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LETTER OF TRANSMITTAL

TO: Mr. Ignacio Dayrit
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, CA 94608

DATE: January 2, 1992
PROJECT: Soil Remediation/4300 San Pablo Avenue
SCI JOB NUMBER: 537.004

WE ARE SENDING YOU:

- 3 copies
- of our final report
- a draft of our report
- a Service Agreement
- a proposed scope of services
- specifications
- grading/foundation plans
- soil samples/groundwater samples
- an executed contract

- if you have any questions, please call
- for your review and comment
- please return an executed copy
- for geotechnical services
- with our comments
- with Chain of Custody documents
- for your use

REMARKS:

COPIES TO: (1) Mr. Eddy So, RWQCB, 2102 Webster Street, Suite #500, Oakland, CA 94612
✓(1) Ms. Susan L. Hugo, ACHCSA, 80 Swan Way, Room #200, Oakland, CA 94621

BY: Bill Wikander
William K. Wikander (Call)

■ Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 415-268-0461


92.1.20.1.12

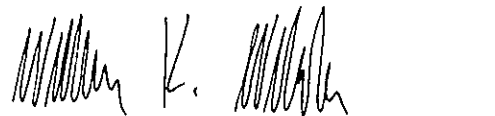
SOIL REMEDIATION
4300 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA
SCI 537.004

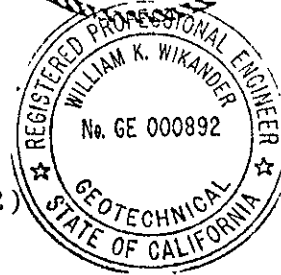
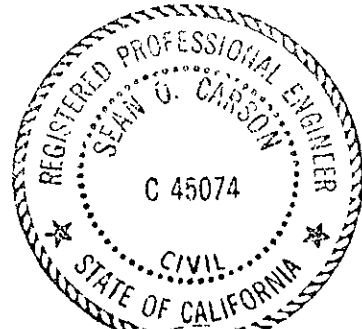
Prepared For:

Mr. Ignacio Dayrit
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, California 94608

By:


Sean O. Carson
Civil Engineer 45074 (expires 3/31/94)


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

December 30, 1991

I INTRODUCTION

This report records results of contaminated soil remediation at 4300 San Pablo Avenue in Emeryville, California. A Vicinity Map and Site Plan showing the project location are presented on Plate 1. Subsurface Consultants, Inc. (SCI) previously prepared environmental assessments of the site and presented the results in reports dated December 4, 1989, July 13, 1990, and January 8, 1991. SCI presented a Work Plan for contaminated soil mitigation on June 19, 1991.

Research to date indicates that the site was occupied by a service station from 1926 to 1966, and a car wash from 1969 to 1990. At least 4 underground gasoline storage tanks existed at the approximate locations shown on Plate 1. Although no tank removal records were found, no tanks were encountered in test borings drilled at the tank locations.

To investigate subsurface conditions, a total of 11 test borings and 22 probes have been drilled at/or near the site. Six groundwater monitoring wells have also been installed. Analytical tests have indicated concentrations of gasoline, and benzene, toluene, xylenes and/or ethylbenzene (BTXE) in soil and groundwater samples from the site. Petroleum hydrocarbon concentrations greater than 100 mg/kg have been encountered in two soil samples from the test borings (Boring 1 @ 9.5 feet: 120 mg/kg, Boring B-1 @ 7 feet: 490 mg/kg). Both are near or down gradient from a former

tank location adjacent to 43rd Street. Gasoline concentrations in groundwater of up to 1.8 mg/L have been detected at the site (Well MW-2). In their letter dated June 4, 1991, the Alameda County Health Care Services Agency (ACHCSA) requested that a Work Plan be developed for remediation of dissolved constituents in groundwater and contaminated soil.

As outlined in the June 19, 1991 Work Plan, the intent was to remediate gasoline contaminated soil near the former tank location adjacent to 43rd Street.

II REMEDIATION SUMMARY

The soil excavation, transportation and disposal was performed by Bay Area Tank & Marine. SCI served as a consultant to the City of Emeryville and obtained samples for analytical testing. Analytical testing was performed by Curtis & Tompkins Ltd., a State of California Department of Health Services certified laboratory for the tests performed. The concentrations of hydrocarbons left in place were based upon the results of negotiations with the ACHCSA and the Regional Water Quality Control Board (RWQCB). About 250 cubic yards (cy) of soil was removed from the excavation. Approximately 90 cy of this soil was aerated and re-used as backfill on-site. The rest of the soil was transported to the Class III, Redwood Landfill near Novato, California. About 2500 gallons of water were removed from the excavation by H & H Ship Service Company and transported to their recycling facilities. The excavation was backfilled with imported and aerated soil.

III SOIL EXCAVATION AND BACKFILL

The approximate remediation excavation limits are shown on Plate 2. During excavation, SCI periodically measured organic vapor concentrations in the soil using an OVM (as described in Appendix A). Soil samples were obtained from the sides and bottom of the excavation and analytically tested for gasoline and BTXE (as described in Appendix A). The sampled locations are shown on Plate 2, and the test results are summarized in Table 1. Copies of the chain-of-custody records and laboratory test reports are presented in Appendix B. Where practical, additional soil was removed from the areas where the analytical tests indicated contamination was still present.

Table 1.
 Petroleum Hydrocarbon Concentrations
 in the Soil Remediation Excavation

<u>Sample</u>	<u>Gasoline¹</u> <u>(mg/kg)²</u>	<u>Benzene</u> <u>(ug/kg)³</u>	<u>Toluene</u> <u>(ug/kg)</u>	<u>Ethyl-</u> <u>Benzene</u> <u>(ug/kg)</u>	<u>Total</u> <u>Xylenes</u> <u>(ug/kg)</u>
1 @ 10.5'	1.1	<5 ⁴	<5	<5	<5
2 @ 7'	<1	<5	<5	<5	<5
3 @ 7.5'	270 ⁵	<80	99	750	1,600
4 @ 8'	<1	<5	<5	<5	<5
6 @ 13'	<1	<5	<5	<5	<5
7 @ 8'	<1	<5	<5	<5	<5
8 @ 8'	120	<80	290	180	750
9 @ 7.5'	450 ⁵	510	1,900	740	680

-
- ¹ Measured as total volatile hydrocarbons (EPA 8015 modified)
² mg/kg = milligrams per kilogram = parts per million
³ ug/kg = micrograms per kilogram = parts per billion
⁴ Less than detection limits shown
⁵ Removed by subsequent excavation

During excavation, an additional former tank location was discovered that was not shown on the plans of the former service stations. Two trenches were excavated to the north and west of the remediation area (as shown on Plate 2) to further investigate the extent of soil contamination. Analytical test results of soil samples from the trenches are shown on Table 2. The results of our visual observations of the soils exposed by the excavations, OVM readings and analytical tests indicated that contaminants existed primarily in a zone of soil about 2-foot-thick near the groundwater

level (at a depth of about 7 feet). All of the analyzed soil samples greater than 10 feet from the former tank locations had gasoline concentrations less than 300 mg/kg. With the exception of sample EE-3 @ 8 feet (290 mg/kg), the gasoline concentrations in soil appeared to decrease with distance from the tank. The reasons for the higher concentration at sample EE-3 are unknown.

