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UNDERGROUND
STORAGE TANK
REMOVAL AND
CLOSURE REPORT

CONTINENTAL BAKING
COMPANY FACILITY
6841 VILLAGE PARKWAY
DUBLIN, CALIFORNIA

Prepared for

Continental Baking Company Checkerboard Square St. Louis, Missouri

October 11, 1993

## Woodward-Clyde 🐣

Woodward-Clyde Consultants 500 12th Street Suite 100 Oakland, California 94607-4014

Engineering & sciences applied to the earth & its environment

October 14, 1993

Ms. Eva Chu Alameda County Health Care Services Agency Department of Environmental Health 80 Swan Way, Room 200 Oakland, CA 94621

Subject: Continental Baking Facility, 6841 Village Parkway, Dublin, CA

Underground Storage Tank Removal and Closure Report

Dear Ms. Chu:

Attached is a copy of the report dated October 11, 1993, which provides details regarding the underground storage tank removal at the Continental Baking Company site noted above. Analytical results were submitted to your office previously.

Woodward-Clyde Consultants is providing environmental engineering consulting services to Continental Baking Company, and is submitting this report on their behalf. If you have any questions, please feel free to phone me at (510) 874-3138.

Sincerely,

Jo Beth Folger

Jo Beth Dolger

Attachment

c: Mr. Fred Dannecker, CBC-SF

Mr. Charles Gjersvik, CBC-SL

Mr. Jim Hummert, WCC-SL

California Regional Water Quality Control Board



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#### **CERTIFICATION**

### UNDERGROUND STORAGE TANK CLOSURE AT THE DUBLIN, CALIFORNIA FACILITY

### OCTOBER 11, 1993 92CB037-0000

This report has been prepared by the staff of Woodward-Clyde Consultants and has been reviewed and approved by the professional whose signature appears below.

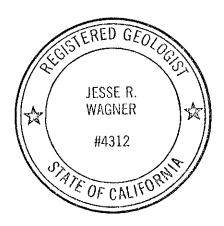
The findings, recommendations, specifications, or professional opinions are presented within the limits prescribed by the client and in accordance with generally accepted engineering practice in Northern California at the time this work plan was prepared. No other warranty is either expressed or implied.

**WOODWARD-CLYDE CONSULTANTS** 

J. Ross Wagner, Ph.D.

R.G. No. 4312

Senior Project Geologist





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### **EXECUTIVE SUMMARY**

On December 17, 1992, one underground storage tank (UST) was excavated and removed from the Continental Banking Company site, located at 6841 Village Parkway in Dublin, California. The site is a baked goods distribution center for the San Francisco Bay Area and a Thrift store with an attached maintenance garage.

A 4,000-gallon fuel storage tank was removed from its underground location behind the facility. The age of the UST was estimated at least 19 years old at the time of the removal. Historically, this tank had been used to store diesel fuel for the delivery trucks. Personnel from the Alameda County Health Agency and from the Dougherty Regional Fire Authority were present during the time of the UST removal to conduct their respective inspections. No holes were found in the UST nor in the connecting pipes during the inspection.

Two closure samples were collected from the bottom of the excavation and they were analyzed for petroleum hydrocarbon constituents. Results from the analysis indicate that both samples contained elevated concentrations of diesel (2,200 and 1,600 mg/kg) and moderate levels of the more volatile fractions (ethylbenzene 38-88  $\mu$ g/kg and total xylenes 60 and 53  $\mu$ g/kg). However, no standing water nor free product were observed at the site.

Four stockpile samples were collected from the removed soil and composited into one sample by the laboratory. This sample was analyzed for petroleum hydrocarbons, reactivity, corrosivity and ignitability to conform with the hazardous waste disposal characterization. Additionally, the composite sample was analyzed for lead as requested by the Alameda County Health Agency.

The analytical results of the composite sample indicate that 6,800 mg/kg of diesel and unknown hydrocarbons in the range of 220 mg/kg (possible weathered diesel) were reported. The tests indicated the soil was not corrosive, reactive or ignitable. In summary, the analytical results of the soil samples suggests that petroleum hydrocarbons in the range of diesel constituents exist beneath the site where the removed UST was located. However, due to the nature of the native soil (clayey material) it is anticipated that remaining petroleum hydrocarbons in the soil are localized.



1.0 INTRODUCTION

#### 1.1 SCOPE OF WORK

On December 17, 1992, one underground storage tank (UST) was excavated and removed from the Continental Baking Company Facility at 6841 Village Parkway in Dublin, California. This report presents the observations and analytical results of soil samples collected by Woodward-Clyde Consultants (WCC) on behalf of CBC in support of UST closure and soil disposal activities at the site.

#### 1.2 SITE LOCATION

The site is located in the San Francisco Bay Area in the City of Dublin, California (Figure 1). Village Parkway is a major thoroughfare that runs parallel and to the east of Interstate 680. The local land use is commercial along Village Parkway, with residences located along the intersecting streets (Figure 2).

### 1.3 SITE DESCRIPTION AND UST HISTORY

The site is a baked goods distribution center and Thrift Store facility with an attached maintenance garage. The removed 4000-gallon underground storage tank was located at the rear of the facility (Figure 3). The precise age of the tank is unknown. However, this UST was reportedly at least 19 years old at the time of the removal and historically had been used to store diesel fuel for the delivery trucks. The UST was of single wall steel construction. A dispensing unit was also formerly located at the rear of the facility, immediately adjacent to the UST (Figure 3).



2.0

#### TANK REMOVAL AND DISPOSAL

Mr. Jeff Shapiro of the Alameda County Health Agency and Mr. Ron Johansen of the Dougherty Regional Fire Authority were present during the UST removal to conduct their respective inspections.

#### 2.1 TANK INERTION AND REMOVAL

The remaining diesel and accumulated sludge were pumped from the UST. The vapors within the UST had been rendered inert by displacement using approximately 30 pounds of dry ice per 1000 gallon capacity of the UST. The combustibility of the vapors remaining in the tank was measured and compared against the lower explosive limit using a combustible gas indicator under the supervision of the Fire Inspector. After the Fire Inspector gave approval to remove the UST, all access holes in the UST were capped and the UST was removed from the excavation.

#### 2.2 TANK AND PIPING INTEGRITY

After the UST had been removed from the excavation, it was subjected to an above-ground inspection by the County Health Inspector. The UST apparently had been heavily wrapped and thickly coated to protect it from corrosion. No significant signs of rust nor holes were found in the tank during the above-ground inspection. The steel underground piping was also protectively wrapped. No perforations were observed in the short lengths of piping, which had been bent during the excavation process.

### 2.3 SLUDGE AND TANK DISPOSAL

The UST and the removed sludge were transported under manifest by Erickson, Incorporated to their facility in Richmond, California. Copies of the uniform hazardous waste manifests have been included in Appendix A.

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Approximately 50 cubic yards of excavated soil was stockpiled and covered with plastic. The stockpiled soil was sampled and analyzed for waste characterization purposes. The excavation was resurfaced with asphaltic concrete to match the surrounding surfaces.

On December 17, 1992, the tank was removed by Petroleum Engineering, Inc. and disposed of by Erickson, Inc. as a non-RCRA Hazardous Waste Solid. Petroleum Engineering, Inc. was in charge of backfilling the excavation on May 11, 1993.

### 2.4 OBSERVATIONS AT THE UST EXCAVATION

The native soil encountered at the UST excavation generally consisted of clayey material. The native material was observed to be dark gray in color. The excavation measured 8 feet wide by 22 feet long, with a total depth of approximately 10 feet. Subsurface water was not observed in the excavation. Therefore no water samples were collected. Photographs of the UST excavation and of the removed UST are included in Appendix B.



### 3.1 CLOSURE SAMPLE COLLECTION AND ANALYSIS

In accordance with the Tri-Regional Staff Recommendations for the removal of a 4,000-gallon UST, two soil samples of native soil were collected from the bottom of the excavation, near each end of the tank. Both samples consisted of dark gray clay. These samples were identified as TP-1 (from the north end of the excavation) and TP-2 (from the south end) and they were collected at respective depths of 10.5 and 10 feet (Figure 3). The soil was first removed from the excavation in a backhoe bucket. A clean brass tube was driven into the soil manually, with the aid of a mallet. The filled tube was removed from the soil, the ends covered with teflon sheeting and capped with plastic endcaps.

The closure samples were submitted to Mid-Pacific Environmental Laboratories, Incorporated (MPELI) in Mountain View, California for analysis. MPELI is certified by the State of California Department of Toxic Substances Control for the analysis of hazardous materials. In accordance with the Tri-Regional Staff Recommendations for the removal of USTs that have been used to store diesel, the samples were analyzed for total petroleum hydrocarbons quantified as diesel (TPH-D) by EPA method 8015 and for the presence of the aromatic petroleum hydrocarbon constituents of benzene, toluene, ethyl benzene, and xylenes (BTEX) by EPA method 8020. At the request of the Alameda County health inspector, the samples were also analyzed for organic lead, with a contingency that TPH quantified as gasoline (TPH-G) would also be analyzed if concentrations of organic lead were detected above the analytical reporting limit.

