

3R - 134

REPORTS

DATE:

1996-1998

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1996-1998

**VALDEZ A#1E
(G) SECTION 24, T29N, R11W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

***PREPARED FOR:
MR. WILLIAM C. OLSON
NEW MEXICO OIL CONSERVATION DIVISION***

FEBRUARY 1999

***PREPARED BY:
BLAGG ENGINEERING, INC.***

***Consulting Petroleum / Reclamation Services
P.O. Box 87
Bloomfield, New Mexico 87413***

VALDEZ A #1E - Separator Pit
SW/4 NE/4 Sec. 24, T29N, R11W

Site Assessment Date:

May 27, 1992

Pit Closure Dates:

Unknown

Monitor Well Installation Dates:

June - July, 1988

Monitor Well Sampling Dates (with respect to this current report submittal):

March 7, 1996

June 18, 1996

Dec. 27, 1996

June 17, 1997

June 12, 1998

Sep. 25, 1998

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells following USEPA: SW-846 protocol. The samples were collected using new disposable bailers and placed in new laboratory supplied 40 ml glass vials with teflon septa caps. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per USEPA Method 8020. When applicable, additional groundwater was collected and placed in laboratory supplied 250 or 500 ml plastic containers and analyzed for general water quality per USEPA Method 600/4-79-020. The samples were preserved cool (BTEX samples also preserved with mercuric chloride) and hand delivered to a qualified laboratory for testing. Waste generated during monitor well sampling and development was disposed of utilizing the production tank located on the well site.

Water Quality Information:

This site was obtained by Amoco from Tenneco and prior groundwater monitoring was conducted by Tenneco beginning in approximately 1988. Amoco initiated groundwater monitoring in February, 1993 and prior monitoring reports have been submitted to NMOCD for filing.

BTEX and general chemistry results for the 1996, 1997 and 1998 quarterly sampling events are summarized in the following tables. Pursuant to Amoco's NMOCD approved groundwater plan, sampling was conducted on relevant wells at the site and only monitor wells MW #6, #7, #8, #9 and #10 were included in the recent sampling program.

Test results for MW#6, the most upgradient well in the recent test program, indicate natural attenuation has significantly reduced BTEX concentrations from February, 1993 to September, 1998. Monitor well MW#7 has registered variable BTEX results and beginning in June, 1998 approximately 0.88-inches of free product has been detected. Monitor wells MW#8, MW#9 and MW#10, all down gradient from MW#6 and MW#7, have tested BTEX constituents at non-detect levels or at values below NMWQCC standards since June, 1998.

Summary and/or Recommendations:

Based on the enclosed documentation, residual groundwater contamination in excess of NMWQCC standards is present in monitor wells MW#6 nad MW#7. Downgradient from these two wells, water quality information from MW#8, MW#9 and MW#10 indicate that contamination is not migrating. It is recommended to continue sampling of these 5 wells to track natural attenuation and to confirm that free product is not migrating.

All aspects of the Amoco revised groundwater plan dated October 22, 1996 (approved by NMOCD with letter dated February 7, 1997) have been followed.

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

VALDEZ A #1E
UNIT G, SEC. 24, T29N, R11W

REVISED DATE: JANUARY 28, 1999

FILENAME: (VA-3Q-98.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
23-Feb-93	MW #6	15.06	19.40		2700	6.9		2090	7800	578	4080
07-Jun-93		14.72	19.50		1600	7.1		1300	444	293	840
08-Sep-93		14.27	18.35		1120	7.3		770	980	174	783
02-Dec-93		14.69			2900	7.3		540	1140	144	867
09-Mar-94		15.49			3100	7.2		580	1520	130	888
24-Jun-94		14.05			2800	7.1		542	1923	164	1172
23-Sep-94		13.40			2600	7.2		484	1696	170	1300
09-Dec-94		14.02			2300	7.4		593	2242	183	1707
10-Jan-95		14.28			3200	7.4		450	1380	153	1248
09-Feb-95		14.58			3400	7.4		710	2160	271	2297
13-Mar-95		14.85			2500	7.4		19.80	2471	289	2460
10-Apr-95		15.00			2700	7.3		525	1840	222	1502
19-Jun-95		14.48			2400	7.2		299	999	115	1045
07-Aug-95		14.08			2400	7.5		593	1650	247	2111
12-Sep-95		13.89			2200	7.4		412	1390	259	1549
10-Oct-95		13.74			2200	7.4		176	970	191	1552
15-Nov-95		13.98			2300	6.9		598	1370	339	2819
07-Dec-95		14.12			2700	7.1		599	1310	304	2322
07-Mar-96		15.07			1900	7.1		426	467	234	1876
18-Jun-96		14.40			2000	7.1		462	773	305	2540
17-Jun-97		14.97			2400	7.6		110	19.6	37.6	288.9
12-Jun-98		14.92			2000	7.8		55.6	25.2	45.9	296.1
25-Sep-98		14.36			2700	7.3		42.7	17.7	68.3	469
23-Feb-93	MW #7	13.37	23.32		2400	6.9		ND	1	ND	2
07-Jun-93		14.54	19.33		1700	7.1		640	2270	330	2430
08-Sep-93		14.15	18.85		1120	7.4		820	1660	306	1780
02-Dec-93		14.56			2500	7.3		319	366	35	242
09-Mar-94		15.30			2900	6.9		103	88	10	74
24-Jun-94		14.04			2500	7.1		569	2090	288	3094
23-Sep-94		13.51			2500	7.1		627	1805	189	1755
09-Dec-94		13.94	18.83		2000	7.2		707	1220	161	1342
10-Jan-95		14.23			3300	7.2		298	394	55	365
09-Feb-95		14.50			3000	7.2		465	624	92	582
13-Mar-95		14.73			2700	7.2		998	813	168	1016
10-Apr-95		14.87			2700	7.3		648	456	104	623
19-Jun-95		14.39			2400	7.1		367	415	66	602
07-Aug-95		14.04			2400	7.4		869	1000	171	1431
12-Sep-95		13.85			2500	7.4		1725	846	141	1035
10-Oct-95		13.73			2600	7.2		143	689	94	925
15-Nov-95		13.94			2400	6.9		710	1000	178	1642
07-Dec-95		14.05			2800	7.2		1050	606	167	996