During the trench excavation, soil that visually appeared to contain oil and grease was exposed near sample EE-16 @ 3 feet. An analytical test of the sample indicated an oil and grease concentration of 54 mg/kg.

Table 2.

Petroleum Hydrocarbon Concentrations
in the Trenches

<u>Sample</u>	<u>Gasoline¹</u> <u>(mg/kg)³</u>	<u>Oil & Grease²</u> <u>(mg/kg)</u>
EE-2 @ 7'	11	-- ⁴
EE-3 @ 8'	290	--
EE-4 @ 14.5'	1.5	--
EE-10 @ 7'	83	--
EE-14 @ 10.5'	14	--
EE-16 @ 3'	--	54

¹ Measured as total volatile hydrocarbons (EPA 8015 modified)

² Petroleum hydrocarbon oil and grease (SMWW 17:5520 E&F)

³ mg/kg = milligrams per kilogram = parts per million

⁴ Test not requested

On August 26, 1991, SCI and the City of Emeryville met with the RWQCB and ACHCSA to discuss the gasoline concentrations, and the results of the remediation to date. The RWQCB agreed that additional soil remediation was not required at this time provided groundwater monitoring was performed. However, if significant increases in groundwater contaminant levels were detected in the future, additional soil remediation could be required.

IV AERATION AND DISPOSAL

The excavated soils were stockpiled and encapsulated with plastic. The stockpiles to be aerated were sampled according to requirements of the Bay Area Air Quality Management District (BAAQMD) to determine the allowable aeration rate. For each 50 cy of soil excavated, four discrete soil samples were obtained and composited by the analytical laboratory to form one sample for testing. The analytical results of the two pre-aeration samples are presented in Table 3. The results indicated that the gasoline concentrations (2.8 and 4.4 mg/kg) were less than that required for a BAAQMD permit (50 mg/kg). However, they were greater than the concentration (1 mg/kg) required by the RWQCB for re-use as backfill. Accordingly, the stockpiles were spread and aerated on-site to allow the hydrocarbons to volatilize. The soils were aerated for approximately two weeks. The aerated soils were then sampled and analyzed at a rate of one sample per 20 cy as required by the RWQCB. The results are presented in Table 3. Because low concentrations of ethylbenzene and total xylenes were detected in samples AP-2 and AP-3, the stockpiled soils were allowed to aerate longer. About two weeks later, samples AP-4 and AP-5 were obtained and analyzed to determine if the contaminants were still present. The ACHCSA then reviewed the analytical results and gave approval to re-use the aerated soils as excavation backfill on-site.

Prior to backfilling, about 2500 gallons of water was pumped from

the excavation and brought to a recycling facility. A copy of the Manifest is presented in Appendix C. The excavation was backfilled as described in Appendix D.

Table 3.
Petroleum Hydrocarbon Concentrations
in Stockpiles

Sample	Stockpile Type	Gasoline ¹ (mg/kg) ²	Benzene (ug/kg) ³	Toluene (ug/kg)	Ethyl- Benzene (ug/kg)	Total Xylenes (ug/kg)
Composite SP-1,2,3,4	Pre-aeration	2.8	-- ⁴	--	--	--
Composite SP-5,6,7,8	Pre-aeration	4.4	--	--	--	--
AP-1	Post-aeration	<1 ⁵	<5	<5	<5	<5
AP-2	Post-aeration	<1	<5	<5	7.7	17.7
AP-3	Post-aeration	<1	<5	<5	<5	5.6
AP-4	Post-aeration	1.1	<5	<5	5.5	9.9
AP-5	Post-aeration	<1	<5	<5	<5	<5
AP-6	Post-aeration	1.0	<5	<5	6.3	<5
AP-7	Post-aeration	<1	<5	<5	<5	<5

-
- ¹ Measured as total volatile hydrocarbons (EPA 8015 modified)
² mg/kg = milligrams per kilogram = parts per million
³ ug/kg = micrograms per kilogram = parts per billion
⁴ Test not requested
⁵ Less than detection limits shown

The site was too small to allow aeration of all of the excavated soil within the time period available. Accordingly, about 160 cy of soil was disposed off-site. This soil volume was

as measured in-place prior to excavation; the loose volume during transport was 212 cy. The Redwood Landfill required additional testing of the soil stockpiles prior to acceptance. The soil samples were obtained and composited in a similar manner as described for the pre-aeration samples, and analyzed for BTXE and organic lead. The results are presented on Table 4. On September 9 through 11, 1991, the soil was transported to the Redwood Landfill. Copies of the landfill receipts are presented in Appendix C.

Table 4.

Results of Analytical Tests Required by the Redwood Landfill

<u>Sample</u>	<u>Benzene (ug/kg)¹</u>	<u>Toluene (ug/kg)</u>	<u>Ethyl-Benzene (ug/kg)</u>	<u>Total Xylenes (ug/kg)</u>	<u>Organic Lead (mg/kg)²</u>
Composite #3	<5	<5	<5	<5	-- ³
Composite #4	<5	6.1	<5	<5	--
9	--	--	--	--	<0.5

¹ ug/kg = milligrams per kilogram = parts per billion
² mg/kg = milligrams per kilogram = parts per million
³ test not requested

VI CONCLUSIONS AND RECOMMENDATIONS

We conclude that the soil remediation was performed in general conformance with the Work Plan. Most of the soils remaining in place near and down gradient from the former tank sites have gasoline concentrations less than 100 mg/kg. However, gasoline concentrations greater than 100 mg/kg still remain in place in some areas as indicated by Boring 1 @ 9.5 feet (120 mg/kg), Sample 8 @ 8 feet (120 mg/kg), and Sample EE-3 @ 8 feet (290 mg/kg). Excavation of these soils was considered impractical.

All excavated soils were disposed of at a Class III landfill, or reused as backfill on-site. The soil that was reused as backfill has gasoline concentrations less than about 1 mg/kg.

We recommend that the existing wells be monitored quarterly for at least one year. During each event, the groundwater levels should be measured and the direction of groundwater flow determined. Samples should be obtained from Wells MW-1, MW-4, MW-5 and MW-6 and analyzed for gasoline, diesel and BTXE. If no contamination is encountered during at least 4 consecutive quarters, a request to cease monitoring and properly close the wells should be submitted to the ACHCSA and RWQCB.

