3R - 14

REPORTS

DATE:

MAR 2000

BP AMOCO

GROUNDWATER REMEDIATION REPORT

1996-2000

GCU # 93E
(L) SECTION 36, T29N, R12W, NMPM
SAN JUAN COUNTY, NEW MEXICO

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

MARCH 2000

PREPARD BY:
BLAGG ENGINEERING, INC.

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

GCU # 93E - Separator Pit
Nw/4 SW/4 Sec. 36, T29N, R12W

Site Assessment Date:	**May 27, 1992**
Pit Closure Date:	**Sept. 15, 1995**
Monitor Well Installation Dates:	**5/30/96, 6/3/96, 2/10/98, 3/98, 2/99, 2/00**
Air Sparge Installation Dates:	**Feb., '96 & Apr., '98**

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells (MW's) 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 8021. Additional groundwater was collected and placed in laboratory supplied 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 or hydrochloric acid) and hand delivered to a qualified laboratory for testing. Waste generated during monitor well sampling and development was disposed of utilizing the separator tank pit located on the well site.

Reclamation System Installation & Initial Water Quality Information:

The existing air sparge/vacuum extraction reclamation system (Figure 2) was installed in two separate phases. The first phase was installed by Paul & Sons, Inc. under the guidance of Blagg Engineering, Inc. (BEI) in February, 1996 to address the groundwater contamination known from the 1995 pit closure within the source area. This phase included a ten (10) inch PVC casing with a five (5) foot perforated interval at its lower section to facilitate the vacuum segment of the system. The perforated portion was installed directly above the water table and was utilized until July, 1997. Afterwards, the regenerated blower for the vacuum operation was converted over to the air sparge system to increase air flow beneath the groundwater. The second phase was conducted by BEI in April, 1998 to acknowledge the down gradient delineated hydrocarbon contamination detected during monitor well installations and sampling in February, 1998 (TW-1 through TW-6). This phase was exclusively employed after the BTEX levels within the source area was remediatied to below NMWQCC allowable concentrations for groundwater for four (4) consecutive quarterly sampling events.

Prior to the initial start up of the reclamation system (end of June, 1996), MW # 3 (Figure 1) contained free phase product as measured during the June 12, 1996 sampling event (0.17 ft.). MW # 2 BTEX levels exceeding NMWQCC standards for all constituents except toluene, while non detectable levels for BTEX were reported in MW # 1 during the same sampling event. All BTEX and general water quality results for quarterly sampling events between June, 1996 and March, 2000 are summarized in the following tables.

Summary, Conclusions and Recommendations:

Based on the enclosed documentation, the air sparge system appears to have effectively cleaned up all phases of hydrocarbon impact on the groundwater to well below NMWQQC standards. It should be noted that after the December 13, 1999 sampling event, the entire system was shut down to verify any rebound of residual hydrocarbon potentially derived from either the source area or adjacent areas not affected by the reclamation system. It was then confirmed from the February and March, 2000 sampling events that the source area and down gradient has been remediated to below NMWQQC standards. All aspects of the NMOCD previously approved groundwater management plan has been adhered to. Therefore, AMOCO is requesting permanent closure status for this site.

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

REVISED DATE: MARCH 21, 2000
FILENAME: (GE-1Q-00.WK4) NJV

								BTEX EPA METHOD 8021 (PPB)			
SAMPLE DATE	MONITOR WELL #	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. (umhos/cm)	pH	PRODUCT (ft)	Benzene	Toluene	Ethyl Benzene	Total Xylene
12-Jun-96	MW #1	14.74	19.00	570	1,000	7.1		ND	ND	ND	ND
12-Jun-96	MW #2	14.90	18.90	860	1,100	7.0		359	416	1070	12580
20-Mar-97		14.32			2,000	7.1		1020	41.4	148	839.8
24-Jun-97		15.26			1,500	7.2		1468	111	1087	1403
17-Sep-97		14.23			2,100	7.1		8.9	4.7	45.6	214.1
18-Dec-97		11.79			2,300	7.7		1.5	1.4	3.9	22.3
24-Feb-98		14.85			2,100	7.7		0.4	0.9	5.6	7.6
02-Jun-98		15.61			2,000	7.0		3.2	5.9	3.3	4.4
25-Feb-00		14.26			2,200	7.7		ND	ND	5.1	6.0
08-Mar-00		14.40	ENVIROTECH		2,250	7.6		ND	ND	ND	ND
"	DUP.	"			"	"		0.2	0.4	0.3	1.9
"		"	ON-SITE		"	"		ND	ND	3.0	3.8
"	DUP.	"			"	"		ND	ND	2.8	3.5
12-Jun-96	MW #3	15.44	18.70				0.17				
27-Dec-96		13.70			600	7.7		56	744	179	6650
20-Mar-97		14.80			800	7.7		13.9	113	20.0	369.1
24-Jun-97		15.67			1,200	7.1		1426	22.9	33.1	162.2
17-Sep-97		14.72			700	7.8		ND	21.0	12.3	218.2
18-Dec-97		14.35			700	8.6		ND	0.6	0.6	4.6
24-Feb-98		15.18			600	8.6		ND	0.5	0.3	7.9
02-Jun-98		16.00			900	7.4		ND	4.6	1.9	11.3
25-Feb-00		14.73			1,000	7.8		ND	ND	ND	ND
24-Feb-98	MW #5	14.17	20.00		1,100	7.3		1455	1393	459	979
02-Jun-98		15.00			1,200	7.0		505	479	30.8	397
29-Sep-98		13.61			1,000	7.5		170	295	44.6	579
17-Dec-98		12.65			600	7.7		37.1	27.5	3.9	133.4
22-Feb-99		13.39			700	7.5		4.9	3.6	2.1	49.8
28-May-99		14.52			900	8.0		2.4	1.4	1.7	8.1
30-Aug-99		13.83			800	7.8		1.7	0.5	ND	0.7
13-Dec-99		13.15			800	7.9		3.4	14.8	4.9	21.3
25-Feb-00		13.80			1,000	7.4		5.5	ND	ND	ND
24-Feb-98	MW #6	14.12	20.00		1,000	7.3		57.3	61.5	ND	36.5
02-Jun-98		14.94			1,200	6.9		2.2	12.2	2.7	15.4
29-Sep-98		12.60			1,000	7.5		0.9	0.8	0.4	4.6
17-Dec-98		12.52			900	7.1		ND	0.7	ND	3.2
22-Feb-99		13.34			1,000	7.8		3.0	2.1	2.8	21.7
25-Feb-00		13.79			900	7.6		ND	ND	ND	ND
20-Mar-98	TW #1	14.18	20.00					86.2	1.0	2.9	733
22-Feb-99		13.41	20.00		800	7.5		ND	0.2	0.2	1.1
20-Mar-98	TW #2	13.89	20.00					800	0.3	32.1	586
22-Feb-99		12.87	20.00		900	7.5		6.8	ND	ND	6.3
25-Feb-00		13.00			900	7.2		ND	ND	ND	ND
20-Mar-98	TW #3	14.25	20.00					97.8	6.8	591	702
22-Feb-99		13.03	20.00		700	7.3		0.7	0.2	1.5	3.7
25-Mar-98	TW #4	13.95	20.00					ND	ND	ND	1.5
22-Feb-99		13.03	20.00		700	7.6		2.3	0.9	0.3	1.9
25-Mar-98	TW #5	13.60	20.00					1.7	0.3	ND	2.1
24-Feb-99		14.12	20.00		-	-		-	-	-	-
25-Mar-98	TW #6	13.43	20.00					ND	1.6	ND	2.5
22-Feb-99		12.57	20.00		900	7.6		2.1	13.2	16.2	33.3
25-Feb-00		12.84			800	7.4		ND	ND	ND	ND

GENERAL WATER QUALITY

BP / AMOCO

GCU # 93E

SAMPLE DATES : 6 / 12 / 96 & 2 / 24 / 98

PARAMETERS	MW # 1	MW # 2	MW # 5	MW # 6	Units
LAB pH	7.8	7.5	6.91	6.97	s. u.
LAB CONDUCTIVITY @ 25 C	964	1,150	1,165	1,100	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	570	860	580	550	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	501	682	578	549	mg / L
SODIUM ABSORPTION RATIO	NA	NA	0.0	0.4	ratio
TOTAL ALKALINITY AS CaCO3	310	430	510	490	mg / L
TOTAL HARDNESS AS CaCO3	174	368	494	436	mg / L
BICARBONATE as HCO3	310	430	510	490	mg / L
CARBONATE AS CO3	NA	NA	< 1	< 1	mg / L
HYDROXIDE AS OH	NA	NA	< 1	< 1	mg / L
NITRATE NITROGEN	NA	NA	0.6	0.4	mg / L
NITRITE NITROGEN	NA	NA	0.001	< 0.001	mg / L
CHLORIDE	3.33	7.50	26.2	9.6	mg / L
FLUORIDE	NA	NA	0.60	0.71	mg / L
PHOSPHATE	NA	NA	0.7	0.4	mg / L
SULFATE	136	154	44.6	57.1	mg / L
IRON	NA	NA	NA	NA	mg / L
CALCIUM	23.9	128	172	146	mg / L
MAGNESIUM	27.8	12.1	15.6	17.6	mg / L
POTASSIUM	< 5.0	< 5.0	7.0	2.5	mg / L
SODIUM	120	120	1.2	17.2	mg / L
CATION / ANION DIFFERENCE	1.82	2.59	0.08	0.01	%

