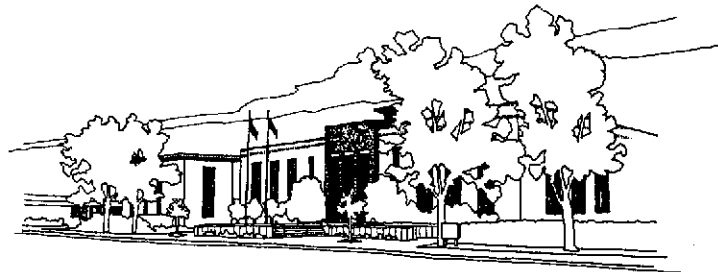


City of San Leandro
Civic Center, 835 E. 14th Street
San Leandro, California 94577



REMEDIATION OF THE SAN LEANDRO MARINE CENTER
80 SAN LEANDRO MARINA
SAN LEANDRO, CALIFORNIA 94577
OCTOBER 4, 1991

SUMMARY

In May of 1989, inspectors from the San Leandro Fire Department and the Alameda County Hazardous Materials Division discovered spillage around the waste oil drum storage area at the San Leandro Marine Center at 80 San Leandro Marina. The site operator removed the drums and determined the extent of contamination. However, the operator filed for bankruptcy and vacated the site prior to completing the remediation. As owner of the site, the City of San Leandro committed to cleaning up the site expeditiously and developed a remediation plan to excavate the soil and treat it off-site.

On June 18 and July 22, 1991, the City of San Leandro excavated 82 tons of soil from underneath the former waste oil drum storage area at the San Leandro Marine Center. The excavated soil was immediately loaded and transported to Port Costa Materials, a non-hazardous waste treatment facility for petroleum contaminated soils. Confirming samples collected from the bottom and sides of the excavation indicated that all of the contamination was removed.

BACKGROUND

In response to a complaint, inspectors from the San Leandro Fire Department and the Alameda County Hazardous Materials Division inspected the San Leandro Marine Center in May of 1989. The San Leandro Marine Center is located at the San Leandro Marina. The site is situated on top of a dike extending out into San Leandro Bay.

During the inspection, the inspectors noted spillage around the waste oil drum storage area at the site. The soil underneath the drum storage area was contaminated when the site operator allowed waste oil drums to overflow as a result of rainwater intrusion into the unsealed drums. The County ordered the site operator to dispose of the oil and drums and cleanup the contaminated soil. The site operator disposed of the drums and hired a consulting firm, Environmental Geotechnical Consultants (EGC), to determine the extent of the contamination and to prepare a remediation plan.

The investigation determined that the vertical extent of contamination was limited to the top three to four feet below ground surface and the lateral extent of contamination was limited to the visible staining on the ground surface. Laboratory analysis of the contaminated soil indicated that the soil was

Dave Karp, Mayor

City Council: Ellen M. Corbett; John E. Faria; Bob Glaze;
Linda Perry; Julian P. Polvorosa; Anthony B. Santos; Dick Randall, City Manager

nonhazardous and the only significant detectable contaminant was oil and grease.

The consultant submitted a remediation plan, dated September 11, 1990, proposing to bioremediate the contaminated soil on-site. The remediation plan was approved by Larry Seto of the Alameda County Hazardous Materials Division on September 21, 1990. The site operator proceeded to excavate the top two feet of soil in the area of contamination and stockpiled the contaminated soil on top of a polyethylene tarp and covered it with another tarp. However, prior to completing the excavation and starting the bioremediation, the site operator filed for bankruptcy and vacated the site in late 1990.

As owner of the site, the City of San Leandro committed to completing the remediation expeditiously. Additional soil samples were collected to further characterize the contaminated soil. The City's Hazardous Materials Division staff determined that the approved on-site bioremediation plan was not time or cost efficient and that excavation and off-site treatment would be the simplest and most efficient method for remediating the site. The City submitted an alternate remedial action plan to Mr. Seto of the Alameda County Hazardous Materials Division on June 10, 1991, proposing excavation and off-site treatment of the contaminated soil. Mr. Seto verbally approved the remediation plan on June 11, 1991.

The new remediation plan called for all contaminated soil to be excavated and transported to Port Costa Materials, Inc. for incineration. Port Costa Materials, Inc. has been permitted by the Bay Area Air Quality Management District to thermally treat non-hazardous petroleum contaminated soils containing up to 30,000 ppm of stable petroleum hydrocarbons such as diesel, grease, and oil.

EXTENT OF CONTAMINATION

The visible staining on the ground surrounding the waste oil drum storage area was limited to two areas. The main area of contamination was approximately 250 square feet in area and exhibited moderate oil staining on the ground surface. A smaller area was approximately 25 square feet in area and exhibited light oil staining on the ground surface.

EGC took a total of five soil samples to determine the vertical extent of the contamination. In the main area of contamination it was determined that the oil contamination extended to just beneath three feet below ground surface. In the smaller area of contamination, no oil contamination was detected below thirty inches. The highest concentration of oil contamination was detected at two feet below grade in the main area of contamination with total oil and grease at 5,900 parts per million. The oil and grease levels of the two other soil samples collected in the main area of contamination were 300 ppm at 30 inches and 49 ppm at 36 inches below grade. The oil and grease levels in the smaller area of contamination ranged from 320 ppm at 18 inches and 0 ppm at 30 inches below grade. Laboratory data sheets for the investigative samples are included in Appendix A.

The horizontal extent of contamination was determined to be limited to the visible staining on the ground surface since the spillage occurred aboveground, the soil contamination was limited to three feet below ground surface, the contamination occurred above the surface of the bay and was therefore not influenced by tidal action, and the viscous nature of the contaminant precluded lateral migration beyond the boundaries established by the surface staining.

EGC also collected soil samples from the main area of contamination and the soil stockpile and had them analyzed for heavy metals and acute aquatic toxicity. The heavy metal results were all below the STLC and TTLC levels established by the Department of Health Services. The acute aquatic 96-hour LC₅₀ was determined to be greater than 1,000 ppm, well above the state established limit of less than 500 milligrams per liter. Laboratory data sheets for the investigative samples are included in Appendix A.

The City of San Leandro collected an additional composite sample from the soil stockpile and had it analyzed for volatile organics, semivolatile organics, PCBs, and flash point. No volatile or semivolatile organics were detected. One type of PCB was discovered, but levels were well below the hazardous waste criteria. The flash point was determined to be greater than 150 degrees Fahrenheit. Laboratory data sheets for these analyses are also included in Appendix A.

