination of groundwater flow direction and gradient.

List of Attachments

Plate 1	-	Site Plan
Plate 2	-	Service Warehouse Sample Location Map
Plate 3	-	Carwash Facility Sample Location Map
Plate 4	-	Undercoating Booth Sample Location Map
Plate 5	-	Test Boring 18 Sample Location Map

Appendix

Laboratory Test Reports
Chain-of-Custody Records

Distribution

1 copy: Mr. Ariu Levy
Alameda County Health Care Services Agency
80 Swan Way, #200
Oakland, California 94612

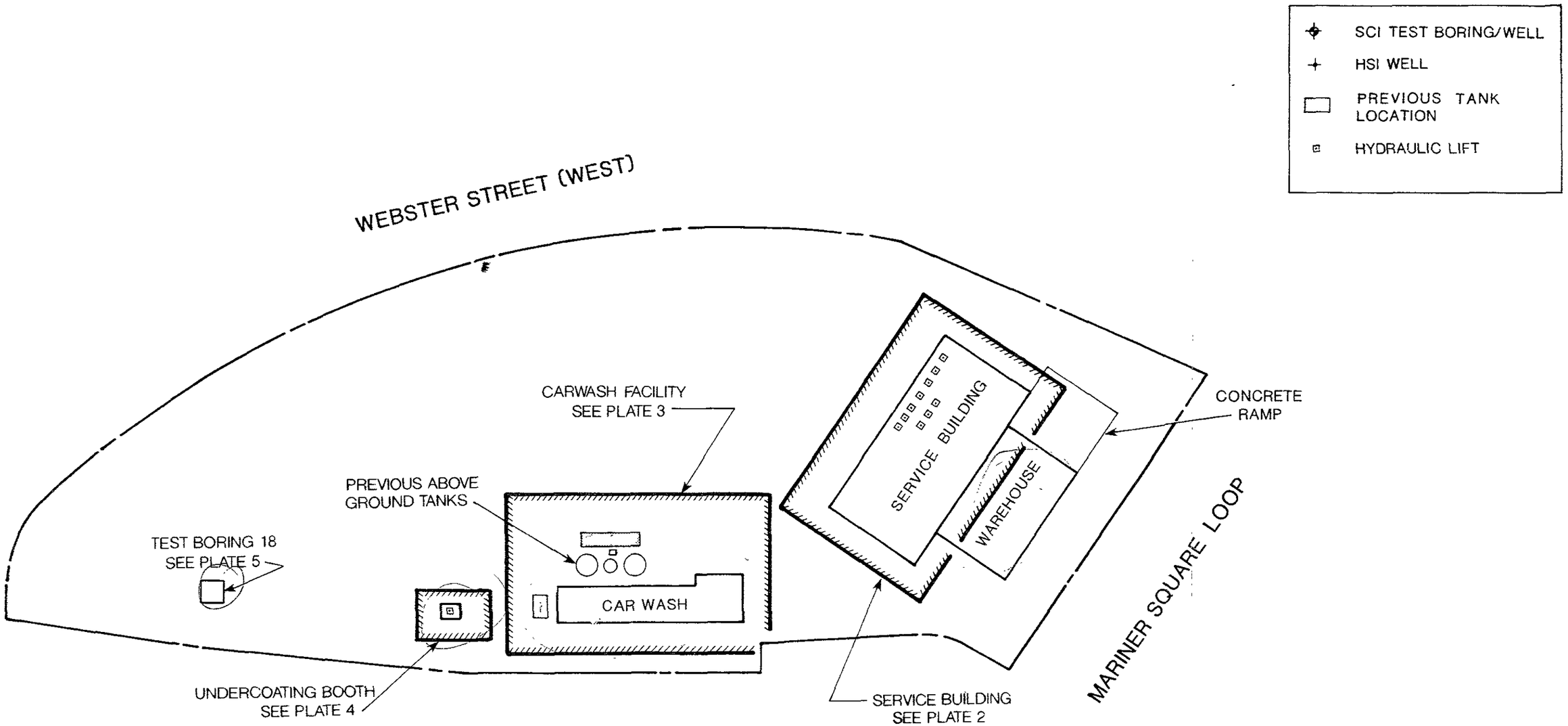
464-435 9

1 copy: Mr. Rich Hyatt
Regional Water Quality Control Board
1800 Harrison Street, 7th Floor
Oakland, California 94612

2 copies: Mariner Warehouse
A California Limited Partnership
c/o Mr. Stanley Kintz
John Beery Organization
2236 Mariner Square Drive
Alameda, California 94501

2 copies: Mr. Scott Smithers
Paragon Group
Paragon Point
Three Lagoon Drive, Suite 220
Redwood City, California 94065

JNA:RWR:JPB:mbl:clh



SITE PLAN

Subsurface Consultants

PLATE 1

W-1 — Sample Number
7(ND,47)
- Total Extractable Hydrocarbon Concentration (ppm)
- Total Oil and Grease Concentration (ppm)
- Depth (feet)

ND = None Detected

W-15B 4(60,ND)
W-15 5.5(890,2000)
W-16 5.5(110,ND)
W-17 6.5(ND,ND)
W-14B 5.5(ND,ND)
W-14 5.5(270,2000)
W-6 7(130,34) 7(2500,7800) 10(98,ND)
W-7 7(ND,34)
W-8 7(90,36)
W-9 7(50,35)
W-10 7(61,48)
W-13B 4.5(ND,ND)
W-13 5.5(260,ND)
W-18 5.5(63,ND)
W-12B 4.5(82,ND)
W-12 5.5(210,ND)
W-1 7(ND,47)
W-2 7(62,39)
W-3 7(270,210) 7(ND,ND) 10(4000,1600) 12(61,46)
W-4 7(ND,ND)
W-5 7(ND,ND)
W-11B 4.5(ND,ND)
W-11 5.5(150,ND)
W-19 4(ND,ND)
W-23 4(57,ND)
W-22 4(190,ND)
W-21 4(610,ND)
W-20 4(130,ND)
W-20C 3.5(ND,ND)
W-22C 3(ND ND)
W21-B 3(ND ND)