### 3.2 STOCKPILE SOIL SAMPLE COLLECTION AND ANALYSIS

Approximately 50 cubic yards of excavated material (fill and soil) was stockpiled at the southeast corner of the site. A four-point composite sample, SP1-ABCD, was collected from this stockpile. At each sample point, a clean brass tube was driven into the stockpiled soil manually, with the aid of a mallet. As with the closure samples, the ends of the filled tube were covered and capped. The samples were submitted to the analytical laboratory (MPELI)

3-1



where they were composited and analyzed for waste characterization purposes. The samples were analyzed for TPH- G, TPH-D, BTEX, reactivity, corrosivity, ignitability and lead.

### 3.3 ANALYTICAL DATA QUALITY CONTROL/QUALITY ASSURANCE

The laboratory-generated analytical reports are included in Appendix C. The analytical data was reviewed for sample holding times, accuracy, precision, elevated detection limits, proper decontamination procedures, and potential laboratory contamination.

All samples were extracted and analyzed within the method-prescribed holding times. Therefore sample integrity was not compromised by an excessive time period before analysis. Accuracy was assessed by reviewing spike recoveries while precision was assessed by reviewing the relative percent difference (RPD) between the spike and spike duplicate recoveries. The spike recoveries for each of the analysis were within the respective established limits for the laboratory, which indicates acceptable accuracy. The surrogate samples for the EPA method 8020 analyses were within the laboratory's established limits, further indicating acceptable accuracy for this method. The spike duplicate RPDs for each analysis were within the laboratory's established limits, indicating acceptable sample precision. Samples were diluted only when a high concentration of a target compound was detected, thus the samples were analyzed at the lowest possible detection limit. For each of the analyses, the reagent blanks did not contain detectable concentrations of the target analytes. Therefore it does not appear that laboratory conditions would have caused cross-contamination.

An unknown hydrocarbon was reported in the TPH analyses for the stockpiled soil. After additional investigation was conducted by the laboratory, it was concluded that the unknown hydrocarbon detected in the gasoline analyses was most likely the lighter portion of diesel carrying over into the gasoline analysis. This theory is further supported by the observation that high concentrations of diesel were detected in the samples with the reported unknown hydrocarbon. It should be noted that the unknown hydrocarbon was detected only in the sample collected from the stockpiled soil and that this information would be used only to assess appropriate disposal alternatives for the stockpile.



Based upon the findings of the QA/QC review, WCC considers the analytical data acceptable without limitations to its intended use.

#### 3.4 ANALYTICAL RESULTS

The analytical results of the two closure samples are summarized in Table 2. Organic lead was not detected at or above the analytical detection limit (0.50 mg/kg). Therefore the samples were not analyzed for TPH-G. The analyses for TPH-D detected 2,200 mg/kg (or parts per million, ppm) diesel in sample TP-1 and 1,600 mg/kg diesel in sample TP-2. Concentrations of BTEX constituents for both samples ranged from undetected (<0.020 mg/kg for benzene and toluene in both samples) to 0.088 mg/kg (detected for ethyl benzene in TP-2).

The analytical results of the four-point composite stockpile sample are summarized in Table 3. Relatively high concentrations of TPH-D was detected in the sample (6,800 mg/kg reported as TPH-D and 220,000 mg/kg reported as TPH-unknown).



4.0 CONCLUSIONS

No perforations in the tank nor the connecting pipelines were observed during the above-ground inspection. Organic lead was not detected in the soil samples, therefore TPH-G was not analyzed, because the UST had historically been used to store diesel. However, concentrations of TPH-D from 1,600 to 2,200 mg/kg were detected in the UST closure soil samples collected from the base of the excavation at each end. The extent of the presence of petroleum hydrocarbons in the soil surrounding the UST excavation has not been determined. However, the native soil beneath this site that was encountered at the tank excavation generally consists of clayey material. In addition, a comparison of the analytical results between the closure samples which represent the soil remaining after excavation against the stockpiled soil sample suggests that a significant amount of the highly impacted soil has been excavated and removed from the site.



#### TABLE 1

### LIST OF CONTACTS CONTINENTAL BAKING COMPANY FACILITY 6841 VILLAGE PARKWAY DUBLIN, CALIFORNIA

### Facility Owner/Operator:

Continental Baking Company 1525 Bryant Street San Francisco, California 94103

Fred Dannecker (415) 552 0950

### **Environmental Consultants to Continental Baking Company:**

Woodward-Clyde Consultants 500-12th Street, Suite 100 Oakland, California 94607

Jo Beth Folger (510) 874 3138

### Lead Implementing Agency:

Alameda County Health Agency 80 Swan Way, Room 200 Oakland, California 94621

Jeff Shapiro (510) 271 4320

### Regional Water Quality Control Board:

Regional Water Quality Control Board 1800 Harrison Street Oakland, California 94612

#### Fire Department:

Dougherty Regional Fire Authority 9939 Firerest Lane San Ramon, California 94583

Ron Johansen (510) 829 2333

ANALYTICAL RESULTS (IN MG/KG, OR PPM) FOR SOIL SAMPLES COLLECTED IN SUPPORT OF THE UNDERGROUND STORAGE TANK CLOSURE AT THE CONTINENTAL BAKING COMPANY FACILITY

6841 VILLAGE PARKWAY, DUBLIN, CALIFORNIA

Sample Location	Sample Depth	Collection Date			Mod	ified EPA 8	015/8020			CA DHS 938
	(feet)	Date	TPH-D	ТРН-К	ТРН-О	Benzene	Toluene	Ethyl- benzene	Total Xylenes	Organic Lead
TP1	10.5	12/17/92	2,200	<10	<100	< 0.020	< 0.020	0.038	0.060	<0.50
TP2	10	12/17/92	1,600	<10	<100	< 0.020	< 0.020	0.088	0.058	< 0.50

### Notes:

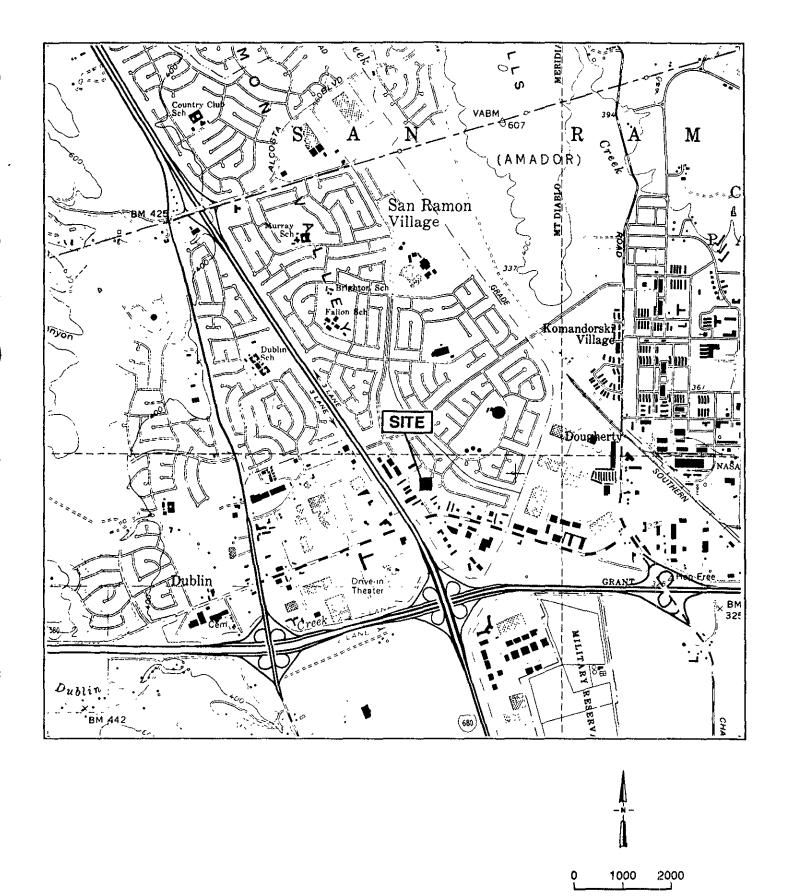
TPH-D: Total Petroleum Hydrocarbons quantified as diesel.
TPH-K: Total Petroleum Hydrocarbons quantified as kerosene.
TPH-O: Total Petroleum Hydrocarbons quantified as motor oil.

ANALYTICAL RESULTS OF COMPOSITE SOIL SAMPLE COLLECTED FROM EXCAVATED SOIL FOR UST REMOVAL AT 6841 VILLAGE PARKWAY, SALINAS, CALIFORNIA

Sample ID: SP1-A,B,C,D	Collection Date: 12/17/993
Analysis	Concentration
TPH-Diesel	6,800 mg/kg
TPH-Gas	$<20^1$ mg/kg
TPH-Kerosene	<50 mg/kg
TPH-Oil	<50 mg/kg
TPH-Unknown	2201 mg/kg
Benzene	<0.10 mg/kg
Toluene	<0.10 mg/kg
Ethylbenzene	0.11 mg/kg
Total Xylenes	0.16 mg/kg
Reactivity-Cyanide	<10 mg/L
Reactivity-Sulfide	<10 mg/L
Corrosivity	8.4 pH
Ignitability	>70 °C