CLEANUP ACTIVITIES

On June 18, 1991, The City of San Leandro excavated 64 tons of soil from the main area of contamination. The main area was overexcavated laterally to cover an area of approximately 350 square feet and to a depth of 40 to 48 inches. The soil was immediately loaded onto transfer trucks and transported to Port Costa Materials' facility in Port Costa, California for treatment. Due to time constraints, the excavation of the smaller area of contamination was not extended deeper than the original twenty inch depth of excavation.

Eight soil samples were collected from the main area of excavation to confirm that all of the contaminated soil was removed. Two soil samples were also collected from the smaller area of excavation to determine if the excavation performed by the former site operator had removed all of the contaminated soil in that area. The samples were collected by Trace Analysis Laboratory, a state certified laboratory, and analyzed for total oil and grease using Standard Method 5520F.

Samples 1 and 2 were collected from the base of the excavation and laboratory analysis of the samples found no detectable levels of oil and grease. Samples 3 through 8 were collected in the sidewalls at the base of the excavation and laboratory analysis of the samples showed no detectable levels of oil and grease, with the exception of sample 4, in the northeast corner of the excavation, which showed 1,200 ppm of oil and grease. Samples 9 and 10 were collected from the base of the smaller excavation and laboratory analysis of the samples detected oil and grease at 68 and 1,000 ppm, respectively. Table 1 summarizes the sample results and depth of sampling. Figure 1 indicates the sample locations. The laboratory data sheets and chain of custody records for the confirming samples

TABLE 1
 SAN LEANDRO MARINE CENTER SOIL REMEDIATION
 CONFIRMING SAMPLE RESULTS AND SAMPLING DEPTHS

Sample No.	Sample Depth (inches)	Sample Result ¹ (ppm)
1	46	ND ²
2	48	ND
3	40	ND
4	42	1,200
5	36	ND
6	40	ND
7	37	ND
8	42	ND
9	20	1,000
10	20	68
11	30	ND
12	30	ND
13	62	ND
14	64	ND

¹All confirming samples were analyzed for Total Oil & Grease using Standard Method 5520F

²ND - concentrations reported as ND were not detected at or above the reporting limit of 50 ppm.

are included in Appendix B.

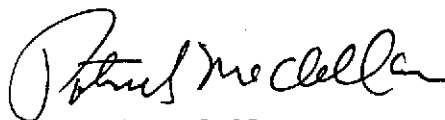
On July 22, 1991, the City of San Leandro further excavated the northeast corner of the main area of contamination to just beneath 5 feet below grade and the smaller area of contamination to 30 inches below grade. Samples 11 and 12 were collected from the base of the smaller excavation and laboratory analysis of the samples showed no detectable levels of oil and grease. Samples 13 and 14 were collected in the northeast corner of the larger area of contamination and laboratory analysis of the samples showed no detectable levels of oil and grease. Table 1 summarizes the sample results and depth of sampling. Figure 2 indicates the sample locations.

CONCLUSIONS

All soils with detectable levels of oil and grease have been removed from the San Leandro Marine Center at 80 San Leandro Marina. The contaminated soil has been incinerated and certified free from petroleum products by Port Costa Materials, Inc. The Certificate of Remediation is enclosed in Appendix C. Any questions regarding this remediation project should be referred to Michael Bakaldin at (510) 577-3331.



Michael Bakaldin
Hazardous Materials Coordinator



Patrick McClellan
Disaster Preparedness Coordinator
Registered Geologist No. 3854

