

File No. 8-93-558-ST

436-4700

REMEDIAL EXCAVATION ACTIVITIES
AND SOIL SAMPLING AT THE PROPERTY
LOCATED AT 2951 HIGH STREET
OAKLAND, CALIFORNIA
DECEMBER 15, 1993

PREPARED FOR:
MR. MOHAMMAD MASHHOON
ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA 94619

BY:
SOIL TECH ENGINEERING, INC.
298 BROKAW ROAD
SANTA CLARA, CALIFORNIA 95050

SOIL TECH ENGINEERING, INC.

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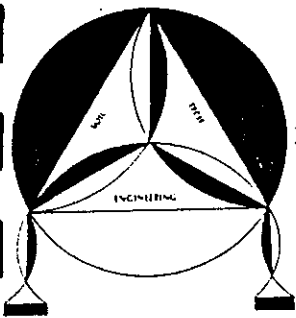
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SOIL TECH ENGINEERING, INC.

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SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

December 15, 1993

File No. 8-93-558-ST

Mr. Mohammad Mashhoon
Zima Center Corporation
2951 High Street
Oakland, California 94619

SUBJECT: REMEDIAL EXCAVATION ACTIVITIES AND
SOIL SAMPLING AT THE PROPERTY
Located at 2951 High Street, in
Oakland, California

Dear Mr. Mashhoon:

The following report describes remedial excavation activities and analytical results for soil samples collected on October 15, 1993, at the property located at 2951 High Street, in Oakland, California (Figure 1). This work was conducted by Soil Tech Engineering, Inc. (STE) in response to a request from Ms. Juliet Shin of Alameda County Department of Environmental Health-Hazardous Material Division (ACDEH-HMD) in a letter dated October 15, 1993.

BACKGROUND:

The site is located at the intersection of Penniman Avenue and High Street, in Oakland, California. The site is currently used as a gasoline service station. In September 1993, Alpha Geo Services removed one 300 gallon waste oil tank which was properly manifested and transported to H&H Environmental Services Company in San

Francisco. Soil Tech Engineering, Inc. (STE) was retained by Zima Center Corporation to conduct soil sampling below the former waste oil tank area. Two soil samples were collected, one from tank excavation at approximately 9 feet below grade, and the other from the excavated stockpiled soil. All sampling was conducted under the supervision of Alameda County Health Department inspector Mr. Barney Chan. Soil samples from the waste oil tank excavation did detect a moderate level of Total Petroleum Hydrocarbons and very low levels of Trichloroethane and tetrachloroethane. The detail of the soil sampling is described in the STE's report dated September 30, 1993.

FIELD ACTIVITIES:

The primary objective of remedial activities for the site was to excavate contaminated soil from the former waste oil tank area to extent practical (Figure 2). This objective was based on the results of the initial soil sampling and discussion with the Alameda County Environmental Health Department (Ms. Juliet Shin).

Remedial activities conducted on October 14 and 15, 1993, included the excavation of approximately 30 cubic yards of soil from the former waste oil tank area and the collection of soil samples from 5 locations (1 floor and 4 sidewall locations) within the excavation to assess the presence of petroleum hydrocarbons (Figure 2).

Excavated soil were placed on the asphalt area and covered with visquine on-site.

SOIL SAMPLING PROCEDURES:

Confirmatory soil samples were collected in clean brass tubes using a hand auger. After collecting the desired soil samples, the soil sample tubes were capped, labeled and taken directly to a state-certified laboratory for analysis.

Soil samples also were collected from the stockpile for waste characterization for subsequent disposal. Soil samples were collected from the stockpile by using a hand auger and placed into clean soil sampling tubes, labeled and placed into a chilled cooler for transportation to the laboratory under strict chain-of-custody protocol.

LABORATORY ANALYSES:

Soil samples collected from the excavation on October 15, 1993, were submitted to Argon Mobile Labs, in Ceres, California (a state-certified laboratory), and analyzed for TPHd and TPHg using EPA Methods 3550/TPH-LUFT and 5030/8015, BTEX using EPA Method 8020, Halogenated Volatile Organic per EPA Method 8010 and Metals per CAM 5/EPA Method 6010. Analytical laboratory reports are included in Appendix "C".

Soil samples collected from the stockpile were also submitted to Argon Mobile Labs for analyzed TPHd, TPHg, BTEX, TOG, VOC's and selected metals. Analytical laboratory reports are included in Appendix "C".

ANALYTICAL RESULTS:

TPH as diesel was not present above analytical detection limits in all five soil samples from the tank excavation areas, and the stockpiled soil. Low levels of TPH as gasoline was detected (less than 3.0 mg/Kg) in three out of five soil samples taken from the tank excavation and stockpiled soil.

Low levels of BTEX compounds were detected in some of the sidewall samples and stockpiled soil. The maximum concentration was 0.018 mg/Kg for Total Xylenes in sample #S-4-6 and 0.028 mg/Kg in stockpiled soil samples. The bottom sample detected no BTEX.

Moderate level of Chromium, Nickel and Zinc were detected in the soil samples from the tank excavation and stockpiled soil. The STLC concentration for Chromium was 0.67 parts per million (ppm). *etc*

Only one Halogenated Volatile Organic Compound, Tetrachloroethylene, was detected in four of the six soil samples. The concentration ranged from 0.005 ppm to a maximum of 0.042 ppm. TOG levels ranged from non-detected to a maximum of 3,700 ppm.

Analytical results for TPH, BTEX, TOG, Metals and VOC's are summarized in Table 1, Table 2 and Table 3, respectively, and attached in Appendix "A".