N

APPROXIMATE SCALE (feet)
0 20 40

SERVICE BUILDING SAMPLE LOCATION MAP

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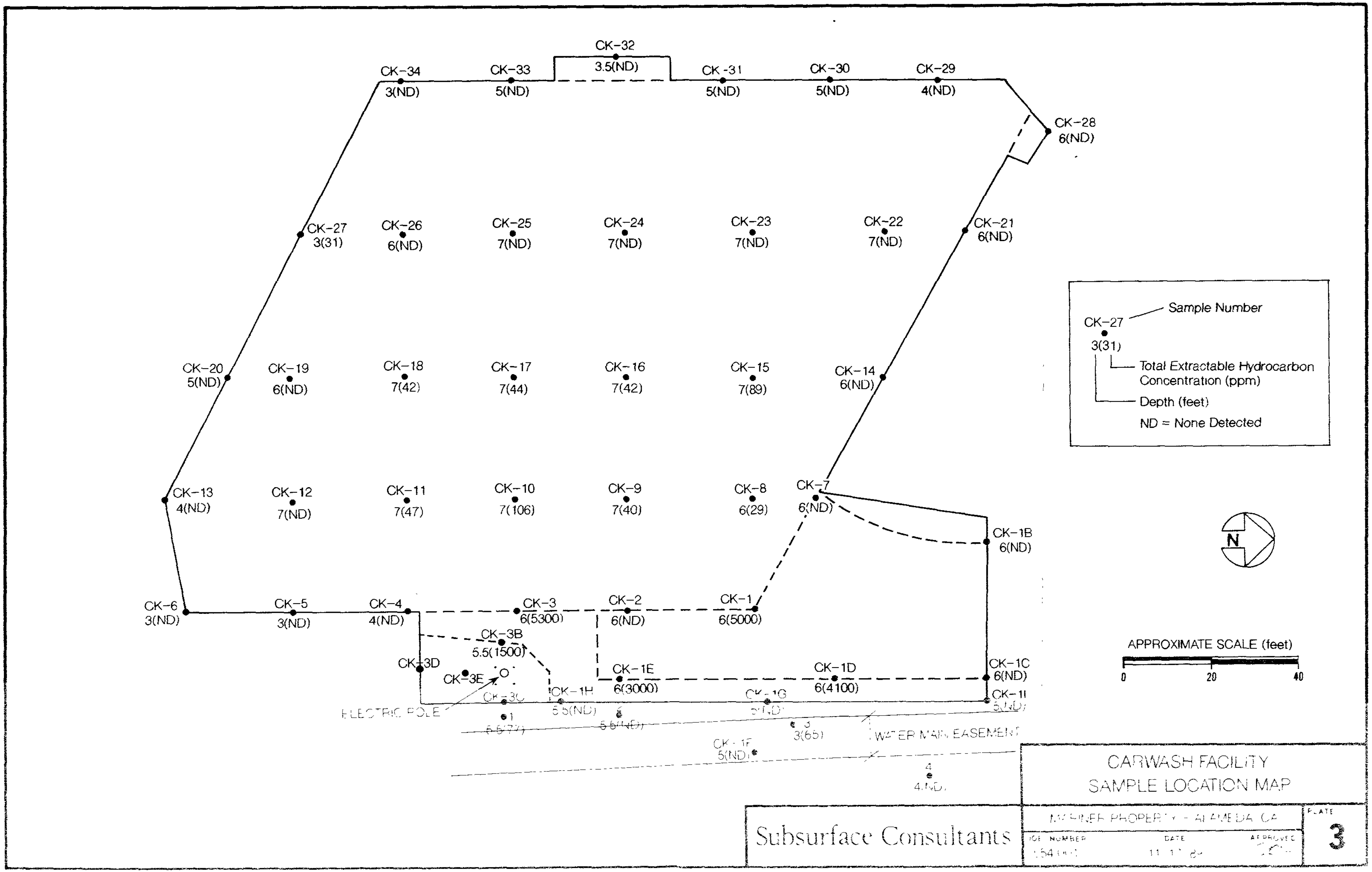
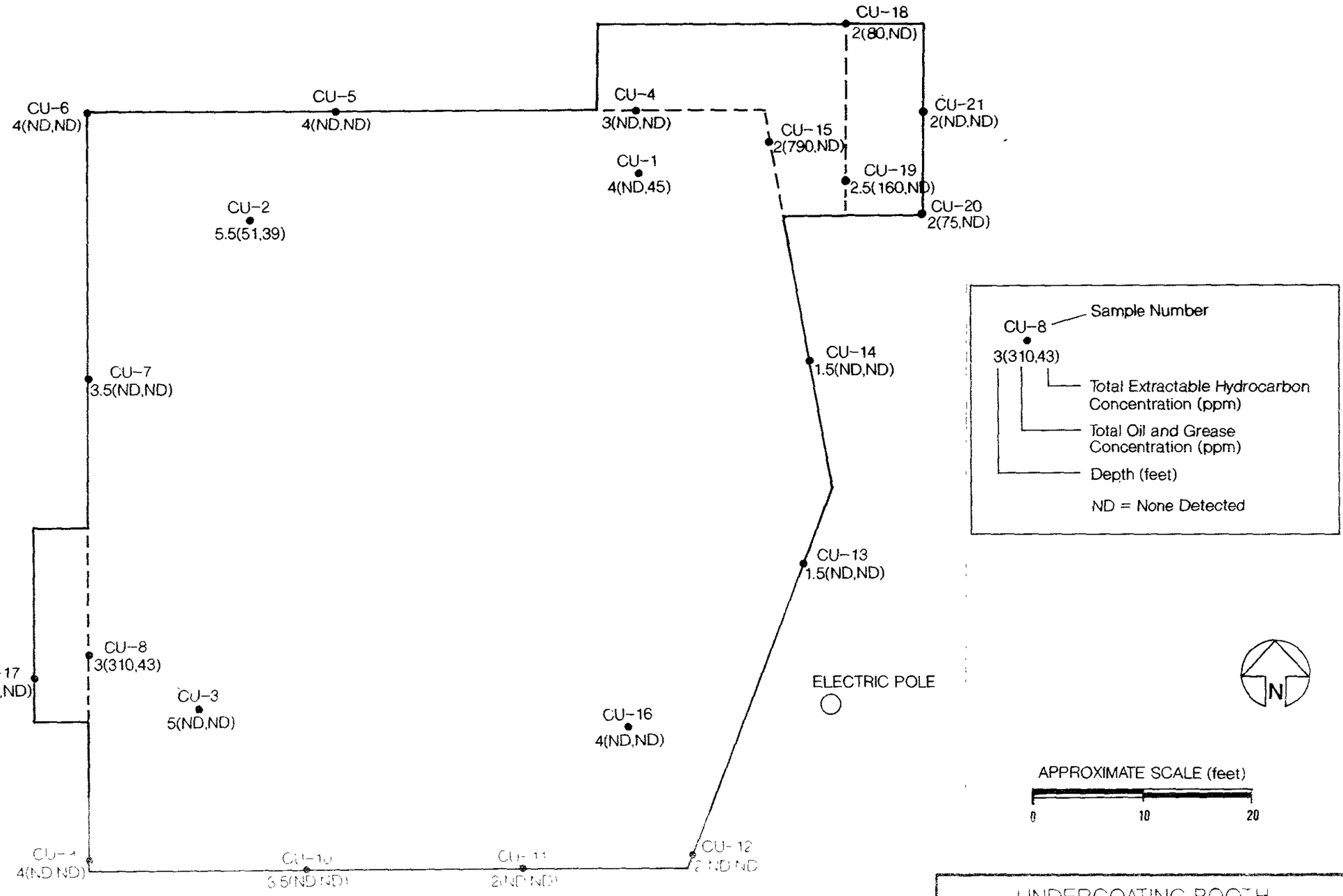
MARINER PROPERTY - ALAMEDA CA

JOB NUMBER	DATE	APPROVED
554 001	2/12/90	

PLATE 2



CK-32 3.5(ND)
CK-34 3(ND)
CK-33 5(ND)
CK-31 5(ND)
CK-30 5(ND)
CK-29 4(ND)
CK-28 6(ND)
CK-27 3(31)
CK-26 6(ND)
CK-25 7(ND)
CK-24 7(ND)
CK-23 7(ND)
CK-22 7(ND)
CK-21 6(ND)
CK-20 5(ND)
CK-19 6(ND)
CK-18 7(42)
CK-17 7(44)
CK-16 7(42)
CK-15 7(89)
CK-14 6(ND)
CK-13 4(ND)
CK-12 7(ND)
CK-11 7(47)
CK-10 7(106)
CK-9 7(40)
CK-8 6(29)
CK-7 6(ND)
CK-1B 6(ND)
CK-6 3(ND)
CK-5 3(ND)
CK-4 4(ND)
CK-3 6(5300)
CK-2 6(ND)
CK-1 6(5000)
CK-3B 5.5(1500)
CK-3D
CK-3E
CK-1E 6(3000)
CK-1D 6(4100)
CK-1C 6(ND)
CK-1H 5.5(ND)
ELECTRIC POLE
WATER MAIN EASEMENT
CK-1F 5(ND)
Sample Number
CK-27 3(31)
Total Extractable Hydrocarbon Concentration (ppm)
Depth (feet)
ND = None Detected
N
APPROXIMATE SCALE (feet)
0
20
40
CARWASH FACILITY
SAMPLE LOCATION MAP
Subsurface Consultants
PLATE
3

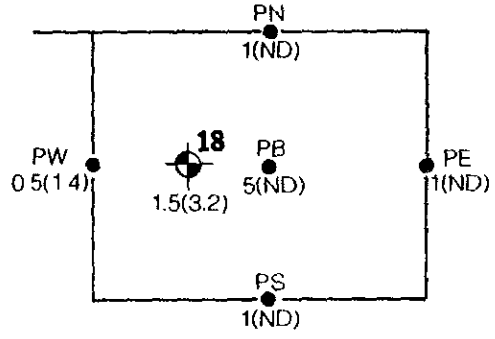


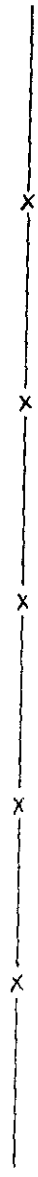
UNDERCOATING BOOTH
SAMPLE LOCATION MAP

Subsurface Consultants

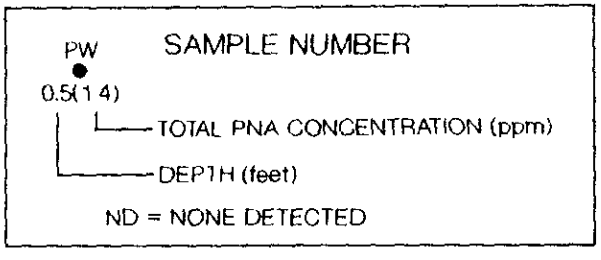
MARINER PROPERTY - ALAMEDA CA

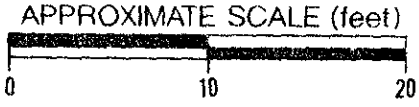
JOB NUMBER	DATE	APPROVED	PLATE
554.001	2/12/96		4





ELECTRIC POLE ○





TEST BORING 18
SAMPLE LOCATION MAP

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MARINER PROPERTY - ALAMEDA, CA

JOB NUMBER	DATE	APPROVED
554.001	2/28/90	

PLATE 5

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CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: Mariner