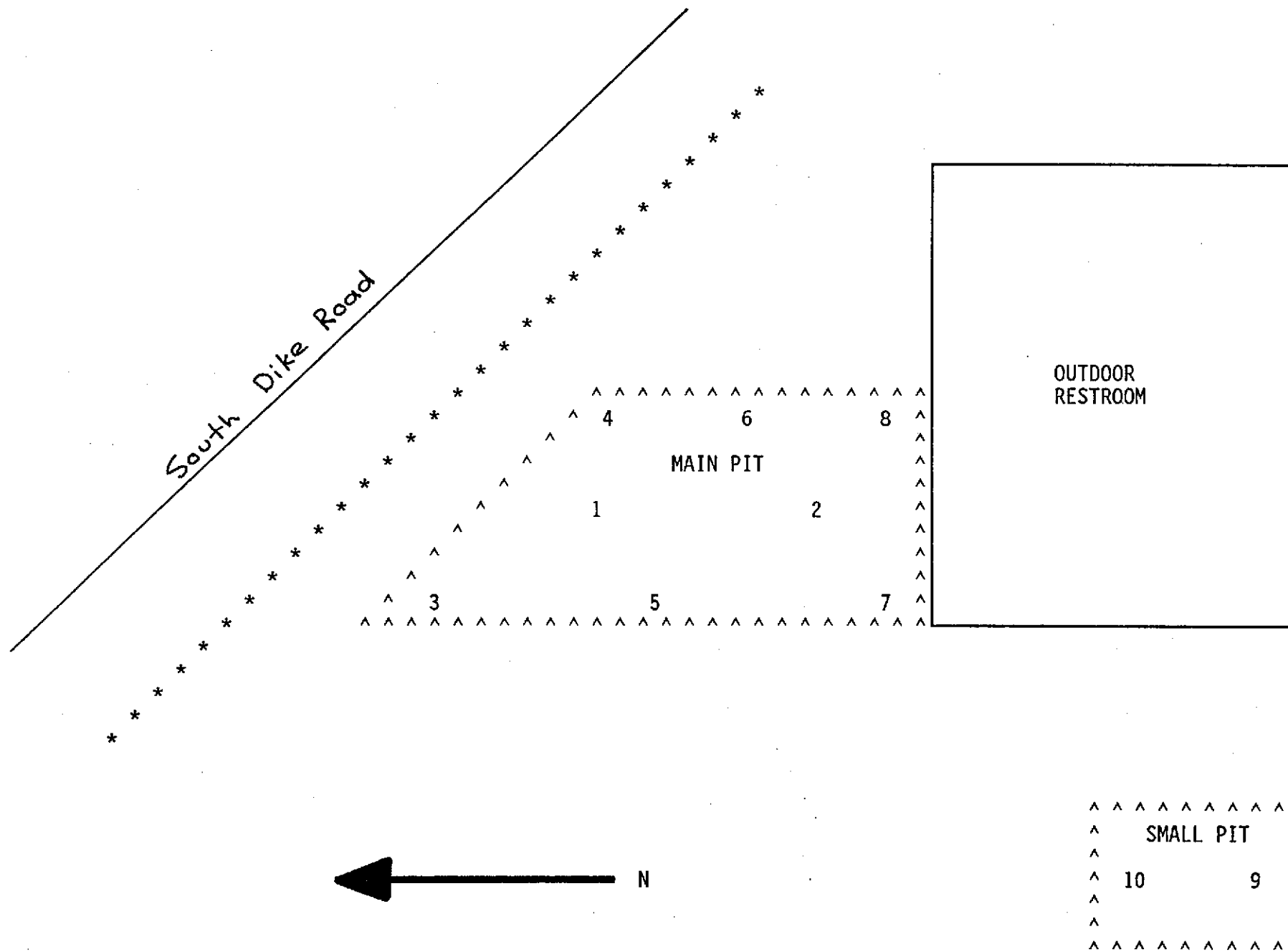


FIGURE 1. Confirming sample locations for samples collected on June 18, 1991 at 80 San Leandro Marina.

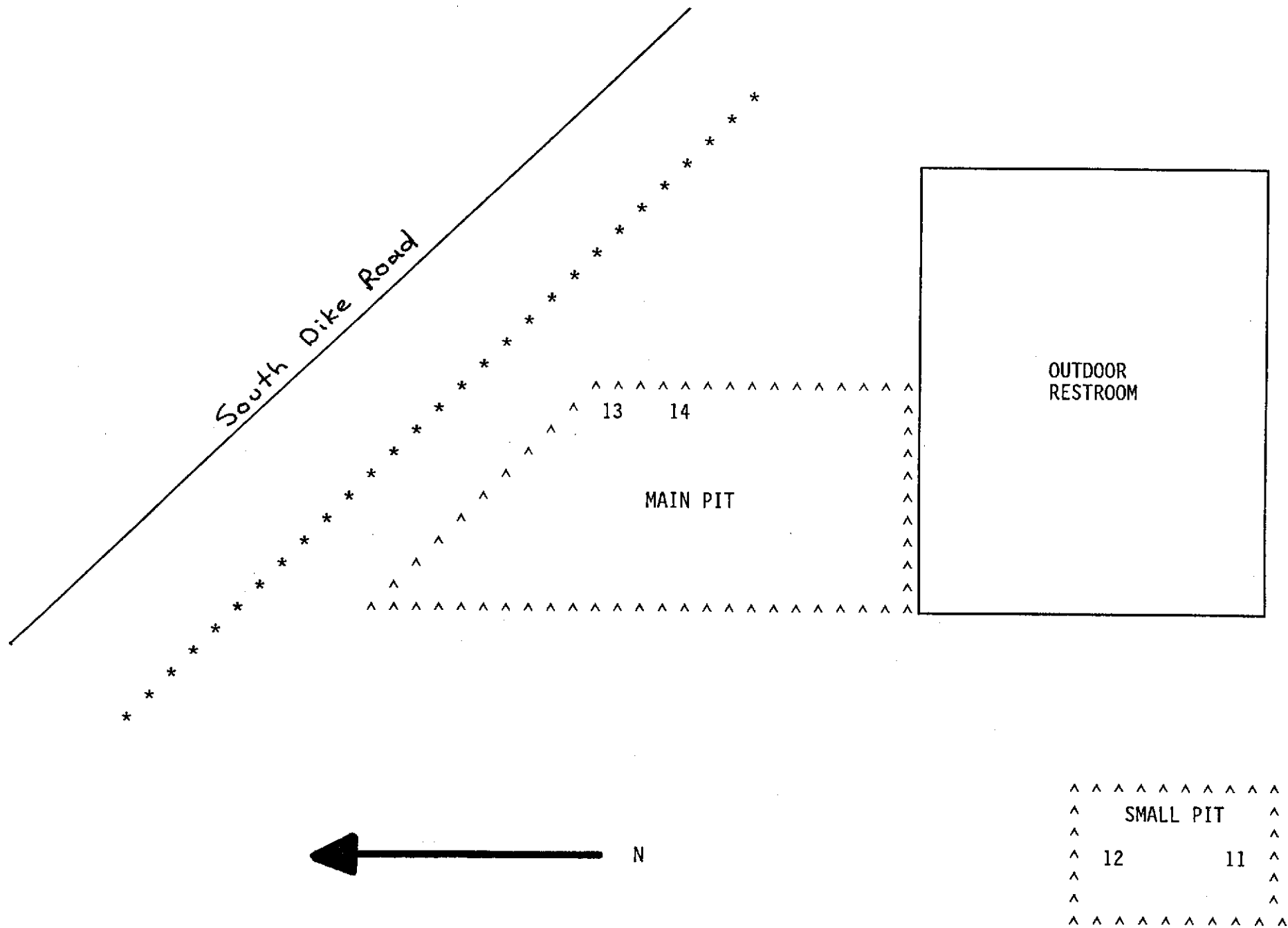
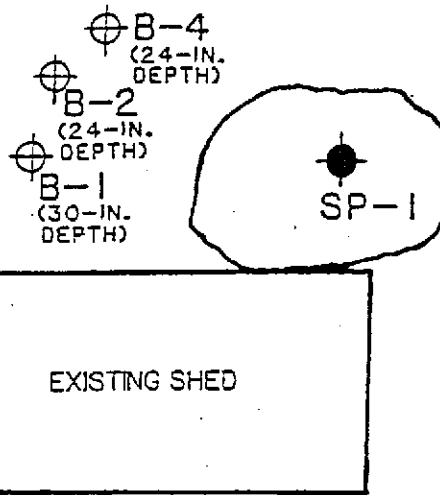


Figure 2. Confirming sample locations for samples collected on July 22, 1991 at 80 San Leandro Marina.