GENERAL WATER QUALITY

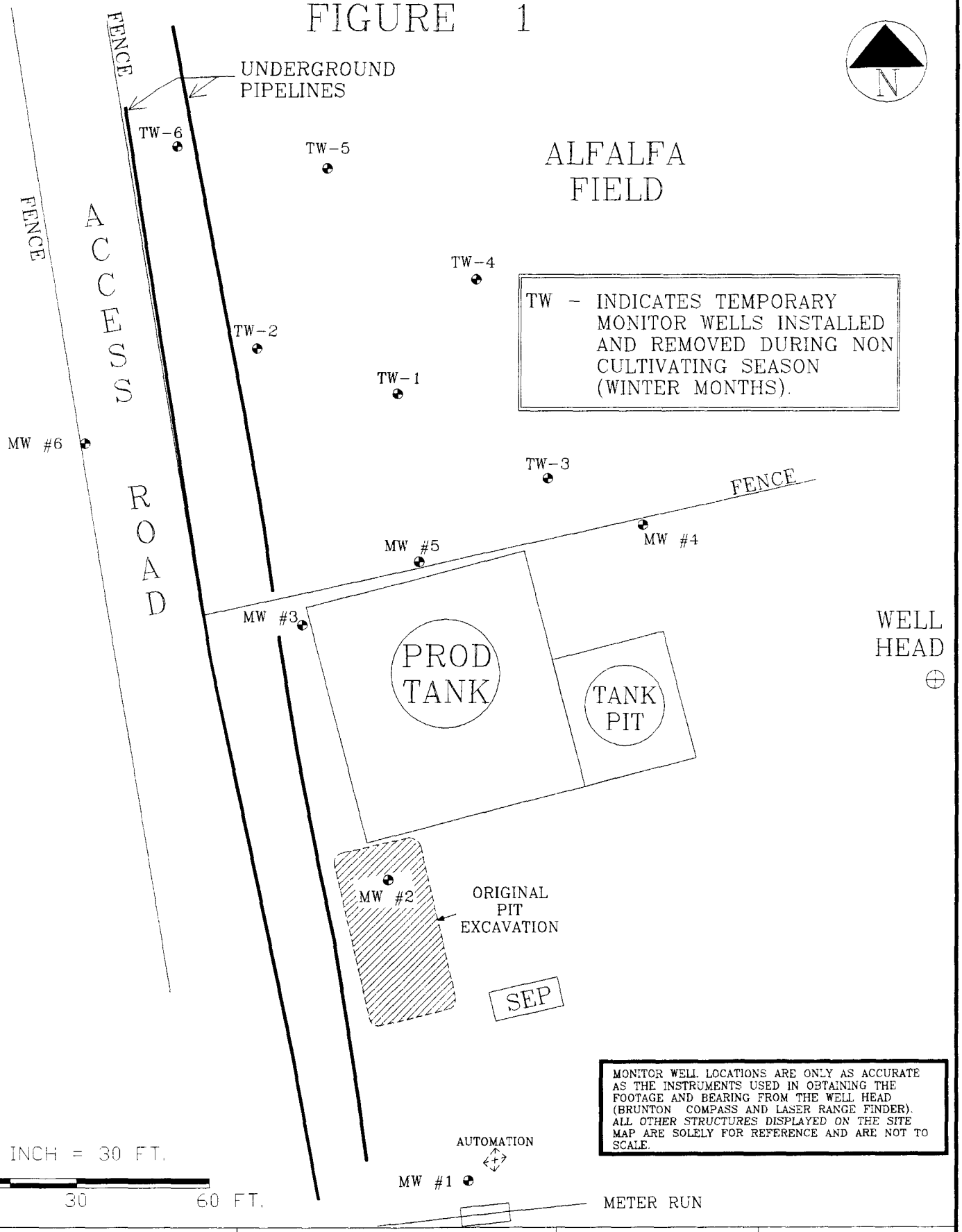
BP AMOCO

GCU # 93E

SAMPLE DATE : 3 / 8 / 00

PARAMETERS	MW # 1	MW # 2	TW - 6	Units
LAB pH	7.04	7.16	7.34	s. u.
LAB CONDUCTIVITY @ 25 C	1,250	4,420	1,150	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	620	2,200	574	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	596	2,178	562	mg / L
SODIUM ABSORPTION RATIO	1.2	1.7	1.3	ratio
TOTAL ALKALINITY AS CaCO3	420	160	292	mg / L
TOTAL HARDNESS AS CaCO3	371	1,310	332	mg / L
BICARBONATE as HCO3	420	160	292	mg / L
CARBONATE AS CO3	< 0.1	< 0.1	< 0.1	mg / L
HYDROXIDE AS OH	< 0.1	< 0.1	< 0.1	mg / L
NITRATE NITROGEN	1.0	27.8	1.5	mg / L
NITRITE NITROGEN	0.002	0.304	0.003	mg / L
CHLORIDE	2.5	3.0	5.2	mg / L
FLUORIDE	0.30	1.94	0.33	mg / L
PHOSPHATE	0.8	0.4	0.8	mg / L
SULFATE	137	1,390	195	mg / L
IRON	0.012	0.014	0.005	mg / L
CALCIUM	129	506	115	mg / L
MAGNESIUM	11.9	10.7	10.7	mg / L
POTASSIUM	4.5	0.7	0.8	mg / L
SODIUM	53.8	140	55.2	mg / L
CATION / ANION DIFFERENCE	0.03	0.00	0.02	%

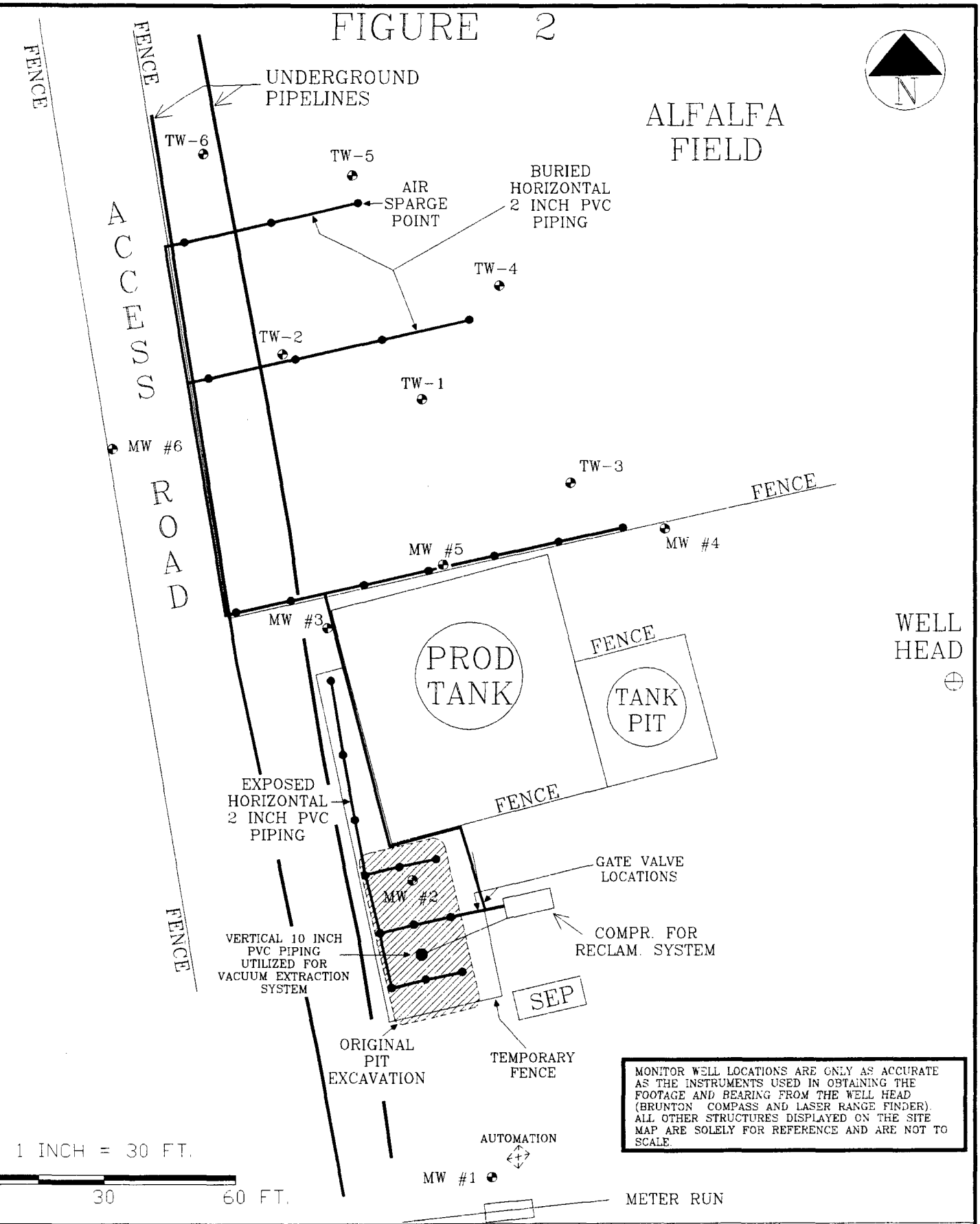
FIGURE 1



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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: REMED. PLAN DRAWN BY: NJV FILENAME: 93E-SM REVISED: 3/25/98 NJV	SITE MAP 3/98