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: RAPID

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
W-20C@3½'	S	T	12-15-89		TEH D&G	
W-21B@3'	↓	↓	↓		↓	
W-22C@3'						

Released by: Dennis Alexander Date: 12-15-89

Released by Courier: _____ Date: _____

Received by Laboratory: Michael Wray Date: 12-15-89

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street Berkeley CA 94710 Phone (415) 486 0900

DATE RECEIVED: 12/15/89
DATE REPORTED: 12/19/89

LAB NUMBER: 18968

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 3 SOIL SAMPLES

PROJECT #: 554.001
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins Ltd

LAB NUMBER: 18968
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 12/15/89
DATE ANALYZED: 12/19/89
DATE REPORTED: 12/19/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18968-1	W-20C@3.5'	ND	mg/Kg	50
18968-2	W-21B@3.0'	ND	mg/Kg	50
18968-3	W-22C@3.0'	ND	mg/Kg	50

ND = NOT DETECTED

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	82

Curtis & Tompkins Ltd

LABORATORY NUMBER: 18968
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 12/15/89
DATE ANALYZED: 12/18/89
DATE REPORTED: 12/19/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18968-1	W-20C@3.5'	ND(10)	ND(10)	ND(10)
18968-2	W-21B@3.0'	ND(10)	ND(10)	ND(10)
18968-3	W-22C@3.0'	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	<1
Spike: % Recovery	70

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Properties

SCI Job Number: 554 001

Project Contact at SCI: Lori Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CL-19@6'	S	T	10-31-89		TEH	
CL-20@4½'						
CL-21@6' <				*		
CL-22@7'						
CL-23@7						
CL-24@7'						
CL-25@7'						
water	W	G (2) 1 liter			TEH O&G	
water	W	C (3) VOA			TEH O&G	

* this sample to be on RAPID turnaround

Released by: [signature] Date:

Released by Courier: Date:

Received by Laboratory: [signature] Date: 11/3/89 920am

Relinquished by Laboratory: Date:

Received by: Date:

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street Berkeley CA 94710. Phone (415) 486-0900

DATE RECEIVED: 11/02/89
DATE REPORTED: 11/07/89

LAB NUMBER: 18610

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

M. E. Printiera
QA/QC Officer

for CBG
Laboratory Director

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18610
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/04/89
DATE REPORTED: 11/07/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18610-3	CK-21 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	7
Spike: % Recovery	112

Subsurface Consultants 18610

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Properties

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-19@6'	S	T	10-31-89		TEH	
CK-20@4½'						
CK-21@6'					*	
CK-22@7'						
CK-23@7'						
CK-24@7'						
CK-25@7'						
water	W	G(2) 1 liter			TEH O&G	
water	W	G(3) VOA's			TEH O&G	

* this sample to be on RAPID turnaround

Released by: [signature] Date:

Released by Courier: Date:

Received by Laboratory: Nancy A Miller Date: 11/3/89 920am

Relinquished by Laboratory: Date:

Received by: Date:

[1] Sample Type: W = water, S = soil, O = other (specify)
Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 11/02/89
DATE REPORTED: 11/07/89

LAB NUMBER: 18610

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

M. E. Printeau
QA/QC Officer

for CBG
Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18610
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/04/89
DATE REPORTED: 11/07/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18610-3	CK-21 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	7
Spike: % Recovery	112

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DATE RECEIVED: 11/02/89
DATE REPORTED: 11/15/89

LAB NUMBER: 18611

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 6 SOIL SAMPLES &
1 WATER SAMPLE

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

M. Z. Pinilla
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LAB NUMBER: 18611
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001/MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/10/89
DATE REPORTED: 11/15/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18611-7	WATER	31	mg/L	20

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	82

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18611
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/09/89
DATE REPORTED: 11/15/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	GASOLINE (mg/L)	KEROSENE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
18611-7	WATER	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	31
Spike: % Recovery	97

Curtis & Tompkins Ltd

LABORATORY NUMBER: 18611
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/14/89
DATE REPORTED: 11/15/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18611-1	CK-19 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)
18611-2	CK-20 @ 4 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18611-3	CK-22 @ 7'	ND(10)	ND(10)	ND(10)	ND(10)
18611-4	CK-23 @ 7'	ND(10)	ND(10)	ND(10)	ND(10)
18611-5	CK-24 @ 7'	ND(10)	ND(10)	ND(10)	ND(10)
18611-6	CK-25 @ 7'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	92

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DATE RECEIVED: 11/15/89
DATE REPORTED: 11/17/89

LAB NUMBER: 18710

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

JOB #: 554.001
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

M. S. Printera
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LAB NUMBER: 18710
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001

DATE RECEIVED: 11/15/89
DATE ANALYZED: 11/17/89
DATE REPORTED: 11/17/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18710-1	CU-19 @ 2 1/2'	160	mg/Kg	50

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	93

Curtis & Tompkins Ltd

LABORATORY NUMBER: 18710
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/15/89
DATE ANALYZED: 11/15/89
DATE REPORTED: 11/17/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18710-1	CU-19 @ 2 1/2'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	5
Spike: % Recovery	87

Subsurface Consultants 1888

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Warehouse

SCI Job Number: 554.001

Project Contact at SCI: J. Alexander

Sampled By: D. Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: Normal 90% per John Goyette

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-1 at 6'	S	T	10/30/89		TEH	
CK-2 at 6						
CK-3 at 6						
CK-4 at 4						
CK-5 at 3						
CK-6 at 3						
CK-7 at 6						
CK-8 at 6						
CK-9 at 7						
CK-10 at 7						

* * * * * *

Released by: [illegible] Date: 10/31

Released by Courier: _____ Date: _____

Received by Laboratory: [signature] Date: 10/31

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)

[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:

-Notify SCI if there are any anomalous peaks on GC or other scans

-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

18584

Project Name: Mariner Warehouse

SCI Job Number: 354.001

Project Contact at SCI: J. Alexander

Sampled By: D. Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: Normal (90% per John Goyette)

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-11 at 7	S	T	10/30/89		TEH	
CK-12 at 7						
CK-13 at 4						
CK-14 at 6						
CK-15 at 7						
CK-16 at 7						
CK-17 at 7						
CK-18 at 7						
Water Scum	W	glass	10/30/89		TEH, TOG	

Make homogeneous sample = Shake

* * * * * *

Released by: _____ Date: 10/31

Released by Courier: _____ Date: _____

Received by Laboratory: _____ Date: 10/31

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

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DATE RECEIVED: 10/31/89
DATE REPORTED: 11/10/89

LAB NUMBER: 18584

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 17 SOIL SAMPLES &
1 WATER SAMPLE

JOB #: 554.001
LOCATION: MARINER WAREHOUSE

RESULTS: SEE ATTACHED

M. E. Printezis
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LAB NUMBER: 18584
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER WAREHOUSE

DATE RECEIVED: 10/31/89
DATE ANALYZED: 11/10/89
DATE REPORTED: 11/10/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18584-19	WATER SCUM	32	mg/L	20

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	82

LABORATORY NUMBER: 18584
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 554.001
LOCATION: MARINER WAREHOUSE

DATE RECEIVED: 10/31/89
DATE ANALYZED: 11/08/89
DATE REPORTED: 11/10/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	GASOLINE (mg/L)	KEROSENE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
18584-19	WATER SCUM	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	31
Spike: % Recovery	97

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18584
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER WAREHOUSE

DATE RECEIVED: 10/31/89
DATE ANALYZED: 11/03-08
DATE REPORTED: 11/10/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18584-1	CK-1 @ 6	ND(10)	5,000*	ND(10)	ND(10)
18584-2	CK-2 @ 6	ND(10)	ND(10)	ND(10)	ND(10)
18584-3	CK-3 @ 6	ND(100)	5,300*	ND(100)	ND(100)
18584-4	CK-4 @ 4	ND(10)	ND(10)	ND(10)	ND(10)
18584-5	CK-5 @ 3	ND(10)	ND(10)	ND(10)	ND(10)
18584-6	CK-6 @ 3	ND(10)	ND(10)	ND(10)	ND(10)
18584-7	CK-7 @ 6	ND(10)	ND(10)	ND(10)	ND(10)
18584-8	CK-8 @ 6	ND(10)	ND(10)	29**	ND(10)
18584-9	CK-9 @ 7	ND(10)	ND(10)	40**	ND(10)
18584-10	CK-10 @ 7	ND(10)	25*	81**	ND(10)
18584-11	CK-11 @ 7	ND(10)	ND(10)	47**	ND(10)
18584-12	CK-12 @ 7	ND(10)	ND(10)	ND(10)	ND(10)
18584-13	CK-13 @ 4	ND(10)	ND(10)	ND(10)	ND(10)
18584-14	CK-14 @ 6	ND(10)	ND(10)	ND(10)	ND(10)
18584-15	CK-15 @ 7	ND(10)	ND(10)	89**	ND(10)
18584-16	CK-16 @ 7	ND(10)	ND(10)	42**	ND(10)
18584-17	CK-17 @ 7	ND(10)	ND(10)	44**	ND(10)
18584-18	CK-18 @ 7	ND(10)	ND(10)	42**	ND(10)

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C10-C16 boiling range.