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

VALDEZ A #1E
UNIT G, SEC. 24, T29N, R11W

REVISED DATE: JANUARY 28, 1999

FILENAME: (VA-3Q-98.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB)			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
07-Mar-96	MW #7	14.94			2000	6.9		101	10	9	42
18-Jun-96		14.34			2200	6.9		128	66	12	175
17-Jun-97		14.83			2700	7.6		360	16.3	16.5	127.5
12-Jun-98							0.88				
25-Sep-98							0.88				
23-Feb-93	MW #8	15.68	17.00		3200	7.1		2830	25500	1680	5430
08-Jun-93		15.36	17.01		1300	6.9		3220	1940	1110	4960
09-Sep-93		15.16	17.73		1070	7.6		245	2040	135	1499
02-Dec-93		15.44			2200	7.5		307	2520	119	1388
09-Mar-94		15.98			2700	7.1		223	340	61	233
24-Jun-94		14.86			2300	7.1		375	1750	108	1001
23-Sep-94		14.31			2400	7.1		236	1827	90	864
09-Dec-94		14.78	18.60		1900	7.3		307	1608	105	734
10-Jan-95		15.02			2800	7.3		320	2410	119	1016
09-Feb-95		15.24						183	760	91	452
13-Mar-95		15.42			2400	7.2		415	3943	202	2037
10-Apr-95		15.54			2600	7.3		239	2780	128	1245
19-Jun-95					2300	7.1		149	1448	73	681
07-Aug-95		14.86			2400	7.4		168	1590	93	893
12-Sep-95		14.71			2100	7.3		499	1420	74	788
10-Oct-95		14.60			2300	7.3		88	817	52	614
15-Nov-95		14.78			2400	6.9		158	2110	150	1488
07-Dec-95		14.87			2700	7.0		156	1920	135	1277
07-Mar-96		15.60			1900	6.9		98	1320	83	778
18-Jun-96		15.15			2100	7.1		5.45	2	ND	4
27-Dec-96		15.12	18.28		2500	7.3		105	569	51	421
17-Jun-97		14.01			2600	7.6		45.4	83.0	29.8	88.9
12-Jun-98		15.54			2000	7.9		5.4	5.1	1.1	9.1
25-Sep-98		15.03			2700	7.1		0.3	0.3	0.2	2.4
25-Sep-98	MW #9	7.93	12.44		2900	6.9		0.6	0.2	ND	1.1
23-Feb-93	MW #10	8.65	9.80		3600	7.4		ND	ND	ND	1
08-Jun-93		8.43	9.80		1800	7.0		ND	1	ND	1
09-Sep-93		7.76			1180	7.3		ND	0	ND	1
09-Mar-94		8.98			2900	7.0		ND	2	ND	0
24-Jun-94		8.00	12.15		2700	7.0		2.20	ND	ND	ND
23-Sep-94		7.56			2400	7.1		0.70	1	ND	ND
09-Dec-94		7.88	12.44		2000	7.5		ND	0	ND	ND
13-Mar-95		8.46			2800	7.1		ND	ND	ND	ND
19-Jun-95		8.22			2200	7.1		ND	ND	ND	ND
12-Sep-95		7.84			2200	7.3		ND	ND	ND	ND
07-Dec-95		7.93			2600	6.9		ND	ND	ND	ND
07-Mar-96		8.62			1900	6.9		ND	ND	ND	ND
18-Jun-96		8.22			2200	6.9		ND	ND	ND	ND

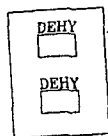
FIGURE 1



N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

METER HOUSES
&
SALES' LINES

MW #1

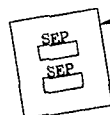


FENCE

WELL
HEAD
⊕

MW #2

FENCE



FENCE

MW #3

MW #4

MW #6

MW #5

MW #7

FENCE

MW #8

MW #9

MW #10

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: VALD-SM

REVISED: 1/28/99 NJV

SITE
MAP

12/96

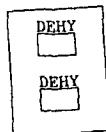


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 2 (1st 1/4, 1996)

METER HOUSES
&
SALES' LINES

MW #1
(88.54)



FENCE

WELL
HEAD
⊕

MW #2

APPARENT GROUNDWATER
FLOW DIRECTION

FENCE

FENCE



FENCE

MW #4

MW #3

MW #6

MW #5
(86.76)

MW #7

FENCE

87.00

MW #8

86.00

MW #9
(84.10)

85.00

MW #10

84.00

Top of Well Elevation

MW #1 ——— (102.56)

MW #5 ——— (100.08)

MW #9 ——— (92.59)

⊕ MW #1 Groundwater Elevation
(88.54) as of 03/07/96.

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

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P.O. BOX 87
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PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 03-07-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

03/96

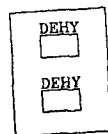


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 3 (2nd 1/4, 1996)

MW #1

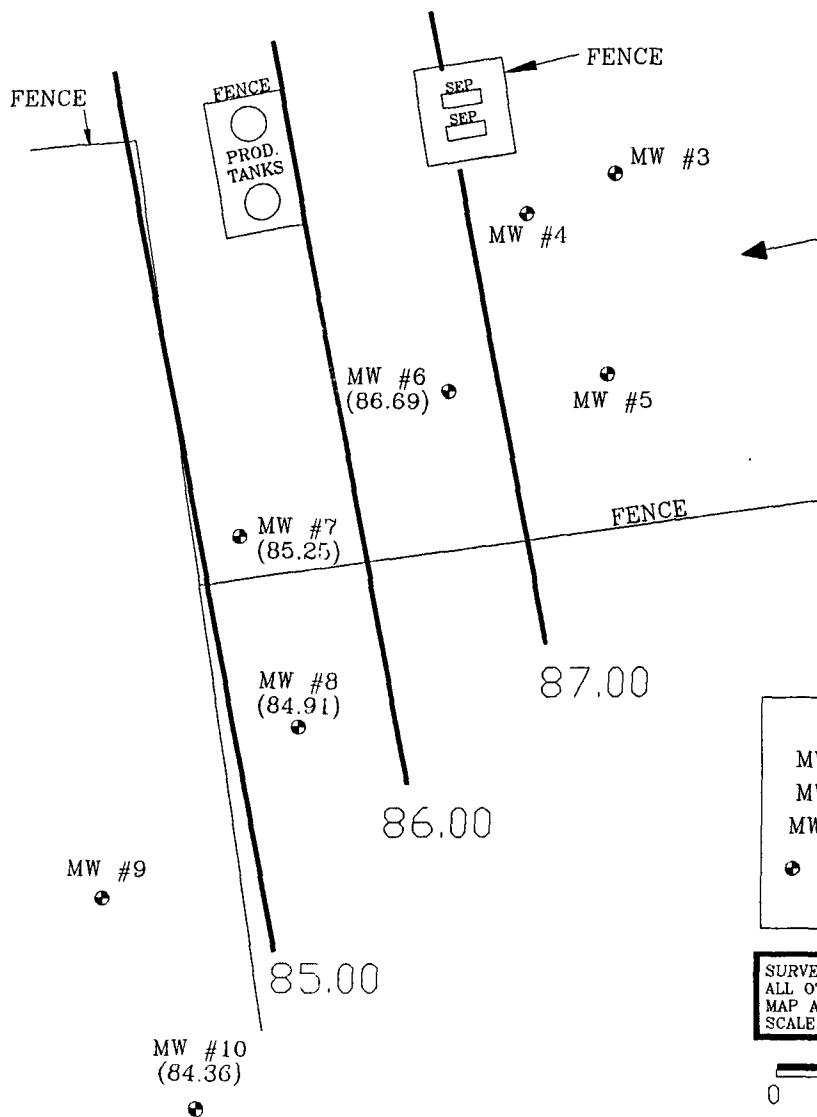
METER HOUSES
&
SALES' LINES



FENCE

WELL
HEAD
⊕

MW #2



APPARENT GROUNDWATER
FLOW DIRECTION

Top of Well Elevation	
MW #6	(101.09)
MW #7	(99.59)
MW #10	(92.58)
⊕ MW #6	Groundwater Elevation (86.69) as of 06/18/96.

