December 7, 1994

FIAZMAT 94 DEC 19 PM12: 10 1777 Botelho Drive

ERM-West, Inc.

1777 Botelho Drive Suite 260 Walnut Creek, CA 94596 (510) 946-0455 (510) 946-9968 (Fax)

Mr. Jon Amdur Port of Oakland 530 Water Street Oakland, CA 94607

Subject: UST Tank Removal

370 8th Avenue (Keep On Trucking) Oakland, California



Dear Mr. Amdur:

ERM-West, Inc. (ERM), on behalf of The Port of Oakland (Port) herein presents the findings of soil and ground water sampling related to an underground storage tank (UST) removal at Keep On Trucking, 370 8th Avenue, Oakland, California. The duties of ERM were: observe the removal of the UST; collect soil and ground water samples; determine the laboratory testing requirements for disposal of fuel-affected soils either at the Vasco Road Sanitary Landfill or the Forward, Inc., landfill; and prepare a letter reporting our findings.

#### **UST REMOVAL**

The UST was located adjacent to the southwest side of the building occupied by Keep On Trucking (Figure 1). On October 12, 1994, the UST was exposed by excavation of the soils around the tank. The east side of the excavation extended to the edge of the adjacent building and was shored to prevent collapse. The UST removal was accomplished by Environmental Investigations and Actions of Hayward, CA. The tank removed from the ground was found to be of steel construction with an approximate 1000-gallon capacity. The tank appeared to be intact.

#### **Subsurface Conditions**

Materials excavated consisted of fill soils and Bay mud. The fill soils exposed in the excavation were composed of dark, fine-grained sands to the depth of the UST bottom, approximately 4.5 feet below ground surface (bgs). Underlying the fill, Bay mud was encountered to the total depth of the excavation, approximately 7 feet bgs. The Bay mud consisted of dark grayblack, silty clay. Adjacent to the south end of the UST, discolored soils with a strong odor were observed. Measurements of the discolored/odorous soils

Mr. Jon Amdur December 7, 1994

with a photoionization detector (PID) indicated that significant concentrations of organic vapors were emanating from the material. The discolored/odorous soil was excavated and added to the other soil removed from the excavation. Due to the dark/gray coloration of the soils surrounding the tank, the identification of potentially impacted soil was based primarily upon the soil's odor and PID readings. All of the soils excavated were stockpiled at the site.

Below the discolored soils, an abandoned terra cotta pipe was encountered. It was not possible to determine whether the pipe was originally located in this area or whether it had been placed as part of the backfill. PID measurement from inside the pipe indicated measurable concentrations of organic vapors.

After the UST was removed, a very minor amount of ground water was present in the western half of the excavation. The quantity of ground water was too small to allow sampling.

# Sample Collection

Two soil samples were collected from the excavation immediately following the tank removal (October 12, 1994). Samples TE-1 and TE-2 were collected from east and west ends of the excavation, respectively, approximately 2 feet below the former tank bottom (approximately 7 feet below grade). Sample SP-1 was collected as a composite sample from the stockpiled soils. The samples were collected using a clean trowel and were placed into laboratory-supplied glass jars. After collection, the jars were sealed, labeled, then placed on ice in a cooler. The samples were transported under chain of custody to Sequoia Analytical Laboratory, Concord, California.

On October 15, 1994, three of the four excavation side walls were sampled (Figure 1). The side wall adjacent to the building was sampled on October 19 by Environmental Investigations and Actions during the removal of the shoring. The sidewall samples were collected by forcing clean 2-inch brass tubes into the soil. Following sample collection, the brass tubes were sealed with Teflon tape and tight-fitting plastic end caps, then labeled and placed on ice in a cooler. The samples were then transported under chain of custody to Clayton Environmental Laboratory, Pleasanton, California.

Also on October 15, a single water sample, GW-1, was collected from a small pool of water that had accumulated in the western half of the excavation. The water sample was collected using a disposable bailer then transferred to laboratory-provided, 40 ml glass vials. Each vial was labeled and placed in the same cooler containing the three soil samples. The volume of ground water collected was sufficient only for the volatile organic analysis.

## **Laboratory Analyses**

The soil samples collected from below the UST and the excavation sidewalls were analyzed for total petroleum hydrocarbons characterized as gasoline and diesel fuels according to EPA Method 8015-Modified, and aromatic organic compounds according to EPA Method 8020. The analytical requirements for landfill disposal of the stockpiled soils included the following: TPH-gasoline and aromatic volatile compounds by EPA Method 8020; volatile organic compounds according to EPA Method 8240; semivolatile organic compounds according to EPA Method 8270; petroleum hydrocarbons characterized as diesel according to EPA Method 418.1; and CCR Title 26 soluble metals according to various methods; and for the hazardous waste criteria of reactivity, corrosivity, and ignitability. The additional analyses were conducted to characterize the stockpiled soils for disposal. The water sample was analyzed for volatile fuel hydrocarbons and aromatic organic compounds using EPA methods 8015-M and 8020, respectively. Analytical results are summarized in Tables 1 and 2.

#### RESULTS

Results of the laboratory analyses indicate that petroleum hydrocarbons were present in the subsurface soil samples and the ground water sample (Table 1). The data indicate that both gasoline and diesel fuels were detected. Trace concentrations of volatile organic compounds were detected in samples TE-3 and TE-6. The laboratory analyses of the sidewall soil samples (TE-3, TE-4, TE-5, and TE-6) were received by ERM subsequent to backfilling of the excavation.

# Soil Impacts

The two samples collected from the bottom of the excavation had the lowest concentrations of TPH as diesel (120 mg/kg and 160 mg/kg, respectively, for TE-1 and TE-2), as well as relatively low concentrations of TPH as gasoline (21 mg/kg and 25 mg/kg, respectively). The concentrations of these compounds are slightly above the LUFT Manual cleanup level guidelines of 100 mg/kg for TPH-diesel fuel, and 10 mg/kg for TPH-gasoline for releases at sites with shallow ground water levels.

TPH-diesel concentrations in the sidewall samples ranged from 98 mg/kg to 44,000 mg/kg, while TPH as gasoline concentrations ranged from 5.6 mg/kg to 550 mg/kg. To determine whether naturally-occurring organic materials could have mistakenly been characterized as diesel fuel, ERM requested that the laboratory verify that the reported diesel fuel compounds matched the typical diesel fuel profile. Based on Clayton's statement that the pattern detected was typical of diesel fuel, ERM subsequently requested that the

laboratory reanalyze the soil samples for TPH as diesel. The subsamples collected by Clayton to fulfill this request were from the opposite ends of the brass tubes from the original subsamples. The findings from the second group of analyses confirmed the initial findings. The findings also indicated there is some inhomogeneity in the occurrence of TPH-diesel in the soils, as significantly lower concentrations were reported for two of the three reanalyzed samples, and a higher concentration was reported for one of the reanalyzed samples.

The highest concentrations of both gasoline and diesel constituents were detected in sample TE-3 from the south sidewall of the excavation, followed by sample TE-5 from the west sidewall of the excavation. Lower concentrations were detected in samples TE-4 and TE-6 from the north and east sidewalls, respectively. Concentrations of TPH diesel-fuel in all samples (with the exception of the reanalysis of TE-4) show concentrations of diesel fuel above the LUFT Manual cleanup guidelines of 100 mg/kg. The samples from the northern and eastern sidewalls, however, are well below 1000 mg/kg, and thus the regulatory agencies may allow those soils to remain in place. Gasoline concentrations for samples TE-3 and TE-5 also significantly exceed the regulatory guidelines. The gasoline concentration for sample TE-6 is considered to be within the acceptable range, while the concentration in sample TE-4 is above regulatory guidelines. It is uncertain whether the regulatory agencies are likely to allow the gasoline concentrations at the northern sidewall to remain in place. Finally, benzene was detected in sample TE-3 at a concentration of 0.32 mg/kg, which is at the regulatory threshold for this compound.

