



Amended Report

May 17, 2005

Bryan Taylor
Delta Environmental Consultants - Bellevue
1200 112th Ave. NE Ste. C-210
Bellevue, WA 98004

RE: ARCO #0855, Longview, WA

Enclosed are the results of analyses for samples received by the laboratory on 03/23/05 15:15.
The following list is a summary of the NCA Work Orders contained in this report.
If you have any questions concerning this report, please feel free to contact me.

Amended Report: All results reported here supercede any previously reported results.

<u>Work</u>	<u>Project</u>	<u>ProjectNumber</u>
P5C1085	ARCO #0855, Longview, WA	G0CK5RP51/WR104688

Thank You,

Roxanne L. Clifton

Roxanne L. Clifton For Sarah Passarge, Project Manager

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1115
907.563.9200 fax 907.563.9210

RECEIVED MAY 25 2005

AMENDED REPORT
DATED: 5/17/05 16:49

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North Creek Analytical, Inc.
Environmental Laboratory Network



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Delta Environmental Consultants - Bellevue

1200 112th Ave. NE Ste. C-210
Bellevue, WA 98004

Project Name: **ARCO #0855, Longview, WA**

Project Number: G0CK5RP51/WR104688

Project Manager: Bryan Taylor

Report Created:

05/17/05 16:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1-4.63	P5C1085-01	Water	03/23/05 10:13	03/23/05 15:15
MW-2-5.03	P5C1085-02	Water	03/23/05 11:20	03/23/05 15:15
MW-5-6.01	P5C1085-03	Water	03/23/05 09:10	03/23/05 15:15
MW-6-5.77	P5C1085-04	Water	03/23/05 09:40	03/23/05 15:15
MW-7-6.80	P5C1085-05	Water	03/23/05 10:50	03/23/05 15:15
MW-3-5.20	P5C1085-06	Water	03/23/05 08:00	03/23/05 15:15
MW-4-6.50	P5C1085-07	Water	03/23/05 08:30	03/23/05 15:15

North Creek Analytical - Portland

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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Gasoline Hydrocarbons per NW TPH-Gx Method

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-01RE1	Water	MW-1-4.63	Sampled: 03/23/05 10:13							
Gasoline Range Hydrocarbons	NW TPH-Gx	ND	-----	80.0	ug/l	1x	5031266	03/30/05	03/30/05 18:30	
Surrogate(s): 4-BFB		Recovery: 97.0%		Limits: 50 - 150 %		"		"		
P5C1085-02RE1	Water	MW-2-5.03	Sampled: 03/23/05 11:20							
Gasoline Range Hydrocarbons	NW TPH-Gx	139	-----	80.0	ug/l	1x	5031266	03/30/05	03/30/05 19:25	
Surrogate(s): 4-BFB		Recovery: 101%		Limits: 50 - 150 %		"		"		
P5C1085-03RE1	Water	MW-5-6.01	Sampled: 03/23/05 09:10							
Gasoline Range Hydrocarbons	NW TPH-Gx	865	-----	80.0	ug/l	1x	5031266	03/30/05	03/30/05 19:52	
Surrogate(s): 4-BFB		Recovery: 190%		Limits: 50 - 150 %		"		"		S-09
P5C1085-04	Water	MW-6-5.77	Sampled: 03/23/05 09:40							
Gasoline Range Hydrocarbons	NW TPH-Gx	495	-----	400	ug/l	5x	5031172	03/28/05	03/28/05 21:31	
Surrogate(s): 4-BFB		Recovery: 98.4%		Limits: 50 - 150 %		1x		"		
P5C1085-05RE1	Water	MW-7-6.80	Sampled: 03/23/05 10:50							
Gasoline Range Hydrocarbons	NW TPH-Gx	153	-----	80.0	ug/l	1x	5031266	03/30/05	03/30/05 20:19	
Surrogate(s): 4-BFB		Recovery: 106%		Limits: 50 - 150 %		"		"		
P5C1085-06RE1	Water	MW-3-5.20	Sampled: 03/23/05 08:00							
Gasoline Range Hydrocarbons	NW TPH-Gx	115000	-----	4000	ug/l	50x	5031266	03/30/05	03/30/05 20:47	
Surrogate(s): 4-BFB		Recovery: 112%		Limits: 50 - 150 %		1x		"		
P5C1085-07	Water	MW-4-6.50	Sampled: 03/23/05 08:30							
Gasoline Range Hydrocarbons	NW TPH-Gx	7900	-----	800	ug/l	10x	5031172	03/28/05	03/28/05 23:49	
Surrogate(s): 4-BFB		Recovery: 169%		Limits: 50 - 150 %		1x		"		S-09