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 06-18-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

06/96

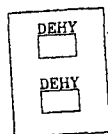


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 4 (4th 1/4, 1996)

METER HOUSES
&
SALES' LINES

MW #1
(89.42)



FENCE

APPARENT GROUNDWATER
FLOW DIRECTION

WELL
HEAD
⊕

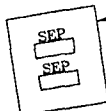
MW #2

FENCE

FENCE



FENCE



MW #3
(87.59)

MW #4

88.00

MW #6

MW #5

87.00

MW #7

FENCE

86.00

MW #8
(84.94)

MW #9

85.00

MW #10

Top of Well Elevation

MW #1 ——— (102.56)

MW #3 ——— (101.06)

MW #8 ——— (100.06)

● MW #1 Groundwater Elevation
(89.42) as of 12/27/96.

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24. T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

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PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 12-27-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

12/96

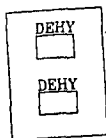


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 5 (2nd 1/4, 1997)

MW #1

METER HOUSES
&
SALES' LINES



FENCE

WELL
HEAD

MW #2

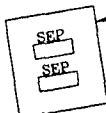
APPARENT GROUNDWATER
FLOW DIRECTION

FENCE

FENCE



FENCE



MW #3
(87.05)

MW #4

MW #6

MW #5

MW #7
(84.76)

FENCE

88.00

87.00

MW #8
(84.55)

86.00

MW #9

85.00

MW #10

Top of Well Elevation	
MW #3	(101.06)
MW #7	(99.59)
MW #8	(100.06)
• MW #3	Groundwater Elevation as of 06/17/97. (87.05)

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 06-17-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

06/97

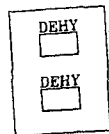


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 6 (2nd 1/4, 1998)

MW #1

METER HOUSES
&
SALES' LINES

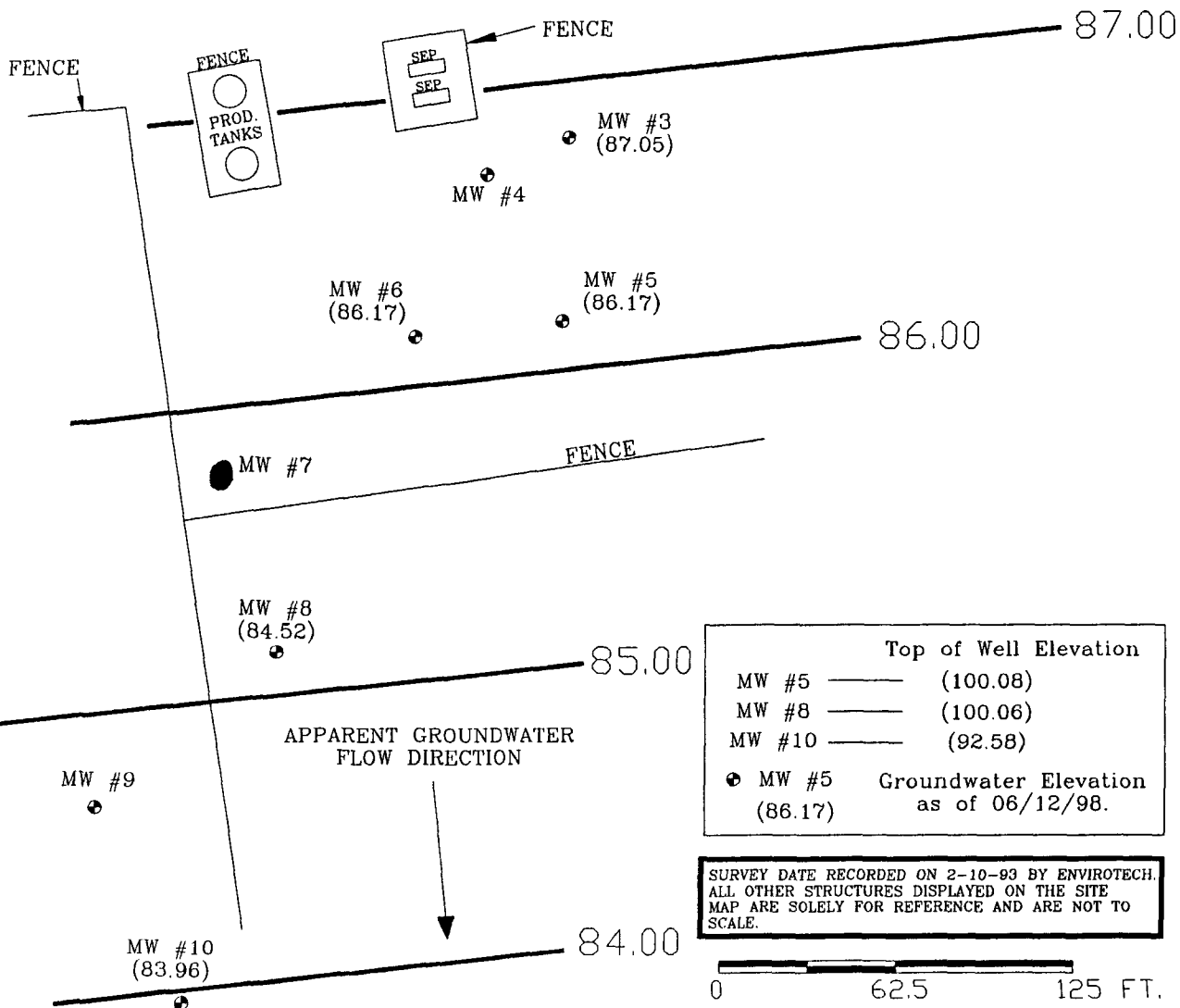


FENCE

WELL
HEAD



MW #2



Top of Well Elevation	
MW #5	(100.08)
MW #8	(100.06)
MW #10	(92.58)
● MW #5	Groundwater Elevation (86.17) as of 06/12/98.

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
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SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 .SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 06-12-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

06/98

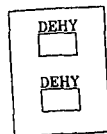


N15W DIRECTION
DEVIATION FROM
PAGE VERTICAL

FIGURE 7 (3rd 1/4, 1998)

METER HOUSES
&
SALES' LINES

MW #1
(89.68)



FENCE

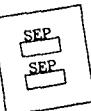
APPARENT GROUNDWATER
FLOW DIRECTION

WELL
HEAD ⊕

MW #2

FENCE

FENCE



MW #3

88.00

MW #4

MW #6
(86.73)

MW #5

87.00

MW #7

FENCE

MW #8
(85.03)

86.00

MW #9
(84.66)

85.00

MW #10

Top of Well Elevation	
MW #1	(102.56)
MW #6	(101.09)
MW #9	(92.59)

⊕ MW #1 Groundwater Elevation
(89.68) as of 09/25/98.

SURVEY DATE RECORDED ON 2-10-93 BY ENVIROTECH.
ALL OTHER STRUCTURES DISPLAYED ON THE SITE
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO
SCALE.

0 62.5 125 FT.

AMOCO PRODUCTION COMPANY

VALDEZ A1E

SW/4 NE/4 SEC. 24, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: 1/4ly Monitor.