Prior to final development of the site, additional investigation should be performed near sample location EE-3.

List of Tables:

- Table 1 - Petroleum Hydrocarbon Concentrations in the Soil Remediation Excavation
- Table 2 - Petroleum Hydrocarbon Concentrations in The Trenches
- Table 3 - Petroleum Hydrocarbon Concentrations in Stockpiles
- Table 4 - Results of Analytical Tests Required by the Redwood Landfill

Illustrations:

- Plate 1 Soil Remediation Excavation
Plate 2 Site Plan

Appendix A:

Field Procedures and Analytical Testing

Appendix B:

Analytical Test Results
Sample Custody Records

Appendix C:

Landfill Receipts
Water Disposal Receipt and Manifest

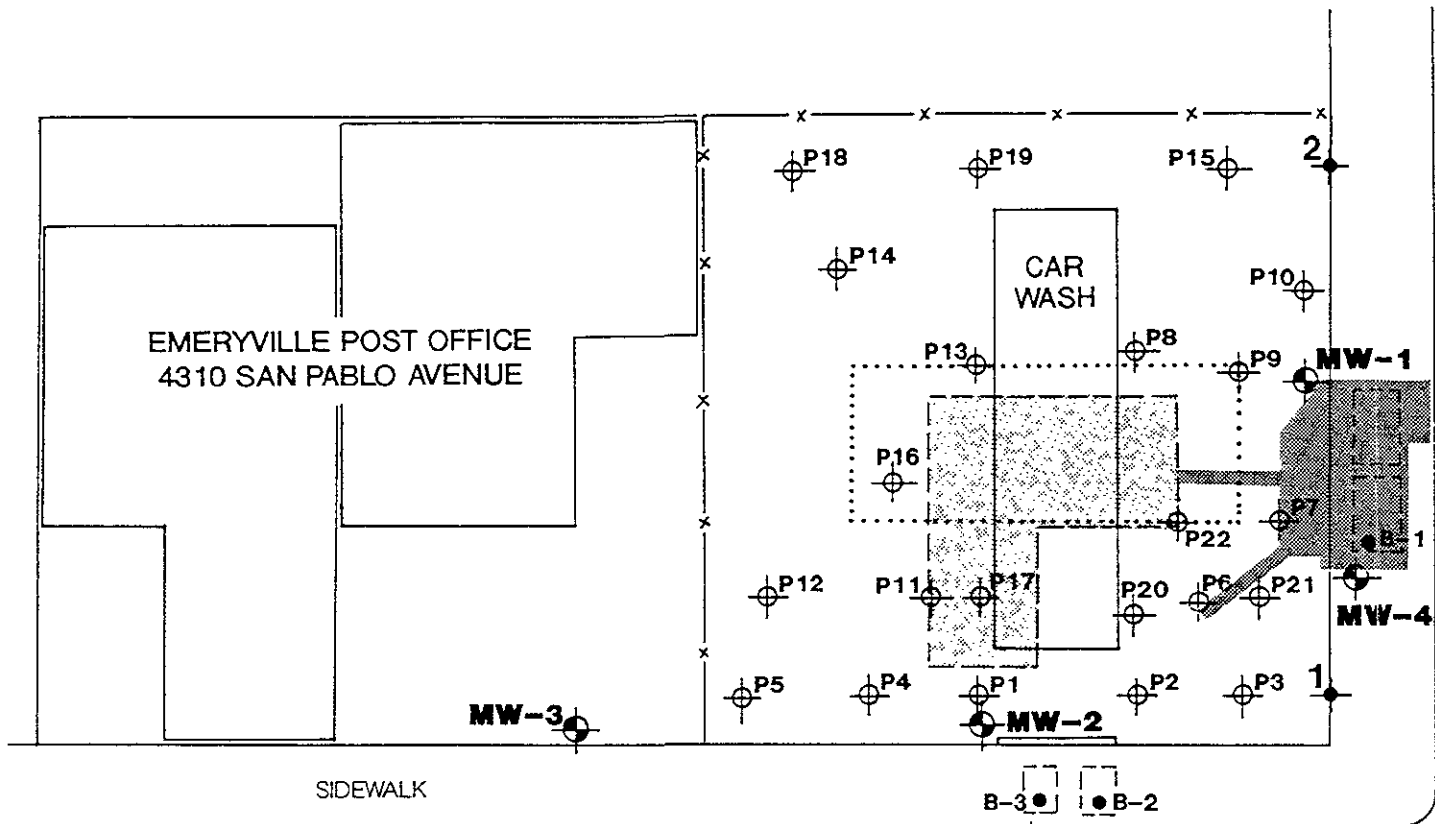
Appendix D:

Soil Engineering Services During Excavation Backfill

Distribution:

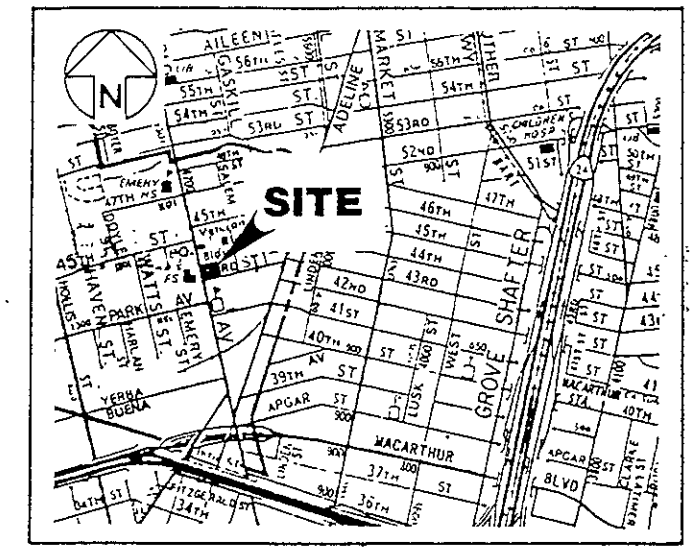
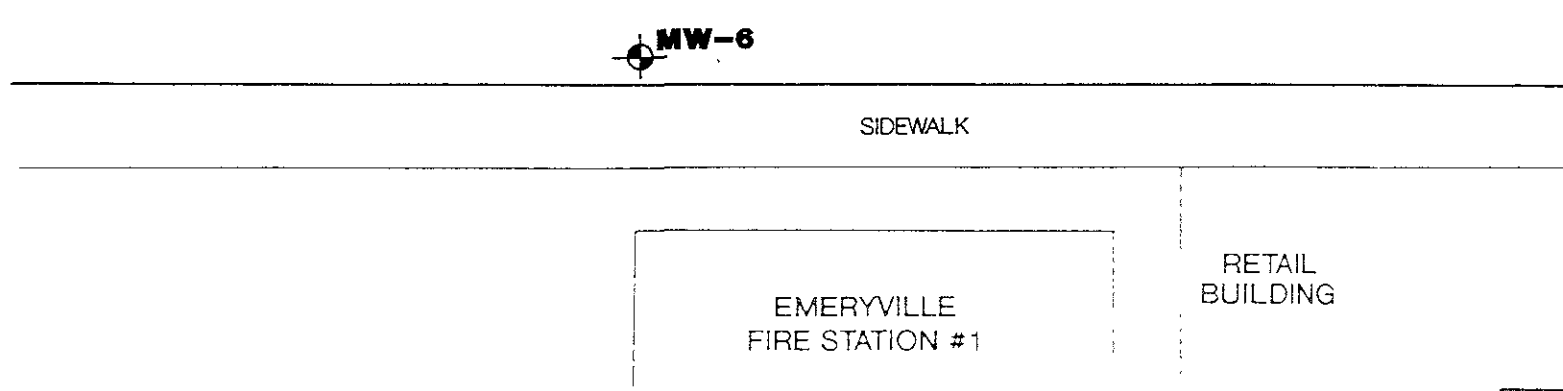
- 3 copies: Mr. Ignacio Dayrit
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, California 94608
- 1 copy: Mr. Eddy Soo
Regional Water Quality Control Board
San Francisco Bay Region
2102 Webster Street, Suite #500
Oakland, California 94612
- 1 copy: Ms. Susan L. Hugo
Alameda County Health Care Services Agency
80 Swan Way, Room #200
Oakland, California 94621