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Bellevue, WA 98004

Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-06	Water	MW-3-5.20	Sampled: 03/23/05 08:00							
Diesel Range Organics	NWTPH-Dx	1.68	----	0.250	mg/l	1x	5031215	03/29/05	03/29/05 17:31	A-01
Heavy Oil Range Hydrocarbons	"	ND	----	0.500	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 111%		Limits: 50 - 150 %		"	"			
P5C1085-07	Water	MW-4-6.50	Sampled: 03/23/05 08:30							
Diesel Range Organics	NWTPH-Dx	1.46	----	0.250	mg/l	1x	5031215	03/29/05	03/29/05 18:05	A-01
Heavy Oil Range Hydrocarbons	"	ND	----	0.500	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 118%		Limits: 50 - 150 %		"	"			

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Total Metals per EPA 200 Series Methods**North Creek Analytical - Portland**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-01	Water	MW-1-4.63	Sampled: 03/23/05 10:13							
Lead	EPA 200.8	ND	----	0.00100	mg/l	1x	5031146	03/25/05	04/21/05 23:37	
P5C1085-02	Water	MW-2-5.03	Sampled: 03/23/05 11:20							
Lead	EPA 200.8	ND	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 00:09	
P5C1085-03	Water	MW-5-6.01	Sampled: 03/23/05 09:10							
Lead	EPA 200.8	ND	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 00:29	
P5C1085-04	Water	MW-6-5.77	Sampled: 03/23/05 09:40							
Lead	EPA 200.8	ND	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 00:42	
P5C1085-05	Water	MW-7-6.80	Sampled: 03/23/05 10:50							
Lead	EPA 200.8	ND	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 00:48	
P5C1085-06	Water	MW-3-5.20	Sampled: 03/23/05 08:00							
Lead	EPA 200.8	0.00446	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 00:55	
P5C1085-07	Water	MW-4-6.50	Sampled: 03/23/05 08:30							
Lead	EPA 200.8	0.00178	----	0.00100	mg/l	1x	5031146	03/25/05	04/22/05 01:01	

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Project Manager: **Bryan Taylor**

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05/17/05 16:49

Dissolved Metals per EPA 200 Series Methods**North Creek Analytical - Portland**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-01RE1	Water	MW-1-4.63	Sampled: 03/23/05 10:13							
Lead	EPA 200.8	ND	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 05:23	M-04
P5C1085-02RE1	Water	MW-2-5.03	Sampled: 03/23/05 11:20							
Lead	EPA 200.8	ND	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 05:36	M-04
P5C1085-03RE1	Water	MW-5-6.01	Sampled: 03/23/05 09:10							
Lead	EPA 200.8	ND	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 05:56	M-04
P5C1085-04RE1	Water	MW-6-5.77	Sampled: 03/23/05 09:40							
Lead	EPA 200.8	ND	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 06:15	M-04
P5C1085-05RE1	Water	MW-7-6.80	Sampled: 03/23/05 10:50							
Lead	EPA 200.8	ND	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 06:29	M-04
P5C1085-06RE1	Water	MW-3-5.20	Sampled: 03/23/05 08:00							
Lead	EPA 200.8	0.00322	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 06:35	M-04
P5C1085-07RE1	Water	MW-4-6.50	Sampled: 03/23/05 08:30							
Lead	EPA 200.8	0.00126	-----	0.00100	mg/l	1x	5040987	04/25/05	04/27/05 06:42	M-04

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Project Manager: Bryan Taylor

