

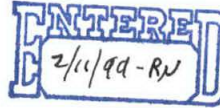
TEXACO STATION #63-232-0037
LUST# 2298
Seattle

ENVIRONMENTAL RESOLUTIONS, INC.

RECEIVED

JAN 25 1999
NOVEMBER 25, 1998
ERI 31801-R14
DEPT OF ECOLOGY

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 August 18, 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 August 18, 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).

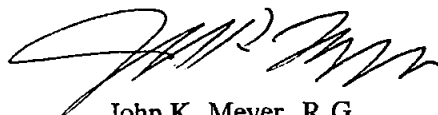
Depth to water measurements collected on August 18, 1998 indicated groundwater was present approximately 3.67 feet below the top of the casing. No free product was observed. Laboratory results indicated that the groundwater samples collected from MW8 on August 18, 1998 did not contain any analyte concentrations exceeding MTCA Method A Cleanup Levels. 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.

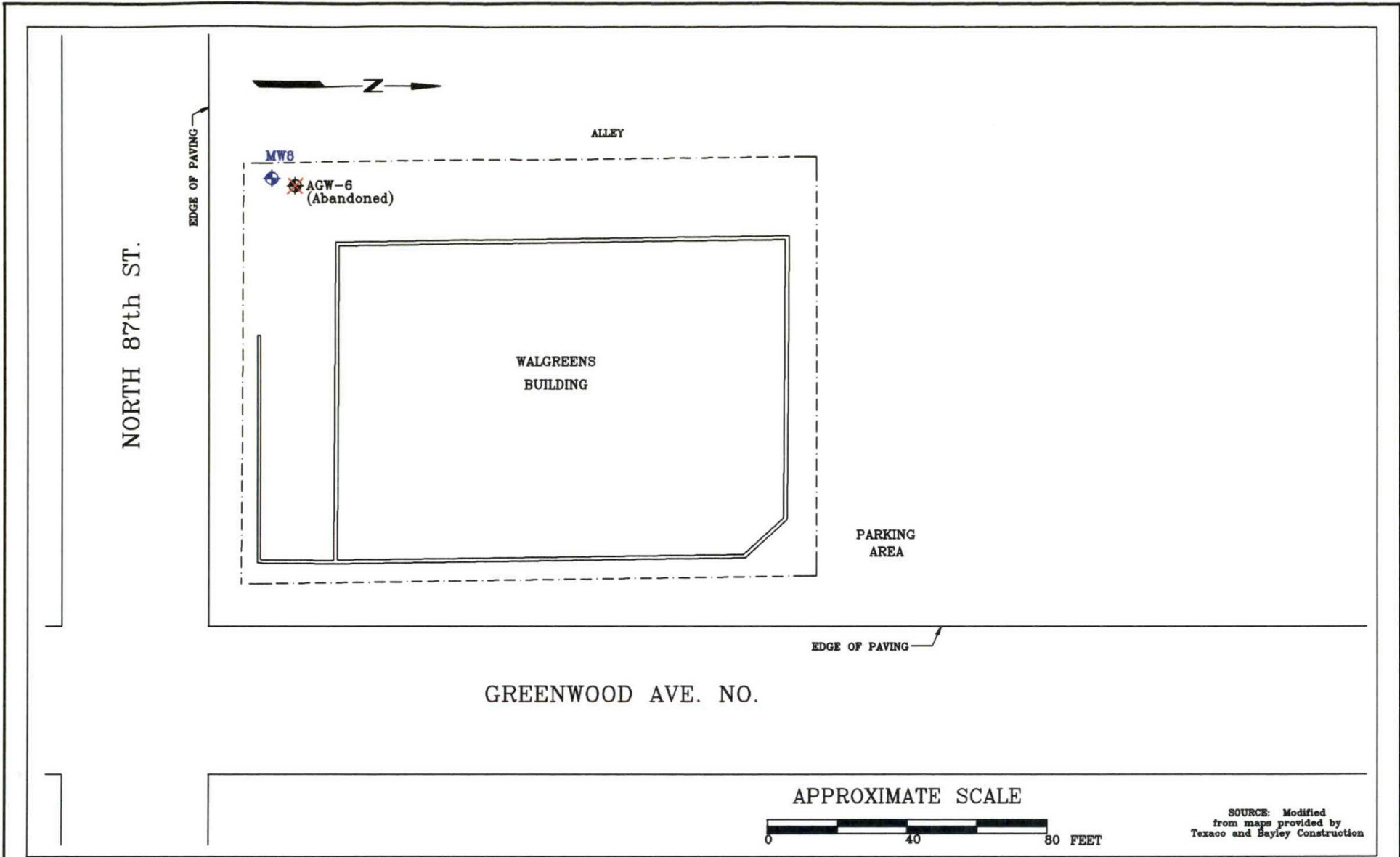
Sincerely,
Environmental Resolutions, Inc.



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 checked="" type="checkbox"/>
AFFECTED MEDIA: SOIL	<input type="checkbox"/>
OTHER _____ GW	<input type="checkbox"/>
INSPECTOR (INIT.) <u>RM</u> DATE <u>2/14/99</u>	



FN 31001\31001R14

	<p align="center">GENERALIZED SITE PLAN FORMER TEXACO FACILITY 63-232-0037 8701 Greenwood Avenue North Seattle, Washington</p>	<p>EXPLANATION</p> <p>◆ MW8 GROUNDWATER MONITORING WELL</p>	<p>PROJECT NO.</p> <p align="center">31001</p>
		<p>PLATE</p> <p align="center">P-1</p> <p>DATE: 11/25/98</p>	

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	--	--
	8/18/98	3.67	69.8	<250	<750	2.43	0.792	0.659	9.08	--	--
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

Environmental Laboratory Services

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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: 8/18/98 Received: 8/19/98 Reported: 8/25/98 11:56
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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 Water 8/18/98 B808327-01			
WTPH-G/8021	Gasoline Range Hydrocarbons	ug/l		69.8		
"	Benzene	"		2.43		
"	Toluene	"		0.792		
"	Ethylbenzene	"		0.659		
"	Xylenes (total)	"		9.08		
WTPH-D	Diesel Range Hydrocarbons	mg/l		<0.250		
"	Heavy Oil Range Hydrocarbons	"		<0.750		

North Creek Analytical - Bothell

**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

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ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-8	B808327-01	Water	8/18/98

North Creek Analytical - Bothell

*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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**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*
MW-8				B808327-01			Water	
Gasoline Range Hydrocarbons	0880547	8/20/98	8/21/98		50.0	69.8	ug/l	
Benzene	"	"	"		0.500	2.43	"	
Toluene	"	"	"		0.500	0.792	"	
Ethylbenzene	"	"	"		0.500	0.659	"	
Xylenes (total)	"	"	"		1.00	9.08	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		108	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		102	"	

Matthew Essig, Project Manager



**NORTH
CREEK
ANALYTICAL**
Environmental Laboratory Services

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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: 8/18/98 Received: 8/19/98 Reported: 8/25/98 11:56
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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*
MW-8				<u>B808327-01</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0880573	8/21/98	8/24/98		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
<i>Surrogate: 2-FBP</i>	"	"	"	50.0-150		96.9	%	



NORTH CREEK ANALYTICAL

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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: 8/18/98 Received: 8/19/98 Reported: 8/25/98 11:56
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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	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0880547			Date Prepared: 8/20/98			Extraction Method: EPA 5030B (P/T)				
Blank			0880547-BLK1							
Gasoline Range Hydrocarbons	8/20/98			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		51.6	"	50.0-150	107			
Surrogate: 4-BFB (PID)	"	48.0		47.6	"	50.0-150	99.2			
LCS			0880547-BS1							
Gasoline Range Hydrocarbons	8/20/98	500		533	ug/l	70.0-130	107			
Surrogate: 4-BFB (FID)	"	48.0		56.5	"	50.0-150	118			
Duplicate			0880547-DUP1 B808271-10							
Gasoline Range Hydrocarbons	8/20/98		4810	5640	ug/l			25.0	15.9	
Surrogate: 4-BFB (FID)	"	48.0		57.3	"	50.0-150	119			
Duplicate			0880547-DUP2 B808324-01							
Gasoline Range Hydrocarbons	8/21/98		364	405	ug/l			25.0	10.7	
Surrogate: 4-BFB (FID)	"	48.0		54.4	"	50.0-150	113			
Matrix Spike			0880547-MS1 B808309-02							
Benzene	8/20/98	10.0	ND	9.67	ug/l	70.0-130	96.7			
Toluene	"	10.0	ND	9.42	"	70.0-130	94.2			
Ethylbenzene	"	10.0	ND	9.08	"	70.0-130	90.8			
Xylenes (total)	"	30.0	ND	28.0	"	70.0-130	93.3			
Surrogate: 4-BFB (PID)	"	48.0		50.1	"	50.0-150	104			
Matrix Spike Dup			0880547-MSD1 B808309-02							
Benzene	8/20/98	10.0	ND	10.3	ug/l	70.0-130	103	15.0	6.31	
Toluene	"	10.0	ND	9.91	"	70.0-130	99.1	15.0	5.07	
Ethylbenzene	"	10.0	ND	9.72	"	70.0-130	97.2	15.0	6.81	
Xylenes (total)	"	30.0	ND	29.0	"	70.0-130	96.7	15.0	3.58	
Surrogate: 4-BFB (PID)	"	48.0		49.8	"	50.0-150	104			

North Creek Analytical - Bothell

*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: 8/18/98 Received: 8/19/98 Reported: 8/25/98 11:56
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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*
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Batch: 0880573

Date Prepared: 8/21/98

Extraction Method: EPA 3520C/600 Series

Blank

0880573-BLK1

Diesel Range Hydrocarbons	8/24/98			ND	mg/l	0.250				
Heavy Oil Range Hydrocarbons	"			ND	"	0.750				
Surrogate: 2-FBP	"	0.329		0.341	"	50.0-150	104			

LCS

0880573-BS1

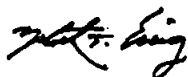
Diesel Range Hydrocarbons	8/24/98	2.00		2.07	mg/l	60.0-140	103			
Surrogate: 2-FBP	"	0.329		0.320	"	50.0-150	97.3			

Duplicate

0880573-DUP1

B808327-01

Diesel Range Hydrocarbons	8/24/98		ND	ND	mg/l				44.0	
Heavy Oil Range Hydrocarbons	"		ND	ND	"				44.0	
Surrogate: 2-FBP	"	0.621		0.680	"	50.0-150	110			





NORTH CREEK ANALYTICAL

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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 - Bothell

Matthew Essig, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order # **R808327**

REPORT TO: <i>ERI</i>			INVOICE TO: <i>Texas</i>			TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input checked="" type="checkbox"/> 10 Standard <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> Same Day Fuels & Hydrocarbon Analyses <input checked="" type="checkbox"/> 5 Standard <input checked="" type="checkbox"/> 3-4 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> Same Day OTHER Specify: _____ <small>* Turnaround Requests less than standard may incur Rush Charges.</small>		
ATTENTION: <i>John Meyer</i>			ATTENTION: <i>Jeff Gould</i>					
ADDRESS: <i>1921 Edwards Dr SE Kenner WA 98055</i>			ADDRESS: <i>3400 188th St SW Greenwood WA 98037</i>					
PHONE: <i>(425) 227-0280</i> FAX: <i>50225</i>			P.O. NUMBER:			NCA QUOTE #:		
PROJECT NAME: <i>Texas Greenwood</i>			<i>TRAIL 6/BTEX TRAIL-D (ext)</i>					
PROJECT NUMBER: <i>31001</i>								
SAMPLED BY: <i>Meyer</i>								
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)				MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
<i>MW-8</i>	<i>8/18/98</i>	<i>R808327 01</i>				<i>W</i>	<i>3</i>	
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
RELINQUISHED BY (Signature): <i>[Signature]</i>			DATE: <i>8/18/98</i>			RECEIVED BY (Signature): <i>[Signature]</i>		
PRINT NAME: <i>John Meyer</i>			FIRM: <i>ERI</i>			DATE: <i>8/19/98</i>		
RELINQUISHED BY (Signature): <i>[Signature]</i>			DATE: <i>8/19/98</i>			RECEIVED BY (Signature): <i>[Signature]</i>		
PRINT NAME: <i>K. Barker</i>			FIRM: <i>NCA</i>			DATE: <i>10/30</i>		
ADDITIONAL REMARKS:								<i>8.3 w/o</i>