McLaren Hart

Date: December 21, 1990
LP #: 3913

Julie Menack
McLaren/Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Ms. Menack:

Enclosed are the laboratory results for the three sample(s) submitted by you to the McLaren Analytical Laboratory on December 15, 1990, for the project *Texaco - Shoreline*.

The analyses you requested are:

EPA 418.1 Mod. (1 - Soil)
EPA 8240 - Low Level Mod. (1 - Soil)
TPH/G (1 - Soil)

The report consists of the following sections:

1. A copy of the chain of custody
2. Quality Control Report
3. Comments
4. Analytical results
5. Copy of final billing submitted to accounting.

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing McLaren Analytical Laboratory. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Anthony S. Wong, Ph.D.
Laboratory Director

11121 White Rock Road Rancho Cordova, CA 95670 (916) 638-3696 FAX (916) 638-2842

McLaren

REVISION

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No. 3913
Storage Refrigerator ID: 4-12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Texaco - Shoreline Project #: 88706-002 Sampler: L. Malixi (Printed Name) (Signature)

Relinquished by (Signature and Printed Name): L. Malixi	Received by: (Signature and Printed Name): Fed Ex	Date:	Time:
Relinquished by (Signature and Printed Name): Fed Ex	Received by: (Signature and Printed Name): Brian Reasoner	Date: 12/15/90	Time: 9:15
Relinquished by (Signature and Printed Name):	Received by: (Signature and Printed Name):	Date:	Time:
Relinquished by (Signature and Printed Name):	Received by: (Signature and Printed Name):	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fed X

Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/310C (PNA-GC)	624/8240 Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC) and Oil	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	HOLD	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	55051	12/14/90	11:20	30-3.5															X				1	B	3913-001
2	55052	↓	11:32	5.0-5.5															X				1	B	
3	55053	↓	11:45	55-6.0					X	X									X			2	1	B	3913-002
4	55054	↓	1540	60-6.5					X	X	X											2			3913-003
5																									
6																									
7																									
8																									
9																									
10																									

Special Instructions/Comments: Hold on 55051 + 55052, call Julie Monack regarding samples.

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Julie Monack
☐ Client Name:
Company: Mcl.
Address: Alam.
Phone: (415) 521-5200 Fax:

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp = 0°C
Samples Received in Good Condition 12-17-90 (M.Xu)
Sample 55052 was received 12-17-90 (MK) Was not sent.
ANALYZE 418.1 for Sample 55054 per J. Monack 12-17-90 (RB)

QUALITY CONTROL REPORT

METHOD BLANK RESULTS: A method blank (MB) is a laboratory generated sample free of any contamination. The method blank assesses the degree to which the laboratory operations and procedures cause false-positive analytical results for your samples. The method blank results associated with your samples are attached.

LABORATORY CONTROL SPIKES

The LCS Program:

The laboratory control spike is a well characterized matrix (organic pure type II water for water samples and contamination free sand for soil samples) which is spiked with certain target parameters and analyzed in duplicate at approximately 10% of the sample load in order to assure the accuracy and precision of the analytical method. The results of the laboratory control spike associated with your samples are attached.

Accuracy is measured using percent recovery, i.e.:

$$\text{Percent Recovery} = \frac{\text{(measured concentration)}}{\text{(actual concentration)}} \times 100$$

Precision is measured using the relative percent difference (RPD) from duplicate tests, i.e.:

$$\text{RPD} = \frac{\%\ \text{Recovery of Spike}_{(1)} - \%\ \text{Recovery of Spike}_{(2)}}{(\%\ \text{Recovery of Spike}_{(1)} + \%\ \text{Recovery of Spike}_{(2)})/2} \times 100$$

Control limits for accuracy and precision are different for different methods. They may also vary with the different sample matrices. They are based on laboratory average historical data and EPA limits which are approved by the Quality Assurance Department. McLaren Analytical Laboratory reanalyzes samples if the precision or accuracy is out of acceptance control limits.

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QUALITY CONTROL REPORT

Method: Mod. EPA 418.1
Units: ug/g (ppm)

Date Analyzed: 12/19/90
Date Extracted: 12/18/90
Batch Number: 901218-0301

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Recoverable Petroleum Hydrocarbons	5.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Total Recoverable Petroleum Hydrocarbons	62.	63.	102	4	72 - 116	<25

[a] Acceptance limits were obtained statistically from available quality control data.