APPENDIX A
LABORATORY DATA SHEETS FOR
INVESTIGATIVE SAMPLES

PROPERTY BOUNDARY (APPROXIMATE)

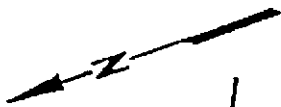


EXPLANATION

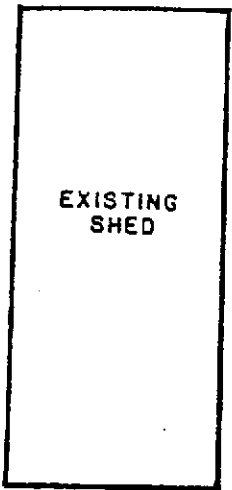
- SOIL SAMPLE LOCATION
- STOCKPILE SAMPLE LOCATION



	DATE 08/10/90	EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC. CONSULTANTS IN APPLIED EARTH SCIENCE	FIGURE NO. 2
	JOB NO. E101-03		
	DWG NO. E101-03/2	SOIL SAMPLE LOCATION MAP	
	DRAWN A PETCU	80 SAN LEANDRO MARINA, SAN LEANDRO, CA SAN LEANDRO MARINE CENTER	
	CHECKED N GACS		
APPROVED G MILLIKAN	REV NO.		



PROPERTY BOUNDARY (APPROXIMATE)




S-4
(36"-
DEPTH)
B-2
(24"-
DEPTH)
B-1
(30"-
DEPTH)

B-3
(18"-
DEPTH)
S-5
(30"-
DEPTH)

EXPLANATION

 SOIL SAMPLE LOCATION

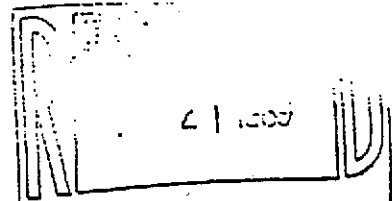


DATE	10/30/89		ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC. (CONSULTANTS IN APPLIED EARTH SCIENCE)	FIGURE NO. 2
JOB NO.	0101-01.1			
DESIGN	J HICKS			
DRAWN	J HATALA			
CHECKED	B WORDEN			
APPROVED	J HICKS	SAN LEANDRO MARINE CTR., SAN LEANDRO, CA		REV.
			SOIL SAMPLE LOCATION MAP	
			SAN LEANDRO MARINE CENTER	



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233



Environmental Geotechnical Cons.	Client Project ID:	#0101-01, Marina Center	Sampled:	Aug 22, 1989
2504 Technology Drive	Matrix Descript:	Soil	Received:	Aug 22, 1989
Hayward, CA 94545	Analysis Method:	SM 503 D&E (Gravimetric)	Analyzed:	Sep 19, 1989
Attention: John F. Hicks	First Sample #:	908-2752	Reported:	Sep 19, 1989

TOTAL RECOVERABLE OIL & GREASE

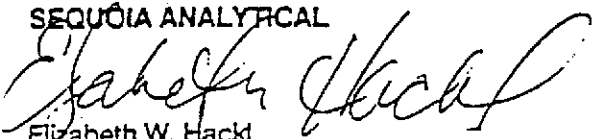
Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
908-2752	B-1	300
908-2753	B-2	5,900
908-2754	B-3	320

Detection Limits:

30.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

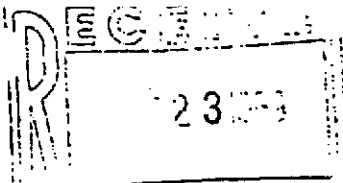

Elizabeth W. Hack
Project Manager

9082752.EGC <1>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233



Environmental Geotechnical Cons. 2504 Technology Drive Hayward, CA 94545 Attention: John Hicks	Client Project ID: San Leandro Marine Center Matrix Descript: Soil Analysis Method: SM 503 D&E (Gravimetric) First Sample #: 910-1070	Sampled: Oct 5, 1989 Received: Oct 6, 1989 Analyzed: Oct 16, 1989 Reported: Oct 17, 1989
---	--	---

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
910-1070	S-4	49
910-1071	S-5	N.D.

Detection Limits:

30.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Environmental Geotechnical Cons. 2495 Industrial Parkway West Hayward, CA 94545 Attention: Nicole Gacs	Client Project ID: Sample Descript: Soil, B-4-24 Analysis Method: See below Lab Number: 63069	Sampled: Jun 20, 1990 Received: Jun 20, 1990 Reported: Jul 6, 1990
---	--	--

STATIC ACUTE HAZARDOUS WASTE BIOASSAY

Static
Cont. Flow

Species: Pimephales promelas
 Common Name: Fathead minnow
 Mean length: 35.0 mm
 Mean weight: 0.72 g
 Supplier: Sticklebacks Unlimited
 Acclimation Temp.: 20.0 degrees C

Organisms/Tank: 10
 Replicates: 2
 Organisms/Conc.: 20
 Tank Depth: 13 cm
 Tank Volume: 10 L

Screening
Definitive

Dilution Water: Synthetic Freshwater, Soft

	Alkalinity, mg/L	Hardness, mg/L
Control	31.0	41.0
1000 ppm	35.0	51.0
320 ppm		
100 ppm		

DATE	Initial	24 Hr	48 Hr	72 Hr	96 Hr
	6/25/90	6/26/90	6/27/90	6/28/90	6/29/90

	DO	C	pH	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	Total
	mg/L	Temp	Units	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	Dead
Control	10.0	19	8.1	8.9	19	7.9	0	7.1	19	7.7	0	7.6	19	7.7	0	6.3	19	7.7	0	0
100 ppm	8.0	18	7.6	7.8	18	7.8	0	6.9	18	7.8	0	7.6	19	7.6	0	7.4	19	7.7	0	0
180 ppm	7.3	19	7.7	6.5	20	7.8	0	6.8	19	7.7	0	7.1	20	7.7	0	7.2	21	7.7	0	0
320 ppm	7.2	20	7.7	6.1	21	7.8	0	6.4	22	7.8	0	6.8	21	7.8	0	7.1	22	7.8	0	0
560 ppm	7.4	20	7.8	7.3	22	7.9	0	7.5	22	7.7	0	7.8	22	7.7	0	7.7	22	7.7	0	0
1000 ppm	8.0	20	7.9	8.7	21	7.9	0	8.9	21	7.8	0	9.0	21	7.8	0	9.0	21	7.8	0	0

LC-50: > 1000 ppm

LC-50 Calculation Method: Non-linear interpolation

Remarks: _____

Analyst: M. Trujillo

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples, September 1987, California Department of Fish and Game WPCL