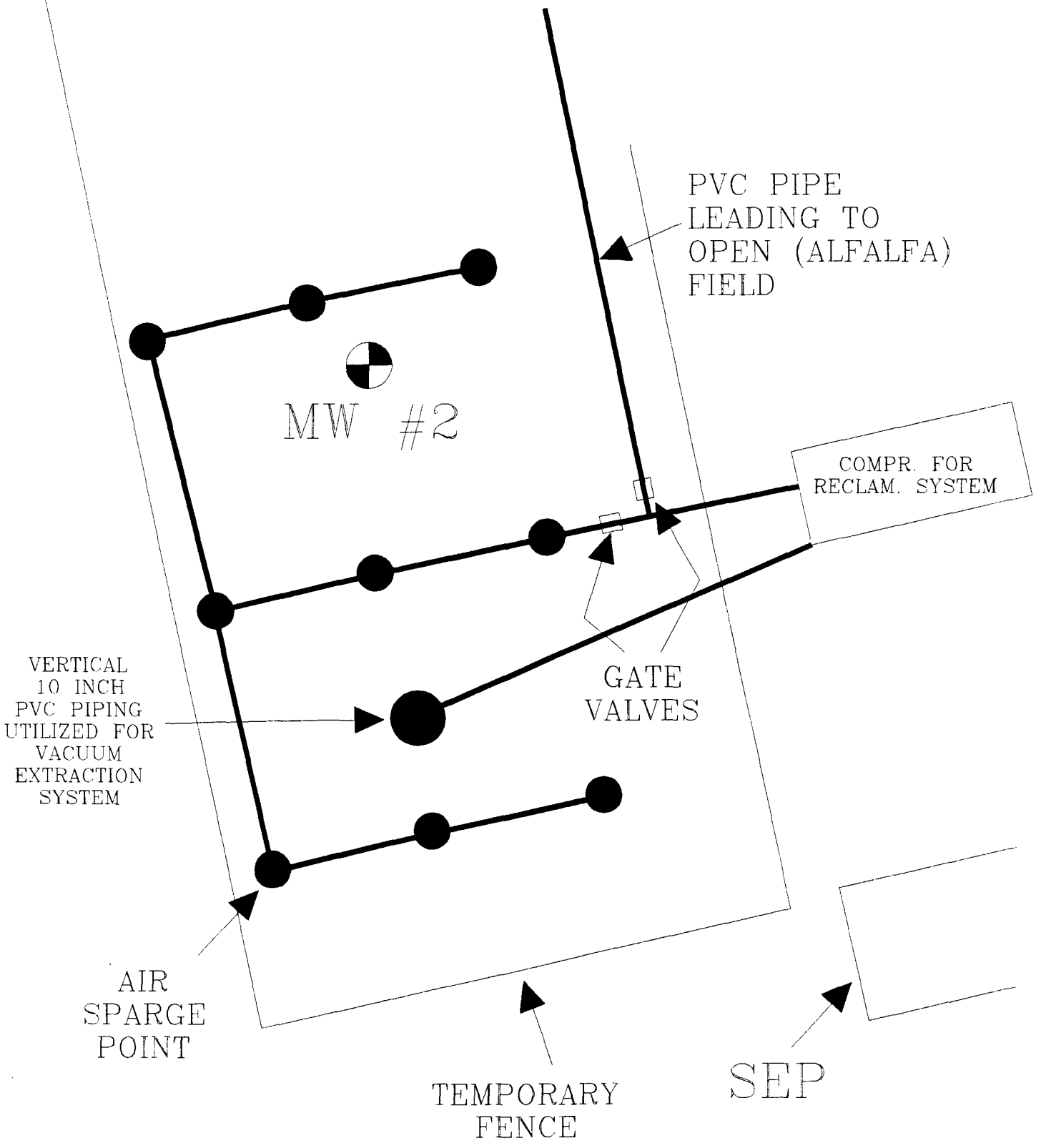
FIGURE 2



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

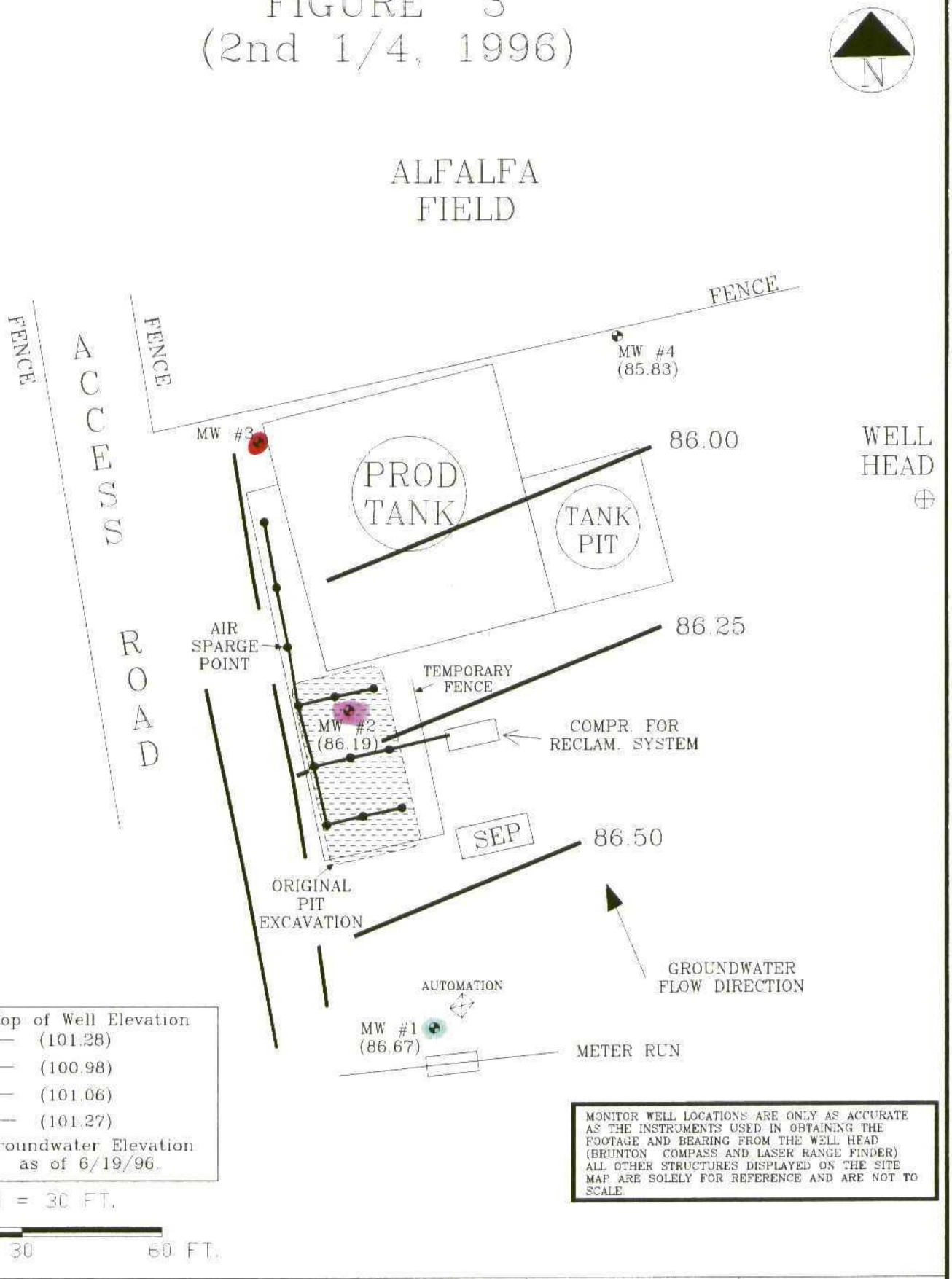
AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: REMED. SYS. DRAWN BY: NJV FILENAME: 93E-RSL REVISED: 3/27/98 NJV	AIR SPARGE SYSTEM LAYOUT 3/98

FIGURE 2A



AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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: REMED. PLAN DRAWN BY: NJV FILENAME: VALVES REVISED: 8/04/99 NJV	PVC VALVE INSTALLATION 3/98

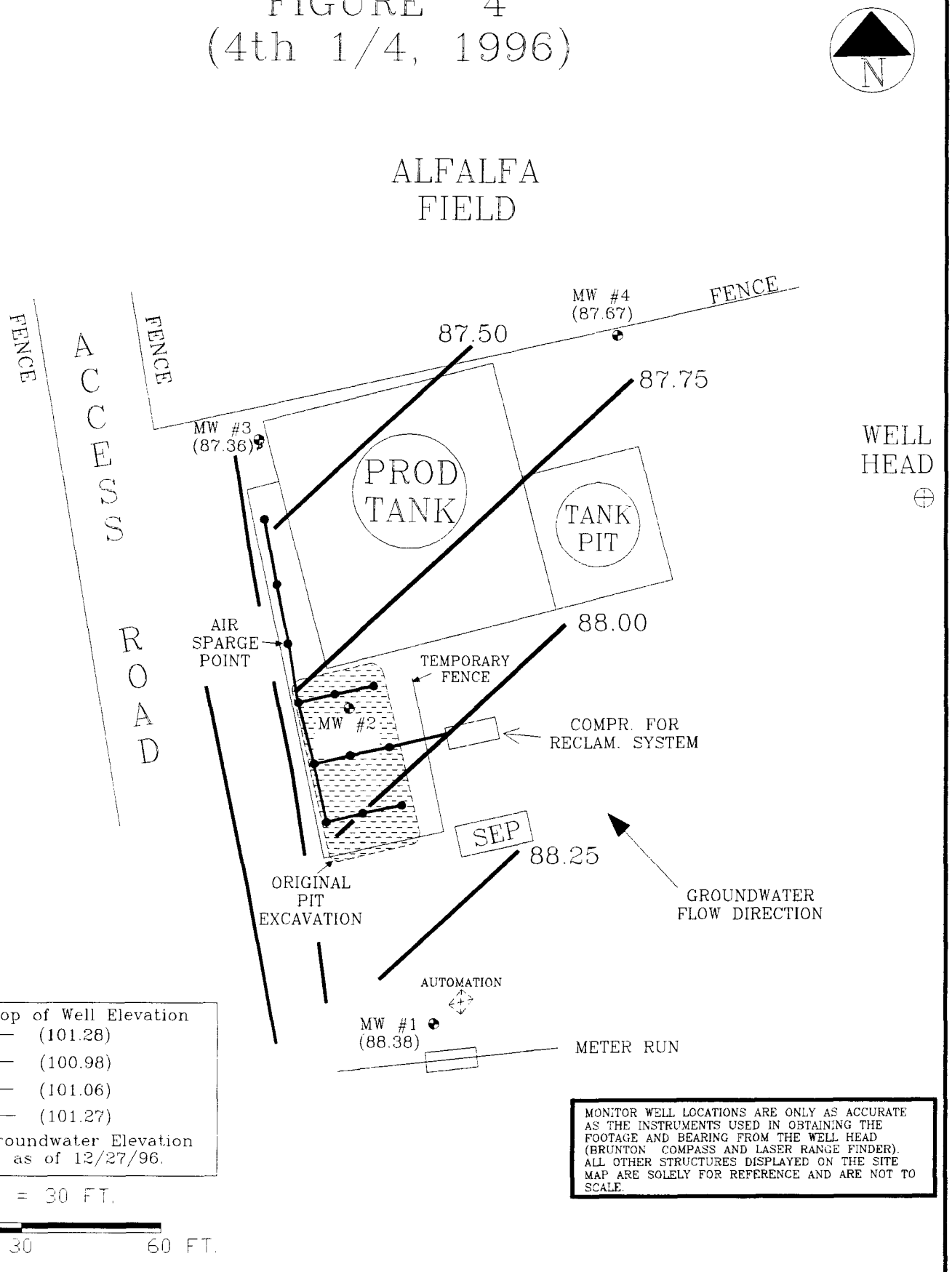
FIGURE 3
(2nd 1/4, 1996)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER) ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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 SAMP DRAWN BY: NJV FILENAME: 06-19-GW REVISED 1/10/97 NJV	GROUNDWATER GRADIENT MAP 6/96

FIGURE 4
(4th 1/4, 1996)



	Top of Well Elevation
MW #1	(101.28)
MW #2	(100.98)
MW #3	(101.06)
MW #4	(101.27)
MW #4 (87.67)	Groundwater Elevation as of 12/27/96.