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	3
Spike: % Recovery	110

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DATE RECEIVED: 10/31/89
DATE REPORTED: 11/10/89

LAB NUMBER: 18584

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 17 SOIL SAMPLES &
1 WATER SAMPLE

JOB #: 554.001
LOCATION: MARINER WAREHOUSE

RESULTS: SEE ATTACHED

M. E. Printezis
QA/QC Officer

Laboratory Director

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-26 @ 6'	S	T	11-1-89		TEH	
CK-27 @ 3'						
CK-29 @ 4'						
CK-30 @ 5'						
CK-31 @ 5'						
CK-33 @ 5'						
CK-34 @ 3'						

* * * * * *

Released by: [signature] Date:

Released by Courier: Date:

Received by Laboratory: Nancy A Katten Date: 920 am 11/3/89

Relinquished by Laboratory: Date:

Received by: Date:

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
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DATE RECEIVED: 11/02/89
DATE REPORTED: 11/14/89

LAB NUMBER: 18609

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 7 SOIL SAMPLES

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18609
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/02/89
DATE ANALYZED: 11/14/89
DATE REPORTED: 11/14/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18609-1	CK-26 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)
18609-2	CK-27 @ 3'	ND(10)	ND(10)	31*	ND(10)
18609-3	CK-29 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18609-4	CK-30 @ 5'	ND(10)	ND(10)	ND(10)	ND(10)
18609-5	CK-31 @ 5'	ND(10)	ND(10)	ND(10)	ND(10)
18609-6	CK-33 @ 5'	ND(10)	ND(10)	ND(10)	ND(10)
18609-7	CK-34 @ 3'	ND(10)	ND(10)	ND(10)	ND(10)

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	83

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Leri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: RAPID

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-1F@5'	S	T	11-7-89		TEH	

* * * * * *

Released by: Dennis Alexander Date: 11-8-89

Released by Courier: Date:

Received by Laboratory: Nancy Jirsa Date: 11/8/89

Relinquished by Laboratory: Date:

Received by: Date:

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories Since 1878
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DATE RECEIVED: 11/08/89
DATE REPORTED: 11/10/89

LAB NUMBER: 18646

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 1 SOIL SAMPLE

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18646
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/08/89
DATE ANALYZED: 11/08/89
DATE REPORTED: 11/10/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18646-1	CK-1F @ 5'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	3
Spike: % Recovery	110

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Warehouse

SCI Job Number: 554.001

Project Contact at SCI: J. Alexander

Sampled By: F. Velez

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: RAPID

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
1 at 5.5	S	T	11/22/89		TEH	
2 at 5.5	↓	↓	↓		TEH	
4 at 4.0					TEH	
3 at 4.0					TEH	
	*	*	*	*	*	*

Released by: [signature] Date: 11-27-89

Released by Courier: _____ Date: _____

Received by Laboratory: _____ Date: _____

Relinquished by Laboratory: Belinda Peters Date: 11-27-89

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

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DATE RECEIVED: 11/27/89
DATE REPORTED: 11/29/89

LAB NUMBER: 18798

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 4 SOIL SAMPLES

JOB #: 554.001
LOCATION: MARINER WAREHOUSE

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins Ltd

LABORATORY NUMBER: 18798
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER WAREHOUSE

DATE RECEIVED: 11/27/89
DATE ANALYZED: 11/29/89
DATE REPORTED: 11/29/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18798-1	1 @ 5.5	ND(10)	ND(10)	77*	ND(10)
18798-2	2 @ 5.5	ND(10)	ND(10)	ND(10)	ND(10)
18798-3	4 @ 4.0	ND(10)	ND(10)	ND(10)	ND(10)
18798-4	3 @ 4.0	ND(10)	ND(10)	65*	ND(10)

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	6
Spike: % Recovery	83

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Property

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: RAPID 48 hrs. at 90% per NW

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
W-1@7'	S	T	10-18-89		TEH & Oil and Grease	
W-2@7'						
W-3@7'						
W-4@7'						
W-5@7'						
W-6@7'						
W-7@7'						
W-8@7'						
W-9@7'						
W-10@7'						

* * * * * *

Released by: Dennis Alexander **Date:** 10-20-89

Released by Courier: [signature] **Date:** 10/23/89

Received by Laboratory: Nancy Ahlen **Date:** 10/23/89

Relinquished by Laboratory: _____ **Date:** _____

Received by: _____ **Date:** _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
- -Notify SCI if there are any anomalous peaks on GC or other scans
- -Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis & Tompkins

Analytical Turnaround: RAPID 48 hrs at 90% per N.W

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
Cu-1@ 4'	S	T	10-20-89		TEH & Oil & Grease	
Cu-2@ 5½'						
Cu-3@ 5'						
Cu-4@3						
Cu-5@ 4'						
Cu-6@ 4'						
Cu-7@ 3½'						
Cu-8@ 3'						

* * * * * *

Released by: Dennis Alexander Date: 10-20-89

Released by Courier: [signature] Date: 10/23/89

Received by Laboratory: Nancy Patten Date: 10/23/89

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

Sample Type: W = water, S = soil, O = other (specify)
Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Property

SCI Job Number: 554.001

Project Contact at SCI: Seri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: RAPID 48 hrs. at 90% per N.W

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
Cu-9@4'	S	T	10-20-89		TEH+Oil&Grease	
Cu-10@3½'						
Cu-11@2'						
Cu-12@2'						
Cu-13@1½'						
Cu-14@1½'						
Cu-15@2'						
Cu-16@4'						

* * * * * *

Released by: Dennis Alexander **Date:** 10-20-89

Released by Courier: [signature] **Date:** 10/22/89

Received by Laboratory: [signature] **Date:** 10/23/89

Relinquished by Laboratory: **Date:**

Received by: **Date:**

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: RAPID 48 hrs. at 90% per N.W.

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
FW-2	S	T	10-18-89		TEH + Oil and Grease	
FW-3	↓	↓	↓		↓	
FW-4						
FW-5						
FW-6						
FW-7						
FW-8						
FW-9						
FW-10						
FW-11	↓	↓	↓		↓	

* * * * * *

Released by: Dennis Alexander Date:

Released by Courier: C Dulin Date: 10/23/89

Received by Laboratory: Nancy A Watten Date: 10/25/89

Relinquished by Laboratory: Date:

Received by: Date:

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Property

SCI Job Number: 554.001

Project Contact at SCI: Seri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: RAPID 48 HRS at 90% per Nu

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
FW-12	S	T	10-20-89		TEH + Oil and Grease	
FW-13	↓	↓	↓		↓	
FW-14						
FW-15						
FW-16						
FW-17						
FW-18						
FW-19						
FW-20						
FW-21	↓	↓	↓		↓	

* * * * * *

Released by: [signature] **Date:** 10/20/89

Released by Courier: _____ **Date:** _____

Received by Laboratory: [signature] **Date:** 10/23/89

Relinquished by Laboratory: _____ **Date:** _____

Received by: _____ **Date:** _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Property

SCI Job Number: 554.001

Project Contact at SCI: Seri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: RAPID 48 HRS. at 90% per N.W

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
FW-22	S	T	10-20-89		TEH & Oil & Grease	
FW-23						
FW-24						
FW-25						
FW-26						
FW-27						
FW-28						
FW-29						

* * * * * *

Released by: [signature] Date: 10/23/89

Released by Courier: _____ Date: _____

Received by Laboratory: [signature] Date: 10/23/89

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

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DATE RECEIVED: 10/23/89
DATE REPORTED: 10/26/89

LAB NUMBER: 18539

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 55 SOIL SAMPLES

JOB #: 554.001
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

M.E. Riviera
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd.