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Environmental Geotechnical Cons.
2495 Industrial Parkway West
Hayward, CA 94545
Attention: Nicole Gacs

Client Project ID:
Sample Descript: Soil, B-4-24
Analysis Method: See below
Lab Number: 63069

Sampled: Jun 20, 1990
Received: Jun 20, 1990
Reported: Jul 6, 1990

STATIC ACUTE HAZARDOUS WASTE BIOASSAY

Static
Cont. Flow

Species: Pimephales promelas
Common Name: Fathead minnow
Mean length: 35.0 mm
Mean weight: 0.72 g
Supplier: Sticklebacks Unlimited
Acclimation Temp.: 20.0 degrees C

Organisms/Tank: 10
Replicates: 2
Organisms/Conc.: 20
Tank Depth: 13 cm
Tank Volume: 10 L

Screening
Definitive

Dilution Water: Synthetic Freshwater, Soft

	Alkalinity, mg/L	Hardness, mg/L
Control	31.0	41.0
1000 ppm	35.0	51.0
320 ppm		
100 ppm		

DATE	Initial	24 Hr	48 Hr	72 Hr	96 Hr
	6/25/90	6/25/90	6/27/90	6/28/90	6/29/90

	DO	C	pH	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	Total
	mg/L	Temp	Units	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	Dead
Control	10.0	19	8.1	8.9	19	7.9	0	7.1	19	7.7	0	7.6	19	7.7	0	6.3	19	7.7	0	0
100 ppm	7.0	20	7.6	6.7	20	7.7	0	6.8	20	7.7	0	7.0	19	7.7	0	6.9	19	7.7	0	0
180 ppm	7.0	19	7.5	6.9	21	7.6	0	7.3	21	7.6	0	7.6	21	7.6	0	7.6	20	7.6	0	0
320 ppm	7.3	19	7.6	6.2	21	7.6	0	6.3	21	7.5	0	6.3	20	7.6	0	7.2	20	7.8	0	0
560 ppm	6.9	20	7.7	5.9	22	7.8	0	6.5	22	7.8	0	6.8	22	7.8	1	6.6	22	7.7	1	1
1000 ppm	8.0	19	7.8	8.1	22	7.8	0	8.5	22	7.8	0	8.8	22	7.8	0	9.0	21	7.8	0	0

LC-50: > 1000 ppm

LC-50 Calculation Method: Non-linear interpolation

Remarks:

Analyst: M. Trujillo

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples, September 1987, California Department of Fish and Game WPCL

SEQUOIA ANALYTICAL

Wendy Amundson
(for)
Arthur G. Burton
Laboratory Director



NET Pacific, Inc.

Client Acct: 362
 Client Name: Environmental Geotechnical
 NET Log No: 3031

Date: 08-07-90
 Page: 2

Ref: San Leandro Marine Center, Proj: E101-03

SAMPLE DESCRIPTION: B-4-24 06-20-90
 LAB Job No: (-58498)

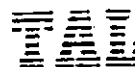
Parameter	Reporting Limit	Results	Units
17 CAM Metals, Total			
Antimony	2.5	ND	mg/Kg
Arsenic	0.15	1.4	mg/Kg
Barium	0.5	120	mg/Kg
Beryllium	0.5	ND	mg/Kg
Cadmium	0.5	0.75	mg/Kg
Chromium (VI)	0.5	N/A	mg/Kg
Chromium	0.5	25	mg/Kg
Cobalt	2.5	5.8	mg/Kg
Copper	1.0	14	mg/Kg
Lead	2.5	3.8	mg/Kg
Mercury	0.005	ND	mg/Kg
Molybdenum	10	ND	mg/Kg
Nickel	1.5	18	mg/Kg
Selenium	0.5	ND	mg/Kg
Silver	1.0	ND	mg/Kg
Thallium	2.0	ND	mg/Kg
Vanadium	2.5	ND	mg/Kg
Zinc	1.0	19	mg/Kg

LOG NO.: 9552
 DATE SAMPLED: 1/28/91
 DATE RECEIVED: 1/28/91
 DATE EXTRACTED: 2/01/91
 DATE ANALYZED: 2/06/91
 DATE REPORTED: 2/20/91
 PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	Composite of S-1 and S-2		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8240:					
Chloromethane	ug/kg	ND	10	ND	10
Bromomethane	ug/kg	ND	10	ND	10
Vinyl Chloride	ug/kg	ND	10	ND	10
Chloroethane	ug/kg	ND	30	ND	30
Methylene Chloride	ug/kg	ND	200	ND	200
Trichlorofluoromethane	ug/kg	ND	60	ND	60
1,1-Dichloroethene	ug/kg	ND	7	ND	7
1,1-Dichloroethane	ug/kg	ND	7	ND	7
Trans-1,2-Dichloroethene	ug/kg	ND	7	ND	7
Chloroform	ug/kg	ND	7	ND	7
1,2-Dichloroethane	ug/kg	ND	30	ND	30
1,1,1-Trichloroethane	ug/kg	ND	7	ND	7
Carbon Tetrachloride	ug/kg	ND	30	ND	30
Bromodichloromethane	ug/kg	ND	30	ND	30
1,2-Dichloropropane	ug/kg	ND	30	ND	30
Trans-1,3-Dichloropropene	ug/kg	ND	30	ND	30
1,1,2-Trichloroethane	ug/kg	ND	50	ND	50
Trichloroethene	ug/kg	ND	7	ND	7
Benzene	ug/kg	ND	40	ND	40

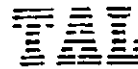
Concentrations reported as ND were not detected at or above the reporting limit.