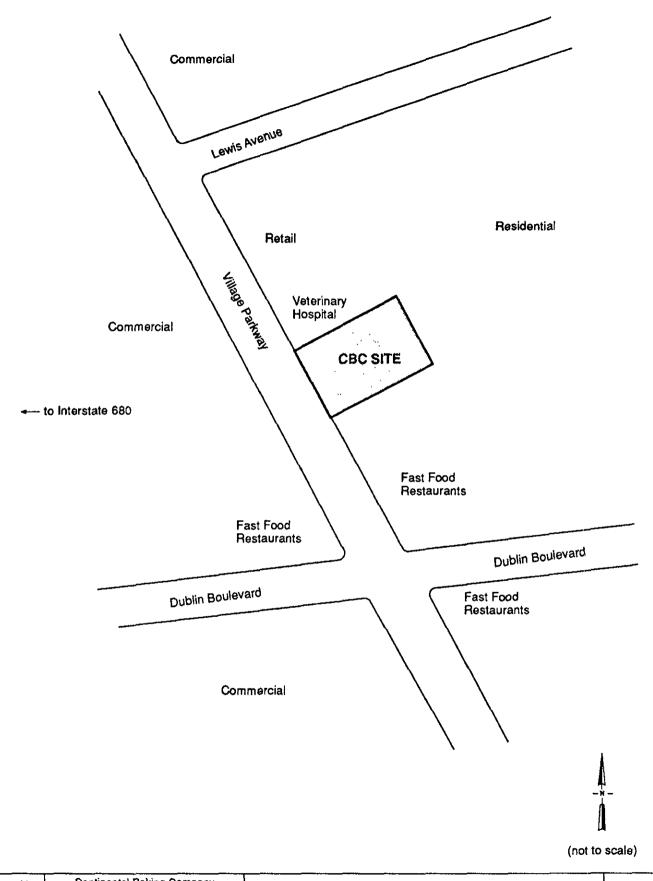
### Notes:

<sup>&</sup>lt;sup>1</sup> The chromatographic pattern of the sample did not match those of the laboratory standard for TPH-Gas. This component was semi-quantitated by comparison to the gasoline standard and is reported as "unknown." This is likely the lighter portion of diesel carrying over into the gasoline analysis.

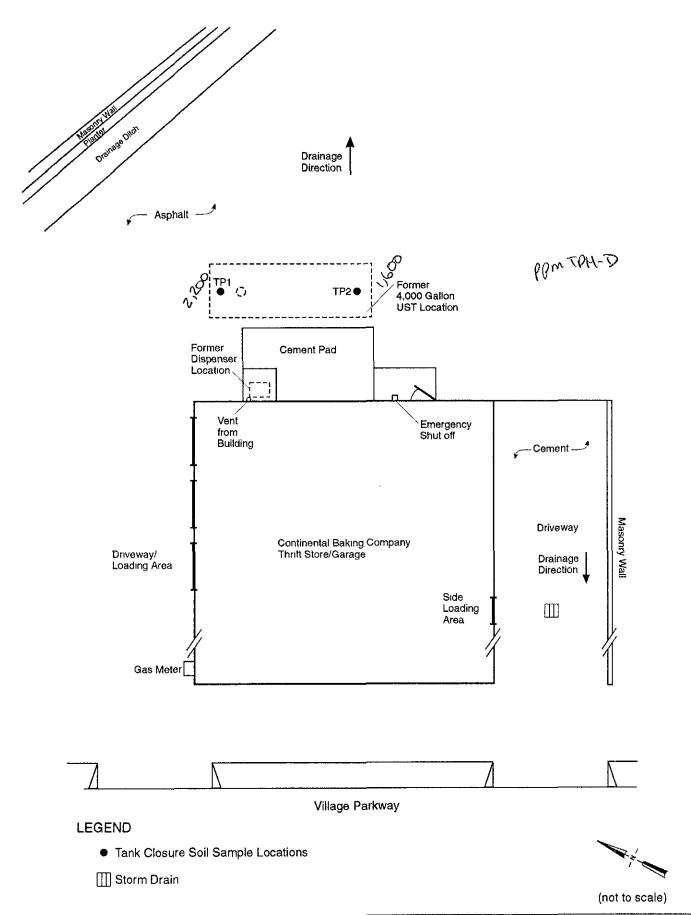




feet



Project No. 92CB037 Continental Baking Company 6841 Village Parkway Dublin, California LOCAL LAND USE Figure 2



Project No. 92CB037 Continental Baking Company 6841 Village Parkway Dublin, California SITE PLAN AND LOCATIONS OF UST CLOSURE SOIL SAMPLES 3

APPENDIX A UST AND CONTENTS TRANSPORTATION AND DISPOSAL DOCUMENTATION



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CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802: WITHIN CALIFORNIA, CALL 1-800-852-7550

ERICKSON
255 Parr Boulevard, Richmond, California 94801
(510) 235-1393 • FAX (510) 235-3769
Contr. Lic. No. 168067

### CUSTOMER JOB ORDER

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ERICKSON, INC., A FULL SERVICE COMPANY SINCE 1942. WE APPRECIATE YOUR BUSINESS.

PLEASE CALL US AT (415) 235-1393 IF YOU HAVE ANY QUESTIONS OR IF WE CAN PROVIDE ADDITIONAL SERVICE

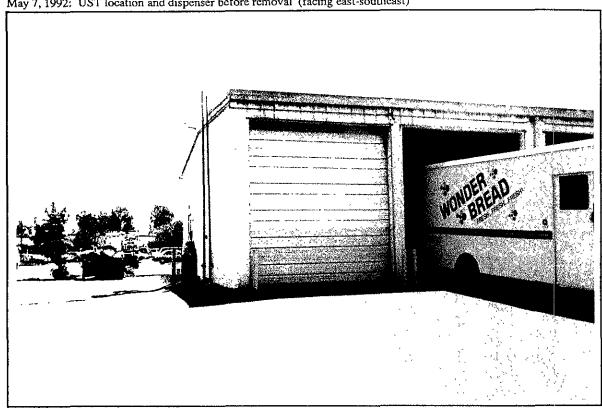
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APPENDIX B SITE PHOTOGRAPHS



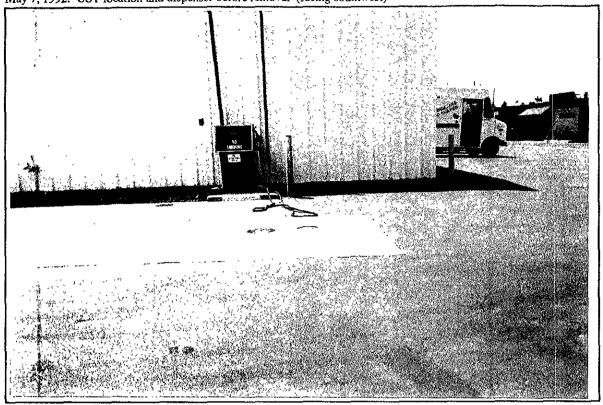
May 7, 1992: UST location and dispenser before removal (facing east-southeast)



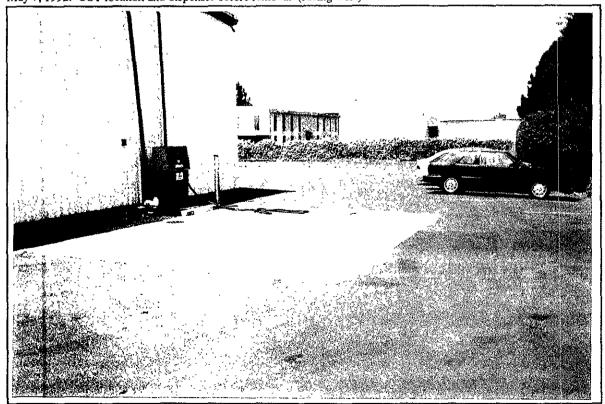
May 7, 1992: Dispenser and UST vent lines before removal (facing southeast)



May 7, 1992: UST location and dispenser before removal (facing southwest)



May 7, 1992: UST location and dispenser before removal (facing west)



December 17, 1992: Top of UST during removal activities (facing north)



December 17, 1992: Product and vent lines during removal activities (facing west)



December 17, 1992: Tank excavation immediately following UST removal (facing north)



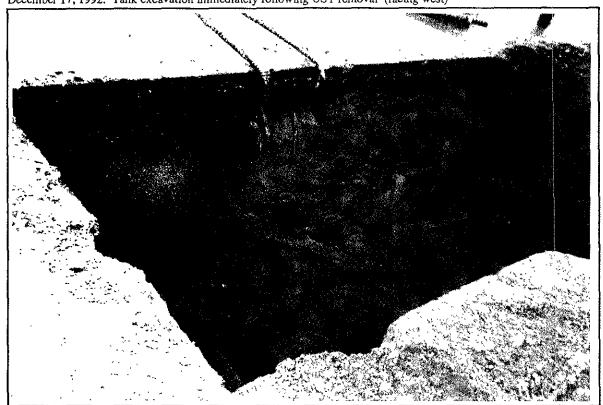
December 17, 1992: Tank excavation immediately following UST removal (facing east)



December 17, 1992: Tank excavation immediately following UST removal (facing south)



December 17, 1992: Tank excavation immediately following UST removal (facing west)



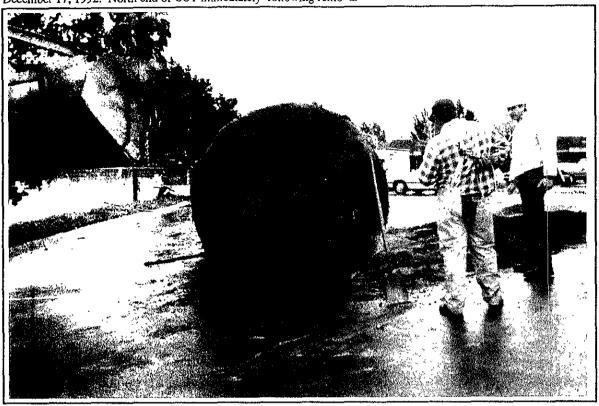
December 17, 1992: West side of UST immediately following removal