LAB NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/25/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18539-1	W-1@7'	ND	mg/Kg	50
18539-2	W-2@7'	62	mg/Kg	50
18539-3	W-3@7'	270	mg/Kg	50
18539-4	W-4@7'	ND	mg/Kg	50
18539-5	W-5@7'	ND	mg/Kg	50
18539-6	W-6@7'	130	mg/Kg	50
18539-7	W-7@7'	ND	mg/Kg	50
18539-8	W-8@7'	90	mg/Kg	50
18539-9	W-9@7'	50	mg/Kg	50
18539-10	W-10@7'	61	mg/Kg	50
18539-11	CU-1@4'	ND	mg/Kg	50
18539-12	CU-2@5.5'	51	mg/Kg	50
18539-13	CU-3@5'	ND	mg/Kg	50
18539-14	CU-4@3'	ND	mg/Kg	50
18539-15	CU-5@4'	ND	mg/Kg	50
18539-16	CU-6@4'	ND	mg/Kg	50
18539-17	CU-7@3.5'	ND	mg/Kg	50
18539-18	CU-8@3'	310	mg/Kg	50
18539-19	CU-9@4'	ND	mg/Kg	50
18539-20	CU-10@3.5'	ND	mg/Kg	50

ND = NOT DETECTED

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	81

Curtis & Tompkins, Ltd

LAB NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/25/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18539-21	CU-11@2'	ND	mg/Kg	50
18539-22	CU-12@2'	ND	mg/Kg	50
18539-23	CU-13@1.5'	ND	mg/Kg	50
18539-24	CU-14@1.5'	ND	mg/Kg	50
18539-25	CU-15@2'	790	mg/Kg	50
18539-26	CU-16@4'	ND	mg/Kg	50
18539-27	FW-2	370	mg/Kg	50
18539-28	FW-3	ND	mg/Kg	50
18539-29	FW-4	55	mg/Kg	50
18539-30	FW-5	490	mg/Kg	50
18539-31	FW-6	ND	mg/Kg	50
18539-32	FW-7	380	mg/Kg	50
18539-33	FW-8	ND	mg/Kg	50
18539-34	FW-9	330	mg/Kg	50
18539-35	FW-10	350	mg/Kg	50
18539-36	FW-11	460	mg/Kg	50
18539-37	FW-12	170	mg/Kg	50
18539-38	FW-13	280	mg/Kg	50
18539-39	FW-14	450	mg/Kg	50
18539-40	FW-15	1,500	mg/Kg	50

ND = NOT DETECTED

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	81

Curtis & Tompkins, Ltd.

LAB NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/25/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18539-41	FW-16	340	mg/Kg	50
18539-42	FW-17	550	mg/Kg	50
18539-43	FW-18	300	mg/Kg	50
18539-44	FW-19	160	mg/Kg	50
18539-45	FW-20	1,000	mg/Kg	50
18539-46	FW-21	590	mg/Kg	50
18539-47	FW-22	180	mg/Kg	50
18539-48	FW-23	630	mg/Kg	50
18539-49	FW-24	570	mg/Kg	50
18539-50	FW-25	340	mg/Kg	50
18539-51	FW-26	270	mg/Kg	50
18539-52	FW-27	1,200	mg/Kg	50
18539-53	FW-28	620	mg/Kg	50
18539-54	FW-29	1,800	mg/Kg	50
18539-55	FW-1	960	mg/Kg	50

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	81

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/26/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18539-1	W-1@7'	ND(10)	ND(10)	47*	ND(10)
18539-2	W-2@7'	ND(10)	ND(10)	39*	ND(10)
18539-3	W-3@7'	ND(10)	ND(10)	210*	ND(10)
18539-4	W-4@7'	ND(10)	ND(10)	ND(10)	ND(10)
18539-5	W-5@7'	ND(10)	ND(10)	ND(10)	ND(10)
18539-6	W-6@7'	ND(10)	ND(10)	34*	ND(10)
18539-7	W-7@7'	ND(10)	ND(10)	34*	ND(10)
18539-8	W-8@7'	ND(10)	ND(10)	36*	ND(10)
18539-9	W-9@7'	ND(10)	ND(10)	35*	ND(10)
18539-10	W-10@7'	ND(10)	ND(10)	48*	ND(10)
18539-11	CU-1@4'	ND(10)	ND(10)	45*	ND(10)
18539-12	CU-2@5.5'	ND(10)	ND(10)	39*	ND(10)
18539-13	CU-3@5'	ND(10)	ND(10)	ND(10)	ND(10)
18539-14	CU-4@3'	ND(10)	ND(10)	ND(10)	ND(10)
18539-15	CU-5@4'	ND(10)	ND(10)	ND(10)	ND(10)
18539-16	CU-6@4'	ND(10)	ND(10)	ND(10)	ND(10)
18539-17	CU-7@3.5'	ND(10)	ND(10)	ND(10)	ND(10)
18539-18	CU-8@3'	ND(10)	ND(10)	43*	ND(10)
18539-19	CU-9@4'	ND(10)	ND(10)	ND(10)	ND(10)
18539-20	CU-10@3.5'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of Detection in parentheses

* = Fingerprint pattern does not match hydrocarbon standards.
Quantitation based on area sum within C12-C26 boiling range.

QA/QC:

Duplicate: Relative % Difference	2
Spike: % Recovery	102

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/26/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18539-21	CU-11@2'	ND(10)	ND(10)	ND(10)	ND(10)
18539-22	CU-12@2'	ND(10)	ND(10)	ND(10)	ND(10)
18539-23	CU-13@1.5'	ND(10)	ND(10)	ND(10)	ND(10)
18539-24	CU-14@1.5'	ND(10)	ND(10)	ND(10)	ND(10)
18539-25	CU-15@2'	ND(10)	ND(10)	ND(10)	ND(10)
18539-26	CU-16@4'	ND(10)	ND(10)	ND(10)	ND(10)
18539-27	FW-2	ND(10)	ND(10)	ND(10)	ND(10)
18539-28	FW-3	ND(10)	ND(10)	ND(10)	ND(10)
18539-29	FW-4	ND(10)	ND(10)	ND(10)	ND(10)
18539-30	FW-5	47**	ND(10)	83*	ND(10)
18539-31	FW-6	ND(10)	ND(10)	ND(10)	ND(10)
18539-32	FW-7	ND(10)	ND(10)	ND(10)	ND(10)
18539-33	FW-8	ND(10)	ND(10)	ND(10)	ND(10)
18539-34	FW-9	ND(10)	ND(10)	ND(10)	ND(10)
18539-35	FW-10	ND(10)	ND(10)	310*	ND(10)
18539-36	FW-11	ND(10)	ND(10)	470*	ND(10)
18539-37	FW-12	ND(10)	ND(10)	ND(10)	ND(10)
18539-38	FW-13	ND(10)	ND(10)	ND(10)	ND(10)
18539-39	FW-14	ND(10)	ND(10)	290*	ND(10)
18539-40	FW-15	ND(10)	ND(10)	980*	ND(10)

ND = Not Detected; Limit of Detection in parentheses
* = Fingerprint pattern does not match hydrocarbon standards.
Quantitation based on area sum within C12-C26 boiling range.
** = Fingerprint pattern does not match hydrocarbon standards.
Quantitation based on area sum within C8-C12 boiling range.

QA/QC:

Duplicate: Relative % Difference	2
Spike: % Recovery	102

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18539
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 10/23/89
DATE ANALYZED: 10/24/89
DATE REPORTED: 10/26/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18539-41	FW-16	ND(10)	ND(10)	81*	ND(10)
18539-42	FW-17	ND(10)	ND(10)	ND(10)	ND(10)
18539-43	FW-18	ND(10)	ND(10)	ND(10)	ND(10)
18539-44	FW-19	ND(10)	ND(10)	ND(10)	ND(10)
18539-45	FW-20	ND(10)	ND(10)	410*	ND(10)
18539-46	FW-21	ND(10)	ND(10)	450*	ND(10)
18539-47	FW-22	ND(10)	ND(10)	ND(10)	ND(10)
18539-48	FW-23	ND(10)	ND(10)	37*	ND(10)
18539-49	FW-24	ND(10)	ND(10)	290*	ND(10)
18539-50	FW-25	ND(10)	ND(10)	ND(10)	ND(10)
18539-51	FW-26	ND(10)	ND(10)	ND(10)	ND(10)
18539-52	FW-27	ND(10)	ND(10)	41*	ND(10)
18539-53	FW-28	ND(10)	ND(10)	530*	ND(10)
18539-54	FW-29	ND(10)	ND(10)	570*	ND(10)
18539-55	FW-1	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of Detection in parentheses

* = Fingerprint pattern does not match hydrocarbon standards;
Quantitaion based on area sum within C12-C26 boiling range.