It should be noted that during the tank removal activities, the excavation sidewalls (with the exception of the small area of discolored/odorous soil previously discussed) did not appear to be impacted. Neither odor nor PID measurements suggested that impacted soils were present in the sidewalls. Based on all available field evidence, it appeared that the affected soils had been removed; however, the location of the discolored soils along the southern portion of the excavation correlates with the highest concentrations of diesel fuel detected in the soil sample from the southern sidewall. The presence of other discolored soil may have been masked by the natural dark colors of the fill and the Bay mud present in the excavation area.

# **Ground Water Impacts**

The single sample of ground water was reported by the laboratory to contain a low concentration of gasoline (1,600  $\mu$ g/l). The aromatic hydrocarbon compounds typically associated with gasoline were not detected. Because of insufficient sample volume (i.e., insufficient ground water in the excavation), the ground water samples could not be analyzed for diesel fuel constituents.

## Stockpiled Soils

The stockpiled soil was analyzed consistent with the requirements provided by the two landfills contacted. The stockpiled soil showed elevated concentrations of TPH as diesel (6,700 mg/kg) and as gasoline (590 mg/kg). Ethylbenzene and xylene were detected at 4.6 mg/kg and 8.6 mg/kg, respectively. Volatile organic compounds were not detected. The semivolatile organic compounds fluorene (2 mg/kg), 2-methylnaphthalene (6.9 mg/kg), and phenanthrene (2.9 mg/kg) were also detected. The concentrations of the aromatic volatiles and semivolatile compounds are well below the industrial Preliminary Remediation Goals (PRGs) for these compounds. No halogenated volatile organic compounds were detected. Soluble metals concentrations in the stockpiled soils were all well below the soluble threshold limit concentration.

#### CONCLUSIONS AND RECOMMENDATIONS

- The soils underlying the site of the former UST consist of fill material and Bay mud. The fill consists of dark, fine-grained sands to an approximate depth of 4.5 feet bgs. Bay mud was encountered below the fill material and consists of dark, gray-black, silty clay to the maximum depth explored (7 feet bgs).
- A very limited volume of ground water was encountered in the excavation. The actual depth to ground water and flow direction are unknown.
- Visual, instrumental, and laboratory findings indicate that significant
  concentrations of gasoline and diesel fuels were detected in the soils to the
  south and west of the former tank. Lower concentrations were detected to
  the east and north of the former tank.
- The concentrations of the fuels below the tank slightly exceed the 100 mg/kg regulatory guideline for diesel and the 10 mg/kg regulatory guideline for gasoline.
- The concentrations of individual aromatic hydrocarbons detected in the soils surrounding the tank are below the industrial PRGs.
- Laboratory results indicate that minor concentrations (1,600 µg/l) of gasoline were detected in the ground water; aromatic hydrocarbons typically associated with gasoline were not detected.

- The semivolatile organic compounds fluorene, 2-methylnaphthalene, and phenanthrene were detected in the stockpiled soil, but are present below industrial PRGs.
- The data indicate that impacted soils extend beyond the perimeter of the excavation. The lateral extent away from the excavation is unknown. The data also suggest there is a limit to the depth extent of the fuel-affected soils. It is possible that the limiting factor may have been the silty clay material of the Bay mud.
- The data indicate the presence of gasoline in ground water. The lateral extent of the affected ground water is unknown.
- Further site activities are recommended to characterize the extent of fuelaffected soils and ground water; these activities should include exploratory soil borings as well as HydroPunch sampling or ground water monitoring well construction and sampling.
- ERM recommends negotiations between the Port and regulatory agencies
  to allow the compounds of concern present at the bottom of the
  excavation and along the northern and eastern sidewalls to remain in
  place.

ERM appreciates the opportunity to provide technical assistance to the Port of Oakland. Please do not hesitate to call if you have any questions regarding this letter report.

Sincerely,

ERM-WEST, INC.

John Prall, R.G. Senior Geologist

JRP/jrp/2162.26

Enclosures

Table 1
Summary of Laboratory Analyses for Samples Collected From the UST Excavation
370 8th Avenue, Oakalnd, California
Port of Oakland

			Total Po	etroleum				
Sample	Depth	Date	Hydro	carbons	A	romatic H	ydrocarbons	
Number	(feet, bgs)	Sampled	Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes
	Samples Ana	alyzed by Se	equoia Analy	ytical .				
		Soils (mg/k	g)					
TE-1	7	10/12/94	21	160	< 0.005	< 0.005	< 0.005	< 0.005
TE-2	7	10/12/94	25	120	< 0.005	< 0.005	< 0.005	< 0.005
	Samples Ana	alyzed by C	layton Envir	onmental Labor	atory			
		Soils (mg/k	g)					
TE-3	5.5	10/15/94	550	*44,000/18,000	0.32	< 0.06	< 0.06	< 0.08
TE-4	5	10/15/94	43	*550/98	< 0.04	< 0.03	< 0.03	<().()4
TE-5	5.5	10/15/94	110	*3,300/6,900	< 0.06	< 0.06	< 0.06	< 0.08
TE-6	≈5	10/17/94	5.6a	320	< 0.01	< 0.01	0.01	0.02
		Ground Wa	iter (μg/l)					
GW-1		10/15/94	1,600		< 0.4	< 0.3	<0.3	<0.4

Notes: \* Asterix denotes that samples were reanalyzed to confirm previous analyses.

Table 2

Summary of Laboratory Analyses of Stockpiled Soil (Sample SP-2) 370 8th Street, Oakland, California Port of Oakland

Soluble	e Metals	Total Pe Hydrod			ydrocarbons	Petroleum Oil as Diesel	Volatile Organic Compounds		volatile Compounds	Othe	r Tests
Sb As Ba Be Cd Cr Co Cu Pb Hg Mo Ni Se Ag TI	<0.10 0.23 3.4 <0.75 <0.010 0.19 0.3 0.11 3.1 0.014 <0.010 0.44 <0.10 <0.010 <0.10 <0.010 9.7	Gasoline	590	Benzene Toluene Ethylbenzene Xylenes	<0.005 <0.005 4.6 8.6	6,700	all ND	Fluorene 2-methyl- naphthalene Phenanthrene	2.0(28) 6.9	Corrosivity Ignitability Sulfide Cyanide Water	7.4 pH >100 C <13 <0.010 Negative

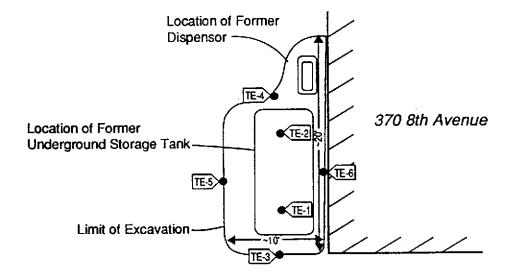
Notes: Units are in mg/kg unless as otherwise noted.

NA = Not Analyzed

Analyses were performed by Sequoia Analytical Laboratory.



No Scale



8th Avenue

# Legend

• TE -1 Sample Locality

ERM-West, Inc. 11'94 2162:26/AMRV11.15.94 Figure 1
Location of Former Underground Storage Tank
and Sampling Locations
Keep On Trucking
370 8th Avenue
Oakland, California

# LABORATORY ANALYSES



680 Chesapeake Drive 1900 Bates Avenue, Suite L. Concord, CA 94520 819 Striker Avenue, Suite 8

Redwood City, CA 94063 Sacramento, CA 95834

(415) 364-9600 (510) 686-9600 (916) 921-9600 FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596

Client Project ID: Sample Matrix:

370 8th Ave., Port of Oakland Soil

Oct 12, 1994 Oct 12, 1994

Attention: John Prall

Analysis Method: First Sample #:

EPA 5030/8015/8020 410-0681

Received: Reported:

Sampled:

Oct 14, 1994

### TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 410-0681 TE-1	Sample I.D. 410-0682 TE-2	Sample I.D. 410-0683 SP-1
Purgeable Hydrocarbons	1.0	21	25	590
Benzene	0.0050	N.D.	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.	N.D.
Ethyl Benzene	0.0050	0.14	N.D.	4.6
Total Xylenes	0.0050	N.D.	N.D.	8.6
Chromatogram Pattern:		Unidentified Hydrocarbon > C10	Unidentified Hydrocarbon > C8	Unidentified Hydrocarbon > C10
Quality Control Da	ata			
Report Limit Multip	lication Factor:	20	25	100
Date Analyzed:		10/13/94	10/13/94	10/13/94
i				

HP-4

95

HP-2

105

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard. Analytes reported as N.D. were not detected above the stated reporting limit.