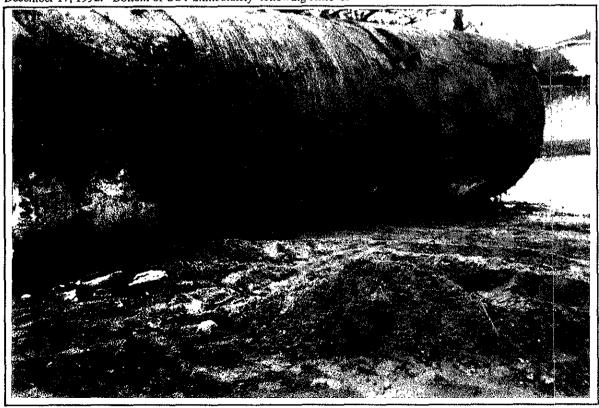
December 17, 1992: South end of UST immediately following removal



December 17, 1992: North end of UST immediately following removal



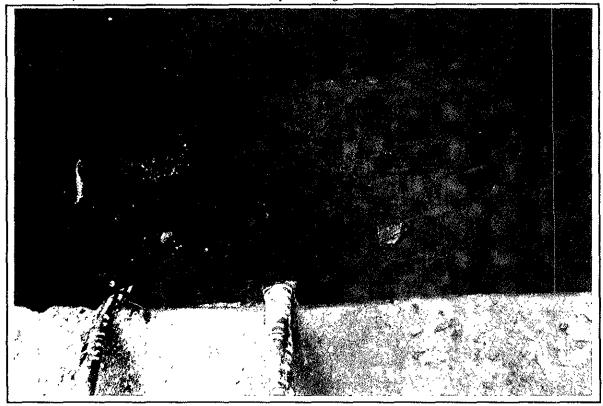
December 17, 1992: Bottom of UST immediately following removal



December 17, 1992: East end of UST immediately following removal



December 17, 1992: Bottom of excavation immediately following UST removal



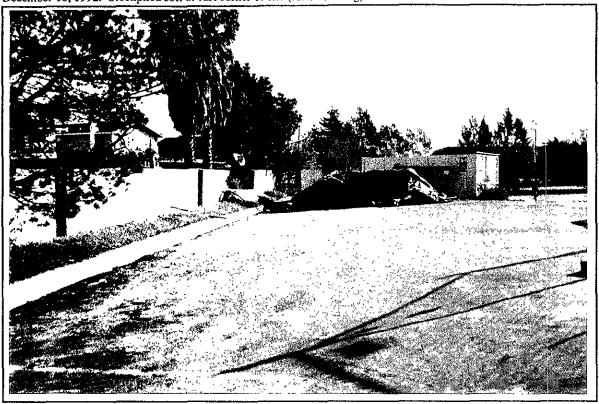
December 17, 1992: Stockpiled soil at east corner of site



December 18, 1992: Dispenser pad after removal of dispenser



December 18, 1992: Stockpiled soil at east corner of site (after covering)



### Woodward-Clyde Consultants

APPENDIX C
ANALYTICAL REPORTS





Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View (A 94043 415: 964 0644 FAX 415 961 7113

February 24, 1993

Ms. Anita Yan Woodward Clyde Consultants 500 12th Street, Suite 100 Oakland, CA 94607-4014

Dear Ms. Yan:

Enclosed is a revised report for MPELI Order# 92-12-133, your work ID 92CB037/0000, originally issued on January 08, 1993.

The analysis date for the reactive sulfide in QC batch nos. QRZ2A and QRZ2B have been corrected from 12/21 to 12/27.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

Donald Magarian Project Manager



Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View, CA 94043

1415) 964-0844 1415) 964-0844 1517-7113 FAX

# REVISED

Woodward Clyde Consultants 500 12th Street Suite 100 Oakland, CA 94607-4014 February 24, 1993

MPELI Order#: 92-12-133 Date Received: 12/18/92

Attn: Anita Yan

Subject: Analysis of 1 composite of 4 soils

Work ID: 92CB037/0000

P.O. #: none given

Pages in report: 4

Samples were analyzed for requested general chemical parameters following Methods for Chemical Analysis of Water and Wastes (EPA 1983) or Test Methods for Evaluating Solid Wastes (SW-846, 3rd Ed.,1986). The test method used is listed along with the particular analysis.

#### NOTES

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

Mid-Pacific

REPORT

Work Order # 92-12-133

N/A - Not applicable

REVISED

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by:

Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

Page 3 Mid-Pacific REPORT

Work Order # 92-12-133

#### Woodward Clyde Consultants

Date collected: 12/17/92

Date received: 12/18/92

Client ID: Comp SP1-A,B,C,D

MPELI ID: 9212133 - 05A

Matrix: SOIL

Test description	Method	Result	Report Limit Units	-	Run Date	QC Batch
Reactive cyanide Reactive sulfide	EPA 7.3.3.2 EPA 7.3.4.2	ND ND	10 mg/L 10 mg/L	•	•	QRZ2B QRZ2B

Page	4
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Mid-Pacific

### GENERALS QC REPORT Work Order # 9212133

### Woodward Clyde Consultants

**REVISED** 

m 1 - 5 # - ODGOD	Units: mg/L			A E Dian	
Batch #: QRZ2A	ource: md/p	Blank	Spike	%Recovery	Date
Test Description	Method	Result Lmt	Level	MS MSD LCS RPI	D Run
Reactive cyanide	EPA 7.3.3.2	ND 10	48.4	64 66	12/27
Batch #: QRZ2B	Units: mg/L	Blank	Spike	%Recovery	Date
Test Description	Method	Result Lmt	-	LCS	Run
Reactive cyanide	EPA 7.3.3.2	ND 10	48.4	66	12/2
Batch #: QRZ2A	Units: mg/L	Blank	Spike	%Recovery	Date
Test Description	Method	Result Lmt	_	MS MSD LCS RP	
Reactive sulfide	EPA 7.3.4.2	<b>N</b> D 10	988	61 87	12/2
Batch #: QRZ2B	Units: mg/L				
Test Description	Method	Blank Result Limi	-	inal Duplicate sult Result	Date RPD Run
Reactive sulfide	EPA 7.3.4.2	ND 1	0	710 693	2.4 12/2

**Chain of Custody Record** 500 12th Street, Suite 100, Oakland, CA 94607-4014 (510) 893-3600 **ANALYSES** PROJECT NO. 9208037 0000 SAMPLERS: (Signature) | EPA Wethod 802K EPAMENT LIFT REMARKS EPA Method 800 Sample Metrix (S)oil, (W)ater, (A)ir (Sample preservation handling procedures, etc.) SAMPLE NUMBER DATE TIME 17 DOCA 1503 TPI # MEDIS for 17002 1519 mode 1615 SPI-A 5P1-B 118690 1617 i 170004 1619 991-C MDC42 1621 581-D Please call DuitaYan (50) 874 3081 with questions. Also send bills and reports to the attention of Anita Yan. NUMBER OF CONTAINERS RELINQUISHED BY: DATE/TIME RECEIVED BY: RELINQUISHED BY : DATE/TIME RECEIVED BY (Signature) (Signature) (Signature) ĸ (Signature) Mottle METHOD OF SHIPMENT : SHIPPED BY: 18 DUGZ COURIER; RECEIVED FOR LAB BY . DATE/TIME (Signature) CONPIER-

71-11-10V

**Woodward-Clyde Consultants** 

4013-133



Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View, CA 94043 (415) 964-0844 FAX (415) 961-7113

March 03, 1993

Ms. Anita Quesada Woodward Clyde Consultants 500 12th Street, Suite 100 Oakland, CA 94607-4014

RE: MPEL Order No. 92-12-130

Dear Ms. Quesada:

In regard to your inquiries concerning the identification of "unknown hydrocarbons" reported in the TPH-Gasoline analysis, the following statement applies:

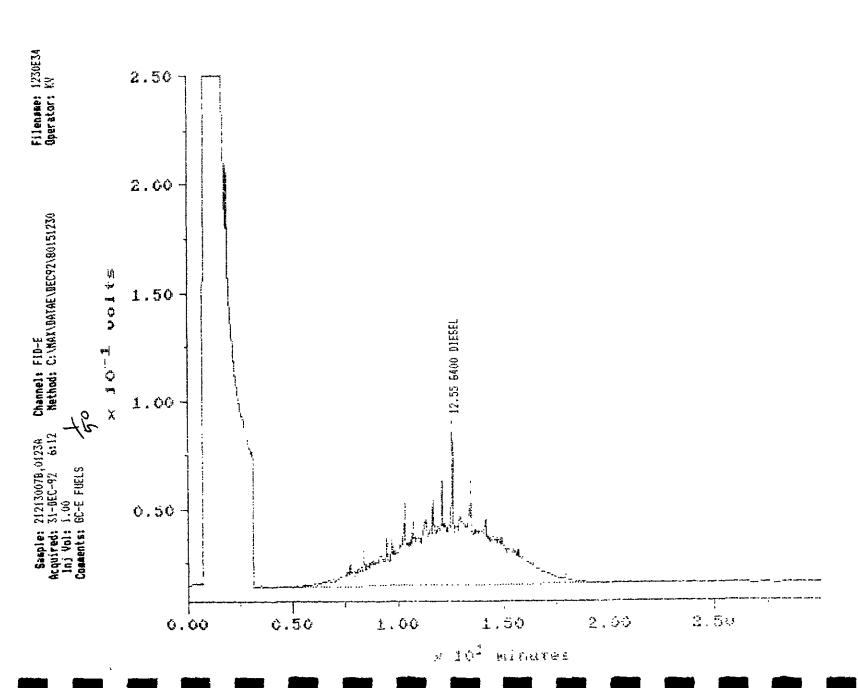
Sample SP1 A,B,C,D Composite (MPEL ID 9212130-07): The unknown hydrocarbon pattern that appears in the TPH-Gasoline analysis elutes very late in the scan, at the end of the gasoline elution profile. This is consistant with the detection of diesel in the TPH-Diesel analysis of this sample, but cannot be confirmed since diesel standards are not analyzed in the TPH-Gasoline scan.

