



SP ENVIRONMENTAL SYSTEMS, INC.

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May 16, 1991

Mr. Dennis Byrne
Alameda County Health Care Services Agency
Department of Environmental Health - Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

**Subject: Soil Remediation
5th & Kirkham Streets Site
Oakland, California
SPEvS Job # 05032**

Dear Mr. Byrne:

On behalf of Southern Pacific Transportation Company (SPTCo), SP Environmental Systems Inc. (SPEvS) has prepared the attached **remediation plan** for the hydrocarbon impacted soil associated with former underground fuel storage tanks (USTs).

If there are any questions or concerns please contact me at 916-369-8971.

Sincerely,

Walter Floyd
Project Geologist

WF:ekw

91 MAY 17 PM 10:28

BACKGROUND

Detailed background information on this site may be found in a SPEvS report dated March 1, 1991. Four USTs were removed from the property in February, 1990. The hydrocarbon impacted soil identified during the removal operations was excavated and stockpiled onsite in October, 1990.

RECENT SAMPLING

On March 27, 1991, SPEvS personnel collected 6 samples (SS-1 through SS-6) from approximately 600 cubic yards (cy) of previously excavated, hydrocarbon-impacted soil stockpiled onsite. In addition, 1 sample was collected from approximately 20 cy of soil stockpiled on site that is not associated with the USTs and whose origin is unknown, but appears to be railroad related based on the debris (eg. ballast and cross-ties) mixed with the soil.

Samples were collected by digging into the stockpile approximately 3 feet and driving a clean brass tube into the soil. The sampling locations are shown in Figure 1. The ends of the tube were immediately covered with Teflon sheets and then covered with tight fitting plastic end caps which were taped to the brass tube with duct tape. The samples were then labeled, documented on a chain of custody, and stored in a cooled ice chest until delivery to a state certified analytical laboratory.

The collected samples were analyzed for:

- Total petroleum hydrocarbons (TPH) as gasoline using EPA Methods 5030 and a modified 8015.
- TPH as diesel using EPA Methods 3550 and a modified 8015.
- TPH using EPA method 418.1. This method was used to detect hydrocarbons in the motor oil range that would not have been detected with either of the other two methods.

RESULTS

The laboratory reports, as received from the analytical laboratory are presented in Appendix 1. The results have been summarized in Table 1. The chromatograms for the diesel analyses did not match the laboratory's diesel standard, likely because the diesel has been weathered, therefore the laboratory quantitated the hydrocarbons present in the diesel range (C₁₁ - C₂₆).

Results of analyses performed on the samples indicate:

- Gasoline concentrations were less than 1 part per million (ppm) for all the samples collected except for soil in the region of sample SS-4 which contained 770 ppm of gasoline.
- The diesel concentrations were all less than 100 ppm, again, except for soil in the region of SS-4 which contained 340 ppm of hydrocarbons in the diesel range.
- The TPH concentrations as determined using EPA method 418.1 were all less than 100 ppm.

A small stockpile of soil (approximately 20 cy) not associated with the USTs, but which had been deposited onsite from an unknown source, was sampled (Soil sample SS-7). Results of analyses performed on this sample indicate 800 ppm of hydrocarbons detected using EPA 418.1 with 380 ppm of these hydrocarbons in the C₁₁ to C₂₆ range.

The results of these analyses indicate that most of the hydrocarbons present in the excavated soil have attenuated to concentrations below 100 ppm with at least one localized "hotspot" where the concentrations remain elevated.

PROPOSAL

It is proposed that:

- Soil with a concentration of gasoline below 10 ppm, and soil with a TPH below 100 ppm, as determined using EPA method 418.1 (the diesel and motor oil range hydrocarbons), will be used onsite as ground cover. ?
- Soil with gasoline concentrations over 10 ppm and with TPH concentrations (EPA 418.1) over 100 ppm will be bioremediated and then used onsite as ground cover. ?

