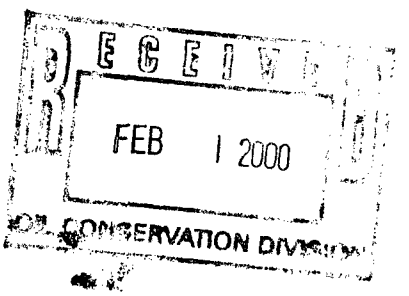
3R - 23

REPORTS

DATE:

JAN. 28, 2000

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903



January 28, 2000

Mr. William C. Olson, Hydrologist
New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Annual Monitoring Report
Amoco Production Company
Gallegos Canyon Unit Com F #162, Sec. 36-T29N-R12W
San Juan County, New Mexico

Dear Mr. Olson:

Amoco Production Company has retained Blagg Engineering, Inc. to conduct environmental monitoring of groundwater reclamation at Gallegos Canyon Unit Com F Well No. 162 (Figure 1). Following are annual monitoring results as required by the New Mexico Oil Conservation Division (NMOCD), pursuant to reclamation plan approval by the NMOCD with letter dated January 27, 1994 and revised with an area wide plan submitted on October 22, 1996.

The air injection/vapor extraction system at the site has remained in continuous operation. The system is designed to treat soils and groundwater that could not be accessed by excavation or other methods. An expansion of the air injection system was conducted in May, 1999 to include areas off the well site that were not effectively remediating. The expanded system is outlined in Figure 1.

Monitor well MW-10 was accidentally destroyed by a homeowner in 1998. This well was replaced by monitor well MW-10R in May, 1999 at a spot immediately adjacent to the prior well location.

Summary Laboratory Analytical Results

Groundwater monitor wells at the site were sampled in March, June, August and December, 1999. A summary of laboratory analytical results for these and previous sample events are included in Table 1 on the following pages and laboratory data reports are included in Appendix B. Analytical data indicates that groundwater impacts in excess of NMWQCC standards has not migrated down gradient beyond monitor well MW-10R.

Monitor wells MW-2A and MW-7 previously contained free product. Quarterly monitoring results for 1999 indicate this product has dissipated and water quality test data shows stable to declining values for BTEX constituents. These trends will be further evaluated during future quarterly monitoring periods.

TABLE 1

Summary Laboratory Analytical Results
Amoco Production Company GCU Com "F" No. 162

Sample ID	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylenes ug/L	Naptha-lene ug/L	Benzo(a) pyrene ug/L	Cations meq/L	Anions meq/L	As mg/L	Ba mg/L	Cd mg/L	Cr mg/L	Pb mg/L	Hg mg/L	Se mg/L	Ag mg/L
MW-2A																
9/22/97	7.7	84.3	16.2	161.7												
12/19/97	1.1	45.8	7.0	68.5												
2/23/98	0.6	8.3	ND	33.3												
6/2/98	35.8	48.8	34.3	98.8												
9/28/98	8.3	15.6	1.6	4.3												
12/17/98	13.2	3.2	2.4	10.0												
3/29/99	18.7	15.2	3.0	28.2												
6/22/99	2.8	5.8	3.7	19.9												
8/30/99	2.4	0.2	0.2	2.7												
12/09/99	12.7	16.4	9.1	47.1												
MW-3																
2/25/94	476	0.7	ND	1.9	ND	ND	15.80	15.49	ND	3.27	0.0001	ND	0.0034	ND	0.0011	ND
6/17/94	13.6	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/94	20.9	3.4	0.9	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94 Abandon	241.5	101.1	12.7	223.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MW-4															
2/25/94	240	3.1	40.2	469	ND	ND	17.74	18.50	0.0022	5.09	0.0016	ND	0.0373	ND	0.0015	ND
6/17/94	273	2.2	34.7	113	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/94	355	0.7	59.4	352	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94	1694	7.6	241.3	1575	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/11/95	549	2.9	29.5	281.6												
3/7/96	143	3.9	13.0	79.3												
6/27/96	141	63.4	65.9	867												
9/6/96	188	54.6	142	1,387												
12/24/96	42.3	14.6	39.2	430												
3/20/97	ND	0.71	ND	14.05												
6/25/97	1.0	ND	11.8	270.9												
9/22/97	27.4	1.9	68.2	660												
12/19/97	ND	2.0	60.2	33.7												
2/23/98	21.5	3.3	31.6	348.3												
6/6/98	16.4	11.4	1.9	148.5												
9/28/98	1.7	2.3	15.5	160.1												
12/17/98	4.0	2.7	27.0	207.3												
3/29/99	47.7	141	35.9	273.7												
6/22/99	1.9	1.4	2.3	20.9												
8/30/99	1.4	2.0	1.3	2.7												
12/9/99	4.3	19.4	14.8	33.2												
MW-5															
2/25/94	ND	1.0	ND	2.2	ND	ND	34.59	33.50	0.0064	3.16	0.0034	ND	ND	ND	0.0037	ND
6/17/94	2.1	2.7	4.5	32.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/94	1.3	0.5	1.0	5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94	0.8	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/8/95	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/12/95	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/95	ND	ND	ND	ND												
12/11/95	ND	ND	ND	ND												
3/7/96	ND	ND	ND	ND												
6/27/96	ND	ND	ND	ND												
9/6/96	ND	ND	ND	ND												
12/24/96	ND	ND	ND	ND												