HP-2

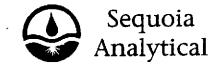
98

**SEQUOIA ANALYTICAL, #1271** 

Instrument Identification:

Surrogate Recovery, %:

(QC Limits = 70-130%)



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**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596

Client Project ID:

370 8th Ave., Port of Oakland Soil

Received:

and Sampled: Oct 12, 1994

Attention: John Prall

Sample Matrix: Analysis Method:

EPA 3550/8015

Reported:

Oct 12, 1994 Oct 14, 1994

First Sample #: 410-0681

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

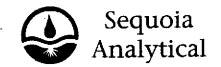
Analyte	Reporting Limit mg/kg	Sample I.D. 410-0681 TE-1	Sample I.D. 410-0682 TE-2		
Extractable Hydrocarbons	1.0	160	120		
hromatogram Pa	ttern:	Diesel	Diesel		

**Quality Control Data** 

Report Limit Multiplication Factor:	10	10
Date Extracted:	10/13/94	10/13/94
Date Analyzed:	10/13/94	10/13/94
Instrument Identification:	HP-3A	HP-3B
1		

Extractable Hydrocarbons are quantitated against a fresh diesel standard. Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL, #1271** 



Redwood City, CA 94063 819 Striker Avenue, Suite 8 Sacramento, CA 95834

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ERM-West 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

370 8th Ave., Port of Oakland Client Project ID: Sample Descript: Soil, SP-1 **EPA 8240** Analysis Method: Lab Number: 410-0683

Oct 12, 1994 Sampled: Received: Oct 12, 1994 Oct 13, 1994 Extracted: Oct 13, 1994 Analyzed: Reported: Oct 14, 1994

## **VOLATILE ORGANICS by GC/MS (EPA 8240)**

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Acetone	10,000	***************************************	N.D.
Benzene	2,000	.,	N.D.
Bromodichloromethane	2,000		N.D.
Bromoform	2,000		N.D.
Bromomethane	2,000	***************************************	N.D.
2-Butanone	10,000		N.D.
Carbon disulfide	2,000	***************************************	N.D.
Carbon tetrachloride	2,000	***************************************	N.D.
Chlorobenzene	2,000	***************************************	N.D.
Chloroethane	2,000		N.D.
2-Chloroethyl vinyl ether	10,000		N.D.
Chloroform	2,000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Chloromethane	2,000		N.D.
Dibromochloromethane	2,000		N.D.
1,1-Dichloroethane	2,000		N.D.
1,2-Dichloroethane	2,000		N.D.
1,1-Dichloroethene	2,000		N.D.
cis-1,2-Dichloroethene	2,000		N.D.
trans-1,2-Dichloroethene	2,000	4201420447777777777777777777777777777777	N.D.
1,2-Dichloropropane	2,000	***************************************	N.D.
cis-1,3-Dichloropropene	2,000		N.D.
trans-1,3-Dichloropropene	2,000	*****************************	N.D.
Ethylbenzene	2,000	********************************	N.D.
2-Hexanone	10,000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Methylene chloride	5,000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
4-Methyl-2-pentanone	10,000		N.D.
Styrene	2,000		N.D.
1,1,2,2-Tetrachloroethane	2,000	***************************************	N.D.
Tetrachloroethene		***************************************	N.D.
Toluene		,	N.D.
1,1,1-Trichloroethane			N.D.
1,1,2-Trichloroethane		***************************************	N.D.
Trichloroethene	2,000	***************************************	N.D.
Trichlorofluoromethane	2,000	***************************************	N.D.

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



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FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Client Project ID: Sample Descript: Analysis Method: Lab Number:

370 8th Ave., Port of Oakland Soil, SP-1 **EPA 8240** 410-0683

Received: Oct 12, 1994 Extracted: Analyzed: Reported:

Sampled:

Oct 13, 1994 Oct 13, 1994 Oct 14, 1994

Oct 12, 1994

# **VOLATILE ORGANICS by GC/MS (EPA 8240)**

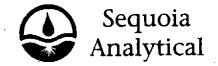
Analyte	Detection Limi µg/kg	it	Sample Results µg/kg
Vinyl acetate	2,000	*************************************	N.D.
Vinyl chloride			N.D.
Total Xylenes		,	N.D.
Surrogates	Control Limi	t %	% Recovery
1,2-Dichloroethane-d4	50	150	80
Toluene-d8.		150	102
4-Bromofluorobenzene		150	119

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL, #1271

Kenneth K.F. Lee Laboratory Director

Page 2 of 2



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Oct 12, 1994

Oct 12, 1994

**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Sampled: 370 8th Ave., Port of Oakland Client Project ID: Sample Descript: Soil, SP-1

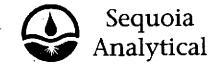
Analysis Method: EPA 8270 Lab Number: 410-0683

Extracted: Oct 13, 1994 Analyzed: Oct 13, 1994 Reported: Oct 14, 1994

Received:

## SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Acenaphthene	2,000		N.D.
Acenaphthylene	2,000		N.D.
Aniline	2,000	***************************************	N.D.
Anthracene	2,000		N.D.
Benzidine	50,000		N.D.
Benzoic Acid	10,000		N.D.
Benzo(a)anthracene	2,000		N.D.
Benzo(b)fluoranthene	2,000		N.D.
Benzo(k)fluoranthene	2,000		N.D.
Benzo(g,h,i)perylene	2,000		N.D.
Benzo(a)pyrene		***************************************	N.D.
Benzyl alcohol	2,000		N.D.
Bis(2-chloroethoxy)methane	2,000		N.D.
Bis(2-chloroethyl)ether	2,000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Bis(2-chloroisopropyl)ether	2,000		N.D.
Bis(2-ethylhexyl)phthalate	10,000		N.D.
4-Bromophenyl phenyl ether	2,000	144444	N.D.
Butyl benzyl phthalate	2,000		N.D.
4-Chloroaniline	2,000		N.D.
2-Chloronaphthalene	2,000		N.D.
4-Chloro-3-methylphenol	2,000		N.D.
2-Chlorophenol	2,000	.,	N.D.
4-Chiorophenyl phenyl ether	2,000		N.D.
Chrysene	2,000		N.D.
Dibenz(a,h)anthracene	2,000		N.D.
Dibenzofuran	2,000		N.D.
Di-N-butyl phthalate	10,000		N.D.
1,3-Dichlorobenzene	2,000	***************************************	N.D.
1,4-Dichlorobenzene	2,000	***************************************	N.D.
1,2-Dichlorobenzene	2,000	••••••	N.D.
3,3-Dichlorobenzidine	10,000		N.D.
2,4-Dichlorophenol	2,000	***************************************	N.D.
Diethyl phthalate	2,000		N.D.
2,4-Dimethylphenol	2,000		N.D.
Dimethyl phthalate	2,000		N.D.
4,6-Dinitro-2-methylphenol	10,000		N.D.
2,4-Dinitrophenol	10,000		N.D.
2,4-Dinitrotoluene			N.D.
2,6-Dinitrotoluene			N.D.
Di-N-octyl phthalate	2,000		N.D.