DISCUSSION:

Analytical results for soil samples collected from the side-walls and bottom of the excavation indicated that the majority of

petroleum-affected soil with concentrations of TPHd and TPHg has been removed from the vicinity of waste oil tank. Concentrations of TOG greater than 100 ppm still are present along the north and east sidewalls of the excavation.

The apparently small amount of petroleum-affected soil remaining in the former waste oil tank area is not likely to cause further degradation of groundwater beneath the site. In fact, placing of asphaltic pavement over the former waste oil tank location will reduce the infiltration of rainfall into affected residual sediments. However, potential threat must be considered due to the fluctuation of seasonal groundwater and remaining of contaminated soil left in place.

RECOMMENDATIONS:

STE recommends installation of one monitoring well to assure that the shallow groundwater has not been impacted. No further excavation is necessary at this time unless required by the regulatory agencies. The proposed well should be installed in the vicinity of the former waste oil tank area. The location of proposed monitoring well is shown on Figure 2.

Based on the analytical results of soil samples from the stockpiled soil, the materials can be disposed to an approved Class III landfill.

LIMITATIONS AND UNIFORMITY OF CONDITIONS:

Any recommendations that were made in this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings.

The findings of this report are based on the results of an independent laboratory and are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man, on this property or adjacent properties.

This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are called to the attention of the Local Environmental Agency.

It has been our pleasure to be of service to you on this project. If you have any questions or require additional information, please feel free to contact our office at your convenience.

Sincerely,

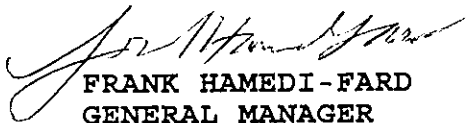
SOIL TECH ENGINEERING, INC.



NOORI AMELI
PROJECT ENGINEER



LAWRENCE KOO, P. E.
C. E. #34928



FRANK HAMEDI-FARD
GENERAL MANAGER

File 8-93-558-ST

A P P E N D I X "A"

SOIL TECH ENGINEERING, INC.

TABLE 1
SUMMARY OF SOIL ANALYSIS RESULTS
FOR TPHd, TPHg AND BTEX
IN
PARTS PER MILLION (ppm)

Date	Sample Number	Depth feet	TPHd	TPHg	B	T	E	X
10/15/93	S-1-10	10	ND	1.5	ND	0.008	0.005	0.015
	S-2-9	9	ND	ND	0.012	0.013	ND	0.017
	S-3-7	7	ND	ND	0.014	ND	ND	0.015
	S-4-6	6	ND	2.6	0.013	ND	0.008	0.018
	B-1-13	13	ND	ND	ND	ND	ND	ND
	ST-1,2,3,4	Stock-pile	ND	1.2	ND	ND	ND	0.028

TPHd - Total Petroleum Hydrocarbons as diesel
 TPHg - Total Petroleum Hydrocarbons as gasoline
 BTEX - Benzene, Toluene, Ethylbenzene and Total Xylenes
 ND - Not Detected (Below Laboratory Detection Limit)

TABLE 2
 SUMMARY OF SOIL ANALYSIS RESULTS
 FOR METALS (CAM 5)
 IN
 PARTS PER MILLION (ppm)

Date	Sample Number	Depth feet	Cd	Cr	Pb	Ni	Zn	CAM STLC
10/15/93	S-1-10	10	ND	100	4.5	190	91	NA
	S-2-9	9	ND	77	3.2	230	130	NA
	S-3-7	7	ND	130	4.9	320	110	NA
	S-4-6	6	ND	160	0.3	380	120	0.67
	B-1-13	13	ND	68	1.4	110	180	NA
	ST-1,2,3,4	Stock pile	150	ND	6.6	88	310	NA

*6-STLC
= Spm*

STLC - Soluble Threshold Limit Concentration
 Cd - Cadmium
 Cr - Chromium
 Pb - Lead
 Ni - Nickel
 Zn - Zinc
 NA - Not Analyzed
 ND - Not Detected (Below Laboratory Detection Limit)

TABLE 3
 SUMMARY OF SOIL ANALYSIS RESULTS
 FOR VOC'S AND TOG
 IN
 PARTS PER MILLION (ppm)