MW-6																
2/25/94	15.9	3.2	5.3	140	ND	ND	13.39	12.34	ND	2.68	0.0002	ND	ND	ND	0.0007	ND
6/17/94	15.3	1.9	2.6	98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/94	70.1	3.7	1.9	109	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94	154.8	44.9	0.2	212.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/8/95	7.0	ND	ND	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
6/12/95	2.38	0.86	ND	12.6												
9/27/95	12.0	ND	ND	15.33												
12/11/95	31.0	29.1	11.4	175.3												
3/7/96	42.1	4.5	3.1	51.3												
6/27/96	1.53	1.83	ND	5.77												
9/6/96	1.64	ND	ND	84.7												
12/24/96	0.67	ND	ND	1.24												
3/20/97	ND	2.05	ND	7.72												
6/25/97	ND	2.9	1.7	21.0												
9/22/97	ND	0.6	0.6	11.6												
12/19/97	1.3	6.7	2.4	12.5												
2/23/98	0.2	1.0	1.8	5.6												
6/2/98	0.9	0.9	ND	3.8												
9/28/98	ND	ND	0.2	3.0												
12/17/98	ND	ND	0.3	1.9												
3/29/99	ND	2.2	0.9	6.7												
6/22/99	0.3	0.4	0.3	2.3												
8/30/99	0.4	0.2	ND	1.0												
12/9/99	3.6	9.1	3.1	15.2												
MW-7																
12/11/95	85.7	522	144	2,422												
3/7/96	95.0	421	226	4,075												
6/27/96	223	150	165	2,353												
9/6/96	142	104	132	1,728												
12/24/96	34.3	15.3	14.5	159.8												
6/25/97	174	12.5	44.8	637												
9/22/97	577	105	248	835												
12/19/97	330	9.4	81.9	600												
2/23/98	9.1	1.5	9.7	106.0												
6/2/98	50.8	113	81.4	466												
9/28/98	8.2	4.9	9.2	72.6												
12/17/98	32.6	54.0	38.1	234.8												
3/29/99	185	701	171	795												
6/22/99	53.8	14.5	60.9	321												
8/30/99	14.9	5.4	0.8	35.7												
12/9/99	23.2	40.0	3.4	95.8												

MW-9																
2/25/94	ND	1.1	ND	1.4	ND	ND	13.73	13.47	ND	1.17	0.0011	ND	ND	ND	0.0012	ND
6/17/94	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9/27/94	0.8	0.4	0.6	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/8/95	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/12/95	ND	ND	ND	ND												
9/27/95	ND	ND	ND	ND												
12/4/95	ND	ND	ND	ND												
3/7/96	ND	ND	ND	ND												
6/27/96	ND	ND	ND	ND												
9/6/96	ND	ND	ND	ND												
12/24/96	ND	ND	ND	ND												
MW-10																
2/25/94	ND	0.7	ND	1.7	ND	ND	15.04	15.45	ND	2.64	0.0140	ND	0.0012	ND	0.0018	ND
6/17/94	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
9/27/94	0.8	0.3	0.2	3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/7/94	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/8/95	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/12/95	ND	ND	ND	ND												
9/27/95	ND	ND	ND	ND												
12/4/95	ND	ND	ND	4.2												
3/7/96	ND	ND	ND	ND												
6/27/96	ND	ND	ND	ND												
9/6/96	ND	ND	ND	ND												
12/24/96	ND	ND	ND	ND												
3/20/97	ND	ND	ND	ND												
6/25/97	0.4	ND	ND	0.9												
9/22/97	ND	1.7	2.9	17.9												
12/19/97	1.6	0.2	0.9	6.0												
MW-10R																
5/20/99	1.8	6.1	0.5	4.4												
6/22/99	0.5	1.6	1.1	9.5												
8/31/99	3.4	0.6	0.2	2.2												
12/9/99	1.6	4.0	2.3	11.0												
MW-11																
5/20/99	0.5	1.3	0.3	2.0												
6/22/99	0.4	ND	0.5	5.4												
8/30/99	1.6	1.2	ND	1.1												
12/9/99	0.2	0.8	0.4	2.2												
WQCC LIMITS	10	750	750	620	30	0.7	------	------	0.1	1.0	0.01	0.05	0.05	0.002	0.05	0.05

ug/L = micrograms per liter, equivalent to parts per billion (ppb) mg/L= milligrams per liter, equivalent to parts per million (ppm) ND=not detected NA=not analyzed

Water Table Elevations

Depth to groundwater measurements in each monitor well was measured during each quarterly sample event. Table 2 includes water depth measurements, surface casing relative elevations and groundwater elevations for the December 9, 1999 sample event. A contour map of relative water table elevations for this sample event is included as Figure 2.

TABLE 2

Relative Groundwater Elevations
Amoco Production Company GCU Com "F" No. 162
December 9, 1999

Monitor Well	Total Depth (feet)	Depth to Fluid (feet)	Relative Casing Elevation (feet)	Relative Groundwater Elevation (feet)
MW-1	Well	abandoned	during	excavation
MW-2A	23.3	20.47	100.16	79.69
MW-3	Well	abandoned	during	excavation
MW-4	24.1	20.18	98.88	78.70
MW-5	25.1	--	102.46	--
MW-6	26.7	19.35	98.67	79.32
MW-7	25.3	18.73	97.39	78.66
MW-8	Well	abandoned	during	excavation
MW-9	19.6	--	88.50	--
MW-10R	18.4	12.56	90.56	78.00
MW-11	27.0	18.08	96.58	78.50

Current and Proposed Activities

Contaminated soil and groundwater at the GCU 162 site that could not be accessed by excavation is presently being remediated with the active air injection/vapor extraction system and through enhanced biodegradation. Operation of the air injection/vapor extraction system is on-going and is proposed to continue until site remediation is complete.

