



GROUND WATER MONITORING REPORT

Atlantic Richfield Company
Annual Report for 2002
November 26, 2002

release 1249
Arco # 0986 (closed)
Seattle

Solving environment-related business problems worldwide

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ARCO Facility No.: 0986
Address: 14512 15th Avenue NE, Seattle, WA
Atlantic Richfield Company
Environmental Business Manager: Chuck Hutchens
Consulting Co./Contact Person: Delta Environmental Consultants, Inc./Derek Tornow
Consultant Project Number: M099-559/AM00-551
Primary Agency/Regulatory ID No.: Washington State Department of Ecology/8743

WORK PERFORMED DURING 2002:

- Delta completed installation of the above-ground portion of the air sparge/soil vapor extraction (AS/SVE) system.
- Delta conducted annual ground water monitoring and sampling on September 17, 2002.
- Delta prepared this annual ground water monitoring report.

Current Phase of Project:	Monitoring	(Phase I, Addtl Assmnt RAP/CAP, Remed., etc)
Frequency of Ground Water Sampling and Monitoring:	Annual	(Quarterly, etc)
Are LPH Present On-Site:	No	(Yes/No)
LPH Recovered this Reporting Period:	0	(Gallons)
Cumulative LPH Recovered to Date:	0	(Gallons)
Amount of Soil Removed to Date:	Unknown	(Cubic yards/tons)
Current Remediation Techniques:	Natural Attenuation	(SVES/Sparge/Pump and Treat)
Historical/Former Remediation:	SVE operated from 1990 to 1998/AS from 1993 to 1999	
Approximate Depth to Ground Water:	7.46 to 13.86	(Feet)
Ground Water Gradient:	South	(Direction)
	0.03 ft/linear ft	(Magnitude)

Attachments:

- Table 1 - Summary of Ground Water Data
- Table 2 - Summary of Historical Ground Water Data
- Figure 1 - Site Location Map
- Figure 2 - Inferred Water Table Contour Map - 9/17/02
- North Creek Analytical Lab Report

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TABLE 1
SUMMARY OF GROUND WATER DATA
ARCO FACILITY NO. 0986
14512 15TH AVENUE NE
SEATTLE, WASHINGTON
DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-4	302.85	09/17/02 NP	11.16	291.69	1.0	1,260	4.90	2.00	53.1	6.76	<2.00 (a)	<0.01	<1.00	1.22	NA	NA
MW-5	309.83	09/17/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-6	308.07	09/17/02	13.86	294.21	5.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-7	298.86	09/17/02 NP	7.46	291.40	3.9	1,400	2.37	2.98	1.77	14.9	<2.00 (a)	<0.01	<1.00	117	NA	NA
MW-8	297.58	09/17/02 NP	7.51	290.07	2.6	202	1.66	1.50	<0.500	2.02	<2.00	<0.01	<1.00	3.69	NA	NA
MW-9	307.73	09/17/02 NP	10.97	296.76	1.5	508	1.94	1.70	1.85	6.10	<2.00	<0.01	<1.00	105	NA	NA
MW-10	306.53	09/17/02	11.47	295.06	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-11	305.24	09/17/02 NP	11.47	293.77	1.5	1,130	9.07	2.44	1.34	4.01	<2.00 (a)	<0.01	<1.00	7.57	NA	NA
MW-12	301.69	09/17/02 NP	10.47	291.22	0.7	1,020	5.57	2.39	5.19	4.66	<2.00 (a)	<0.01	<1.00	1.40	NA	NA
MW-13	308.41	09/17/02	12.90	295.51	2.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14	306.86	09/17/02	13.50	293.36	5.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Laboratory Methods						NWTFH-Gx	8021B	8021B	8021B	8021B	8260B	8011	8260B	6020	6020	8010
MTCA Method A Cleanup Levels (post 8/15/2001, see note below)						800*	5	1,000	700	1,000	20	0.01	5	15	15	5
MTCA Method A Cleanup Levels (prior to 8/15/2001, see note below)						1,000**	5	40	30	20	20	--	--	5	5	5

TOC = Top of casing elevation relative to National Geodetic Vertical Datum.

NWTFH-Gx = Northwest method for gasoline-range hydrocarbons.

8021B = EPA method for volatile aromatic hydrocarbons.

8260B = EPA method for volatile organic compounds. Samples with MTBE detections above the method reporting limit using 8021B were re-analyzed using 8260B to confirm the MTBE concentration.

6020 = EPA method for lead.

8011 = EPA Method for EDB and DBCP.

µg/L = micrograms per liter, or parts per billion (ppb).

mg/L = milligrams per liter.

<0.500 = not detected at or above the stated method reporting limit.

NA = not analyzed.

NP = no-purge sampling methods used.

MTCA = Model Toxics Control Act Method A Groundwater Cleanup Level.

PCE = tetrachloroethene.

a = MTBE false positive detected by Method 8021B and confirmed below method detection limits by Method 8260B.

MTBE = Methyl Tert-Butyl Ether.

EDC = 1,2-Dichloroethane.

EDB = 1,2-Dibromoethane.

Effective August 15, 2001, Ecology promulgated changes in the MTCA regulations including changes to the Method A Cleanup Levels. Both the old and new cleanup levels are presented here.

* 1,000 µg/L if no detectable levels of benzene are present in the ground water sample-otherwise, due to the presence of benzene, 800 µg/L.

** = The sum of gasoline-range, diesel-range and heavy oil-range hydrocarbons must not exceed 1,000 µg/L.

NS = Not sampled.

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
 ARCO FACILITY NO. 0986
 14512 15TH AVENUE NE
 SEATTLE, WASHINGTON
 DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-4	302.85	03/25/94 P	10.69	292.16	NM	12,000	71	3	370	1,300	NA	NA	NA	NA	NA	NA
		06/29/94 P	10.94	291.91	NM	21,000	200	9	690	2,300	NA	NA	NA	NA	NA	NA
		09/26/94 P	11.36	291.49	NM	30,000	290	13	1,200	4,300	NA	NA	NA	NA	NA	NA
		03/30/95 P	9.35	293.50	NM	6,530	50	4	261	932	NA	NA	NA	NA	NA	NA
		06/28/95 P	10.19	292.66	NM	19,100	139	51	777	2,910	NA	NA	NA	NA	NA	NA
		09/13/95 P	9.42	293.43	NM	9,860	77	7	422	1,510	NA	NA	NA	NA	NA	NA
		12/22/95 P	8.5	294.35	NM	1,510	18	ND	80	226	NA	NA	NA	NA	NA	NA
		03/14/96 P	8.5	294.35	NM	3,640	43	8	141	343	NA	NA	NA	NA	NA	NA
		06/10/96 P	9.02	293.83	NM	8,830	110	21	459	802	NA	NA	NA	NA	NA	NA
		09/23/96 P	10.10	292.75	NM	9,460	209	73	639	1,060	NA	NA	NA	NA	NA	NA
		12/04/96 P	9.51	293.34	NM	7,270	104	14	356	803	NA	NA	NA	NA	NA	NA
		03/20/97 P	7.96	294.89	NM	11,000	71	160	500	1300	NA	NA	NA	NA	NA	NA
		06/27/97 P	8.63	294.22	NM	890	69	32	440	680	NA	NA	NA	NA	NA	NA
		09/04/97 P	9.46	293.39	NM	12,500	115	83	716	1,110	NA	NA	NA	NA	NA	NA
		11/16/97 P	9.50	293.35	NM	13,000	540	680	560	940	NA	NA	NA	NA	NA	NA
		02/18/98 P	8.68	294.17	NM	4,800	32	16	100	520	NA	NA	NA	NA	NA	NA
		05/28/98 P	8.77	294.08	1.64	13,000	41	78	700	1,600	NA	NA	NA	NA	NA	NA
		08/24/98 P	10.10	292.75	1.12	9,400	43	18	590	540	NA	NA	NA	NA	NA	NA
		11/18/98 P	11.37 (b)	291.48	1.52	7,700	19	3	470	410	NA	NA	NA	NA	NA	NA
		01/21/99 P	9.71	293.14	3.03	27,000	30	540	960	3,300	NA	NA	NA	NA	NA	NA
		02/26/99 P	8.57	294.28	6.91	35,000	43	1,000	1,700	7,200	NA	NA	NA	NA	NA	NA
		05/10/99 P	9.54	293.31	0.82	13,000	12	61	480	1,700	NA	NA	NA	NA	NA	NA
		08/23/99 P	9.91	292.94	4.61	21,000	15	80	890	2,400	NA	NA	NA	NA	NA	NA
		11/09/99 P	10.46	292.39	2.36	14,000	12	21	570	1,500	NA	NA	NA	NA	NA	NA
		06/30/01 P	10.43	292.42	1.0	2,020	4.86	1.82	194	41.3	<5.00	NA	NA	3.14	<1.00	NA
		09/27/01 NP	11.55	291.30	1.51	2,110	6.23	1.49	90.3	55.3	<5.00 (e)	NA	NA	NA	NA	NA
		12/04/01 NP	10.28	292.57	0.41	887	3.93	0.623	28.4	3.77	<5.00	NA	NA	2.95	2.29	NA
		09/17/02 NP	11.16	291.69	1.0	1,260	4.90	2.00	53.1	6.76	<2.00 (e)	<0.01	<1.00	1.22	NA	NA

