



Texaco Refining
and Marketing Inc

3400 188th Street SW
Suite 630
Lynnwood WA 98037

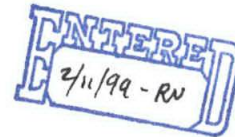
TEXACO STATION #63-232-0037
LUST # 2298
Seattle

RECEIVED
JUL 02 1998
DEPT. OF ECOLOGY

June 21, 1998

ENV - SERVICE STATIONS

Groundwater Sampling and Laboratory Analysis Report
8701 Greenwood Avenue North
Seattle, Washington (Texaco Facility #63-232-0037)




Mr. Roger Nye
Washington Department of Ecology- Northwest Region
3190 - 160th Avenue Southeast
Bellevue, Washington 98008-5452

Dear Mr. Nye:

Enclosed is the Groundwater Sampling and Laboratory Analysis Report for the referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) for Texaco.

If you have any questions please contact me at (425) 774-6090, extension 223.

Sincerely,


Jeff Goold
Project Coordinator

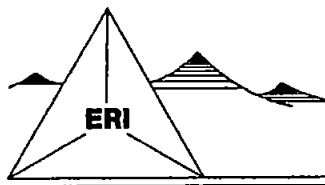
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Enclosure

RLLane-File (w/enclosure)

cc: James Samuels (w/enclosure)
M. Nesteroff (w/enclosure)

PR: 



ENVIRONMENTAL RESOLUTIONS, INC.

RECEIVED

JUL 02 1998

DEPT. OF ECOLOGY

May 29, 1998
ERI 31001.R13

Mr. Jeff Goold, R.G.
Equilon Safety, Health, and Environment
3400 188th Street SW, Suite 630
Lynnwood, Washington 98037

Subject: Groundwater Sampling and Laboratory Analysis, Former Texaco Facility 63-232-0037,
8701 Greenwood Avenue North, Seattle, Washington

Dear Jeff:

As requested by Equilon Safety, Health, and Environment, Environmental Resolutions, Inc. (ERI) has prepared this report describing the field activities and laboratory results of groundwater samples collected from monitoring well MW8 on May 14, 1998.

Background

Prior to 1994, the site had historically operated as a retail gasoline service station. In 1994, the former station building was demolished and environmental assessment and remediation activities were conducted to remove hydrocarbon-impacted soil and groundwater. In June 1995 the property was sold.

In January 1996, an Independent Remedial Action Report summarizing results of the site activities was submitted to the Washington State Department of Ecology (Ecology) for review under the Independent Remedial Action Program (IRAP). On July 31, 1996, Ecology issued a no further action letter for the site notifying TRMI-EH&S and the site owner that no further cleanup action would be required. One condition of the no further action determination was that groundwater samples be collected from remaining downgradient monitoring well AGW-6 and submitted for hydrocarbon analyses on a twice-yearly basis to monitor groundwater conditions.

In September 1996, AGW-6 was inadvertently destroyed by the building contractor. Replacement monitoring well MW8 was subsequently installed during February 1997 at a nearby downgradient location to comply with Ecology requirements. Well locations are shown on Plate P-1. Well installation and sampling activities are presented in the Monitoring Well Installation and Sampling report prepared by ERI dated September 15, 1997.

Groundwater Sampling

On May 14, 1998, ERI visited the site to measure the depth to water, purge the well, and collect groundwater samples. Prior to purging, the depth to water was measured using a water level indicator, and the well was checked for the presence of free product. After measuring the water level, the well was purged of at least three casing volumes using a submersible pump. After each casing volume, the pH, conductivity, and temperature were checked until measurements were within 10% variance. Purge water and decontamination rinsate generated during sampling were treated and discharged on site. Groundwater samples were subsequently collected using a disposable bailer and transferred to laboratory-supplied containers containing appropriate preservatives. The samples were then placed in iced storage and transported to the laboratory for analysis. A Chain of Custody was initiated by the field geologist and

accompanied the samples to the analytical laboratory. A copy of the Chain-of-Custody form is attached with the analytical results.

Laboratory Analysis and Results

The groundwater samples were submitted to the North Creek Analytical, Inc. laboratory in Bothell, Washington, and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) using Ecology Method WTPH-G/EPA Method 8020/602, and total petroleum hydrocarbons as diesel (TPH-D) and as oil (TPH-O) using Ecology Method WTPH-D (extended).

Depth to water measurements collected on May 14, 1998 indicated groundwater was present approximately 3.01 feet below the top of the casing. No free product was observed. Laboratory results indicated that the groundwater samples collected from MW8 on May 14, 1998 did not contain any analyte concentrations exceeding MTCA Method A Cleanup Levels. TPH-G, TPH-D, and TPH-O concentrations were not detected at or above the laboratory method reporting limit (MRL). Depth to water measurements and laboratory results for MW8 are shown in Table 1 with historical data from abandoned monitoring well AGW-6.

Limitations

The site assessment investigation was conducted in accordance with generally accepted standards of environmental geological practice at the time performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of the groundwater. No soil engineering or geotechnical implications are stated or should be inferred. The evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available.

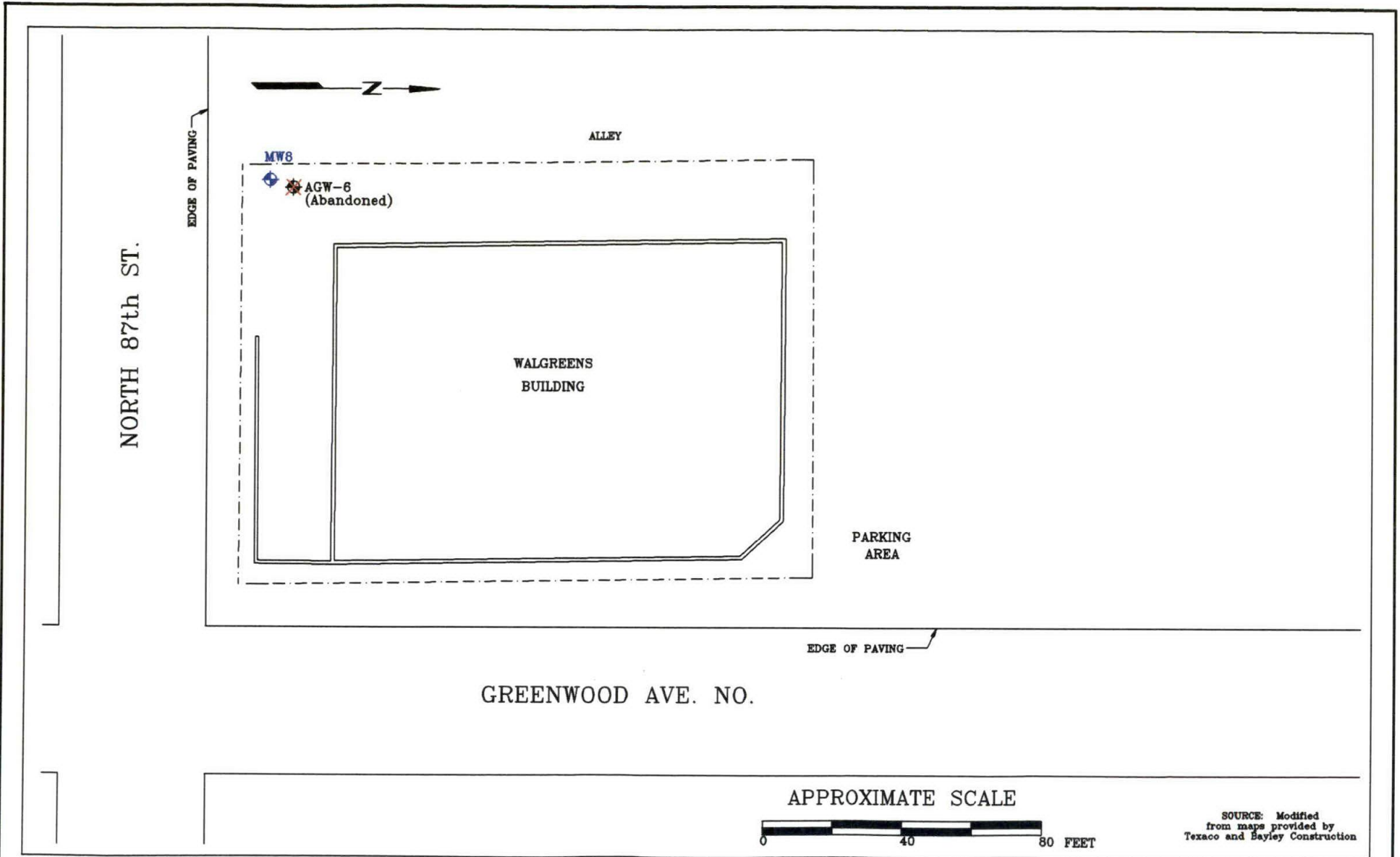
ERI appreciates this opportunity to provide assistance on this project. Please call if you have questions.

Sincerely,
Environmental Resolutions, Inc.

John K. Meyer, R.G.
Branch Manager

- Attachments: Plate P-1
Table 1
Laboratory Report

DEPARTMENT OF ECOLOGY NWRO/TCP TANK UNIT	
INTERIM CLEANUP REPORT	<input type="checkbox"/>
SITE CHARACTERIZATION	<input type="checkbox"/>
FINAL CLEANUP REPORT	<input type="checkbox"/>
OTHER <u>Post IRAP MONITORING</u>	<input type="checkbox"/>
AFFECTED MEDIA: SOIL	<input type="checkbox"/>
OTHER _____ GW	<input type="checkbox"/>
INSPECTOR (INIT.) <u>RN</u> DATE <u>2/11/98</u>	



FN 31001\31001R13

GENERALIZED SITE PLAN
 FORMER TEXACO
 FACILITY 63-232-0037
 8701 Greenwood Avenue North
 Seattle, Washington

EXPLANATION

◆ MW8 GROUNDWATER MONITORING WELL

PROJECT NO.

31001

PLATE

P-1

DATE: 5/29/98



TABLE 1
GROUNDWATER ANALYTICAL RESULTS
Texaco Facility 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington
Page 1 of 1

Well Name	Sample Date	DTW	TPH-G	TPH-D	TPH-O	B	T	E	X	Tot. Pb	Diss. Pb
AGW-6	3/17/94	0.51	300	ND	ND	10.6	1	14	56	4	-
	11/10/94	1.58	200	ND	ND	7.4	ND	6	29	ND	-
	2/24/95	2.62	460	ND	ND	8.3	2	8	20	ND	-
	6/28/95	3.97	80	ND	ND	4.7	ND	1	7	ND	-
	9/11/95	1.70	ND	ND	ND	3.2	ND	ND	3	ND	-
	12/11/95	1.81	ND	ND	ND	2.8	ND	ND	3.8	ND	-
	2/27/96	1.63	ND	ND	ND	ND	ND	ND	2.9	ND	-
	9/12/96	1.22	<50	<250	<750	1.64	<0.50	<0.50	<1.0	2.39	<2.0
Well abandoned during construction, spring 1997.											
MW8	8/7/97	4.37	123	<250	<750	15.8	0.777	1.45	20.4	<2.0	<2.0
	11/25/97	3.19	<50	<250	<750	0.682	1.11	0.576	1.97	-	-
	2/13/98	2.41	<50	<250	<750	0.818	2.84	<0.500	3.24	-	-
	5/14/98	3.01	<50	<250	<750	1.16	1.75	0.907	3.06	-	-
MTCA Method A Cleanup Level			1,000 ^a			5	40	30	20	5	5

EXPLANATION:

All concentrations in ug/L (ppb).

DTW = Depth to water in feet below top of casing.

TPH-G = Total Petroleum Hydrocarbons as Gasoline by Ecology Method WTPH-G.

TPH-D and TPH-O = Total Petroleum Hydrocarbons as Diesel and Oil, respectively, by Ecology Method WTPH-D (extended).

B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes; Tot. Pb = Total Lead; Diss. Pb = Dissolved Lead.

BTEX = Aromatic compounds by EPA Method 8020.

Total and dissolved lead by EPA 6010/7000 Series Methods.

ND = Not detected at or above the laboratory reporting limit.

< = Less than the stated laboratory reporting limit.

- = Not analyzed.

Shaded values equal or exceed MTCA Method A Cleanup Levels.

^a Total Petroleum Hydrocarbons

Data collected before 9/12/96 are taken from prior consultants.



NORTH CREEK ANALYTICAL

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

ERI
 1921 Edmonds Drive SE
 Renton, WA 98055

Project: Texaco Greenwood #63-232-0037
 Project Number: 31001
 Project Manager: John Meyer

Sampled: 5/14/98
 Received: 5/20/98
 Reported: 5/28/98 12:05

Summary Report*

(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	MW-8 Water 5/14/98 B805439-00				
WTPH-G/8021	Gasoline Range Hydrocarbons	ug/l		<50.0			
"	Benzene	"		1.16			
"	Toluene	"		1.75			
"	Ethylbenzene	"		0.907			
"	Xylenes (total)	"		3.06			
WTPH-D	Diesel Range Hydrocarbons	mg/l		<0.250			
"	Heavy Oil Range Hydrocarbons	"		<0.750			

North Creek Analytical, Inc.

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*


 Matthew Essig, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
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1921 Edmonds Drive SE
Renton, WA 98055

Project: Texaco Greenwood #63-232-0037
Project Number: 31001
Project Manager: John Meyer

Sampled: 5/14/98
Received: 5/20/98
Reported: 5/28/98 12:05

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-8	B805439-00	Water	5/14/98

North Creek Analytical, Inc.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document.
This analytical report must be reproduced in its entirety.*


Matthew Essig, Project Manager

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ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 5/14/98 Received: 5/20/98 Reported: 5/28/98 12:05
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>MW-8</u>				<u>B805439-00</u>			<u>Water</u>	
Gasoline Range Hydrocarbons	0580754	5/26/98	5/26/98		50.0	ND	ug/l	
Benzene	"	"	"		0.500	1.16	"	
Toluene	"	"	"		0.500	1.75	"	
Ethylbenzene	"	"	"		0.500	0.907	"	
Xylenes (total)	"	"	"		1.00	3.06	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		101	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		107	"	


 Matthew Essig, Project Manager



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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 5/14/98 Received: 5/20/98 Reported: 5/28/98 12:05
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**Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>MW-8</u>				<u>B805439-00</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0580673	5/21/98	5/23/98		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		89.1	%	


 Matthew Essig, Project Manager



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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 PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 5/14/98 Received: 5/20/98 Reported: 5/28/98 12:05
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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
 North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0580754			Date Prepared: 5/26/98			Extraction Method: EPA 5030B (P/T)				
Blank			0580754-BLK1							
Gasoline Range Hydrocarbons	5/26/98			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Surrogate: 4-BFB (FID)	"	48.0		51.3	"	50.0-150	107			
Surrogate: 4-BFB (PID)	"	48.0		50.7	"	50.0-150	106			
LCS			0580754-BS1							
Gasoline Range Hydrocarbons	5/26/98	500		456	ug/l	70.0-130	91.2			
Surrogate: 4-BFB (FID)	"	48.0		50.5	"	50.0-150	105			
Duplicate			0580754-DUP1 B805463-00							
Gasoline Range Hydrocarbons	5/26/98		6010	7240	ug/l			25.0	18.6	
Surrogate: 4-BFB (FID)	"	48.0		58.3	"	50.0-150	121			
Duplicate			0580754-DUP2 B805465-03							
Gasoline Range Hydrocarbons	5/26/98		101000	107000	ug/l			25.0	5.77	
Surrogate: 4-BFB (FID)	"	48.0		66.5	"	50.0-150	139			
Matrix Spike			0580754-MS1 B805465-00							
Benzene	5/26/98	10.0	ND	11.0	ug/l	70.0-130	110			
Toluene	"	10.0	ND	10.8	"	70.0-130	108			
Ethylbenzene	"	10.0	ND	10.4	"	70.0-130	104			
Xylenes (total)	"	30.0	ND	31.3	"	70.0-130	104			
Surrogate: 4-BFB (PID)	"	48.0		51.6	"	50.0-150	107			
Matrix Spike Dup			0580754-MSD1 B805465-00							
Benzene	5/26/98	10.0	ND	11.3	ug/l	70.0-130	113	15.0	2.69	
Toluene	"	10.0	ND	11.0	"	70.0-130	110	15.0	1.83	
Ethylbenzene	"	10.0	ND	10.4	"	70.0-130	104	15.0	0	
Xylenes (total)	"	30.0	ND	31.0	"	70.0-130	103	15.0	0.966	
Surrogate: 4-BFB (PID)	"	48.0		50.8	"	50.0-150	106			


 Matthew Essig, Project Manager



NORTH CREEK ANALYTICAL

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ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 5/14/98 Received: 5/20/98 Reported: 5/28/98 12:05
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Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0580673			Date Prepared: 5/21/98			Extraction Method: EPA 3520C/600 Series				
Blank			0580673-BLK1							
Diesel Range Hydrocarbons	5/22/98			ND	mg/l	0.250				
Heavy Oil Range Hydrocarbons	"			ND	"	0.750				
Surrogate: 2-FBP	"	0.320		0.304	"	50.0-150	95.0			
LCS			0580673-BS1							
Diesel Range Hydrocarbons	5/22/98	2.00		1.83	mg/l	60.0-140	91.5			
Surrogate: 2-FBP	"	0.320		0.302	"	50.0-150	94.4			
Duplicate			0580673-DUP1 B805434-00							
Diesel Range Hydrocarbons	5/22/98		ND	ND	mg/l			44.0		1
Surrogate: 2-FBP	"	0.605		0.555	"	50.0-150	91.7			
Duplicate			0580673-DUP2 B805437-04							
Diesel Range Hydrocarbons	5/22/98		ND	ND	mg/l			44.0		1
Surrogate: 2-FBP	"	0.605		0.579	"	50.0-150	95.7			

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.


 Matthew Essig, Project Manager

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ERI
1921 Edmonds Drive SE
Renton, WA 98055

Project: Texaco Greenwood #63-232-0037
Project Number: 31001
Project Manager: John Meyer

Sampled: 5/14/98
Received: 5/20/98
Reported: 5/28/98 12:05

Notes and Definitions

#	Note
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- 1 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- Recov. Recovery
- RPD Relative Percent Difference

North Creek Analytical, Inc.


Matthew Essig, Project Manager

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East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

CHAIN OF CUSTODY REPORT

Work Order # B805439

REPORT TO: <u>John Meyer</u>			INVOICE TO: <u>Texaco Ref. & Mktg.</u>		
ATTENTION: <u>ER1</u>			ATTENTION: <u>Thomas Geiger</u>		
ADDRESS: <u>1921 Edmonds Dr SE</u>			ADDRESS: <u>2400 18th St SE</u>		
<u>Renton, WA 98055</u>			<u>LYNNWOOD WA</u>		
PHONE: <u>(425) 227-0240</u>		FAX: <u>X0225</u>	P.O. NUMBER:		NCA QUOTE #:
PROJECT NAME: <u>Texaco Ground</u>			Analysis Request: <u>TPH-G/BTEX</u> <u>TPH-D (4/24)</u>		
PROJECT NUMBER: <u>31001</u>					
SAMPLED BY: <u>John Meyer</u>					
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)			
<u>MW-8</u>	<u>5/14/98</u>	<u>B805439-00</u>			

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses

<input checked="" type="checkbox"/> 10	<input type="checkbox"/> 7	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	Same Day
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Fuels & Hydrocarbon Analyses

<input type="checkbox"/> 5	<input type="checkbox"/> 3-4	<input type="checkbox"/> 2	<input type="checkbox"/> 1	Same Day
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OTHER Specify: _____

* Turnaround Requests less than standard may incur Rush Charges

RELINQUISHED BY (Signature): <u>JAR Meyer</u>	DATE: <u>5/20/98</u>	RECEIVED BY (Signature): <u>KBarker</u>	DATE: <u>5/20/98</u>
PRINT NAME: <u>John Meyer</u>	FIRM: <u>ER1</u>	PRINT NAME: <u>KBarker</u>	FIRM: <u>NCA-B</u>
RELINQUISHED BY (Signature): <u>KBarker</u>	DATE: <u>5/20/98</u>	RECEIVED BY (Signature): <u>B. Dightman</u>	DATE: <u>5/20/98</u>
PRINT NAME: <u>KBarker</u>	FIRM: <u>NCA-B</u>	PRINT NAME: <u>B. Dightman</u>	FIRM: <u>NCA</u>
TIME: <u>14:20</u>		TIME: <u>14:20</u>	
ADDITIONAL REMARKS: <u>22.6 w/o</u>			