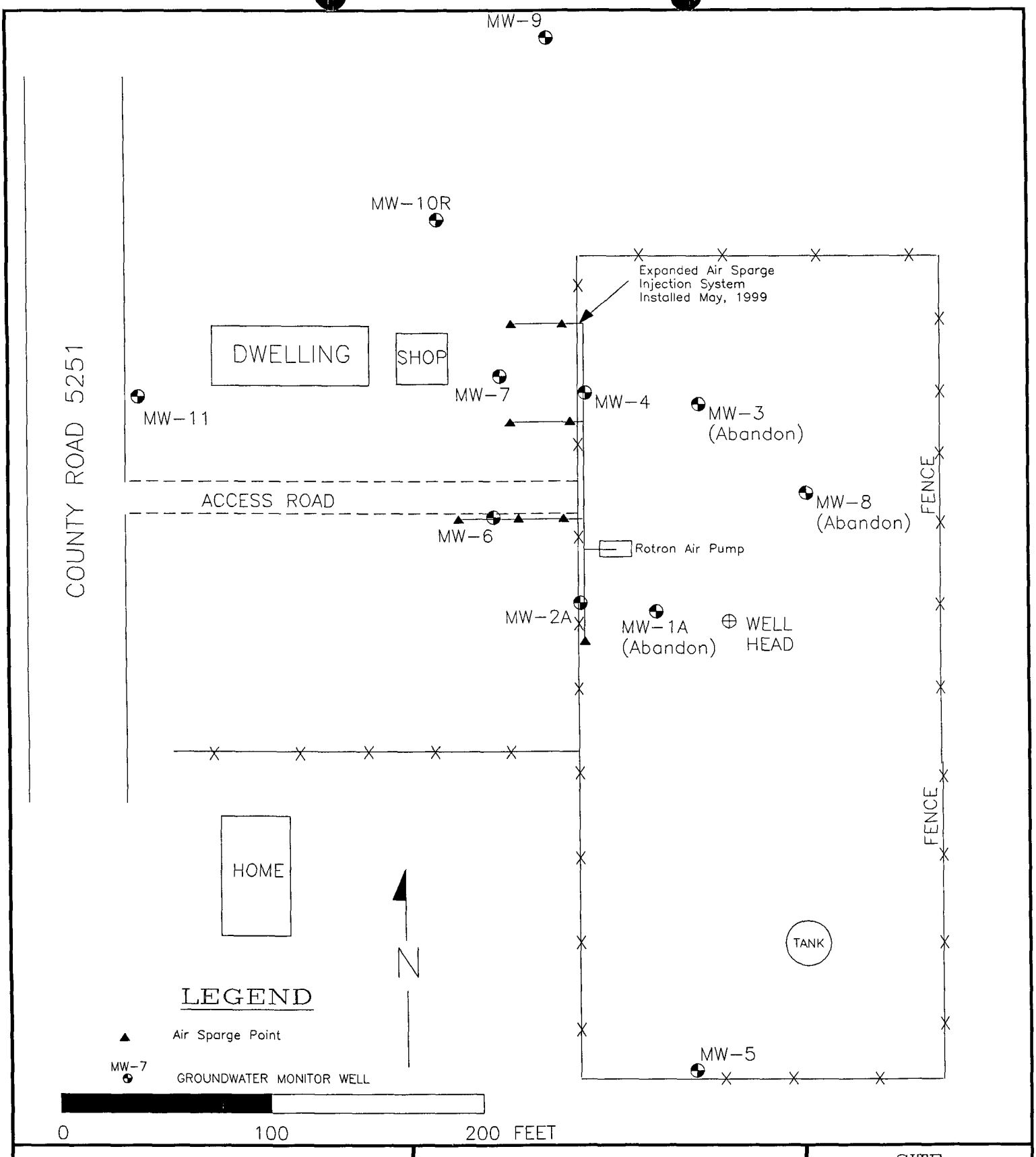
Summary

This report has been prepared by Blagg Engineering, Inc. on behalf of Amoco Production Company. Questions or comments may be directed to Jeff Blagg at (505)632-1199.

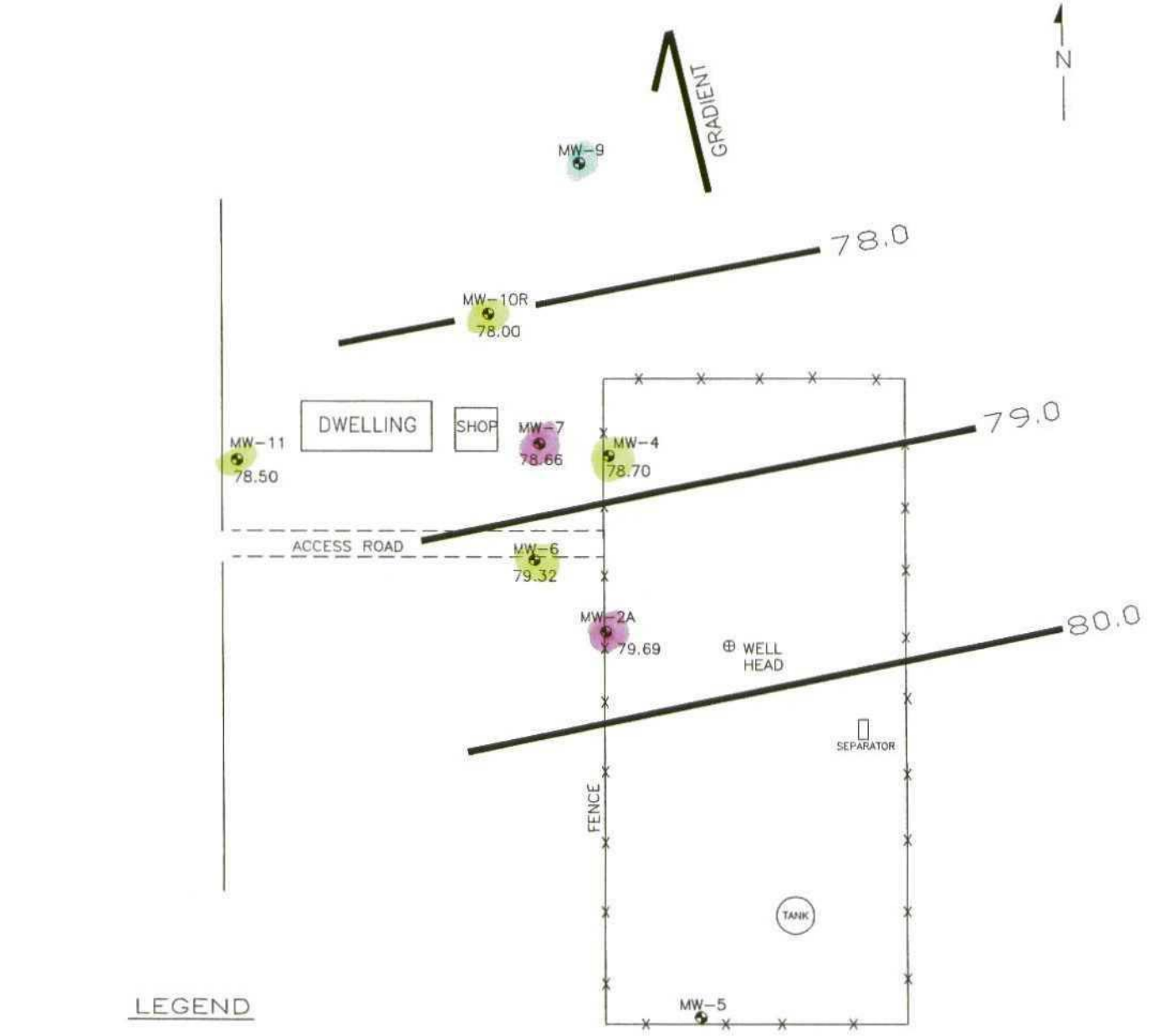
Respectfully submitted:
Blagg Engineering, Inc.