QA/QC:

Duplicate: Relative % Difference	2
Spike: % Recovery	102

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop

SCI Job Number: 554.001

Project Contact at SCI: Seri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CU-17@5'	S	T	11-2-89		TEH+OBG	
CU-18@2'						
W3B@10'						
W6B@10'						
W-11@5½'						
W-12@5½'						
W-13@5½'						
W-14@5½'						
W-15@5½'						
W-16@5½'						

* * * * * *

Released by: [signature] **Date:** 11-6-89

Released by Courier: _____ **Date:** _____

Received by Laboratory: [signature] **Date:** 11-10-89

Relinquished by Laboratory: _____ **Date:** _____

Received by: _____ **Date:** _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-28@6'	S	T	11-2-89		TEH	
CK-32@3½'					TEH	
W-17@6½'					TEH & OTG	
W-18@5½'						
W-19@4'						
W-20@4'						
W-21@4'						
W-22@4'						
W-23@4'						
	*	*	*	*	*	*

Released by: [signature] Date: [illegible]

Released by Courier: _____ Date: _____

Received by Laboratory: [signature] Date: _____

Relinquished by Laboratory: _____ Date: _____

Received by: [signature] Date: 11-6-89

[1] Sample Type: W = water, S = soil, O = other (specify)
Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

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DATE RECEIVED: 11/06/89
DATE REPORTED: 11/21/89

LAB NUMBER: 18629

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 21 SOIL SAMPLES

JOB #: 554.01
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

QA/QC Officer

Jon Wong for CBL
Laboratory Director

Curtis & Tompkins Ltd

LAB NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/08/89
DATE REPORTED: 11/21/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18629-5	W-17@6.5'	ND	mg/Kg	50
18629-6	W-18@5.5'	63	mg/Kg	50
18629-7	W-19@4'	ND	mg/Kg	50
18629-8	W-20@4'	130	mg/Kg	50
18629-9	W-21@4'	610	mg/Kg	50
18629-10	W-22@4'	190	mg/Kg	50
18629-11	W-23@4'	57	mg/Kg	50
18629-12	CU-17@5'	100	mg/Kg	50
18629-13	CU-18@2'	80	mg/Kg	50
18629-14	W3B@10'	4,000	mg/Kg	50
18629-15	W6B@10'	98	mg/Kg	50
18629-16	W-11@5.5'	150	mg/Kg	50
18629-17	W-12@5.5'	210	mg/Kg	50
18629-18	W-13@5.5'	260	mg/Kg	50
18629-19	W-14@5.5'	270	mg/Kg	50
18629-20	W-15@5.5'	890	mg/Kg	50
18629-21	W-16@5.5'	110	mg/Kg	50

QA/QC SUMMARY:

RPD, %	2
RECOVERY, %	86

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: PIT A-2@

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/09/89
DATE REPORTED: 11/21/89

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	ND	50
Pyrene	ND	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	80	50
Benzo(a)pyrene	ND	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(ghi)perylene	ND	50

ND = None Detected.

QA/QC SUMMARY

Duplicate: Relative % Difference	13
Average Spike Recovery %	88

Curtis & Tompkins Ltd.

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: PIT A-1@

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/09/89
DATE REPORTED: 11/21/89

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	670	50
Pyrene	1,100	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	740	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(ghi)perylene	1,200	50

ND = None Detected.

QA/QC SUMMARY

Duplicate: Relative % Difference	13
Average Spike Recovery %	88

Curtis & Tompkins Ltd.

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/19/89
DATE REPORTED: 11/21/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18629-3	CK-28 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)
18629-4	CK-32 @ 3 1/2	ND(10)	ND(10)	ND(10)	ND(10)
18629-5	W-17 @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-6	W-18 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-7	W-19 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-8	W-20 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-9	W-21 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-10	W-22 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-11	W-23 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-12	CU-17 @ 5'	ND(10)	ND(10)	ND(10)	ND(10)
18629-13	CU-18 @ 2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-14	W3B @ 10'	ND(10)	ND(10)	1,600*	ND(10)
18629-15	W6B @ 10'	ND(10)	ND(10)	ND(10)	ND(10)
18629-16	W-11 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-17	W-12 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-18	W-13 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-19	W-14 @ 5 1/2'	ND(10)	ND(10)	2,000*	ND(10)
18629-20	W-15 @ 5 1/2'	ND(10)	ND(10)	2,000*	ND(10)
18629-21	W-16 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

* = Fingerprint Pattern does not match Hydrocarbon Standards.
Quantitation based on area sum within C12 to C24 boiling range.

QA/QC SUMMARY

Duplicate: Relative % Difference	<1
Spike: % Recovery	95

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 11/06/89
DATE REPORTED: 11/21/89

LAB NUMBER: 18629

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 21 SOIL SAMPLES

JOB #: 554.01
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

M. E. Printiera
QA/QC Officer

Jon Wong for CBL
Laboratory Director

Curtis & Tompkins Ltd

LAB NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/08/89
DATE REPORTED: 11/21/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18629-5	W-17@6.5'	ND	mg/Kg	50
18629-6	W-18@5.5'	63	mg/Kg	50
18629-7	W-19@4'	ND	mg/Kg	50
18629-8	W-20@4'	130	mg/Kg	50
18629-9	W-21@4'	610	mg/Kg	50
18629-10	W-22@4'	190	mg/Kg	50
18629-11	W-23@4'	57	mg/Kg	50
18629-12	CU-17@5'	100	mg/Kg	50
18629-13	CU-18@2'	80	mg/Kg	50
18629-14	W3B@10'	4,000	mg/Kg	50
18629-15	W6B@10'	98	mg/Kg	50
18629-16	W-11@5.5'	150	mg/Kg	50
18629-17	W-12@5.5'	210	mg/Kg	50
18629-18	W-13@5.5'	260	mg/Kg	50
18629-19	W-14@5.5'	270	mg/Kg	50
18629-20	W-15@5.5'	890	mg/Kg	50
18629-21	W-16@5.5'	110	mg/Kg	50

QA/QC SUMMARY:

RPD, %	2
RECOVERY, %	86

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: PIT A-2@

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/09/89
DATE REPORTED: 11/21/89

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	ND	50
Pyrene	ND	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	80	50
Benzo(a)pyrene	ND	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(ghi)perylene	ND	50

ND = None Detected.

QA/QC SUMMARY

Duplicate: Relative % Difference	13
Average Spike Recovery %	88

Curtis & Tompkins Ltd.

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: PIT A-1@

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/09/89
DATE REPORTED: 11/21/89

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	50
Acenaphthylene	ND	50
Acenaphthene	ND	50
Fluorene	ND	50
Phenanthrene	ND	50
Anthracene	ND	50
Fluoranthene	670	50
Pyrene	1,100	50
Benzo(a)anthracene	ND	50
Chrysene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	ND	50
Benzo(a)pyrene	740	50
Indeno(1,2,3-cd)pyrene	ND	50
Dibenzo(a,h)anthracene	ND	50
Benzo(ghi)perylene	1,200	50

ND = None Detected.

QA/QC SUMMARY

Duplicate: Relative % Difference	13
Average Spike Recovery %	88

Curtis & Tompkins Ltd

LABORATORY NUMBER: 18629
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/19/89
DATE REPORTED: 11/21/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18629-3	CK-28 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)
18629-4	CK-32 @ 3 1/2	ND(10)	ND(10)	ND(10)	ND(10)
18629-5	W-17 @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-6	W-18 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-7	W-19 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-8	W-20 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-9	W-21 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-10	W-22 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-11	W-23 @ 4'	ND(10)	ND(10)	ND(10)	ND(10)
18629-12	CU-17 @ 5'	ND(10)	ND(10)	ND(10)	ND(10)
18629-13	CU-18 @ 2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-14	W3B @ 10'	ND(10)	ND(10)	1,600*	ND(10)
18629-15	W6B @ 10'	ND(10)	ND(10)	ND(10)	ND(10)
18629-16	W-11 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-17	W-12 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-18	W-13 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18629-19	W-14 @ 5 1/2'	ND(10)	ND(10)	2,000*	ND(10)
18629-20	W-15 @ 5 1/2'	ND(10)	ND(10)	2,000*	ND(10)
18629-21	W-16 @ 5 1/2'	ND(10)	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

* = Fingerprint Pattern does not match Hydrocarbon Standards.
Quantitation based on area sum within C12 to C24 boiling range.

QA/QC SUMMARY

Duplicate: Relative % Difference	<1
Spike: % Recovery	95

Subsurface Consultants

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: * Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
W-3C@7'	S	T	12-14-89		TEH 04G	
W-3D@12'						
W-6C@7'						
W-6D@12'						
W-11B@4½'						
W-12B@4½'						
W-13B@4½'						
W-14B@5½'						
W-15B@4'						
W-20B@4'						

* Confirm turnaround with Jeri Alexander

Released by: Dennis Alexand Date: 12-14-89

Released by Courier: _____ Date: _____

Received by Laboratory: Laura Peters Date: 12-14-89

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Seri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: * Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
CK-22B@4'	S	T	12-14-89		TEH O&G	
CK-20@2'					TEH O&G	
CK-21@2'					TEH O&G	
CK-1G@5'					TEH	
CK-1H@5½'						
CK-1I@5'						
CK-3B@6½'						RAPID 12/15/89

* Confirm turnaround with Seri Alexander

Released by: Dennis Alexander Date: 12-14-89

Released by Courier: _____ Date: _____

Received by Laboratory: [illegible] Date: 12-14-89

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)

[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:

- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street Berkeley CA 94710 Phone (415) 486-0900

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/18/89
DATE REPORTED: 12/19/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-17	CK-3B@6.5'	1,500*	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

* = Fingerprint Pattern does not match Hydrocarbon Standards.
Quantitation based on area sum within C10 to C16 boiling range.