The soil which has been sampled and analyzed as meeting our clean up objectives will be transferred to another part of the property. The soil in the region of sample SS-4, and any additional hotspots that may be encountered during the transfer of soil, will be mixed with compost in a ratio of approximately 1:4. It is estimated that approximately 150 cy of material will require this treatment.

The compost will provide bulking and supply the nutrients and bacterial reservoir necessary for biodegradation of the fuel hydrocarbons. After a period of approximately one month, the stockpiles will be resampled to monitor progress.

After the clean up objectives have been satisfied, it is proposed that the soil be reused onsite. The soil would be spread over an area of the railroad yard to a thickness of approximately one foot. Spread thin over the railroad yard the soil would further be exposed to natural attenuating factors and would likely result in further degradation of the hydrocarbons.

Concentrations of oil and diesel less than 100 ppm in soil should not present a threat to the groundwater supplies when deposited on top of soil that lies approximately 10 feet over the water table. Oil and diesel are relatively immobile compounds. The more mobile fraction (ie. the aromatics), more often found in gasoline, would be present in concentrations less than 10 ppm.

Table 1
Summary of Analytical Results
Soil Stockpile
5th and Kirkham Street Property
Oakland, California
SPEvS Project No. 05032

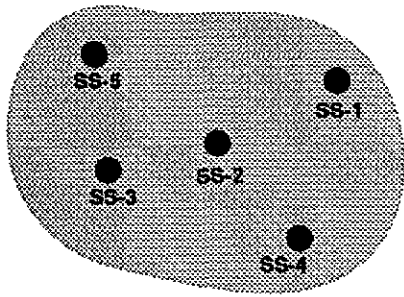
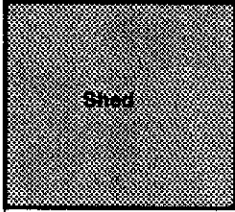
Sample No.	TPH-Gas	TPH-Diesel	C ₁₁ -C ₂₆	TPH-418.1
SS-1	<1	7.5	43	31
SS-2	<1	<5	16	<20
SS-3	<1	<5	35	<20
SS-4	770	<50	340	93
SS-5	<1	<10	48	41
SS-6	<1	<5	62	<20
SS-7	<1	<500	380	800

Results are in parts per million




THIRD STREET

CYPRESS STREET



LEGEND

— x — x — Fence

 Stockpiled Soil



SP ENVIRONMENTAL SYSTEMS, INC.

**Location of Soil Stockpile Samples
Southern Pacific Transportation Co.
5th and Kirkham Street Property
Oakland, California**

FIGURE:

1

PROJECT NO: 05032

DATE: 04/25/91

DRAWN BY: PD

CHECKED BY: WF

not to scale

APPENDIX 1
ANALYTICAL REPORTS



April 17, 1991
Lab ID: 057518

Walt Floyd
S.P. Environmental
9719 Lincoln Village Dr.
Suite 310
Sacramento, CA 95827

Dear Mr. Floyd:

Enclosed is the report for the seven soil samples for your 5th & Kirkham Project (#05032), which were received at Enseco-Cal Lab on 27 March 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Douglas Baker
Program Administrator

Ben Buechler
Director of Program Administration

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I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical tests were requested.

<u>Lab ID</u>	<u>Analysis Description</u>
057518-1 thru 7	Total Petroleum Hydrocarbons-Gasoline
	Total Petroleum Hydrocarbons-Diesel
	Total Petroleum Hydrocarbons-IR

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the data sheets in the Method Blank Report.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS. The SCS results associated with your samples are on the attached Single Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/-3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
SP Environmental