Jeffrey C. Blagg, P.E.
President

cc: Mr. Denny Foust, NMOCD
Mr. Buddy Shaw, Amoco Production Company



AMOCO PRODUCTION CO. GCU 162 WELL SITE SAN JUAN CO., NEW MEXICO January 2000	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	SITE PLAN FIGURE 1 — DRWN BY: JCB 162REV — PROJ MGR: JCB



LEGEND

CONTOUR OF RELATIVE GW ELEVATION

MW-7
80.61
GROUNDWATER MONITOR WELL W/ RELATIVE GW ELEVATION

0 100 200 FEET

AMOCO PRODUCTION CO.
GCU 162 WELL SITE
SAN JUAN CO., NEW MEXICO

December 1999

BLAGG ENGINEERING, INC.
CONSULTING ENGINEERING SERVICES

P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413

PHONE:(505)632-1199

GW SURFACE CONTOUR 12/9/99

FIGURE 2	DRWN BY: JCB
162SITE6	PROJ MANG: JCB

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6631

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : March 29, 1999

SAMPLER : N J V

Filename : 03-29-99.WK4

PROJECT MANAGER : J C B

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)
2A	100.16	77.84	22.32	23.32	1345	7.1	1,800	0.50	-
4	98.87	77.02	21.85	24.09	1415	7.0	2,000	1.25	-
6	98.68	77.55	21.13	26.77	1315	7.2	2,700	2.75	-
7	97.39	76.96	20.43	25.30	1445	7.4	3,000	2.5	-

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

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 ".

MW #'s 2A - poor recovery . Collected BTEX samples for each MW listed above .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 2A	Date Reported:	03-30-99
Chain of Custody:	6631	Date Sampled:	03-29-99
Laboratory Number:	E892	Date Received:	03-29-99
Sample Matrix:	Water	Date Analyzed:	03-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**18.7**	**1**	**0.2**
Toluene	**15.2**	**1**	**0.2**
Ethylbenzene	**3.0**	**1**	**0.2**
p,m-Xylene	**9.6**	**1**	**0.2**
o-Xylene	**18.6**	**1**	**0.1**
Total BTEX	**65.1**		

ND - Parameter not detected at the stated detection limit.

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: **GCU COM F # 162.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 4	Date Reported:	03-30-99
Chain of Custody:	6631	Date Sampled:	03-29-99
Laboratory Number:	E893	Date Received:	03-29-99
Sample Matrix:	Water	Date Analyzed:	03-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**47.7**	**1**	**0.2**
Toluene	**141**	**1**	**0.2**
Ethylbenzene	**35.9**	**1**	**0.2**
p,m-Xylene	**187**	**1**	**0.2**
o-Xylene	**86.7**	**1**	**0.1**
Total BTEX	**498**		

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: **GCU COM F # 162.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 6	Date Reported:	03-30-99
Chain of Custody:	6631	Date Sampled:	03-29-99
Laboratory Number:	E894	Date Received:	03-29-99
Sample Matrix:	Water	Date Analyzed:	03-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**2.2**	**1**	**0.2**
Ethylbenzene	**0.9**	**1**	**0.2**
p,m-Xylene	**4.6**	**1**	**0.2**
o-Xylene	**2.1**	**1**	**0.1**
Total BTEX	**9.8**		

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: **GCU COM F # 162.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 7	Date Reported:	03-30-99
Chain of Custody:	6631	Date Sampled:	03-29-99
Laboratory Number:	E895	Date Received:	03-29-99
Sample Matrix:	Water	Date Analyzed:	03-29-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**185**	**5**	**0.9**
Toluene	**701**	**5**	**0.8**
Ethylbenzene	**171**	**5**	**0.8**
p,m-Xylene	**278**	**5**	**1.1**
o-Xylene	**517**	**5**	**0.5**
Total BTEX	**1,850**		

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: **GCU COM F # 162.**

Analyst

Review

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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:	03-29-BTEX QA/QC	Date Reported:	03-30-99
Laboratory Number:	E892	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-29-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	3.8548E-002	3.8672E-002	0.32%	ND	0.2
Toluene	1.8639E-002	1.8643E-002	0.02%	ND	0.2
Ethylbenzene	2.8066E-002	2.8100E-002	0.12%	ND	0.2
p,m-Xylene	2.9083E-002	2.9088E-002	0.02%	ND	0.2
o-Xylene	2.7029E-002	2.7110E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	18.7	18.0	3.7%	0 - 30%
Toluene	15.2	14.8	2.6%	0 - 30%
Ethylbenzene	3.0	3.0	0.0%	0 - 30%
p,m-Xylene	9.6	9.7	1.0%	0 - 30%
o-Xylene	18.6	18.1	2.7%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	18.7	50.0	68.2	99%	39 - 150
Toluene	15.2	50.0	64.7	99%	46 - 148
Ethylbenzene	3.0	50.0	52.9	100%	32 - 160
p,m-Xylene	9.6	100.0	109	100%	46 - 148
o-Xylene	18.6	50.0	67.8	99%	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 E892 - E895.**

Analyst

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CHAIN OF CUSTODY RECORD

6631

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / Amoco	Gcu com F #162	
Sampler: NJV	Client No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #2A	3/29/99	1345	E892	WATER	2	✓						ALL SAMPLES - PRESERV. - HgCl & cool
			L									
MW #4	3/29/99	1415	E893	WATER	2	✓						
MW #6	3/29/99	1315	E894	WATER	2	✓						
MW #7	3/29/99	1445	E895	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	3/29/99	1455	Kristine Walker	3.29.99	14:55
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6674

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : May 20, 1999

SAMPLER : N J V

Filename : 05-20-99.WK4

PROJECT MANAGER : J C B

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)
2A	100.16	77.89	22.27	23.32	-	-	-	-	-
4	98.88	77.18	21.70	24.09	-	-	-	-	-
6	98.67	77.61	21.06	26.77	-	-	-	-	-
7	97.39	77.1	20.29	25.30	-	-	-	-	-
10R	90.56	76.56	14.00	18.40	1100	-	-	2.25	-
11	96.58	76.76	19.82	27.00	0900	-	-	3.50	-

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

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 ".