1 INCH = 30 FT.

0 30 60 FT.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

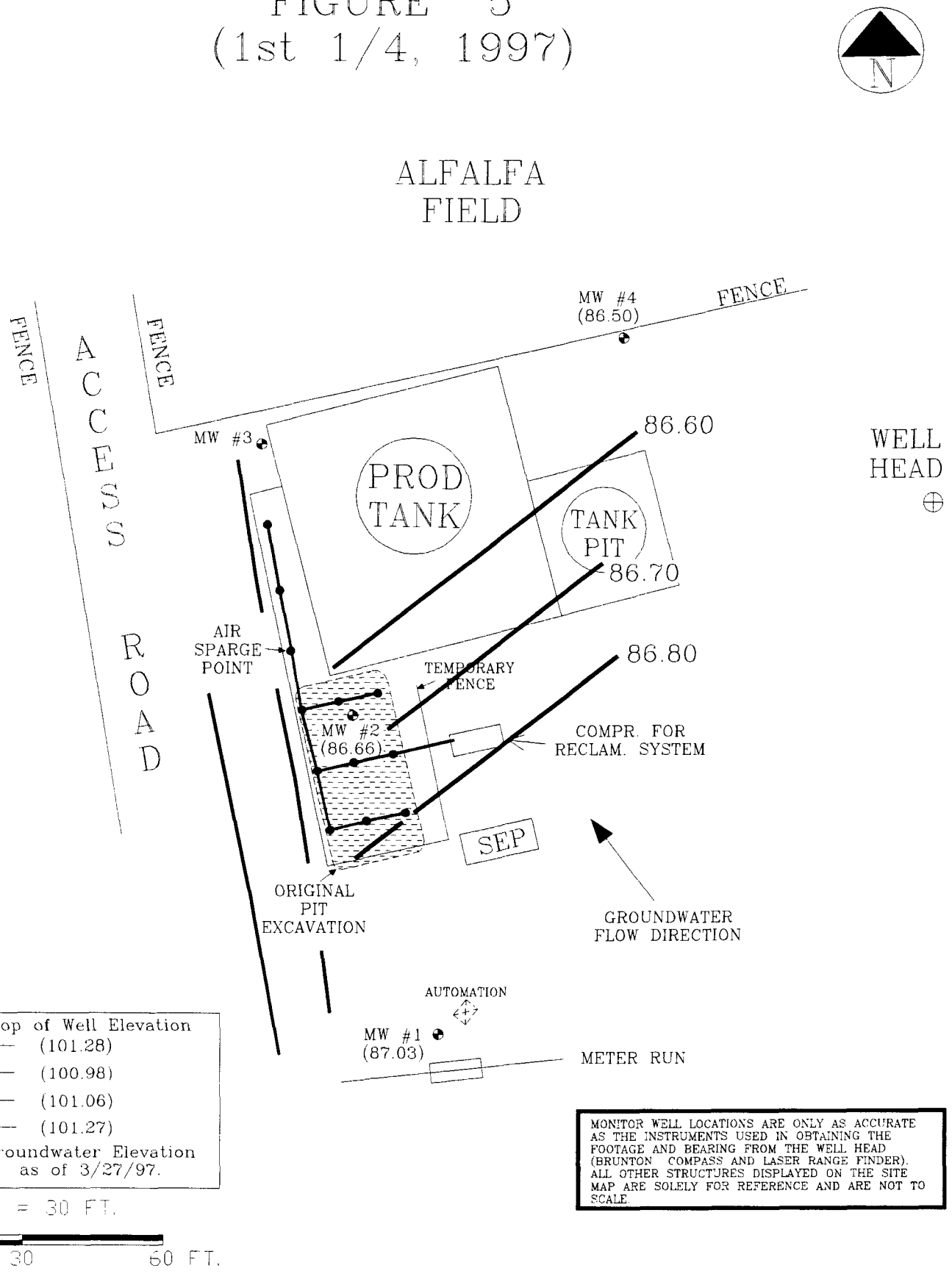
AMOCO PRODUCTION COMPANY
GCU 93E
NW/4 SW/4 SEC. 36, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: 1/4ly SAMP.
DRAWN BY: NJV
FILENAME: 12-27-GW
REVISED: 1/10/97 NJV

GROUNDWATER GRADIENT MAP 12/96

FIGURE 5
(1st 1/4, 1997)



	Top of Well Elevation
MW #1	(101.28)
MW #2	(100.98)
MW #3	(101.06)
MW #4	(101.27)
MW #4 (86.50)	Groundwater Elevation as of 3/27/97.

1 INCH = 30 FT.

0 30 60 FT.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

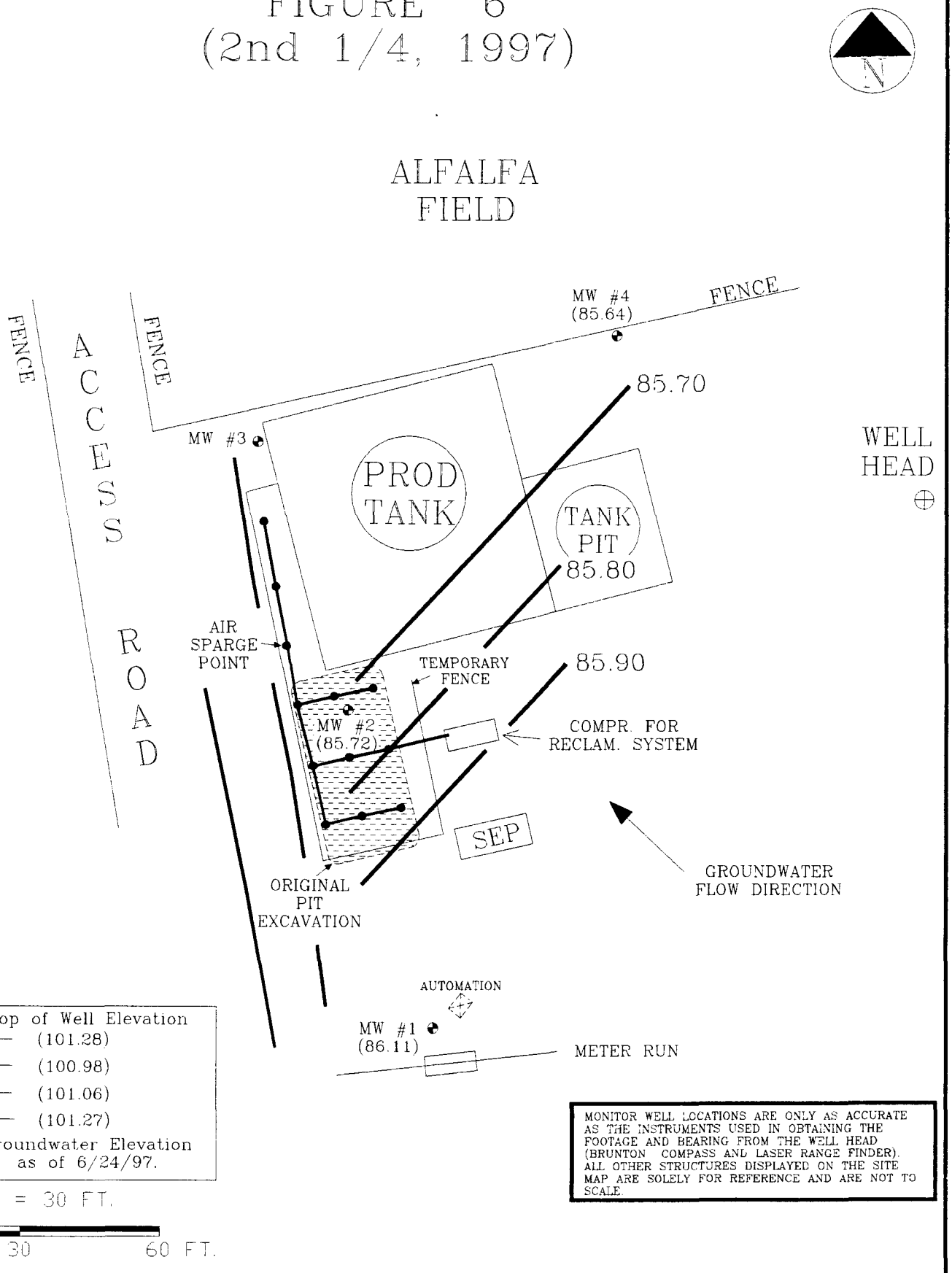
AMOCO PRODUCTION COMPANY
GCU 93E
NW/4 SW/4 SEC. 36, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: 1/4ly SAMP.
DRAWN BY: NJV
FILENAME: 03-27-GW
REVISED: 1/25/98 NJV

GROUNDWATER GRADIENT MAP 03/97

FIGURE 6
(2nd 1/4, 1997)



	Top of Well Elevation
MW #1	(101.28)
MW #2	(100.98)
MW #3	(101.06)
MW #4	(101.27)
MW #4 (85.64)	Groundwater Elevation as of 6/24/97.