Lab ID	Client ID	Matrix	Sampled Date	Time	Received Date
057518-0001-SA	SS-1	SOIL	27 MAR 91	11:00	27 MAR 91
057518-0002-SA	SS-2	SOIL	27 MAR 91	11:20	27 MAR 91
057518-0003-SA	SS-3	SOIL	27 MAR 91	11:35	27 MAR 91
057518-0004-SA	SS-4	SOIL	27 MAR 91	11:44	27 MAR 91
057518-0005-SA	SS-5	SOIL	27 MAR 91	12:06	27 MAR 91
057518-0006-SA	SS-6	SOIL	27 MAR 91	12:14	27 MAR 91
057518-0007-SA	SS-7	SOIL	27 MAR 91	12:25	27 MAR 91

QC LOT ASSIGNMENT REPORT
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
057518-0001-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0001-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0002-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0002-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0003-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0003-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0004-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0004-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0005-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0005-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0006-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0006-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A
057518-0007-SA	SOIL	TPH-IR-S	28 MAR 91-A	28 MAR 91-A
057518-0007-SA	SOIL	TPH-D-TR-S	28 MAR 91-A	28 MAR 91-A

METHOD BLANK REPORT
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: TPH-IR-S Matrix: SOIL QC Lot: 28 MAR 91-A QC Run: 28 MAR 91-A			
Total Petroleum Hydrocarbons	ND	mg/kg	20
Test: TPH-D-TR-S Matrix: SOIL QC Lot: 28 MAR 91-A QC Run: 28 MAR 91-A			
Diesel Fuel	ND	ug/kg	1000

DUPLICATE CONTROL SAMPLE REPORT
 Semivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average (%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: TPH-IR-S Matrix: SOIL QC Lot: 28 MAR 91-A Concentration Units: ug/kg									
Total Petroleum Hydrocarbons	50	54.4	60.3	57.4	115	68-130	10	15	
Category: TPH-D-TR-S Matrix: SOIL QC Lot: 28 MAR 91-A Concentration Units: ug/kg									
Diesel Fuel	10000	6380	7140	6760	68	50-150	11	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
057518-0001-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0002-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0003-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0004-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0005-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0006-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A
057518-0007-SA	SOIL	TPH-GAS-S	27 MAR 91-B	29 MAR 91-20A

METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: TPH-G-TR-S			
Matrix: SOIL			
QC Lot: 27 MAR 91-B	QC Run: 29 MAR 91-20A		
Gasoline	ND	ug/kg	1000

DUPLICATE CONTROL SAMPLE REPORT
 Volatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: TPH-GAS-S									
Matrix: SOIL									
QC Lot: 27 MAR 91-B									
Concentration Units: ug/kg									
Gasoline	1.0000	0.954	0.985	0.970	97	75-123	3.2	13	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental
Client ID: SS-1
Lab ID: 057518-0001-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 01 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	7500	1R

Note I : Hydrocarbons present in the range of C-11 to C-24 were quantitated based on a diesel reference. Quantitation yielded 43,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental

Client ID: SS-2

Lab ID: 057518-0002-SA

Matrix: SOIL

Authorized: 27 MAR 91

Sampled: 27 MAR 91

Prepared: 28 MAR 91

Received: 27 MAR 91

Analyzed: 01 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	5000	1R

Note I : Hydrocarbons present in the range of C-11 to C-24 were quantitated based on a diesel reference. Quantitation yielded 16,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)

Method GC/FID

Client Name: SP Environmental
Client ID: SS-3
Lab ID: 057518-0003-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 02 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	5000	1R

Note 1 : Hydrocarbons present in the range of C-11 to C-24 were quantitated based on a diesel reference. Quantitation yielded 35,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method. This sample contains 3 single peaks between C-19 and C-22.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental
Client ID: SS-4
Lab ID: 057518-0004-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 02 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	50000	1R

Note 1 : Hydrocarbons present in the range of C-11 to C-24 were quantitated based on a diesel reference. Quantitation yielded 340,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental
Client ID: SS-5
Lab ID: 057518-0005-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 02 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	10000	1R