Copies of sample and standard chromatograms are enclosed.

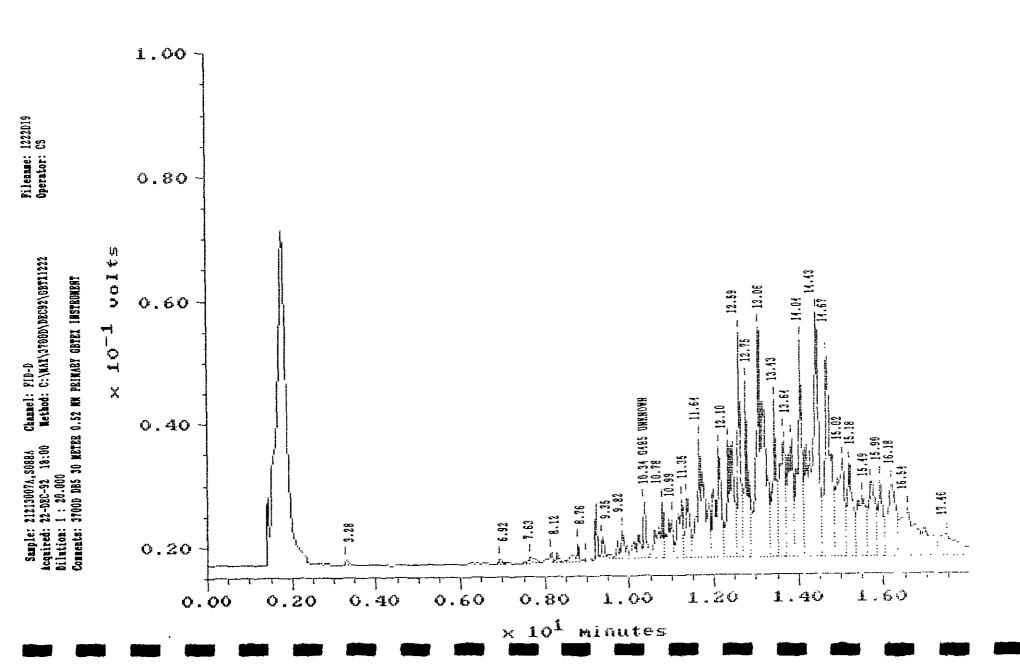
If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

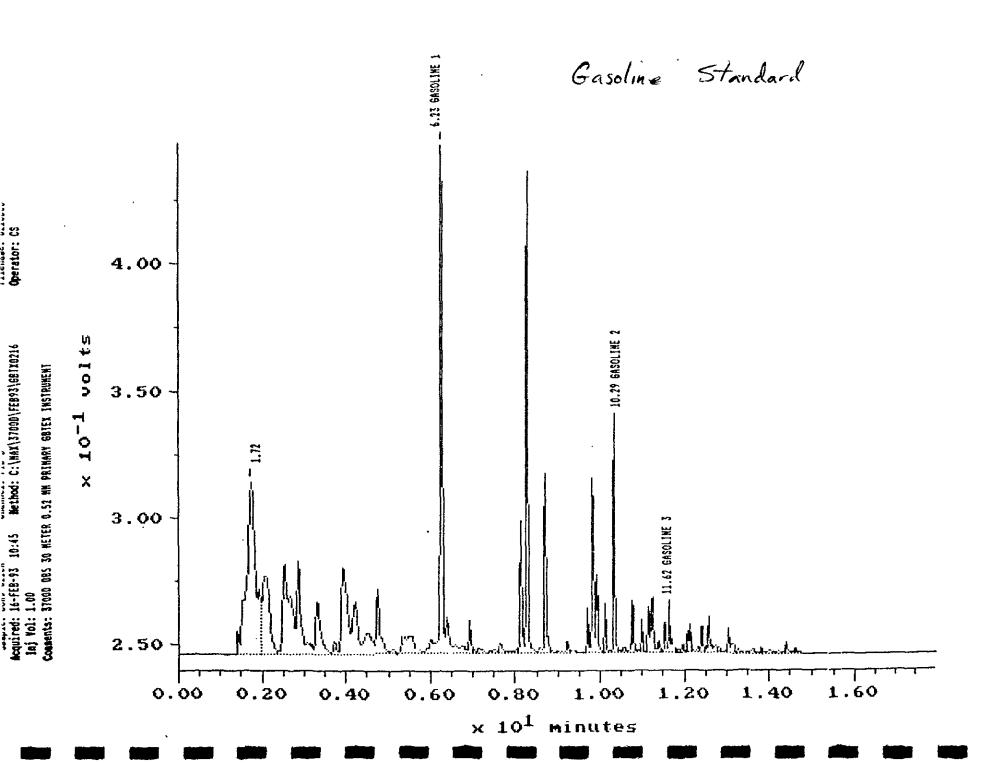
Donald Magarian Project Manager

# SPI A,B,C,D Composite (TPH-D)

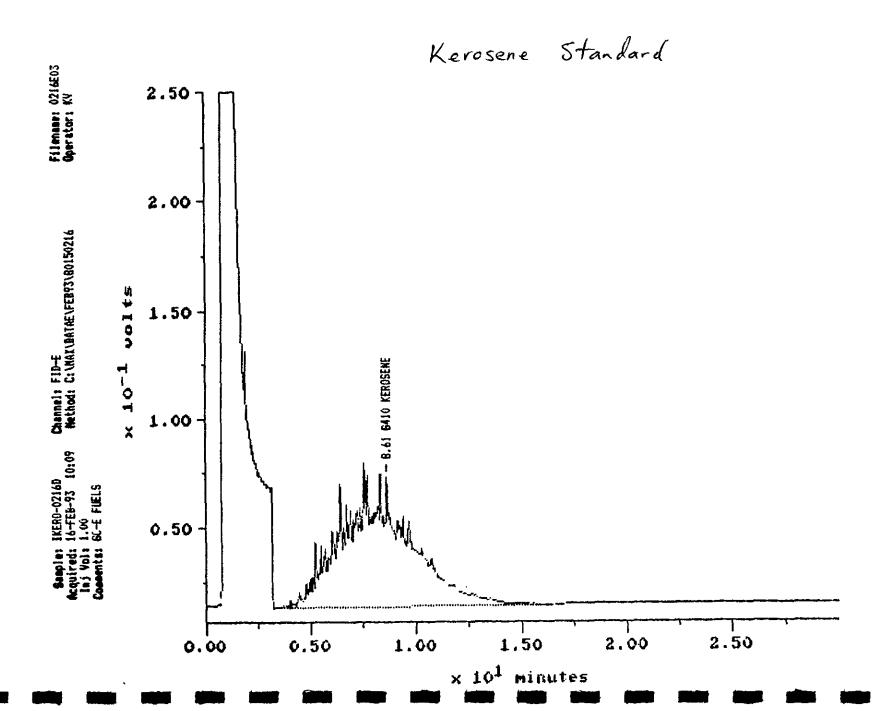


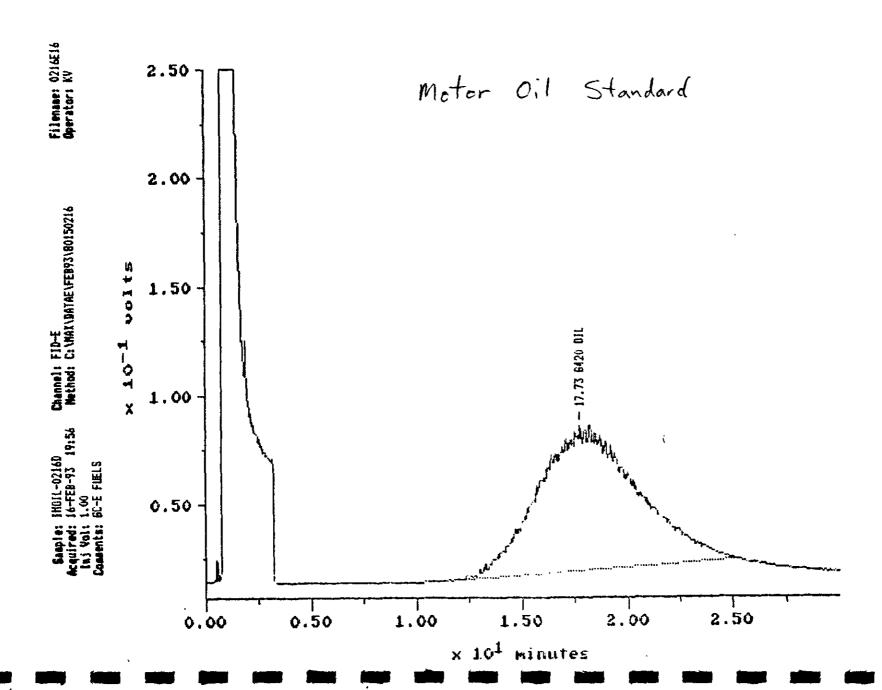
SPIA, B, C, D Composite (TPH-G)