LOG NO.: 9552
DATE SAMPLED: 1/28/91
DATE RECEIVED: 1/28/91
DATE EXTRACTED: 2/01/91
DATE ANALYZED: 2/06/91
DATE REPORTED: 2/20/91
PAGE: Three

<u>Method and Constituent</u>	<u>Units</u>	<u>Sample Type: Soil</u>		<u>Method Blank</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Repo Li</u>
EPA Method 8240 (Continued):					
2-Chloroethylvinyl Ether	ug/kg	ND	200	ND	
Dibromochloromethane	ug/kg	ND	30	ND	
Cis-1,3-Dichloropropene	ug/kg	ND	50	ND	
Bromoform	ug/kg	ND	200	ND	
1,1,2,2-Tetrachloroethane	ug/kg	ND	20	ND	
Tetrachloroethene	ug/kg	ND	7	ND	
Toluene	ug/kg	ND	7	ND	
Chlorobenzene	ug/kg	ND	7	ND	
Ethylbenzene	ug/kg	ND	7	ND	
1,3-Dichlorobenzene	ug/kg	ND	10	ND	
1,2-Dichlorobenzene	ug/kg	ND	70	ND	
1,4-Dichlorobenzene	ug/kg	ND	70	ND	
<u>QC Summary:</u>					
% Recoveries:					
Bromochloromethane		88		47	
Bromochloropropane		89		80	
Dichlorobutane		50		83	

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NO.: 9552
DATE SAMPLED: 1/28/91
DATE RECEIVED: 1/28/91
DATE EXTRACTED: 2/11/91
DATE ANALYZED: 2/13/91
DATE REPORTED: 2/20/91
PAGE: Four

<u>Method and Constituent:</u>	<u>Units</u>	<u>Sample Type: Soil</u>		<u>Method Blank</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>
EPA Method 8270:					
N-Nitrosodimethylamine	ug/kg	ND	500	ND	500
Phenol	ug/kg	ND	500	ND	500
Bis (-2-Chloroethyl) ether	ug/kg	ND	500	ND	500
2-Chlorophenol	ug/kg	ND	500	ND	500
1,3-Dichlorobenzene	ug/kg	ND	500	ND	500
1,4-Dichlorobenzene	ug/kg	ND	500	ND	500
1,2-Dichlorobenzene	ug/kg	ND	500	ND	500
N-Nitroso-Di-N- Propylamine	ug/kg	ND	500	ND	500
Hexachloroethane	ug/kg	ND	500	ND	500
Nitrobenzene	ug/kg	ND	500	ND	500
Isophorone	ug/kg	ND	500	ND	500
2-Nitrophenol	ug/kg	ND	500	ND	500
2,4-Dimethylphenol	ug/kg	ND	500	ND	500
Bis(-2-Chloroethoxy) Methane	ug/kg	ND	500	ND	500
2,4-Dichlorophenol	ug/kg	ND	500	ND	500
1,2,4-Trichlorobenzene	ug/kg	ND	500	ND	500
Naphthalene	ug/kg	ND	500	ND	500

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NO.: 9552
 DATE SAMPLED: 1/28/91
 DATE RECEIVED: 1/28/91
 DATE EXTRACTED: 2/11/91
 DATE ANALYZED: 2/13/91
 DATE REPORTED: 2/20/91
 PAGE: Five

Method and Constituent:	Sample Type: Soil		Method Blank		
	Units	Composite of S-1 and S-2		Reporting Limit	
		Concen- tration	Reporting Limit		Concen- tration
EPA Method 8270 (Continued):					
Hexachlorobutadiene	ug/kg	ND	500	ND	500
4-Chloro-3-Methyl- phenol	ug/kg	ND	500	ND	500
Hexachlorocyclo- pentadiene	ug/kg	ND	500	ND	500
2,4,6-Trichlorophenol	ug/kg	ND	500	ND	500
2-Chloronaphthalene	ug/kg	ND	500	ND	500
Dimethyl Phthalate	ug/kg	ND	500	ND	500
Acenaphthylene	ug/kg	ND	500	ND	500
Acenaphthene	ug/kg	ND	500	ND	500
2,4-Dinitrophenol	ug/kg	ND	500	ND	500
4-Nitrophenol	ug/kg	ND	500	ND	500
2,4-Dinitrotoluene	ug/kg	ND	500	ND	500
2,6-Dinitrotoluene	ug/kg	ND	500	ND	500
Diethylphthalate	ug/kg	ND	500	ND	500
4-Chlorophenylphenyl Ether	ug/kg	ND	500	ND	500
Fluorene	ug/kg	ND	500	ND	500
N-Nitrosodiphenylamine	ug/kg	ND	500	ND	500
4-Bromophenylphenyl Ether	ug/kg	ND	500	ND	500
Hexachlorobenzene	ug/kg	ND	500	ND	500
Pentachlorophenol	ug/kg	ND	500	ND	500
Phenanthrene	ug/kg	ND	500	ND	500
Anthracene	ug/kg	ND	500	ND	500
Di-N-Butylphthalate	ug/kg	ND	500	ND	500
Fluoranthene	ug/kg	ND	500	ND	500

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NO.: 9552
 DATE SAMPLED: 1/28/91
 DATE RECEIVED: 1/28/91
 DATE EXTRACTED: 2/11/91
 DATE ANALYZED: 2/13/91
 DATE REPORTED: 2/20/91
 PAGE: Six

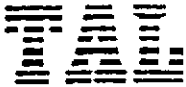
<u>Method and Constituent:</u>	<u>Units</u>	<u>Sample Type: Soil</u>			
		<u>Composite of S-1 and S-2</u>		<u>Method Blank</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>
EPA Method 8270 (Continued):					
Benzidine	ug/kg	ND	500	ND	500
Pyrene	ug/kg	ND	500	ND	500
Butylbenzylphthalate	ug/kg	ND	500	ND	500
3,3'-Dichlorobenzidine	ug/kg	ND	500	ND	500
Benzo(a)Anthracene	ug/kg	ND	500	ND	500
Bis(2-Ethylhexyl) Phthalate	ug/kg	ND	500	ND	500
Chrysene	ug/kg	ND	500	ND	500
Di-N-Octyl Phthalate	ug/kg	ND	500	ND	500
Benzo(b)Fluoranthene	ug/kg	ND	500	ND	500
Benzo(k)Fluoranthene	ug/kg	ND	500	ND	500
Benzo(a)Pyrene	ug/kg	ND	500	ND	500
Indeno(1,2,3-cd)Pyrene	ug/kg	ND	500	ND	500
Dibenzo(a,h)Anthracene	ug/kg	ND	500	ND	500
Benzo(g,h,i)Perylene	ug/kg	ND	500	ND	500
<u>QC Summary:</u>					
% Recoveries					
Pentafluorophenol			65		151
4-fluoroaniline			107		155
Decafluorobiphenyl			146		60

Concentrations reported as ND were not detected at or above the reporting limit.

Trace Analysis Laboratory, Inc.