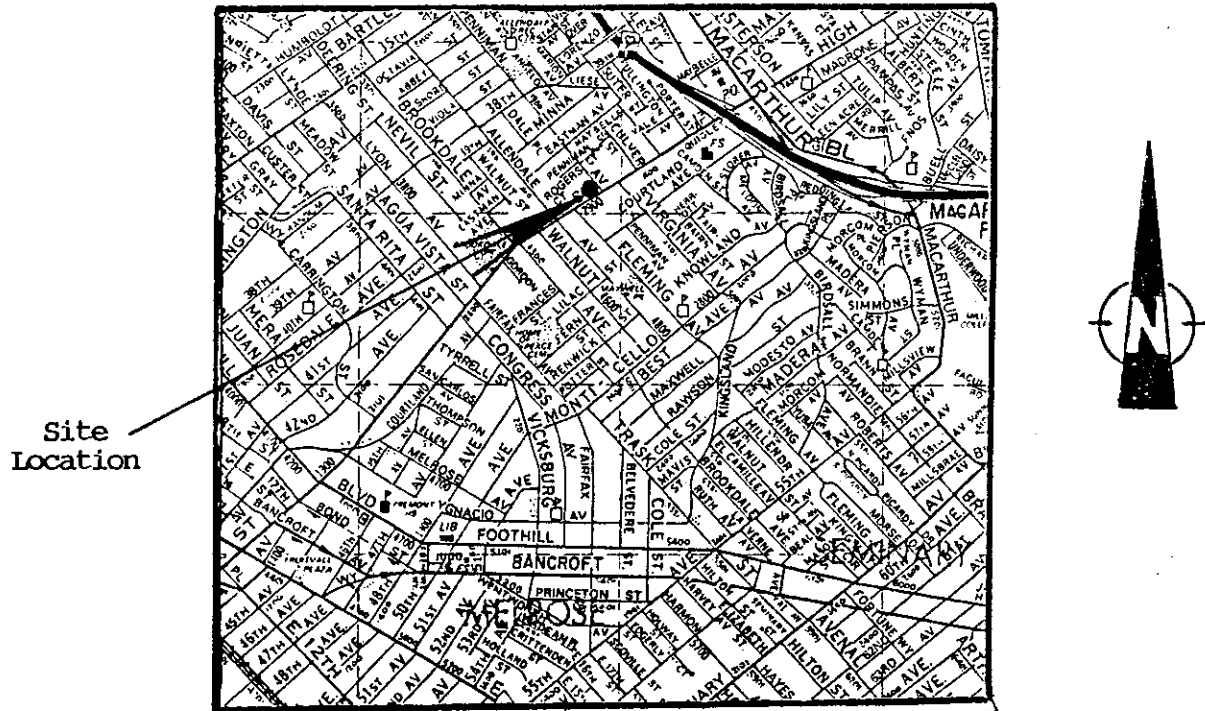
Date	Sample Number	Depth feet	TOG	VOC's Detected
10/15/93	S-1-10	10	120	Tetrachloroethylene 0.005
	S-2-9	9	50	None Detected
	S-3-7	7	ND	Tetrachloroethylene 0.005
	S-4-6	6	3,700	Tetrachloroethylene 0.042
	B-1-13	13	ND	Not Detected
	ST-1,2,3,4	Stock pile	210	Tetrachloroethylene 0.006

VOC's - Volatile Organic Compounds
 TOG - Total Oil & Grease
 ND - Not Detected (Below Laboratory Detection Limit)

File 8-93-558-ST

A P P E N D I X "B"

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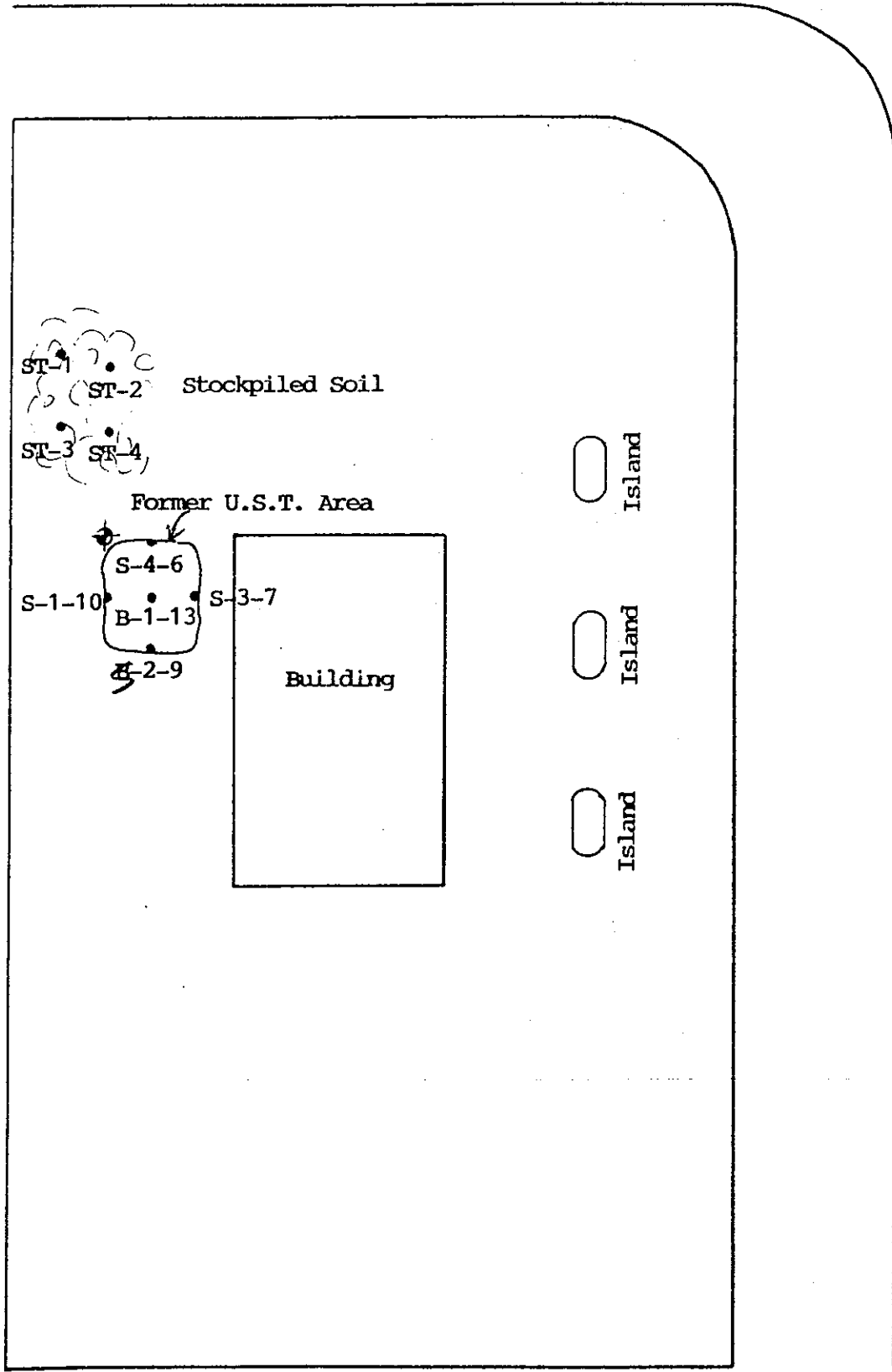
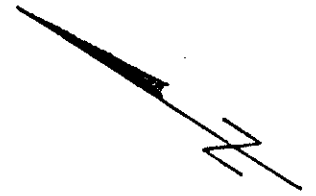