1 INCH = 30 FT.

0 30 60 FT.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

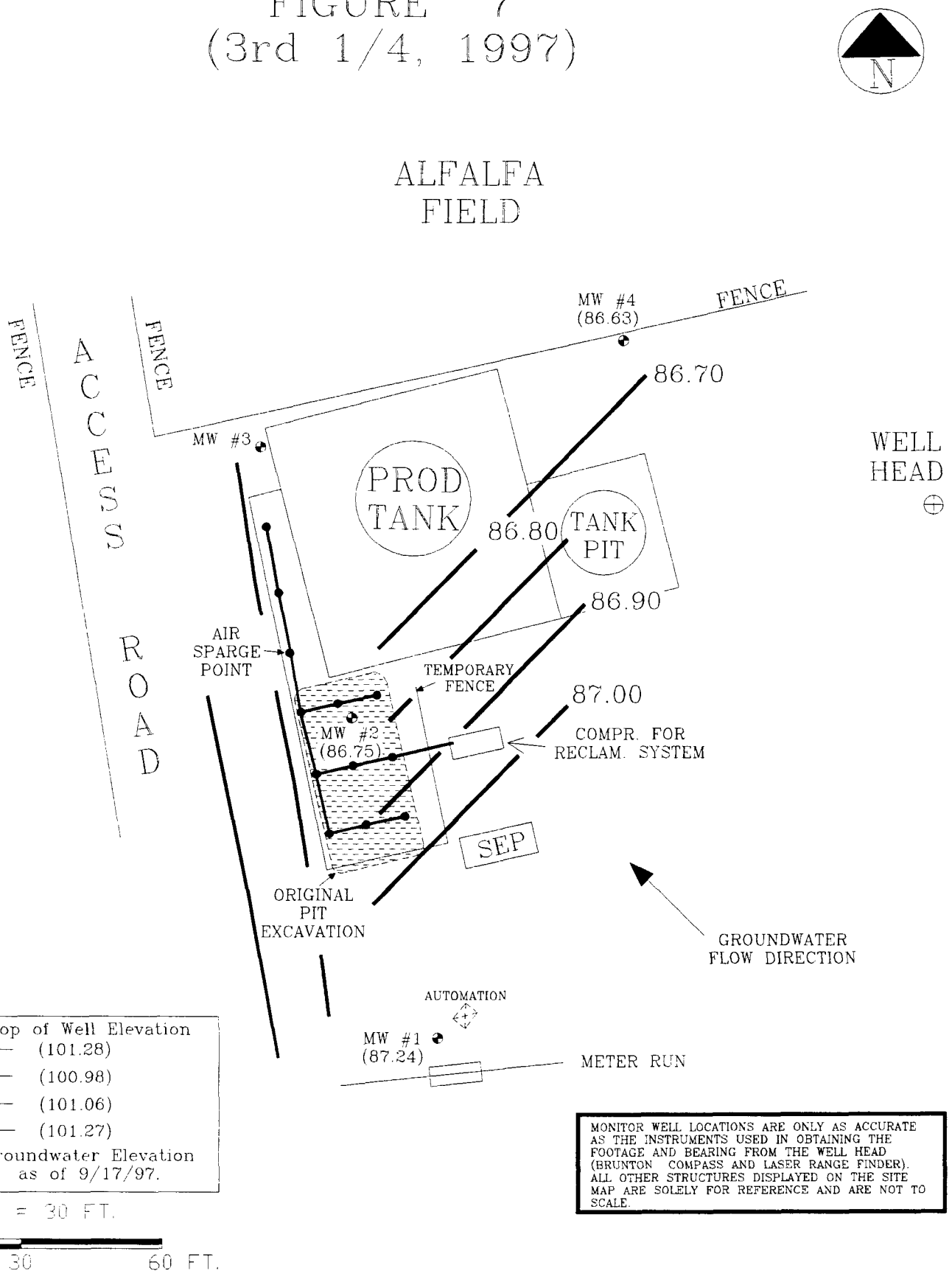
AMOCO PRODUCTION COMPANY
GCU 93E
NW/4 SW/4 SEC. 36, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: 1/4ly SAMP.
DRAWN BY: NJV
FILENAME: 06-24-GW
REVISED: 1/25/98 NJV

GROUNDWATER GRADIENT MAP 06/97

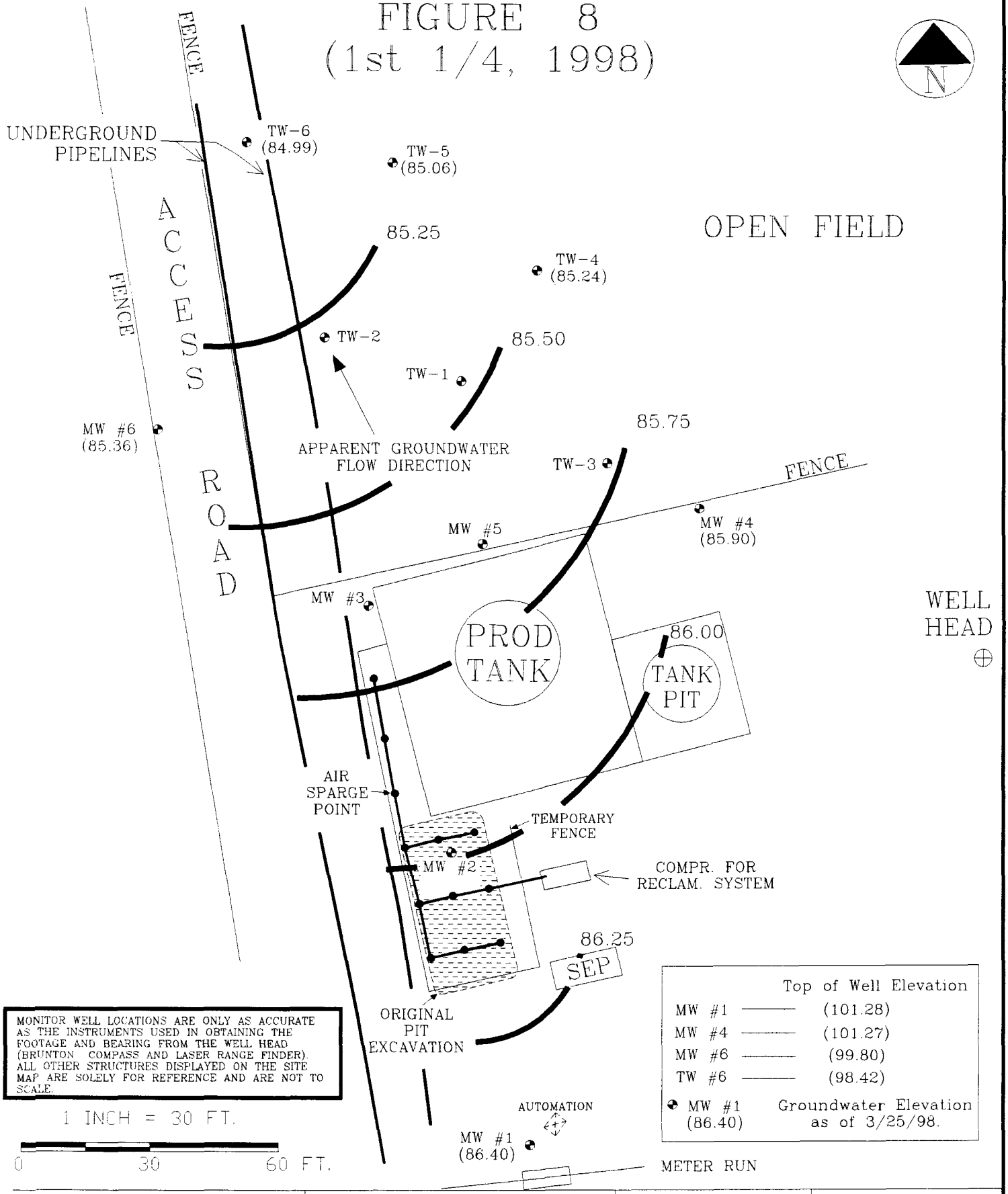
FIGURE 7
(3rd 1/4, 1997)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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 SAMP. DRAWN BY: NJV FILENAME: 09-17-GW REVISED: 1/25/98 NJV	GROUNDWATER GRADIENT MAP 09/97

FIGURE 8
(1st 1/4, 1998)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

Top of Well Elevation	
MW #1	(101.28)
MW #4	(101.27)
MW #6	(99.80)
TW #6	(98.42)

MW #1 (86.40) Groundwater Elevation as of 3/25/98.