Note 1 : Hydrocarbons present in the range of C-11 to C-23 were quantitated based on a diesel reference. Quantitation yielded 48,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental
Client ID: SS-6
Lab ID: 057518-0006-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 02 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	5000	1R

Note 1 : Hydrocarbons present in the range of C-11 to C-24 were quantitated based on a diesel reference. Quantitation yielded 62,000 ug/kg in this range. This sample also contains late eluting heavy hydrocarbons which cannot be quantitated by this method.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons by GC/FID (Triregional)**Method GC/FID**

Client Name: SP Environmental
Client ID: SS-7
Lab ID: 057518-0007-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 02 APR 91

Parameter	Result	Units	Reporting Limit	
Diesel Fuel	ND	ug/kg	500000	1R

Note 1 : Hydrocarbons present in the range of C-12 to C-26 were quantitated based on a diesel reference. Quantitation yielded approximately 380,000 ug/kg, which is less than the reporting limit.

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Sherry Barnash

Approved By: Kris Rogers

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Total Petroleum Hydrocarbons (Gasoline)

Method 5030/GC/FID

Client Name: SP Environmental
Client ID: SS-1
Lab ID: 057518-0001-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

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Total Petroleum Hydrocarbons (Gasoline)**Method 5030/GC/FID**

Client Name: SP Environmental
Client ID: SS-2
Lab ID: 057518-0002-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

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Total Petroleum Hydrocarbons (Gasoline)**Method 5030/GC/FID**

Client Name: SP Environmental
Client ID: SS-3
Lab ID: 057518-0003-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

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Total Petroleum Hydrocarbons (Gasoline)

Method 5030/GC/FID

Client Name: SP Environmental
Client ID: SS-4
Lab ID: 057518-0004-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit	
Gasoline	770000	ug/kg	50000	R

Note R : Raised reporting limit(s) due to high analyte level(s).

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons (Gasoline)**Method 5030/GC/FID**

Client Name: SP Environmental
Client ID: SS-5
Lab ID: 057518-0005-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

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Total Petroleum Hydrocarbons (Gasoline)

Method 5030/GC/FID

Client Name: SP Environmental
Client ID: SS-6
Lab ID: 057518-0006-SA
Matrix: SOIL
Authorized: 27 MAR 91Sampled: 27 MAR 91
Prepared: NAReceived: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

The cover letter is an integral part of this report.

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Total Petroleum Hydrocarbons (Gasoline)

Method 5030/GC/FID

Client Name: SP Environmental
Client ID: SS-7
Lab ID: 057518-0007-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: NA

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Gasoline	ND	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Jon Edmondson

Approved By: Lisa Stafford

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Total Petroleum Hydrocarbons (TPH), IR

Method EPA 418.1

Client Name: SP Environmental
Client ID: SS-1
Lab ID: 057518-0001-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	31	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

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Total Petroleum Hydrocarbons (TPH), IR

Method EPA 418.1

Client Name: SP Environmental
Client ID: SS-2
Lab ID: 057518-0002-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	ND	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.

Rev 230787

Total Petroleum Hydrocarbons (TPH), IR**Method EPA 418.1**Client Name: SP Environmental
Client ID: SS-3
Lab ID: 057518-0003-SA
Matrix: SOIL
Authorized: 27 MAR 91Sampled: 27 MAR 91
Prepared: 28 MAR 91Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	ND	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.
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Total Petroleum Hydrocarbons (TPH), IR

Method EPA 418.1

Client Name: SP Environmental
Client ID: SS-4
Lab ID: 057518-0004-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	93	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.
Rev 230787

Total Petroleum Hydrocarbons (TPH), IR

Method EPA 418.1

Client Name: SP Environmental
Client ID: SS-5
Lab ID: 057518-0005-SA
Matrix: SOIL
Authorized: 27 MAR 91Sampled: 27 MAR 91
Prepared: 28 MAR 91Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	41	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.
Rev 230787