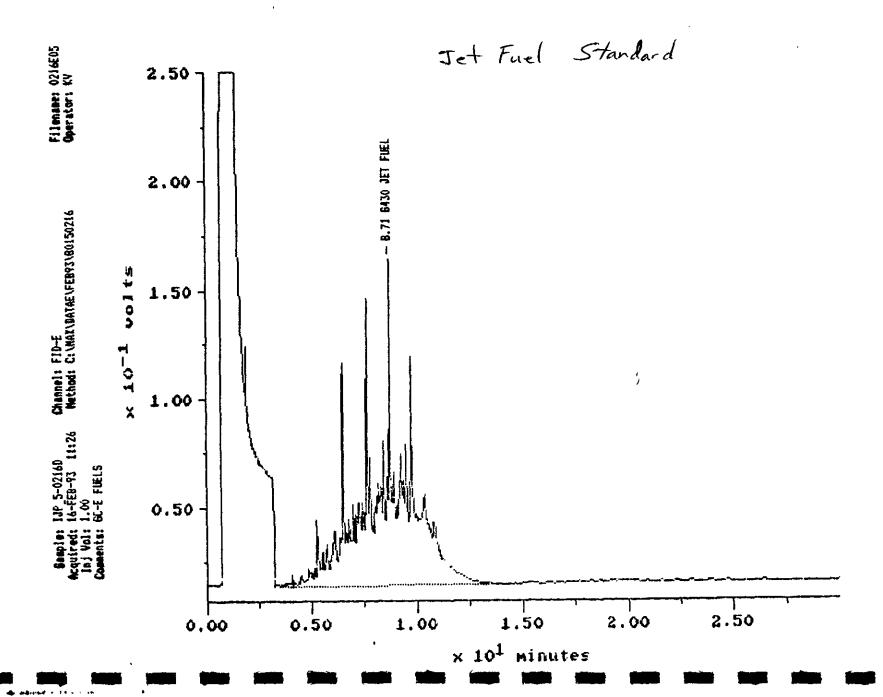




Diesel Standard Filenames 0216E02 Operators KV 2.50 2.00 11.58 6400 DIESEL Channel: FID-E Method: C:\MAI\DATAE\FEB93\80150216 1.50 × 10-1 1.00 9:31 10:51-02160 16-FEB-93 1.00 8C-E FIELS 0.50 1.50 2.00 2.50 0.50 0.00 1.00









Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View, CA 94043 (415) 964-0844 FAX (415) 961-7113

March 22, 1993

Ms. Anita Yan Woodward Clyde Consultants 500 12th Street, Suite 100 Oakland, CA 94607-4014

Dear Ms. Yan:

Enclosed is a revised report for MPELI Order# 92-12-130, your work ID 92CB037/0000, originally issued on January 12, 1993.

The results for the TPH-Gasoline analysis for composite sample SP1-A,B,C,D have been expanded to include BTEX. Also, it was discovered that QC batch # 0115A, for pH, was omitted from from the initial report and has been added to this revision.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

Donald Magarian

Project Manager



Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View, CA 94043 (415) 964-0844 FAX (415) 961-7113

# REVISED

Woodward Clyde Consultants 500 12th Street Suite 100 Oakland, CA 94607-4014 March 22, 1993

MPELI Order#: 92-12-130 Date Received: 12/18/92

Attn: Anita Yan

Subject: Analysis of 2 Soil Samples, 1 Composite

Work ID: 92CB037/0000

P.O. #: none given

Pages in report: 16

Analysis of soil samples for higher boiling petroleum hydrocarbons (diesel, kerosene, & oil) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Preparation and analysis of soil samples for organic metals by Flame Atomic Absorption were performed by following California Dept of Health Services SOP #938 Rev. 1, March 1989.

Analysis of soil samples for lower boiling petroleum hydrocarbons (benzene, toluene, ethylbenzene, xylenes, and gasoline) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Samples were analyzed for requested general chemical parameters following Methods for Chemical Analysis of Water and Wastes (EPA 1983) or Test Methods for Evaluating Solid Wastes (SW-846, 3rd Ed.,1986). The test method used is listed along with the particular analysis.

#### NOTES

Method TPH-GAS: For the analysis of the composite sample, a chromatographic pattern was observed that did not match the patterns of our in-house standards for this method. This component was semi-quantitated by comparison to the gasoline standard and is reported as "unknown".

QC Batch# 0123A: The MS/MSD recoveries were unobtainable due to the high level of analyte present in the sample selected. The result of the LCS is reported.

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a

recycled paper

REPORT

Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

N/A - Not applicable

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by: Korald Mlagari

Page 3 Mid-Pacific

REPORT

Work Order # 92-12-130

# Woodward Clyde Consultants Analytical Results - TPH as Diesel by GC /soil

Client ID: <u>TP1</u>

MPELI ID: <u>9212130-01B</u>

Matrix: SOIL QC Batch: 0123A

Collected: 12/17/92
Received: 12/18/92

Extracted: 12/21/92 Analyzed: 12/31/92

Dilution factor: 10.0

#### Concentration, mg/kg

PARAMETER	RESULT	LIMIT
Diesel	2200	10.0
Kerosene	ND	10.0
Motor Oil	ND	100

Page 4 Mid-Pacific REPORT Work Order # 92-12-130

## Woodward Clyde Consultants Analytical Results - TPH as Gas, BTEX by GC/soil

Client ID: <u>TP1</u> Collected: 12/17/92

MPELI ID: <u>9212130-01A</u> Received: 12/18/92

Matrix: SOIL Analyzed: 12/30/92

QC Batch: S089A Dilution factor: 1.00

\*RECOVERY

Concentration,	ug/kg
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59

LIMITS

42-137

PARAMETER	RESULT	LIMIT
Benzene	ND	20
Toluene	ND	20
Ethylbenzene	38	20
Total Xylenes	60	20

SURROGATE

Bromofluorobenzene

Page 5 Mid-Pacific REPORT Work Order # 92-12-130

# Woodward Clyde Consultants Analytical Results - TPH as Diesel by GC /soil

 Client ID:
 TP2
 Collected:
 12/17/92

 MPELI ID:
 9212130-02B
 Received:
 12/18/92

 Matrix:
 SOIL
 Extracted:
 12/21/92

 QC Batch:
 0123A
 Analyzed:
 12/31/92

Dilution factor: 10.0

#### Concentration, mq/kg

PARAMETER	RESULT	LIMIT
Diesel	1600	10.0
Kerosene	ND	10.0
Motor Oil	ND	100

Page 6 Mid-Pacific REPORT Work Order # 92-12-130

# Woodward Clyde Consultants Analytical Results - TPH as Gas, BTEX by GC/soil

 Client ID:
 TP2
 Collected:
 12/17/92

 MPELI ID:
 9212130-02A
 Received:
 12/18/92

 Matrix:
 SOIL
 Analyzed:
 12/30/92

 QC Batch:
 S089A
 Dilution factor:
 1.00

	Concentration, ug/kg		
PARAMETER	RESULT	LIMIT	
Benzene	ND	20	
Toluene	ND	20	
Ethylbenzene	88	20	
Total Xylenes	58	20	
SURROGATE	*RECOVERY	LIMITS	
Bromofluorobenzene	58	42-137	

Page 7 Mid-Pacific REPORT Work Order # 92-12-130

# Woodward Clyde Consultants Analytical Results - TPH as Diesel by GC /soil

Client ID: Comp SP1-A,B,C,D

MPELI ID: 9212130-07B

Matrix: SOIL QC Batch: 0123A

Collected: 12/17/92 Received: 12/18/92

Received: 12/18/92 Extracted: 12/21/92

Analyzed: 12/31/92 Dilution factor: 50.0

#### Concentration, mg/kg

PARAMETER	RESULT	LIMIT
Diesel	6800	50
Kerosene	ND	50
Motor Oil	ND	500

Page 8 Mid-Pacific REPORT Work Order # 92-12-130

Woodward Clyde Consultants
Analytical Results - TPH as Gas, BTEX by GC/soil

Client ID: Comp SP1-A, B, C, D Collected: 12/17/92

MPELI ID: 9212130-07A Received: 12/18/92
Matrix: Analyzed: 12/22/92

QC Batch: S088A Dilution factor: 1.00

	Concentration, ug/kg			
PARAMETER	RESULT	LIMIT		
Benzene	ND	100		
Toluene	ND	100		
Ethylbenzene	110	100		
Total Xylenes	160	100		
Gasoline	ND	20000		
Unknown	220000	20000		
SURROGATE	*RECOVERY	LIMITS		
Bromofluorobenzene	116	42-137		

Mid-Pacific

REPORT

Work Order # 92-12-130

#### Woodward Clyde Consultants

Client ID: TP1

MPELI ID: 9212130 - 01C

Matrix: SOIL

Date collected: 12/17/92

Date received: 12/18/92

Test description	Method	Result	Report Limit Units	Prep Date		QC Batch
Org.Lead by flame AA	DOHS	ND	0.50 mg/kg	12/27	01/07	0032A

