



APR 2 3 1997 DEPT. OF ECOLOGY

April 18, 1997 Project 520-126.2A

Mr. Rene White Chevron U.S.A. Products Company P.O. Box 5004 San Ramon, California 94583-0804

Re: Environmental Assessment
Chevron Service Station 9-9481
647 140th Avenue NE
Bellevue, Washington

Dear Mr. White:

Pacific Environmental Group Inc. (PACIFIC) conducted the quarterly groundwater monitoring and sampling event on February 6, 1997 at the site referenced above. Three groundwater monitoring wells were gauged to determine the depth to groundwater and to check for the presence of separate-phase hydrocarbons (SPH). There were no SPH observed in any of the wells.

A site location map is included as Figure 1. A groundwater elevation contour map providing benzene/TPH-gasoline concentrations is presented as Figure 2. Groundwater elevations and analytical results are presented in Table 1.

Groundwater monitoring and sample collection protocol and field data sheets are presented in Attachment A. The groundwater samples were analyzed for the following parameters:

- Total petroleum hydrocarbons calculated as gasoline (TPH-gasoline) by Washington Method WTPH-G; and
- Benzene, toluene, ethylbenzene, and xylene compounds (BTEX) by EPA Method 8020.

Laboratory reports and chain-of-custody records are included in Attachment B.

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Brown Fred Will

Chevron 9-9481 - Bellevue, WA April 18, 1997 Page 2

Purge water was treated on-site by filtering the water through granular activated carbon and was subsequently discharged.

PACIFIC is pleased to assist Chevron on this project. If you have any questions, please call.

Sincerely,

Pacific Environmental Group, Inc.

John. J. Blough

Field Services Manager

Attachments: Figure 1 - Site Location Map

Figure 2 - Site Map

Table 1 - Groundwater Elevations and Analytical Results

Attachment A - Groundwater Monitoring and Sample Collection Protocol

Field Data Sheets

Attachment B - Laboratory Analytical Results

Chain-of-Custody Documentation

cc: Mr. Ben Forson, Department of Ecology





647 - 140th Avenue Northeast Bellevue, Washington

SITE LOCATION MAP

FIGURE: 1 PROJECT: 520-126.2A

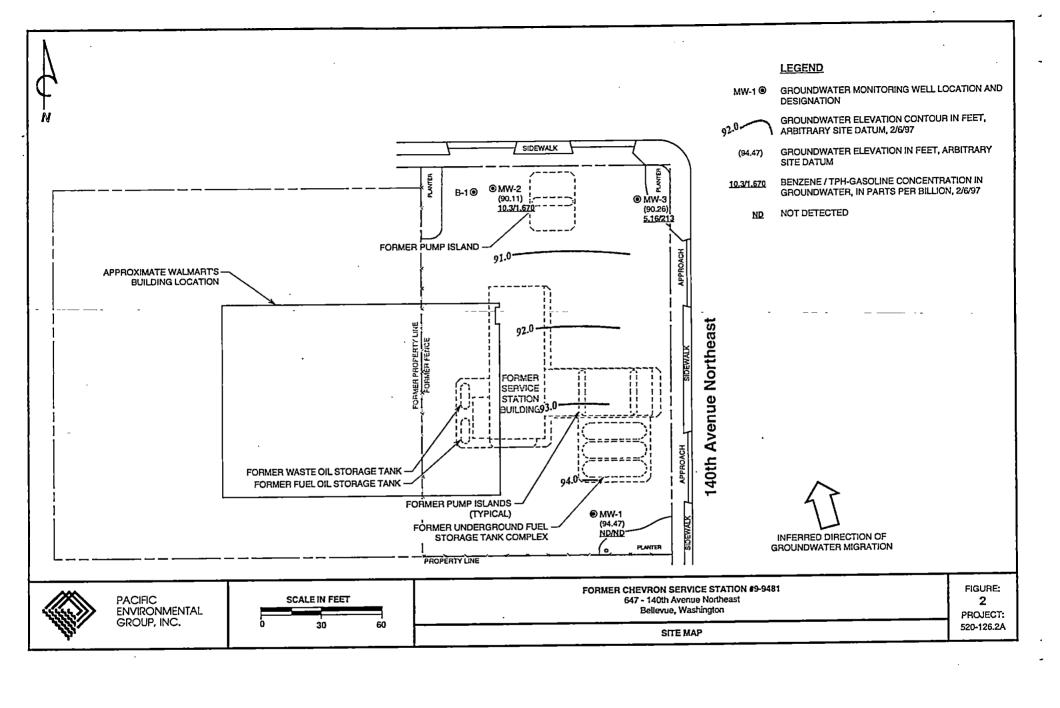


TABLE 1 GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Former Service Station 9-9481 647 - 140th Avenue Northeast, Bellevue, Washington