DRAWN BY: NJV

FILENAME: 1-25-GW

REVISED: 1/28/99 NJV

GROUNDWATER

GRADIENT

MAP

09/98

BLAGG ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : _____

VALDEZ A # 1ELABORATORY (S) USED : ANALYTICA**UNIT G, SEC. 24, T29N, R11W**Date : March 7, 1996SAMPLER : REOFilename : 03-07-96.WK3PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	102.56	88.54	14.02	20.64	0845	7.2	2,700	3.50	-
3	101.06	86.94	14.12	23.24	0915	7.2	1,900	4.50	-
4	102.07	86.80	15.27	19.98	0935	7.0	2,400	2.50	-
5	100.08	86.76	13.32	22.78	1000	6.9	1,700	5.00	-
6	101.09	86.02	15.07	18.35	1025	7.1	1,900	1.50	-
7	99.59	84.65	14.94	18.83	1050	6.9	2,000	2.00	-
8	100.06	84.46	15.60	18.60	1120	6.9	1,900	1.50	-
9	92.59	84.10	8.49	11.08	1130	6.8	1,800	1.50	-
10	92.58	83.96	8.62	12.44	1150	6.9	1,900	2.00	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2".

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 1
Lab ID: 2824
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

Total BTEX	ND
------------	----

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	97	88 - 110%
	Bromofluorobenzene	87	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 3
Lab ID: 2825
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

Total BTEX	ND
------------	----

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	97	88 - 110%
	Bromofluorobenzene	93	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 4
Lab ID: 2826
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

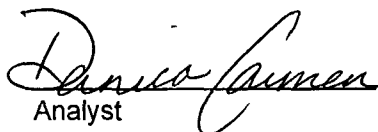
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	0.72	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	0.60	0.20
Total BTEX		1.32

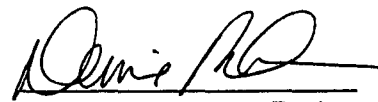
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	98	88 - 110%
	Bromofluorobenzene	98	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 5
Lab ID: 2827
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

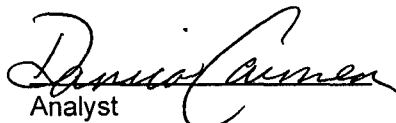
Total BTEX	ND
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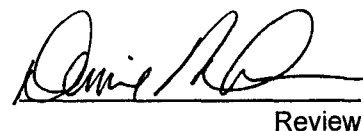
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	95	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 6
Lab ID: 2828
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	426	20.0
Toluene	467	20.0
Ethylbenzene	234	20.0
m,p-Xylenes	1,510	40.0
o-Xylene	366	20.0

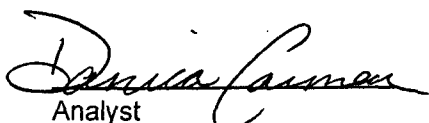
Total BTEX	3,010
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ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	98	88 - 110%
	Bromofluorobenzene	96	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 7
Lab ID: 2829
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	101	10.0
Toluene	10.3	0.20
Ethylbenzene	8.69	0.20
m,p-Xylenes	33.7	0.40
o-Xylene	8.57	0.20

Total BTEX	162
------------	-----

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	100	88 - 110%
	Bromofluorobenzene	102	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 8
Lab ID: 2830
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	98.1	20.0
Toluene	1,320	20.0
Ethylbenzene	82.5	20.0
m,p-Xylenes	628	40.0
o-Xylene	150	20.0

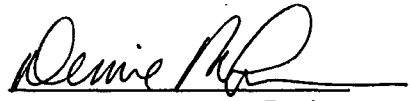
Total BTEX	2,280
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ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	100	88 - 110%
	Bromofluorobenzene	96	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst
Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW - 9
Lab ID: 2831
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	0.35	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

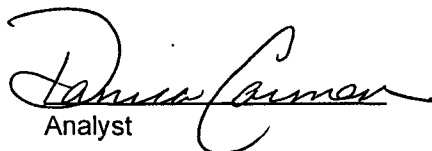
Total BTEX	0.35
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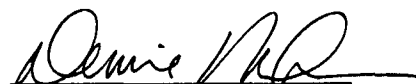
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	100	88 - 110%
	Bromofluorobenzene	96	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001E
Sample ID: MW -10
Lab ID: 2832
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 03/13/96
Date Sampled: 03/07/96
Date Received: 03/07/96
Date Analyzed: 03/08/96

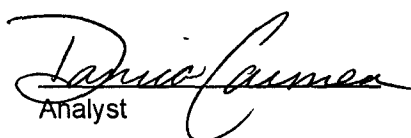
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20
Total BTEX		ND

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	92	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst
Review

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

PROJECT MANAGER:
Analytica Lab I.D.:

Company:
Address:

Phone: _____
Fax: _____

Bill To:

Company:
Address:

CHAIN OF CUSTODY

[illegible]

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

PROJECT MANAGER:
Analytica Lab I.D.:

Company:
Address:

Phone:
Fax:

Bill To:

Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID
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1w-10	3-7	1150	water
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[illegible][illegible]

[illegible][illegible]

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[illegible][illegible]

Project Information	Sample Received
Project Name: _____ Project Number: _____ Project Location: _____ Project Start Date: _____ Project End Date: _____ Project Manager: _____ Project Status: _____ Project Description: _____	Sample ID: _____ Sample Type: _____ Sample Location: _____ Sample Date: _____ Sample Status: _____ Sample Description: _____

..#:	Amoco
No. Containers:	

Name: VANCE Z	Custody Seals: Y /
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NO: 10015	Received Intact:
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no. A 001 E	received intact
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Shipped Via: **DEL'D** Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

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CHAIN OF CUSTODY

[illegible]

BLAGG ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : AMOCO PRODUCTION CO.CHAIN-OF-CUSTODY # : 2380

VALDEZ A #1E

LABORATORY (S) USED : ANALYTICA

UNIT G, SEC. 24, T29N, R11W

Date : June 18, 1996SAMPLER : REOFilename : 06-18-96.WK3PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
6	101.09	86.69	14.40	18.35	0950	7.1	2,000	2.00	-
7	99.59	85.25	14.34	18.83	1010	6.9	2,200	2.00	-
8	100.06	84.91	15.15	18.60	1025	7.1	2,100	1.00	-
10	92.58	84.36	8.22	12.44	1040	6.9	2,200	1.50	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3/4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2".

PURGEABLE AROMATICSBlagg Engineering, Inc.