Mid-Pacific

REPORT

Work Order # 92-12-130

### Woodward Clyde Consultants

Client ID: TP2

Date collected: 12/17/92

MPELI ID: 9212130 - 02C

Date received: 12/18/92

Matrix: SOIL

Test description	Method	Result	Report Limit Units	Prep Date		QC Batch
Org.Lead by flame AA	DOHS	ND	0.50 mg/kg	12/27	01/07	0032A

Page 11 Mid-Pacific

REPORT

Work Order # 92-12-130

#### Woodward Clyde Consultants

Client ID: Comp SP1-A,B,C,D

MPELI ID: 9212130 - 07C

Matrix: SOIL

Date collected: 12/17/92

Date received: 12/18/92

Test description	Method	Result	Report Limit Units	•	Run Date	QC Batch
Flashpoint:nonliquid pH in soil	EPA 1010 EPA 9045	>70 8.4	0 Degr.C N/A pH	•	•	0017A 0115A

Mid-Pacific

QC REPORT

Work Order # 9212130

#### Woodward Clyde Consultants

Tot. Pet. Hydrocarbon/soil

QC Batch#: 0123A

Units: mg/kg

Analysis Dates Blank: 12/29/93 Prep Date: 12/21/93

MS:

MSD: LCS: 12/29/93

	В:	lank	Spike	*Reco	very			
Analytes	Result	<u>Limit</u>	<u>level</u>	MS	MSD	<u>LCS</u>	<u>LIMITS</u>	RPD
Diesel	ND	1				97		
Kerosene	ND	1						
Motor Oil	ND	10						

#### Mid-Pacific

#### QC REPORT

Work Order # 9212130

#### Woodward Clyde Consultants

Gas BTEX in soil

QC Batch#: 8088A

Units: ug/kg Prep Date: 12/22/92 Analysis Dates

Blank: 12/22/92

MS: 12/22/92 MSD: 12/22/92

LCS: 12/22/92

	B.	lank	Spike	*Rec	overy		QC	
Analytes	Result	<u>Limit</u>	<u>level</u>	MS	MSD	<u>LCS</u>	<u>LIMITS</u>	RPD
Benzene	ND	5	125	46	50	89		8.3
Toluene	ND	5	125	48	54	90		12
Ethylbenzene	ND	5	125	73	82	89		12
Total Xylenes	ND	5	125	62	76	93		20
Gasoline	ND	1000						
Bromofluorobenzene (surr)	109%		1250	92	114	102	42-137	

Mid-Pacific

QC REPORT

Work Order # 9212130

#### Woodward Clyde Consultants

Gas BTEX in soil

QC Batch#: 8089A

Analysis Dates

Blank: 12/30/92 MS: 12/30/92

MSD: 12/30/92 LCS: 12/30/92

Units:	ug/kg
Prep Date:	12/30/92

	В.	lank	Spike	*Rec	overy			
Analytes	Result	<u>Limit</u>	<u>level</u>	MS	MSD	<u>LCS</u>	<u>LIMITS</u>	RPD
Benzene	ND	5	125	55	54	76		1.8
Toluene	ND	5	125	58	56	78		3.5
Ethylbenzene	ND	5	125	61	60	82		1.7
Total Xylenes	ND	5	125	62	61	82		1.6
Gasoline	ND	1000						
Bromofluorobenzene (surr)	103%		1250	72	70	96	42-137	

Mid-Pacific

METALS QC REPORT Work Order # 9212130

#### Woodward Clyde Consultants

Instrument Type: Flame Atomic Absorption

QC Batch #: 0032A Units: mg/kg Matrix: SOIL

Prep date: 12/27/92

Blank Spike \*Recovery Result Limit Amt MS MSD LCS RPD Run Test Description Method ND 0.50 10 42 41 98 2.4 01/07 Org.Lead by flame AA DOHS

### Woodward Clyde Consultants

Batch #: 0017A Un	its: Degr.C	First	Duplicate	Date
Test Description	Method	Analysis	Analysis	Run
Flashpoint: nonliquid	EPA 1010	>70	>70	01/05
Batch #: 0115A Un	nits: pH	First	Duplicate	<b>Date</b>
Test Description	Method	Analysis	Analysis	Run
pH in soil	EPA 9045	8.814	8.795	12/30

NAT - /ETC

APR 0 9 1993

MPELI Order#: 93-03-105

Date Received: 03/22/93

April 07, 1993

Mid-Pacific Environmental Laboratory, Inc. 625B Clyde Avenue Mountain View (A. 94043 (415: 964-0844 FAX (415: 961-7113

> Woodward Clyde Consultants 500 12th Street Suite 100 Oakland, CA 94607-4014

Attn: Anita Yan

Subject: Analysis of Soil Composites/Add'l Anal.

Work ID: 92CB038/92CB037

P.O. #: none given

Pages in report: 5

Preparation of soil samples for metals analysis by Graphite Furnace Atomic Absorption were performed by following USEPA Method 3050 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986). The specific analytical method employed is listed alongside the test description in the report table.

Preparation and analysis of soil samples for metals by Inductively Coupled Argon Plasma Spectroscopy (ICAP) or Flame Atomic Absorption (FAA) were performed by following Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986). The specific test method number is listed next to the analyte in the report.

Preparation and analysis of soil samples for Mercury by Cold Vapor Atomic Absorption was performed by following USEPA Method 7471 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

#### NOTES

Method 7471, Mercury by CVAA: Per request of Anita Yan, samples were analyzed despite having exceded their holding times.

QC Batch# 1057A: In the analyses for metals by ICAP, the percent recoveries for the matrix spike of cadmium and chromium are outside of QC limits. The percent recoveries for the matrix spike and matrix spike duplicate of zinc are outside of QC limits. The RPDs for chromium and zinc are outside of QC limits. All LCS percent recoveries are within QC limits demonstrating that the system is in control. The out of limit recovery and RPD values are attributed to matrix interference.

QC Batch# 1058A: In the analyses for metals by GFAA, the percent recoveries for lead in the matrix spike and matrix spike duplicate were diluted-out and not quantifiable. The concentration of lead in the sample was 27 mg/Kg compared to the spike amount of 2 mg/Kg. The percent recovery of lead in the LCS is within QC limits demonstrating that the system is in control. The method blank has lead present at 0.39 mg/Kg.

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

N/A - Not applicable

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by: Andle Maga-

#### REPORT

### Woodward Clyde Consultants

Client ID: Composite SP2 A,B,C,D

MPELI ID: 9303105 - 09A

Matrix: SOIL

Date collected: 12/16/92 Date received: 03/22/93

Test description	Method	Result	Report Limit Units	Prep Run Date Date	QC Batch
•					
Silver by ICAP	EPA 6010	ND	1.0  mg/kg	03/28 03/2	
Arsenic by GFAA	EPA 7060	3.2	0.50  mg/kg	03/28 03/2	
Barium by ICAP	EPA 6010	98	1.0  mg/kg	03/28 03/2	29 1057A
Beryllium by ICAP	EPA 6010	ND	0.50  mg/kg	03/28 03/2	29 1057A
Cadmium by ICAP	EPA 6010	0.84	0.50  mg/kg	03/28 03/2	29 1057A
Cobalt by ICAP	EPA 6010	11	1.0  mg/kg	03/28 03/2	9 1057A
Chromium by ICAP	EPA 6010	44	1.0  mg/kg	03/28 03/3	9 1057A
Copper by ICAP	EPA 6010	17	1.0 mg/kg	03/28 03/3	9 1057A
Mercury by CVAA	EPA 7471	ND	0.10  mg/kg	03/28 03/3	29 0380A
Molybdenum by ICAP	EPA 6010	ND	2.0  mg/kg	03/28 03/3	9 1057A
Nickel by ICAP	EPA 6010	60	2.0 mg/kg	03/28 03/3	9 1057A
Lead by GFAA	EPA 7421	6.1	1.0  mg/kg	03/28 03/	29 1058A
Antimony by ICAP	EPA 6010	ИD	5.0  mg/kg	03/28 03/	29 1057A
Selenium by GFAA	EPA 7740	ND	0.50  mg/kg	03/28 03/	29 1058A
Thallium by GFAA	EPA 7841	ND	0.50 mg/kg	03/28 04/	01 1058A
Vanadium by ICAP	EPA 6010	38	1.0  mg/kg	03/28 03/	29 1057A
Zinc by ICAP	EPA 6010	59	1.0  mg/kg	03/28 03/	29 1057A