Sample I.D. T.O.C.	Date	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Xylenes (ppb)	TPH- Gasoline (ppb)	Total Lead (ppb)	DTW (feet)	SPH (feet)	WTE (feet)		
MW-1	05/30/96	ND	ND	ND	ND	ND	3,67	5.35		93.73		
99.08	02/06/97	ND	ND	ND	ND	ND		4.61		94.47		
MW-2	05/30/96	4.09	6.28	1.24	32.9	496	2.67	8.95	·	89.68		
98.63	02/06/97	10.3	16.6	16.6	75.1	1,670		8.52		90.11		
MW-3	05/30/96	5.06	ND	ND	ND	ND	6.92	8.45		90 . 01		
98.46	02/06/97	5.16	0.514	ND	ND	213		8.20		90.26		
ТВ	02/06/97	ND	ND	ND	ND	ND	NA					
MTCA Method	A Cleanup Level	5	40	30	20	1,000	5.0		_			
Laboratory Repo	orting Limits:	0.50	0.50	0.50	1.0	50	2.0			i ·		
ppb - Parts per bil TOC = Top of cas DTW = Depth to SPH = Separate-p WTE = Water tab ND = Not detecte = Not sampled, TPH as Gasoline BTEX Compound NA - Not Analyze TPH as Gasoline BTEX Compound	Laboratory Reporting Limits: 0.50 0.50 0.50 1.0 50 2.0 Concentrations reported as parts per billion (ug/L) opb - Parts per billion (µg/L). FOC = Top of casing DTW = Depth to water. SPH = Separate-phase hydrocarbon thickness. WTE = Water table elevation. ND = Not detected at the laboratory reporting limits = Not sampled, not measured, or not analyzed. FPH as Gasoline - Analysis by Washington Method WTPH-G. BTEX Compounds - Analysis by EPA Method 8020. NA - Not Analyzed IPH as Gasoline - Analysis by Washington Method WTPH-G BTEX Compounds - Analysis by EPA Method 8020 Flotal Lead - Analysis by EPA Method 7421											

ATTACHMENT A GROUNDWATER MONITORING AND SAMPLE COLLECTION PROTOCOL FIELD DATA SHEETS

ATTACHMENT A

Groundwater Monitoring

The groundwater sampling procedure consisted of measuring the water level in each well using an electronic water level indicator. The monitoring order is based on previous analytical data, moving from lowest to highest concentrations. Wells suspected to contain separate-phase hydrocarbons (SPH) were measured using an oil/water interface probe to measure the product thickness. Wells containing SPH are further checked using a clear bailer to observe viscosity and color of the SPH. Monitoring equipment in contact with groundwater was washed between wells with detergent and triple rinsed with distilled water.

Using existing surface elevation data, static water elevations were calculated for the groundwater elevation contour map. If SPH was measured in the well, an adjusted groundwater elevation was calculated by the following calculation:

(Product thickness) x(0.8) + (Water elevation) = Corrected water elevation

Groundwater Sampling

The groundwater monitoring wells were purged of three casing volumes of water or until dry using a centrifugal pump with disposable polyethylene tubing or bailed by hand using disposable bailers. Wells containing SPH greater than 0.02-feet in thickness were not sampled.

After the water level in each well recovered to within at least 60% of the initial measurement, a sample was collected using a disposable bailer and was placed into appropriate EPA-approved containers. Slow recharging wells were allowed to recharge as long as possible before sample collection. Samples requiring filtering were filtered in the laboratory. Information about each well, purge, recovery data and observations were noted on the groundwater sample data sheets which are included in this attachment. The samples were labeled, logged onto a chain-of-custody document, sealed, and transported to a Chevron approved laboratory. A set of trip blanks accompanied the groundwater samples throughout the sampling event.

Duplicate samples and blind samples were not collected unless specifically requested by Chevron.