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Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-01	Water	MW-1-4.63	Sampled: 03/23/05 10:13							
Benzene	EPA 8260B	ND	----	0.200	ug/l	1x	5031254	03/29/05	03/30/05 00:21	
Toluene	"	ND	----	0.500	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.500	"	"	"	"	"	
Xylenes (total)	"	ND	----	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 97.0%		Limits: 75 - 120 %		"				"
1,2-DCA-d4		106%		77 - 129 %		"				"
Dibromofluoromethane		102%		80 - 121 %		"				"
Toluene-d8		96.5%		80 - 120 %		"				"
P5C1085-02	Water	MW-2-5.03	Sampled: 03/23/05 11:20							
Benzene	EPA 8260B	0.220	----	0.200	ug/l	1x	5031254	03/29/05	03/30/05 00:49	
Toluene	"	ND	----	0.500	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.500	"	"	"	"	"	
Xylenes (total)	"	ND	----	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 97.0%		Limits: 75 - 120 %		"				"
1,2-DCA-d4		104%		77 - 129 %		"				"
Dibromofluoromethane		100%		80 - 121 %		"				"
Toluene-d8		99.0%		80 - 120 %		"				"
P5C1085-03	Water	MW-5-6.01	Sampled: 03/23/05 09:10							
Benzene	EPA 8260B	0.630	----	0.200	ug/l	1x	5031254	03/29/05	03/30/05 01:17	
Toluene	"	0.710	----	0.500	"	"	"	"	"	
Ethylbenzene	"	0.570	----	0.500	"	"	"	"	"	
Xylenes (total)	"	1.77	----	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 98.0%		Limits: 75 - 120 %		"				"
1,2-DCA-d4		107%		77 - 129 %		"				"
Dibromofluoromethane		102%		80 - 121 %		"				"
Toluene-d8		102%		80 - 120 %		"				"

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Project Manager: Bryan Taylor

Report Created:

05/17/05 16:49

Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-04	Water	MW-6-5.77	Sampled: 03/23/05 09:40							
Benzene	EPA 8260B	ND	----	0.200	ug/l	1x	5031254	03/29/05	03/30/05 01:45	
Toluene	"	ND	----	0.500	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.500	"	"	"	"	"	
Xylenes (total)	"	ND	----	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 96.0%		Limits: 75 - 120 %		"				
1,2-DCA-d4		101%		77 - 129 %		"				
Dibromofluoromethane		100%		80 - 121 %		"				
Toluene-d8		99.0%		80 - 120 %		"				
P5C1085-05	Water	MW-7-6.80	Sampled: 03/23/05 10:50							
Benzene	EPA 8260B	ND	----	0.200	ug/l	1x	5031254	03/29/05	03/30/05 02:13	
Toluene	"	ND	----	0.500	"	"	"	"	"	
Ethylbenzene	"	ND	----	0.500	"	"	"	"	"	
Xylenes (total)	"	ND	----	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 95.0%		Limits: 75 - 120 %		"				
1,2-DCA-d4		102%		77 - 129 %		"				
Dibromofluoromethane		98.5%		80 - 121 %		"				
Toluene-d8		96.5%		80 - 120 %		"				
P5C1085-06RE1	Water	MW-3-5.20	Sampled: 03/23/05 08:00							
1,2-Dichloroethane	EPA 8260B	122	----	100	ug/l	200x	5031269	03/30/05	03/30/05 19:18	
Benzene	"	13300	----	40.0	"	"	"	"	"	
Toluene	"	23600	----	100	"	"	"	"	"	
Ethylbenzene	"	4310	----	100	"	"	"	"	"	
Xylenes (total)	"	25900	----	200	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	400	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 98.0%		Limits: 75 - 120 %		1x				
1,2-DCA-d4		101%		77 - 129 %		"				
Dibromofluoromethane		97.0%		80 - 121 %		"				
Toluene-d8		100%		80 - 120 %		"				

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Delta Environmental Consultants - Bellevue