SOC:WKW:ddh

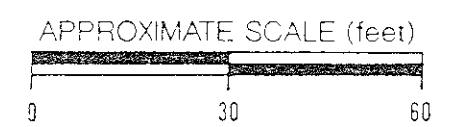


APPROXIMATE DIRECTION OF GROUNDWATER FLOW ON 7/10/91

SAN PABLO AVENUE (STATE ROUTE 123)



- MONITORING WELL
- PROBE
- TEST BORING
- APPROXIMATE FORMER TANK LOCATION
- FORMER FUEL STATION PRIOR TO 1950 (APPROXIMATE LOCATION)
- FORMER FUEL STATION AFTER 1959 (APPROXIMATE LOCATION)
- SOIL REMEDIATION EXCAVATION



SITE PLAN			PLATE 1
EMERYVILLE SENIOR HOUSING			
JOB NUMBER 537.004	DATE 12/26/91	APPROVED 	

Subsurface Consultants

SAN PABLO AVENUE

● TEST BORING
 ○ MONITORING WELL
 EE-14@10.5'(14)
 └── GASOLINE (mg/kg)
 └── SAMPLE DEPTH
 └── SAMPLE IDENTIFICATION
 ✦ SIDEWALL SAMPLE
 ○ BOTTOM SAMPLE
 ─── EXCAVATION BOUNDARY
 ▨ FORMER TANK EXCAVATION BACKFILL

EE-16@3'(OIL & GREASE=54mg/kg)
EE-14@10.5'(14)

APPROXIMATE DIRECTION OF GROUNDWATER FLOW ON 7/10/91

EE-3@8'(290)

EE-2@7'(11)

EE-10@7'(83)

TRENCHES

EE-4@14.5'(1.5)

MW-1
@6'(<1)
@10'(63)

1
@5.5'(DIESEL=<10)
@9.5'(DIESEL=120mg/kg, GASOLINE RANGE)

3@7.5'(270)
REMOVED BY EXCAVATION

9@7.5'(450)
REMOVED BY EXCAVATION

MW-4
@5'(<1)
@11'(<1)
2@7'(<1)

(120 ppm at 9.5')

B-1
 @7'(490)
 @10'(<1)
 REMOVED BY EXCAVATION
 1@10.5'(11)
 6@13'(<1)

SIDEWALK

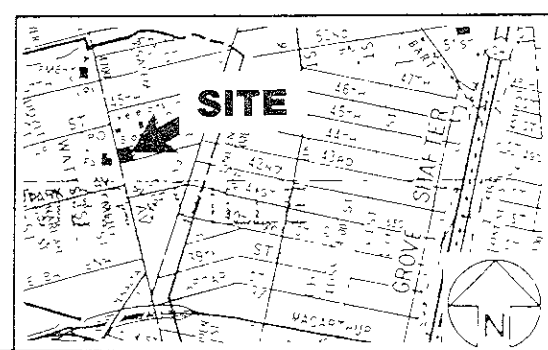
7@8'(<1)

4@8'(<1)

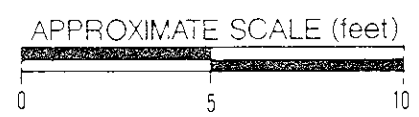
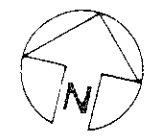
UTILITY POLE

8@8'(120)

43RD STREET



VICINITY MAP



SOIL REMEDIATION EXCAVATION

Subsurface Consultants

4300 SAN PABLO AVENUE - EMERYVILLE, CA

JOB NUMBER 507 004 DATE 12/26/91 APPROVED *William J. Wilbur*

PLATE

2

APPENDIX A
FIELD PROCEDURES AND ANALYTICAL TESTING

APPENDIX A
FIELD PROCEDURES AND ANALYTICAL TESTING

A.1 Sampling Procedures

Soil samples were taken from the excavation interior, sidewalls and bottom, and from stockpiles of excavated soil. For all samples from the excavations, a backhoe bucket of soil was brought to the surface for sampling. Stockpile samples were obtained directly from the stockpiles. At least 3 inches of soil was scraped away and a steam-cleaned, brass sample liner was driven into the exposed soil. After withdrawal, the liner ends were covered with Teflon sheets, capped, wrapped with duct tape and labelled. The samples were immediately placed in an ice-filled cooler, and later transported to the analytical laboratory. Chain-of-Custody Records were maintained, copies of which are presented in Appendix B.

A.2 Analytical Testing

Analytical testing was performed by Curtis & Tompkins, Inc., a DHS certified laboratory for the tests performed. The analytical tests were directed toward satisfying requirements of the ACHCSA and RWQCB for soil remediation and groundwater contamination assessment, the BAAQMD for aeration, and the Redwood Road Landfill for disposal. The tests included:

1. Total volatile hydrocarbons, as gasoline, sample preparation and analysis using EPA Methods 5030 (purge and trap) and California DHS Method/LUFT Manual 1989 (EPA 8015 modified, gas chromatograph coupled to a flame ionization detector),

2. Total extractable hydrocarbons, as diesel, sample preparation and analysis using EPA Methods 3550 (sonication) and California DHS Method/LUFT Manual 1989 (EPA 8015 modified),
3. Oil and Grease (O&G), sample preparation and analysis using EPA methods 3550 (solvent extraction) and SMWW 17:5520E&F (gravimetric),
4. Benzene, toluene, xylenes and ethylbenzene (BTXE), sample preparation and analysis using EPA Methods 5030 and 8020 (gas chromatograph coupled to a photo-ionization detector), and
5. Organic lead, sample preparation and analysis using method specified in LUFT Manual, 1989.