(DC1-CN3913)

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QUALITY CONTROL REPORT

Method: EPA 8240 - Low Level Modified
Units: ug/Kg (ppb)

Date Analyzed: 12/18/90
Date Extracted: 12/18/90
Batch Number: 901218-0101

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Chloromethane	10.	BRL
Bromomethane	10.	BRL
Vinyl chloride	10.	BRL
Chloroethane	10.	BRL
Trichlorofluoromethane (b)	10.	BRL
Methylene chloride	5.	BRL
Acetone	25.	BRL
Carbon disulfide	5.	BRL
1,1-Dichloroethene	5.	BRL
1,1-Dichloroethane	5.	BRL
cis-1,2-Dichloroethene (b)	5.	BRL
trans-1,2-Dichloroethene	5.	BRL
Chloroform	5.	BRL
Freon 113 (b)	5.	BRL
1,2-Dichloroethane	5.	BRL
2-Butanone	25.	BRL
1,1,1-Trichloroethane	5.	BRL
Carbon tetrachloride	5.	BRL
Bromodichloromethane	5.	BRL
1,2-Dichloropropane	5.	BRL
1,3-Dichloropropene	5.	BRL
Trichloroethene	5.	BRL
Benzene	5.	BRL
1,1,2-Trichloroethane	5.	BRL
Dibromochloromethane	5.	BRL
cis-1,3-Dichloropropene	5.	BRL
Bromoform	5.	BRL
4-Methyl-2-pentanone	25.	BRL
2-Hexanone	25.	BRL
1,1,2,2-Tetrachloroethane	5.	BRL
Tetrachloroethylene	5.	BRL
Toluene	5.	BRL
Chlorobenzene	5.	BRL
Ethyl benzene	5.	BRL
Styrene	5.	BRL
Total xylenes	5.	BRL
2-Chloroethylvinylether	10.	BRL
1,2-Dichlorobenzene (b)	5.	BRL
1,3-Dichlorobenzene (b)	5.	BRL
1,4-Dichlorobenzene (b)	5.	BRL
Vinyl acetate	25.	BRL

(DC1-CN3913)

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QUALITY CONTROL REPORT Cont.

Method: EPA 8240 - Low Level Modified Cont.

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
1,1-Dichloroethene	50.	42.	84	1	59 - 172	<22
Trichloroethene	50.	48.	96	1	62 - 137	<24
Benzene	50.	47.	93	3	66 - 142	<21
Toluene	50.	50.	99	0	59 - 139	<21
Chlorobenzene	50.	48.	96	1	60 - 133	<21

[a] Acceptance limits were obtained from SW-846.

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QUALITY CONTROL REPORT

Method: TPH/G
Units: ug/g (ppm)

Date Analyzed: 12/19/90
Date Extracted: 12/17/90
Batch Number: 901217-0102

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons Gasoline	1.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Gasoline	5.0	5.9	118	14	75 - 125	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN3913)

McLaren Hart

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Results are corrected for concentrations of analytes which may be found in the blanks. Blank results are reported in the Case Narrative.

Values for total petroleum hydrocarbons gasoline were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 418.1 {a}
Preparation Method: Modified EPA 3550 {b}

Project Name:	Texaco - Shoreline	Project Number:	88706-002
Sample Description:	6.0 - 6.5	Lab Project-ID Number:	3913-003
Sample Number:	55054	Date Sampled:	12/14/90
Date Received:	12/15/90	Date Extracted:	12/18/90
Date Analyzed:	12/19/90	Batch Number:	901218-0301

	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Recoverable Petroleum Hydrocarbons	BRL	5.

Dilution: None

Comments: {a} The modification includes the calibration standard which covers a wide fraction of petroleum hydrocarbons and is not specific to a compound.

{b} Shaker is used instead of sonicator for extraction.

Approved By: _____ Date: 12/27/90
C. Fong

The cover letter and attachments are integral parts of this report.