MW # 10R installed 5 / 18 /99 ; MW # 11 installed 5 / 19 /99. Collected BTEX & anion / cation for MW #'s 10R & 11 only. Both very poor recovery.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 10R	Date Reported:	05-21-99
Chain of Custody:	6674	Date Sampled:	05-20-99
Laboratory Number:	F359	Date Received:	05-20-99
Sample Matrix:	Water	Date Analyzed:	05-20-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.8**	**1**	**0.2**
Toluene	**6.1**	**1**	**0.2**
Ethylbenzene	**0.5**	**1**	**0.2**
p,m-Xylene	**3.6**	**1**	**0.2**
o-Xylene	**0.8**	**1**	**0.1**
Total BTEX	**12.8**		

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: **GCU Com F # 162.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 11	Date Reported:	05-21-99
Chain of Custody:	6674	Date Sampled:	05-20-99
Laboratory Number:	F360	Date Received:	05-20-99
Sample Matrix:	Water	Date Analyzed:	05-20-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.5**	**1**	**0.2**
Toluene	**1.3**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**1.5**	**1**	**0.2**
o-Xylene	**0.5**	**1**	**0.1**
Total BTEX	**4.1**		

ND - Parameter not detected at the stated detection limit.

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

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: **GCU Com F # 162.**

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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:	05-20-PM-BTEX QA/QC	Date Reported:	05-21-99
Laboratory Number:	F351	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	05-20-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.0637E-001	1.0672E-001	0.32%	ND	0.2
Toluene	8.8099E-002	8.8116E-002	0.02%	ND	0.2
Ethylbenzene	4.3589E-002	4.3642E-002	0.12%	ND	0.2
p,m-Xylene	4.7272E-002	4.7281E-002	0.02%	ND	0.2
o-Xylene	4.2673E-002	4.2802E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit:
Benzene	12.6	12.7	0.8%	0 - 30%
Toluene	6.7	6.8	1.5%	0 - 30%
Ethylbenzene	2.2	2.2	0.0%	0 - 30%
p,m-Xylene	5.5	5.8	5.5%	0 - 30%
o-Xylene	3.7	3.8	2.7%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits:
Benzene	12.6	50.0	62.6	100%	39 - 150
Toluene	6.7	50.0	56.7	100%	46 - 148
Ethylbenzene	2.2	50.0	52.2	100%	32 - 160
p,m-Xylene	5.5	100.0	106	100%	46 - 148
o-Xylene	3.7	50.0	53.7	100%	46 - 148

ND - Parameter not detected at the stated 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 F351 - F360.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 10R	Date Reported:	05-22-99
Laboratory Number:	F359	Date Sampled:	05-20-99
Chain of Custody:	6674	Date Received:	05-20-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	05-21-99
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**6.92**	s.u.		
Conductivity @ 25° C	**3,350**	umhos/cm		
Total Dissolved Solids @ 180C	**1,676**	mg/L		
Total Dissolved Solids (Calc)	**1,655**	mg/L		
SAR	**3.4**	ratio		
Total Alkalinity as CaCO3	**500**	mg/L		
Total Hardness as CaCO3	**798**	mg/L		
Bicarbonate as HCO3	**500**	mg/L	8.20	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**7.9**	mg/L	0.13	meq/L
Nitrite Nitrogen	**0.082**	mg/L	0.00	meq/L
Chloride	**61.2**	mg/L	1.73	meq/L
Fluoride	**0.64**	mg/L	0.03	meq/L
Phosphate	**2.9**	mg/L	0.09	meq/L
Sulfate	**738**	mg/L	15.35	meq/L
Iron	**0.002**	mg/L		
Calcium	**318**	mg/L	15.85	meq/L
Magnesium	**<0.01**	mg/L	0.00	meq/L
Potassium	**3.5**	mg/L	0.09	meq/L
Sodium	**220**	mg/L	9.57	meq/L
Cations			25.51	meq/L
Anions			25.54	meq/L
Cation/Anion Difference			**0.12%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments: **GCU Com F #162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 11	Date Reported:	05-22-99
Laboratory Number:	F360	Date Sampled:	05-20-99
Chain of Custody:	6674	Date Received:	05-20-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	05-21-99
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.40**	s.u.		
Conductivity @ 25° C	**1,365**	umhos/cm		
Total Dissolved Solids @ 180C	**676**	mg/L		
Total Dissolved Solids (Calc)	**637**	mg/L		
SAR	**0.0**	ratio		
Total Alkalinity as CaCO3	**267**	mg/L		
Total Hardness as CaCO3	**504**	mg/L		
Bicarbonate as HCO3	**267**	mg/L	4.38	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**17.0**	mg/L	0.27	meq/L
Nitrite Nitrogen	**0.200**	mg/L	0.00	meq/L
Chloride	**22.2**	mg/L	0.63	meq/L
Fluoride	**0.65**	mg/L	0.03	meq/L
Phosphate	**0.1**	mg/L	0.00	meq/L
Sulfate	**233**	mg/L	4.84	meq/L
Iron	**<0.001**	mg/L		
Calcium	**196**	mg/L	9.78	meq/L
Magnesium	**3.42**	mg/L	0.28	meq/L
Potassium	**1.0**	mg/L	0.03	meq/L
Sodium	**1.6**	mg/L	0.07	meq/L
Cations			10.16	meq/L
Anions			10.16	meq/L
Cation/Anion Difference			**0.02%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments: **GCU Com F #162.**

Analyst

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CHAIN OF CUSTODY RECORD

6674

Client / Project Name	Project Location
BLAGG / Amoco	GCU com F #162
Sampler: NJV	**Client No.** 403410

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)	Anion/ Cation					Remarks
MW # 10R	5/20/99	1100	F359	WATER	3	✓	✓					
MW # 11	5/20/99	0900	F360	WATER	3	✓	✓					
												ALL SAMPLES
												PRESERV. - COOL
												BTEX PRESERV.
												WITH $HgCl_2$ ALSO.