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MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-5	309.83	03/25/94 P	17.1	292.73	NM	110	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/29/94 P	17.85	291.98	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/26/94 P	18.58	291.25	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/30/95 P	16.33	293.50	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/28/95 P	17.17	292.66	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/13/95 P	16.4	293.43	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/22/95 P	15.48	294.35	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/14/96 P	13.72	296.11	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/10/96 P	14.94	294.89	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/23/96 P	16.86	292.97	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/04/96 P	16.54	293.29	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/20/97	13.38	296.45	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/27/97	14.45	295.38	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		09/04/97	16.06	293.77	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/16/97	16.35	293.48	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/18/98	14.39	295.44	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		05/28/98	15.16	294.67	6.27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/18/98	17.87	291.96	1.23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99	12.91	296.92	9.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		05/10/99	14.78	295.05	5.93	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/23/99	16.52	293.31	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/09/99	17.32	292.51	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		09/27/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		12/04/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		09/17/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY

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MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-6	308.07	03/25/94 P	15.24	292.83	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/29/94 P	16.5	291.57	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/26/94 P	17.03	291.04	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/30/95 P	13	295.07	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/28/95 P	14.65	293.42	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/13/95 P	16.14	291.93	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/22/95 P	14.7	293.37	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/26/95 P	NM	NM	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/14/96 P	12.71	295.36	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		06/10/96 P	14.52	293.55	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/23/96 P	16.47	291.60	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/04/96 P	15.78	292.29	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/20/97	12.56	295.51	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/27/97	13.32	294.75	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		09/04/97	15.26	292.81	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/16/97	15.11	292.96	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/18/98	13.25	294.82	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		05/28/98	14.15	293.92	5.60	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/18/98	17.10	290.97	5.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99	14.14	293.93	10.88	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		05/10/99	13.68	294.39	5.10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/23/99	15.51	292.56	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/09/99	16.39	291.68	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	13.21	294.86	5.6	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	4.78	<1.00	NA
		09/27/01 NP	14.80	293.27	3.30	<50.0	<0.500	0.522	<0.500	<1.00	<1.00	NA	NA	NA	NA	NA
		12/04/01 NP	13.22	294.85	1.92	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	1.40	<1.00	NA
		09/17/02	13.86	294.21	5.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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MW-7	298.86	01/25/95 P	6.2	292.66	NM	2,210	5	14	37	2	NA	NA	NA	NA	NA	NA
		03/30/95 P	5.47	293.39	NM	2,170	3	ND	53	18	NA	NA	NA	NA	NA	NA
		06/28/95 P	5.95	292.91	NM	2,230	5	ND	60	13	NA	NA	NA	NA	NA	NA
		09/13/95 P	6.66	292.2	NM	2,050	4	ND	21	17	NA	NA	NA	NA	NA	NA
		12/22/95 P	5.9	292.96	NM	1,530	2	ND	6	5	NA	NA	NA	NA	NA	NA
		03/14/96 P	5.38	293.48	NM	1,540	3	19	19	20	NA	NA	NA	NA	NA	NA
		05/10/96 P	5.58	293.28	NM	1,560	4	ND	6	9	NA	NA	NA	NA	NA	NA
		09/23/96 P	6.56	292.30	NM	830	1.6	ND	6	5	NA	NA	NA	NA	NA	NA
		12/04/96 P	6.15	292.71	NM	1,440	1.3	ND	ND	3	NA	NA	NA	NA	NA	NA
		03/20/97 P	5.02	293.84	NM	3,000	4.6	2	60	150	NA	NA	NA	NA	NA	NA
		06/27/97 P	5.48	293.38	NM	2,760	6.8	8	12	29	NA	NA	NA	NA	NA	NA
		09/04/97 P	8.00	290.86	NM	1,590	2.2	ND	3	7	NA	NA	NA	NA	NA	NA
		11/16/97 P	6.07	292.79	NM	1,910	2.3	ND	19	11	NA	NA	NA	NA	NA	NA
		02/18/98 P	5.45	293.41	NM	2,000	3.9	1	35	9	NA	NA	NA	NA	NA	NA
		05/28/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98 P	6.58	292.28	0.69	960	ND	ND	5	12	NA	NA	NA	NA	NA	NA
		11/18/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99 P	5.33	293.53	1.22	920	1.9	<1	<1	3	NA	NA	NA	NA	NA	NA
		05/10/99	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/23/99 P	6.22	292.64	1.18	1,300	2	<1	1	5	NA	NA	NA	NA	NA	NA
		11/09/99	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	6.70	292.16	1.0	1,170	1.25	<0.500	<0.500	2.79	<5.00	NA	NA	<1.00	<1.00	NA
		09/27/01 NP	7.85	291.01	0.77	1,260	2.92	1.81	1.95	10.5	<5.00	NA	NA	NA	NA	NA
		12/04/01 NP	6.50	292.36	1.18	1,310	2.44	1.41	3.72	15.0	<5.00	NA	NA	<1.00	<1.00	NA
		09/17/02 NP	7.46	291.40	3.9	1,400	2.37	2.98	1.77	14.9	<2.00 (c)	<0.01	<1.00	117	NA	NA

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 SEATTLE, WASHINGTON
 DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-8	297.58	01/25/95 P	5.98	291.60	NM	60	0	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/30/95 P	5.21	292.37	NM	370	4	4	6	11	NA	NA	NA	NA	NA	NA
		06/28/95 P	5.68	291.90	NM	730	19	ND	8	29	NA	NA	NA	NA	NA	NA
		09/13/95 P	6.47	291.11	NM	110	3	ND	3	5	NA	NA	NA	NA	NA	NA
		12/22/95 P	5.57	292.01	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		03/14/96 P	5.14	292.44	NM	3,830	41	42	139	587	NA	NA	NA	NA	NA	NA
		06/10/96 P	5.24	292.34	NM	7,200	101	2	330	1,240	NA	NA	NA	NA	NA	NA
		09/23/96 P	6.37	291.21	NM	240	6.1	ND	ND	3	NA	NA	NA	NA	NA	NA
		12/04/96 P	5.83	291.75	NM	89	1.6	ND	ND	1	NA	NA	NA	NA	NA	NA
		03/20/97 P	4.63	292.95	NM	9,200	22	5	420	1,600	NA	NA	NA	NA	NA	NA
		06/27/97 P	5.19	292.39	NM	6,350	22.3	3	249	743	NA	NA	NA	NA	NA	NA
		09/04/97 P	7.80	289.78	NM	2,120	9	ND	8	64	NA	NA	NA	NA	NA	NA
		11/16/97 P	5.91	291.67	NM	1,270	5.4	ND	8	6	NA	NA	NA	NA	NA	NA
		02/18/98 P	5.24	292.34	NM	580	3.2	3	10	12	NA	NA	NA	NA	NA	NA
		05/28/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98 P	6.36	291.22	1.13	700	3.7	1.0	2.0	3.0	NA	NA	NA	NA	NA	NA
		11/18/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99 P	4.95	292.63	2.99	480	2.2	<1	<1	2	NA	NA	NA	NA	NA	NA
		05/10/99	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/23/99 P	5.84	291.74	1.00	740	3.7	<1	<1	2	NA	NA	NA	NA	NA	NA
		11/09/99	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	6.40	291.18	1.1	146	0.835	0.681	0.580	1.11	<1.00	NA	NA	51.0	<1.00	NA
		09/27/01 NP	8.00	289.58	0.75	529	2.94	0.961	0.656	3.66	<5.00	NA	NA	NA	NA	NA
		12/04/01 NP	6.40	291.18	1.64	306	1.17	<0.500	<0.500	4.29	<1.00	NA	NA	2.63	<1.00	NA
		09/17/02 NP	7.51	290.07	2.6	202	1.66	1.50	<0.500	2.02	<2.00	<0.01	<1.00	3.69	NA	NA