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Facsimile (415) 783-1512



LOG NO.: 9552
DATE SAMPLED: 1/28/91
DATE RECEIVED: 1/28/91
DATE EXTRACTED: 1/29/91
DATE ANALYZED: 1/30/91
DATE REPORTED: 2/20/91

CUSTOMER: Crosby and Overton, Inc.
REQUESTER: Dave Sadoff
PROJECT: No. 8010-H, City of San Leandro

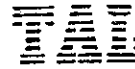
Method and Constituent:	Units	Sample Type: Soil			
		Composite of S-1 and S-2		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8080 for PCB:					
Aroclor 1016	ug/kg	ND	5	ND	5
Aroclor 1221	ug/kg	ND	5	ND	5
Aroclor 1232	ug/kg	ND	5	ND	5
Aroclor 1242	ug/kg	ND	5	ND	5
Aroclor 1248	ug/kg	ND	5	ND	5
Aroclor 1254	ug/kg	270	5	ND	5
Aroclor 1260	ug/kg	ND	5	ND	5

Concentrations reported as ND were not detected at or above the reporting limit.

QC Summary:

% Recovery: The spiked sample was too highly concentrated to recover the spike.
The lab control sample recovery was 125 %.

% RPD: 7.3 %



LOG NO.: 9552
DATE SAMPLED: 1/28/91
DATE RECEIVED: 1/28/91
DATE EXTRACTED: 2/05/91
DATE ANALYZED: 2/05/91
DATE REPORTED: 2/20/91
PAGE: Seven

Sample Type: Soil

Composite of
S-1 and S-2

Method and
Constituent:

Units

Concen-
tration

Reporting
Limit

EPA Method 1010:
Flashpoint

°F

> 150

150

Louis W. DuPuis

Quality Assurance/Quality Control Manager

APPENDIX B
LABORATORY DATA SHEETS FOR
CONFIRMING SAMPLES

Trace Analysis Laboratory, Inc.

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Telephone (415) 783-6960
Facsimile (415) 783-1512



LOG NO.: 1041
DATE SAMPLED: 6/18/91
DATE RECEIVED: 6/18/91
DATE EXTRACTED: 6/28/91
DATE ANALYZED: 7/2/91
DATE REPORTED: 7/3/91

CUSTOMER: San Leandro Fire Department
REQUESTER: Mike Bakaldin
PROJECT: San Leandro Marina Center

Sample Type: Soil

<u>Method and Constituent</u>	<u>Units</u>	<u>1: North Center Side of Pit</u>		<u>2: Center of Pit</u>		<u>3: Northwest Side of Pit</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>

Standard Method 5520F, Hydrocarbons:

Oil and Grease	mg/kg	ND	50	ND	50	ND	50
----------------	-------	----	----	----	----	----	----

<u>Method and Constituent</u>	<u>Units</u>	<u>4: Northeast Side of Pit</u>		<u>5: West Side of Pit</u>		<u>6: East Side of Pit</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>

Standard Method 5520F, Hydrocarbons:

Oil and Grease	mg/kg	1,200	50	ND	50	ND	50
----------------	-------	-------	----	----	----	----	----

<u>Method and Constituent</u>	<u>Units</u>	<u>7: Southwest Side of Pit</u>		<u>8: Southeast Side of Pit</u>		<u>9: West Side of Hole</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>

Standard Method 5520F, Hydrocarbons:

Oil and Grease	mg/kg	ND	50	ND	50	1,000	50
----------------	-------	----	----	----	----	-------	----

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NO.: 1041
 DATE SAMPLED: 6/18/91
 DATE RECEIVED: 6/18/91
 DATE EXTRACTED: 6/28/91
 DATE ANALYZED: 7/2/91
 DATE REPORTED: 7/3/91
 PAGE: Two

Sample Type: Soil

10: East Side
 of Hole

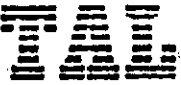
Method Blank

Method and Constituent	Units	10: East Side of Hole		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
Standard Method 5520F, Hydrocarbons:					
Oil and Grease	ug/kg	68	50	ND	50

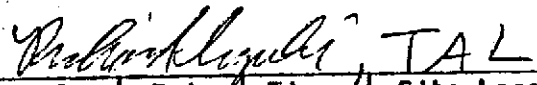



QC Summary

%Recovery: 73.7
 % RPD: 5.9

Louis W. DuPuis
 Quality Assurance/Quality Control Manager



CHAIN OF CUSTODY RECORD

Proj.No.		Project Name		No. of Containers	O ₅₆ will call for method	1041
		San Leandro Marina Center				
Samplers: (signature)		 TAL				
Sample ID	Date	Time	Site Location			
#1	6/18			X		
#2				X		
#3				X		
#4				X		Res TAT
#5				X		
#6				X		
#7				X		
#8				X		
#9				X		
#10	↓			X		1 BTen ice
Relinquished by: (signature)			Date/Time	Received by: (signature)		Date/Time
			6/18/91			
Relinquished by: (signature)			Date/Time	Received by: (signature)		Date/Time
Received for Laboratory by: (signature)					Date/Time	
REMARKS						
 Taken at 10:00 am						

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

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Facsimile (415) 783-1512



LOG NO.: 1132
DATE SAMPLED: 7/22/91
DATE RECEIVED: 7/22/91
DATE EXTRACTED: 7/25/91
DATE ANALYZED: 7/27/91
DATE REPORTED: 8/6/91

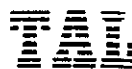
CUSTOMER: San Leandro Fire Department
REQUESTER: Michael Bakaldin
PROJECT: San Leandro Marina Center

Sample Type: Soil

<u>Method and Constituent</u>	<u>Units</u>	<u>No. 11</u>		<u>No. 12</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>
Standard Method 5520F, Hydrocarbons:					
Oil and Grease	ug/kg	ND	50,000	ND	50,000

<u>Method and Constituent</u>	<u>Units</u>	<u>No. 13</u>		<u>No. 14</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>	<u>Concen- tration</u>	<u>Reporting Limit</u>
Standard Method 5520F, Hydrocarbons:					
Oil and Grease	ug/kg	ND	50,000	ND	50,000

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NO.: 1132
DATE SAMPLED: 7/22/91
DATE RECEIVED: 7/22/91
DATE EXTRACTED: 7/25/91
DATE ANALYZED: 7/27/91
DATE REPORTED: 8/06/91
PAGE: Two

Sample Type: Soil

<u>Method and Constituent</u>	<u>Units</u>	<u>Method Blank</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>
Standard Method 5520F, Hydrocarbons: Oil and Grease	ug/kg	ND	50,000

QC Summary:

% Recovery: 64
% RPD: 5.9

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

Trace Analysis Laboratory, Inc.