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FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Client Project ID: Sample Descript: Analysis Method:

Lab Number:

370 8th Ave., Port of Oakland Soil, SP-1 EPA 8270

410-0683

Received: Extracted: Analyzed:

Sampled:

Oct 12, 1994 Oct 12, 1994 Oct 13, 1994

Reported:

Oct 13, 1994 Oct 14, 1994

# SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Lin	nit	Sample Results µg/kg
Fluoranthene	2,000	***************************************	N.D.
Fluorene	2,000		
Hexachlorobenzene			N.D.
Hexachlorobutadiene	2,000	***************************************	N.D.
Hexachlorocyclopentadiene		***************************************	N.D.
Hexachloroethane		***************************************	N.D.
Indeno(1,2,3-cd)pyrene		***************************************	N.D.
Isophorone		***************************************	N.D.
2-Methylnaphthalene	2,000		. 6,900
2-Methylphenol			N.D.
4-Methylphenol			N.D.
Naphthalene			N.D.
2-Nitroaniline			N.D.
3-Nitroaniline	10,000	***************************************	N.D.
4-Nitroaniline	10,000		N.D.
Nitrobenzene		***************************************	N.D.
2-Nitrophenol	2,000	***************************************	N.D.
4-Nitrophenol	10,000	********	N.D.
N-Nitrosodiphenylamine		,	N.D.
N-Nitroso-di-N-propylamine		***************************************	N.D.
Pentachlorophenol			N.D.
Phenanthrene			. 2,900
Phenol			N.D.
Pyrene		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
1,2,4-Trichlorobenzene		***************************************	N.D.
2,4,5-Trichlorophenol		***************************************	N.D.
2,4,6-Trichlorophenol	2,000	***************************************	N.D.
Surrogates	Control Lin	nit %	% Recovery
2-Fluorophenol	. 10	120	2.0
Phenol-d6		120	1.0
Nitrobenzene-d5		130	19
2-Fluorobiphenyl		170	64
2,4,6-Tribromophenol		160	24
4-Terphenyl-d14		149	45

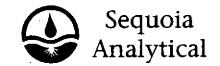
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL, #1271

Please Note: Low surrogate recovery due to matrix interference and dilution.

Kenneth K.F. Lee Laboratory Director

Page 2 of 2



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Redwood City, CA 94063 Sacramento, CA 95834

(415) 364-9600 (510) 686-9600 (916) 921-9600 FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Client Project ID: Matrix Descript: Analysis Method:

First Sample #:

370 8th Ave., Port of Oakland

EPA 418.1 (I.R. with clean-up)

Oct 12, 1994 Received: Oct 12, 1994 Extracted: Oct 13, 1994 Analyzed: Oct 13, 1994

Sampled:

Reported: Oct 14, 1994

#### TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

410-0683

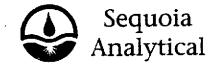
Sample Number	Sample Description	Petroleum Oil mg/kg (ppm)	Detection Limit Multiplication Factor
410-0683	SP-1	6,700	50

**Detection Limits:** 

1.0

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

SEQUOIA ANALYTICAL, #1271



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**ERM-West** 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596

Attention: John Prall

Client Project ID: Sample Descript:

370 8th Ave., Port of Oakland Soil, SP-1

Sampled: Received: Oct 12, 1994 Oct 12, 1994

Extracted:

Oct 13, 1994

Lab Number:

410-0683

Reported: Oct 17, 1994

## INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

#### Soluble Threshold Limit Concentration

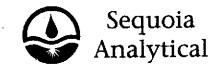
**Total Threshold Limit Concentration** 

Waste Extraction Test

Analyte	STLC Max. Limit	Detection Limit	Analysis Result	TTLC Max. Limit	Detection Limit	Analysis Result
	(mg/L)	(mg/L)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	15	0.10	N.D.	500	5.0	_
Arsenic	5.0	0.10	0.23	500	5.0	-
Barium	100	0.010	3.4	10,000	5.0	-
Beryllium	0.75	0.010	N.D.	75	0.50	-
Cadmium	1.0	0.010	N.D.	100	0.50	-
Chromium (VI)	-	•	-	•	•	-
Chromium (III)	560	0.010	0.19	2,500	0.50	-
Cobait	80	0.010	0.30	8,000	2.5	-
Copper	25	0.010	0.11	2,500	0.50	-
Lead	5.0	0.020	3.1	1,000	5.0	-
Mercury	0.20	0.0010	0.014	20	0.010	-
Molybdenum	350	0.010	N.D.	3,500	2.5	-
Nickel	20	0.020	0.44	2,000	2.5	-
Selenium	1.0	0.10	N.D.	100	5.0	•
Silver	5.0	0.010	N.D.	500	0.50	•
Thallium	7.0	0.10	N.D.	700	5.0	-
Vanadium	24	0.010	0.53	2,400	2.5	-
Zinc	250	0.020	9.7	5,000	0.50	-
Asbestos	-	10	-	10,000	100	
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g. Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271



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ERM-West

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Client Project ID: Sample Descript:

Project ID: 370 8th Ave., Port of Oakland

Soil, SP-1

Dakland Sampled: Received:

Oct 12, 1994

Oct 12, 1994 Analyzed: Oct 13-14, 1994

Lab Number: 

410-0683

Reported: Oct 14, 1994

#### **CORROSIVITY AND IGNITABILITY**

Analyte	Detection Limit	Sample Results
Corrosivity:	N.A	7.4
Ignitability: Flashpoint (Pensky-Martens), °C	N.A	> 100 °C

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

SEQUOIA ANALYTICAL, #1271



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FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

ERM-West 1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

370 8th Ave., Port of Oakland Client Project ID: Sample Descript: Soil, SP-1

Sampled: Oct 12, 1994 Received:

Oct 12, 1994 Analyzed: Oct 13, 1994

Lab Number:

410-0683

Reported: Oct 14, 1994®

#### REACTIVITY

Analyte	Detection Limit	Sample Results
Reactivity:		
Sulfide, mg/kg	13	 N.D.
Cyanide, mg/kg	0.010	 N.D.
Reaction with water	N.A.	 Negative

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

**SEQUOIA ANALYTICAL, #1210** 



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1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600	FAX (510) 686-9689

Company Name: 👍	IN WEST.	1.4C				Proje	ct Name	37	© <i>∑</i> {	54 B	VE,	100	-T &	< a	100	1110		
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City: WALNUN	CARRState:	CA		Zip Code:	98596	_												
Telephone: 570	- 440-04	53-	FAX #:	57 - 94	6-7468	7 P.O.	#: Z1	62.	25	• 					_			Pink - Client
Report To: JOHN F					SHUNAR						Leve	l B	<u> </u>	evel C		Level	D	Ā
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Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia Sample		Ser.		از زار ع مرکن	5/0 917 t	K / Ed	X114/			ER	Comme	ents	
1. TE -/	3:34.0	Stil	2	AMBET!	10068	1	XX	X										Sequoia
2.TE-2	12/12/194 3:35pm	50)L	Z		110068	32	$\langle \rangle$	X			<b>-</b>							•
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10.	40										<u> </u>							₹
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Relinquished By:			Date	e:	Time:	<sub>F</sub>	Received	l By Lat	s: K.L	an	Luz	2 [	Date:(4	1/2/9	/gTime	6.10	17.4	



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ERM-West

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

Client Project ID: 370 8th Ave., Port of Oakland

Matrix: Solid

QC Sample Group: 4100681-3

Reported:

Oct 14, 1994

#### QUALITY CONTROL DATA REPORT

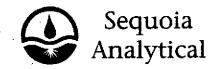
ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	TRPH	
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020 J. Fontecha	EPA 8015 Mod K.V.S.	EPA 418.1 Son Le	
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	V.V.D.	2011 Fe	
MS/MSD							
Batch#:	4100220	4100220	4100220	4100220	4100230	BLK101394	
Date Prepared:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	Miran 1FF	
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	10 mg/Kg	125 mg/Kg	
Matrix Spike % Recovery:	105	105	108	108	85	88	
Matrix Spike Duplicate % Recovery:	108	108	110	113	71	92	
Relative % Difference:	2.8	2.8	1.8	4.5	18	4.4	
LCS Batch#:	LCS101094	LCS101094	LCS101094	LCS101094	BLK101394	LCS101394	
Date Prepared:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	Miran 1FF	
_ LCS %					20	99	
Recovery:	111	110	115	115	89	88	
% Recovery Control Limits:	55-145	47-149	47-155	56-140	38-122	70-130	