A.3 Field Analysis for Organic Vapors

Field monitoring of excavated soils was performed using an organic vapor meter (OVM). The OVM used was an "OVM/Datalogger", Model 580A, manufactured by Thermo Environmental Instruments, Inc. It operates by photo-ionization and is not chemical specific. The soil samples were obtained in a similar manner as the samples obtained for analysis. The field samples were then placed in one quart Ziploc bags. The bags, half-filled with soil, were placed in a warm area and allowed to stand for at least five minutes. The bags were then opened, the gas detector probe inserted, and organic vapor readings were taken.

It should be noted that organic vapor readings taken in this manner do not accurately reflect the concentration of petroleum hydrocarbons in the soil. In addition, the bag itself can affect the organic vapor reading. This testing served as a quick field indicator of volatile hydrocarbon contamination.

APPENDIX B

ANAYTICAL TEST RESULTS
SAMPLE CUSTODY RECORDS



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 09/05/91

DATE REPORTED: 09/06/91

LABORATORY NUMBER: 105061

CLIENT: SUBSURFACE CONSULTANTS, INC.

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO AVE.

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

LABORATORY NUMBER: 105061
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO AVE.

DATE RECEIVED: 09/05/91
 DATE ANALYZED: 09/05/91
 DATE REPORTED: 09/06/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
 Extraction by EPA 5030 Purge and Trap

LAB ID	SAMPLE ID	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL BENZENE (ug/kg)	TOTAL XYLENES (ug/kg)	REPORTING LIMIT * (ug/kg)
105061-9	COMP #3	ND	ND	ND	ND	5.0
105061-10	COMP #4	ND	6.1	ND	ND	5.0

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

RPD, %	17
RECOVERY, %	103

LABORATORY NUMBER: 105061
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 537.004
LOCATION: 4300 SAN PABLO AVE.

DATE RECEIVED: 09/05/91
DATE ANALYZED: 09/06/91
DATE REPORTED: 09/06/91

=====
ANALYSIS: ORGANIC LEAD
METHOD: CA DHS METHOD, LUFT MANUAL OCT 1989
=====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
105061-1	9	ND	mg/Kg	0.50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
RPD, % 2
RECOVERY, % 99
=====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 08/27/91
DATE REPORTED: 08/28/91

LABORATORY NUMBER: 104968

RECEIVED

CLIENT: SUBSURFACE CONSULTANTS

SEP 3 1991
7:30 AM
8/28/91

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO AVENUE

RESULTS: SEE ATTACHED

Alan

QA/QC Approval

[Signature]

Final Approval

LABORATORY NUMBER: 104968
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO AVENUE

DATE RECEIVED: 08/27/91
 DATE ANALYZED: 08/28/91
 DATE REPORTED: 08/28/91
 DATE REVISED: 08/28/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104968-1	AP-6	1.0	ND(5.0)	ND(5.0)	6.3	ND(5.0)
104968-2	AP-7	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, % 1
 RECOVERY, % 111



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 08/07/91

DATE REPORTED: 08/13/91


LABORATORY NUMBER: 104743

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO AVENUE

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 104743
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO AVENUE

DATE RECEIVED: 08/07/91
 DATE ANALYZED: 08/10/91
 DATE REPORTED: 08/13/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104743-1	AP-4	1.1	ND(5.0)	ND(5.0)	5.5	9.9
104743-2	AP-5	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	96



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 08/07/91
DATE REPORTED: 08/13/91

LABORATORY NUMBER: 104732

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO

RESULTS: SEE ATTACHED


RECEIVED

AUG 26 1991

ANALYTICAL LABORATORIES
2323 FIFTH STREET, BERKELEY, CA 94710



QA/QC Approval



Final Approval

Berkeley

Wilmington

Los Angeles



Client: Subsurface Consultants

Laboratory Login Number: 104732

Project Name: 4300 San Pablo

Report Date: 13 August 91

Project Number: 537.004

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

METHOD: SMWW 17:5520EF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
104732-006	EE-16a3	Soil	06-AUG-91	07-AUG-91	08-AUG-91	54.	mg/Kg	50	TR	2284

ND = Not Detected at or above Reporting Limit (RL).



Q C B a t c h R e p o r t

Client: Subsurface Consultants
Project Name: 4300 San Pablo
Project Number: 537.004

Laboratory Login Number: 104732
Report Date: 13 August 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 2284

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	50	mg/Kg	SMWW 17:5520EF	08-AUG-91

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	78%	SMWW 17:5520EF	08-AUG-91
BSD	82%	SMWW 17:5520EF	08-AUG-91

		Control Limits
Average Spike Recovery	80%	80% - 120%
Relative Percent Difference	5.6%	< 20%

LABORATORY NUMBER: 104732
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT #: 537.004
 LOCATION: 4300 SAN PABLO

DATE RECEIVED: 08/07/91
 DATE ANALYZED: 08/10-13/91
 DATE REPORTED: 08/13/91

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	REPORTING LIMIT (mg/Kg)
104732-1	EE-2@7	11	1.0
104732-2	EE-3@8	290	16
104732-3	EE-4@14.5	1.5	1.0
104732-4	EE-10@7	83	2.0
104732-5	EE-14@10.5	14	1.0

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	96



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 07/26/91

DATE REPORTED: 08/02/91

LAB NUMBER: 104618

CLIENT: SUBSURFACE CONSULTANTS


PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 104618
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO

DATE RECEIVED: 07/26/91
 DATE ANALYZED: 07/31, 08/01/91
 DATE REPORTED: 08/02/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104618-1	AP-1	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104618-2	AP-2	ND(1.0)	ND(5.0)	ND(5.0)	7.7	17
104618-3	AP-3	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	5.6

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, % 4
 RECOVERY, % 101



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 07/17/91
DATE REPORTED: 07/23/91


LAB NUMBER: 104531

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

Berkeley

Wilmington

Los Angeles

LABORATORY NUMBER: 104531
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO

DATE RECEIVED: 07/17/91
 DATE ANALYZED: 07/20,23/91
 DATE REPORTED: 07/23/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104531-1	6 @ 13'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104531-2	7 @ 8'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104531-3	8 @ 8'	120	ND(80)	290	180	750
104531-4	9 @ 7.5'	450	510	1,900	740	680