AMOCO PRODUCTION COMPANY

GCU 93E

NW/4 SW/4 SEC. 36, T29N, R12W

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: REMED. PLAN

DRAWN BY: NJV

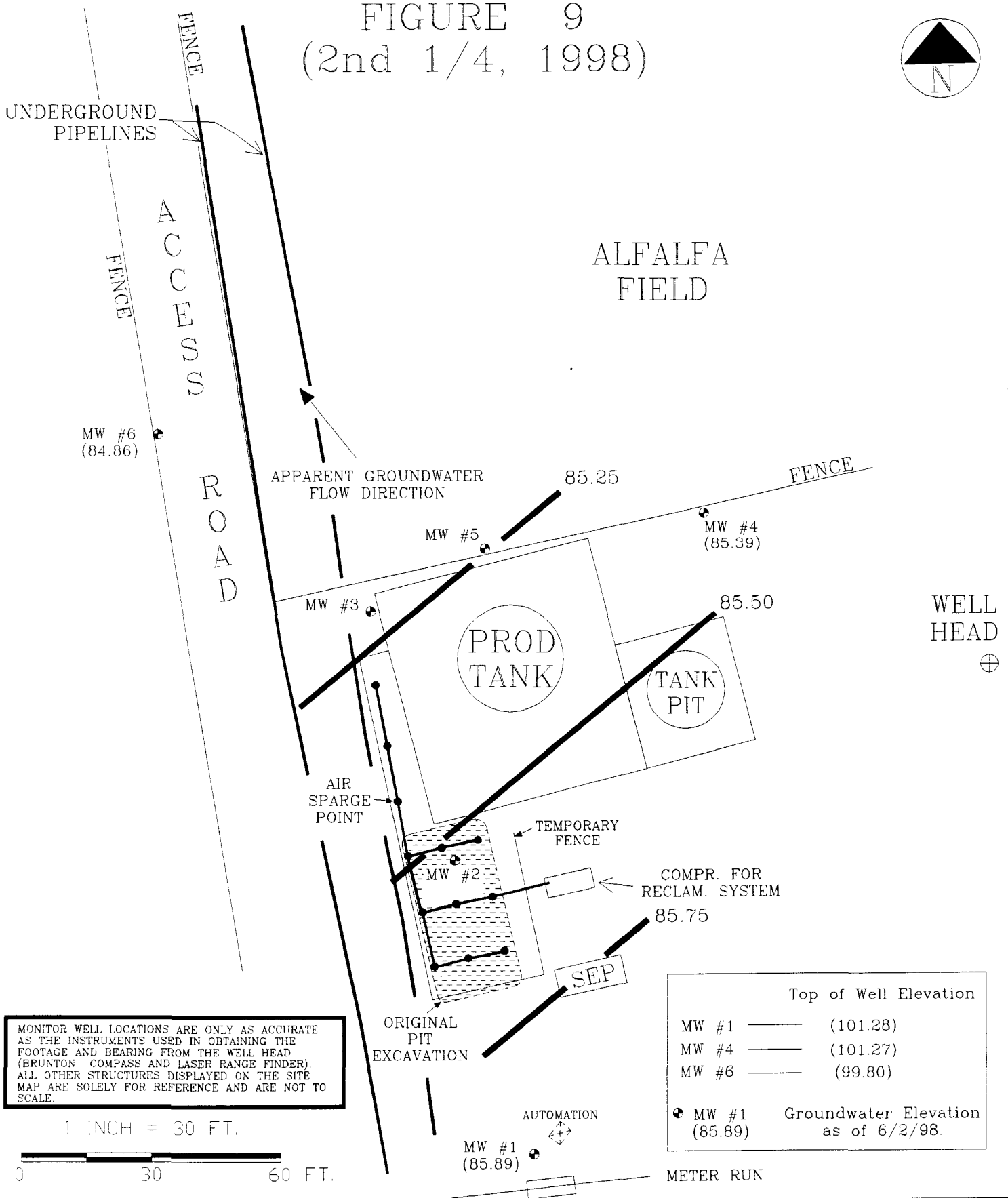
FILENAME: 03-25-GW

DRAFTED: 3/29/98 NJV

GROUNDWATER CONTOUR MAP

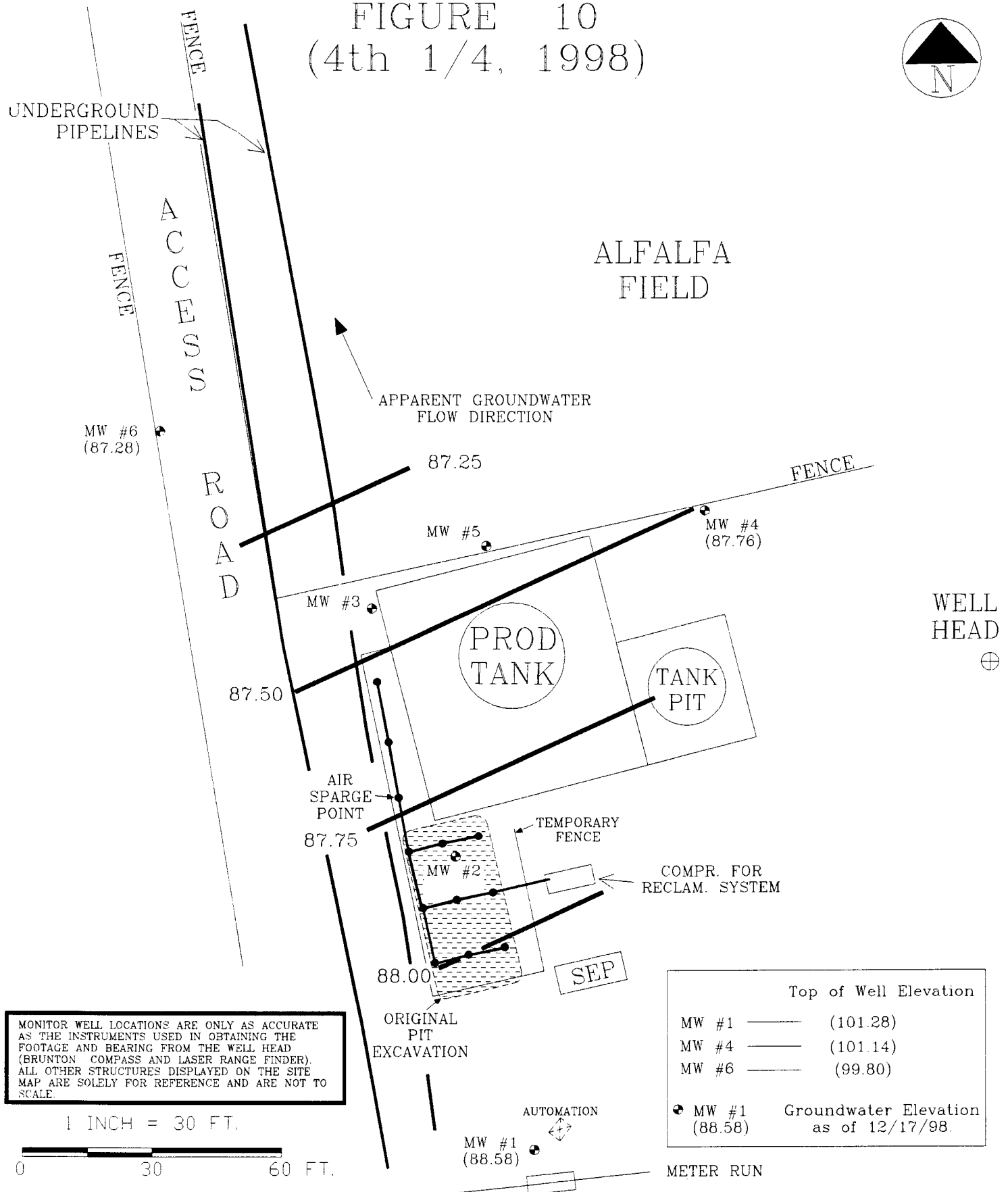
3/98

FIGURE 9
(2nd 1/4, 1998)



AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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: REMED. PLAN DRAWN BY: NJV FILENAME: 06-02-GW DRAFTED: 12/16/98 NJV	GROUNDWATER CONTOUR MAP 06/98

FIGURE 10
(4th 1/4, 1998)



AMOCO PRODUCTION COMPANY

GCU 93E

NW/4 SW/4 SEC. 36, T29N, R12W

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 SAMP.

DRAWN BY: NJV

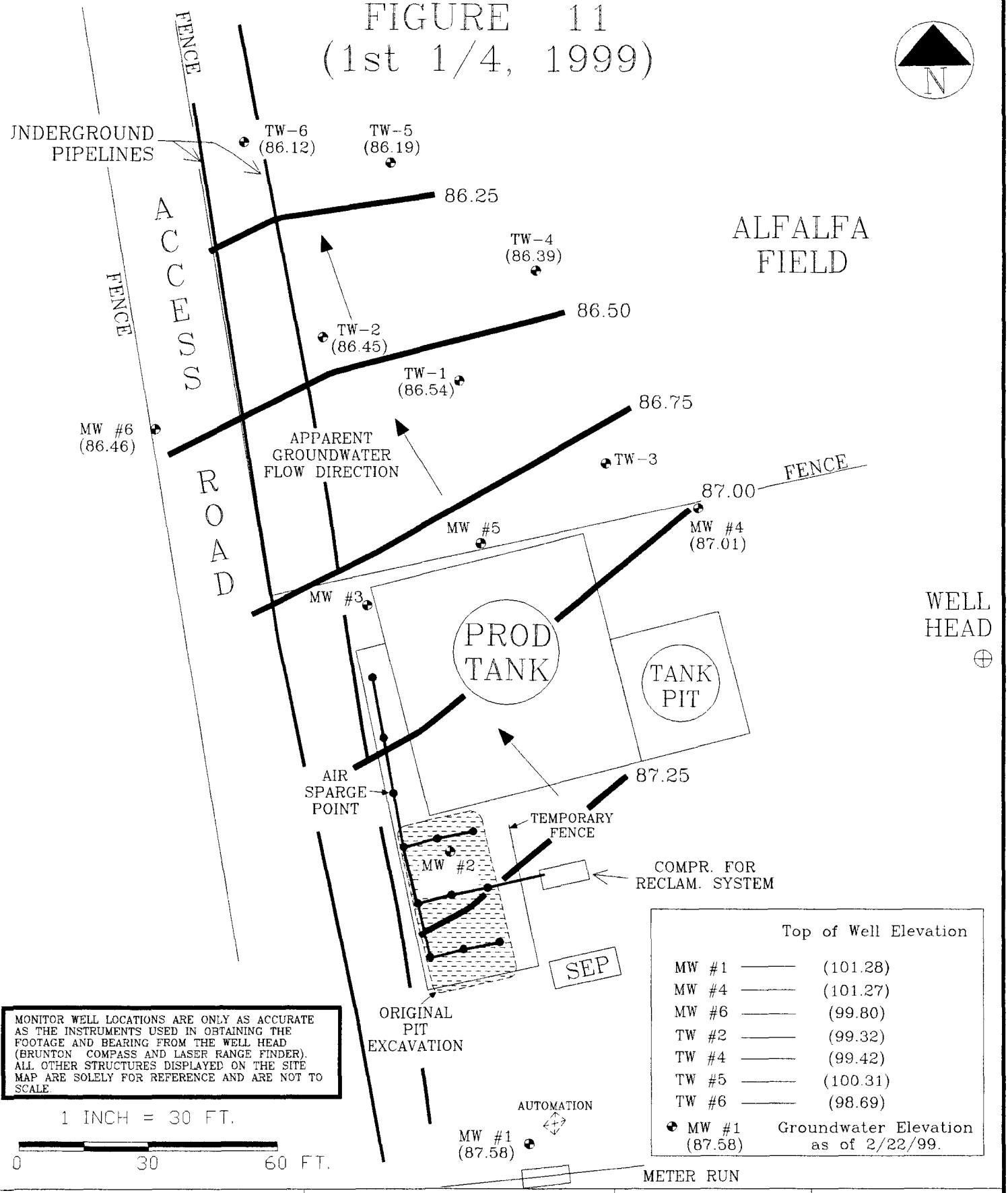
FILENAME: 12-17-GW

DRAFTED: 12/17/98 NJV

GROUNDWATER CONTOUR MAP

12/98

FIGURE 11
(1st 1/4, 1999)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

Top of Well Elevation	
MW #1	(101.28)
MW #4	(101.27)
MW #6	(99.80)
TW #2	(99.32)
TW #4	(99.42)
TW #5	(100.31)
TW #6	(98.69)

● MW #1 (87.58) Groundwater Elevation as of 2/22/99.