	Date	Time		Date	Time
Relinquished by: (Signature) Mehon Vel	5/20/99	1129	Received by: (Signature)	5.20.99	1129
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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Farmington, New Mexico 87401
(505) 632-0615

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6994

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 22, 1999

SAMPLER : R E P

Filename : 06-22-99.WK4

PROJECT MANAGER : J C B

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)
2A	100.16	78.01	22.15	23.32	0930	7.4	1900	0.60	-
4	98.88	77.14	21.74	24.09	0940	6.9	2200	1.25	-
6	98.67	77.36	21.31	26.77	0810	7.4	2500	2.75	-
7	97.39	77.21	20.18	25.30	0840	7.2	2300	2.50	-
10R	90.56	76.68	13.88	18.40	0900	7.0	1500	2.25	-
11	96.58	76.87	19.71	27.00	0910	7.1	1100	3.75	-

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

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 ".

Very poor recovery in MW #'s 2A & 4, very, very poor recovery in MW #'s 10R & 11.

Collected BTEX samples for all MW's listed above .

BEI reclamation system operational @ time of sampling .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #2A	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F567	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.8**	**1**	**0.2**
Toluene	**5.8**	**1**	**0.2**
Ethylbenzene	**3.7**	**1**	**0.2**
p,m-Xylene	**16.6**	**1**	**0.2**
o-Xylene	**3.3**	**1**	**0.1**
Total BTEX	**32.2**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**95 %**
	Bromofluorobenzene	**95 %**

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: **GCU COM F # 162.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #4	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F568	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.9**	**1**	**0.2**
Toluene	**1.4**	**1**	**0.2**
Ethylbenzene	**2.3**	**1**	**0.2**
p,m-Xylene	**14.1**	**1**	**0.2**
o-Xylene	**6.8**	**1**	**0.1**
Total BTEX	**26.5**		

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: **GCU COM F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #6	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F569	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.3**	**1**	**0.2**
Toluene	**0.4**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**2.5**	**1**	**0.2**
o-Xylene	**0.8**	**1**	**0.1**
Total BTEX	**4.3**		

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: **GCU COM F # 162.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #7	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F570	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**53.8**	**1**	**0.2**
Toluene	**14.5**	**1**	**0.2**
Ethylbenzene	**60.9**	**1**	**0.2**
p,m-Xylene	**207**	**1**	**0.2**
o-Xylene	**114**	**1**	**0.1**
Total BTEX	**450**		

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: **GCU COM F # 162.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #10R	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F571	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.5**	**1**	**0.2**
Toluene	**1.6**	**1**	**0.2**
Ethylbenzene	**1.1**	**1**	**0.2**
p,m-Xylene	**7.0**	**1**	**0.2**
o-Xylene	**2.5**	**1**	**0.1**
Total BTEX	**12.7**		

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: **GCU COM F # 162.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #11	Date Reported:	06-23-99
Chain of Custody:	6994	Date Sampled:	06-22-99
Laboratory Number:	F572	Date Received:	06-22-99
Sample Matrix:	Water	Date Analyzed:	06-22-99
Preservative:	HgCl2 & Cool.	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.4**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**0.5**	**1**	**0.2**
p,m-Xylene	**4.0**	**1**	**0.2**
o-Xylene	**1.4**	**1**	**0.1**
Total BTEX	**6.3**		

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: **GCU COM F # 162.**

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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:	06-22-BTEX QA/QC	Date Reported:	06-23-99
Laboratory Number:	F567	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-22-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	5.1692E-003	5.1858E-003	0.32%	ND	0.2
Toluene	5.2087E-003	5.2097E-003	0.02%	ND	0.2
Ethylbenzene	3.4516E-003	3.4557E-003	0.12%	ND	0.2
p,m-Xylene	4.0509E-003	4.0517E-003	0.02%	ND	0.2
o-Xylene	3.9685E-003	3.9804E-003	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	2.8	2.8	0.0%	0 - 30%
Toluene	5.8	5.7	1.7%	0 - 30%
Ethylbenzene	3.7	3.6	2.7%	0 - 30%
p,m-Xylene	16.6	17.0	2.4%	0 - 30%
o-Xylene	3.3	3.3	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	2.8	50.0	52.9	100%	39 - 150
Toluene	5.8	50.0	56.0	100%	46 - 148
Ethylbenzene	3.7	50.0	53.8	100%	32 - 160
p,m-Xylene	16.6	100.0	117	100%	46 - 148
o-Xylene	3.3	50.0	53.4	100%	46 - 148

ND - Parameter not detected at the stated 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 F567 - F574.**

Analyst

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CHAIN OF CUSTODY RECORD

6994

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG/AMOCO	GCU COM F #162	
Sampler: REP	Client No. 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW# 2A	6.22.99	0930	F567	WATER	2	✓						
MW# 4	6.22.99	0940	F568	WATER	2	✓						
MW# 6	6.22.99	0810	F569	WATER	2	✓						SAMPLES PRESERVE-
MW# 7	6.22.99	0840	F570	WATER	2	✓						HgCl2 + COOL
MW# 10R	6.22.99	0900	F571	WATER	2	✓						
MW# 11	6.22.99	0910	F572	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	6.22.99	1130	[signature]	6.22.99	1130
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6704

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : August 30, 1999

SAMPLER : N J V

Filename : 08-30-99.WK4

PROJECT MANAGER : J C B

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)
2A	100.16	78.47	21.69	23.32	1000	7.8	1800	1.00	-
4	98.88	77.60	21.28	24.09	0930	7.3	1800	1.50	-
6	98.67	78.19	20.48	26.77	0900	7.3	2300	3.25	-
7	97.39	77.62	19.77	25.30	1030	7.3	2400	2.75	-
10R	90.56	77.06	13.50	18.40	0945	7.4	1700	2.75	-
11	96.58	77.43	19.15	27.00	0830	7.1	1200	4.00	-

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

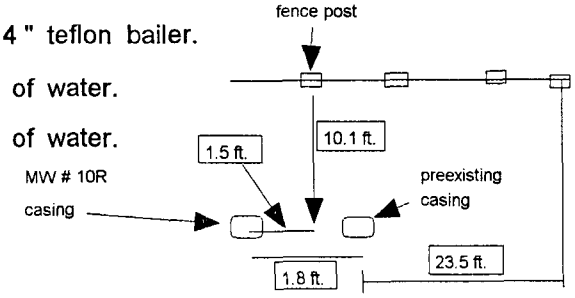
1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

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".

Collected BTEX samples for all MW's listed above. Collected MW # 10R on 8 / 31 / 99.