Project ID: Valdez A 001 E
Sample ID: MW - 6
Lab ID: 3996
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 7/08/96
Date Sampled: 6/18/96
Date Received: 6/18/96
Date Analyzed: 7/02/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	462	25.0
Toluene	773	25.0
Ethylbenzene	305	25.0
m,p-Xylenes	2,060	50.0
o-Xylene	480	25.0

Total BTEX	4,080
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ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	105	88 - 110%
	Bromofluorobenzene	103	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS**Blagg Engineering, Inc.**

Project ID: Valdez A 001 E
Sample ID: MW - 7
Lab ID: 3997
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 7/08/96
Date Sampled: 6/18/96
Date Received: 6/18/96
Date Analyzed: 7/02/96

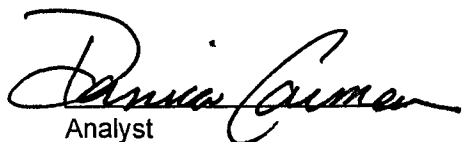
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	128	10.0
Toluene	65.5	10.0
Ethylbenzene	11.5	0.50
m,p-Xylenes	138	20.0
o-Xylene	37.3	10.0
Total BTEX		380

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	103	88 - 110%
	Bromofluorobenzene	101	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID: Valdez A 001 E
Sample ID: MW - 8
Lab ID: 3998
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 7/08/96
Date Sampled: 6/18/96
Date Received: 6/18/96
Date Analyzed: 7/02/96

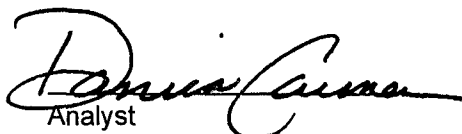
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	5.45	1.00
Toluene	2.25	1.00
Ethylbenzene	ND	1.00
m,p-Xylenes	ND	2.00
o-Xylene	3.50	1.00
Total BTEX		11.2

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	98	88 - 110%
	Bromofluorobenzene	98	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PURGEABLE AROMATICS**Blagg Engineering, Inc.**

Project ID: Valdez A 001 E
Sample ID: MW - 10
Lab ID: 3999
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 7/08/96
Date Sampled: 6/18/96
Date Received: 6/18/96
Date Analyzed: 7/02/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	2
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ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	103	88 - 110%
	Bromofluorobenzene	103	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review

ANAITAS

ENVIRONMENTAL LABS

July 8, 1996

Bob O'Neill
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. O'Neill:

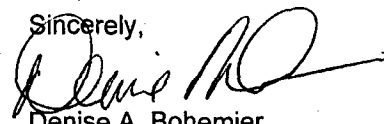
Enclosed are the results for the analysis of the samples received June 18, 1996. The samples were from the Valdez A 001 E site. Analyses for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and general water quality parameters were performed on the samples, as per the accompanying chain of custody form.

Analysis was performed on the samples according to EPA Method 602, using a Hewlett-Packard 5890 gas chromatograph equipped with an OI Analytical purge and trap (model 4560) and a photoionization detector. Detectable levels of btx analytes were found in the samples, as reported.

Water parameters were determined for the samples according to the appropriate methodologies as outlined in Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992.

Quality control reports appear at the end of the analytical package and can be identified by title. Should you have any questions regarding the analysis, feel free to call.

Sincerely,



Denise A. Bohemier
Lab Director

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample hydrocarbon: Water
Lab ID: MB35248

Report Date: 7/8/96
Date Analyzed: 7/2/96

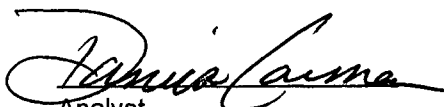
Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

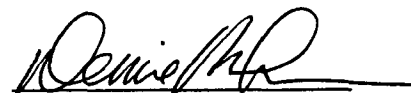
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	100	88 - 110%
	Bromofluorobenzene	100	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

Purgeable Aromatics

Duplicate Analysis

Lab ID: 3998Dup
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 7/08/96
Date Sampled: 6/18/96
Date Received: 6/18/96
Date Analyzed: 7/02/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	5.45	5.89	3.47 - 7.87
Toluene	2.25	2.88	1.14 - 3.99
Ethylbenzene	ND	ND	NA
m,p-Xylenes	1.78	2.53	NE
o-Xylene	3.50	3.82	NE

ND - Analyte not detected at the stated detection limit.

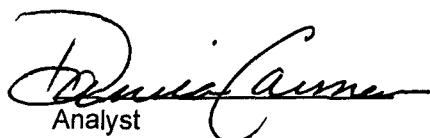
NA - Not applicable or not calculated.

NE - Duplicate acceptance range not established by the EPA.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	Trifluorotoluene	94	88 - 110%
	Bromofluorobenzene	101	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID: 4002Spk
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 07/08/96
Date Sampled: 06/18/96
Date Received: 06/18/96
Date Analyzed: 07/02/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	9.29	93%	39 -150
Toluene	10	ND	9.41	92%	46 - 148
Ethylbenzene	10	ND	9.40	94%	32 - 160
m,p-Xylenes	20	ND	18.6	92%	NE
o-Xylene	10	ND	9.45	93%	NE

ND - Analyte not detected at the stated detection limit.

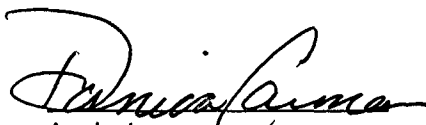
NA - Not applicable or not calculated.

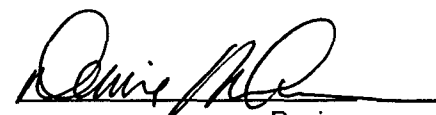
NE - Spike acceptance range not established by the EPA.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	98	88 - 110%
	Bromofluorobenzene	98	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

CHAIN OF CUSTODY

[illegible]

Please Fill Out Thoroughly.

**Shaded areas
for lab use only.**

**White/Yellow: Anaitas
Pink: Client**

BLAGG ENGINEERING, INC.
MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2117

VALDEZ A # 1E
UNIT G, SEC. 24, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : Dec. 27, 1996

SAMPLER : REO

Filename : 12-27-96.WK3

PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	102.56	89.42	13.14	-	-	-	-	-	-
3	101.06	87.59	13.47	-	-	-	-	-	-
8	100.06	84.94	15.12	18.28	0915	7.2	2,500	2.00	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2."

PURGEABLE AROMATICSBlagg Engineering, Inc.

Project ID: Valdez A1E
Sample ID: MW #8
Lab ID: 6062
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 01/10/97
Date Sampled: 12/27/96
Date Received: 12/27/96
Date Analyzed: 01/09/97

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	105	12.5
Toluene	569	12.5
Ethylbenzene	51.0	12.5
m,p-Xylenes	305	25.0
o-Xylene	116	12.5
Total BTEX		1,150

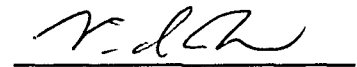
ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	96	88 - 110%
	Bromofluorobenzene	95	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:


Analyst


Review



January 10, 1997

Nelson Velez
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. Velez:

Enclosed are the results for the analysis of the sample received December 27, 1996. The sample was from the Valdez A1E location. Analysis for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) was performed on the sample, as per the accompanying chain of custody form.

Analysis was performed on the sample according to EPA Method 602, using a Hewlett-Packard 5890 gas chromatograph equipped with an OI Analytical purge and trap (model 4560) and a photoionization detector. Detectable levels of btex analytes were found in the sample, as reported.

Quality control reports appear at the end of the analytical package and can be identified by title. Should you have any questions regarding the analysis, feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise A. Bohemier". The signature is fluid and cursive, with a long, sweeping underline.

Denise A. Bohemier
Lab Director

PURGEABLE AROMATICS
Quality Control Report

Method Blank Analysis

Sample hydrocarbon: Water
Lab ID: MB35439

Report Date: 01/10/97
Date Analyzed: 01/09/97

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	97	88 - 110%
	Bromofluorobenzene	91	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209,
Oct. 1984.