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
ARCO FACILITY NO. 0986
14512 15TH AVENUE NE
SEATTLE, WASHINGTON
DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (ft) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-9	307.73	03/31/95 P	9.88	297.85	NM	36,000	43	1,050	968	4,650	NA	NA	NA	NA	NA	NA
		06/28/95 P	12.3	295.43	NM	13,800	13	169	313	1,530	NA	NA	NA	NA	NA	NA
		09/13/95 P	15.95	291.78	NM	3,890	3	19	93	236	NA	NA	NA	NA	NA	NA
		12/22/95 P	12.12	295.61	NM	6,260	3	51	163	868	NA	NA	NA	NA	NA	NA
		03/14/96 P	10.34	297.39	NM	5,230	2	16	113	430	NA	NA	NA	NA	NA	NA
		06/10/96 P	12.86	294.87	NM	10,800	3	78	254	1,630	NA	NA	NA	NA	NA	NA
		09/23/96 P	14.27	293.46	NM	1,850	ND	8	36	182	NA	NA	NA	NA	NA	NA
		12/04/96 P	13.24	294.49	NM	2,090	0.6	13	49	248	NA	NA	NA	NA	NA	8.8
		03/20/97 P	10.10	297.63	NM	5,200	0.6	18	110	530	NA	NA	NA	NA	NA	5.4
		06/27/97 P	11.02	296.71	NM	8,450	0.9	21	140	610	NA	NA	NA	NA	NA	8.9
		09/04/97 P	12.54	295.19	NM	3,600	0.5	9	51	212	NA	NA	NA	NA	NA	12
		11/16/97 P	12.80	294.93	NM	3,070	ND	14	47	232	NA	NA	NA	NA	NA	15
		02/18/98 P	10.81	296.92	NM	2,800	1.5	5	51	210	NA	NA	NA	NA	NA	14
		05/28/98 P	11.74	295.99	0.70	2,400	ND	5	44	230	NA	NA	NA	NA	NA	NA
		08/24/98 P	13.47	294.26	3.18	1,100	ND	3	13	58	NA	NA	NA	NA	NA	NA
		11/18/98 P	14.62	293.11	2.81	500	0.5	1	5	10	NA	NA	NA	NA	NA	NA
		02/26/99 P	10.38	297.35	4.22	1,500	0.8	4	<1	32	NA	NA	NA	NA	NA	NA
		05/10/99 P	10.97	296.76	4.91	700	<0.5	<1	10	48	NA	NA	NA	NA	NA	4.2
		08/23/99 P	12.96	294.77	5.10	2,000	0.6	5	41	180	NA	NA	NA	NA	NA	NA
		11/09/99 P	13.79	293.91	1.23	530	<0.5	<1	4	20	NA	NA	NA	NA	NA	NA
		06/30/01 P	10.42	297.31	1.0	392	<0.500	1.40	2.70	<1.00	<1.00	NA	NA	4.44	<1.00	NA
		09/27/01 NP	11.45	296.28	1.31	511	2.48	1.33	1.25	2.88	<5.00	NA	NA	NA	NA	NA
		12/04/01 NP	10.50	297.23	0.51	1,390	1.73	1.31	23.4	29.2	<5.00	NA	NA	3.63	1.93	NA
		09/17/02 NP	10.97	296.76	1.5	598	1.94	1.70	1.85	6.10	<2.00	<0.01	<1.00	105	NA	NA

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
ARCO FACILITY NO. 0986
14512 15TH AVENUE NE
SEATTLE, WASHINGTON
DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-10	306.53	03/31/95 P	8.71	297.82	NM	29,000	57	699	1,150	4,150	NA	NA	NA	NA	NA	NA
		06/28/95 P	11.04	295.49	NM	40,000	50	45	1,550	4,440	NA	NA	NA	NA	NA	NA
		09/13/95 P	10.81	295.72	NM	1,890	4	3	100	209	NA	NA	NA	NA	NA	NA
		12/22/95 P	11.31	295.22	NM	720	7	ND	45	25	NA	NA	NA	NA	NA	NA
		03/14/96 P	9.75	296.78	NM	11,700	9	113	433	1,440	NA	NA	NA	NA	NA	NA
		06/10/96 P	11.86	294.67	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		09/23/96 P	13.02	293.51	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/04/96 P	12.29	294.24	NM	ND	0.9	ND	2	4	NA	NA	NA	NA	NA	NA
		03/20/97 P	9.37	297.16	NM	230	0.7	ND	5	3	NA	NA	NA	NA	NA	NA
		06/27/97 P	10.22	296.31	NM	570	1.0	ND	17	13	NA	NA	NA	NA	NA	NA
		09/04/97 P	11.65	294.88	NM	620	1.2	ND	19	12	NA	NA	NA	NA	NA	NA
		11/16/97 P	11.88	294.65	NM	400	1.2	ND	7	11	NA	NA	NA	NA	NA	NA
		02/18/98 P	10.05	296.48	NM	7,000	5.3	2	310	700	NA	NA	NA	NA	NA	NA
		05/28/98	10.70	295.83	0.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98 P	10.32	296.21	2.02	150	ND	ND	6	ND	NA	NA	NA	NA	NA	NA
		11/18/98	13.58	292.95	4.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99 P	9.54	296.99	2.74	110	0.6	<1	4	4	NA	NA	NA	NA	NA	NA
		05/10/99	10.13	296.40	1.67	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/23/99 P	11.99	294.54	8.57	<50	<0.5	<1	<1	<1	NA	NA	NA	NA	NA	NA
		11/09/99	12.78	293.75	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	10.70	295.83	1.5	<50.0	<0.500	<0.500	<0.500	1.07	<5.00	NA	NA	5.31	<1.00	NA
		09/27/01 NP	12.00	294.53	0.50	119	1.32	<0.500	<0.500	1.71	<5.00	NA	NA	NA	NA	NA
		12/04/01 NP	10.65	295.88	0.42	175	0.924	<0.500	0.545	2.57	<1.00	NA	NA	1.21	<1.00	NA
		09/17/02	11.47	295.06	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
 ARCO FACILITY NO. 0986
 14512 15TH AVENUE NE
 SEATTLE, WASHINGTON
 DELTA PROJECT NO. AM00-S51