BEI reclamation system operational @ time of sampling. DTW info. collected

by NJV on 8 / 31 / 99 after shutting down blower the evening of 8 / 30 / 99.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 2A	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-30-99
Laboratory Number:	G028	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.4**	**1**	**0.2**
Toluene	**0.2**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**1.6**	**1**	**0.2**
o-Xylene	**1.1**	**1**	**0.1**
Total Xylene	**2.7**		
Total BTEX	**5.5**		

ND - Parameter not detected at the stated detection limit.

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: **GCU Com F # 162.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 4	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-30-99
Laboratory Number:	G029	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.4**	**1**	**0.2**
Toluene	**2.0**	**1**	**0.2**
Ethylbenzene	**1.3**	**1**	**0.2**
p,m-Xylene	**1.5**	**1**	**0.2**
o-Xylene	**1.2**	**1**	**0.1**
Total Xylene	**2.7**		
Total BTEX	**7.4**		

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 6	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-30-99
Laboratory Number:	G030	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.4**	**1**	**0.2**
Toluene	**0.2**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**0.4**	**1**	**0.2**
o-Xylene	**0.6**	**1**	**0.1**
Total Xylene	**1.0**		
Total BTEX	**1.6**		

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 7	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-30-99
Laboratory Number:	G031	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**14.9**	**1**	**0.2**
Toluene	**5.4**	**1**	**0.2**
Ethylbenzene	**0.8**	**1**	**0.2**
p,m-Xylene	**27.2**	**1**	**0.2**
o-Xylene	**8.5**	**1**	**0.1**
Total Xylene	**35.7**		
Total BTEX	**56.8**		

ND - Parameter not detected at the stated detection limit.

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

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 10R	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-31-99
Laboratory Number:	G032	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**3.4**	**1**	**0.2**
Toluene	**0.6**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**1.6**	**1**	**0.2**
o-Xylene	**0.6**	**1**	**0.1**
Total Xylene	**2.2**		
Total BTEX	**6.4**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**101 %**

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: **GCU Com F # 162.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 11	Date Reported:	09-01-99
Chain of Custody:	6704	Date Sampled:	08-30-99
Laboratory Number:	G033	Date Received:	08-31-99
Sample Matrix:	Water	Date Analyzed:	08-31-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.6**	**1**	**0.2**
Toluene	**1.2**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**0.9**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total Xylene	**1.1**		
Total BTEX	**3.9**		

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: **GCU Com F # 162.**

Analyst

Review

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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:	08-31-PM-BTEX QA/QC	Date Reported:	09-01-99
Laboratory Number:	G028	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-31-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	3.6219E-001	3.6335E-001	**0.32%**	**ND**	**0.2**
Toluene	2.7867E-002	2.7872E-002	**0.02%**	**ND**	**0.2**
Ethylbenzene	4.1931E-002	4.1981E-002	**0.12%**	**ND**	**0.2**
p,m-Xylene	3.6569E-002	3.6576E-002	**0.02%**	**ND**	**0.2**
o-Xylene	3.1955E-002	3.2051E-002	**0.30%**	**ND**	**0.1**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**2.4**	**2.3**	**4.2%**	**0 - 30%**
Toluene	**0.2**	**0.2**	**0.0%**	**0 - 30%**
Ethylbenzene	**0.2**	**0.2**	**0.0%**	**0 - 30%**
p,m-Xylene	**1.6**	**1.6**	**0.0%**	**0 - 30%**
o-Xylene	**1.1**	**1.1**	**0.0%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**2.4**	**50.0**	**52.4**	**100%**	**39 - 150**
Toluene	**0.2**	**50.0**	**50.2**	**100%**	**46 - 148**
Ethylbenzene	**0.2**	**50.0**	**50.2**	**100%**	**32 - 160**
p,m-Xylene	**1.6**	**100.0**	**102**	**100%**	**46 - 148**
o-Xylene	**1.1**	**50.0**	**51.2**	**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 G028 - G035.**

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CHAIN OF CUSTODY RECORD

6704

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / Amoco	Gem com F #162	
Sampler: NJV	Client No. 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #2A	8/30/99	1000	G028	WATER	2	✓						ALL SAMPLES — PRESV. $HgCl_2$ COOL
MW # 4	8/30/99	0930	G029	WATER	2	✓						
MW #6	8/30/99	0900	G030	WATER	2	✓						
MW #7	8/30/99	1030	G031	WATER	2	✓						
MW #10R	8/31/99	0945	G032	WATER	2	✓						
MW # 11	8/30/99	0830	G033	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	8/31/99	1009	Debra L. Spencer	8.31.99	1009
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 7453

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 9, 1999

Filename : 12-09-99.WK4

SAMPLER : N J V

PROJECT MANAGER : J C B

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)
2A	100.16	79.69	20.47	23.32	0945	7.6	1,800	1.50	-
4	98.88	78.70	20.18	24.09	1015	7.3	2,500	2.00	-
6	98.67	79.32	19.35	26.77	0915	7.4	2,700	3.75	-
7	97.39	78.66	18.73	25.30	1045	7.4	2,800	3.25	-
10R	90.56	79.00	11.56	18.40	1125	7.0	1,600	3.50	-
11	96.58	78.50	18.08	27.00	1200	7.2	1,100	4.50	-

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

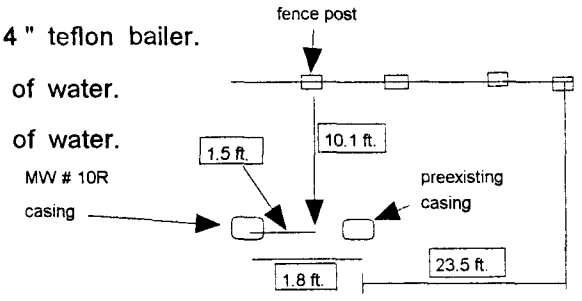
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

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 ".

Collected BTEX samples for all MW's listed above . Collected MW # 11 when DTW = 20 ft. and MW # 10R = 13 ft. BEI reclamation system operational @ time of sampling . DTW info. collected by NJV on 12 / 13 / 99 after shutting down blower the evening of 12 / 10 / 99 . Poor recovery in MW 's # 2A, # 4, & # 10R .

