



Texaco Refining
and Marketing Inc

3400 188th Street SW
Suite 630
Lynnwood WA 98037

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

RECEIVED

FEB 02 1998

DEPT. OF ECOLOGY

January 29, 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. Groundwater samples were collected from well MW8 on November 25, 1997, and were analyzed for TPH-G, TPH-D, TPH-O, and BTEX. Laboratory results indicated that the samples did not contain 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. In the previous sampling event (August 7, 1997) benzene and total xylenes were detected at concentrations (15.8 ppb and 20.4 ppb, respectively) exceeding the Method A Cleanup level (5 ppb and 20 ppb, respectively) in well MW8. Well MW8 is being sampled for hydrocarbon analysis to fulfill a requirement of the July 31, 1996 no further action letter issued by Department of Ecology for the site. The next groundwater monitoring and sampling event is scheduled for February 1998. If you have any questions please contact me at (206) 774-6090, extension 224.

Sincerely,

Theresa A. Geijer
Project Coordinator

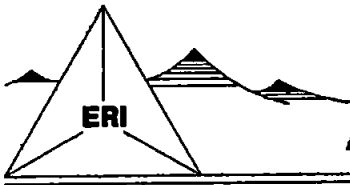
TAG:tag
p:\tag\greenw\4qt97gw.cov

Enclosure

RLLane-File (w/enclosure)

cc: R. Isackson (w/enclosure)
M. Nesteroff (w/enclosure)

PR: *6013*



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FEB 02 1998

ENVIRONMENTAL RESOLUTIONS, INC.

DEPT. OF ECOLOGY

January 26, 1998

ERI 31001.R11

Ms. Theresa Geijer, R.G.
Texaco Refining and Marketing Inc.
Environment, Health & Safety
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 Theresa:

As requested by Texaco Refining and Marketing Inc.- Environment, Health & Safety (TRMI-EH&S) Environmental Resolutions, Inc. (ERI) has prepared this report describing the field activities and laboratory results of groundwater samples collected from monitoring well MW8 on November 25, 1997. The site location shown on Plate P-1.

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-2. 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 November 25, 1997, 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 PVC bailer. 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 November 25, 1997 indicated groundwater was present approximately 3.19 feet below the top of the casing. No free product was observed. Laboratory results indicated that the groundwater samples collected from MW8 on November 25, 1997 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.

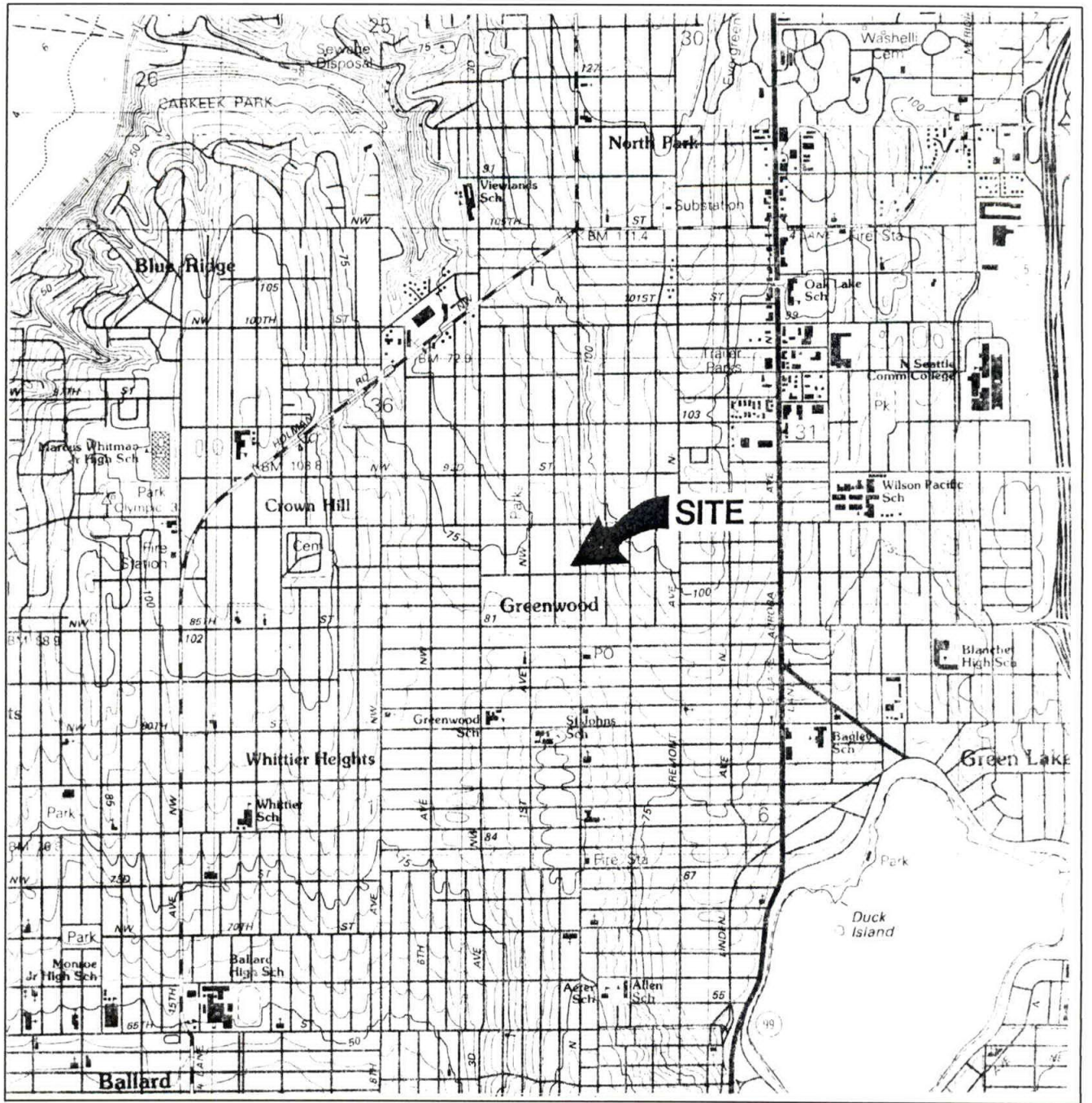
ERI appreciates this opportunity to provide assistance on this project. Please call if you have questions.

Sincerely,
Environmental Resolutions, Inc.

John K. Meyer, R.G.
Branch Manager

Attachments: Plates P-1 and P-2
Table 1
Laboratory Report

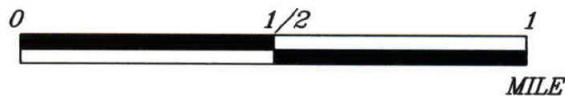
DEPARTMENT OF ECOLOGY NWRO/TCP TANK UNIT	
INTERIM CLEANUP REPORT	<input type="checkbox"/>
SITE CHARACTERIZATION	<input type="checkbox"/>
FINAL CLEANUP REPORT	<input type="checkbox"/>
OTHER <u>POST-IRAP GW MONITORING</u>	<input checked="" type="checkbox"/>
AFFECTED MEDIA: SOIL	<input type="checkbox"/>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



31001SVM



APPROXIMATE SCALE



Source: U.S.G.S. 7.5 x 15 minute
topographic quadrangle map
Seattle, North 1983



SITE VICINITY MAP

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

PROJECT

31001

PLATE

P-1

NORTH 87th ST.

EDGE OF PAVING



ALLEY

MW8

AGW-6
(Abandoned)

WALGREENS
BUILDING

PARKING
AREA

EDGE OF PAVING

GREENWOOD AVE. NO.

APPROXIMATE SCALE



SOURCE: Modified from maps provided by Texaco and Bayley Construction

FN 31001\31001R11



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-2

DATE: 12/31/97

TABLE 2
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	--	--
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.




ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:21
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Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	MW-8-NP Water 11/25/97 B711505-01	MW-8 Water 11/25/97 B711505-02
WTPH-G/8020	Gasoline Range Hydrocarbons	ug/l	<50.0	<50.0
"	Benzene	"	<0.500	0.682
"	Toluene	"	<0.500	1.11
"	Ethylbenzene	"	<0.500	0.576
"	Xylenes (total)	"	<1.00	1.97
WTPH-Dext	Diesel Range Hydrocarbons	mg/l	<0.250	<0.250
"	Heavy Oil Range Hydrocarbons	"	<0.750	<0.750

North Creek Analytical, Inc.


Matthew Essig, Project Manager

**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.*



**NORTH
CREEK
ANALYTICAL**
Environmental Laboratory Services

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202


ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-8-NP	B711505-01	Water	11/25/97
MW-8	B711505-02	Water	11/25/97

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

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
				<u>B711505-01</u>			<u>Water</u>	
Gasoline Range Hydrocarbons	1270037	12/2/97	12/2/97		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		79.4	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		82.1	"	
				<u>B711505-02</u>			<u>Water</u>	
Gasoline Range Hydrocarbons	1270037	12/2/97	12/2/97		50.0	ND	ug/l	
Benzene	"	"	"		0.500	0.682	"	
Toluene	"	"	"		0.500	1.11	"	
Ethylbenzene	"	"	"		0.500	0.576	"	
Xylenes (total)	"	"	"		1.00	1.97	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		77.3	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		80.4	"	


 Matthew Essig, Project Manager



ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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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>B711505-01</u>				
<u>MW-8-NP</u>							<u>Water</u>	
Diesel Range Hydrocarbons	1270048	12/2/97	12/4/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		90.2	%	
				<u>B711505-02</u>				
<u>MW-8</u>							<u>Water</u>	
Diesel Range Hydrocarbons	1270048	12/2/97	12/4/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		91.1	%	



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202


ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/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: 1270037			Date Prepared: 12/2/97			Extraction Method: EPA 5030 (P/T)				
Blank			1270037-BLK1							
Methyl tert-butyl ether	12/2/97			ND	ug/l	5.00				
Gasoline Range Hydrocarbons	"			ND	"	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		36.9	"	50.0-150	76.9			
Surrogate: 4-BFB (PID)	"	48.0		38.8	"	50.0-150	80.8			
LCS			1270037-BS1							
Gasoline Range Hydrocarbons	12/2/97	500		535	ug/l	75.0-125	107			
Surrogate: 4-BFB (FID)	"	48.0		40.9	"	50.0-150	85.2			
Duplicate			1270037-DUP1 B711381-02							
Gasoline Range Hydrocarbons	12/2/97		279	257	ug/l			25.0	8.21	
Surrogate: 4-BFB (FID)	"	48.0		40.3	"	50.0-150	84.0			
Duplicate			1270037-DUP2 B712012-04							
Gasoline Range Hydrocarbons	12/3/97		110000	104000	ug/l			25.0	5.61	
Surrogate: 4-BFB (FID)	"	48.0		35.7	"	50.0-150	74.4			
Matrix Spike			1270037-MS1 B711423-03							
Benzene	12/2/97	10.0	ND	9.28	ug/l	70.0-130	92.8			
Toluene	"	10.0	ND	9.20	"	70.0-130	92.0			
Ethylbenzene	"	10.0	ND	8.83	"	70.0-130	88.3			
Xylenes (total)	"	30.0	ND	25.3	"	70.0-130	84.3			
Surrogate: 4-BFB (PID)	"	48.0		37.2	"	50.0-150	77.5			
Matrix Spike Dup			1270037-MSD1 B711423-03							
Benzene	12/2/97	10.0	ND	9.07	ug/l	70.0-130	90.7	15.0	2.29	
Toluene	"	10.0	ND	8.98	"	70.0-130	89.8	15.0	2.42	
Ethylbenzene	"	10.0	ND	8.68	"	70.0-130	86.8	15.0	1.71	
Xylenes (total)	"	30.0	ND	25.2	"	70.0-130	84.0	15.0	0.357	
Surrogate: 4-BFB (PID)	"	48.0		38.9	"	50.0-150	81.0			

North Creek Analytical, Inc.

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


 Matthew Essig, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
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 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



NORTH CREEK ANALYTICAL


Environmental Laboratory Services

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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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: 1270048			Date Prepared: 12/2/97			Extraction Method: EPA 3510/600 Series				
Blank			1270048-BLK1							
Diesel Range Hydrocarbons	12/4/97			ND	mg/l	0.250				
Heavy Oil Range Hydrocarbons	"			ND	"	0.750				
Surrogate: 2-FBP	"	0.358		0.323	"	50.0-150	90.2			
LCS			1270048-BS1							
Diesel Range Hydrocarbons	12/4/97	2.00		1.86	mg/l	60.0-140	93.0			
Surrogate: 2-FBP	"	0.358		0.344	"	50.0-150	96.1			
Duplicate			1270048-DUP1 B711505-01							
Diesel Range Hydrocarbons	12/4/97		ND	ND	mg/l				44.0	
Surrogate: 2-FBP	"	0.676		0.657	"	50.0-150	97.2			


 Matthew Essig, Project Manager




ERI 1921 Edmonds Drive SE Renton, WA 98055	Project: Texaco Greenwood #63-232-0037 Project Number: 31001 Project Manager: John Meyer	Sampled: 11/25/97 Received: 11/26/97 Reported: 12/8/97 10:18
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Notes and Definitions

#	Note
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- 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

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

TEXACO CHAIN OF CUSTODY REPORT

Work Order #: **B711505**

CONSULTANT: ERI		TEXACO INFORMATION													
PROJECT MANAGER: John Meyer		TEXACO PROJECT MANAGER: T. Geijer													
ADDRESS: 1921 Edmonds Dr SE Renton, WA 98055		TEXACO FACILITY NUMBER:													
PHONE: (425) 227-0280 FAX: 80225		SITE ADDRESS: 8701 Greenwood Ave Seattle, WA													
PROJECT NAME: Texaco Greenwood		State Hydrocarbon Methods (please circle): WA OR AK ID													
PROJECT NUMBER: 31001		Analysis Request:													
SAMPLED BY: Meyer		<table border="1"> <tr> <td>TPH-G/BIEX</td> <td>TPH-D</td> <td>TPH-D Extended</td> <td>TPH-418.1</td> <td>TPH-HCID</td> <td>Tox/Diss Lead</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		TPH-G/BIEX	TPH-D	TPH-D Extended	TPH-418.1	TPH-HCID	Tox/Diss Lead						
TPH-G/BIEX	TPH-D	TPH-D Extended	TPH-418.1	TPH-HCID	Tox/Diss Lead										

TURNAROUND REQUEST in Business Days

Organic & Inorganic Analyses *

10	5	3	1
----	---	---	---

Air Analyses *

3	1
---	---

OTHER Specify: **will call client**

* Standard Turnaround for Organic & Inorganic Analyses is 11

* Standard Turnaround for Air Analyses is 3 Days

NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	TPH-G/BIEX	TPH-D	TPH-D Extended	TPH-418.1	TPH-HCID	Tox/Diss Lead	MATRIX (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
MWS8-NP	1. B711505-01	11/25/97	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					u	3	HOLD
MWS8	2. -02		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
	3.										
	4.										
	5.										
	6.										
	7.										
	8.										
	9.										
	10.										

RELINQUISHED BY: JMP	DATE: 11/26/97	RECEIVED BY: K Barker	DATE: 11/26/97
PRINT NAME: John Meyer FIRM: ERI	TIME:	PRINT NAME: Kendra Barker FIRM: NCA	TIME: 10:50
RELINQUISHED BY: K Barker	DATE: 11/26/97	RECEIVED BY: B Dightman	DATE: 11/26/97
PRINT NAME: Kendra Barker FIRM: NCA	TIME: 12:45	PRINT NAME: B. Dightman FIRM: NCA	TIME: 12:45

ADDITIONAL REMARKS:

9.2° w/o CS