Comments:



Analyst



Review

Purgeable Aromatics

Duplicate Analysis

Lab ID: 6062Dup
Sample Matrix: Water
Preservative: Cool, HgCl2
Condition: Intact

Report Date: 01/10/97
Date Sampled: 12/27/96
Date Received: 12/27/96
Date Analyzed: 01/09/97

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	105	105	84.9 - 125
Toluene	569	567	465 - 671
Ethylbenzene	51.0	51.1	32.8 - 69.4
m,p-Xylenes	305	305	NE
o-Xylene	116	116	NE

ND - Analyte not detected at the stated detection limit.

NA - Not applicable or not calculated.

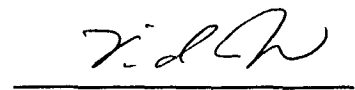
NE - Duplicate acceptance range not established by the EPA.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	97	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID: 6062Spk
Sample Matrix: Water
Preservative: Cool, HgCl₂
Condition: Intact

Report Date: 01/10/97
Date Sampled: 12/27/96
Date Received: 12/27/96
Date Analyzed: 01/09/97

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	500	105	607	100%	39 - 150
Toluene	500	569	1,050	95%	46 - 148
Ethylbenzene	500	51.0	559	102%	32 - 160
m,p-Xylenes	1000	305	1,310	100%	NE
o-Xylene	500	116	623	102%	NE

ND - Analyte not detected at the stated detection limit.

NA - Not applicable or not calculated.

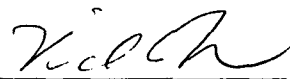
NE - Spike acceptance range not established by the EPA.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	100	88 - 110%
	Bromofluorobenzene	101	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:


Analyst


Review

PROJECT MANAGER:

Anaitas Lab I.D.:

Company:

Address:

Phone:

Fax:

Bill To:

Company:

Address:

BLRG

SAME AS ABOVE

ORGANIC ANALYSES

WATER ANALYSES

METALS

Page 1 of 1

CHAIN OF CUSTODY

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):		
MW #8	12/27/96	0915	WATER					✓																							
Project Information					Sample Receipt					Sampled By:					Relinquished By:					Relinquished By:					Please Fill Out Thoroughly.						
Proj. #:					No. Containers:					Signature					Signature					Signature											
Proj. Name:	VALDEZ AIE				Custody Seals:	Y I N I N A				Signature					Signature					Signature											
P.O. No.:					Received Intact:					Signature					Signature					Signature											
Shipped Via:					Received Cold:					Signature					Signature					Signature											
Required Turnaround Time (Prior Authorization Required for Rush)					Received By:					Received By:					Received By:										Shaded areas for lab use only.						
					Signature					Signature					Signature					Signature					White/Yellow: Anaitas Pink: Client						
					Date:					Date:					Date:					Date:											
					Time:					Time:					Time:					Time:											
					Company:					Company:					Company:					Company:											

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5110

VALDEZ A # 1E

LABORATORY (S) USED : ENVIROTECH, INC.

UNIT G, SEC. 24, T29N, R11W

Date : June 17, 1997

SAMPLER : N J V

Filename : 06-17-97.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
3	101.06	87.05	14.01	-	-	-	-	-	-
6	101.09	86.12	14.97	18.35	0810	7.6	2400	1.75	-
7	99.59	84.76	14.83	18.83	0825	7.6	2700	2.00	-
8	100.06	84.55	15.51	18.28	0845	7.6	2600	1.50	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2".

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #6	Date Reported:	06-18-97
Chain of Custody:	5110	Date Sampled:	06-17-97
Laboratory Number:	B450	Date Received:	06-17-97
Sample Matrix:	Water	Date Analyzed:	06-17-97
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	110	1	0.2
Toluene	19.6	1	0.2
Ethylbenzene	37.6	1	0.2
p,m-Xylene	230	1	0.2
o-Xylene	58.9	1	0.1
Total BTEX	456		

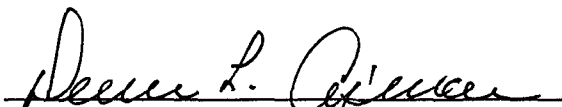
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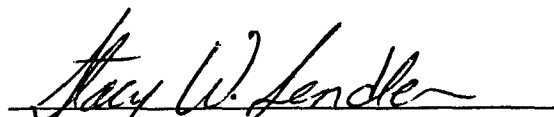
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	98 %

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: Valdez A 1 E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #7	Date Reported:	06-18-97
Chain of Custody:	5110	Date Sampled:	06-17-97
Laboratory Number:	B451	Date Received:	06-17-97
Sample Matrix:	Water	Date Analyzed:	06-17-97
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	360	1	0.2
Toluene	16.3	1	0.2
Ethylbenzene	16.5	1	0.2
p,m-Xylene	98.4	1	0.2
o-Xylene	29.1	1	0.1
Total BTEX	520		

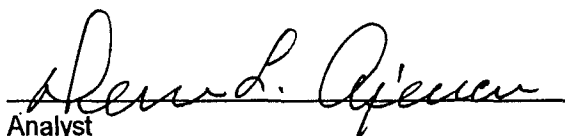
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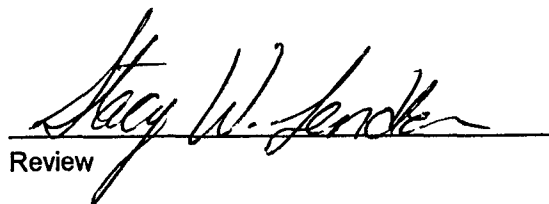
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	99 %

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: Valdez A 1 E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #8	Date Reported:	06-18-97
Chain of Custody:	5110	Date Sampled:	06-17-97
Laboratory Number:	B452	Date Received:	06-17-97
Sample Matrix:	Water	Date Analyzed:	06-17-97
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	45.4	1	0.2
Toluene	83.0	1	0.2
Ethylbenzene	29.8	1	0.2
p,m-Xylene	64.0	1	0.2
o-Xylene	24.9	1	0.1
Total BTEX	247		

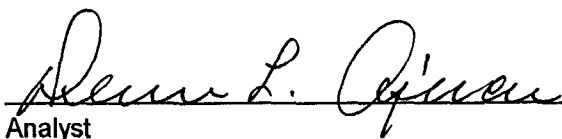
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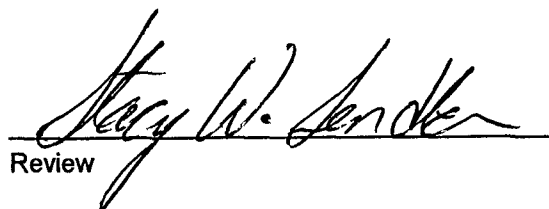
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	100 %

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: Valdez A 1 E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

**QUALITY ASSURANCE / QUALITY CONTROL
DOCUMENTATION**

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	06-18-97
Laboratory Number:	06-17-PM-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-17-97
Condition:	N/A	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.2
o-Xylene	ND	0.1