1200 112th Ave. NE Ste. C-210
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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5C1085-07	Water	MW-4-6.50	Sampled: 03/23/05 08:30							
Benzene	EPA 8260B	436	----	1.00	ug/l	5x	5031254	03/29/05	03/30/05 04:31	
Toluene	"	3.60	----	2.50	"	"	"	"	"	
Ethylbenzene	"	758	----	2.50	"	"	"	"	"	
Xylenes (total)	"	764	----	5.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	10.0	"	"	"	"	"	
Surrogate(s): 4-BFB										
		Recovery: 104%			Limits: 75 - 120 %	1x				
1,2-DCA-d4		109%			77 - 129 %	"				
Dibromofluoromethane		102%			80 - 121 %	"				
Toluene-d8		103%			80 - 120 %	"				

North Creek Analytical - Portland

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Amended Report

Roxanne L. Clifton For Sarah Passarge, Project Manager

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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Gasoline Hydrocarbons per NW TPH-Gx Method - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031172

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC (Limits)	% RPD (Limits)	Analyzed	Notes
Blank (5031172-BLK1)							Extracted: 03/28/05 10:12					
Gasoline Range Hydrocarbons	NW TPH-Gx	ND	---	80.0	ug/l	1x	--	--	--	--	03/28/05 11:09	
Surrogate(s): 4-BFB		Recovery:	94.0%	Limits: 50-150%		"	03/28/05 11:09					
LCS (5031172-BS2)							Extracted: 03/28/05 12:11					
Gasoline Range Hydrocarbons	NW TPH-Gx	856	---	80.0	ug/l	1x	--	1000	85.6% (70-130)	--	03/28/05 12:46	
Surrogate(s): 4-BFB		Recovery:	101%	Limits: 50-150%		"	03/28/05 12:46					
LCS Dup (5031172-BSD2)							Extracted: 03/28/05 12:11					
Gasoline Range Hydrocarbons	NW TPH-Gx	868	---	80.0	ug/l	1x	--	1000	86.8% (70-130)	1.39% (40)	03/28/05 13:13	
Surrogate(s): 4-BFB		Recovery:	103%	Limits: 50-150%		"	03/28/05 13:13					
Duplicate (5031172-DUP1)				QC Source: P5C1085-01			Extracted: 03/28/05 10:12					
Gasoline Range Hydrocarbons	NW TPH-Gx	ND	---	800	ug/l	10x	ND	--	--	--	NR (40)	03/28/05 20:09
Surrogate(s): 4-BFB		Recovery:	92.6%	Limits: 50-150%		1x	03/28/05 20:09					
Duplicate (5031172-DUP2)				QC Source: P5C1165-01			Extracted: 03/28/05 10:12					
Gasoline Range Hydrocarbons	NW TPH-Gx	38800	---	1600	ug/l	20x	39100	--	--	--	0.770% (40)	03/29/05 02:06
Surrogate(s): 4-BFB		Recovery:	117%	Limits: 50-150%		1x	03/29/05 02:06					

QC Batch: 5031266

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC (Limits)	% RPD (Limits)	Analyzed	Notes
Blank (5031266-BLK1)												
Extracted: 03/30/05 09:19												
Gasoline Range Hydrocarbons	NW TPH-Gx	ND	--	80.0	ug/l	1x	--	--	--	--	03/30/05 10:36	
Surrogate(s): 4-BFB		Recovery:	94.4%	Limits: 50-150%		"	03/30/05 10:36					
LCS (5031266-BS2)												
Extracted: 03/30/05 09:23												
Gasoline Range Hydrocarbons	NW TPH-Gx	812	--	80.0	ug/l	1x	--	1000	81.2% (70-130)	--	03/30/05 11:31	
Surrogate(s): 4-BFB		Recovery:	102%	Limits: 50-150%		"	03/30/05 11:31					
LCS Dup (5031266-BSD2)												
Extracted: 03/30/05 09:23												
Gasoline Range Hydrocarbons	NW TPH-Gx	844	--	80.0	ug/l	1x	--	1000	84.4% (70-130)	3.86% (40)	03/30/05 11:59	
Surrogate(s): 4-BFB		Recovery:	101%	Limits: 50-150%		"	03/30/05 11:59					
Duplicate (5031266-DUP1)												
QC Source: PSC1085-01RE1												
Extracted: 03/30/05 09:19												
Gasoline Range Hydrocarbons	NW TPH-Gx	ND	---	80.0	ug/l	1x	ND	--	--	67.1% (40)	03/30/05 18:57	Q-06
Surrogate(s): 4-BFB		Recovery:	95.2%	Limits: 50-150%		"	03/30/05 18:57					