QA/QC SUMMARY

Duplicate: Relative % Difference	<1
Spike: % Recovery	70

QA/QC OFFICER

LABORATORY DIRECTOR

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/18/89
DATE REPORTED: 12/19/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-17	CK-3B@6.5'	1,500*	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

* = Fingerprint Pattern does not match Hydrocarbon Standards.
Quantitation based on area sum within C10 to C16 boiling range.

QA/QC SUMMARY

Duplicate: Relative % Difference	<1
Spike: % Recovery	70

QA/QC OFFICER

LABORATORY DIRECTOR

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street Berkeley CA 94710 Phone (415) 486-0900

DATE RECEIVED: 12/14/89
DATE REPORTED: 12/28/89

LAB NUMBER: 18949

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 16 SOIL SAMPLES

PROJECT #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LAB NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/19/89
DATE REPORTED: 12/28/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18949-1	W-3C @ 7	ND	mg/Kg	50
18949-2	W-3D @ 12	61	mg/Kg	50
18949-3	W-6C @ 7	2,500	mg/Kg	50
18949-4	W-6D @ 12	560	mg/Kg	50
18949-5	W-11B @ 4 1/2	ND	mg/Kg	50
18949-6	W-12B @ 4 1/2	82	mg/Kg	50
18949-7	W-13B @ 4 1/2	ND	mg/Kg	50
18949-8	W-14B @ 5 1/2	ND	mg/Kg	50
18949-9	W-15B @ 4	60	mg/Kg	50
18949-10	W-20B @ 4	92	mg/Kg	50
18949-11	W-22B @ 4	ND	mg/Kg	50
18949-12	CU-20 @ 2	75	mg/Kg	50
18949-13	CU-21 @ 2	ND	mg/Kg	50

ND = NONE DETECTED

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	91

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/27/89
DATE REPORTED: 12/28/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-1	W-3C @ 7	ND(10)	ND(10)	ND(10)
18949-2	W-3D @ 12	ND(10)	46*	ND(10)
18949-3	W-6C @ 7	ND(10)	7,800*	ND(10)
18949-4	W-6D @ 12	ND(10)	650*	ND(10)
18949-5	W-11B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-6	W-12B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-7	W-13B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-8	W-14B @ 5 1/2	ND(10)	ND(10)	ND(10)
18949-9	W-15B @ 4	ND(10)	ND(10)	ND(10)
18949-10	W-20 @ 4	ND(10)	ND(10)	ND(10)

*Fingerprint pattern does not match hydrocarbon patterns. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	117

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/22/89
DATE REPORTED: 12/28/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-11	W-22B @ 4	ND(10)	ND(10)	ND(10)
18949-12	CU-20 @ 2	ND(10)	ND(10)	ND(10)
18949-13	CU-21 @ 2	ND(10)	ND(10)	ND(10)
18949-14	CK-1G @ 5	ND(10)	ND(10)	ND(10)
18949-15	CK-1H @ 5 1/2	ND(10)	ND(10)	ND(10)
18949-16	CK-1I @ 5	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	117

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DATE RECEIVED: 12/14/89
DATE REPORTED: 12/28/89

LAB NUMBER: 18949

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 16 SOIL SAMPLES

PROJECT #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

M. E. Printera
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LAB NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
PROJECT # : 554.001

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/19/89
DATE REPORTED: 12/28/89

ANALYSIS: OIL AND GREASE
METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18949-1	W-3C @ 7	ND	mg/Kg	50
18949-2	W-3D @ 12	61	mg/Kg	50
18949-3	W-6C @ 7	2,500	mg/Kg	50
18949-4	W-6D @ 12	560	mg/Kg	50
18949-5	W-11B @ 4 1/2	ND	mg/Kg	50
18949-6	W-12B @ 4 1/2	82	mg/Kg	50
18949-7	W-13B @ 4 1/2	ND	mg/Kg	50
18949-8	W-14B @ 5 1/2	ND	mg/Kg	50
18949-9	W-15B @ 4	60	mg/Kg	50
18949-10	W-20B @ 4	92	mg/Kg	50
18949-11	W-22B @ 4	ND	mg/Kg	50
18949-12	CU-20 @ 2	75	mg/Kg	50
18949-13	CU-21 @ 2	ND	mg/Kg	50

ND = NONE DETECTED

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	91

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/27/89
DATE REPORTED: 12/28/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-1	W-3C @ 7	ND(10)	ND(10)	ND(10)
18949-2	W-3D @ 12	ND(10)	46*	ND(10)
18949-3	W-6C @ 7	ND(10)	7,800*	ND(10)
18949-4	W-6D @ 12	ND(10)	650*	ND(10)
18949-5	W-11B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-6	W-12B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-7	W-13B @ 4 1/2	ND(10)	ND(10)	ND(10)
18949-8	W-14B @ 5 1/2	ND(10)	ND(10)	ND(10)
18949-9	W-15B @ 4	ND(10)	ND(10)	ND(10)
18949-10	W-20 @ 4	ND(10)	ND(10)	ND(10)

*Fingerprint pattern does not match hydrocarbon patterns. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	117

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18949
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 12/14/89
DATE ANALYZED: 12/22/89
DATE REPORTED: 12/28/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18949-11	W-22B @ 4	ND(10)	ND(10)	ND(10)
18949-12	CU-20 @ 2	ND(10)	ND(10)	ND(10)
18949-13	CU-21 @ 2	ND(10)	ND(10)	ND(10)
18949-14	CK-1G @ 5	ND(10)	ND(10)	ND(10)
18949-15	CK-1H @ 5 1/2	ND(10)	ND(10)	ND(10)
18949-16	CK-1I @ 5	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	1
Spike: % Recovery	117

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: Normal 9- RAPID

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
~~Pit A-1~~						
PitA-2@	S	T	11-3-89		PNA's	
PitA-1@	S	T	11-3-89		PNA's	
[illegible]		T	11-6 89		TEH	
[illegible]		T				
[illegible]		T				
[illegible]		T				

* [illegible] Rapid [illegible]

Released by: [illegible] Date: 11-6-89

Released by Courier: _____ Date: _____

Received by Laboratory: Belinda Petrie Date: 11-6-89

Relinquished by Laboratory: P Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)
[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:
-Notify SCI if there are any anomalous peaks on GC or other scans
-Questions/clarifications...contact SCI at (415) 268-0461

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street Berkeley CA 94710 Phone (415) 486 0900

DATE RECEIVED: 11/06/89
DATE REPORTED: 11/09/89

LAB NUMBER: 18630

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 4 SOIL SAMPLES

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 18630
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/07/89
DATE REPORTED: 11/09/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18630-1	CK-1B @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18630-2	CK-1C @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18630-3	CK-1D @ 6 1/2'	ND(10)	4,100*	ND(10)	ND(10)
18630-4	CK-1E @ 6'	ND(10)	3,000*	ND(10)	ND(10)

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C10-C16 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	2
Spike: % Recovery	140

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 11/06/89
DATE REPORTED: 11/09/89

LAB NUMBER: 18630

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 4 SOIL SAMPLES

JOB #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

M.E. Printeza
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 18630
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 11/06/89
DATE ANALYZED: 11/07/89
DATE REPORTED: 11/09/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18630-1	CK-1B @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18630-2	CK-1C @ 6 1/2'	ND(10)	ND(10)	ND(10)	ND(10)
18630-3	CK-1D @ 6 1/2'	ND(10)	4,100*	ND(10)	ND(10)
18630-4	CK-1E @ 6'	ND(10)	3,000*	ND(10)	ND(10)

*Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on area sum within C10-C16 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	2
Spike: % Recovery	140

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: 5 day

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
SP-A	S	T	2-20-90		PNA's	
SP-B	S	T	2-20-90		PNA's	
SP-C	S	T	2-20-90		PNA's	
SP-D	S	T	2-20-90		PNA's	
	*	*	*	*	*	*

Released by: Dennis Alexander Date: 2-20-90

Released by Courier: _____ Date: _____

Received by Laboratory: Belinda Peters Date: 2-20-90

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)

[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:

-Notify SCI if there are any anomalous peaks on GC or other scans

-Questions/clarifications...contact SCI at (415) 268-0461

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: Mariner Prop.