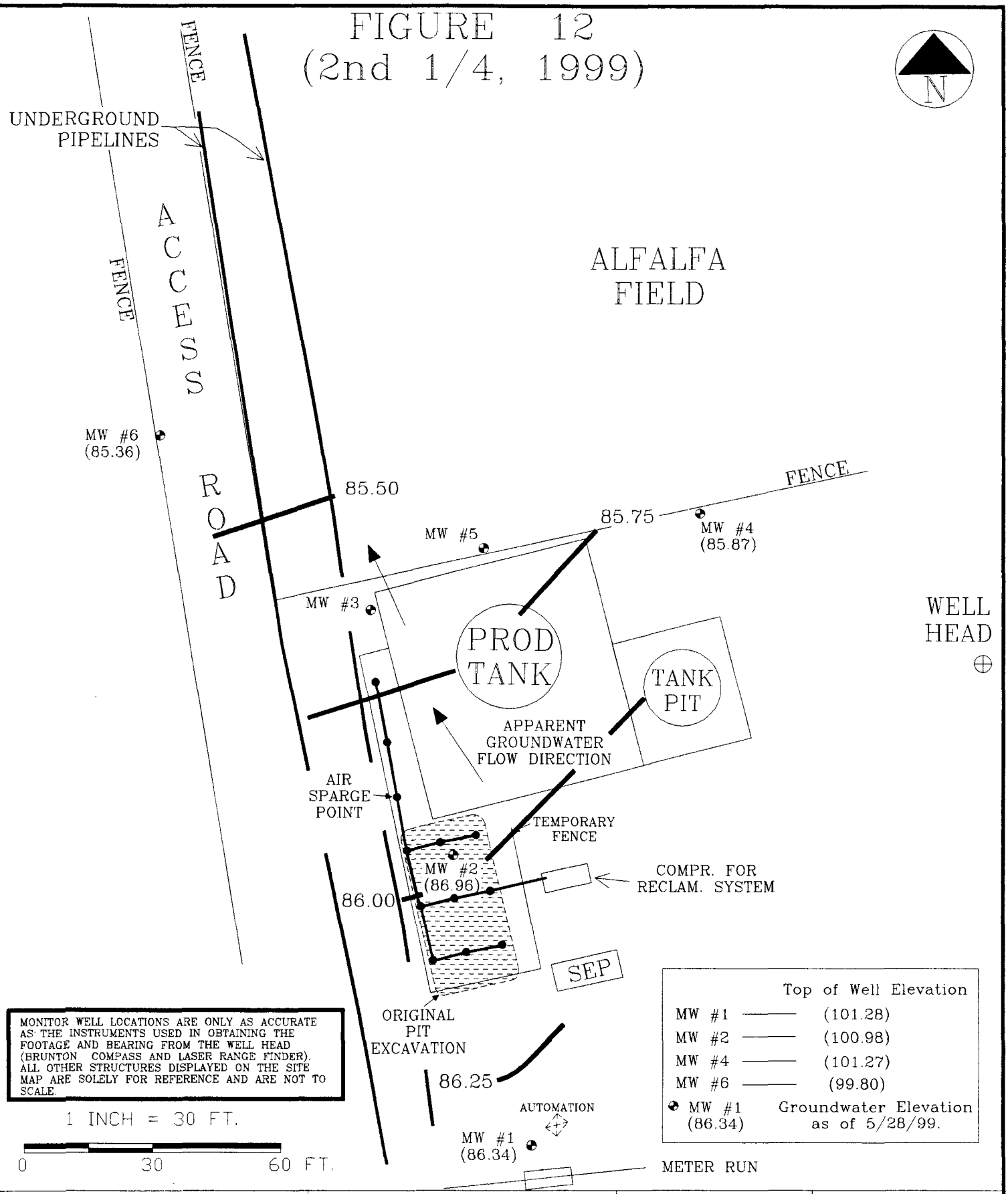
AMOCO PRODUCTION COMPANY
GCU 93E
NW/4 SW/4 SEC. 36, T29N, R12W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: 1/4ly SAMP.
DRAWN BY: NJV
FILENAME: 02-22-GW
DRAFTED: 7/22/99 NJV

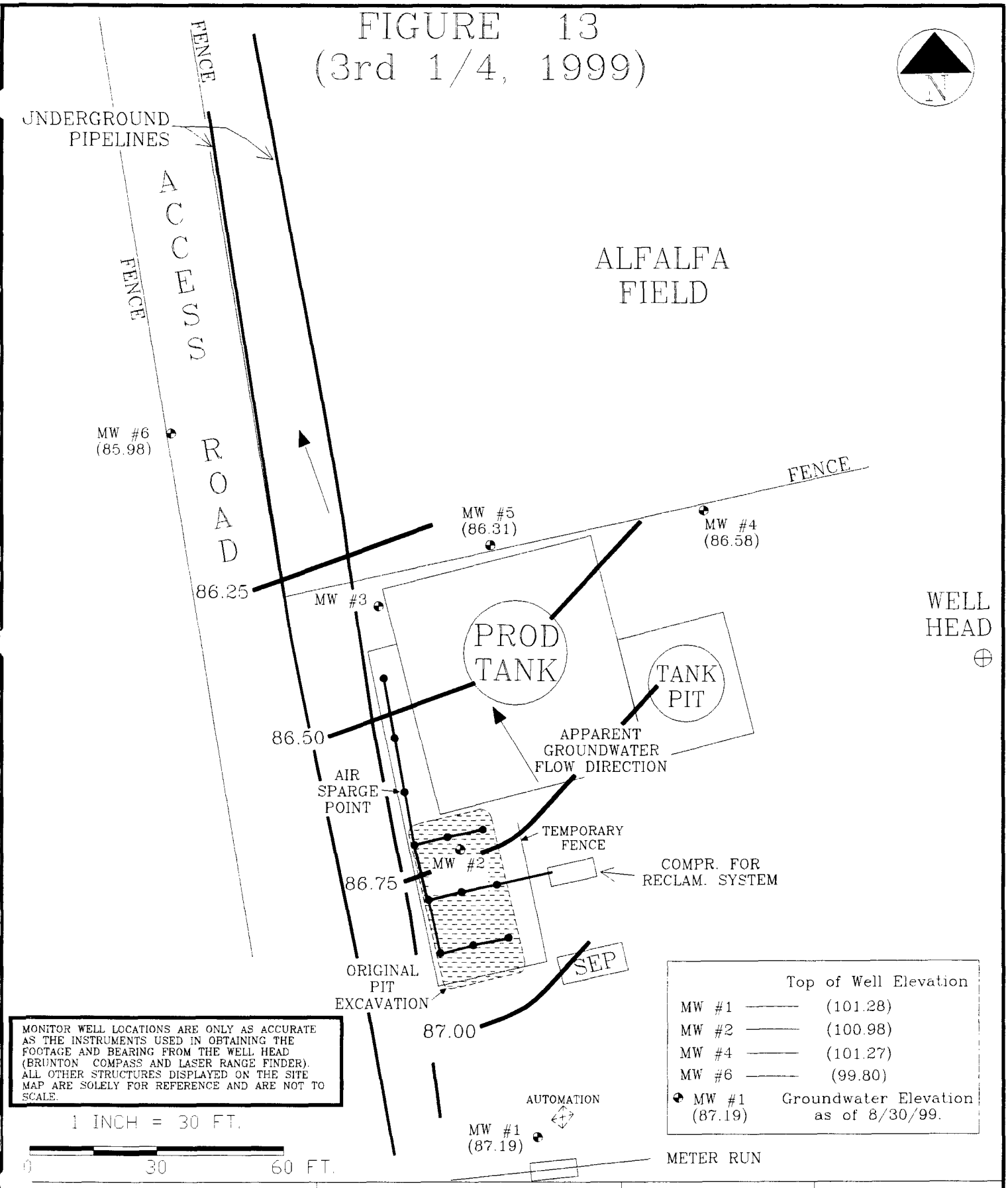
GROUNDWATER CONTOUR MAP
02/99

FIGURE 12
(2nd 1/4, 1999)



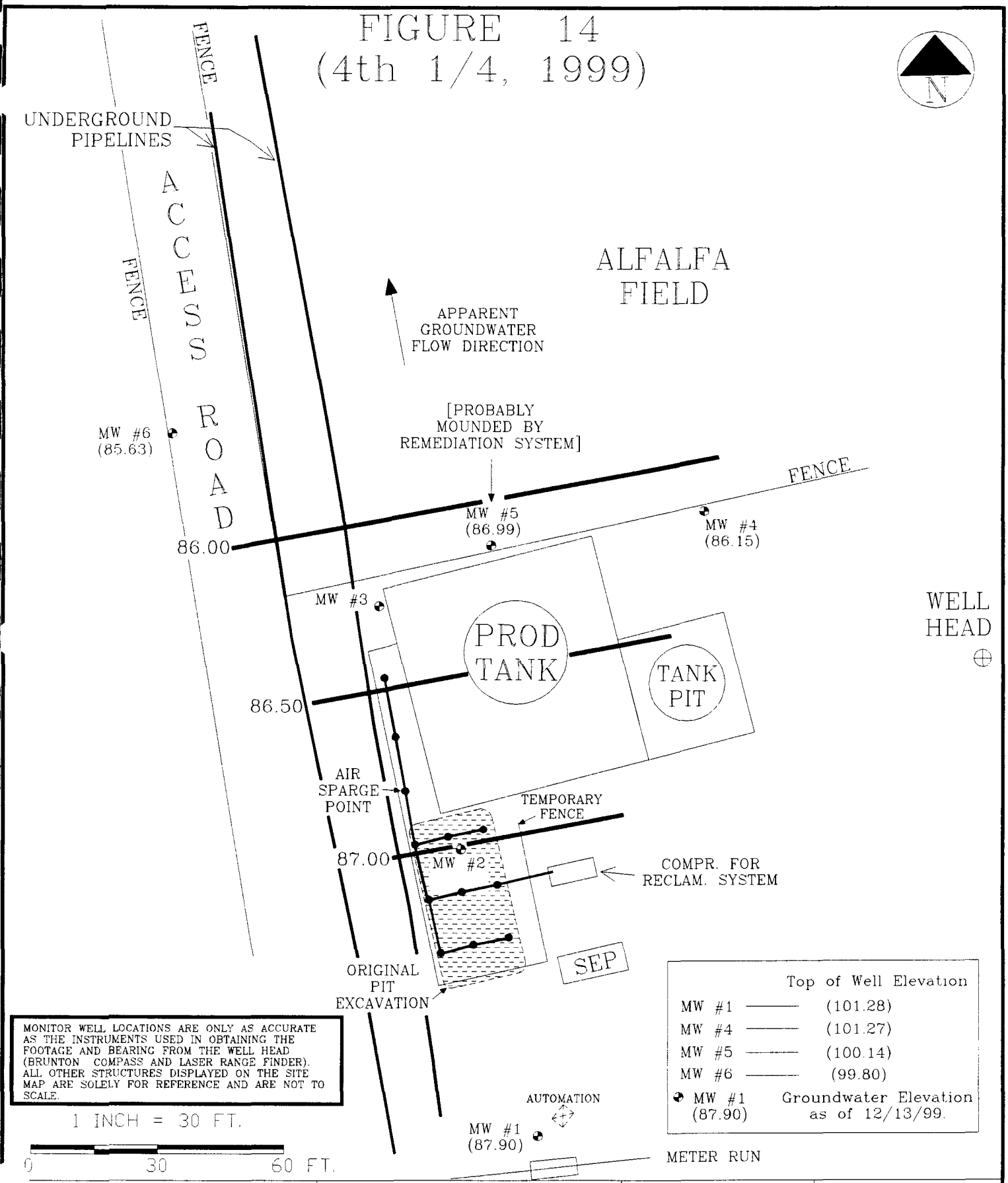
AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly SAMP. DRAWN BY: NJV FILENAME: 05-28-GW DRAFTED: 7/22/99 NJV	GROUNDWATER CONTOUR MAP 05/99

FIGURE 13
(3rd 1/4, 1999)



AMOCO PRODUCTION COMPANY GCU 93E NW/4 SW/4 SEC. 36, T29N, R12W 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 SAMP. DRAWN BY: NJV FILENAME: 08-30-GW DRAFTED: 12/23/99 NJV	GROUNDWATER CONTOUR MAP 08/99

FIGURE 14
(4th 1/4, 1999)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

Top of Well Elevation	
MW #1	(101.28)
MW #4	(101.27)
MW #5	(100.14)
MW #6	(99.80)
MW #1 (87.90)	Groundwater Elevation as of 12/13/99.