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Facsimile (415) 783-1512



CHAIN OF CUSTODY RECORD

Proj. No.		Project Name		No. of Containers	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> SOIL 5520/046 1132 </div>			
Samplers: (signature) <i>Robert J. Barnett Jr. TAC</i> <i>Robert J. Barnett Jr.</i>								
Sample ID	Date	Time	Site Location					
#11	7/22/91	12:30PM	2nd Pit	1-BT	X			at 30"
#12	7/22/91	12:34PM	"	1-BT	X			at 30" REC
#13	7/22/91	12:42PM	1st Pit	1-BT	X			at 62" TAC
#14	7/22/91	12:45PM	"	1-BT	X			at 64"
								BT-Blue Ice
								Y-5 CN
Relinquished by: (signature)			Date/Time	Received by: (signature)			Date/Time	
Relinquished by: (signature)			Date/Time	Received by: (signature)			Date/Time	
Received for Laboratory by: (signature)							Date/Time	
REMARKS								

CERTIFICATE

Remediation of Hydrocarbon Contaminated Soils

Supplier: Soil Tech Eng.

Generator: City of San Leandro
Civic Center
835 E. 14th Street
San Leandro, CA 94577

Certificate Number: 044
Dated: Sept. 30, 1991
Lot #000146

PORT COSTA MATERIALS, INC., a California corporation ("Company"), located at and the operator of the above "Facility" hereby certifies as follows:

1. The Company has received from the above "Generator" (City of San Leandro), 82.28 tons of hydrocarbon contaminated soil ("HC Soil") as transported by or on behalf of Generator by Mike's Backhoe, contracted through Mike's Backhoe to such facility, and referred to as lot number 000146, which HC Soil was received at the Facility on June 18 and July 22, 1991, (as part of a shipment consisting of 82.28 tons in total). The Company operates its Facility and processes such HC Soil pursuant to permits issued by applicable governmental authorities.
2. In receiving and processing the HC Soil and in providing this Certificate, the Company has relied upon and is relying on (a) the representation of the Generator that the HC Soil does not contain any materials classified as, and is not classified as, "hazardous waste" under the applicable provisions of the Federal and California law and has been managed and may be treated as other than "hazardous waste" and (b) the Generator has independent written certifications from applicable governmental agencies or certified independent testing laboratories that the HC Soil does not contain any materials classified as, and is not classified as, "hazardous waste" under said applicable law.
3. The HC Soil has been treated by being introduced into the manufacturing process at the Facility (in which it may be blended with a mixture of natural shale) feeding into a rotary kiln in which at high temperature the contaminants are consumed by thermal processing and inert materials are produced. The HC Soil was processed in this manner during the period June 25, 1991 and July 25, 1991, and all of the HC Soil covered by this Certificate was completely processed on July 25, 1991. In the treatment of the HC Soil, releases and emissions have been in accordance with the requirements of the applicable operating permits of the Facility.
4. Upon completion of the treatment, the HC Soil has been remediated, and the end product is an inert substance which does not constitute a "hazardous waste" under the applicable provisions of the Federal and California law.
5. The Company shall indemnify, defend and hold harmless the Generator from and against any enforcement actions by any governmental authority in the event that any of the representations by the Company set forth in this Certificate are materially inaccurate.

This Certificate is executed on this 29th Day of September, 1991

PORT COSTA MATERIALS, INC.

By: _____

G. W. Ogden
Vice President Operations

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20089

CLIENT: Port Costa Materials

CLIENT JOB NO.:

DATE RECEIVED: 07/22/91

DATE REPORTED: 07/29/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015


LAB #	Sample Identification	Concentration (mg/kg)	
		Gasoline Range	Diesel Range
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19	0625910400	ND<10	ND<10
20	0625912000	ND<10	ND<10
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			

Method Detection Limit for Gasoline and Diesel in Soil: 10 mg/Kg
QAQC Summary: Daily Standard run at 200 mg/L : RPD Gasoline = 1

RPD Diesel = 1

MS/MSD Average Recovery = 103 %: Duplicate RPD = 2

Richard Srna, Ph.D


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20089

CLIENT: Port Costa Materials

CLIENT JOB NO.:

DATE RECEIVED: 07/22/91


DATE REPORTED: 07/27/91

ANALYSIS FOR TOTAL OIL AND GREASE
by Standard Method 5520F

LAB #	Sample Identification	Concentration (mkg/Kg) Oil & Grease
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19	0625910400	
20	0625912000	ND<50
21		ND<50
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Method Detection Limit for Oil and Grease in Soil. 50mg/Kg
QAQC Summary: Duplicate RPD :3

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

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DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20101
CLIENT: Port Costa Materials
CLIENT JOB NO.:

DATE RECEIVED: 07/31/91
DATE REPORTED: 08/06/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/kg)	
		Gasoline Range	Diesel Range
16	072591 0400	ND<10	ND<10
17	072591 0800	ND<10	ND<10
18	072591 1200	ND<10	ND<10
19	072591 2000	ND<10	ND<10
20	072591 2400	ND<10	ND<10

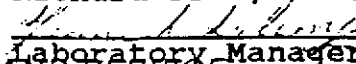
mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline and Diesel in Soil: 10 mg/Kg

Daily Standard run at 200mg/L: RPD Gasoline =15 ,RPD Diesel=12

MS/MSD Average Recovery =99 %: Duplicate RPD =0

Richard Srna, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20101
CLIENT: Port Costa Materials

DATE RECEIVED: 07/31/91
DATE REPORTED: 08/06/91

ANALYSIS FOR TOTAL OIL AND GREASE by Standard Method 5520F

LAB #	Sample Identification	Concentration (mg/kg) Oil & Grease
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16	072591 0400	ND<50
17	072591 0800	ND<50
18	072591 1200	ND<50
19	072591 2000	ND<50
20	072591 2400	ND<50
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

mg/kg - parts per million (ppm)

Method Detection Limit for Oil and Grease in Soil: 50mg/Kg

QAQC Summary: Duplicate RPD : 0

Richard Srna, Ph.D.

Richard Srna
Laboratory Director

OUTSTANDING QUALITY AND SERVICE