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	98



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 07/12/91

DATE REPORTED: 07/18/91

LAB NUMBER: 104471

CLIENT: SUBSURFACE CONSULTANTS

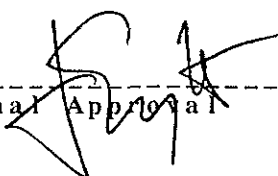
PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

LABORATORY NUMBER: 104471
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 4300 SAN PABLO

DATE RECEIVED: 07/12/91
 DATE ANALYZED: 07/18/91
 DATE REPORTED: 07/18/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104471-1	1@10.5'	1.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104471-2	2@7'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104471-3	3@7.5'	270	ND(80)	99	750	1,600
104471-4	4@8'	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 94
 =====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

DATE RECEIVED: 07/11/91

DATE REPORTED: 07/12/91

LAB NUMBER: 104454

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 537.004

LOCATION: 4300 SAN PABLO

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

LABORATORY NUMBER: 104454
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT #: 537.004
 LOCATION: 4300 SAN PABLO

DATE RECEIVED: 07/11/91
 DATE ANALYZED: 07/12/91
 DATE REPORTED: 07/12/91

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	REPORTING LIMIT (mg/Kg)
104454-9	COMPOSITE SP-1,2,3,4	2.8	1.0
104454-10	COMPOSITE SP-5,6,7,8	4.4	1.0

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	99

Subsurface Consultants ¹⁰⁴⁹⁶⁸

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo
 SCI Job Number: 537.004
 Project Contact at SCI: Sean Carson
 Sampled By: Dennis Alexander
 Analytical Laboratory: Curtis + Tompkins
 Analytical Turnaround: Rapid! 24 HOUR

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
AP-6	S	T	8/27/91		TVH/BTAE	SC15/8020/5030
AP-7	S	T	8/27/91		TVH/BTAE	SC15/8020/5030

* * * * *

Released by: Dennis Clifano Date: 8/27/91
 Released by Courier: _____ Date: _____
 Received by Laboratory: Keane Date: 8/27/91 12:00
 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

104743

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo Ave
 SCI Job Number: 537,004
 Project Contact at SCI: Sean Carson
 Sampled By: Charles Pearson
 Analytical Laboratory: Curtis & Tompkins
 Analytical Turnaround: Normal

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
<u>AP-4</u>	<u>S</u>	<u>T</u>	<u>8-7-91</u>		<u>TVH</u> <u>BTEX</u>	<u>8015/5030</u> <u>8020/5030</u>
<u>AP-5</u>	<u>S</u>	<u>T</u>	<u>8-7-91</u>		<u>"</u> <u>"</u>	<u>"</u> <u>"</u>

* * * * *

Released by: Charles Pearson Received by: _____ Date: 8-7-91
 Released by: _____ Received by: _____ Date: _____
 Received by Laboratory: Mandy in Jan Date: 8/7/91
 Released by Laboratory: _____ Date: _____
 Released 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

104732

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo Ave

SCI Job Number: 537.004

Project Contact at SCI: Sean Carson

Sampled By: Charles Pearson

Analytical Laboratory: Curtis-Tompkins

Analytical Turnaround: Normal

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
1 EE-2@7'	S	T	8/5/91		TVH	8015/5030
2 EE-3@8'	S	T	↓		↓	↓
3 EE-4@14½'	S	T	8/6/91		↓	↓
4 EE-10@7'	S	T	↓		↓	↓
5 EE-14@10½'	S	T	↓		↓	↓
6 EE-16@3'	S	T	8/6/91		O+G	SMWW SS20R

* * * * *

Released by: Charles Pearson Received by: _____ Date: 8-7-91

Released by: _____ Received by: _____ Date: _____

Received by Laboratory: Jamie White Date: 8-7-91

Released by Laboratory: _____ Date: _____

Released 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: 4300 San Pablo
 SCI Job Number: 537.004
 Project Contact at SCI: Sean Carson
 Sampled By: Charles Pearson
 Analytical Laboratory: Curtis & Tompkins
 Analytical Turnaround: Normal

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
AP-1	S	T	7/26/91		TVH BTXE	8015 mod/5030 8020/5030
AP-2	S	T	7/26/91		"	"
AP-3	S	T	7/26/91		"	"

* * * * *

Released by: Charles Pearson Received by: _____ Date: 7/26/91
 Released by: _____ Received by: _____ Date: _____
 Received by Laboratory: _____ Date: _____
 Released by Laboratory: Jamie Blunt Date: 7/26/91
 Released 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

104531

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo
 SCI Job Number: 537,004
 Project Contact at SCI: Sean Carson
 Sampled By: Charles Pearson
 Analytical Laboratory: Curtis & Tempkins
 Analytical Turnaround: Normal

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
6 @ 13'	S	T	7/16/91		TVH BTEX	8015 Mod/5030 8020/5030
7 @ 8'	S	T	7/16/91		"	"
8 @ 8'	S	T	7/16/91		"	"
9 @ 7 1/2'	S	T	7/16/91		"	"

* * * * *

Released by: Charles Pearson Received by: _____ Date: 7/17/91
 Released by: _____ Received by: _____ Date: _____
 Received by Laboratory: Richard [unclear] Date: 7/17/91
 Released by Laboratory: _____ Date: _____
 Released 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 104471

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo
 SCI Job Number: 537.004
 Project Contact at SCI: Sean Carson
 Sampled By: Charles Pearson
 Analytical Laboratory: Curtis + Tompkins
 Analytical Turnaround: Normal

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
- 1 @ 10 1/2'	S	T	7-10-91		TVH/BTEX	8015 mod/5030 8020/5030
- 2 @ 7'	S	T	7-10-91		"	"
- 3 @ 7 1/2'	S	T	7-10-91		"	"
- 4 @ 8'	S	T	7-11-91		"	"

* * * * *

Released by: [Signature] Received by: _____ Date: 7/12/91
 Released by: _____ Received by: _____ Date: _____
 Received by Laboratory: [Signature] Date: 7/12/91
 Released by Laboratory: _____ Date: _____
 Released 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

Log m# 104454

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 4300 San Pablo
 SCI Job Number: 537,004
 Project Contact at SCI: Sean Carson
 Sampled By: Charles Pearson
 Analytical Laboratory: Curtis & Tompkins
 Analytical Turnaround: Rapid

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
SP-1	S	T	7/10/91		TVH	EPA-8015 modified/ 5030
SP-2	S	T	"		"	
SP-3	S	T	"			
SP-4	S	T	"			
SP-5	S	T	7/11/91		TVH	EPA 8015 modified/ 5030
SP-6	S	T	"			
SP-7	S	T	"			
SP-8	S	T	"			

* * * * *

Released by: Charles C. Pearson Date: 7/11/91
 Released by Courier: _____ Date: _____
 Received by Laboratory: _____ Date: _____
 Relinquished by Laboratory: _____ Date: _____
 Received by: Jamie Heath Date: 7/11/91

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

APPENDIX C
LANDFILL RECEIPTS
WATER DISPOSAL RECEIPT AND MANIFEST

8950 REDWOOD F. HWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

REDWOOD LANDFILL INC.