Total Petroleum Hydrocarbons (TPH), IR**Method EPA 418.1**

Client Name: SP Environmental
Client ID: SS-6
Lab ID: 057518-0006-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	ND	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.
Rev 230787

Total Petroleum Hydrocarbons (TPH), IR

Method EPA 418.1

Client Name: SP Environmental
Client ID: SS-7
Lab ID: 057518-0007-SA
Matrix: SOIL
Authorized: 27 MAR 91

Sampled: 27 MAR 91
Prepared: 28 MAR 91

Received: 27 MAR 91
Analyzed: 29 MAR 91

Parameter	Result	Units	Reporting Limit
Total Petroleum Hydrocarbons	800	mg/kg	20

ND = Not detected
NA = Not applicable

Reported By: Sharon Campbell

Approved By: Randy Hill

The cover letter is an integral part of this report.
Rev 230787



SP - EVS

CHAIN-OF-CUSTODY RECORD

No. 10125

SP - Environmental Systems, Inc. • 9719 Lincoln Village Drive, Ste. 310 • Sacramento, CA 95827 • Phone 916-369-8971 • FAX 916-369-8370

PROJECT NAME		PROJECT LOCATION		PROJECT CONTACT		PROJECT TELEPHONE NO.		PROJECT MANAGER/SUPERVISOR		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)	NUMBER OF CONTAINERS	REMARKS
5th & Kirkham		Oakland, CA		WACT FLOYD		916-369-8971		WEISS SALEY				
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)						
1	SS-1	3/27/11	11:10		Y	SOIL				✓	1	
2	SS-2	3/27	11:20		Y					✓	1	
3	SS-3	3/27	11:35		Y					✓	1	
4	SS-4	3/27	11:44		Y					✓	1	
5	SS-5	3/27	12:06		Y					✓	1	
6	SS-6	3/27	12:14		Y					✓	1	
7	SS-7	3/27	12:25		Y					✓	1	
8												
9												
10												
ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS							
1	WACT FLOYD	R Bonady	3-27-11	1445	T.A.T							
2												
3												
4												

SAMPLER'S SIGNATURE
WACT FLOYD

SAMPLER'S NAME
WACT FLOYD

TRANSFER 1



SP - EVS

CHAIN-OF-CUSTODY RECORD

No. 10125

SP - Environmental Systems, Inc. • 9719 Lincoln Village Drive, Ste. 310 • Sacramento, CA 95827 • Phone 916-369-8971 • FAX 916-369-8370

PROJECT NAME		PROJECT LOCATION		PROJECT TELEPHONE NO.		PROJECT MANAGER/SUPERVISOR		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)	NUMBER OF CONTAINERS	REMARKS
PROJ. NO.	CLIENT'S REPRESENTATIVE	PROJECT CONTACT	PROJECT LOCATION	PROJECT TELEPHONE NO.	PROJECT MANAGER/SUPERVISOR	PROJECT LOCATION	PROJECT TELEPHONE NO.			
OS032	WACT FLOYD	WACT FLOYD	Oakland, CA	916-369-8971	WEBB GAREY	Oakland, CA	916-369-8971			
ITEM NO.	SAMPLE NUMBER	DATE	TIME	OMP	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)				
1	SS-1	3/27/91	11:10		X	SOIL		X	1	
2	SS-2	3/27	11:20		X			X	1	
3	SS-3	3/27	11:35		X			X	1	
4	SS-4	3/27	11:44		X			X	1	
5	SS-5	3/27	12:06		Y			X	1	
6	SS-6	3/27	12:14		Y			X	1	
7	SS-7	3/27	12:25		Y			X	1	
8										
9										
10										
ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS					
1	Walter Floyd	R. Bonaly	3-27-91	11:45	5 day T.A.T					
2										
3										
4										

SAMPLER'S NAME: WACT FLOYD

SAMPLER'S SIGNATURE: [Signature]