INTERNATIONAL TECHNOLOGY CORPORATION

Pacific Environmental Group, Inc.
1601 Civic Center Drive
Suite 202
Santa Clara, CA 95050

January 31, 1989

ATTN: John Adams

Following are the results of analyses on the samples described below.

Project:	330-53.01, Arco, 785 E. Stanley, Livermore
Lab Numbers:	S9-01-303-01 and S9-01-303-02
Number of Samples:	2
Sample Type:	Soil
Date Received:	1/27/89
Analyses Requested:	Metals, Low Boiling Hydrocarbons, High Boiling Hydrocarbons, Oil and Grease, E.P.A. 8240, E.P.A. 8270

Samples were analyzed for inorganic parameters following E.P.A. Protocol, using methods from SW846 3rd Edition or Methods For Chemical Analysis Of Water And Wastes 600/4-79-020. The method employed is listed adjacent to the parameter in the table.

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

The method of analysis for high boiling hydrocarbons in soil involves extracting the sample with acetone. The mixture is partitioned with hexane and the resulting extract is examined by gas chromatography using a flame ionization detector.

The method of analysis for oil and grease in soil is taken from EPA Method 3550 and Standard Methods Section 503E. The sample is extracted with repeated portions of 50:50 methylene chloride:acetone using a horn-type sonicator. The extract is dried with sodium sulfate and treated with silica gel to remove polar compounds. Following evaporation, oil and grease is determined gravimetrically.

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The method of analysis for semi-volatile organics is taken from E.P.A. Methods 625 and 8270. Final detection is by gas chromatography/mass spectrometry.

The method of analysis for volatile organics is taken from E.P.A. Methods 624 and 8240. Water samples and low-level soil samples are analyzed directly using the purge and trap technique. Medium-level soil samples are extracted with methanol and a portion of the extract is analyzed using the purge and trap technique. Final detection is by gas chromatography/mass spectrometry.

Fred Rouse

FR/gg

10 Pages Following - Tables of Results

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-01

Sample Identification: WO-1

Sample Date: 1/26/89

Date Analysis Completed: 1/30/89

ND = None Detected

Results
Volatile Organic Compounds
(Milligrams per Kilogram)

Compound	Detected	Detection Limit
Chloromethane	ND	0.01
Bromomethane	ND	0.01
Vinyl Chloride	ND	0.01
Chloroethane	ND	0.01
Dichloromethane (Methylene Chloride)	ND	0.005
Acetone	ND	0.01
Carbon Disulfide	ND	0.005
1,1-Dichloroethene	ND	0.005
1,1-Dichloroethane	ND	0.005
1,2-Dichloroethene (Total)	ND	0.005
Chloroform	ND	0.005
1,2-Dichlorethane	ND	0.005
Methyl ethyl ketone (2-Butanone)	ND	0.01
1,1,1-Trichloroethane	ND	0.005
Carbon Tetrachloride	ND	0.005
Vinyl Acetate	ND	0.01
Bromodichloromethane	ND	0.005
1,2-Dicloropropane	ND	0.005
Cis-1,3-Dichloropropene	ND	0.005
Trichloroethene	ND	0.005
Chlorodibromomethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Benzene	ND	0.005
Trans-1,3-Dichloropropene	ND	0.005
Bromoform	ND	0.005
4-Methyl-2-pentanone	ND	0.01
2-Hexanone	ND	0.01
Tetrachloroethene	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Toluene	ND	0.005
Chlorobenzene	ND	0.005
Ethylbenzene	ND	0.005
Styrene	ND	0.005
Xylenes (Total)	ND	0.005

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-01

Sample Identification: WO-1

Results - Milligrams per Kilogram

Parameter	E.P.A. Method	Detected	Detection Limit
Cadmium	6010	None	0.5
Chromium	6010	35.	0.5
Lead	6010	18.	3.0
Zinc	6010	36.	1.0

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-01

Sample Identification: WO-1

Sample Date: 1/26/89

Date Analysis Completed: 1/30/89

ND = None Detected

Results
Semi-Volatile Organic Compounds
(Milligrams per Kilogram)