12/06/90

McLaren Hart

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Project Name:	Texaco - Shoreline	Project Number:	88706-002
Sample Description:	6.0 - 6.5	Lab Project-ID Number:	3913-003
Sample Number:	55054	Date Sampled:	12/14/90
Date Received:	12/15/90	Date Extracted:	12/18/90
Date Analyzed:	12/18/90	Batch Number:	901218-0101

COMPOUND	CONCENTRATION ug/Kg (ppb)	LIMIT ug/Kg (ppb)
Chloromethane	BRL	10.
Vinyl Chloride	BRL	10.
Bromomethane	BRL	10.
Chloroethane	BRL	10.
Trichlorofluoromethane	BRL	10.
Acetone	BRL	25.
1,1-Dichloroethene	BRL	5.
Methylene Chloride	BRL	5.
Carbon Disulfide	BRL	5.
trans-1,2-Dichloroethene	BRL	5.
1,1-Dichloroethane	BRL	5.
cis-1,2-Dichloroethene {b}	BRL	5.
Chloroform	BRL	5.
1,2-Dichloroethane	BRL	5.
Vinyl Acetate	BRL	25.
2-Butanone	BRL	25.
1,1,1-Trichloroethane	BRL	5.
Carbon Tetrachloride	BRL	5.
Benzene	BRL	5.
Trichloroethene	BRL	5.
1,2-Dichloropropane	BRL	5.
Bromodichloromethane	BRL	5.
2-Chloroethylvinylether	BRL	10.
trans-1,3-Dichloropropene	BRL	5.
cis-1,3-Dichloropropene	BRL	5.
1,1,2-Trichloroethane	BRL	5.
Dibromochloromethane	BRL	5.

McLaren Hart

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}
Preparation Method: EPA 5030

Lab Project-
ID Number: 3913-003

COMPOUND	ANALYTE CONCENTRATION ug/Kg (ppb)	REPORTING LIMIT ug/Kg (ppb)
Bromoform	BRL	5.
4-Methyl-2-Pentanone	BRL	25.
Toluene	BRL	5.
2-Hexanone	BRL	25.
Tetrachloroethene	BRL	5.
Chlorobenzene	BRL	5.
m & p Xylene	BRL	5.
o-Xylene	BRL	5.
Styrene	BRL	5.
1,1,2,2-Tetrachloroethane	BRL	5.
1,3-Dichlorobenzene {b}	BRL	5.
1,4-Dichlorobenzene {b}	BRL	5.
1,2-Dichlorobenzene {b}	BRL	5.

Surrogates	Percent Recovery	Acceptance Limits
1,2-Dichloroethane-D4	96	70 - 121
Toluene-D8	103	81 - 117
4-Bromofluorobenzene	103	74 - 121

Dilution: None

Comments: {a} Includes all analytes as listed in Table 2 of SW-846, 3rd edition for Method 8240. Also includes additional compounds {b}.

Approved By: D. Anthony Date: 12/27/90
D. Anthony

The cover lettter and attachments are integral parts of this report.

12/27/90

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS (a)

Analytical Method: Gasoline by LUFT (b)
Preparation Method: EPA 5030

Project Name:	Texaco - Shoreline	Project Number:	88706-002
Sample Description:	6.0 - 6.5	Lab Project-ID Number:	3913-003
Sample Number:	55054	Date Sampled:	12/14/90
Date Received:	12/15/90	Date Extracted:	12/17/90
Date Analyzed:	12/19/90	Batch Number:	901217-0102

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	BRL	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: None

Comments: (a) Revision 01/03/91.

Approved By: A. Putnam Date: 1/3/91

The cover letter and attachments are integral parts of this report.

12/06/90

McLaren Hart

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Results are corrected for concentrations of analytes which may be found in the blanks. Blank results are reported in the Case Narrative.

Values for total petroleum hydrocarbons gasoline were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: Texaco - Shoreline AL

Project Number: 88706-002

Sample Description: E4-6.5-1

Lab Project-ID Number: 3885-001

Sample Number: 56568

Date Sampled: 12/06/90

Date Received: 12/07/90

Date Extracted: 12/09/90

Date Analyzed: 12/10/90

Batch Number: 901209-1701

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.13	0.01
Toluene	0.14	0.01
Ethyl Benzene	0.06	0.01
1,2-Xylene	0.07	0.01
1,3-Xylene	0.09	0.01
1,4-Xylene	0.04	0.01
Total Petroleum Hydrocarbons Gasoline	2.	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: None

Comments:

Approved By: _____ Date: 12/13/90
A. Putnam

The cover letter and attachments are integral parts of this report.

12/06/90

McLaren Hart