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6704

GCU COM F # 162
UNIT J, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : August 30, 1999

Filename : 08-30-99.WK4

SAMPLER : N J V

PROJECT MANAGER : J C B

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)
2A	100.16	78.47	21.69	23.32	1000	7.8	1800	1.00	-
4	98.88	77.60	21.28	24.09	0930	7.3	1800	1.50	-
6	98.67	78.19	20.48	26.77	0900	7.3	2300	3.25	-
7	97.39	77.62	19.77	25.30	1030	7.3	2400	2.75	-
10R	90.56	77.06	13.50	18.40	0945	7.4	1700	2.75	-
11	96.58	77.43	19.15	27.00	0830	7.1	1200	4.00	-

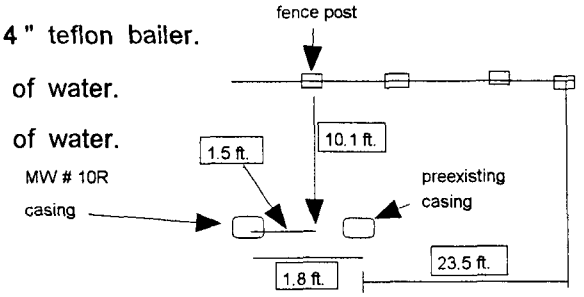
NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores),
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

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".

Collected BTEX samples for all MW's listed above . Collected MW # 10R on 8 / 31 / 99 .

BEI reclamation system operational @ time of sampling . DTW info. collected

by NJV on 8 / 31 / 99 after shutting down blower the evening of 8 / 30 / 99 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 2A	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G577	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**12.7**	**1**	**0.2**
Toluene	**16.4**	**1**	**0.2**
Ethylbenzene	**9.1**	**1**	**0.2**
p,m-Xylene	**27.0**	**1**	**0.2**
o-Xylene	**20.1**	**1**	**0.1**
Total Xylene	**47.1**		
Total BTEX	**85.3**		

ND - Parameter not detected at the stated detection limit.

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: **GCU Com F # 162.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 4	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G578	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**4.3**	**1**	**0.2**
Toluene	**19.4**	**1**	**0.2**
Ethylbenzene	**14.8**	**1**	**0.2**
p,m-Xylene	**24.2**	**1**	**0.2**
o-Xylene	**9.0**	**1**	**0.1**
Total Xylene	**33.2**		
Total BTEX	**71.7**		

ND - Parameter not detected at the stated detection limit.

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 6	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G579	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**3.6**	**1**	**0.2**
Toluene	**9.1**	**1**	**0.2**
Ethylbenzene	**3.1**	**1**	**0.2**
p,m-Xylene	**10.4**	**1**	**0.2**
o-Xylene	**4.8**	**1**	**0.1**
Total Xylene	**15.2**		
Total BTEX	**31.0**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**101 %**

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 7	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G580	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**23.2**	**1**	**0.2**
Toluene	**40.0**	**1**	**0.2**
Ethylbenzene	**3.4**	**1**	**0.2**
p,m-Xylene	**63.7**	**1**	**0.2**
o-Xylene	**32.1**	**1**	**0.1**
Total Xylene	**95.8**		
Total BTEX	**162**		

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 10R	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G581	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.6**	**1**	**0.2**
Toluene	**4.0**	**1**	**0.2**
Ethylbenzene	**2.3**	**1**	**0.2**
p,m-Xylene	**8.8**	**1**	**0.2**
o-Xylene	**2.2**	**1**	**0.1**
Total Xylene	**11.0**		
Total BTEX	**18.9**		

ND - Parameter not detected at the stated detection limit.

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: **GCU Com F # 162.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 11	Date Reported:	12-10-99
Chain of Custody:	7453	Date Sampled:	12-09-99
Laboratory Number:	G582	Date Received:	12-09-99
Sample Matrix:	Water	Date Analyzed:	12-09-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.2**	**1**	**0.2**
Toluene	**0.8**	**1**	**0.2**
Ethylbenzene	**0.4**	**1**	**0.2**
p,m-Xylene	**2.0**	**1**	**0.2**
o-Xylene	**0.2**	**1**	**0.1**
Total Xylene	**2.2**		
Total BTEX	**3.6**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**101 %**

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: **GCU Com F # 162.**

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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	12-09-BTEX-PM QA/QC	Date Reported:	12-10-99
Laboratory Number:	G577	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-09-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	2.2294E-001	2.2366E-001	**0.32%**	**ND**	**0.2**
Toluene	9.8579E-002	9.8599E-002	**0.02%**	**ND**	**0.2**
Ethylbenzene	7.8696E-002	7.8790E-002	**0.12%**	**ND**	**0.2**
p,m-Xylene	7.2057E-002	7.2071E-002	**0.02%**	**ND**	**0.2**
o-Xylene	6.6135E-002	6.6334E-002	**0.30%**	**ND**	**0.1**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**12.7**	**12.8**	**0.8%**	**0 - 30%**
Toluene	**16.4**	**17.2**	**4.9%**	**0 - 30%**
Ethylbenzene	**9.1**	**9.3**	**2.2%**	**0 - 30%**
p,m-Xylene	**27.0**	**27.9**	**3.3%**	**0 - 30%**
o-Xylene	**20.1**	**20.5**	**2.0%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**12.7**	**50.0**	**62.5**	**100%**	**39 - 150**
Toluene	**16.4**	**50.0**	**66.5**	**100%**	**46 - 148**
Ethylbenzene	**9.1**	**50.0**	**59.1**	**100%**	**32 - 160**
p,m-Xylene	**27.0**	**100.0**	**127**	**100%**	**46 - 148**
o-Xylene	**20.1**	**50.0**	**70.2**	**100%**	**46 - 148**

ND - Parameter not detected at the stated detection limit.

* - Administrative level 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 G577 - G582.**

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CHAIN OF CUSTODY RECORD

7453

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	GCU COM F #162	

Sampler:	Client No.
NJV	403410

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #2A	12/9/99	0945	G577	WATER	2	✓						ALL SAMPLES
MW #4	12/9/99	1015	G578	WATER	2	✓						PRESERV. - $HgCl_2$
MW #6	12/9/99	0915	G579	WATER	2	✓						& COOL
MW #7	12/9/99	1045	G580	WATER	2	✓						
MW #10R	12/9/99	1125	G581	WATER	2	✓						
MW #11	12/9/99	1200	G582	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/9/99	1318	Adrienne L. Reynolds	12.9.99	1318
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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

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