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-11	305.24	03/31/95 P	9.47	295.77	NM	26,000	119	56	1,380	3,660	NA	NA	NA	NA	NA	NA
		06/28/95 P	12.42	292.82	NM	25,000	150	35	1,500	2,100	NA	NA	NA	NA	NA	NA
		09/13/95 P	12.63	292.61	NM	34,000	256	102	1,930	4,000	NA	NA	NA	NA	NA	NA
		12/22/95 P	11.42	293.82	NM	10,800	54	29	921	2,250	NA	NA	NA	NA	NA	NA
		03/14/96 P	10.63	294.61	NM	11,100	41	15	579	1,200	NA	NA	NA	NA	NA	NA
		06/10/96 P	11.05	294.19	NM	2,190	2	5	45	120	NA	NA	NA	NA	NA	NA
		09/23/96 P	12.26	292.98	NM	5,290	8.5	8	285	718	NA	NA	NA	NA	NA	NA
		12/04/96 P	11.93	293.31	NM	13,300	26.2	47	884	2,120	NA	NA	NA	NA	NA	NA
		03/20/97 P	10.27	294.97	NM	1,200	1.4	ND	54	43	NA	NA	NA	NA	NA	NA
		06/27/97 P	10.78	294.46	NM	530	1.0	ND	4	6	NA	NA	NA	NA	NA	NA
		09/04/97 P	11.57	293.67	NM	1,480	3.2	ND	78	40	NA	NA	NA	NA	NA	NA
		11/16/97 P	11.64	293.60	NM	1,220	3.5	ND	53	27	NA	NA	NA	NA	NA	NA
		02/18/98 P	10.76	294.48	NM	1,400	4.9	1	110	69	NA	NA	NA	NA	NA	NA
		05/28/98 P	10.94	294.30	1.74	590	1.5	ND	18	14	NA	NA	NA	NA	NA	NA
		08/24/98 P	12.34	292.90	1.02	8,900	9.3	29	480	840	NA	NA	NA	NA	NA	NA
		11/18/98 P	13.16	292.08	0.81	2,400	6.2	4	270	230	NA	NA	NA	NA	NA	NA
		02/26/99 P	8.18	297.06	2.67	7,400	8.4	7	470	770	NA	NA	NA	NA	NA	NA
		05/10/99 P	11.46	293.78	1.60	3,300	<5	<10	20	14	NA	NA	NA	NA	NA	NA
		08/23/99 P	12.21	293.03	1.67	4,600	5.9	3	300	78	NA	NA	NA	NA	NA	NA
		11/09/99 P	12.98	292.26	1.83	5,300	8.2	10	470	190	NA	NA	NA	NA	NA	NA
		06/30/01 P	10.94	294.30	1.2	4,460	9.86	6.91	437	32.6	<12.5 (c)	NA	NA	<1.00	<1.00	NA
		09/27/01 NP	12.15	293.09	0.95	1,810	6.30	1.82	81.2	9.35	<5.00 (c)	NA	NA	NA	NA	NA
		12/04/01 NP	10.75	294.49	0.26	154	0.781	<0.500	6.28	<1.00	<1.00	NA	NA	<1.00	<1.00	NA
		09/17/02 NP	11.47	293.77	1.5	1,130	9.07	2.44	1.34	4.01	<2.00 (c)	<0.01	<1.00	7.57	NA	NA

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
 ARCO FACILITY NO. 0986
 14512 15TH AVENUE NE
 SEATTLE, WASHINGTON
 DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERI-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-12	301.69	03/31/95 P	7.9	293.79	NM	34,000	63	309	1,470	5,600	NA	NA	NA	NA	NA	NA
		06/28/95 P	8.45	293.24	NM	32,000	85	121	1,910	3,300	NA	NA	NA	NA	NA	NA
		09/13/95 P	9.24	292.45	NM	18,200	1,333	28	1,040	1,730	NA	NA	NA	NA	NA	NA
		12/22/95 P	8.52	293.17	NM	17,400	44	5	539	854	NA	NA	NA	NA	NA	NA
		03/14/96 P	7.62	294.07	NM	6,780	16	18	307	369	NA	NA	NA	NA	NA	NA
		06/10/96 P	8.22	293.47	NM	4,530	5	5	168	220	NA	NA	NA	NA	NA	NA
		09/23/96 P	9.11	292.58	NM	3,420	4.8	ND	115	165	NA	NA	NA	NA	NA	NA
		12/04/96 P	8.80	292.89	NM	558	0.7	ND	10	14	NA	NA	NA	NA	NA	NA
		03/20/97 P	7.18	294.51	NM	5,500	5.5	25	180	630	NA	NA	NA	NA	NA	NA
		06/27/97 P	7.71	293.98	NM	3,830	31.5	18	112	382	NA	NA	NA	NA	NA	NA
		09/04/97 P	8.61	293.08	NM	2,490	13.8	3	62	119	NA	NA	NA	NA	NA	NA
		11/16/97 P	8.50	293.19	NM	1,250	1.9	ND	28	40	NA	NA	NA	NA	NA	NA
		02/18/98 P	7.76	293.93	NM	3,100	3.6	5	110	360	NA	NA	NA	NA	NA	NA
		05/28/98 P	7.80	293.89	3.52	2,300	1.1	ND	62	170	NA	NA	NA	NA	NA	NA
		08/24/98 P	9.13	292.56	3.81	1,800	1.6	2	41	94	NA	NA	NA	NA	NA	NA
		11/18/98 P	9.86	291.83	0.74	710	2.4	2	17	18	NA	NA	NA	NA	NA	NA
		01/21/99 P	9.09	292.60	4.21	4,300	0.8	7	150	570	NA	NA	NA	NA	NA	NA
		02/26/99 P	8.00	293.69	6.73	4,000	2.3	7	130	630	NA	NA	NA	NA	NA	NA
		05/10/99 P	8.69	293.00	2.02	860	1.5	1	31	74	NA	NA	NA	NA	NA	NA
		08/23/99 P	8.93	292.76	1.85	1,200	2.0	<1	32	52	NA	NA	NA	NA	NA	NA
		11/09/99 P	8.80	292.89	3.82	1,000	1.6	1	36	53	NA	NA	NA	NA	NA	NA
		06/30/01 P	9.73	291.96	0.9	782	2.22	1.06	11.8	2.23	<5.00	NA	NA	<1.00	<1.00	NA
		09/27/01 NP	10.85	290.84	1.36	730	4.70	1.83	12.1	7.14	<5.00 (e)	NA	NA	NA	NA	NA
		12/04/01 NP	9.57	292.12	0.38	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	1.76	1.20	NA
		09/17/02 NP	10.47	291.22	0.7	1,020	5.57	2.39	5.19	4.66	<2.00 (e)	<0.01	<1.00	1.40	NA	NA

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
ARCO FACILITY NO. 0986
14512 15TH AVENUE NE
SEATTLE, WASHINGTON
DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-13	308.41	03/22/96 P	9.04	299.37	NM	610	ND	ND	11	10	NA	NA	NA	NA	NA	NA
		06/10/96 P	9.9	298.51	NM	320	ND	ND	2	ND	NA	NA	NA	NA	NA	NA
		09/23/96 P	12.26	296.15	NM	140	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
		12/04/96 P	12.02	296.39	NM	144	ND	ND	2	2	NA	NA	NA	NA	NA	NA
		03/20/97 P	7.72	300.69	NM	120	ND	ND	ND	ND	NA	NA	NA	NA	NA	61
		06/27/97 P	9.73	298.68	NM	100	ND	ND	ND	ND	NA	NA	NA	NA	NA	74
		09/04/97 P	11.28	297.13	NM	180	ND	ND	ND	ND	NA	NA	NA	NA	NA	74
		11/16/97 P	11.46	296.95	NM	230	ND	ND	ND	2	NA	NA	NA	NA	NA	120
		02/18/98 P	9.45	298.96	NM	130	ND	ND	ND	1	NA	NA	NA	NA	NA	50
		05/28/98	10.52	297.89	2.14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	190
		08/24/98	12.16	296.25	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/18/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99 P	9.00	299.41	2.70	94	<0.5	<1	<1	<1	NA	NA	NA	NA	NA	NA
		05/10/99	9.69	298.72	5.86	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	163 (c)
		08/23/99	11.65	296.76	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/09/99	12.81	295.60	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	12.39	296.02	2.7	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	<1.00	<1.00	NA
		09/27/01 NP	13.55	294.86	1.50	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	NA	NA	NA
		12/04/01 NP	12.48	295.93	0.97	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	<1.00	<1.00	NA
		09/17/02	12.90	295.51	2.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2
SUMMARY OF HISTORICAL GROUND WATER DATA
ARCO FACILITY NO. 0986
14512 15TH AVENUE NE
SEATTLE, WASHINGTON
DELTA PROJECT NO. AM00-551