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Kenneth K.F. Lee Laboratory Director

SEQUOIA ANALYTICAL, #1271



Redwood City, CA 94063 Concord, CA 94520 Sacramento, CA 95834 (415) 364-9600 (510) 686-9600 (916) 921-9600 FAX (415) 364-9233 FAX (510) 686-9689 FAX (916) 921-0100

ERM-West

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall Client Project ID:

370 8th Ave., Port of Oakland

Matrix:

Solid

QC Sample Group: 4100681-3

Reported: Oct 14, 1994

#### **QUALITY CONTROL DATA REPORT**

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-	N-Nitroso-Di-	1,2,4-Trichloro-	4-Chloro-3-	
			benzene	N-propylamine	benzene	Methylphenol	
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	
Analyst:	Son Le	Son Le	Son Le	Son Le	Son Le	Son Le	
MS/MSD							
Batch#:	4100410	4100410	4100410	4100410	4100410	4100410	
Date Prepared:	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	
Conc. Spiked:	5000 μg/Kg	5000 μg/Kg	2500 µg/Kg	2500 μg/Kg	2500 μg/Kg	5000 μg/Kg	
Matrix Spike	•						
% Recovery:	75	81	82	82	88	77	
Matrix Spike Duplicate % Recovery:	66	70	70	72	78	66	
Relative % Difference:	13	15	16	13	12	15	
LCS Batch#:	BLK101294	BLK101294	BLK101294	8LK101294	BLK101294	BLK101294	
Date Prepared:	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument l.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	
LCS %				•			

SEQUOIA ANALYTICAL, #1271

70

46-130

Recovery:

% Recovery

**Control Limits:** 

Kenneth K.F. Lee Laboratory Director Piease Note:

75

23-134

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

80

44-142

71

22-147

74

DL-230

Page 1 of 2

74

20-124



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ERM-West

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall Client Project ID: 370 8th Ave., Port of Oakland

Matrix: Solid

QC Sample Group: 4100681-3

Reported: Oct 14, 1994

### **QUALITY CONTROL DATA REPORT**

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-	Pentachioro-	Pyrene	
ANALITE	Acenaphinene	4-Maphenoi	toluene	phenol	, ,,,,,,,	
			*			
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	
Analyst:	Son Le	Son Le	Son Le	Son Le	Son Le	
140 (140D						
MS/MSD		4400440	1100110	4100410	4100410	
Batch#:	4100410	4100410	4100410	4100410	4100410	
Date Prepared:	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	
Conc. Spiked:	2500 μg/Kg	5000 μg/Kg	2500 μg/Kg	5000 μg/Kg	2500 μg/Kg	
Makele Calles						
Matrix Spike		40	70	86	82	
% Recovery:	90	48	70	80	02	
Matrix Spike						
Duplicate %						
Recovery:	82	33	58	70	78	
Relative %						
Difference:	9.3	37	19	21	5.0	
				***************************************	v	
LCS Batch#:	BLK101294	BLK101294	BLK101294	BLK101294	BLK101294	
LUJ Daluil#.	JEN 101237	UU\\\\\1237	55(101254			
Date Prepared:	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94	
Date Analyzed:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Instrument I.D.#:	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	GC/MS 1	
LCS %						
Recovery:	78	58	52	66	74	
Recovery.	70	30	ŲL.			
% Recovery	<del></del> -					
Control Limits:	47-145	DL-132	39-139	14-176	52-115	

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Kenneth K.F. Lee Laboratory Director

SEQUOIA ANALYTICAL, #1271

Page 2 of 2



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**ERM-West** 

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

370 8th Ave., Port of Oakland Client Project ID:

Soil Matrix:

QC Sample Group: 4100681-3

Reported:

Oct 14, 1994

#### QUALITY CONTROL DATA REPORT

ANALYTE	Corrosivity	lgnitability	<del></del>	
Method:	EPA 9045	EPA 1010		
Analyst:	M. Nguyen	K. Anderson		 

Date Analyzed:

Oct 13, 1994

Oct 14, 1994

Instrument I.D.#:

Accumet pH 910

Pensky-Martens

Sample #:

4100776

4100693

Sample Concentration:

7.3

> 100°C

Sample **Duplicate** 

Concentration:

7.3

> 100°C

% RPD:

0.0

0.0

% RPD:

**Control Limits:** 

0-30

0-30

SEQUOIA ANALYTICAL, #1271

Kenneth K.F. Lee Laboratory Director

4100681.ERM <14>



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**ERM-West** 

1777 Botelho Dr., Ste. 260 Walnut Creek, CA 94596 Attention: John Prall

370 8th Ave., Port of Oakland Client Project ID:

Matrix:

QC Sample Group: 4100681-3

Reported:

Oct 14, 1994®

#### **QUALITY CONTROL DATA REPORT**

Soil

ANALYTE	Reactive	Reactive	
	Sulfide	Cyanide	
Method:	SW-846	SW-846	
Analyst:	K. Newberry	J. Heider	
MS/MSD			
Batch#:	IN101394	IN101394	
	084600A	084600A	
Date Prepared:	•	-	
Date Analyzed:	-	-	
Instrument I.D.#:		-	
Conc. Spiked:	-	•	
Matrix Spike			
% Recovery:	•	-	
Matrix Spike			
Duplicate %			
Recovery:	-	-	
Relative %			
Difference:	•	•	

LCS Batch#:

LCS101394

LCS101394

**Date Prepared:** Date Analyzed: 10/13/94

10/13/94

Instrument I.D.#:

10/13/94

Manual

10/13/94 Manuai

LCS %

Recovery:

78

14

% Recovery

**Control Limits:** 

80-120

6.5-40

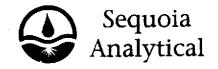
Please Note:

SEQUOIA ANALYTICAL, #1210

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Kenneth K.F. Lee Laboratory Director

4100681.ERM < 15>



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Redwood City, CA 94063 Sacramento, CA 95834

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**ERM-West** 

1777 Botelho Dr., Ste. 260

Walnut Creek, CA 94596 Attention: John Prall

Client Project ID:

370 8th Ave., Port of Oakland 

STLC Extract of Soil Matrix:

QC Sample Group: 4100681-3

Reported:

Oct 17, 1994

#### QUALITY CONTROL DATA REPORT

ANALYTE	Cadmium	Chromium	Lead	Nickei	Zinc	Mercury	
Method:	EPA 6010	EPA 7471					
Analyst:	K. Anderson	K. Wimer					
MS/MSD	-						
Batch#:	4100683	4100683	4100683	4100683	4100683	4100683	
Date Prepared:	10/17/94	10/17/94	10/17/94	10/17/94	10/17/94	10/13/94	
Date Analyzed:	10/17/94	10/17/94	10/17/94	10/17/94	10/17/94	10/17/94	
Instrument I.D.#:	Liberty 100	SpectrAA					
Conc. Spiked:	1.0 mg/L	0.010 mg/L					
Matrix Spike % Recovery:	105	94	102	81	113	105	
Matrix Spike Duplicate % Recovery:	105	92	101	81	110	103	
Relative % Difference:	0.0	2.2	0.99	0.0	2.7	1.9	
LCS Batch#:	BLK101394	BLK101394	BLK101394	BLK101394	BLK101394	BLK101394	
Date Prepared:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	
Date Analyzed:	10/17/94	10/17/94	10/17/94	10/17/94	10/17/94	10/17/94	
Instrument I.D.#:	Liberty 100	Liberty 100	⊔berty 100	Liberty 100	Liberty 100	SpectrAA	
LCS %							
Recovery:	94	89	91	85	100	113	
% Recovery							<u> </u>
Control Limits:	75-125	75-125	75-125	75-125	75-125	75-125	

Please Note:

SEQUOIA ANALYTICAL, #1271

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 :510; 426-2600 Fax (510) 426-0106