SCI Job Number: 554.001

Project Contact at SCI: Jeri Alexander

Sampled By: Dennis Alexander

Analytical Laboratory: Curtis and Tompkins

Analytical Turnaround: 5 day

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
[illegible]C@5'	S	T	2-15-90		TEH	
[illegible]D@5'	S	T			TEH	
3E@6'	S	T			TEH	
PB@5'	S	T			PNA	
[illegible]E@1'	S	T			PNA	
PN@1'	S	T			PNA	
[illegible]S@1'	S	T			PNA	
PW@.5'	S	T			PNA	

Released by: Dennis Alexander Date: 2-15-90

Released by Courier: _____ Date: _____

Received by Laboratory: Belinda Peters Date: 2-15-90

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

[1] Sample Type: W = water, S = soil, O = other (specify)

[2] Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)

Notes to Laboratory:

- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications...contact SCI at (415) 268-0461

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2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 02/15/90
DATE REPORTED: 02/22/90
PAGE 1 OF 7

LAB NUMBER: 19604

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 8 SOIL SAMPLES

PROJECT #: 554.001
LOCATION: MARINER PROPERTIES

RESULTS: SEE ATTACHED

A Lew for MFP
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19604
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTIES

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/18/90
DATE REPORTED: 02/22/90
PAGE 2 OF 7

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
19604-1	3C @ 5'	ND(10)	ND(10)	ND(10)
19604-2	3D @ 5'	ND(10)	ND(10)	ND(10)
19604-3	3E @ 6'	ND(10)	44*	ND(10)

*Fingerprint pattern does not match hydrocarbon standards. Quantitation based on area sum within C12-C26 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	7
Spike: % Recovery	99

Curtis & Tompki

LABORATORY NUMBER: 19604-4
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
SAMPLE ID: PB @ 5'

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/17/90
DATE REPORTED: 02/22/90
PAGE 3 OF 7

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	330
Acenaphthylene	ND	330
Acenaphthene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = None Detected.

QA/QC SURROGATE RECOVERY

Nitrobenzene-d5	90%
2-Fluorobiphenyl	107%
Terphenyl-d14	79%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19604-5
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
SAMPLE ID: PE @ 1'

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/16/90
DATE REPORTED: 02/22/90

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	330
Acenaphthylene	ND	330
Acenaphthene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = None Detected.

QA/QC SURROGATE RECOVERY

Nitrobenzene-d5	86%
2-Fluorobiphenyl	97%
Terphenyl-d14	71%

Curtis & Tompkins, L

LABORATORY NUMBER: 19604-6
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
SAMPLE ID: PN @ 1'

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/17/90
DATE REPORTED: 02/22/90
PAGE 5 OF 7

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	330
Acenaphthylene	ND	330
Acenaphthene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = None Detected.

QA/QC SURROGATE RECOVERY

Nitrobenzene-d5	82%
2-Fluorobiphenyl	105%
Terphenyl-d14	81%

Curtis & Tompkins, L

LABORATORY NUMBER: 19604.7
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
SAMPLE ID: PS @ 1'

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/17/90
DATE REPORTED: 02/22/90

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	330
Acenaphthylene	ND	330
Acenaphthene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = None Detected.

QA/QC SURROGATE RECOVERY

Nitrobenzene-d5	76%
2-Fluorobiphenyl	93%
Terphenyl-d14	75%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19604-8
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
SAMPLE ID: PW @ .5'

DATE RECEIVED: 02/15/90
DATE ANALYZED: 02/17/90
DATE REPORTED: 02/22/90
PAGE 7 OF 7

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	330
Acenaphthylene	ND	330
Acenaphthene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Fluoranthene	ND	330
Pyrene	TRACE(210)	330
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Benzo(b)fluoranthene	420	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	TRACE(210)	330
Indeno(1,2,3-cd)pyrene	TRACE(260)	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	TRACE(320)	330

ND = None Detected.

QA/QC SURROGATE RECOVERY

Nitrobenzene-d5	90%
2-Fluorobiphenyl	130%
Terphenyl-d14	80%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19630-1
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: SP - A

DATE RECEIVED: 02/20/90
DATE ANALYZED: 02/22/90
DATE REPORTED: 02/26/90
PAGE 2 OF 5

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	100
Acenaphthylene	ND	100
Acenaphthene	ND	100
Fluorene	ND	100
Phenanthrene	ND	100
Anthracene	ND	100
Fluoranthene	ND	100
Pyrene	ND	100
Benzo(a)anthracene	ND	100
Chrysene	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(a)pyrene	ND	100
Indeno(1,2,3-cd)pyrene	ND	100
Dibenzo(a,h)anthracene	ND	100
Benzo(g,h,i)perylene	ND	100

ND = None Detected.

QA/QC SUMMARY:

RPD,%	3
RECOVERY,%	70

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DATE RECEIVED: 02/20/90
DATE REPORTED: 02/27/90
PAGE 1 OF 5

LAB NUMBER: 19630

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 4 SOIL SAMPLES

PROJECT #: 554.001
LOCATION: MARINER PROPERTY

RESULTS: SEE ATTACHED

M. S. Printess
QA/QC Officer

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19630-2
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: SP - B

DATE RECEIVED: 02/20/90
DATE ANALYZED: 02/22/90
DATE REPORTED: 02/26/90

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	100
Acenaphthylene	ND	100
Acenaphthene	ND	100
Fluorene	ND	100
Phenanthrene	ND	100
Anthracene	ND	100
Fluoranthene	ND	100
Pyrene	ND	100
Benzo(a)anthracene	ND	100
Chrysene	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(a)pyrene	ND	100
Indeno(1,2,3-cd)pyrene	ND	100
Dibenzo(a,h)anthracene	ND	100
Benzo(g,h,i)perylene	ND	100

ND = None Detected.

QA/QC SUMMARY:

RPD,%	3
RECOVERY,%	70

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19630-3
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: SP - C

DATE RECEIVED: 02/20/90
DATE ANALYZED: 02/22/90
DATE REPORTED: 02/26/90

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	100
Acenaphthylene	ND	100
Acenaphthene	ND	100
Fluorene	ND	100
Phenanthrene	ND	100
Anthracene	ND	100
Fluoranthene	ND	100
Pyrene	ND	100
Benzo(a)anthracene	ND	100
Chrysene	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(a)pyrene	ND	100
Indeno(1,2,3-cd)pyrene	ND	100
Dibenzo(a,h)anthracene	ND	100
Benzo(g,h,i)perylene	ND	100

ND = None Detected.

QA/QC SUMMARY:

RPD,%	3
RECOVERY,%	70

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 19630-4
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 554.001
LOCATION: MARINER PROPERTY
SAMPLE ID: SP - D

DATE RECEIVED: 02/20/90
DATE ANALYZED: 02/22/90
DATE REPORTED: 02/26/90
PAGE 5 OF 5

EPA Method 8100: Polynuclear Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 3550

COMPOUND	RESULT ug/Kg	DETECTION LIMIT ug/Kg
Naphthalene	ND	100
Acenaphthylene	ND	100
Acenaphthene	ND	100
Fluorene	ND	100
Phenanthrene	ND	100
Anthracene	ND	100
Fluoranthene	ND	100
Pyrene	ND	100
Benzo(a)anthracene	ND	100
Chrysene	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(a)pyrene	ND	100
Indeno(1,2,3-cd)pyrene	ND	100
Dibenzo(a,h)anthracene	ND	100
Benzo(g,h,i)perylene	ND	100

ND = None Detected.

QA/QC SUMMARY:

RPD,%	3
RECOVERY,%	70

JOHN BEERY ORGANIZATION
BUSINESS AND REAL ESTATE INVESTMENTS

February 28, 1990

Mr. Ariu Levy
Alameda County Health Care Services Agency
80 Swan Way, #200
Oakland, CA 94612

Transmittal
Closure Report
2410-2420 Mariner Square Drive
Alameda, California

Dear Mr. Levy:

This letter transmits a closure report detailing site activities which have been performed to remediate soil at the site. Specifically, the report presents the limits of excavation in source areas and confirmation analysis.

As you are aware, the site is presently involved in a real estate transaction. The transaction is to close upon receipt of a letter from the Alameda County Health Care Services Agency (ACHCSA) stating that soil removal activities have been adequate to remove contaminated soil at the site, and no further soil removal is required at this time. Mariner Warehouse requests that the ACHCSA issue such a letter stating that the site has been acceptably closed.

Approximately 10,000 cubic yards of soil are currently being bioremediated on-site. Once the soil has been adequately remediated, we will seek separate approval to reuse the soil as on-site fill.

The required groundwater studies will be conducted once the site has been developed. This is necessary so that monitoring well locations can be coordinated with the permanent site improvements and do not interfere with site grading.

If you have any questions, please call.

Yours very truly,

John C. Beery, Jr.
General Partner, Mariner Warehouse

JCB:sk

Attachment: Closure Report

cc: Ms. Jeriann Alexander
Subsurface Consultants, Inc.

RJ2-50

2236 Mariner Square Drive
Alameda, California 94501
(415) 521-2726