Thomas Brothers Map 1993 Edition
San Francisco, Alameda
and Contra Costa Counties

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Figure 1

PENNIMAN AVENUE



HIGH STREET

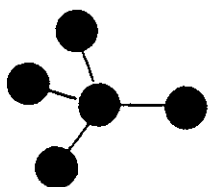
Proposed Monitoring Well

SCALE: 1"=20'

File 8-93-558-ST

A P P E N D I X "C"

SOIL TECH ENGINEERING, INC.



Argon Mobile Labs

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-1-10

Lab Number: T310161
Matrix: Soil

TPH-gas/BTXE

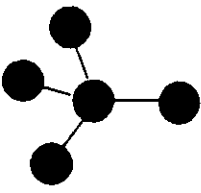
ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	1.5
Benzene	0.005	<0.005
Toluene	0.005	0.008
Xylenes	0.005	0.015
Ethylbenzene	0.005	0.005

QA/QC: Blank is none detected.
100% Surrogate Spike Recovery

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

ARGON MOBILE LABS

Hiram Cueto
Hiram Cueto
Lab Director



Argon Mobile Labs

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-2-9

Lab Number: T310162
Matrix: Soil

TPH-gas/BTXE

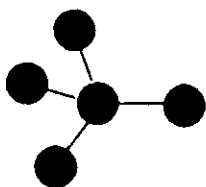
ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.005	0.012
Toluene	0.005	0.013
Xylenes	0.005	0.017
Ethylbenzene	0.005	<0.005

QA/QC: 108% Matrix Spike Recovery
6.6% Duplicate Spike Deviation
112% Surrogate Spike Recovery

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

ARGON MOBILE LABS

Hiram Cueto
Lab Director



Argon Mobile Labs

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SOIL TECH ENGINEERING, INC.
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Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-3-7

Lab Number: T310163
Matrix: Soil

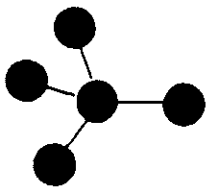
TPH-gas/BTXE

ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.005	0.014
Toluene	0.005	<0.005
Xylenes	0.005	0.015
Ethylbenzene	0.005	<0.005

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

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Lab Director



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SOIL TECH ENGINEERING, INC.
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Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-4-6

Lab Number: T310164
Matrix: Soil

TPH-gas/BTXE

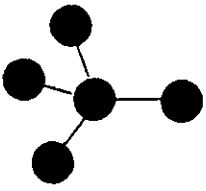
ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	2.6
Benzene	0.005	0.013
Toluene	0.005	<0.005
Xylenes	0.005	0.018
Ethylbenzene	0.005	0.008

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

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Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: B-1-13

Lab Number: T310165
Matrix: Soil

TPH-gas/BTXE

ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	<1.0
Benzene	0.005	<0.005
Toluene	0.005	<0.005
Xylenes	0.005	<0.005
Ethylbenzene	0.005	<0.005

QA/QC: 109% Surrogate Spike Recovery

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

ARGON MOBILE LABS

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Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-1-10

Lab No: T310161
Matrix: Soil

8010 Halogenated Volatile Organics

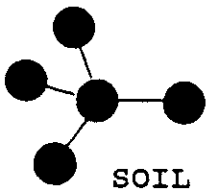
	Det. Lim. (ppm)		Results (ppm)
Bromodichloromethane -----	0.0010	-----	ND
Bromoform -----	0.0020	-----	ND
Bromomethane -----	0.0008	-----	ND
Carbon Tetrachloride -----	0.0012	-----	ND
Chlorobenzene -----	0.0025	-----	ND
Chloroethane -----	0.0052	-----	ND
Chloroform -----	0.0005	-----	ND
2-Chloroethylvinyl ether -----	0.0013	-----	ND
Chloromethane -----	0.0008	-----	ND
Dibromochloromethane -----	0.0009	-----	ND
Dibromomethane -----	0.0009	-----	ND
1,2-Dichlorobenzene -----	0.0015	-----	ND
1,3-Dichlorobenzene -----	0.0032	-----	ND
1,4-Dichlorobenzene -----	0.0024	-----	ND
Dichlorodifluoromethane -----	0.0020	-----	ND
1,1-Dichloroethane -----	0.0007	-----	ND
1,2-Dichloroethane -----	0.0003	-----	ND
1,1-Dichloroethylene -----	0.0013	-----	ND
t-1,2-Dichloroethylene -----	0.0010	-----	ND
Dichloromethane -----	0.0050	-----	ND
1,2-Dichloropropane -----	0.0040	-----	ND
t-1,3-Dichloropropylene -----	0.0034	-----	ND
1,1,2,2-Tetrachloroethane -----	0.0003	-----	ND
1,1,1,2-Tetrachloroethane -----	0.0003	-----	ND
Tetrachloroethylene -----	0.0003	-----	0.005
1,1,1-Trichloroethane -----	0.0003	-----	ND
1,1,2-Trichloroethane -----	0.0002	-----	ND
Trichloroethylene -----	0.0012	-----	ND
Trichlorofluoromethane -----	0.0030	-----	ND
Trichloropropane -----	0.0030	-----	ND
Vinyl Chloride -----	0.0018	-----	ND