November 1, 1994

Mr. John Prall ERM-WEST 1777 Boteliho Walnut Creek, CA 94566

> Client Ref.: 2162.25 Clayton Project No.: 94101.89

Dear Mr. Prall:

Attached is our analytical laboratory report for the samples received on October 15, 1994. Please note the low level contamination detected in the method blank for the TPH dissel analysis. This contamination did not appear to effect the sample results. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed or after December 1, 1994, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Haus. Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH

Director, Laboratory Scrvices

Western Operations

HAH/caa

Attachmenta

Page 2 of 10

# Analytical Results

Cor

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: GW-1

Lab Number:

9410139-04A

Sample Matrix/Media:

Method Reference:

WATER

EPA 602

Date Sampled:

10/15/94

Date Received: Date Analyzed: 10/27/94

10/15/94

Analyst:

NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
Purgeable Aromatics			
Renzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	C.3
1,2-Dichlorobenzene	95-50-1	ND	C. 5
1,3-Dichlorobenzene	541-73-1	ND	C.3
1,4-Dichlorobenzene	106-46-7	ND	C.5 C.3
Sthylbenzene	100-41-4	ND	Ç.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-5	ND	Ç.4
p,m-Xylenes	••	ND	0.4
Surrogales		Recovery (%)	OC Limits (%)
1,4-Diflucropenzene	540-36-3	93	50 - 150

ND: Not detected at or above limit of detection

--: Information not available or not applicable

Page 3 of 10

# Analytical Results for

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: METHOD BLANK

9410139-06A

Lab Number: Sample Matrix/Media:

WATER

Method Reference: EPA 602

Date Sampled:

Date Received: --

Date Analyzed:

10/27/94

Analyst:

NAN

Analyte	CAS #	Concentration (ug/L)	Method Detoction Limit (ug/L)
Purqeable Aromatics			
Benzena	71-43-2	ND	C.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50 1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.3
1,4-Dichlorobenzeno	106-46 <b>-</b> 7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ďΩ	0.3
o-Xyleno	95-47-6	ממ	0.4
p,m-Xylenes		ND	0.4
Surrogates		Recovery (%)	OC Limits (%)
1,4-Difluorobenzeme	540-36-3	99	50 - 150

ND: Not detected at or above limit of detection

--: Information not available or not applicable

Page 4 of 10

#### Analytical Results for

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: TE-3 Date Sampled: 10/15/94 Lab Number: 10/15/94 9410189 01A Date Received: Sample Matrix/Media: 10/28/94 SOIL Date Prepared: Preparation Method: **EPA 5030** Date Analyzed: 10/28/94 Method Reference: EPA 8020 Analyst: NAN

tralyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
Purgeable Archatics			
Benzene	71-43-2	C.32	0.08
Chlorobenzene	108-90-7	NE	0.06
1.2-Dichlorobenzene	95-50-1	ND	0.1
1,3-Dichlorobenzene	541-73-1	ИD	0.06
1,4-Dichlorchenzene	106-46-7	מא	0.1
Ethylbenzene	100-41-4	ND	0.06
Toluene	108-88-3	ND	0.06
o-Xylene	95-47-6	ND	0.08
p.m-Xylenes	<del>-</del> -	ND	0.08
urrodates		Recovery (%)	GC Limits (%)
1,4-Difluorobenzenc	<b>\$40-36-3</b>	5 5	50 - 15C

ND: Not detected at or above limit of detection Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Note: Detection limits increased due to matrix interference.



Page 5 of 10

# Analytical Results for

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: TE-4 Date Sampled: 10/15/94 Lab Number: 9410189-02A Date Received: 10/15/94 Sample Matrix/Media: Date Prepared: 10/28/94 SQLL EPA 5030 Preparation Method: Date Analyzed: 10/28/94 Method Reference: EPA 8020 Analyst: NAN

Analyte	CAS #	Consentration (mg/kg)	Method Detection Limit (mg/kg)
Purgeable Aromatics			:
Benzene	71-43-2	ND	3.04
Chlorobenzene	108-90 7	ND	0.03
1,2-Dichiorobenzene	95 5C-1	ND	3.05
1,3-Dichlorobenzene	541-73-1	ND	5.03
1,4-Dichlorobenzene	106-45-7	ND	0.05
Ethylbenzene	100-41-4	ND	0.03
Toluene	108-88-3	ND	0.03
c-Xylene	95-47-6	ND	0.04
p,m-Xylenos		ND	0.04
Surrogates		Recovery (%)	OC Limits (%)
1,4-Difluorobenzene	540-36-3	89	50 - 150

ND: Not detected at or above limit of detection --: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Fage 6 of 10

#### Analytical Results for

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.69

Sample Identification: TE-5 Date Sampled: 10/15/94 Lab Number: 9410189-03A Date Received: 10/15/94 Sample Matrix/Media: Date Prepared: 10/28/94 SOIL Date Analyzed: Preparation Method: EPA 5030 10/28/94 EPA 8020 NAN Method Reference: Analyst:

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
Purgeable Arcmatics			
Benzere	71-43-2	ND	0.36
Chlorobenzena	108-90-7	NO	C.0 <del>6</del>
1,2-Dichloropenzene	95-50-1	ИÐ	0.1
1,3-Dichloropenzene	541-73-1	СИ	c.0 <b>6</b>
1.4-Dichlcrobenzene	106-46-7	ND	0.1
Ethylbenzene	100-41-4	ND	0.06
Toluene	108-88-3	ИD	0.05
o-Xylene	95-47 <b>-</b> 6	ИD	0.08
p.m-Xylenes		ND	0.08
Surrogates		Recovery (*)	CC Limits (%)
1,4-Difluorobenzene	540-36-3	84	50 - 150

ND: Not detected at or above limit of detection --: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Note: Detection limits increased due to matrix interference.



Page 7 of 10

#### Analytical Results for

ZRM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: METHOD BLANK

Jate Sampled:

Lab Number:

9410169-05A

Date Received:

Sample Matrix/Media:

SOIL

Date Prepared:

10/28/94 10/28/94

Proparation Method:

EPA 5030

Date Analyzed:

Method Reference:

EPA 8020

Analyst: NAN

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
Purgeable Aromatics			
Benzene	71-43-2	МЭ	0.04
Chloropenzene	108-90-7	ЙĎ	0.03
1,2-Dichlorobenzene	95-50-1	ND	0.05
1,3-Dichlorobenzene	541-73-1	ND	0.03
1,4-Dichlorobenzene	106-46-7	ND	0.05
Ethylbenzene	100-41-4	ND	0.03
Toluene	108-88-3	ND	0.03
o-Xylene	95- <b>4</b> 7-6	ND	0.04
p,m-Xylenes	<b></b>	ND	0.04
Surrogates		Recovery (%)	QC Limits (%)
1,4-Difluorobenzene	540-36-3	104	50 - 150

ND: Not detected at or above limit of detection --: Information not available or not applicable

Results are reported on a wet-weight basis, as received.



Page 8 or 10

Analytical Results

for

ERM-West

Client Reference: 2162,25 Clayton Project No. 94101.89

Sample Identification: See Below

Date Received: 10/15/94

Lab Number:

9410189

Sample Matrix/Media:

SOLL

Date Extracted: 10/21/94 Date Analyzed: 10/25/94

Extraction Method: Method Reference:

EPA 3550

EPA 8015 (Mcdified)

Lab Number	Sample Identification	Date Sampled	TPH-D (mg/kg)	Method Detection Limit (mg/kg)
-01 -02 -03 -05	TE-3	10/15/94	44000	-
-02	TE-4	10/15/94	550	*
-03	TE-5	10/15/94	3300	
-05	METHOD BLANK		2 4	<u>.</u> .

MD: Not detected at or above limit of detection --: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

TPH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.

Actual method blank value, sample results have not seen blank corrected.