Compound	Detected	Detection Limit
Phenol	ND	3.3
Bis(2-chloroethyl)ether	ND	3.3
2-Chlorophenol	ND	3.3
1,3-Dichlorobenzene	ND	3.3
1,4-Dichlorobenzene	ND	3.3
Benzyl alcohol	ND	3.3
1,2-Dichlorobenzene	ND	3.3
2-Methylphenol	ND	3.3
Bis(2-chloroisopropyl)ether	ND	3.3
4-Methylphenol	ND	3.3
N-Nitroso-di-n-propylamine	ND	3.3
Hexachloroethane	ND	3.3
Nitrobenzene	ND	3.3
Isophorone	ND	3.3
2-Nitrophenol	ND	3.3
2,4-Dimethylphenol	ND	3.3
Benzoic acid	ND	17.
Bis(2-chloroethoxy)methane	ND	3.3
2,4-Dichlorophenol	ND	3.3
1,2,4-Trichlorobenzene	ND	3.3
Naphthalene	ND	3.3
4-Chloroaniline	ND	3.3
Hexachlorobutadiene	ND	3.3
4-Chloro-3-methylphenol	ND	3.3
2-Methylnaphthalene	ND	3.3
Hexachlorocyclopentadiene	ND	3.3
2,4,6-Trichlorophenol	ND	3.3
2,4,5-Trichlorophenol	ND	17.
2-Chloronaphthalene	ND	3.3
2-Nitroaniline	ND	17.
Dimethylphthalate	ND	3.3
Acenaphthylene	ND	3.3
3-Nitroaniline	ND	17.
Acenaphthene	ND	3.3
2,4-Dinitrophenol	ND	17.
4-Nitrophenol	ND	17.
Dibenzofuran	ND	3.3

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-01

Sample Identification: WO-1

Sample Date: 1/26/89

Date Analysis Completed: 1/30/89

ND = None Detected

Results (continued)
Semi-Volatile Organic Compounds
(Milligrams per Kilogram)

Compound	Detected	Detection Limit
2,4-Dinitrotoluene	ND	3.3
2,6-Dinitrotoluene	ND	3.3
Diethylphthalate	ND	3.3
4-Chlorophenylphenyl ether	ND	3.3
Fluorene	ND	3.3
4-Nitroaniline	ND	17.
4,6-Dinitro-o-cresol	ND	17.
N-Nitrosodiphenylamine	ND	3.3
4-Bromophenyl-phenyl ether	ND	3.3
Hexachlorobenzene	ND	3.3
Pentachlorophenol	ND	17.
Phenanthrene	14.	3.3
Anthracene	3.9	3.3
Di-n-butylphthalate	ND	3.3
Fluoranthene	21.	3.3
Pyrene	19.	3.3
Butylbenzylphthalate	ND	3.3
3,3'-Dichlorobenzidine	ND	6.7
Benzo(a)anthracene	7.2	3.3
Bis(2-ethylhexyl)phthalate	ND	3.3
Chrysene	7.2	3.3
Di-n-octylphthalate	ND	3.3
Benzo(b)fluoranthene	4.4	3.3
Benzo(k)fluoranthene	4.4	3.3
Benzo(a)pyrene	ND	3.3
Indeno-(1,2,3-c,d,)pyrene	ND	3.3
Dibenzo(a,h)anthracene	ND	3.3
Benzo(g,h,i)perylene	ND	3.3
N-Nitrosodimethylamine	ND	3.3
1,2-Diphenylhydrazine	ND	3.3
Benzidine	ND	3.3

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-01
Sample Identification: WO-1

Results

Total Petroleum Hydrocarbons	Milligrams per Kilogram (dry soil basis) Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	None	5.	Gasoline
Benzene	None	0.05	—
Toluene	None	0.1	—
Ethyl benzene	None	0.1	—
Xylenes	None	0.3	—
High Boiling Hydrocarbons	160.*	10.	Diesel
High Boiling Hydrocarbons	60.	60.	Oil
Oil and Grease	660.	10.	—

*Chromatographic pattern of compounds detected and calculated as diesel does not match that of the diesel standard used for calibration.

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Project: 330-53.01, Arco, 785 E. Stanley, Livermore

Lab Number: S9-01-303-02

Sample Identification: WOSW-N

Results - Milligrams per Kilogram

Parameter	E.P.A. Method	Detected	Detection Limit
Cadmium	6010	None	0.5
Chromium	6010	61.	0.5
Lead	6010	16.	3.0
Zinc	6010	43.	1.0

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

785 E. STANLEY, LIVERMORE

Project No.: 330-53.01 Requested By: JBA P.O. No.: 10562

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
SAMPLE TYPE: SOIL		CONTAINERS					SAMPLER'S SIGNATURE		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
WO-1	8240, 8270, TPH (G+D), Cr Cd Pb Zn Oil & Grease	2" BRASS Ring	1	NP	ET	1/30/89	JBA	1/26/89	J.D.	ok Cool	1/27/89
WOSW-N	↓	↓	↓	↓	↓	↓	↓	↓	1	1	1

SIGNATURES:

RELEASED BY: _____ RELEASED BY: _____ RELEASED BY: _____

RECEIVED BY: _____ RECEIVED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RELEASED BY: _____ RELEASED BY: [signature] 1/27/89 1615

RECEIVED BY: _____ RECEIVED BY: _____ RECEIVED BY LAB: Josephine DeCarli 1/27/89 16.26

PACIFIC ENVIRONMENTAL GROUP, INC.