103% Surrogate Spike Recovery 2-Bromo-1-Chloropropane

Note: ppm = mg/Kg

Argon Mobile Labs

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298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-2-9

Lab No: T310162
Matrix: Soil

8010 Halogenated Volatile Organics

	Det. Lim. (ppm)	Results (ppm)
Bromodichloromethane -----	0.0010	ND
Bromoform -----	0.0020	ND
Bromomethane -----	0.0008	ND
Carbon Tetrachloride -----	0.0012	ND
Chlorobenzene -----	0.0025	ND
Chloroethane -----	0.0052	ND
Chloroform -----	0.0005	ND
2-Chloroethylvinyl ether -----	0.0013	ND
Chloromethane -----	0.0008	ND
Dibromochloromethane -----	0.0009	ND
Dibromomethane -----	0.0009	ND
1,2-Dichlorobenzene -----	0.0015	ND
1,3-Dichlorobenzene -----	0.0032	ND
1,4-Dichlorobenzene -----	0.0024	ND
Dichlorodifluoromethane -----	0.0020	ND
1,1-Dichloroethane -----	0.0007	ND
1,2-Dichloroethane -----	0.0003	ND
1,1-Dichloroethylene -----	0.0013	ND
t-1,2-Dichloroethylene -----	0.0010	ND
Dichloromethane -----	0.0050	ND
1,2-Dichloropropane -----	0.0040	ND
t-1,3-Dichloropropylene -----	0.0034	ND
1,1,2,2-Tetrachloroethane -----	0.0003	ND
1,1,1,2-Tetrachloroethane -----	0.0003	ND
Tetrachloroethylene -----	0.0003	ND
1,1,1-Trichloroethane -----	0.0003	ND
1,1,2-Trichloroethane -----	0.0002	ND
Trichloroethylene -----	0.0012	ND
Trichlorofluoromethane -----	0.0030	ND
Trichloropropane -----	0.0030	ND
Vinyl Chloride -----	0.0018	ND

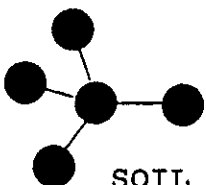
102% Surrogate Spike Recovery 2-Bromo-1-Chloropropane

Note: ppm = mg/Kg

Argon Mobile Labs

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Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-3-7

Lab No: T310163
Matrix: Soil

8010 Halogenated Volatile Organics

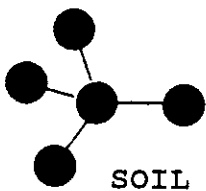
	Det. Lim. (ppm)	Results (ppm)
Bromodichloromethane -----	0.0010	ND
Bromoform -----	0.0020	ND
Bromomethane -----	0.0008	ND
Carbon Tetrachloride -----	0.0012	ND
Chlorobenzene -----	0.0025	ND
Chloroethane -----	0.0052	ND
Chloroform -----	0.0005	ND
2-Chloroethylvinyl ether -----	0.0013	ND
Chloromethane -----	0.0008	ND
Dibromochloromethane -----	0.0009	ND
Dibromomethane -----	0.0009	ND
1,2-Dichlorobenzene -----	0.0015	ND
1,3-Dichlorobenzene -----	0.0032	ND
1,4-Dichlorobenzene -----	0.0024	ND
Dichlorodifluoromethane -----	0.0020	ND
1,1-Dichloroethane -----	0.0007	ND
1,2-Dichloroethane -----	0.0003	ND
1,1-Dichloroethylene -----	0.0013	ND
t-1,2-Dichloroethylene -----	0.0010	ND
Dichloromethane -----	0.0050	ND
1,2-Dichloropropane -----	0.0040	ND
t-1,3-Dichloropropylene -----	0.0034	ND
1,1,2,2-Tetrachloroethane -----	0.0003	ND
1,1,1,2-Tetrachloroethane -----	0.0003	ND
Tetrachloroethylene -----	0.0003	0.005
1,1,1-Trichloroethane -----	0.0003	ND
1,1,2-Trichloroethane -----	0.0002	ND
Trichloroethylene -----	0.0012	ND
Trichlorofluoromethane -----	0.0030	ND
Trichloropropane -----	0.0030	ND
Vinyl Chloride -----	0.0018	ND

113% Surrogate Spike Recovery 2-Bromo-1-Chloropropane

Note: ppm = mg/Kg

Argon Mobile Labs

Hiram Cueto
Hiram Cueto
Lab Director



Argon Mobile Labs

3008 McKittrick Ct., Suite N • Ceres, CA 95307 • (209) 537-7836

SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: S-4-6

Lab No: T310164
Matrix: Soil

8010 Halogenated Volatile Organics

	Det. Lim. (ppm)	Results (ppm)
Bromodichloromethane -----	0.0010	ND
Bromoform -----	0.0020	ND
Bromomethane -----	0.0008	ND
Carbon Tetrachloride -----	0.0012	ND
Chlorobenzene -----	0.0025	ND
Chloroethane -----	0.0052	ND
Chloroform -----	0.0005	ND
2-Chloroethylvinyl ether -----	0.0013	ND
Chloromethane -----	0.0008	ND
Dibromochloromethane -----	0.0009	ND
Dibromomethane -----	0.0009	ND
1,2-Dichlorobenzene -----	0.0015	ND
1,3-Dichlorobenzene -----	0.0032	ND
1,4-Dichlorobenzene -----	0.0024	ND
Dichlorodifluoromethane -----	0.0020	ND
1,1-Dichloroethane -----	0.0007	ND
1,2-Dichloroethane -----	0.0003	ND
1,1-Dichloroethylene -----	0.0013	ND
t-1,2-Dichloroethylene -----	0.0010	ND
Dichloromethane -----	0.0050	ND
1,2-Dichloropropane -----	0.0040	ND
t-1,3-Dichloropropylene -----	0.0034	ND
1,1,2,2-Tetrachloroethane -----	0.0003	ND
1,1,1,2-Tetrachloroethane -----	0.0003	ND
Tetrachloroethylene -----	0.0003	0.042
1,1,1-Trichloroethane -----	0.0003	ND
1,1,2-Trichloroethane -----	0.0002	ND
Trichloroethylene -----	0.0012	ND
Trichlorofluoromethane -----	0.0030	ND
Trichloropropane -----	0.0030	ND
Vinyl Chloride -----	0.0018	ND