Page 9 of 10

Analytical Results for

ERM-West

Client Reference: 2162.25 Clayton Project No. 34101.89

Sample Identification: See Below

Date Received: 10/15/94

Lab Number:

9410189

Date Prepared: 10/18/94

Sample Matrix/Media:

SOIL

Date Analyzed: 10/24/94

Preparation Method:

EPA 5030

Method Reference:

EPA 8015 (Modified)

Lab Number	Sample Identification	Date Sampled	IPH-G (mg/kg)	Mothod Detection Limit (mg/kg)
-01	TE-3	10/15/94	550	0.3
-02 -03	TE-4 TE-5	10/15/94 10/15/94	43 110	0.3 0.3
- 05	METHOD BLANK		ND	0.3

Not detected at or above limit of detection ND:

Information not available or not applicable

Results are reported on a wet-weight basis, as received. TPH-C = Volatile petroleum hydrocarbons from C6 to C10 quantitated as gasoline.



Page 10 of 10

# Analytical Results for

ERM -West

Client Reference: 2162.25 Clayton Project No. 34101.89

Sample Identification: See Below

See Below 9410189 Date Received: 10/15/94

Lab Number:

. .

Date Prepared: 10/21/94

Sample Matrix/Media:

WATER

Date Analyzed: 10/21/94

Preparation Mathod:

EPA 5030

Method Reference:

EPA 8015 (Modified)

Lab	Sample	Date	TPH-G	Mothod Detection Limit (ug/L)
Number	Identification	Sampled	(ug/L)	
-0 <u>4</u> -06	GW-1 METHOD BLANK	10/15/9/	1600 ND	5C :

ND: Not detected at or above limit of detection --: Information not available or not applicable

TPH-G = Volatile petroleum hydrocarbons from C6 to C10 quantitated as gasoline.

**ERM-West** 

1777 Boleho Drive • Suite 250 • Walnut Creek, CA • 94596 • (415) 946 0455

## Chain of Custody Record

Joh # 2/0	Z. 2	5			Collec	tion			9	iC						Te	C/\	4S		Ir	org	7	DI	her	7	Remaks
Job Location Sampler (signate Printed name Lab Report Recip Telephane No. Receiving Lab	Port of a for the A for the A ST • 9	TUN,	PONAL ALL (ST 11019 CAL	uential UF	ontainer type	CED	Preservative	Samoling method	TPH-Extraction	BTEX/Total Fuel HOs	801 / 5010 Halocarpons	602 / 8020 Aramatics	808 / 8080 Pest/PCRs	THE GHOUSE GOND TORGE	MENT GLEVO 2	Furgazoies	625-8270 BNAs & Pest (SVs.	WEST .	11005 AND 45010 5570	Materia		Wel Cremistry			Number of Containers	9410189
TE-3	8:300	S-sull 5	G		s z juns	17,	1/+	Deine	1			ΧŢ		X	Ż			1	†			-1	1		1	-01N
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Quality Assurance Results Summary

Matrix Spike/Matrix Spike Duplicate Results

for

Clayton Project No. 94101.89

#### Quality Assurance Results Summary for Clayton Project No. 94101.89

Clayton Lab Number: Ext./Prep. Method:

9410345-MB

late:

EPA 5030

Analyst: Std. Source: NAN

Sample Matrix/Modia:

V940927-02V WATER

10/26/94

Analytical Method: EPA601 27801020 Instrument ID: 02857 late: 10/26/94 Time: 21;08 Analyst: NAR Units: ug/t

Analyte		Sample Hesuit	Spike Level	Matrix Spike Result	NS Recovery (X)	Matrix Spike Duplicate Result	HSD Recovery (%)	Average Recovery (1 R)	1 Ct. (% R)	UCI (% R)	RPD (%)	UCL (XRPD)
1,1 DICHLOROLTHENC	{HALL}	MC	20.0	20.4	102	19,3	97	99	65	131	5.5	- 22
BENZENE	(PfB)	MD	20.0	22.1	111	20.9	105	108	76	134	5.6	20
CHLOROBENZ ENE	(PID)	MD	20.0	21.9	110	20.9	105	107	75	127	4.7	20
CHILOROBENZ ENF	(HALL)	ND	20.6	22,1	111	22.0	116	110	79	132	0.5	20
TOLUENE	{PID}	ND CM	20.0	22.9	115	21.6	108	mi	71	125	5.8	20
TRICHLORDETHENS	(HALL)	ND	20.0	21.9	110	20.9	105	107	69	133	4.7	26

Clayton Lab Mumber: Ext./Frep. Hethod:

9410159-02A EPA 5030 10/18/94

Date: Analyst:

MAS Std. Source: V940927-02H Sample Matrix/Media: SOIL

Analytical Method: Instrument 1D: Onte: ine: Analyst: units:

EPA8010 8020 02857 10/28/94 01:51 NAX

mg/kg

Analyte		Sample Result	Spice Level	Natrix Spike Result	HS Recovery (1)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% RI	LCI (% R)	ULL (\$ R)	RPD (\$)	UCI IZRPO)
BENZENE	(P10)	ND	2.00	2,50	125	2.18	105	117	62	145	14	30
CHLOROBENZERC	(P10)	ND.	2.00	2.47	124	2, 15	108	116	73	:31	14	30
TO WENE	(PID)	ND	2,00	2.52	126	2.18	109	118	50	142	15	30

#### Quality Assurance Results Summary for Clayton Project No. 94101.89

Page 3 of 5

1.5

Analytical Method:

Instrument 10:

Date:

Yime:

Uni Ls:

Analyst:

Clayton Lan Number: Ext. /Prep. Method:

9410186 AB EPA4550

Date: Amalyst: 10/13/54 LCK

TIOS

Std. Source: Sample Natrix/Media: 694 7010-104

FPA8015 02883 10/19/94 18:39 AHN

MG/KG

30

HS HSD Average Matrix Analyte Recovery Matrix Spike Recovery Recovery Sample tesult Spike Level LCL UCL Spike Result LICL Duplicate Result **(%) (%)** (% R) (% R) (% R) **(%)** (XRPD) DIESE. 2,00 20.0 19,9 90 19.6 86 89 51 147

Clayton (ab Number: Cxt,/Frop. Wethod: Date: Analyst:

9410165-01a FPA5080 10/18/94 HAS

Std. Source: Sample Matrix/Media: ₩45 V941887~9<u>2</u>V SOIL Analytical Method: E:
Instrument ID:
Date:
Time:
Analyst:

units:

EPA8015 8020 05587 10/19/94 21:35 HAS MG/KG

												ria z jedy
Analyte		Sample Result	Spike level	Matrix Spike Result	Recovery	Natrix Spike Oxplicate Result	NSD Recovery (%)	Average Recovery (% R)	LCL (Y R)	UCL (% R)	RPD (%)	UCI (IR/O)
BENZEME	(PID)	MD	0.0520	0,0540	104							
ETHYLBENZENE	(019)	Ne	0.0320			0.4560	108	106	53	140	3.6	28
GASOLINE	(FFD)	MĐ		ů. <b>035</b> 0	109	0.0580	119	114	56	134	8.2	25
TULUEME			2.50	?. 90	116	2.80	112	114		-	_	
	(PED)	ND	0.203	0, 230	100	0, 240			41	164	3.5	57
FOTAL XYLERE	(014)	ND	0.216	0. 220			110	105	60	139	9.5	32
				V. 270	105	6.240	114	110	61	129	8.7	26

Clayton Lab Number: Ext./Prep. Method: Date:

9410778-01A ETM5030 10/21/94

Analyst: Std. Source:

MAS V941007-D2V

Sample Natrix/Noova:

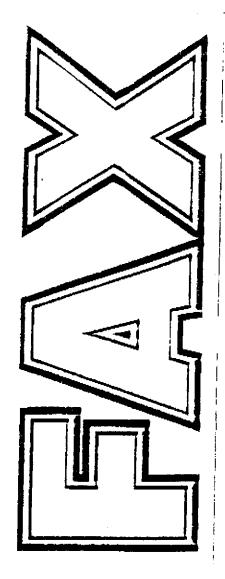
MATER

Analytical Method:

05587 10/21/94 13:32 KAS

CPA6015 8020 Instrument 10: Date: î ime: Analyst: Units: UG/L

												nevi
Analyte BENZENF		Sample Result	Splike Level	Hatrix Spike Result	Recovery (%)	Matrix Spite Ouplicate Result	KSD Recovery (%)	Average kerovery (% R)	LCL (1 ft)	LC1 (X R)	RPD (\$)	JCI. (TRPD)
	(PIO)	NO	8.70	10,1	115							
FTITYLBENZENE	(PID)	KD	5. 10			10. u	115	116	81	311	1.0	20
GASO, THE	(FLD)	ND	900	4.%	97	5,10	100	59	81	174	2.8	20
TO UCHE	(210)	80	32.7	525	105	529	106	105	80	150	8.0	25
TOTAL XFI. DIE	(PID)	No	32.1	30.7 40.5	94	31.5	94	95	84	‡1B	1.9	20
				<b>30.</b> 5	95	<i>3</i> 1.5	98	91	85	115	3.2	20



FACSIMILE TRANSMITTAL

TO ERM West

ATTENTION John Pmil

FROM Jon Amdur

DATE & TIME 11/4/94 2:30

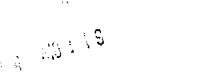
FAX NUMBER 946 9968

NO. OF PAGES 6

FORT OF CAKLAND
ENVIRONMENTAL
DEPARTMENT
530 WATER STREET,
5TH FLOOR
CAKLAND, CA 94607
FAX (510) 465-3755
PHONE (510) 272-1174



1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106





November 2, 1994

Mr. John Amdur PORT OF OAKLAND 530 Water Street Oakland, CA 94604-2064

> Client Ref.: 93510 Clayton Project No.: 94102.46

Dear Mr. Amdur:

Attached is our analytical laboratory report for the samples received on October 19, 1994. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of after December 2, 1994, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Haus. Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH Director, Laboratory Services Western Operations

HAH/caa

Attachments



Page 2 of 4

### Analytical Results for

Fort of Oakland

Client Reference: 93510 Clayton Project No. 94102.46

ample Identification: ab Number: ample Matrix/Media: reparation Method: ethod Reference:	TE-6 9410246-01A SOIL EPA 5030 EPA 8015/8020		Date Sampled: Date Received: Date Prepared: Date Analyzed: Analyst:	10/17/94 10/19/94 10/21/94 10/26/94 WAS
nalyte		CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
Benzene Ethylbenzene Toluene o-Xylene p,m-Xylenes Gasoline		71-43-2 100-41-4 108-88-3 95-47-6	ND 0.01 ND ND 0.02 5.6a	0.01 0.01 0.01 0.01 0.01 0.6
Surrogates a,a,a-Trifluorotolu	ene	98-08-8	Recovery (%)	OC Limits (%)

ND: Not detected at or above limit of detection

Results are reported on a wet-weight basis, as received.

<sup>--:</sup> Information not available or not applicable

a Purgeable hydrocarbons quantitated as gasoline may be due to heavier petroleum product.

Page 3 of 4

Analytical Results for

Port of Oakland

Client Reference: 93510 Clayton Project No. 94102.46

Sample Identification: METHOD BLANK

Date Sampled:

lab Number:

9410246-02A

Date Received: --

Bample Matrix/Media:

SOIL

Date Frepared: 10/21/94 Date Analyzed: 10/25/94

Preparation Method:

EPA 5030

EPA 8015/8020

Analyst:

WAS

ethod Reference:	EPA 8015/8020		Wight of.	
Analyte		CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
Benzene Ethylbenzene Toluene o-Xylene p,m-Xylenes Gasoline		71-43-2 100-41-4 108-88-3 95-47-6	ND ND ND ND ND	0.005 0.005 0.005 0.005 0.005
Surrogates a,a.a-Trifluorotolue	ne	98-08-8	Recovery (왕). 89	<u>OC Limits (%)</u> 50 - 150

ND: Not detected at or above limit of detection Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Page 4 of 4

Analytical Results

for

Port of Oakland

Client Reference: 93510 Clayton Project No. 94102.46

ample Identification: See Below

Date Received: 10/19/94

ab Number:

9410246

Date Extracted: 10/21/94

ample Matrix/Media:

SOIL

Date Analyzed: 10/25/94

xtraction Method: ethod Reference:

EPA 3550

EPA 8015 (Modified)

Lab umber	Sample Identification	Date Sampled	TPH-D (mg/kg)		Method Detection Limit (mg/kg)
·01 -02	TE-6 METHOD BLANK	10/17/94	320 2	a d	1

m: Not detected at or above limit of detection

Results are reported on a wet-weight basis, as received.

TPH-D = Extractable petroleum hydrocarbona from C10 to C42 quantitated as diesel.

<sup>--:</sup> Information not available or not applicable

a Sample does not match the typical diesel pattern. Sample appears to be a mixture of diesel and cil.

b Actual method blank value; sample results have not been blank corrected.



### REQUEST FOR LABORATORY ANALYTICAL SERVICES

THO ASSOCIATE SCIENTIST

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Purchase Order No.

22345 Routhel Drive Novi, MI 48375 [313] 344-1770

**Paritan Certer** 160 Fieldcrest Ave. Edison, NJ 08837 (900) 225-5040

400 Chastain Center Blvd., N.W. Suite 490

Kennesaw, GA 30144 (404) 499-7500

1252 Quarry Lane Pleasanton, CA 94566 (510) 426-2657

WHITE - Clayton Laboratory 174
YELLOW - Clayton Accounting 29 PINK

2/92

- Client Retains

1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106 Clayton
ENVIRONMENTAL
CONSULTANTS

November 18, 1994

NOV 22 1994

Mr. John Prall ERM-WEST 1777 Botellho Walnut Creek, CA 94566 ERM-WEST FILE #

Client Ref.: 2162.25

Clayton Project No.: 94101.89

Dear Mr. Prall:

Attached is our additional analytical laboratory report for the samples received on October 15, 1994 and originally reported on November 1, 1994. As requested on November 4, 1994, Samples TE-3, TE-4, and TE-5 were reextracted and reanalyzed for TPH as Diesel. Please note that the portion of the sample used for the reextraction and reanalysis was taken from the opposite end of the brass core than the original sample.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH

Director, Laboratory Services

Western Operations

HAH/caa

Attachments

Page 2 of 2

Analytical Results

for

ERM-West

Client Reference: 2162.25 Clayton Project No. 94101.89

Sample Identification: See Below

Date Received:

10/15/94

Lab Number:

9410189

Date Extracted: 11/08/94

Sample Matrix/Media:

SOIL

Date Analyzed: 11/16/94

Extraction Method: Method Reference:

EPA 3550

EPA 8015 (Modified)

Lab Number	Sample Identification	Date Sampled	TPH-D (mg/kg)	Method Detection Limit (mg/kg)
-01	TE-3	10/15/94	18000	1
-02	TE-4	10/15/94	98	1
-03	TE-5	10/15/94	6900	1
-07	METHOD BLANK	<b>-</b> -	ND	1

ND: Not detected at or above limit of detection --: Information not available or not applicable

Results are reported on a wet-weight basis, as received. TPH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.

# ALAMEDA COUNTY HAZARDOUS MATERIALS DIVISION DEPOSIT / REFUND ACCOUNT SHEET

SITE INFORMATION				StID: 3335 Site#: 2140 PROJECT#: 2140C				
370	n Trucking Co. In 8th Ave			PROJECT#: 2140C PROJECT TYPE: <b>R</b> INSP: Barney Chan				
Oaklar Site C Site F	Contact:	4606		ACCT.	SHEET	PG #:	<del></del> _	
PROPERTY OWNER INFORMATION				PAYOR INFORMATION				
Owner Contact: Owner Phone :			Environmental Investigati - 22390 Thunderbird Place Hayward CA 94545 #811 Payor Contact: Payor Phone : 264-9081					
Date	Action Taken	In	Time Out			Money Spent/ Depositd	Balance	
	Balance from Pre	v.Page						
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* Billing adju	ustment forms needed when sit	e is in our UST pro	ogram.					