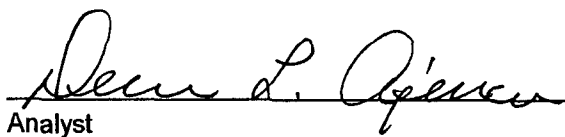
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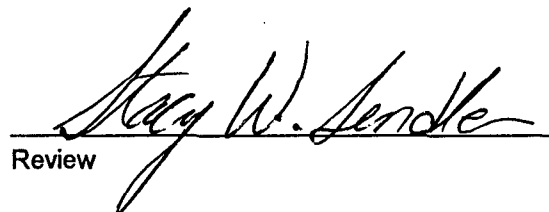
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	98 %
	Bromofluorobenzene	99 %

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: QA/QC for samples B449 - B452.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	06-18-97
Laboratory Number:	B449	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-17-97
Condition:	Cool and Intact	Analysis Requested:	BTEX-8020

Parameter	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Diff.	Det. Limit (ug/L)	Dilution Factor
Benzene	245	240	2.3%	0.2	1
Toluene	3.9	4.1	4.9%	0.2	1
Ethylbenzene	55.6	56.9	2.4%	0.2	1
p,m-Xylene	412	409	0.8%	0.2	1
o-Xylene	35.5	36.4	2.5%	0.1	1

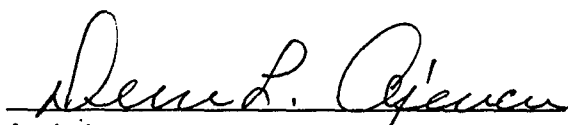
ND - Parameter not detected at the stated detection limit.

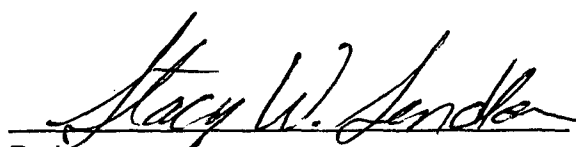
QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8020 Compounds	30 %

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: QA/QC for samples B449 - B452.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client: QA/QC
Sample ID: Matrix Spike
Laboratory Number: B449
Sample Matrix: Water
Preservative: Cool
Condition: Cool and Intact

Project #: N/A
Date Reported: 06-17-97
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06-17-97

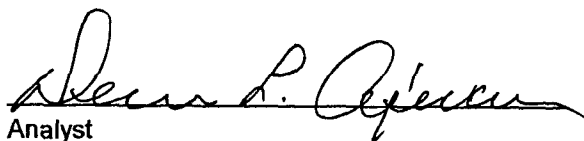
Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Benzene	245	50.0	289	0.2	98%	39-150
Toluene	3.9	50.0	53.8	0.2	100%	46-148
Ethylbenzene	55.6	50.0	105	0.2	99%	32-160
p,m-Xylene	412	100	498	0.2	97%	46-148
o-Xylene	35.5	50.0	84.3	0.1	99%	46-148

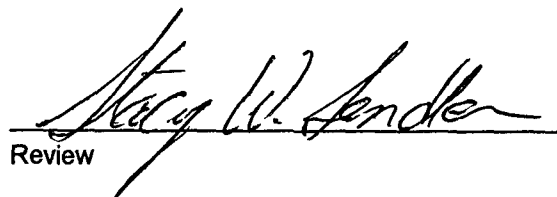
ND - Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: QA/QC for samples B449 - B452.


Analyst


Review

CHAIN OF CUSTODY RECORD

Client/Project Name <i>BLAES/Amoco</i>		Project Location <i>VALDEZ A/E</i>		ANALYSIS/PARAMETERS												
Sampler: (Signature) <i>Nelson Velg</i>		Chain of Custody Tape No. <i>04034-10</i>														
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers <i>(820)</i>										Remarks	
MW # 6	6/17/97	0810	B450	WATER	2 ✓											
MW # 7	6/17/97	0825	B451	WATER	2 ✓											<i>PRESEN - COOL + H₂Cl₂</i>
MW # 8	6/17/97	0845	B452	WATER	2 ✓											<i>" - " " "</i>
																<i>" - " " "</i>
																<i>6/17/97</i>
<i>Sample received cool in test DAY</i>																
Relinquished by: (Signature) <i>Nelson Velg</i>		Date <i>6/17/97</i>		Time <i>1143</i>		Received by: (Signature) <i>Edward P. O'Brien</i>		Date <i>5/17/97</i>		Time <i>1143</i>						
Relinquished by: (Signature)						Received by: (Signature)										
Relinquished by: (Signature)						Received by: (Signature)										

ENVIROTECH INC.

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6028

VALDEZ A # 1E

UNIT G, SEC. 24, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 12, 1998

SAMPLER : N J V

Filename : 06-12-98.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
5	100.08	86.17	13.91	22.78	-	-	-	-	-
6	101.09	86.17	14.92	18.35	1215	7.8	2,000	1.75	-
7	-	-	-	18.83	-	-	-	-	0.88
8	100.06	84.52	15.54	18.28	1315	7.9	2,000	1.50	-
10	92.58	83.96	8.62	12.44	-	-	-	-	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #6	Date Reported:	06-16-98
Chain of Custody:	6028	Date Sampled:	06-12-98
Laboratory Number:	D415	Date Received:	06-14-98
Sample Matrix:	Water	Date Analyzed:	06-16-98
Preservative:	HgCl ₂ & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	55.6	1	0.2
Toluene	25.2	1	0.2
Ethylbenzene	45.9	1	0.2
p,m-Xylene	236	1	0.2
o-Xylene	60.1	1	0.1

Total BTEX 422

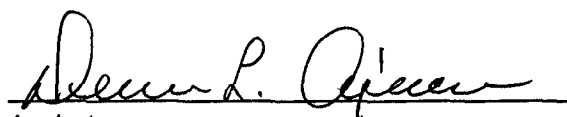
ND - Parameter not detected at the stated detection limit.

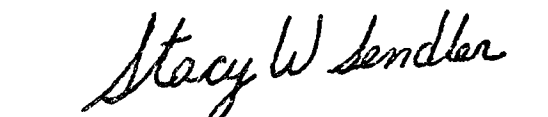
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	96 %
	Bromofluorobenzene	96 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Valdez A #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #8	Date Reported:	06-16-98
Chain of Custody:	6028	Date Sampled:	06-12-98
Laboratory Number:	D416	Date Received:	06-14-98
Sample Matrix:	Water	Date Analyzed:	06-16-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	5.4	1	0.2
Toluene	5.1	1	0.2
Ethylbenzene	1.1	1	0.2
p,m-Xylene	7.2	1	0.2
o-Xylene	1.9	1	0.1

Total BTEX 20.8

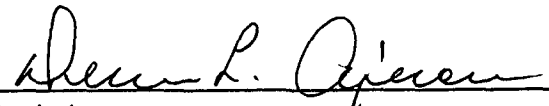
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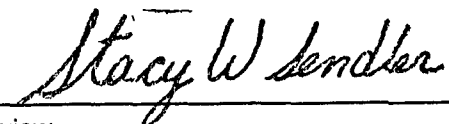
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	99 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Valdez A #1E.