MONITORING WELL	TOC ELEVATION (feet)	DATE SAMPLED	DEPTH TO WATER (feet)	GROUND WATER ELEVATION (a) (feet)	DISSOLVED OXYGEN (mg/L)	GASOLINE-RANGE HYDROCARBONS (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	METHYL TERT-BUTYL ETHER (µg/L)	1,2-DIBROMO-ETHANE (µg/L)	1,2-DICHLORO-ETHANE (µg/L)	TOTAL LEAD (µg/L)	DISSOLVED LEAD (µg/L)	PCE (µg/L)
MW-14	306.86	03/22/96 P	9.06	297.80	NM	2,400	ND	ND	9	29	NA	NA	NA	NA	NA	NA
		06/10/96 P	10.08	296.78	NM	1,040	ND	ND	ND	1	NA	NA	NA	NA	NA	NA
		09/23/96 P	12.46	294.40	NM	480	ND	ND	2	1	NA	NA	NA	NA	NA	NA
		12/04/96 P	11.93	294.93	NM	342	ND	ND	ND	1	NA	NA	NA	NA	NA	NA
		03/20/97 P	8.70	298.16	NM	490	ND	ND	ND	ND	NA	NA	NA	NA	NA	25
		06/27/97 P	9.64	297.22	NM	290	ND	ND	ND	ND	NA	NA	NA	NA	NA	22
		09/04/97 P	11.22	295.64	NM	720	ND	ND	ND	ND	NA	NA	NA	NA	NA	36
		11/16/97 P	11.50	295.36	NM	280	ND	ND	ND	1	NA	NA	NA	NA	NA	31
		02/18/98 P	9.46	297.40	NM	370	ND	ND	ND	3	NA	NA	NA	NA	NA	45
		05/28/98	10.37	296.49	0.64	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		08/24/98	12.06	294.80	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/18/98	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		02/26/99 P	9.02	297.84	1.87	390	<0.5	2	<1	4	NA	NA	NA	NA	NA	NA
		05/10/99	9.59	297.27	0.82	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	29.7 (d)
		08/23/99	11.60	295.26	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		11/09/99	12.69	294.17	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		06/30/01 P	13.00	293.86	3.7	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	5.56	<1.00	NA
		09/27/01 NP	14.30	292.56	0.60	<50.0	<0.500	0.693	<0.500	<1.00	<1.00	NA	NA	NA	NA	NA
		12/04/01 NP	13.20	293.66	1.03	<50.0	<0.500	<0.500	<0.500	<1.00	<1.00	NA	NA	<1.00	<1.00	NA
		09/17/02	13.50	293.36	5.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
EW-13	NE	03/03/98 P	10.31	NA	NM	820	ND	2	32	110	NA	NA	NA	NA	NA	NA
EW-14	NE	03/03/98 P	11.92	NA	NM	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
EW-15	NE	03/03/98 P	12.26	NA	NM	ND	1.9	ND	ND	1	NA	NA	NA	NA	NA	NA
Laboratory Methods						NWTPH-Gx	8021B	8021B	8021B	8021B	8260B	8011	8260B	6020	6020	8010
MTCA Method A Cleanup Levels (post 8/15/2001, see note below)						800*	5	1,000	700	1,000	20	0.01	5	15	15	5
MTCA Method A Cleanup Levels (prior to 8/15/2001, see note below)						1,000**	5	40	30	20	20	--	--	5	5	5

TOC = Top of casing elevation relative to National Geodetic Vertical Datum.

NWTPH-Gx = Northwest method for gasoline-range hydrocarbons. Analyses prior to 6/30/01 utilized Washington State Method WITH-G.

8021B = EPA method for volatile aromatic hydrocarbons.

8260B = EPA method for volatile organic compounds. Samples with MTBE detections above the method reporting limit using 8021B were re-analyzed using 8260B to confirm the MTBE concentration.

6020 = EPA method for lead.

8011 = EPA Method for EDB and DBCP.

µg/L = micrograms per liter, or parts per billion (ppb).

mg/L = milligrams per liter.

<0.5 = not detected at or above the stated MRL.

MRL = method reporting limit.

P = purge sampling methods used.

NP = no-purge sampling methods used.

ND = not detected at or above the historical MRL.

NA = not analyzed.

NS = not sampled.

NM = not measured.

MTCA = Model Toxics Control Act Method A Groundwater Cleanup Level.

PCE = tetrachloroethene.

Effective August 15, 2001, Ecology promulgated changes in the MTCA regulations including changes to the Method A Cleanup Levels. Both the old and new cleanup levels are presented here.

* 1,000 ug/L if no detectable levels of benzene are present in the ground water sample; otherwise, due to the presence of benzene, 800 ug/L.

** = The sum of gasoline-range, diesel-range and heavy oil-range hydrocarbons must not exceed 1,000 ug/L.

a = Groundwater elevation = top of casing elevation minus depth to water.

b = Depth to water estimated due to sampling error.

c = Sample was collected on May 24, 1999.

d = Sample was collected on May 21, 1999.

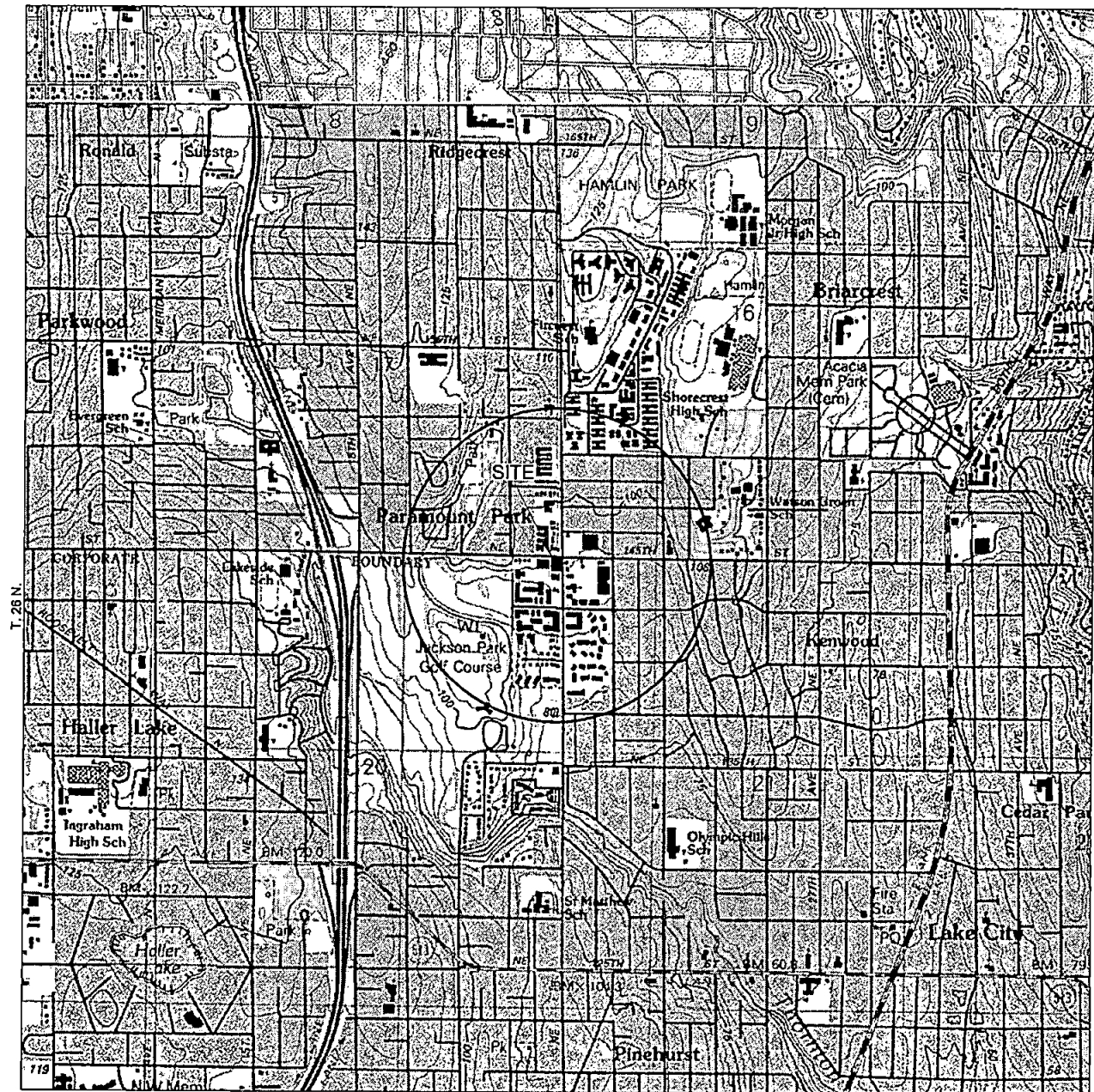
e = MTBE false positive detected by Method 8021B and confirmed below method detection limits by Method 8260B.