91% Surrogate Spike Recovery 2-Bromo-1-Chloropropane

Note: ppm = mg/Kg

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Lab Director

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: B-1-13

Lab No: T310165
Matrix: Soil

8010 Halogenated Volatile Organics

	Det. Lim. (ppm)	Results (ppm)
Bromodichloromethane -----	0.0010	ND
Bromoform -----	0.0020	ND
Bromomethane -----	0.0008	ND
Carbon Tetrachloride -----	0.0012	ND
Chlorobenzene -----	0.0025	ND
Chloroethane -----	0.0052	ND
Chloroform -----	0.0005	ND
2-Chloroethylvinyl ether -----	0.0013	ND
Chloromethane -----	0.0008	ND
Dibromochloromethane -----	0.0009	ND
Dibromomethane -----	0.0009	ND
1,2-Dichlorobenzene -----	0.0015	ND
1,3-Dichlorobenzene -----	0.0032	ND
1,4-Dichlorobenzene -----	0.0024	ND
Dichlorodifluoromethane -----	0.0020	ND
1,1-Dichloroethane -----	0.0007	ND
1,2-Dichloroethane -----	0.0003	ND
1,1-Dichloroethylene -----	0.0013	ND
t-1,2-Dichloroethylene -----	0.0010	ND
Dichloromethane -----	0.0050	ND
1,2-Dichloropropane -----	0.0040	ND
t-1,3-Dichloropropylene -----	0.0034	ND
1,1,2,2-Tetrachloroethane -----	0.0003	ND
1,1,1,2-Tetrachloroethane -----	0.0003	ND
Tetrachloroethylene -----	0.0003	ND
1,1,1-Trichloroethane -----	0.0003	ND
1,1,2-Trichloroethane -----	0.0002	ND
Trichloroethylene -----	0.0012	ND
Trichlorofluoromethane -----	0.0030	ND
Trichloropropane -----	0.0030	ND
Vinyl Chloride -----	0.0018	ND

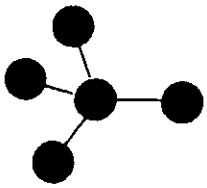
108% Surrogate Spike Recovery 2-Bromo-1-Chloropropane

Note: ppm = mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST

Matrix: Soil

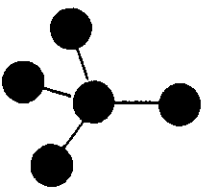
Sample ID: S-1-10

Lab No: T310161

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	100	0.25	mg/Kg
Lead (Pb)	4.5	0.25	mg/Kg
Nickel (Ni)	190	1.0	mg/Kg
Zinc (Zn)	91	0.25	mg/Kg

ARGON MOBILE LABS

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST

Matrix: Soil

Sample ID: S-2-9

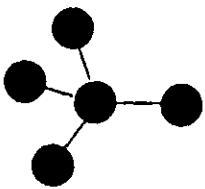
Lab No: T310162

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	77	0.25	mg/Kg
Lead (Pb)	3.2	0.25	mg/Kg
Nickel (Ni)	230	1.0	mg/Kg
Zinc (Zn)	130	0.25	mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST

Matrix: Soil

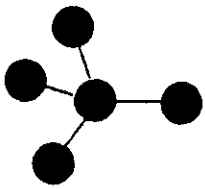
Sample ID: S-3-7

Lab No: T310163

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	130	0.25	mg/Kg
Lead (Pb)	4.9	0.25	mg/Kg
Nickel (Ni)	320	1.0	mg/Kg
Zinc (Zn)	110	0.25	mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST

Matrix: Soil

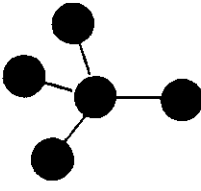
Sample ID: S-4-6

Lab No: T310164

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	160	0.25	mg/Kg
Lead (Pb)	0.3	0.25	mg/Kg
Nickel (Ni)	380	1.0	mg/Kg
Zinc (Zn)	120	0.25	mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST
Sample ID: B-1-13

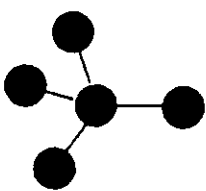
Matrix: Soil
Lab No: T310165

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	68	0.25	mg/Kg
Lead (Pb)	1.4	0.25	mg/Kg
Nickel (Ni)	110	1.0	mg/Kg
Zinc (Zn)	180	0.25	mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 11/01/93

Project ID: 8-93-558-ST

Matrix: Soil

Sample ID: S-4-6

Lab ID: T310164

CAM STLC
EPA Method : WET

Name	Detection Limit	Results
	ppm	ppm
Chromium (Cr)	0.010	0.67

STLC = Spm

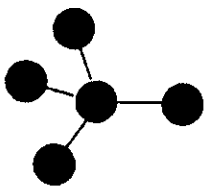
QA/QC: 66% Matrix Spike Recovery
80% Laboratory Control Spike Recovery

Note: ppm = mg/L

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SOIL TECH ENGINEERING, INC
298 Brokaw Rd.
Santa Clara CA. 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/21/93