X

DRIVER'S SIGNATURE _____

BY: EJZ
RECEIVED BY: _____

ACCOUNT NUMBER: 1667 CUSTOMER: BOY AREA TANK & MARINE, INC.
JOB NUMBER: EMERYVILLE DISC: 4300 SAN PABLO
VEHICLE: GIUSTI TIME: 12:34: 6 DATE: 9/11/91

COMMODITY: O.C./P. C. DIRT YARDS: 16.00 LOAD # : 219
PER YARD 5.00 FEE 80.00

TOTAL 80.00
INVOICE: 12867

*** CASHIER'S INVOICE

12867	74	8.78	89.00	12833	90.00
12867	74	8.78	89.00	12816	90.00
12867	74	8.78	89.00	12817	89.00

DDES	C - CR MEMO D - DR MEMO	P - PAYMENT I - INVOICE	A - DISCOUNT ALLOWED	F - FINANCE CHARGE	PLEASE PAY 1,000.00	TOTAL 1,000.00
30 DAYS	60 DAYS	90 DAYS	120 DAYS	REDWOOD LANDFILL, INC.		



8950 REDWOOD HIGHWAY
 P.O. BOX 793
 NOVATO, CALIFORNIA 94948
 TEL: (415) 892-2851
 FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

Dave B Allen

DRIVER'S SIGNATURE

BY: (L7)
 RECEIVED BY

ACCOUNT NUMBER: 1260 CUSTOMER: BAY AREA TANK & MARINE, INC.
 JOB NUMBER: EMERYVILLE DESC: 43 SAN PABLO
 VEHICLE: ROADRUNN TIME: 12:40: 2 DATE: 07/10/91

COMMODITY: O.C./P. C., DIRT. YARDS: 18.00 LOAD #: 188
 PER YARD 5.00 FEE 90.00

TOTAL 90.00
 INVOICE: 12600

*** CHARGE INVOICE

12600	12600	12600	12600	12600	12600	12600	12600	12600	12600
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

CODES	C - CR MEMO D - DR MEMO	P - PAYMENT I - INVOICE	A - DISCOUNT ALLOWED	F - FINANCE CHARGE	PLEASE PAY	1,000.00	TOTAL	1,000.00
	30 DAYS	60 DAYS	90 DAYS	120 DAYS				

REDWOOD LANDFILL, INC.

8950 REDWOOD HIGHWAY
 P.O. BOX 793
 NOVATO, CALIFORNIA 94948
 TEL: (415) 892-2851
 FAX: (415) 898-1354

**REDWOOD
 LANDFILL INC.**

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X [Signature]
 DRIVER'S SIGNATURE

BY: [Signature]
 RECEIVED BY

ACCOUNT NUMBER: 12676 CUSTOMER: BAY AREA TANK & MARINE, INC.
 JOB NUMBER: EMERYVILLE DESC: 4300 SAN PABLO
 VEHICLE: BIBB TIME: 11:59:21 DATE: 07/10/91
 COMMODITY: O.C./P. G. DIRT YARDS: 18.00 LOAD #: 171
 PER YARD 5.00 FEE 90.00

RI7311 *** CHARGE INVOICE TOTAL 90.00
 INVOICE: 12676

12676	12676	12676	12676	12676	12676	12676	12676	12676	12676
12676	12676	12676	12676	12676	12676	12676	12676	12676	12676

C - CR MEMO	P - PAYMENT	A - DISCOUNT	F - FINANCE	PLEASE	1,000.00	TOTAL	1,000.00
D - DR MEMO	I - INVOICE	ALLOWED	CHARGE	PAY			
30 DAYS	60 DAYS	90 DAYS	120 DAYS				
		0.00	0.00				

REDWOOD LANDFILL, INC.



8950 REDWOOD HIGHWAY
 P.O. BOX 793
 NOVATO, CALIFORNIA 94948
 TEL: (415) 892-2851
 FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

David B. Allen
 DRIVER'S SIGNATURE

RECEIVED BY

ACCOUNT NUMBER: 12645 CUSTOMER: CITY OPEN BANK & MORTGAGE INC.
 JOB NUMBER: EBERYVILLE QUANTITY: 1500
 MATERIAL: FODDRUMM DATE: 9/17/91 DATE: 9/19/91
 COMMENTS: O.C. 71% B. DIRT 29% YARDS: 18.00 * LOADS: 107
 PER YARD 5.00 FEE 90.00

TOTAL 90.00
 INVOICE: 12645

INVOICE

--	--	--	--	--	--	--	--	--	--

DES	C - CR MEMO D - DR MEMO	P - PAYMENT I - INVOICE	A - DISCOUNT ALLOWED	F - FINANCE CHARGE	PLEASE PAY	1,000.00	TOTAL	1,000.00
	30 DAYS	60 DAYS	90 DAYS	120 DAYS				

REDWOOD LANDFILL, INC.



8950 REDWOOD HIGHWAY
 P.O. BOX 793
 NOVATO, CALIFORNIA 94948
 TEL: (415) 892-2851
 FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

Redwood
 DRIVER'S SIGNATURE

BY (Signature)
 RECEIVED TO

ACCOUNT NUMBER: 1234567890 CUSTOMER: BOY APPEAL FUND & MORTUARY, INC.
 JOB NUMBER: EMBERYVILLE DEAL: 4500 9000 10000
 VENDOR: GRIFFIN TIME: 8:43:1 DATE: 9/10/91
 QUANTITY: 0.00 YARDS YARDS: 10.00 TONNAGE: 1.96
 PER YARD: 9.00 FEE: 90.00

TOTAL 90.00
 INVOICE: 12637

*** CHARGE INVOICE

			90.00		12637	90.00
C - CR MEMO P - PAYMENT A - DISCOUNT ALLOWED F - FINANCE CHARGE D - DR MEMO I - INVOICE				PLEASE PAY	1,263.70	TOTAL 1,263.70
30 DAYS	60 DAYS	90 DAYS	120 DAYS	REDWOOD LANDFILL, INC.		