FIELD REPORT

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Dtw Order	Well ID	Time	Surface Seal		Gasket		Expanding Cap	Total Depth (feet)	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	append your	SPI-i Thickness .((eet)	WSE HYDROCARBONS (SPH)	LXC REAL COLUMN
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15TATION NO.: 9-9481		WOOL (WA) FIELD TECHNICIA:	4: <u>MZ</u>	
to Liquid: TOB		CASING DIAMETER DIAMETER DI 2 1 4.5 1 5 1 6 1 8	GAU/ LINEAR FT. 0.17 0.38 0.66 0.63 1.02 1.5 2.6	SAMPLE TYPE Groundwater Duplicate Extraction well Trip blank Field blank Equipment blank Other;
7.90 - DTW = 4.61 :	al/Linear × Foot <u>17</u>	= 0.57		Calculated 7:77
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esch:TOB Time (2400):			<u>0.66</u>	Exection Well
		<u> </u>	0.83	∐ Trio blank
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Electronic indicator_		<u> </u>	1.5	Equipment blank
Other;		□ &	<u> </u>	Ome:
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DATE SAMPLED: 2-6-97 S		END (2400 h	1:1150 SAN	PLED BY: MINE
DATE SAMPLED:				-77//
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ATTACHMENT B LABORATORY ANALYTICAL RESULTS CHAIN-OF-CUSTODY DOCUMENTATION



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

Pacific Environmental Group 4020 148th Ave NE, Ste B

Project: Chevron #9-9481, #NC3652830

Sampled: 2/6/97 Received: 2/7/97

Redmond, WA 98052

Project Number: 520-126.2A Project Manager: John Blough

Reported: 2/20/97 10:03

Summary Report*

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

Method	Analyte	Units	MW-1	Water	2/6/97	B702099-01	MW-2	Water		I	MW-3	Water	2/6/97	B702099-03	TB	Water	2/6/97	B702099-04			
WTPH-G/8020	Gasoline Range Hydrocarbons	ug/l			<	50.0			16	570				213			<	50.0			
D	Benzene				<0	.500			1	0.3			:	5.16			<0	.500			
u :	Toluene	n			<(.500			1	6.6			0.	.514			<0	.500	l		
· ·	Ethylbenzene	H .	•		<().500			1	6.6			<0.	.500			<0	.500	l		
II .	Xylenes (total)	ti			<	<1.00			7	5.1			<	1.00			<	1.00	l		

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

*The Summary Report is a subset of the final Analytical Report and does

not include substantial supportive information such as quality control data;



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

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

Pacific Environmental Group 4020 148th Ave NE, Ste B Redmond, WA 98052 Project: Chevron #9-9481, #NC3652830

Sampled: 2/6/97 Received: 2/7/97

Project Number: :
Project Manager: :

520-126.2A John Blough

Reported: 2/20/97 09:59

ANALYTICAL REPORT FOR SAMPLES: .

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1	B702099-01	Water	2/6/97
MW-2	B702099-02	Water	2/6/97
MW-3	B702099-03	Water	2/6/97
ТВ .	B702099-04	Water	2/6/97

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



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

Pacific Environmental Group 4020 148th Ave NE, Ste B Project: Chevron #9-9481, #NC3652830 Project Number: 520-126.2A Sampled: 2/6/97 Received: 2/7/97

Redmond, WA 98052 Pro

Project Manager: John Blough

Reported: 2/20/97 09:59

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

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
<u>MW-1</u>			B7020	<u>99-01</u>			<u>Water</u>	
Gasoline Range Hydrocarbons	0270234	2/18/97	2/18/97		50.0	ND	ug/l	
Benzene	n	11	"		0.500	ND	D	
Toluene	Ħ	11	11	•	0.500	ND	H	
Ethylbenzene	. "	U	n		0.500	ND	II	
Xylenes (total)	H .	н	н		1.00	ND		
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		91.9	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		79.4	"	
		1	2000	00.00			33 7 4	
<u>MW-2</u>			<u>B7020</u>	99-02	50.0	1/40	<u>Water</u>	
Gasoline Range Hydrocarbons	0270234	2/18/97	2/18/97		50.0	1670	ug/l "	
Benzene	II*	11	"		0.500	10.3		
Toluene	11	U	11		0.500	16.6	**	
Ethylbenzene	н	11	11		0.500	16.6	n	
Xylenes (total)	11				1.00	75.1		
Surrogate: 4-BFB (FID)	,,	"	"	50.0-150		NR	%	1
Surrogate: 4-BFB (PID) ~	"	<i>"</i>	"	50.0-150		147	#	
MW-3			B7020	99_03			Water	
Gasoline Range Hydrocarbons	0270234	2/18/97	2/18/97	77-03	50.0	213	ug/l	
Benzene	0270234	<i>21</i> 10 <i>17 1</i>	2/10/97	•	0.500	5.16	ug.	
	п	11	n		0.500	0.514		
Toluene	19	11	11		0.500	0.314 ND	**	
Ethylbenzene		n ,	н		1.00	ND	11	
Xylenes (total)				50.0-150	1.00	NR NR	%	 _
Surrogate: 4-BFB (FID)	,,	"	"	50.0-150 50.0-150		151	70 "	1
Surrogate: 4-BFB (PID)	-	.,		30.0-130		151		,
ТВ			B7020	199-04			Water	
Gasoline Range Hydrocarbons	0270234	2/18/97	2/18/97		. 50.0	ND	ug/l	
Benzene	"	11	-11		0.500	ND	11 11	•
Toluene	**	If	11		0.500	ND	D	
Ethylbenzene	, ,	11	14		0.500	ND	n	
Xylenes (total)	n	**	n		1.00	ND	ш	
	"	"	"	50.0-150	1.00	79.4	%	
Surrogate: 4-BFB (FID)	"	"	#	50.0-150 50.0-150		65.6	/0 #	
Surrogate: 4-BFB (PID)		**	**	30.0-130		03.0		

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager



Relative Percent Difference

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

Pacific Environmental Group 4020 148th Ave NE, Ste B Redmond, WA 98052

RPD

Project: Chevron #9-9481, #NC3652830

Sampled: 2/6/97 Received: 2/7/97 Project Number: 520-126.2A

Project Manager: John Blough

Reported: 2/20/97 09:59

Notes and Definitions

#	Note
1	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
2	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

North Creek Analytical, Inc.

Matthew Essig, Project Minager



Rev. 1.0 3/95

 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

Environmental Laborato	CII	EVRO	N U.S	S.A		Inc	. C	CH	AIN	O	F (CU	ST	(O	DΥ	R	EF	PORT	b	,70200	79
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CHEVRON Telephone #:				Ph	one:	<	?(<u>,</u> °	î - <u>.</u>	<u> </u>	- - 		Fax	: 5	ે(.	<u>7.5</u>	63	α			RUSH Analyses (DAYS)
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3.													-			rax C	opy (of Lab Report & (CUC	, to CHEYRUN:	Yes
Page of																					No.

Distribution: White - Laboratory Yellow - Consultant Photocopy - CHEVRON



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

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

Pacific Environmental Group 4020 148th Ave NE, Ste B Redmond, WA 98052

Project: Chevron #9-9481, #NC3652830

Sampled: 2/6/97 Received: 2/7/97

Project Number: 520-126.2A

Project Manager: John Blough

Reported: 2/20/97 09:59

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control North Creek Analytical - Bothell

Batch: 0270234 Date Prepared: 2/18/97 Extraction Method: EPA 5030		Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	
Blank	Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	<u>%</u>	Notes*
Blank	Ratch: 0270234	Date Prenai	red: 2/18/9	7		Extract	tion Method: EPA	A 5030			
Casoline Range Hydrocarbons 2/18/97 ND ug/l 50.0				<u></u>		BAHLE		10000		•	
Benzene "			<u> </u>		ND	110/ใ	50.0				
Toluene	• •										
ND		11				H					
Xylenes (total) " 1.60 16.8 " 50.0-150 105		u ·				**					
Surrogate: 4-BFB (FID)	•	11				**				1	
Surrogale: 4-BFB (PID)		"	160			"		105			
LCS		· "		•		"					
Gasoline Range Hydrocarbons 2/18/97 500 457 ug/l 80.0-120 91.4	Biiri Oguic. 4-Di D (1 15)		0,0					00.0			
Gasoline Range Hydrocarbons 2/18/97 500 457 ug/l 80.0-120 91.4	LCS	0270234-BS	31								
Surrogate: 4-BFB (FID)		-			457	ug/l	80.0-120	91.4			
Duplicate Gasoline Range Hydrocarbons 2/18/97 213 179 ug/l 25.0 17.3 2								_			
Casoline Range Hydrocarbons Z/18/97 213 179 ug/l 25.0 17.3 2	2 oguic. , 212 (. 1-)										
Casoline Range Hydrocarbons Z/18/97 213 179 ug/l 25.0 17.3 2	Dunlicate	0270234-DI	UPI B	702099-03							
Surrogate: 4-BFB (FID) " 16-0 ND " 50.0-150 NR 1 Duplicate 0270234-DUP2 B702178-02 ND ug/l 25.0 2 Surrogate: 4-BFB (FID) " 16.0 14.2 " 50.0-150 88.7 Matrix Spike 0270234-MS1 B702099-01 B8702099-01 Surrogate: 4-BFB (FID) ND 9.31 ug/l 70.0-130 93.1 93					179	ug/l			25.0	17.3	2
Duplicate O270234-DUP2 B702178-02 Surrogate: 4-BFB (FID) " 16.0 14.2 " 50.0-150 88.7 Surrogate: 4-BFB (FID) " 10.0 ND 9.31 ug/l 70.0-130 93.1 Surrogate: 4-BFB (FID) " 10.0 ND 9.70 " 70.0-130 97.0 Surrogate: 4-BFB (FID) " 10.0 ND 9.40 " 70.0-130 97.0 Surrogate: 4-BFB (FID) " 16.0 ND 28.6 " 70.0-130 95.3 Surrogate: 4-BFB (FID) " 16.0 ND 10.2 ug/l 70.0-130 102 15.0 9.12 Toluene " 10.0 ND 10.2 ug/l 70.0-130 102 15.0 9.12 Toluene " 10.0 ND 10.2 ug/l 70.0-130 102 15.0 9.12 Toluene " 10.0 ND 10.2 ug/l 70.0-130 102 15.0 5.03 Ethylbenzene " 10.0 ND 10.2 " 70.0-130 98.3 15.0 4.47 Xylenes (total) " 30.0 ND 30.1 " 70.0-130 100 15.0 4.81			16.0				50.0-150	NR			<u> </u>
Surrogate: 4-BFB (FID) Toluene Toluene	z • 2									1	
Surrogate: 4-BFB (FID) Toluene Toluene	Dunlicate	0270234-D1	UP2 B	702178-02							
Matrix Spike 0270234-MS1 B702099-01 Benzene 2/18/97 10.0 ND 9.31 ug/l 70.0-130 93.1 Toluene " 10.0 ND 9.70 " 70.0-130 97.0 Ethylbenzene " 10.0 ND 9.40 " 70.0-130 94.0 Xylenes (total) " 30.0 ND 28.6 " 70.0-130 95.3 Surrogate: 4-BFB (PID) " 16.0 17.3 " 50.0-150 108 Matrix Spike Dup 0270234-MSD1 B702099-01 B8020099-01 B802009-01 B802009-01 <t< td=""><td></td><td></td><td></td><td></td><td>ND</td><td>ug/l</td><td></td><td></td><td>25.0</td><td></td><td>2</td></t<>					ND	ug/l			25.0		2
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Benzene 2/18/97 10.0 ND 10.2 ug/l 70.0-130 102 15.0 9.12 Toluene " 10.0 ND 10.2 " 70.0-130 102 15.0 5.03 Ethylbenzene " 10.0 ND 9.83 " 70.0-130 98.3 15.0 4.47 Xylenes (total) " 30.0 ND 30.1 " 70.0-130 100 15.0 4.81	Sm. og										
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Toluene " 10.0 ND 10.2 " 70.0-130 102 15.0 5.03 Ethylbenzene " 10.0 ND 9.83 " 70.0-130 98.3 15.0 4.47 Xylenes (total) " 30.0 ND 30.1 " 70.0-130 100 15.0 4.81	• —				10.2	ug/l	70.0-130	102	15.0	9.12	
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Xylenes (total) " 30.0 ND 30.1 " 70.0-130 100 15.0 4.81	Ethylbenzene	11	10.0	ND	9.83	11	70.0-130	98.3	15.0	4.47	
	•	11	30.0	ND	30.1	n	70.0-130	100	15.0	4.81	
Surrogate: 4-BFB (PID) " 16.0 17.9 " 50.0-150 112	Surrogate: 4-BFB (PID)	"	16.0		17.9	11	50.0-150	112		1	

North Creek Analytical, Inc.

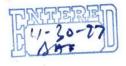
*Refer to end of report for text of notes and definitions.

Matthew Essig, Project Manager

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