#### REPORT

#### Woodward Clyde Consultants

Client ID: Composite SP1 A,B,C,D

MPELI ID: 9303105 - 10A

Matrix: SOIL

Date collected: 12/17/92

Date received: 03/22/93

			Report	Prep Run QC	
Test description	Method	Result	Limit Units	Date Date Batc	h
Silver by ICAP	EPA 6010	ND	1.0 mg/kg	03/28 03/29 1057	Ά
Arsenic by GFAA	EPA 7060	3.8	0.50  mg/kg	03/28 03/29 1058	Α
Barium by ICAP	EPA 6010	66	1.0  mg/kg	03/28 03/29 1057	Α
Beryllium by ICAP	EPA 6010	ND	0.50  mg/kg	03/28 03/29 1057	Α
Cadmium by ICAP	EPA 6010	ND	0.50  mg/kg	03/28 03/29 1057	Α
Cobalt by ICAP	EPA 6010	6.2	1.0  mg/kg	03/28 03/29 1057	
Chromium by ICAP	EPA 6010	34	1.0 mg/kg	03/28 03/29 1057	Α
Copper by ICAP	EPA 6010	29	1.0  mg/kg	03/28 03/29 1057	Α
Mercury by CVAA	EPA 7471	ND	0.10  mg/kg	03/28 03/29 0380	
Molybdenum by ICAP	EPA 6010	ND	2.0  mg/kg	03/28 03/29 1057	
Nickel by ICAP	EPA 6010	32	2.0  mg/kg	03/28 03/29 1057	Α
Lead by GFAA	EPA 7421	5.0	0.10  mg/kg	03/28 03/29 1058	βA
Antimony by ICAP	EPA 6010	ND	5.0 mg/kg	03/28 03/29 1057	Α
Selenium by GFAA	EPA 7740	ИD	0.50  mg/kg	03/28 03/29 1058	3 <b>A</b>
Thallium by GFAA	EPA 7841	ND	0.50  mg/kg	03/28 04/01 1058	βA
Vanadium by ICAP	EPA 6010	29	1.0 mg/kg	03/28 03/29 1057	
Zinc by ICAP	EPA 6010	26	1.0 mg/kg	03/28 03/29 1057	/A

#### METALS QC REPORT

#### Woodward Clyde Consultants

Instrument Type: Cold Vapor

QC Batch #: 0380A Units: mg/kg Matrix: SOIL Prep date: 03/28/93

Blank Spike \*Recovery Date Test Description Method Result Limit Amt MS MSD LCS RPD Run Mercury by CVAA EPA 7471 ND 0.10 1.0 124 126 93 1.6 03/29

Instrument Type: Furnace Atomic Absorption

QC Batch #: 1058A Units: mg/kg Matrix: SOIL Prep date: 03/28/93

		Bla	nk	Spike	%Recovery				Date
Test Description	Method	Result	<u>Limit</u>	Amt	<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>RPD</u>	Run
Arsenic by GFAA	EPA 7060	ND	0.50	4.0	100	95	89	5.2	03/29
Lead by GFAA	EPA 7421	0.39	0.10	2.0			108		03/29
Selenium by GFAA	EPA 7740	ND	0.50	1.0	90	110	76	20	03/29
Thallium by GFAA	EPA 7841	ND	0.50	5.0	103	95	99	8.1	03/29

Instrument Type: Inductively Coupled Argon Plasma

QC Batch #: 1057A Units: mg/kg Matrix: SOIL Prep date: 03/28/93

		Blank S		Spike	%Re	Date			
Test Description	Method	Result	Limit	Amt	MS	MSD	<u>LCS</u>	RPD	Run
Silver by ICAP	EPA 6010	ND	2.0	10	107	109	96	1.9	03/29
Barium by ICAP	EPA 6010	ND	2.0	400	102	98	97	4.0	03/29
Beryllium by ICAP	EPA 6010	ND	1.0	10	99	100	94	1.0	03/29
Cadmium by ICAP	EPA 6010	ND	1.0	10	130	125	115	3.9	03/29
Cobalt by ICAP	EPA 6010	ND	2.0	100	100	100	101	0	03/29
Chromium by ICAP	EPA 6010	ND	2.0	40	147	111	103	28	03/29
Copper by ICAP	EPA 6010	ИD	2.0	50	104	106	104	1.9	03/29
Molybdenum by ICAP	EPA 6010	ND	4.0	100	99	101	100	2.0	03/29
Nickel by ICAP	EPA 6010	ND	4.0	100	99	101	102	2.0	03/29
Antimony by ICAP	EPA 6010	ND	10	100	99	104	99	5.0	03/29
Vanadium by ICAP	EPA 6010	ND	2.0	100	90	91	100	1.1	03/29
Zinc by ICAP	EPA 6010	ND	2.0	100	136	385	99	96	03/29

92-12-111

Woodward-Clyde Consultants 500 12th Street, Suite 100, Oakland, CA 94607 (415) 893-3600 -4014									Chain of Custody Record										
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### **Woodward-Clyde Consultants**

500 12th Street, Suite 100, Oakland, CA 94607-4014 (510) 893-3600

# **Chain of Custody Record**

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Mid-Pacific Environmental Laboratory 625B Clyde Avenue Mauntain View, CA 94043 (415) 964-0844 FAX (415) 961-7113

> Woodward Clyde Consultants 500 12th Street Suite 100 Oakland, CA 94607-4014

May 20, 1993

MPELI Order#: 93-05-047 Date Received: 05/12/93

Attn: Anita Yan

Subject: Analysis of 1 Composite of 4 Soil samples

Work ID: 92CB037 CBC Dublin

P.O. #: none given

Pages in report: 4

Analysis of soil samples for purgeable organic compounds was performed according to U.S. EPA Method 8240 (Test Methods for Evaluating Solid Waste - SW846, 3rd Ed., 1986).

#### NOTES

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

N/A - Not applicable

Mid-Pacific REPORT Work Order # 93-05-047

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by:

Page 2

Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

#### REPORT

# Woodward Clyde Consultants Analytical Results - 8240 VOA by GCMS /soil

Client ID: Composite SP1-A,B,C,D

MPELI ID: 9305047-05A

Matrix: SOIL QC Batch: B255A Collected: 05/11/93 Received: 05/12/93 Analyzed: 05/17/93

Dilution factor: 1.00

Concentrat:	ion, uq/kq

PARAMETER	RESULT	LIMIT
Chloromethane	ND	10
Vinyl chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	5.0
Carbon Disulfide	ND	5.0
Acetone	ND	10
Methylene chloride	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
Vinyl acetate	ND	10
2-Butanone	ND	10
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon tetrachloride	ND	5.0
Benzene	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
4-Methyl-2-pentanone	· ND	10
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
2-Hexanone	ND	10
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ИD	5.0
Total xylenes	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
SURROGATE	*RECOVERY	LIMITS
1.2-Dichloroethane-d4	109	70-121

SURROGATE	*RECOVERY	LIMITS
1,2-Dichloroethane-d4	109	70-121
Toluene-d8	98	84-138
p-Bromofluorobenzene	101	59-113

### Woodward Clyde Consultants

#### 8240 VOA by GCMS /Soil

QC Batch#: <u>B255A</u>
Units: ug/kg
Prep Date: 05/17/93

Page 4

Analysis Dates
Blank: 05/17/93
MS: 05/17/93
MSD: 05/17/93
LCS: 05/17/93

	В	lank	Spike	%Rec	overy		QC	
Analytes	Result	<u>Limit</u>	<u>level</u>	MS	MSD	<u>LCS</u>	LIMITS	RPD
Chloromethane	ND	10						
Vinyl chloride	ND	10						
Bromomethane	ND	10						
Chloroethane	ND	10						
1,1-Dichloroethene	ND	5.0	50	75	79	95	59-172	5.2
Carbon Disulfide	ND	5.0						
Acetone	ND	10						
Methylene chloride	ND	5.0						
trans-1,2-Dichloroethene	ND	5.0				•		
1,1-Dichloroethane	ND	5.0						
Vinyl acetate	ND	10						
2-Butanone	ND	10						
Chloroform	ND	5.0						
1,1,1-Trichloroethane	ND	5.0						
Carbon tetrachloride	ND	5.0						
Benzene	ND	5.0	50	98	102	107	66-142	4.0
1,2-Dichloroethane	ND	5.0						
Trichloroethene	ND	5.0	50	87	87	97	62-137	0
1,2-Dichloropropane	ND	5.0						
Bromodichloromethane	ND	5.0						
cis-1,3-Dichloropropene	ND	5.0						
4-Methyl-2-pentanone	ND	10						
Toluene	ND	5.0	50	94	98	99	59-139	4.2
trans-1,3-Dichloropropene	ND	5.0						
1,1,2-Trichloroethane	ND	5.0						
Tetrachloroethene	ND	5.0						
2-Hexanone	ND	10						
Dibromochloromethane	ND	5.0						
Chlorobenzene	ND	5.0	50	93	96	99	60-133	3.2
Ethylbenzene	ND	5.0						•
Total xylenes	ND	5.0						
Styrene	ND	5.0						
Bromoform	ND	5.0						
1,1,2,2-Tetrachloroethane	ND	5.0						
1,2-Dichloroethane-d4(surr)	104%			112	106	108	70-121	
Toluene-d8 (surr)	97%			101	103	100	84-138	
p-Bromofluorobenzene (surr)	104%			105	99	104	59-113	

**Woodward-Clyde Consultants** Chain of Custody Record 500 12th Street, Suite 100, Oakland, CA 94607-4014 (510) 893-3600 PROJECT NO. 9200037 **ANALYSES** coo Dublin Number of Containers REMARKS SAMPLERS: (Signature) Semple Matrix (S)oi, (W)ster, (A)k (Sample preservation, **EPA Method** handling **EPA Method** EPA Method procedures, etc.) SAMPLE NUMBER DATE TIME 5 5P1-A 114493 1325 COMPOSITE AT S 1 Haiff 1331 SP1 - 13 LAB 1 Hay 1335 Z SP1 - C 11May 1339 801-D S TOTAL NUMBER OF CONTAINERS DATE/TIME RELINQUISHED BY: RECEIVED BY: RELINQUISHED BY : DATE/TIME RECEIVED BY : (Signature) (Signature) (Signature) (Signature) 511 4.10 METHOD OF SHIPMENT : SHIPPED BY : COURIER: RECEIVED FOR LAB BY : DATE/TIME (Signature) (Signature) (Signature) Mattelele etcimp