Project ID: 8-93-558-ST

Matrix: Soil

Sample Number -----	Sample Description -----	TPH-Diesel	Total Petroleum Hydrocarbons as Diesel
		Detection Limit ----- ppm	----- ppm
T310161	S-1-10	5.0	<5.0
T310162	S-2-9	5.0	<5.0
T310163	S-3-7	5.0	<5.0
T310164	S-4-6	5.0	<5.0 (*)
T310165	B-1-13	5.0	<5.0
T310166	ST(1,2,3,4)	5.0	<5.0

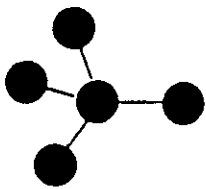
QA/QC: Blank is none detected.
88% Spike Recovery T310161
1.0% Duplicate Spike Deviation

(*) = A hydrocarbon mixture lighter than diesel was detected
in this sample. Possibly paint thinner.

Note: Analysis was performed by EPA methods 3550/TPH-LUFT
ppm = mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/22/93

Project ID: 8-93-558-ST

Matrix: Soil

TOTAL OIL & GREASE

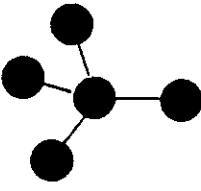
Sample Number -----	Sample Description -----	Detection Limit -----	Gravimetric Waste Oil as Petroleum Oil -----
		ppm	ppm
T310161	S-1-10	50	120
T310162	S-2-9	50	50
T310163	S-3-7	50	<50
T310164	S-4-6	50	3,700
T310165	B-1-13	50	<50
T310166	ST(1,2,3,4)	50	210

QA/QC: Freon Blank is none detected.
88% Spike Recovery T310161
96% Duplicate Spike Recovery

Note: Analysis was performed by standard EPA methods 3550/5520
ppm = mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/25/93

Project ID: 8-93-558-ST
Sample ID: ST(1,2,3,4)

Lab Number: T310166
Matrix: Soil

TPH-gas/BTXE

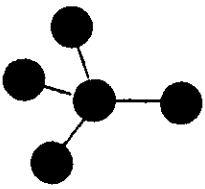
ANALYTE	Detection Limit ppm	Sample Results ppm
Total Petroleum Hydrocarbons as Gasoline	1.0	1.2
Benzene	0.005	<0.005
Toluene	0.005	<0.005
Xylenes	0.005	0.028
Ethylbenzene	0.005	<0.005

QA/QC: 104% Surrogate Spike Recovery

Note: Analysis was performed using EPA methods 5030/8015/8020
ppm = mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

METALS, CAM 5
EPA Method 6010

Project ID: 8-93-558-ST

Matrix: Soil

Sample ID: ST(1,2,3,4)

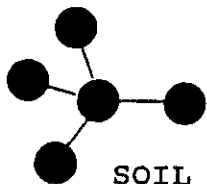
Lab No: T310166

Name	Amount	Detection Limit	Units (ppm)
Cadmium (Cd)	ND	0.25	mg/Kg
Chromium (Cr)	150	0.25	mg/Kg
Lead (Pb)	6.6	0.25	mg/Kg
Nickel (Ni)	310	1.0	mg/Kg
Zinc (Zn)	88	0.25	mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Analyzed: 10/25/93

Project ID: 8-93-558-ST
Sample ID: ST(1,2,3,4)

Lab No: T310166
Matrix: Soil

8010 Halogenated Volatile Organics

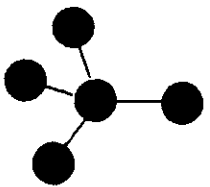
	Det. Lim. (ppm)	Results (ppm)
Bromodichloromethane -----	0.0010	ND
Bromoform -----	0.0020	ND
Bromomethane -----	0.0008	ND
Carbon Tetrachloride -----	0.0012	ND
Chlorobenzene -----	0.0025	ND
Chloroethane -----	0.0052	ND
Chloroform -----	0.0005	ND
2-Chloroethylvinyl ether -----	0.0013	ND
Chloromethane -----	0.0008	ND
Dibromochloromethane -----	0.0009	ND
Dibromomethane -----	0.0009	ND
1,2-Dichlorobenzene -----	0.0015	ND
1,3-Dichlorobenzene -----	0.0032	ND
1,4-Dichlorobenzene -----	0.0024	ND
Dichlorodifluoromethane -----	0.0020	ND
1,1-Dichloroethane -----	0.0007	ND
1,2-Dichloroethane -----	0.0003	ND
1,1-Dichloroethylene -----	0.0013	ND
t-1,2-Dichloroethylene -----	0.0010	ND
Dichloromethane -----	0.0050	ND
1,2-Dichloropropane -----	0.0040	ND
t-1,3-Dichloropropylene -----	0.0034	ND
1,1,2,2-Tetrachloroethane -----	0.0003	ND
1,1,1,2-Tetrachloroethane -----	0.0003	ND
Tetrachloroethylene -----	0.0003	0.006
1,1,1-Trichloroethane -----	0.0003	ND
1,1,2-Trichloroethane -----	0.0002	ND
Trichloroethylene -----	0.0012	ND
Trichlorofluoromethane -----	0.0030	ND
Trichloropropane -----	0.0030	ND
Vinyl Chloride -----	0.0018	ND

110% Surrogate Spike Recovery 2-Bromo-1-Chloropropane
Note: ppm = mg/Kg

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SOIL TECH ENGINEERING, INC.
298 Brokaw Rd.
Santa Clara, CA 95050