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Amended Report

Roxanne L. Clifton

Roxanne L. Clifton For Sarah Passarge, Project Manager

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Delta Environmental Consultants - Bellevue

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Project Name: **ARCO #0855, Longview, WA**

Project Number: G0CK5RP51/WR104688

Project Manager: Bryan Taylor

Report Created:

05/17/05 16:49

Gasoline Hydrocarbons per NW TPH-Gx Method - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031266

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC (Limits)	% RPD (Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	----------------	----------------	----------	-------

Duplicate (5031266-DUP2)

QC Source: P5C0905-02

Extracted: 03/30/05 09:19

Gasoline Range Hydrocarbons	NW TPH-Gx	ND	--	4000	ug/l	50x	ND	--	--	1.20% (40)	03/31/05 00:55	
-----------------------------	-----------	----	----	------	------	-----	----	----	----	------------	----------------	--

Surrogate(s): 4-BFB

Recovery: 96.6%

Limits: 50-150% 1x

03/31/05 00:55

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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031215

Water Preparation Method: EPA 3510 Fuels

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5031215-BLK1)										Extracted: 03/29/05 07:25				
Diesel Range Organics	NWTPH-Dx	ND	---	0.250	mg/l	1x	--	--	--	--	--	--	03/29/05 15:49	
Heavy Oil Range Hydrocarbons	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	123%	Limits: 50-150%		"							03/29/05 15:49	
LCS (5031215-BS1)										Extracted: 03/29/05 07:25				
Diesel Range Organics	NWTPH-Dx	2.39	---	0.250	mg/l	1x	--	2.50	95.6%	(50-150)	--	--	03/29/05 16:23	
Heavy Oil Range Hydrocarbons	"	1.24	---	0.500	"	"	--	1.50	82.7%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	122%	Limits: 50-150%		"							03/29/05 16:23	
LCS Dup (5031215-BSD1)										Extracted: 03/29/05 07:25				
Diesel Range Organics	NWTPH-Dx	2.41	---	0.250	mg/l	1x	--	2.50	96.4%	(50-150)	0.833%(50)		03/29/05 16:57	
Heavy Oil Range Hydrocarbons	"	1.29	---	0.500	"	"	--	1.50	86.0%	"	3.95%	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	123%	Limits: 50-150%		"							03/29/05 16:57	

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Roxanne L. Clifton For Sarah Passarge, Project Manager

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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Total Metals per EPA 200 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031146

Water Preparation Method: EPA 200/3005

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5031146-BLK1)										Extracted: 03/25/05 16:27				
Lead	EPA 200.8	ND	---	0.00100	mg/l	1x	-	-	-	-	-	-	04/21/05 23:17	
LCS (5031146-BS1)										Extracted: 03/25/05 16:27				
Lead	EPA 200.8	0.112	---	0.00100	mg/l	1x	-	0.100	112%	(85-115)	-	-	04/21/05 23:24	
LCS Dup (5031146-BSD1)										Extracted: 03/25/05 16:27				
Lead	EPA 200.8	0.112	---	0.00100	mg/l	1x	-	0.100	112%	(85-115)	0.00%	(20)	04/21/05 23:30	
Duplicate (5031146-DUP1)										QC Source: P5C1085-02		Extracted: 03/25/05 16:27		
Lead	EPA 200.8	ND	---	0.00100	mg/l	1x	ND	-	-	-	7.83%	(20)	04/22/05 00:16	
Matrix Spike (5031146-MS1)										QC Source: P5C1085-02		Extracted: 03/25/05 16:27		
Lead	EPA 200.8	0.120	---	0.00500	mg/l	5x	0.000398	0.100	120%	(70-130)	-	-	04/22/05 00:29	
Matrix Spike (5031146-MS2)										QC Source: P5C1085-01		Extracted: 03/25/05 16:27		
Lead	EPA 200.8	0.108	---	0.00100	mg/l	1x	0.000435	0.100	108%	(70-130)	-	-	04/21/05 23:43	

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Amended Report

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Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Dissolved Metals per EPA 200 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5040987

Water Preparation Method: EPA 200/3005 Diss

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5040987-BLK1)										Extracted: 04/25/05 11:20				
Lead	EPA 200.8	ND	---	0.00100	mg/l	1x	--	--	--	--	--	--	04/27/05 05:03	M-04
LCS (5040987-BS1)										Extracted: 04/25/05 11:20				
Lead	EPA 200.8	0.105	---	0.00100	mg/l	1x	--	0.100	105%	(85-115)	--	--	04/27/05 05:10	M-04
LCS Dup (5040987-BSD1)										Extracted: 04/25/05 11:20				
Lead	EPA 200.8	0.105	---	0.00100	mg/l	1x	--	0.100	105%	(85-115)	0.00%	(20)	04/27/05 05:16	M-04
Duplicate (5040987-DUP1)										QC Source: P5C1085-01RE1				
Lead	EPA 200.8	ND	---	0.00100	mg/l	1x	ND	--	--	--	NR	(20)	04/27/05 05:30	M-04
Matrix Spike (5040987-MS1)										QC Source: P5C1085-03RE1				
Lead	EPA 200.8	0.104	---	0.00100	mg/l	1x	ND	0.100	104%	(70-130)	--	--	04/27/05 06:09	M-04
Matrix Spike (5040987-MS2)										QC Source: P5C1085-04RE1				
Lead	EPA 200.8	0.101	---	0.00100	mg/l	1x	ND	0.100	101%	(70-130)	--	--	04/27/05 06:22	M-04

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Amended Report

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Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:
05/17/05 16:49

Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B - Laboratory Quality Control Results North Creek Analytical - Portland

QC Batch: 5031254

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5031254-BLK1)														
Extracted: 03/29/05 16:57														
1,2-Dibromoethane	EPA 8260B	ND	---	0.500	ug/l	1x	--	--	--	--	--	--	03/29/05 19:17	
1,2-Dichloroethane	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Benzene	"	ND	---	0.200	"	"	--	--	--	--	--	--	"	
Toluene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Ethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Xylenes (total)	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
1,2,4-Trimethylbenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,3,5-Trimethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Isopropylbenzene	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
n-Propylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	

Surrogate(s): 4-BFB	Recovery:	91.0%	Limits:	75-120%	"	03/29/05 19:17
1,2-DCA-d4		97.0%		77-129%	"	"
Dibromofluoromethane		95.0%		80-121%	"	"
Toluene-d8		94.5%		80-120%	"	"

LCS (5031254-BS1)

Extracted: 03/29/05 16:57

Benzene	EPA 8260B	21.9	---	0.200	ug/l	1x	--	20.0	110%	(80-120)	--	--	03/29/05 17:27
Toluene	"	20.8	---	0.500	"	"	--	"	104%	(80-124)	--	--	"
Ethylbenzene	"	22.2	---	0.500	"	"	--	"	111%	(80-120)	--	--	"
Xylenes (total)	"	68.4	---	1.00	"	"	--	60.0	114%	(73-124)	--	--	"
Methyl tert-butyl ether	"	22.3	---	2.00	"	"	--	20.0	112%	(80-129)	--	--	"
Naphthalene	"	24.4	---	2.00	"	"	--	"	122%	(72-149)	--	--	"

Surrogate(s): 4-BFB	Recovery:	100%	Limits:	75-120%	"	03/29/05 17:27
1,2-DCA-d4		97.5%		77-129%	"	"
Dibromofluoromethane		97.0%		80-121%	"	"
Toluene-d8		99.0%		80-120%	"	"

Matrix Spike (5031254-MS1)

QC Source: P5C1177-01

Extracted: 03/29/05 16:57

Benzene	EPA 8260B	20.6	---	0.200	ug/l	1x	ND	20.0	103%	(80-124)	--	--	03/29/05 17:54
Toluene	"	19.3	---	0.500	"	"	ND	"	96.5%	(79.7-131)	--	--	"
Ethylbenzene	"	20.5	---	0.500	"	"	ND	"	102%	(80-124)	--	--	"
Xylenes (total)	"	61.4	---	1.00	"	"	ND	60.0	102%	(44.6-154)	--	--	"
Methyl tert-butyl ether	"	20.1	---	2.00	"	"	0.720	20.0	96.9%	(80-130)	--	--	"
Naphthalene	"	21.3	---	2.00	"	"	ND	"	106%	(69-163)	--	--	"

Surrogate(s): 4-BFB	Recovery:	100%	Limits:	75-120%	"	03/29/05 17:54
1,2-DCA-d4		99.5%		77-129%	"	"
Dibromofluoromethane		99.5%		80-121%	"	"
Toluene-d8		100%		80-120%	"	"

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Amended Report

Roxanne L. Clifton

Roxanne L. Clifton For Sarah Passarge, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



Amended Report

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Delta Environmental Consultants - Bellevue

1200 112th Ave. NE Ste. C-210
Bellevue, WA 98004

Project Name: **ARCO #0855, Longview, WA**

Project Number: **G0CK5RP51/WR104688**

Project Manager: **Bryan Taylor**

Report Created:

05/17/05 16:49

Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031254

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC (Limits)	% RPD (Limits)	Analyzed	Notes
Matrix Spike Dup (5031254-MSD1)			QC Source: P5C1177-01			Extracted: 03/29/05 16:57						
Benzene	EPA 8260B	20.6	---	0.200	ug/l	1x	ND	20.0	103% (80-124)	0.00% (25)	03/29/05 18:22	
Toluene	"	19.5	---	0.500	"	"	ND	"	97.5% (79.7-131)	1.03% "	"	
Ethylbenzene	"	20.8	---	0.500	"	"	ND	"	104% (80-124)	1.45% "	"	
Xylenes (total)	"	60.2	---	1.00	"	"	ND	60.0	100% (44.6-154)	1.97% "	"	
Methyl tert-butyl ether	"	20.3	---	2.00	"	"	0.720	20.0	97.9% (80-130)	0.990% "	"	
Naphthalene	"	20.8	---	2.00	"	"	ND	"	104% (69-163)	2.38% "	"	
Surrogate(s): 4-BFB		Recovery:	96.5%	Limits:	75-120%	"	03/29/05 18:22					
1,2-DCA-d4			97.0%		77-129%	"	"					
Dibromofluoromethane			98.0%		80-121%	"	"					
Toluene-d8			95.0%		80-120%	"	"					

QC Batch: 5031269

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC (Limits)	% RPD (Limits)	Analyzed	Notes
Blank (5031269-BLK1)			Extracted: 03/30/05 10:02									
1,2-Dibromoethane	EPA 8260B	ND	---	0.500	ug/l	1x	--	--	--	--	03/30/05 12:51	
1,2-Dichloroethane	"	ND	---	0.500	"	"	--	--	--	--	"	
Benzene	"	ND	---	0.200	"	"	--	--	--	--	"	
Toluene	"	ND	---	0.500	"	"	--	--	--	--	"	
Ethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	"	
Xylenes (total)	"	ND	---	1.00	"	"	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	2.00	"	"	--	--	--	--	"	
Naphthalene	"	ND	---	2.00	"	"	--	--	--	--	"	
1,2,4-Trimethylbenzene	"	ND	---	1.00	"	"	--	--	--	--	"	
1,3,5-Trimethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	"	
Isopropylbenzene	"	ND	---	2.00	"	"	--	--	--	--	"	
n-Propylbenzene	"	ND	---	0.500	"	"	--	--	--	--	"	
Surrogate(s): 4-BFB		Recovery:	97.5%	Limits:	75-120%	"	03/30/05 12:51					
1,2-DCA-d4			102%		77-129%	"	"					
Dibromofluoromethane			99.0%		80-121%	"	"					
Toluene-d8			102%		80-120%	"	"					

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05/17/05 16:49

Selected Volatile Organic Compounds (Including BTEX) per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5031269

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

LCS (5031269-BS1)

Extracted: 03/30/05 10:02

Benzene	EPA 8260B	22.7	---	0.200	ug/l	1x	--	20.0	114%	(80-120)	--	--	03/30/05 11:01	
Toluene	"	21.8	---	0.500	"	"	--	"	109%	(80-124)	--	--	"	
Ethylbenzene	"	22.7	---	0.500	"	"	--	"	114%	(80-120)	--	--	"	
Xylenes (total)	"	69.2	---	1.00	"	"	--	60.0	115%	(73-124)	--	--	"	
Methyl tert-butyl ether	"	22.6	---	2.00	"	"	--	20.0	113%	(80-129)	--	--	"	
Naphthalene	"	21.6	---	2.00	"	"	--	"	108%	(72-149)	--	--	"	

Surrogate(s): 4-BFB

Recovery: 104%

Limits: 75-120%

03/30/05 11:01

1,2-DCA-d4

104%

77-129%

"

Dibromofluoromethane

102%

80-121%

"

Toluene-d8

104%

80-120%

"

Matrix Spike (5031269-MS1)

QC Source: P5C1201-01

Extracted: 03/30/05 10:02

Benzene	EPA 8260B	21.5	---	0.200	ug/l	1x	ND	20.0	108%	(80-124)	--	--	03/30/05 11:28	
Toluene	"	20.5	---	0.500	"	"	ND	"	102%	(79.7-131)	--	--	"	
Ethylbenzene	"	21.1	---	0.500	"	"	ND	"	106%	(80-124)	--	--	"	
Xylenes (total)	"	62.4	---	1.00	"	"	ND	60.0	104%	(44.6-154)	--	--	"	
Methyl tert-butyl ether	"	20.2	---	2.00	"	"	ND	20.0	101%	(80-130)	--	--	"	
Naphthalene	"	20.9	---	2.00	"	"	ND	"	104%	(69-163)	--	--	"	

Surrogate(s): 4-BFB

Recovery: 101%

Limits: 75-120%

03/30/05 11:28

1,2-DCA-d4

102%

77-129%

"

Dibromofluoromethane

103%

80-121%

"

Toluene-d8

104%

80-120%

"

Matrix Spike Dup (5031269-MSD1)

QC Source: P5C1201-01

Extracted: 03/30/05 10:02

Benzene	EPA 8260B	20.7	---	0.200	ug/l	1x	ND	20.0	104%	(80-124)	3.79% (25)		03/30/05 11:56	
Toluene	"	19.7	---	0.500	"	"	ND	"	98.5%	(79.7-131)	3.98%	"	"	
Ethylbenzene	"	20.9	---	0.500	"	"	ND	"	104%	(80-124)	0.952%	"	"	
Xylenes (total)	"	61.4	---	1.00	"	"	ND	60.0	102%	(44.6-154)	1.62%	"	"	
Methyl tert-butyl ether	"	20.3	---	2.00	"	"	ND	20.0	102%	(80-130)	0.494%	"	"	
Naphthalene	"	20.1	---	2.00	"	"	ND	"	100%	(69-163)	3.90%	"	"	

Surrogate(s): 4-BFB

Recovery: 104%

Limits: 75-120%

03/30/05 11:56

1,2-DCA-d4

102%

77-129%

"

Dibromofluoromethane

98.5%

80-121%

"

Toluene-d8

101%

80-120%

"

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Notes and Definitions

Report Specific Notes:

- A-01 - Detected hydrocarbons appear to be due to a light, diesel-range product, as well as diesel.
- M-04 - Sample Filtered through 0.45 micron filter in Laboratory prior to analysis.
- Q-06 - RPD is not applicable for analyte concentrations less than 5 times the MRL.
- S-09 - Surrogate recovery is outside control limits due to matrix interference.

Laboratory Reporting Conventions:

- DET** - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND** - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR / NA** - Not Reported / Not Available
 - dry** - Sample results reported on a dry weight basis. Reporting Limits are corrected for %Solids when %Solids are <50%.
 - wet** - Sample results and reporting limits reported on a wet weight basis (as received).
- RPD** - Relative Percent Difference. (RPDs calculated using Results, not Percent Recoveries).
- MRL** - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL*** - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated results.
- Dil** - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting limits** - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

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