MTBE = Methyl Tertiary Butyl Ether.

EDC = 1,2-Dichloroethane.

EDB = 1,2-Dibromoethane.

Note: Ground water data prior to June 30, 2001 was provided by The IT Corporation, Inc.



R. 4 E.

GENERAL NOTES:
 BASE MAP FROM U.S.G.S.
 EDMONDS EAST & SEATTLE NORTH, WA.
 7.5 x 15 MINUTE TOPOGRAPHIC
 PHOTOREVISED 1983



QUADRANGLE LOCATION

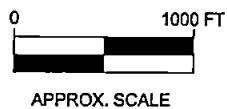


FIGURE 1
 SITE LOCATION MAP

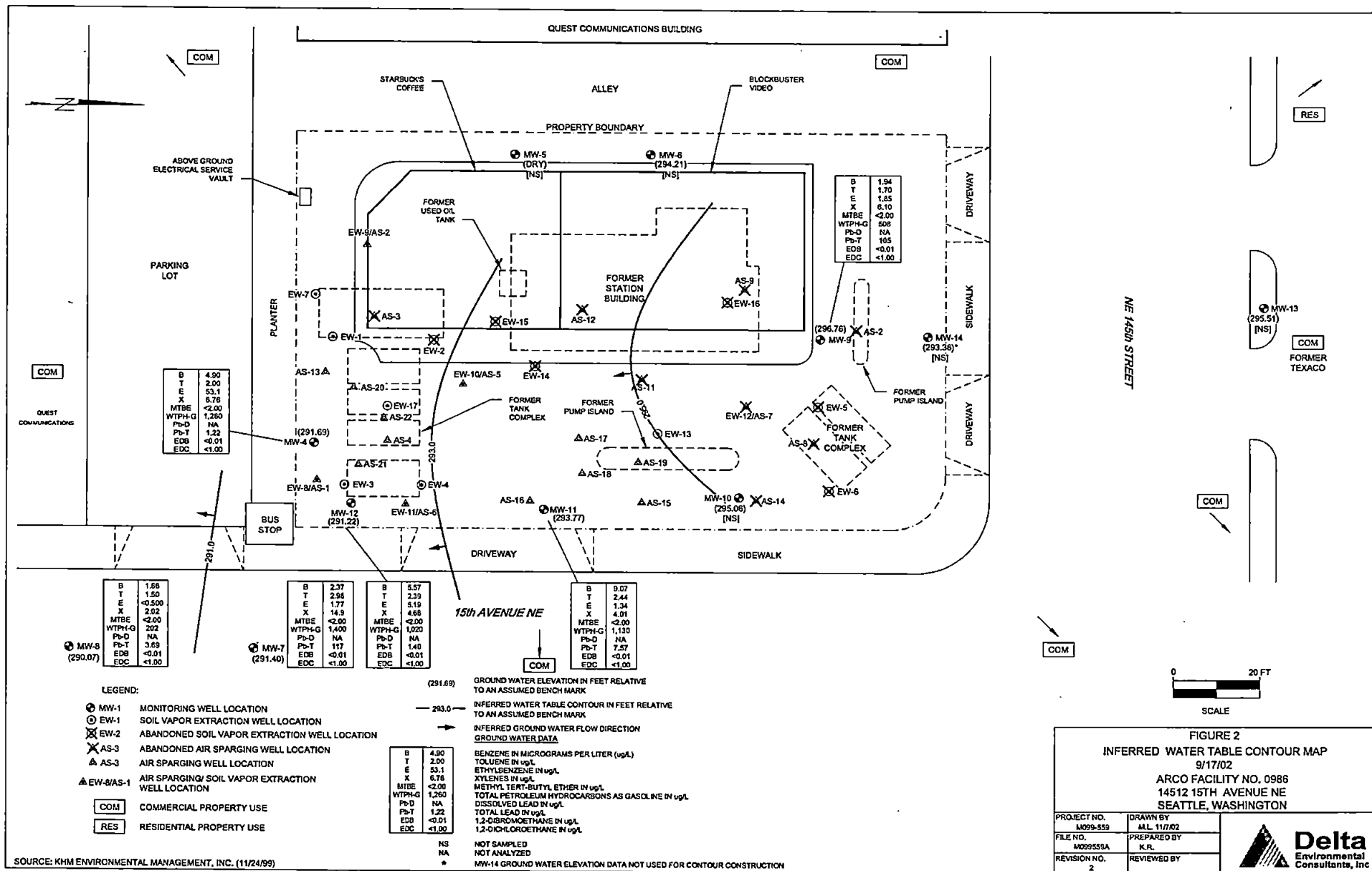
ARCO FACILITY NO. 0986
 14512 15TH AVENUE NE
 SEATTLE, WASHINGTON

PROJECT NO.
 M099-559
 FILE NO.
 M099559B
 REVISION NO.
 2

DRAWN BY
 M.L. 8/29/01
 PREPARED BY
 J.T.
 REVIEWED BY



Delta
 Environmental
 Consultants, Inc.





COPY

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01 October 2002

Markham C Hurd
Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue, WA/USA 98004
RE: ARCO #986

Enclosed are the results of analyses for samples received by the laboratory on 09/17/02 12:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanne Garthwaite
Project Manager



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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW4-11.16	B2I0342-01	Water	09/17/02 09:35	09/17/02 12:25
MW7-7.46	B2I0342-02	Water	09/17/02 11:00	09/17/02 12:25
MW8-7.51	B2I0342-03	Water	09/17/02 10:55	09/17/02 12:25
MW9-10.97	B2I0342-04	Water	09/17/02 08:50	09/17/02 12:25
MW11-11.47	B2I0342-05	Water	09/17/02 10:00	09/17/02 12:25
MW12-10.47	B2I0342-06	Water	09/17/02 10:10	09/17/02 12:25

North Creek Analytical - Bothell

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Jeanne Garthwaite

Jeanne Garthwaite, Project Manager

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW4-11.16 (B2I0342-01) Water Sampled: 09/17/02 09:35 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	1260	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	4.90	0.500	"	"	"	"	"	"	
Toluene	2.00	0.500	"	"	"	"	"	"	
Ethylbenzene	53.1	0.500	"	"	"	"	"	"	
Xylenes (total)	6.76	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	12.1	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	120 %	57-125			"	"	"	"	
Surrogate: 4-BFB (PID)	96.5 %	62-120			"	"	"	"	
MW7-7.46 (B2I0342-02) Water Sampled: 09/17/02 11:00 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	1400	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	2.37	0.500	"	"	"	"	"	"	I-06
Toluene	2.98	0.500	"	"	"	"	"	"	
Ethylbenzene	1.77	0.500	"	"	"	"	"	"	I-06
Xylenes (total)	14.9	1.00	"	"	"	"	"	"	I-06
Methyl tert-butyl ether	3.13	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	145 %	57-125			"	"	"	"	S-04
Surrogate: 4-BFB (PID)	105 %	62-120			"	"	"	"	
MW8-7.51 (B2I0342-03) Water Sampled: 09/17/02 10:55 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	202	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	1.66	0.500	"	"	"	"	"	"	
Toluene	1.50	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	2.02	1.00	"	"	"	"	"	"	I-06
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	93.5 %	57-125			"	"	"	"	
Surrogate: 4-BFB (PID)	91.7 %	62-120			"	"	"	"	

North Creek Analytical - Bothell

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Jeanne Garthwaite, Project Manager