Date Sampled: 10/15/93
Date Received: 10/19/93
Date Reported: 10/28/93

QA/QC
METALS, CAM 5
LCS / LCSD Recoveries

Project ID: 8-93-558-ST

Matrix: Soil

Sample ID: LCS/LCSD

Lab No: ST9310028 LCS
ST9310028 LCSD

Element	Spike Conc.	LCS	LCS% Recovery	LCSD	LCSD% Recovery	%RSD
Cadmium (Cd)	50	44	88%	45	90%	2%
Chromium (Cr)	50	44	88%	45	90%	2%
Lead (Pb)	50	40	80%	40	80%	0%
Nickel (Ni)	50	48	96%	43	86%	10%
Zinc (Zn)	50	46	92%	45	90%	2%

ARGON MOBILE LABS

Hiram Cueto

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Lab Director

CHAIN OF CUSTODY RECORD

AML

PROJ. NO.		NAME				CON-TAINER	ANALYSES REQUESTED					REMARKS				
8-93-558-5T		2951 High St. OAKLAND					TPHG/BTE&X	TPHD	TO&G	SOLO	Ca/Cr/Pb/Zn/Mn					
SAMPLERS: (Signature)						NO.	DATE	TIME	SOIL	WATER	LOCATION	CON-TAINER	ANALYSES REQUESTED	REMARKS		
N.A.																
COMP.	1	10/15/93	15 ⁴⁵	✓		ST-1	1	✓	✓	✓	✓	✓	COMP.			
	2	10/15/93	15 ⁵⁰	✓		ST-2	1	✓	✓	✓	✓	✓				
	3	10/15/93	15 ⁵⁵	✓		ST-3	1	✓	✓	✓	✓	✓				
	4	10/15/93	16 ⁰⁰	✓		ST-4	1	✓	✓	✓	✓	✓				
Relinquished by: (Signature)						Date / Time		Received by: (Signature)			Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
N.A.						10/19/93 1:50		Vivian Luoto								
Relinquished by: (Signature)						Date / Time		Received by: (Signature)			Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)						Date / Time		Received for Laboratory by: (Signature)			Date / Time		Remarks			



SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BIRKBECK ROAD, SANTA ANA, CA 92705 (408) 496-0265 OR (408) 496-0266

CHAIN OF CUSTODY RECORD

AML

PROJ. NO.		NAME				CON-TAINER	ANALYSES REQUESTED						REMARKS
8-93-558-ST		2951 High st. OAKLAND					TPHG/BTEX	TPHD	TO&G	BOLO	Cr, Pb, Zn, Ni	Cr (STLC)	
SAMPLERS: (Signature) N. [Signature]													
NO.	DATE	TIME	SOIL	WATER	LOCATION								
1	10/15/93	14 ³²	✓		S-1-10	1	✓	✓	✓	✓			
2	10/15/93	14 ⁴⁷	✓		S-2-9	1	✓	✓	✓	✓			
3	10/15/93	15 ⁰⁰	✓		S-3-7	1	✓	✓	✓	✓			
4	10/15/93	15 ¹²	✓		S-4-6	1	✓	✓	✓	✓	✓		
5	10/15/93	15 ²⁵	✓		B-1-13	1	✓	✓	✓	✓			
Relinquished by: (Signature) N. [Signature]		Date / Time 10/19/93 1:50		Received by: (Signature) [Signature]		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks					



SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers

CHAIN OF CUSTODY RECORD

PROJ. NO. R-33-553-ST		NAME 2951 High st. OAKLAND								GK03197		
SAMPLERS: (Signature) N. [Signature]						CON- TAINER	ANALYSES REQUESTED (2) TPHG/BTEX TPHD TO&G SOLO Cd, Cr, Pb, Zn, Ni Cr (STLC)					REMARKS
NO.	DATE	TIME	SOIL	WATER	LOCATION							
1	10/15/93	14 ³³	✓		S-1-10	1	✓	✓	✓	✓	✓	T310161
2	10/15/93	14 ⁴⁷	✓		S-2-9	1	✓	✓	✓	✓	✓	162
3	10/15/93	15 ¹⁰	✓		S-3-7	1	✓	✓	✓	✓	✓	163
4	10/15/93	15 ¹²	✓		S-4-6	1	✓	✓	✓	✓	✓	164
5	10/15/93	15 ²⁵	✓		B-1-13	1	✓	✓	✓	✓	✓	165
Relinquished by: (Signature) N. [Signature]						Date / Time 10/14/93 1:50	Received by: (Signature) [Signature]			Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)						Date / Time	Received by: (Signature)			Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)						Date / Time	Received for Laboratory by: (Signature)			Date / Time	Remarks	



SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROOKAW ROAD, SANTA CLARA, CA 95050 (408) 496-0265 OR (408) 496-0266

CHAIN OF CUSTODY RECORD

AML

CK03197

PROJ. NO.		NAME											
8-93-558-ST		2951 High St.		OAKLAND									
SAMPLERS: (Signature)				CON-TAINER		ANALYSES REQUESTED @						REMARKS	
N.A.						TPHG/BTEX TPHD TD&G SOLO C.C.P.H./ZINC							
NO.	DATE	TIME	SOIL	WATER	LOCATION								
1	10/15/93	15 ⁴⁵	✓		ST-1	1	✓	✓	✓	✓	✓		
2	10/15/93	15 ⁵⁰	✓		ST-2	1	✓	✓	✓	✓	✓	} COMP.	T310166
3	10/15/93	15 ⁵²	✓		ST-3	1	✓	✓	✓	✓			
4	10/15/93	16 ⁰⁰	✓		ST-4	1	✓	✓	✓	✓			
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
N.A.		10/19/93 1:50		Niam Luto									
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks					

COMP.



SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers