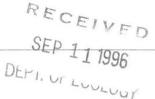


Texaco Refining and Marketing Inc 3400 188th Street SW Suite 630 Lynnwood WA 98037



September 9, 1996

ENV - SERVICE STATIONS

Soil Sampling 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 report documenting results of additional soil sampling conducted adjacent to the former Texaco service station site located at 8701 Greenwood North, Seattle, Washington. The sampling was conducted by Environmental Resolutions, Inc. (ERI), at the request of Texaco Refining and Marketing, Inc. Soil samples were collected from two locations in the alley west of the referenced site and two locations at the property located at 8712 Palantine North, also west of the site (plate P-1 of enclosed report). The samples were collected from between 0.5 to 4.5 feet below grade (fbg) at each location, and were analyzed for total petroleum hydrocarbons as gasoline (TPH-G), diesel (TPH-D) and oil (TPH-O), and benzene, toluene, ethylbenzene and total xylenes (BTEX).

The soil samples collected from the two locations on the Palantine property were non-detect for TPH-G and BTEX. TPH-O was detected at concentrations below the MTCA Method A Cleanup level.

The soil samples collected from the two locations in the adjacent alley were non-detect for TPH-G and BTEX. TPH-O was detected at concentrations up to 460 ppm, exceeding the MTCA Method A Cleanup level at 1.5 to 2 fbg and 2 to 2.5 fbg at respective location. At each location the TPH-O concentration decreased with depth such that the bottom samples (at 3.5 to 4.5 fbg) were below the Method A Cleanup level. The source of these hydrocarbons is not known. As these samples were collected at shallow depths from alley fill material there are numerous potential contributing sources, such as alley surface runoff and leakage from subsurface utilities. Texaco does not plan to conduct any further assessment and/or remediation in these areas.

If you have any questions please contact me at (206) 774-6090, extension 224.

Sincerely,

Theresa A. Geijer Project Coordinator

Texaco Environment, Health & Safety

A. Bejer

TAG:tag p:\tag\greenw\allyrpt.cov

Enclosure

RLLane-File (w/enclosure)

cc:

Mr. R. Isackson (w/enclosure)

Mr. M. Nesteroff (w/enclosure) Ms. D. Knezovich (w/enclosure)

PR:

August 27, 1996 ERI 31001.R03

Ms. Theresa Geijer Texaco Refining and Marketing Inc. Environment, Health & Safety 3400 188th Street SW, Suite 630 Lynnwood, Washington 98037

Subject:

Hand Auger Soil Sampling, Former Texaco Facility 63-232-0037, 8701 Greenwood

Avenue North, Seattle, Washington.

Dear Ms. Geijer:

This letter report presents results of hand auger soil sampling and assessment activities conducted by Environmental Resolutions, Inc. (ERI) at property located adjacent to former Texaco Facility 63-232-0037, in Seattle, Washington. Soil sampling activities were conducted across the alley immediately west of the site and on private property to the west and north. Soil sampling locations are shown on Plate P-1.

FIELD ACTIVITIES

Based on a request by Texaco Refining and Marketing Inc., Environment, Health & Safety (TRMI-EH&S), ERI visited the area adjacent to the former Texaco facility to collect soil samples for laboratory analysis. On July 16 and 31, 1996 hand auger borings HA1 through HA4 were advanced along the western shoulder of the alley and on private property at the rear of an adjacent residence located at 8712 Palatine Avenue North (Plate P-1). Soil borings were advanced using a hand auger and samples collected in laboratory-supplied glass jars using a clean stainless steel sampling spoon and immediately placed into an iced cooler for transport to the laboratory.

Soil samples were collected a depths ranging between approximately 0.5 and 4.5 feet below ground surface (bgs). Soil sampling depths are shown in Table T-1. Soil encountered in HA1 and HA2 along the shoulder of the alley consisted of approximately 1.5 feet of sandy fill with rock and construction debris underlain by silt and clay, grading to peat. Soil encountered in borings HA3 and HA4 at the rear of the residence consisted of approximately 0.5 feet of organic soil underlain by silt, clay, and peat similar to that encountered in HA1 and HA2. Field measurements indicate that the surface elevation at the rear of the residence is approximately two feet below the adjoining alley.

LABORATORY ANALYSIS AND RESULTS

Soil samples were submitted to North Creek Analytical, Inc. and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using Washington State Department of Ecology (Ecology) Method WTPH-G/EPA Method 8020, and total petroleum hydrocarbons as diesel (TPH-D) and as oil (TPH-O) using Ecology Method WTPH-D (extended). In addition to the soil samples, ERI prepared an equipment trip blank by rubbing the hand

auger and sampling equipment with a sterile gauze and submitting the sample for laboratory analysis using Ecology Method WTPH-D (extended).

Laboratory results indicate that samples collected approximately 1.5 to 2.5 feet bgs in HA1 and HA2 contained TPH-O concentrations up to 460 parts per million (ppm), exceeding the Model Toxics Control Act (MTCA)¹ Method A Cleanup Level of 200 parts per million. No other soil sample collected from any boring contained TPH-O or TPH-O concentrations exceeding MTCA Method A Cleanup Levels. No TPH-G or BTEX compounds were detected in any sample. Hydrocarbons were not detected in the gauze swab sample. The analytical results are shown in Table T-1 and on the attached laboratory reports.

CONCLUSIONS

Concentrations of TPH-O in soil samples collected 1.5 to 2.5 feet bgs in HA1 and HA2 along the shoulder of the alley exceeded the MTCA Method A Cleanup of 200 ppm. The source of these hydrocarbons is not known. Possible sources include road construction, runoff from the alley, historic surface spills or discharges, prior use of hydrocarbon-impacted fill, leakage from subsurface utilities or septic systems, or other unknown mechanisms.

Soil samples collected at the rear of the residence at 8712 Palatine Avenue North contained analyte concentrations below MTCA Method A Cleanup Levels. No TPH-G or BTEX compounds were detected in any sample.

Please call if you have any questions regarding this report.

Sincerely,

Environmental Resolutions, Inc.

John K. Meyer

Branch Manager

Attachments:

Plate P-1

Table T-1

Laboratory Reports

DEPARTMENT OF ECOLOGY
NWRO/TCP TANK UNIT

INTERIM CLEANUP REPORT
SITE CHARACTERIZATION
FINAL CLEANUP REPORT
OTHER Sampling of So.1 offs. 19
AFFECTED MEDIA: SOIL
OTHER GW
INSPECTOR (INIT.) PU DATE If [25] 22

¹Chapter 173-340 WAC, The Model Toxics Control Act Cleanup Regulations, Method A Cleanup Levels. Amended December 1993.

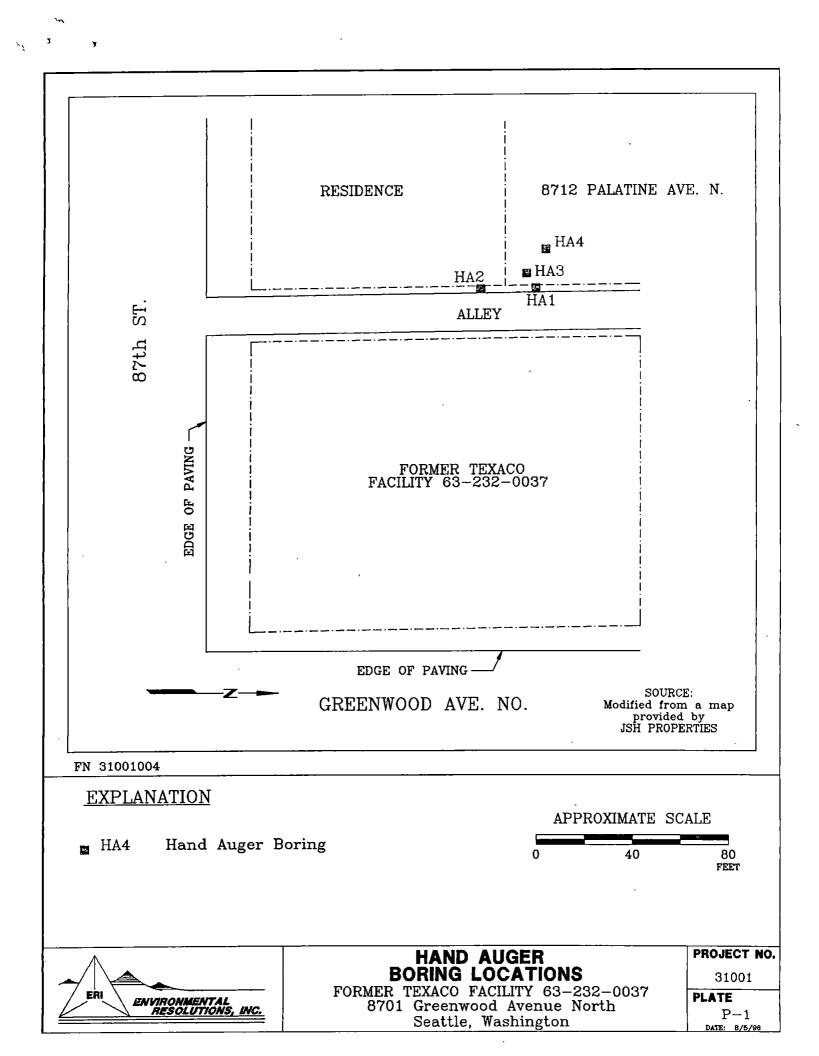


TABLE T-1
SOIL ANALYTICAL RESULTS
Former Texaco Facility 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington
Page 1 of 1

Sample Name	Date	Depth*	TPH-G	TPH-D	TPH-O	В	Τ	E	X
Hand Auger So	ii Samples	<u> </u>							
S-1.5-HA1	7/16/96	1.5	<5.0	13.5	56.3	<0.05	<0.05	<0.05	<0.10
S-2-HA1	7/16/96	2	<5.0	33.0	250	<0.05	<0.05	<0.05	<0.10
S-2.5-HA1	7/16/96	2.5	<5.0	41.2	216	<0.05	<0.05	<0.05	<0.10
S-4.5-HA1	7/16/96	4.5	<5.0	39.6	152	<0.05	<0.05	<0.05	<0.10
S-1.5-HA2	7/16/96	1.5	<5.0	59.1	460	<0.05	<0.05	<0.05	<0.10
S-2-HA2	7/16/96	2	<5.0	59.6	297	<0.05	<0.05	<0.05	< 0.10
S-3.5-HA2	7/16/96	3.5	NA	34.4	111	NA	NA	NA	NA
S-0.5-HA3	7/31/96	0.5	<5.0	15.9	98.8	<0.05	<0.05	<0.05	<0.10
S-1-HA3	7/31/96	1	<5.0	17.3	66.2	<0.05	<0.05	<0.05	<0.10
S-2-HA3	7/31/96	2	<10.0	14.0	<25.0	<0.10	<0.10	<0.10	<0.20
S-0.5-HA4	7/31/96	0.5	<5.0	19.9	149	<0.05	<0.05	<0.05	<0.10
S-1-HA4	7/31/96	1	<5.0	16.3	74.2	<0.05	<0.05	<0.05	<0.10
S-2-HA4	7/31/96	2	<10.0	<10.0	46.2	<0.10	<0.10	<0.10	<0.20
MTCA Method A Cle	anup Level		100	200	200	0.5	40_	20	20
Trip Blank Swal	h Campla								
SWAB	7/24/96	None	NA	<5.0	<10.0	NA	NA	NA	NA

EXPLANATION:

All concentrations in mg/kg (ppm).

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.

BTEX = Aromatic compounds by EPA Method 8020.

< = Less than the stated laboratory reporting limit.

NA = Not analyzed.

Shaded values exceed MTCA Method A Cleanup Levels.

^{*} Depths are in feet below ground surface. Surface elevations at HA3 and HA4 are approximately two feet below that at HA1 and HA2.



BOTHELL • (206) 481-9200 • FAX 485-2992 SPOKANE • (509) 924-9200 • FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

 ERI
 Project:
 Texaco #63-232-0037
 Sampled:
 7/16/96

 1921 Edmonds Drive SE
 Project Number:
 31001.14T2
 Received:
 7/16/96

 Renton, WA 98055
 Project Manager:
 John Meyer
 Reported:
 7/19/96

Project Summary

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-1.5-HA1	B607245-01	Soil	7/16/96
S-1.5-HA2	B607245-05	Soil	7/16/96

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.



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PORTLAND = (503) 643-9200 = FAX 644-2202

 ERI
 Project:
 Texaco #63-232-0037
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 7/16/96

 Renton, WA 98055
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 John Meyer
 Reported:
 7/19/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
S-1.5-HA <u>1</u>			B6072	45-01			Soil, dry wt.	
Gasoline Range Hydrocarbons	6070429	7/16/96	7/17/96		5.00	ND	mg/kg (ppm)	
Benzene	"	11	ır		0.0500	ND	"	
Toluene	11	n	и		0.0500	ND	и	
Ethylbenzene	**	11	u		0.0500	ND	11	
Xylenes (total)	11	n	н		0.100	ND	H	
Surrogate: 4-BFB (FID)	"	n	"	50.0-150		83.9	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		92.1	II .	
S-1.5-HA2			B6072	4 5-05			Soil, dry wt.	
Gasoline Range Hydrocarbons	6070429	7/16/96	7/17/96		5.00	ND	mg/kg (ppm)	
Benzene	11	11	10		0.0500	ND	n	
Toluene	H	H	н		0.0500	ND	tt.	
Ethylbenzene	n	n	ıt		0.0500	ND	11	
Xylenes (total)	**	n	п		0.100	ND	ti.	
Surrogate: 4-BFB (FID)	"	"	ii .	50.0-150		80.0	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		82.9	"	

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



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 ERI
 Project:
 Texaco #63-232-0037
 Sampled:
 7/16/96

 1921 Edmonds Drive SE
 Project Number:
 31001.14T2
 Received:
 7/16/96

 Renton, WA 98055
 Project Manager:
 John Meyer
 Reported:
 7/19/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
			B6072	45 N1			Soil, dry wt.	
<u>S-1.5-HA1</u>				+3-UI	•••	40.5		
Diesel Range Hydrocarbons	6070473	7/17/96	7/18/96		10.0	13.5	mg/kg (ppm)	1
Heavy Oil Range Hydrocarbons	ti	l#	II		25.0	56.3		
Surrogate: 2-FBP	"	ï,	"	50.0-150		68.5	%	
S-1.5-HA2			B6072	<u>45-05</u>			Soil, dry wt.	
Diesel Range Hydrocarbons	6070473	7/17/96	7/18/96		10.0	59.1	mg/kg (ppm)	1
Heavy Oil Range Hydrocarbons		19	17		25.0	460		
Surrogate: 2-FBP	"	"	"	50.0-150		76.4	%	

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



BOTHELL **=** (206) 481-9200 **=** FAX 485-2992 SPOKANE **=** (509) 924-9200 **=** FAX 924-9290 PORTLAND **=** (503) 643-9200 **=** FAX 644-2202

 ERI
 Project:
 Texaco #63-232-0037
 Sampled:
 7/16/96

 1921 Edmonds Drive SE
 Project Number:
 31001.14T2
 Received:
 7/16/96

 Renton, WA 98055
 Project Manager:
 John Meyer
 Reported:
 7/19/96

Dry Weight Determination

Sample Name	Lab ID	Matrix	Result	Units
S-1.5-HA1	B607245-01	Soil	88.1	%
S-1.5-HA2	B607245-05	Soil	79.3	%

North Creek Analytical, Inc.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290 PORTLAND **(503)** 643-9200 **FAX** 644-2202

 ERI
 Project:
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 1921 Edmonds Drive SE
 Project Number:
 31001.14T2
 Received:
 7/16/96

 Renton, WA 98055
 Project Manager:
 John Meyer
 Reported:
 7/19/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A Quality Control

	Date	Spike	Sample	QC	Rep	orting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	% N	lotes*
Dataha (070420	Data Dece	made 7/16/	16							
Batch: 6070429	<u>Date Prepa</u> 6070429-B		<u>70</u>		Soil, dry w	+				
Blank	7/16/96	LIKI		ND	mg/kg (ppn					
Gasoline Range Hydrocarbons	//10/90 II			ND	mg/kg (ppn	0.0500				
Benzene Toluene				ND	11	0.0500				
	11			ND	"	0.0500				
Ethylbenzene				ND	11	0.0300				
Xylenes (total)		4,00	-	3.68	- "	50.0-150	92.0			
Surrogate: 4-BFB (FID)	**	4.00 4.00		3.84	"	49.0-142	92.0 96.0			
Surrogate: 4-BFB (PID)	,	4.00		3.84		49.0-142	90.0			
Blank Spike	6070429-BS	S1			Soil, dry w	t .				
Gasoline Range Hydrocarbons	7/16/96	25.0		23.2	mg/kg (ppn		92.8			
Surrogate: 4-BFB (FID)	"	4.00		4.08	"	50.0-150	102		-	
				•						
<u>Duplicate</u>	6070429-D	UP1 Be	507231-0 <u>8</u>		Soil, dry w	<u>t.</u>				
Gasoline Range Hydrocarbons	7/16/96		ND	ND	mg/kg (ppn	1)		53.0		
Surrogate: 4-BFB (FID)	"	4.48		4.07	11	50.0-150	90.8			
Duplicate	6070429-D1	UP2 Be	6072 <u>45-05</u>		Soil, dry w	t.				
Gasoline Range Hydrocarbons	7/17/96	<u> </u>	ND	ND	mg/kg (ppn			53.0		
Surrogate: 4-BFB (FID)	"	5.04		3.98	"	50.0-150	79.0			
Matrix Spike	6070429-M	<u>S1</u> <u>B6</u>	<u> 507231-02</u>		Soil, dry w	<u>t.</u>				
Benzene	7/16/96	0.551	ND	0.476	mg/kg (ppn	58.0-114	86.4			
Toluene	II .	0.551	ND	0.494	ti .	59.0-113	89.7			
Ethylbenzene	11	0.551	ND	0.520	11	58.0-118	94.4			
Xylenes (total)	11	1.65	ND	1.59	II .	61.0-119	96.4			
Surrogate: 4-BFB (PID)	it	4.41		4.41	"	49.0-142	100			
Matrix Spike Dup	6070429-M	SD1 Re	5 <u>07231-02</u>		Soil, dry w	<u>.</u>				
Benzene	7/16/96	0.551	ND	0.440	mg/kg (ppm		79.9	17.4	7.82	
Toluene	11	0.551	ND	0.448	". C. v. C. (bb	59.0-113	81.3	16.5	9.82	
Ethylbenzene	11	0.551	ND	0.465	п	58.0-118	84.4	16.9	11.2	
Xylenes (total)	н	1.65	ND	1.41	п	61.0-119	85.5	18.3	12.0	
Surrogate: 4-BFB (PID)	"	4.41	112	4.19	"	49.0-142	95.0			

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290

PORTLAND (503) 643-9200 FAX 644-2202

 ERI
 Project:
 Texaco #63-232-0037
 Sampled:
 7/16/96

 1921 Edmonds Drive SE
 Project Number:
 31001.14T2
 Received:
 7/16/96

 Renton, WA 98055
 Project Manager:
 John Meyer
 Reported:
 7/19/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up Quality Control

	Date	Spike	Sample	QC	Repo	rting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level_	Result	Result	Units R	ecov. Limits	<u>%</u>	Limit	%	Notes*
Batch: 6070473	Date Prepa	red: 7/17 <u>/</u> 9	<u>96</u>							
Blank	6070473-BL	<u>K1</u>			Soil, dry wt.					
Diesel Range Hydrocarbons	7/18/96			ND	mg/kg (ppm)	10.0				
Heavy Oil Range Hydrocarbons	n .			ND		25.0				
Surrogate: 2-FBP	11	11.5		7.99	"	50.0-150	69.5			
Blank Spike	6070473-BS	1		·	Soil, dry wt.					
Diesel Range Hydrocarbons	7/18/96	68.1		66.3	mg/kg (ppm)	66.0-131	97.4	,		
Surrogate: 2-FBP	n	11.5	,	9.21	"	50.0-150	80.1			
Duplicate	6070473-DU	JP1 <u>B</u> e	607245-05		Soil, dry wt.					•
Diesel Range Hydrocarbons	7/18/96		59.1	44.7	mg/kg (ppm)			48.0	27.7	
Surrogate: 2-FBP	"	14.4		11.0	H.	50.0-150	76.4			

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290 PORTLAND **(503)** 643-9200 **FAX** 644-2202

ERI	Project:	Texaco #63-232-0037	Sampled:	7/16/96
	•		5 1	711/10/
1921 Edmonds Drive SE	Project Number:	31001.14T2	Received:	//16/96
1,21 24			Damamadi.	7/10/06
Renton, WA 98055	Project Manager:	John Meyer	Reported:	1/19/90

Notes

	 -	
#	Note	

The sample chromatographic pattern does not resemble the fuel standard used for quantitation. A fuel fingerprint is advised.

North Creek Analytical, Inc.

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992 East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

TEXACO CHAIN OF CUSTODY REPORT Work Order #:

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	monds Pr SE				ITY NUMI			-	,	-	10	5		
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~ 02	2. 5-2-HAI					_ _						/	16/2	
~ 03	3. 5-2.5-HAI											1	4-12	
-04	4. 5-45- HAZ											/	16/4	
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-07	1.5-3.5-1412											/	1/0/2	
	8.													
	9.								-					
	10.									1				
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PRINT NAME:	1 My FIRM: E	R/	TIME:	11.3	55	PRINT	NAME:	Ric	chelle	M	RoseFIRN	1: NCA	TIME: 1155	·
RELINQUISHED BY:			DATE:			RECEI	VED BY	:					DATE:	
PRINT NAME:	FIRM:	· · · · · · · · · · · · · · · · · · ·	TIME:	. <u> </u>		PRINT	NAME:				FIRM	1 :	TIME:	
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BOTHELL = (206) 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 Project Number: 31001

Project Manager: John Meyer

Sampled: 7/24/96 Received: 7/24/96

Reported: 7/26/96

Project Summary

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
SWAB	B607399-01	Wipe	7/24/96

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.



ERI

BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290 PORTLAND = (503) 643-9200 = FAX 644-2202

Sampled: 7/24/96 Project: Texaco Greenwood Received: 7/24/96 Project Number: 31001 1921 Edmonds Drive SE Reported: 7/26/96 Project Manager: John Meyer Renton, WA 98055

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SWAB			B6073	99-01			Wipe	<u>1</u>
Diesel Range Hydrocarbons	6070651	7/25/96	7/25/96		5.00	ND	mg/Wipe	
Heavy Oil Range Hydrocarbons	Ħ	н	Hr.		10.0	ND		
Surrogate: 2-FBP	"	"	- ;;	50.0-150		95.1	%	

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*Refer to end of report for text of notes.



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Project: Texaco Greenwood ERI Sampled: 7/24/96 Received: 7/24/96 1921 Edmonds Drive SE Project Number: 31001 Reported: 7/26/96 Renton, WA 98055 Project Manager: John Meyer

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) Quality Control

	Date	Spike	Sample	QC	R	eporting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
Batch: 6070651	Date Prepa	red: 7/25/9	<u>96</u>							
Blank	<u>6070651-BI</u>	<u>.K1</u>			<u>Wipe</u>					
Diesel Range Hydrocarbons	7/25/96			ND	mg/Wipe	5.00				
Heavy Oil Range Hydrocarbons	II .			ND	0	10.0	-			
Surrogate: 2-FBP	"	3.44		3.41	"	50.0-150	99.1			
Blank Spike	6070651-BS	<u>:1</u>			Wipe					
Diesel Range Hydrocarbons	7/25/96	20.4		19.2	mg/Wipe	50.0-150	94.1			
Surrogate: 2-FBP	n	3.44		3.29	"	50.0-150	95.6			
Blank Spike Dup	6070651-BS	<u>D1</u>			Wipe					
Diesel Range Hydrocarbons	7/25/96	20.4		19.8	mg/Wipe	50.0-150	97.1	50.0	3.14	
Surrogate: 2-FBP	"	3.44		3.35	"	50.0-150	97.4			

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290 PORTLAND **(503)** 643-9200 **FAX** 644-2202

ERI Project: Texaco Greenwood Sampled: 7/24/96
1921 Edmonds Drive SE Project Number: 31001 Received: 7/24/96
Renton, WA 98055 Project Manager: John Meyer Reported: 7/26/96

Notes

Note

This value is preliminary pending ELM reporting changes. MMJ

North Creek Analytical, Inc.



CHAIN OF CUSTODY REPORT

Work Order # B607399

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REPORT TO: John Meyer			INVOIC	E TO:	7	LM.							TURN,	AROUND REQ	UEST in Bu	siness Day:	; *
ATTENTION: ER/		· · · · · · · · · · · · · · · · · · ·	ATTENT	ION:	Ź	Ge	<u> - نر-</u>	~						Organic & 1	norganic Ana	iyses	
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PHONE: (200) 227-0280	FAX: (206)	227-225	P.O. NU	, , -		1/	<u> </u>	NCA Q	UOTE#:					5 3-4		I Same Day	1
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BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE (509) 924-9200 FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Project Summary

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-0.5-HA3	B607546-01	Soil	7/31/96
S-1-HA3	B607546-02	Soil	7/31/96
S-2-HA3	B607546-03	Soil	7/31/96
S-0.5-HA4	B607546-04	Soil	7/31/96
-1-HA4	B607546-05	Soil	7/31/96
S-2-HA4	B607546-06	Soil	7/31/96

North Creek Analytical, Inc.



BOTHELL **=** (206) 481-9200 **=** FAX 485-2992 SPOKANE **=** (509) 924-9200 **=** FAX 924-9290 PORTLAND **=** (503) 643-9200 **=** FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A

	Batch	Date	Date	Surrogate	Reporting			_
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
	- -						Call day and	
<u>S-0.5-HA3</u>			<u>B6075</u>	16-01		ND	Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		5.00	ND	mg/kg (ppm) "	
Benzene	ii .	n	H		0.0500	ND		
Toluene	П	*1	"		0.0500	, ND	11	
Ethylbenzene	н	н	"		0.0500	ND	11	
Xylenes (total)	n	n	ii		0.100	ND	"	
Surrogate: 4-BFB (FID)	11	"	"	50.0-150		74.1	%	
Surrogate: 4-BFB (PID)	"	n	"	49.0-142		68.9	"	
S-1-HA3			B6075	<u> 16-02</u>			Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		5.00	ND	mg/kg (ppm)	
Benzene	11	н	н		0.0500	ND	н	
Toluene	n .	**	п		0.0500	ND	II .	
Ethylbenzene	11	*1	II		0.0500	ND	n	
Xylenes (total)	п	11	п		0.100	ND	п ,	
Surrogate: 4-BFB (FID)			"	50.0-150		46.0	%	1
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		46.0	"	1
Burroguic. 4 Di D (11D)								
S-2-HA3			B6075	16-03			Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		10.0	ND	mg/kg (ppm)	
Benzene	u .	н	II .		0.100	ND	"	
Toluene	"	н	u		0.100	ND	II .	
Ethylbenzene	и	11	11		0.100	ND	II	
Xylenes (total)	u		п		0.200	ND	II	
Surrogate: 4-BFB (FID)	"	- ,,		50.0-150		66.2	%	-
Surrogate: 4-BFB (PID)	"	,,	"	49.0-142		63.9	u .	
Burroguie. 4-DID (11D)								
S-0.5-HA4			B6075	<u> 16-04</u>			Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		5.00	ND	mg/kg (ppm)	
Benzene	II	н	н		0.0500	ND	11	
Toluene	II	н	п		0.0500	ND	II .	
Ethylbenzene	п	11	II .		0.0500	ND	II	
Xylenes (total)	н	н	It.		0.100	ND	u .	
Surrogate: 4-BFB (FID)	· ii		"	50.0-150		59.0	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		57.0	"	
<u>S-1-HA4</u>			B6075	<u> 16-05</u>			Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		5.00	ND	mg/kg (ppm)	
Benzene	11	n	11		0.0500	ND	n .	
Toluene	0	11	gr.		0.0500	ND	II .	
10100110					_			

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BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290 PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
		·					0.1.1.1	
S-1-HA4 (continued)			<u>B6075</u>	<u> 46-05</u>			Soil, dry wt.	
Ethylbenzene	6080053	8/1/96	8/1/96		0.0500	ND	mg/kg (ppm)	
Xylenes (total)	11	n	D		0.100	ND		
Surrogate: 4-BFB (FID)		"	"	50.0-150		44.0	%	1
Surrogate: 4-BFB (PID)	"	"	"	49.0-142	•	41.0	"	1
S-2-HA4			B6075	46 <u>-06</u>			Soil, dry wt.	
Gasoline Range Hydrocarbons	6080053	8/1/96	8/1/96		10.0	ND	mg/kg (ppm)	
Benzene	11	11	D		0.100	ND	D.	
Toluene	п	O	17		0.100	ND	11	
	11	*1	11		0.100	ND	n	
Ethylbenzene Xylenes (total)	II.	n	11		0.200	ND	11	 ,
Surrogate: 4-BFB (FID)	"	,,	"	50.0-150		56.7	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		60.1	"	

North Creek Analytical, Inc.



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND **(503)** 643-9200 **FAX** 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up

	Batch	Date	Date	Surrogate	Reporting			.
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
			7.60	46.04			Soil, dry wt.	
<u>S-0.5-HA3</u>			B6075	<u> 16-01</u>	10.0	15.9	mg/kg (ppm)	
Diesel Range Hydrocarbons	6070802	7/31/96	7/31/96			98.8	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	···		"		25.0	118	%	
Surrogate: 2-FBP	11	"	"	50.0-150		110	70	
S-1-HA3			B6075	46-02			Soil, dry wt.	
Diesel Range Hydrocarbons	6070802	7/31/96	7/31/96		10.0	17.3	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	"	1751770	n		25.0	66.2	11	
Surrogate: 2-FBP	"	"	· · · · · · · · · · · · · · · · · · ·	50.0-150		109	%	
_			D/0==	46.02			Soil, dry wt.	
<u>S-2-HA3</u>			<u>B6075</u>	<u>46-03</u>	10.0	14.0	mg/kg (ppm)	
Diesel Range Hydrocarbons	6070802	7/31/96	7/31/96			14.0 ND	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons			n 		25.0		%	
Surrogate: 2-FBP	"	"	"	50.0-150		110	%	
S-0.5-HA4			B6075	46-04			Soil, dry wt.	
Diesel Range Hydrocarbons	6070802	7/31/96	7/31/96		10.0	19.9	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	11	U	н		25.0	149	11	
Surrogate: 2-FBP		"	"	50.0-150		106	%	
O # **. 4			B6075	46-05			Soil, dry wt.	
<u>S-1-HA4</u>	6070902	7/31/96	7/31/96	10-03	10.0	16.3	mg/kg (ppm)	
Diesel Range Hydrocarbons	6070802	1/31/90	1/31/30 11		25.0	74.2	"	
Heavy Oil Range Hydrocarbons Surrogate: 2-FBP	- " -	"	"	50.0-150	20.0	110	%	
Surroguie. 2-1.Di								
S-2-HA4			B6075	<u>46-06</u>			Soil, dry wt.	
Diesel Range Hydrocarbons	6070802	7/31/96	7/31/96		10.0	ND	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	"	ti	н		25.0	46.2	H	
Surrogate: 2-FBP	"	"	"	50.0-150		96.7	%	

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Matthew Essig, Project Manager

Page 4 of 8



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND (503) 643-9200 FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Dry Weight Determination

				
Sample Name	Lab ID	Matrix	Result	Units
S-0.5-HA3	B607546-01	Soil	68.3	%
S-1-HA3	B607546-02	Soil	33.3	%
S-2-HA3	B607546-03	Soil	14.9	%
S-0.5-HA4	B607546-04	Soil	51.6	%
S-1-HA4	B607546-05	Soil	40.2	%
S-2-HA4	B607546-06	Soil	19.8	%

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*Refer to end of report for text of notes.



BOTHELL **=** (206) 481-9200 **=** FAX 485-2992 SPOKANE **=** (509) 924-9200 **=** FAX 924-9290 PORTLAND **=** (503) 643-9200 **=** FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A Quality Control

	Date	Spike	Sample	QC		orting Limit	Recov.	RPD	RPD
Analyte	Analyzed	Level	Result	Result	Units R	ecov. Limits	%	Limit	% Notes*
			<u>-</u>						
Batch: 6080053	Date Prepa		<u>5</u>						
<u>Blank</u>	<u>6080053-BI</u>	<u>_K1</u>			Soil, dry wt				
Gasoline Range Hydrocarbons	8/1/96			ND	mg/kg (ppm				
Benzene	**			ND	н	0.0500			
Toluene	n			ND	H	0.0500			
Ethylbenzene	n			ND	11	0.0500			
Xylenes (total)	U			ND	U	0.100			
Surrogate: 4-BFB (FID)	"	4.00		3.92	11	50.0-150	98.0		
Surrogate: 4-BFB (PID)	"	4.00		3.64	"	49.0-142	91.0		
Blank Spike	6080053-BS	<u> </u>			Soil, dry wt	:			
Gasoline Range Hydrocarbons	8/1/96	25.0		26.0	mg/kg (ppm	37.0-119	104		
Surrogate: 4-BFB (FID)	"	4.00		4.16	"	50.0-150	104		
Duellests	6000052 TOT	101 04	507491-09		Call due me				
Duplicate Constitute Property Visites and American	6080053-DU	<u> </u>		£ 12	Soil, dry wt	=		53.0	1
Gasoline Range Hydrocarbons Surrogate: 4-BFB (FID)	8/1/96	4.39	ND	5.13 105	mg/kg (ppm	50.0-150	2390	23.0	2
Surrogate: 4-BFB (FID)		4.39		105		30.0-130	2390		
<u>Duplicate</u>	6080053-DU	JP2 <u>B</u> 6	607533-03		Soil, dry wt	1			
Gasoline Range Hydrocarbons	8/1/96		ND	ND	mg/kg (ppm)		53.0	
Surrogate: 4-BFB (FID)	n	4.97		ND	"	50.0-150	ND		
	40000E0 3.5				0 11 1				
Matrix Spike	6080053-MS		<u> </u>		Soil, dry wt	='			
Benzene	8/1/96	0.622	ND	ND	mg/kg (ppm)		0		
Toluene		0.622	ND	ND		59.0-113	0		
Ethylbenzene		0.622	ND	ND		58.0-118	0		
Xylenes (total)		1.87	ND	ND	· · · · · · · · · · · · · · · · · · ·	61.0-119	0		
Surrogate: 4-BFB (PID)	"	4.97		ND	,,	49.0-142	ND		
Matrix Spike Dup	6080053-MS	SD1 B6	07533-03		Soil, dry wt.				
Benzene	8/1/96	0.622	ND	ND	mg/kg (ppm)		0	17.4	
Toluene	"	0.622	ND -	ND	"	59.0-113	0	16.5	
Ethylbenzene	н	0.622	ND	ND	n	58.0-118	0	16.9	
Xylenes (total)	0	1.87	ND	ND	n	61.0-119	0	18.3	
Surrogate: 4-BFB (PID)	"	4.97		ND	"	49.0-142	ND		

North Creek Analytical, Inc.



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up Quality Control

	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit_	<u>% 1</u>	Notes*
Batch: 6070802	Date Prepa	red: 7/31/9	<u>96</u>							
Blank	6070802-BI	<u>LK1</u>			Soil, dr	<u>y wt.</u>				
Diesel Range Hydrocarbons	7/31/96			ND	mg/kg (-				
Heavy Oil Range Hydrocarbons	11			ND)) 	25.0				
Surrogate: 2-FBP	н	11.5		12.4	"	50.0-150	108			
Blank Spike	6070 <u>802</u> -BS	<u>51</u>			Soil, dr	y wt.				
Diesel Range Hydrocarbons	7/31/96	68.1		51.9	mg/kg (ppm) 66.0-131	76.2			
Surrogate: 2-FBP	"	11.5		14.0	"	50.0-150	122			
Duplicate	6070802-DI	UP1 B	607546-01		Soil, dr	y wt.				<u>2</u>
Diesel Range Hydrocarbons	7/31/96		15.9	22.7	mg/kg (ppm)		48.0	35.2	
Surrogate: 2-FBP	"	16.8		19.3	"	50.0-150	115			

North Creek Analytical, Inc.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco #63-232-0037 Sampled: 7/31/96
1921 Edmonds Drive SE Project Number: Not Provided Received: 7/31/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/5/96

Notes

Note

- 1 Low surrogate recovery due to matrix effect.
- 2 RPD values are not reported at sample concentrations less than 10 times the reporting limit.

North Creek Analytical, Inc.

*Refer to end of report for text of notes.

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TEXACO CHAIN OF CUSTODY REPORT

Work Order #: 8607546

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PROJECT MANAGER: 2	hn Majer Imondo Dr 5E , WA 98055 1-0280 FAX20		TEXAC	CO PROJ	ECT MAN				<u></u> √	 >>^			Organic & Inorgan	ic Analyses •	
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Renton	, WA 98055		SITE A	DDRESS	: 87	1010	5 Now	=n~	راحص			-	Air Analys	cs +	
PHONE: (206) 227	-0280 FAX 200	227-0225			on Methods	7/4	<u>/</u>	uf					3	1	
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BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND • (503) 643-9200 • FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Project Summary

			<u></u>
Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-2-HA1	B607340-01	Soil	7/16/96
S-2-HA2	B607340-02	Soil	7/16/96
S-2.5-HA1	B607340-03	Soil	7/16/96
S-4.5-HA1	B607340-04	Soil	7/16/96
S-3.5-HA2	B607340-05	Soil	7/16/96

North Creek Analytical, Inc.

Matthew Essig, Project Manager

Page 1 of 9



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND **(503)** 643-9200 **FAX** 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
							0.11.14	
<u>S-2-HA1</u>			B60734	<u>40-01</u>		3.175	Soil, dry wt.	
Gasoline Range Hydrocarbons	6070559	7/22/96	7/22/96		5.00	ND	mg/kg (ppm) "	
Benzene	II	17	D		0.0500	ND		
Toluene	ır	D	D		0.0500	ND	"	
Ethylbenzene	U	U	11		0.0500	ND		
Xylenes (total)	U		N		0.100	ND_	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		75.0	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		75.0	n	
S-2-HA2	•		B6073	40-02			Soil, dry wt.	
Gasoline Range Hydrocarbons	6070559	7/22/96	7/22/96	_	5.00	ND	mg/kg (ppm)	
Benzene	11	11	D		0.0500	ND	н	
Toluene -	II.	U	11		0.0500	ND	u	
Ethylbenzene	n	H	n		0.0500	ND	· ·	
Xylenes (total)	11	11	н		0.100	ND	O	
Surrogate: 4-BFB (FID)	"	"		50.0-150		63.1	%	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		64.1	"	
C 2 5 1141			B6073	40-03			Soil, dry wt.	
S-2.5-HA1	6070631	7/24/96	7/24/96	10-02	5.00	ND	mg/kg (ppm)	
Gasoline Range Hydrocarbons	0070031	1124150	0		0.0500	ND	"	
Benzene	u .	0	11		0.0500	ND	u	
Toluene	11	11	н		0.0500	ND	п	
Ethylbenzene	11	21			0.100	ND	11	
Xylenes (total)		"	·	50.0-150		57.0	%	1
Surrogate: 4-BFB (FID) Surrogate: 4-BFB (PID)	"	"	"	49.0-142		59.0	"	1
			D (073	40.04			Soil, dry wt.	
<u>S-4.5-HA1</u>	<0mo.co.	#ID 4 ID 6	<u>B6073</u> 7/24/96	40-0 <u>4</u>	5.00	ND	mg/kg (ppm)	
Gasoline Range Hydrocarbons	6070631	7/24/96 "	7/24/96		0.0500	ND	mg/kg (ppm)	
Benzene	0	"	" u ·		0.0500	ND	u	
Toluene	"	"	" .		0.0500	ND	11	
Ethylbenzene			"			ND ND		
Xylenes (total)	н			500 150	0.100	38.0	%	1
Surrogate: 4-BFB (FID)	"	"	"	50.0-150			% "	
Surrogate: 4-BFB (PID)	"	"	"	49.0-142		39.8		I

North Creek Analytical, Inc.



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND • (503) 643-9200 • FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
S-2-HA1			B60734	<u>40-01</u>			Soil, dry wt.	
Diesel Range Hydrocarbons	6070569	7/22/96	7/23/96		10.0	33.0	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	11	0	"		25.0	250	"	
Surrogate: 2-FBP	"	"	"	50.0-150		76.8	%	
S-2-HA2			B6073	40-02			Soil, dry wt.	
Diesel Range Hydrocarbons	6070569	7/22/96	7/23/96		10.0	59.6	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	"	11	П		25.0	297	n .	
Surrogate: 2-FBP	#	"	"	50.0-150		73.0	%	•
C 2 E HAI			B6073	40-03			Soil, dry wt.	
S-2.5-HA1	6070643	7/24/96	7/24/96	10.00	10.0	41.2	mg/kg (ppm)	
Diesel Range Hydrocarbons	"	1124170	112-1170		25.0	216	0	
Heavy Oil Range Hydrocarbons Surrogate: 2-FBP	"	<i>n</i>		50.0-150		72.3	%	
-			B6073	40.04			Soil, dry wt.	
<u>S-4.5-HA1</u>	6070642	7/24/96	7/24/96	40-04	10.0	39.6	mg/kg (ppm)	
Diesel Range Hydrocarbons	6070643	//24/90 "	1124190		25.0	152	" (PP)	
Heavy Oil Range Hydrocarbons		"	11	50.0-150		60.9	%	
Surrogate: 2-FBP				50.0 150				
S-3.5-HA2			B6073	<u>40-05</u>			Soil, dry wt.	
Diesel Range Hydrocarbons	6070737	7/29/96	7/29/96		10.0	34.4	mg/kg (ppm)	
Heavy Oil Range Hydrocarbons	n	ti	U		25.0	111	11	·
Surrogate: 2-FBP	"	"	"	50.0-150		62.2	%	

North Creek Analytical, Inc.



BOTHELL **=** (206) 481-9200 **■** FAX 485-2992 SPOKANE **=** (509) 924-9200 **■** FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco Greenwood Sampled: 7/16/96

1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96

Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Dry Weight Determination

Sample Name	Lab ID	Matrix	Result	Units
S-2-HA1	B607340-01	Soil	68.0	%
S-2-HA2	B607340-02	Soil	32.2	%
S-2.5-HA1	B607340-03	Soil	40.1	%
S-4.5-HA1	B607340-04	Soil	10.6	%
S-3.5-HA2	B607340-05	Soil	17.0	%

North Creek Analytical, Inc.

*Refer to end of report for text of notes.



BOTHELL **(206)** 481-9200 **FAX** 485-2992 SPOKANE **(509)** 924-9200 **FAX** 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A

Quality Control

RPD RPD Reporting Limit Recov. QC Sample Spike Date Limit % Notes* Recov. Limits Units Result Result Analyzed Level Analyte Date Prepared: 7/22/96 Batch: 6070559 Soil, dry wt. 6070559-BLK1 Blank 5.00 ND mg/kg (ppm) 7/22/96 Gasoline Range Hydrocarbons 0.0500 ND Benzene 0.0500 ND Toluene 0.0500 ND Ethylbenzene 0.100 ND Xylenes (total) 50.0-150 99.0 3.96 4.00 Surrogate: 4-BFB (FID) 99.0 49.0-142 3.96 4.00 Surrogate: 4-BFB (PID) Soil, dry wt. 6070559-BS1 Blank Spike 109 37.0-119 27.2 mg/kg (ppm) 25.0 7/22/96 Gasoline Range Hydrocarbons 111 50.0-150 4.44 4.00 Surrogate: 4-BFB (FID) Soil, dry wt. <u>Duplicate</u> 6070559-DUP1 B607337-04 53.0 ND mg/kg (ppm) 7/22/96 ND Gasoline Range Hydrocarbons 50.0-150 88.0 4.05 4.60 Surrogate: 4-BFB (FID) Soil, dry wt. B607285-01 6070559-DUP2 Duplicate 53.0 mg/kg (ppm) ND Gasoline Range Hydrocarbons 7/22/96 4.04 50.0-150 84.0 Surrogate: 4-BFB (FID) 4.81 Soil, dry wt. B607337-04 6070559-MS1 Matrix Spike 58.0-114 90.1 0.518 mg/kg (ppm) 0.575 ND 7/22/96 Benzene 59.0-113 88.7 ND 0.510 0.575 Toluene 58.0-118 90.4 0.520 ND 0.575 Ethylbenzene 61.0-119 91.9 1.59 1.73 ND Xylenes (total) 49.0-142 90.0 4.60 4.14 Surrogate: 4-BFB (PID) 6070559-MSD1 Soil, dry wt. B607337-04 Matrix Spike Dup 92.0 17.4 2.09 0.529 mg/kg (ppm) 58.0-114 0.575 ND 7/22/96 Benzene 59.0-113 91.8 16.5 3.43 0.528 ND 0.575 Toluene 93.9 16.9 3.80 58.0-118 0.540 0.575 ND Ethylbenzene 3.74 61.0-119 95.4 18.3 1.73 ND 1.65 Xylenes (total) 4.60 4.19 49.0-142 91.1 Surrogate: 4-BFB (PID) Date Prepared: 7/24/96 Batch: 6070631 6070631-BLK1 Soil, dry wt. B<u>lan</u>k

ND

mg/kg (ppm)

North Creek Analytical, Inc.

Gasoline Range Hydrocarbons

7/24/96

Matthew Essig, Project Manager

5.00



Environmental Laboratory Services

Offices:

BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI 1921 Edmonds Drive SE Renton, WA 98055

Project: Texaco Greenwood

Received: 7/16/96

Sampled: 7/16/96

Project Manager: John Meyer

Project Number: 31001.14T2

Reported: 8/21/96

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A Quality Control

	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	_%	Limit	% Notes*
		-							
Blank (continued)	6070631-BI	<u>LK1</u>			Soil, dry				
Benzene	7/24/96			ND	mg/kg (¡				
Toluene	n .			ND	12	0.0500			
Ethylbenzene	n			ND	II .	0.0500			
Xylenes (total)	11			ND	If	0.100	· ·		
Surrogate: 4-BFB (FID)	"	4.00		3.80	"	50.0-150	95.0		
Surrogate: 4-BFB (PID)	"	4.00		<i>3.84</i>	"	49.0-142	96.0		
Blank Spike	6070631-BS	S1			Soil, dry	y wt.			
Gasoline Range Hydrocarbons	7/24/96	25.0		24.9	mg/kg (ppm) 37.0-119	99.6		
Surrogate: 4-BFB (FID)	"	4.00		3.68	"	50.0-150	92.0		
, ,									
Duplicate	6070631-DU	UP1	B607391-16		Soil, dr				
Gasoline Range Hydrocarbons	7/24/96		ND	ND	mg/kg (ppm)		53.0	
Surrogate: 4-BFB (FID)	"	4.13		3.51	H	50.0-150	85.0		
Duplicate	607063 <u>1-D</u> 1	U P2 1	B607340- <u>03</u>		Soil, dry	y wt.			
Gasoline Range Hydrocarbons	7/24/96		ND	ND	mg/kg (ppm)		53.0	
Surrogate: 4-BFB (FID)	"	9.96		5.38	"	50.0-150	54.0		-
Matrix Spike	6070631-M	S1 1	B607391-16		Soil, dr	v wt.			
Benzene	7/24/96	0.516	ND	0.430	mg/kg (83.3		
Toluene	112-1170	0.516	ND	0.498	"	59.0-113	96.5		
Ethylbenzene	11	0.516	ND	0.495	n	58.0-118	95.9		
Xylenes (total)	ш	1.55	ND	1.53	n.	61.0-119	98.7		
Surrogate: 4-BFB (PID)	"	4.13		4.09	"	49.0-142	99.0	-	
					g 41 1				
Matrix Spike Dup	6070631-M		B607391-16	0.427	Soil, dr		84.5	17.4	1.43
Benzene	7/24/96	0.516	ND	0.436	mg/kg (88.8	17.4	8.31
Toluene		0.516	ND	0.458	0	59.0-113			
Ethylbenzene		0.516	ND	0.465		58.0-118	90.1	16.9	6.24 6.70
Xylenes (total)	"	1.55	ND	1.43	<u>"</u>	61.0-119	92.3	18.3	0./0
Surrogate: 4-BFB (PID)	"	4.13		4.00	"	49.0-142	96.9		

North Creek Analytical, Inc.

Matthew Essig, Project Manager

Page 6 of 9



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ERI Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up Quality Control

	Date	Spike	Sample	QC		rting Limit	Recov.	RPD	RPD
Analyte	Analyzed	Level	Result	Result	Units R	cov. Limits	_ %	Limit	% Note
	- 								
Batch: 6070569	Date Prepa	red: 7/22/9	<u>96</u>						
Blank	6070569-B1	<u>LK1</u>			Soil, dry wt.				
Diesel Range Hydrocarbons	7/23/96			ND	mg/kg (ppm)				
Heavy Oil Range Hydrocarbons	II			ND		25.0			
Surrogate: 2-FBP	"	11.5		9.01	"	50.0-150	<i>78.3</i>		
S									
Blank Spike	6070 <u>569</u> -BS	<u>S1</u>			Soil, dry wt.				•
Diesel Range Hydrocarbons	7/23/96	68.1		60.8	mg/kg (ppm)		89.3		
Surrogate: 2-FBP	11	11.5		8.75	"	50.0-150	76.1		
	44-40 70		<0.00 40 00		C.:1 d				
<u>Duplicate</u>	6070569-D1	UPI B	607340 <u>-02</u>	£1.5	Soil, dry wt.			48.0	14.6
Diesel Range Hydrocarbons	7/23/96		59.6	51.5	mg/kg (ppm)	50.0-150	73.6	46.0	14.0
Surrogate: 2-FBP	"	35.6		26.2	"	30.0-130	/3.0		
Batch: 6070643	Date Prepa	red: 7/24/9	96						
Blank	6070643-BI		_		Soil, dry wt.				
Diesel Range Hydrocarbons	7/24/96			ND	mg/kg (ppm)				
Heavy Oil Range Hydrocarbons	11			ND	"	25.0			
Surrogate: 2-FBP	"	11.5		7.19	"	50.0-150	62.5		
					0.11.1				
Blank Spike	6070643-BS			50.1	Soil, dry wt.		72.6		
Diesel Range Hydrocarbons	7/24/96	68.1		50.1	mg/kg (ppm)		73.6 65.7		
Surrogate: 2-FBP	"	11.5		7.55	"	50.0-150	63.7		
Duplicate	6070643-D	UP1 B	607 <u>3</u> 4 <u>0-03</u>		Soil, dry wt.				
Diesel Range Hydrocarbons	7/24/96		41.2	36.3	mg/kg (ppm)	ı		48.0	12.6
Surrogate: 2-FBP	**	28.5		19.7	н	50.0-150	69.1		
Batch: 6070737	<u>Date Prepa</u>	red: 7/29/9	<u>96</u> .						
Blank	6070737-Bl	<u>LK1</u>			Soil, dry wt.				
Diesel Range Hydrocarbons	7/29/96			ND	mg/kg (ppm)				
Heavy Oil Range Hydrocarbons	t1			ND	"	25.0			
Surrogate: 2-FBP	n	11.5		7.20	"	50.0-150	62.6		
	6050525 D	31			Soil, dry wt.				
Blank Spike	6070737-BS	_		46.2	mg/kg (ppm)		67.8		
Diesel Range Hydrocarbons	7/29/96	68.1		6.93	mg/kg (ppm)	50.0-150	60.3		<u> </u>
Surrogate: 2-FBP	**	11.5		0.93		30.0-130	00.5		

North Creek Analytical, Inc.



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND • (503) 643-9200 • FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

50.0-150

51.3

ERI Project: Texaco Greenwood Sampled: 7/16/96
1921 Edmonds Drive SE Project Number: 31001.14T2 Received: 7/16/96
Renton, WA 98055 Project Manager: John Meyer Reported: 8/21/96

67.4

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up Quality Control

RPD RPD Reporting Limit Recov. Sample QC Date Spike Limit % Notes* Recov. Limits Result Units Level Result Analyzed Analyte <u>2</u> 6070737-DUP1 B607340-05 Soil, dry wt. **Duplicate** 52.9 48.0 34.4 20.0 mg/kg (ppm) 7/29/96 Diesel Range Hydrocarbons

34.6

North Creek Analytical, Inc.

Surrogate: 2-FBP

Matthew Essig, Project Manager

Page 8 of 9



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE - (509) 924-9200 - FAX 924-9290

PORTLAND - (503) 643-9200 - FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Sampled: 7/16/96 Project: Texaco Greenwood ERI Received: 7/16/96 Project Number: 31001.14T2 1921 Edmonds Drive SE Reported: 8/21/96 Renton, WA 98055 Project Manager: John Meyer

Notes

Note

carbon interference

RPD values are not reported at sample concentrations less than 10 times the reporting limit. 2

North Creek Analytical, Inc.

*Refer to end of report for text of notes.