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW9-10.97 (B2I0342-04) Water Sampled: 09/17/02 08:50 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	508	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	1.94	0.500	"	"	"	"	"	"	
Toluene	1.70	0.500	"	"	"	"	"	"	
Ethylbenzene	1.85	0.500	"	"	"	"	"	"	
Xylenes (total)	6.10	1.00	"	"	"	"	"	"	I-06
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	98.1 %	57-125			"	"	"	"	
Surrogate: 4-BFB (PID)	89.4 %	62-120			"	"	"	"	
MW11-11.47 (B2I0342-05) Water Sampled: 09/17/02 10:00 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	1130	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	9.07	0.500	"	"	"	"	"	"	
Toluene	2.44	0.500	"	"	"	"	"	"	
Ethylbenzene	1.34	0.500	"	"	"	"	"	"	I-06
Xylenes (total)	4.01	1.00	"	"	"	"	"	"	I-06
Methyl tert-butyl ether	7.13	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	%	57-125			"	"	"	"	S-02
Surrogate: 4-BFB (PID)	130 %	62-120			"	"	"	"	S-04
MW12-10.47 (B2I0342-06) Water Sampled: 09/17/02 10:10 Received: 09/17/02 12:25									
Gasoline Range Hydrocarbons	1020	50.0	ug/l	1	2I19006	09/19/02	09/19/02	NWTPH-G/8021B	
Benzene	5.57	0.500	"	"	"	"	"	"	
Toluene	2.39	0.500	"	"	"	"	"	"	
Ethylbenzene	5.19	0.500	"	"	"	"	"	"	
Xylenes (total)	4.66	1.00	"	"	"	"	"	"	I-06
Methyl tert-butyl ether	6.49	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	138 %	57-125			"	"	"	"	S-04
Surrogate: 4-BFB (PID)	105 %	62-120			"	"	"	"	

North Creek Analytical - Bothell

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Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW4-11.16 (B2I0342-01) Water Sampled: 09/17/02 09:35 Received: 09/17/02 12:25									
Lead	0.00122	0.00100	mg/l	1	2I19018	09/19/02	09/20/02	EPA 6020	
MW7-7.46 (B2I0342-02) Water Sampled: 09/17/02 11:00 Received: 09/17/02 12:25									
Lead	0.117	0.00100	mg/l	1	2I19018	09/19/02	09/23/02	EPA 6020	
MW8-7.51 (B2I0342-03) Water Sampled: 09/17/02 10:55 Received: 09/17/02 12:25									
Lead	0.00369	0.00100	mg/l	1	2I19018	09/19/02	09/23/02	EPA 6020	
MW9-10.97 (B2I0342-04) Water Sampled: 09/17/02 08:50 Received: 09/17/02 12:25									
Lead	0.105	0.00100	mg/l	1	2I19018	09/19/02	09/23/02	EPA 6020	
MW11-11.47 (B2I0342-05) Water Sampled: 09/17/02 10:00 Received: 09/17/02 12:25									
Lead	0.00757	0.00100	mg/l	1	2I19018	09/19/02	09/23/02	EPA 6020	
MW12-10.47 (B2I0342-06) Water Sampled: 09/17/02 10:10 Received: 09/17/02 12:25									
Lead	0.00140	0.00100	mg/l	1	2I19018	09/19/02	09/23/02	EPA 6020	

North Creek Analytical - Bothell

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

EDB and DBCP by EPA Method 8011
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW4-11.16 (B2I0342-01) Water Sampled: 09/17/02 09:35 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	
MW7-7.46 (B2I0342-02) Water Sampled: 09/17/02 11:00 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	
MW8-7.51 (B2I0342-03) Water Sampled: 09/17/02 10:55 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	
MW9-10.97 (B2I0342-04) Water Sampled: 09/17/02 08:50 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	
MW11-11.47 (B2I0342-05) Water Sampled: 09/17/02 10:00 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	
MW12-10.47 (B2I0342-06) Water Sampled: 09/17/02 10:10 Received: 09/17/02 12:25									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l	1	2I23017	09/23/02	09/26/02	EPA 8011	

North Creek Analytical - Bothell

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Jeanne Garthwaite

Jeanne Garthwaite, Project Manager

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW4-11.16 (B2I0342-01) Water Sampled: 09/17/02 09:35 Received: 09/17/02 12:25									
Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	100 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	96.5 %	75-124			"	"	"	"	
Surrogate: 4-BFB	93.0 %	77-120			"	"	"	"	
MW7-7.46 (B2I0342-02) Water Sampled: 09/17/02 11:00 Received: 09/17/02 12:25									
Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	96.0 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	100 %	75-124			"	"	"	"	
Surrogate: 4-BFB	93.0 %	77-120			"	"	"	"	
MW8-7.51 (B2I0342-03) Water Sampled: 09/17/02 10:55 Received: 09/17/02 12:25									
Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	94.5 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	102 %	75-124			"	"	"	"	
Surrogate: 4-BFB	94.0 %	77-120			"	"	"	"	
MW9-10.97 (B2I0342-04) Water Sampled: 09/17/02 08:50 Received: 09/17/02 12:25									
Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	97.0 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	102 %	75-124			"	"	"	"	
Surrogate: 4-BFB	94.0 %	77-120			"	"	"	"	

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW11-11.47 (B2I0342-05) Water Sampled: 09/17/02 10:00 Received: 09/17/02 12:25

Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	91.0 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	99.0 %	75-124			"	"	"	"	
Surrogate: 4-BFB	95.0 %	77-120			"	"	"	"	

MW12-10.47 (B2I0342-06) Water Sampled: 09/17/02 10:10 Received: 09/17/02 12:25

Methyl tert-butyl ether	ND	2.00	ug/l	1	2I20034	09/20/02	09/20/02	EPA 8260B	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	93.5 %	77-122			"	"	"	"	
Surrogate: Toluene-d8	99.5 %	75-124			"	"	"	"	
Surrogate: 4-BFB	93.0 %	77-120			"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2I19006: Prepared 09/19/02 Using EPA 5030B (P/T)

Blank (2I19006-BLK1)

Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Methyl tert-butyl ether	ND	1.00	"							
Surrogate: 4-BFB (FID)	39.3		"	48.0		81.9	57-125			
Surrogate: 4-BFB (PID)	42.3		"	48.0		88.1	62-120			

LCS (2I19006-BS1)

Gasoline Range Hydrocarbons	500	50.0	ug/l	502		99.6	80-120			
Surrogate: 4-BFB (FID)	43.1		"	48.0		89.8	57-125			

LCS (2I19006-BS2)

Benzene	9.58	0.500	ug/l	10.0		95.8	80-120			
Toluene	10.5	0.500	"	10.0		105	80-120			
Ethylbenzene	10.5	0.500	"	10.0		105	80-120			
Xylenes (total)	32.5	1.00	"	30.0		108	80-120			
Methyl tert-butyl ether	10.1	1.00	"	10.0		101	74-123			
Surrogate: 4-BFB (PID)	42.5		"	48.0		88.5	62-120			

LCS Dup (2I19006-BSD1)

Gasoline Range Hydrocarbons	496	50.0	ug/l	502		98.8	80-120	0.803	25	
Surrogate: 4-BFB (FID)	43.2		"	48.0		90.0	57-125			

LCS Dup (2I19006-BSD2)

Benzene	9.19	0.500	ug/l	10.0		91.9	80-120	4.16	40	
Toluene	10.1	0.500	"	10.0		101	80-120	3.88	40	
Ethylbenzene	10.2	0.500	"	10.0		102	80-120	2.90	40	
Xylenes (total)	31.2	1.00	"	30.0		104	80-120	4.08	40	
Methyl tert-butyl ether	9.47	1.00	"	10.0		94.7	74-123	6.44	40	
Surrogate: 4-BFB (PID)	42.5		"	48.0		88.5	62-120			

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Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2I19006: Prepared 09/19/02 Using EPA 5030B (P/T)

Matrix Spike (2I19006-MS1)

Source: B2I0339-02

Gasoline Range Hydrocarbons	537	50.0	ug/l	502	ND	104	70-130			
Surrogate: 4-BFB (FID)	44.4		"	48.0		92.5	57-125			

Matrix Spike (2I19006-MS2)

Source: B2I0342-03

Benzene	11.3	0.500	ug/l	10.0	1.66	96.4	80-120			
Toluene	11.7	0.500	"	10.0	1.50	102	68-114			
Ethylbenzene	10.9	0.500	"	10.0	ND	105	80-120			
Xylenes (total)	33.2	1.00	"	30.0	2.02	104	80-120			
Methyl tert-butyl ether	10.6	1.00	"	10.0	ND	101	69-130			
Surrogate: 4-BFB (PID)	43.8		"	48.0		91.2	62-120			

Matrix Spike Dup (2I19006-MSD1)

Source: B2I0339-02

Gasoline Range Hydrocarbons	510	50.0	ug/l	502	ND	98.5	70-130	5.16	25	
Surrogate: 4-BFB (FID)	43.7		"	48.0		91.0	57-125			

Matrix Spike Dup (2I19006-MSD2)