Analyst


Review

6028

Sample Receipt			
	Y	N	N/A
Received Intact	☒	☐	☐
Cool - Ice/Blue Ice	☒	☐	☐

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	06-16-BTEX QA/QC	Date Reported:	06-16-98
Laboratory Number:	D409	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-16-98
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF	C-Cal RF Accept. Range 0 - 15%	%Diff.	Blank Conc	Detect. Limit
Benzene	5.4370E-02	5.4424E-02	0.10%	ND	0.2
Toluene	2.9051E-02	2.9138E-02	0.30%	ND	0.2
Ethylbenzene	2.6516E-02	2.6730E-02	0.81%	ND	0.2
p,m-Xylene	1.8915E-02	1.9048E-02	0.70%	ND	0.2
o-Xylene	2.1590E-02	2.1720E-02	0.60%	ND	0.1

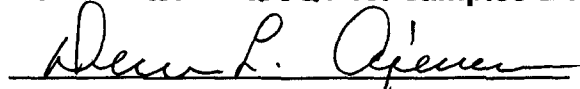
Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	ND	ND	0.0%	0 - 30%
Toluene	ND	ND	0.0%	0 - 30%
Ethylbenzene	ND	ND	0.0%	0 - 30%
p,m-Xylene	0.8	0.8	0.0%	0 - 30%
o-Xylene	ND	ND	0.0%	0 - 30%

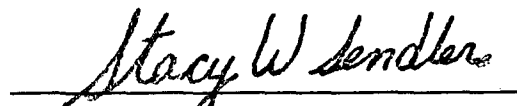
Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	50.0	100%	39 - 150
Toluene	ND	50.0	50.0	100%	46 - 148
Ethylbenzene	ND	50.0	50.0	100%	32 - 160
p,m-Xylene	0.8	100.0	101	100%	46 - 148
o-Xylene	ND	50.0	50.0	100%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for samples D409- D416.


Analyst


Review

BLAGS ENGINEERING, INC.**MONITOR WELL SAMPLING DATA**CLIENT : AMOCO PRODUCTION CO.CHAIN-OF-CUSTODY # : 6221

VALDEZ A # 1E

LABORATORY (S) USED : ENVIROTECH, INC.

UNIT G, SEC. 24, T29N, R11W

Date : Sept. 25, 1998SAMPLER : N J VFilename : 09-25-98.WK3PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	102.56	89.68	12.88	22.78	-	-	-	-	-
6	101.09	86.73	14.36	18.35	1425	7.3	2,700	2.00	-
7	-	-	-	18.83	-	-	-	-	0.88
8	100.06	85.03	15.03	18.28	1445	7.1	2,700	1.50	-
9	92.59	84.66	7.93	12.44	1500	6.9	2,900	1.50	-

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2".

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #6	Date Reported:	09-26-98
Chain of Custody:	6221	Date Sampled:	09-25-98
Laboratory Number:	D983	Date Received:	09-25-98
Sample Matrix:	Water	Date Analyzed:	09-26-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	42.7	1	0.2
Toluene	17.7	1	0.2
Ethylbenzene	68.3	1	0.2
p,m-Xylene	356	1	0.2
o-Xylene	113	1	0.1

Total BTEX 598

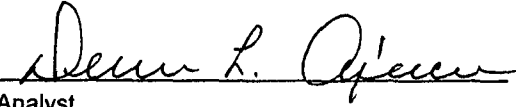
ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	100 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Valdez A #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client: Blagg / AMOCO
Sample ID: MW #8
Chain of Custody: 6221
Laboratory Number: D984
Sample Matrix: Water
Preservative: HgCl₂ & Cool
Condition: Cool & Intact

Project #: 04034-10
Date Reported: 09-26-98
Date Sampled: 09-25-98
Date Received: 09-25-98
Date Analyzed: 09-26-98
Analysis Requested: BTEX

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.3	1	0.2
Toluene	0.3	1	0.2
Ethylbenzene	0.2	1	0.2
p,m-Xylene	1.6	1	0.2
o-Xylene	0.8	1	0.1

Total BTEX 3.2

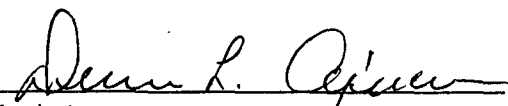
ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	97 %
	Bromofluorobenzene	97 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Valdez A #1E.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client: Blagg / AMOCO
Sample ID: MW #9
Chain of Custody: 6221
Laboratory Number: D985
Sample Matrix: Water
Preservative: HgCl₂ & Cool
Condition: Cool & Intact

Project #: 04034-10
Date Reported: 09-26-98
Date Sampled: 09-25-98
Date Received: 09-25-98
Date Analyzed: 09-26-98
Analysis Requested: BTEX

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.6	1	0.2
Toluene	0.2	1	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	0.7	1	0.2
o-Xylene	0.4	1	0.1

Total BTEX 1.9

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	100 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Valdez A #1E.


Analyst


Review

CHAIN OF CUSTODY RECORD

6221

Client / Project Name			Project Location			ANALYSIS / PARAMETERS									
BAGS/ Amoco			VADEZ A #1E												
Sampler: REP			Client No. 04634-10			No. of Containers		Remarks							
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers										
MW #6	9/25/98		D983	WATER	2	✓	RESERV. - COOL								
MW #8	9/25/98		D984	WATER	2	✓	RESERV. - COOL								
MW #9	9/25/98		D985	WATER	2	✓	RESERV. - COOL								
Relinquished by: (Signature) <i>[Signature]</i>			Date	Time	Received by: (Signature) <i>[Signature]</i>	Date	Time								
Relinquished by: (Signature) <i>[Signature]</i>			9/25/98	1509	Received by: (Signature) <i>[Signature]</i>	9/25/98	1509								
Relinquished by: (Signature) <i>[Signature]</i>			9/25/98	1527	Received by: (Signature) <i>[Signature]</i>	9.25.98	1527								

Ref Cdc's 6218-6221

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt

Received Intact	Y	N	N/A
Cool - Ice/Blue Ice	✓		

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client: N/A
Sample ID: 09-26-BTEX QA/QC
Laboratory Number: D977
Sample Matrix: Water
Preservative: N/A
Condition: N/A

Project #: N/A
Date Reported: 09-26-98
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 09-26-98
Analysis: BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff.	Blank Conc	Detect. Limit
		Accept. Range 0 - 15%			
Benzene	2.4349E-002	2.4428E-002	0.32%	ND	0.2
Toluene	1.1333E-002	1.1356E-002	0.20%	ND	0.2
Ethylbenzene	1.4295E-002	1.4355E-002	0.42%	ND	0.2
p,m-Xylene	1.1212E-002	1.1214E-002	0.02%	ND	0.2
o-Xylene	1.1772E-002	1.1807E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	0.5	0.5	0.0%	0 - 30%
Toluene	0.5	0.5	0.0%	0 - 30%
Ethylbenzene	0.3	0.3	0.0%	0 - 30%
p,m-Xylene	1.5	1.5	0.0%	0 - 30%
o-Xylene	1.9	1.9	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	0.5	50.0	50.4	100%	39 - 150
Toluene	0.5	50.0	50.5	100%	46 - 148
Ethylbenzene	0.3	50.0	50.2	100%	32 - 160
p,m-Xylene	1.5	100	101	100%	46 - 148
o-Xylene	1.9	50.0	51.8	100%	46 - 148

ND - Parameter not detected at the standard detection limit.

* - Administrative Limits set at 80 - 120%.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for samples D977 - D985.

Analyst

Review