8950 REDWOOD HILL WAY
 P.O. BOX 793
 NOVATO, CALIFORNIA 94948
 TEL: (415) 892-2851
 FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X Rama

DRIVER'S SIGNATURE

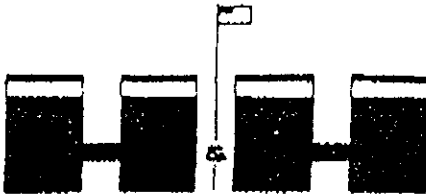
(Signature)

ACCOUNT NUMBER: 11072 CREDITED: 10000.00
 FOR MONTH: FEBRUARY OF 1991 2,000.00
 VEHICLE: 1 & 1 10000.00 10000.00

STATEMENT INVOICE

11072	10000.00	10000.00	10000.00	10000.00	10000.00	10000.00	10000.00	10000.00	10000.00
-------	----------	----------	----------	----------	----------	----------	----------	----------	----------

C - CR MEMO D - DR MEMO 30 DAYS	P - PAYMENT I - INVOICE 60 DAYS	A - DISCOUNT ALLOWED 90 DAYS	F - FINANCE CHARGE 120 DAYS	PLEASE PAY 1,000.00	TOTAL 1,000.00
REDWOOD LANDFILL, INC.					



ENVIRONMENTAL SERVICES
(DIVISION OF H&M SHIP SERVICE CO., INC.)

DATE: SEPTEMBER 4, 1991
OUR INVOICE NO: 0991-003
JOB NO.: 9201
CUSTOMER'S P.O. NO.:
CUSTOMER'S JOB NO.:

BAY AREA TANK & MARINE
4851 SUNRISE DRIVE, SUITE 104
MARTINEZ, CALIFORNIA 94553

FURNISHED VACUUM TRUCK AND OPERATOR TO PUMP OUT OIL AND
WATER, AND DISPOSE OF SAME.

WORK PERFORMED: 08/28/91, FORMER CAR WASH
4300 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA

VAC. TRUCK & OPERATOR (4 HOURS @ 65.00)	\$	260.00
DISPOSAL OF OIL AND WATER (2,475 GALS. @ .30)		742.50
DISPOSAL OF SOLIDS (25 GALS. @ 4.00)		100.00
LAB ANALYSIS		350.00
BRIDGE TOLL		10.00

TOTAL INVOICE \$ 1,462.50

220 CHINA BASIN, SAN FRANCISCO, CA 94107 · DAY AND NIGHT: 543-4835



Type: Form designed for use on elite (12-pinewriter).

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA1A00000633332H000000		Manifest Document No. 000000		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address CITY OF EMERYVILLE RE-DEVELOPMENT AGENCY 2200 Powell Street, 12th Floor, Emeryville, Ca. 94608						A. State Manifest Document Number 90533266			
4. Generator's Phone (415) 546-1350						B. State Generator's ID			
5. Transporter 1 Company Name H & H Ship Service Company			6. US EPA ID Number CA1D0000177116R			C. State Transporter's ID 00507/00555		D. Transporter's Phone (415) 543-4835	
7. Transporter 2 Company Name			8. US EPA ID Number			E. State Transporter's ID		F. Transporter's Phone	
9. Designated Facility Name and Site Address H & H Ship Service Company 220 China Basin Street San Francisco, CA 94107						10. US EPA ID Number CA1D0000177116R			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
a. OIL AND WATER NON-FLAM HAZARDOUS WASTE LIQUID						0101	02500	g	State 134 EPA/Other
b.									State EPA/Other
c.									State EPA/Other
d.									State EPA/Other
J. Additional Descriptions for Materials Listed Above OIL, OIL AND WATER PROFILE #A1202						K. Handling Codes for Wastes Listed Above a. 01 b. c. d.			
15. Special Handling Instructions and Additional Information JOB #9201 24 Hr. Emergency Contact: H & H # (415) 543-4835 APPROPRIATE PROTECTIVE CLOTHING AND RESPIRATOR JOB SITE: FORMER CAR WASH 4300 San Pablo Avenue Emeryville, California									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name			Signature			Month Day Year			
17. Transporter 1 Acknowledgement of Receipt of Materials			Signature			Month Day Year			
Printed/Typed Name			Signature			Month Day Year			
18. Transporter 2 Acknowledgement of Receipt of Materials			Signature			Month Day Year			
Printed/Typed Name			Signature			Month Day Year			
19. Discrepancy Indication Space									
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.									
Printed/Typed Name			Signature			Month Day Year			

Do Not Write Below This Line

YELLOW: GENERATOR RETAINS

80 A
87 -22
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Previous editions are obsolete.

APPENDIX D

SOIL ENGINEERING SERVICES
DURING EXCAVATION BACKFILL

APPENDIX D
SOIL ENGINEERING SERVICES DURING
EXCAVATION BACKFILL

D.1 Excavation Backfill

Most of the excavation backfill took place between September 3 and 6, 1991. During backfilling, our field engineer visited the site on an intermittent basis.

Prior to backfill placement, groundwater was pumped from the excavation, and loose soil was removed to expose relatively firm undisturbed soil. Drainrock was then placed in the excavation to above the groundwater level. Fill was placed in uniform layers (less than 8 inches thick), moisture conditioned, as necessary and compacted. The soil was compacted using a vibrating plated mounted on the end of a backhoe. The fill material consisted of aerated soil from on-site and imported soil.

Laboratory compaction tests and field check points were conducted in accordance with the ASTM D1557-78 Test Method. Because the excavation was not shored, field density tests of fill below a depth of 5 feet were not performed. Instead, observations of compactive effort were made as an indicator of degree of compaction. Based upon the test results, we conclude that the fill was compacted to at least 90 percent relative compaction.

D.2 Conclusions

Based upon our observations and test results, we conclude that the geotechnical engineering aspects of the project, performed under our observations, were completed in accordance with our recommendations.

Field and laboratory data will be retained in our files for future reference, if necessary. A summary of the field density test data is presented below.

SUBSURFACE CONSULTANTS, INC.
 4300 SAN PABLO AVENUE
 SCI 537.004
 SUMMARY OF FIELD DENSITY TEST DATA

<u>Test No.</u>	<u>Location¹</u>	<u>Depth (ft.)²</u>	<u>Moisture Content (%)</u>	<u>Dry Density (pcf)</u>	<u>Maximum Dry Density (pcf)³</u>	<u>Relative Compaction</u>	<u>Remarks</u>
1	N6 E49	8	5.9	116	124	94	Pass
2	N7 E59	5	11.8	115	124	93	Pass
3	N19 E51	4	7.4	120	124	97	Pass
4	N19 E46	3.5	8.8	112	124	90	Pass
5	N12 E54	3.5	10.0	114	124	92	Pass
6	N21 E57	3	7.8	115	124	93	Pass
7	N14 E63	3	6.6	116	124	92	Pass
8	N15 E46	2	6.5	116	124	94	Pass
9	N 18 E61	0.5	7.6	113	124	92	Pass

¹ Origin of coordinates: Northeast corner of the intersection between San Pablo Avenue and 43rd Street

² Depth below sidewalk

³ Relative compaction refers to the in-place dry density of soil as determined by the ASTM D1557-78 compaction tests method. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.