Source: B2I0342-03

Benzene	11.1	0.500	ug/l	10.0	1.66	94.4	80-120	1.79	40	
Toluene	11.4	0.500	"	10.0	1.50	99.0	68-114	2.60	40	
Ethylbenzene	10.6	0.500	"	10.0	ND	102	80-120	2.79	40	
Xylenes (total)	32.4	1.00	"	30.0	2.02	101	80-120	2.44	40	
Methyl tert-butyl ether	10.3	1.00	"	10.0	ND	97.6	69-130	2.87	40	
Surrogate: 4-BFB (PID)	43.8		"	48.0		91.2	62-120			

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1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2I19018: Prepared 09/19/02 Using EPA 3020A										
Blank (2I19018-BLK1)										
Lead	ND	0.00100	mg/l							
LCS (2I19018-BS1)										
Lead	0.0796	0.00100	mg/l	0.0800		99.5	80-120			
LCS Dup (2I19018-BSD1)										
Lead	0.0810	0.00100	mg/l	0.0800		101	80-120	1.74	20	
Matrix Spike (2I19018-MS1)										
					Source: B2I0342-01					
Lead	0.0837	0.00100	mg/l	0.0800	0.00122	103	75-125			
Matrix Spike Dup (2I19018-MSD1)										
					Source: B2I0342-01					
Lead	0.0840	0.00100	mg/l	0.0800	0.00122	103	75-125	0.358	20	
Post Spike (2I19018-PS1)										
					Source: B2I0342-01					
Lead	0.197	0.00100	mg/l	0.200	0.00122	97.9	75-125			

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

EDB and DBCP by EPA Method 8011 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 2I23017: Prepared 09/23/02 Using Solvent Extraction									
Blank (2I23017-BLK1)									
1,2-Dibromoethane (EDB)	ND	0.01	ug/l						
LCS (2I23017-BS1)									
1,2-Dibromoethane (EDB)	0.05	0.01	ug/l	0.05		100	80-120		
LCS Dup (2I23017-BSD1)									
1,2-Dibromoethane (EDB)	0.05	0.01	ug/l	0.05		100	80-120	0.00	25
Matrix Spike (2I23017-MS1)									
					Source: B2I0335-07				
1,2-Dibromoethane (EDB)	0.05	0.01	ug/l	0.05	ND	100	60-140		
Matrix Spike Dup (2I23017-MSD1)									
					Source: B2I0335-07				
1,2-Dibromoethane (EDB)	0.06	0.01	ug/l	0.05	ND	120	60-140	18.2	50

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Delta Environmental
1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2I20034: Prepared 09/20/02 Using EPA 5030B

Blank (2I20034-BLK1)

Methyl tert-butyl ether	ND	2.00	ug/l							
Benzene	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Surrogate: 1,2-DCA-d4	22.8		"	20.0		114	77-122			
Surrogate: Toluene-d8	20.3		"	20.0		102	75-124			
Surrogate: 4-BFB	19.1		"	20.0		95.5	77-120			

LCS (2I20034-BS1)

Benzene	10.4	1.00	ug/l	10.0		104	80-120			
Chlorobenzene	10.8	1.00	"	10.0		108	77-120			
1,1-Dichloroethene	11.5	1.00	"	10.0		115	80-120			
Toluene	10.7	1.00	"	10.0		107	80-120			
Trichloroethene	11.1	1.00	"	10.0		111	80-120			
Surrogate: 1,2-DCA-d4	20.6		"	20.0		103	77-122			
Surrogate: Toluene-d8	20.1		"	20.0		100	75-124			
Surrogate: 4-BFB	19.2		"	20.0		96.0	77-120			

LCS Dup (2I20034-BSD1)

Benzene	10.3	1.00	ug/l	10.0		103	80-120	0.966	20	
Chlorobenzene	10.2	1.00	"	10.0		102	77-120	5.71	20	
1,1-Dichloroethene	10.8	1.00	"	10.0		108	80-120	6.28	20	
Toluene	10.2	1.00	"	10.0		102	80-120	4.78	20	
Trichloroethene	10.6	1.00	"	10.0		106	80-120	4.61	20	
Surrogate: 1,2-DCA-d4	21.6		"	20.0		108	77-122			
Surrogate: Toluene-d8	20.1		"	20.0		100	75-124			
Surrogate: 4-BFB	19.2		"	20.0		96.0	77-120			

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1200 112th Ave NE, Suite C-210
Bellevue WA/USA, 98004

Project: ARCO #986
Project Number: M099-559
Project Manager: Markham C Hurd

Reported:
10/01/02 15:09

Notes and Definitions

- I-06 The analyte concentration may be artificially elevated due to coeluting compounds or components.
- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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
- RPD Relative Percent Difference

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Environmental Laboratory Network

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Chain of Custody Record

Project Name Routine Ground Water Sampling
 BP BU/GEM CO Portfolio: Atlantic Richfield Company
 BP Laboratory Contract Number: 461000
 Requested Due Date (mm/dd/yy) _____

Date: 9-17-02

BZ I0342

Page 1 of 1

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Send To:	BP/GEM Facility No.: <u>986</u>	Consultant/Contractor: <u>Delta Environmental Consultants, Inc.</u>
Lab Name: <u>North Creek Analytical, Inc.</u>	BP/GEM Facility Address: <u>14359 15th Ave. NE, Seattle, WA 98125</u>	Address: <u>1200 112th Avenue Northeast, Suite C-210</u>
Lab Address:	Site ID No.	<u>Bellevue, Washington 98006</u>
<u>11720 North Creek Parkway N., Suite 400</u>	Site Lat/Long:	e-mail EDD: <u>dtornow@earthlink.net</u>
<u>Bothell, Washington 98011-8244</u>	California Global ID #: <u>N/A</u>	Consultant/Contractor Project No.: <u>M099-559</u>
Lab PM: <u>Jeanne Garthwaite</u>	BP/GEM PM Contact: <u>Chuck Hutchens</u>	Consultant/Contractor Tele/Fax: <u>(425)450-7726/(425)450-8837</u>
Tele/Fax: <u>(425) 420-9200/(425) 420-9210</u>	Address: <u>12520 NE 160th Place</u>	Consultant/Contractor PM: <u>Derek Tornow</u>
Report Type & QC Level:	<u>Woodinville, WA 98072-7960</u>	Invoice to: Consultant/Contractor or <u>BP/GEM</u> (Circle one)
BP/GEM Account No.:	Tele/Fax: <u>(425)485-8792/(425)481-3530</u>	BP/GEM Work Release No: <u>Call PM (D. Tornow)</u>

Lab Bottle Order No:			Matrix				Laboratory No.	No. of containers	Preservatives					Requested Analysis							Sample Point Lat/Long and Comments
Item No.	Sample Description	Time	Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl		NWTPH-Gx	BTEX(8021B)	BTEX+MTBE(8021B)*	EDC(8260B)	EDB(8011B)	Total Lead		
1	MW4- 11.16	935		X			01	9	X	X	X			X	X	X	X	X	X		
2	MW7- 7.46	1100		X			02	9	X	X	X			X	X	X	X	X	X		
3	MW8- 7.51	1055		X			03	9	X	X	X			X	X	X	X	X	X		
4	MW 9-10.97	850		X			04	9	X	X	X			X	X	X	X	X	X		
5	MW 11- 11.47	1000		X			05	9	X	X	X			X	X	X	X	X	X		
6	MW 12- 10.47	1010		X			06	9	X	X	X			X	X	X	X	X	X		
7																					
8																					
9																					
10																					

Sampler's Name: <u>Diana L. Halladay</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>KHM</u>	<u>Diana L. Halladay / KHM</u>	<u>9-17-02</u>	<u>1225</u>	<u>Rita B / NCA</u>	<u>9/17/02</u>	<u>12:25</u>
Shipment Date:						
Shipment Method:						
Shipment Tracking No:						

Special Instructions:

* If positive for MTBE or if MTBE is not detected above an MRL exceeding 20ug/l, then analyze by 8260B for confirmation MTBE.

Custody Seals In Place Yes ☒ No ☐ Temperature Blank Yes ☐ No ☐ Cooler Temperature on Receipt 6.0 °F/C Trip Blank Yes ☐ No ☐

WICS