AMOCO PRODUCTION COMPANY

GCU 93E

NW/4 SW/4 SEC. 36, T29N, R12W

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 SAMP.

DRAWN BY: NJV

FILENAME: 12-13-GW

DRAFTED: 12/23/99 NJV

GROUNDWATER CONTOUR MAP

12/99

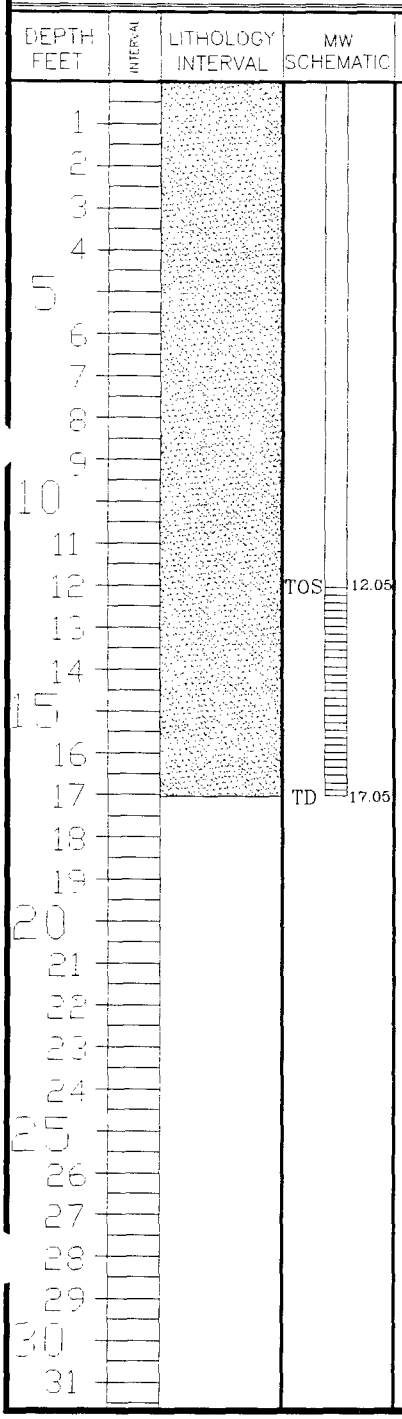
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S36W, 153 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	5/30/96
DATE FINISHED	6/03/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.95 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 17.05 FT. INTERVAL).

▼ GW DEPTH ON 6/12/96 = 12.79 FT. (APPROX.) FROM GROUND SURFACE.

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: GCU93E-1	DATE 3/07/97	DWN BY: NJV

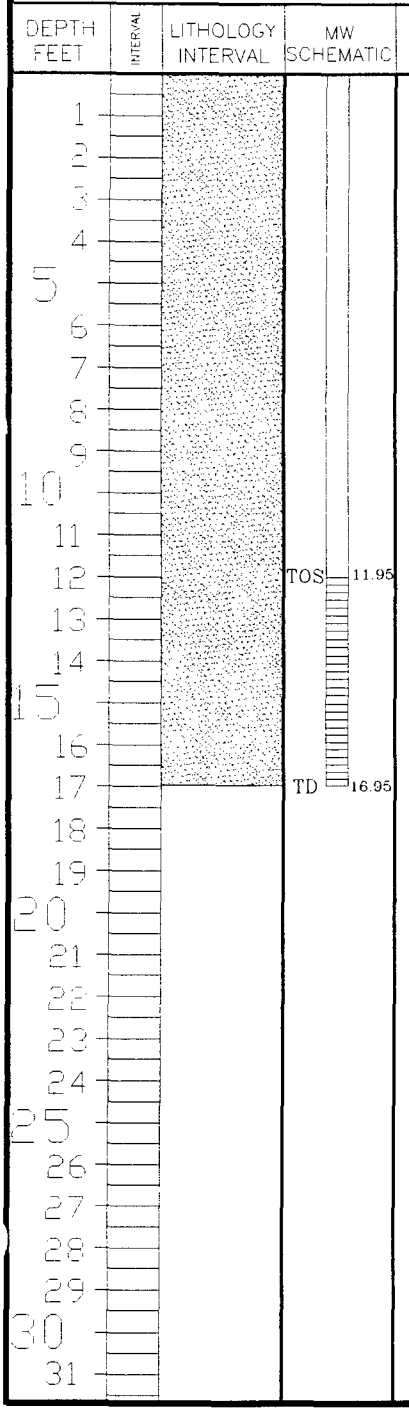
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S72W, 132 FEET FROM WELL HEAD.

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	5/30/96
DATE FINISHED	6/03/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.90 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 12.0 FT. INTERVAL), STRONG HYDROCARBON ODOR (12.0 - 16.95 FT. INTERVAL).

▼ GW DEPTH ON 6/12/96 = 12.95 FT. (APPROX.) FROM GROUND SURFACE.

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: GCU93E-2	DATE: 3/07/97	DWN BY: NJV

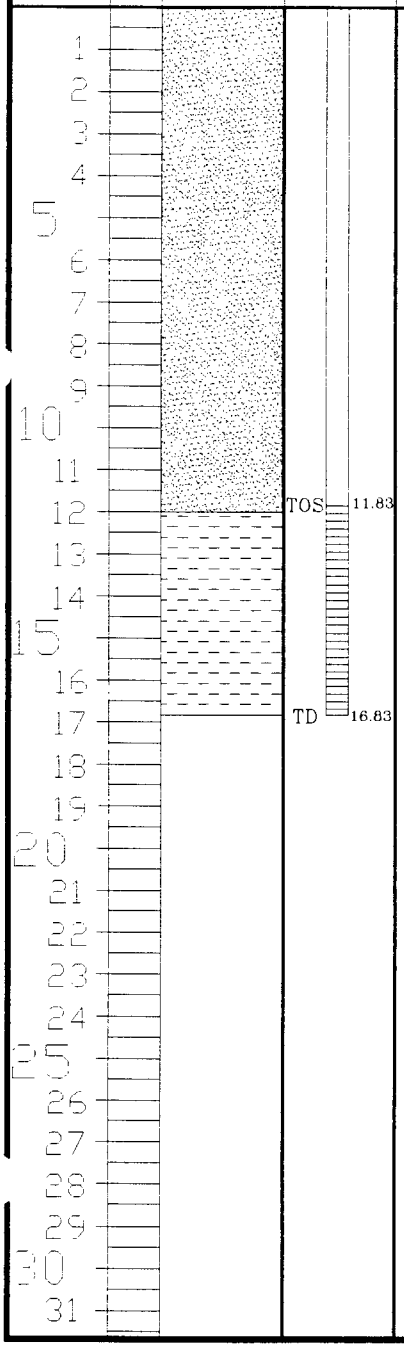
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N77W, 144 FEET FROM WELL HEAD.

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	5/30/96
DATE FINISHED	6/03/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.95 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 12.0 FT. INTERVAL).

▼ DEPTH OF PRODUCT ON 6/12/96 = 13.49 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT TO DARK GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, VERY STRONG HYDROCARBON ODOR OBSERVED (12.0 - 16.83 FT. INTERVAL).

NOTES:
- SAND TO SILTY SAND.
- SAND TO SILTY SAND (DISCOLORED).
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: GCU93E-3	DATE: 3/07/97	DWN BY: NJV

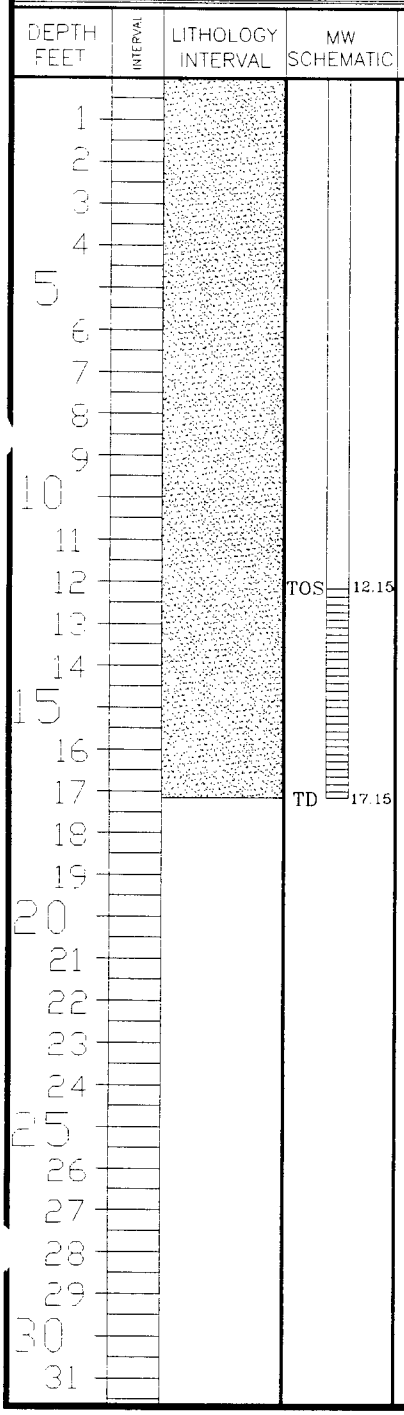
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N68W, 75 FEET FROM WELL HEAD.

BORING #.....	BH - 4
MW #.....	4
PAGE #.....	4
DATE STARTED	5/30/96
DATE FINISHED	6/03/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.65 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (AT GROUNDWATER), FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 17.15 FT. INTERVAL).

▼ GW DEPTH ON 6/19/96 = 13.79 FT. (APPROX.) FROM GROUND SURFACE.

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

MONITOR WELL USED FOR GROUND WATER CONTOURING ONLY.

DRAWING: GCU93E-4 | DATE: 3/07/97 | DWN BY: NJV

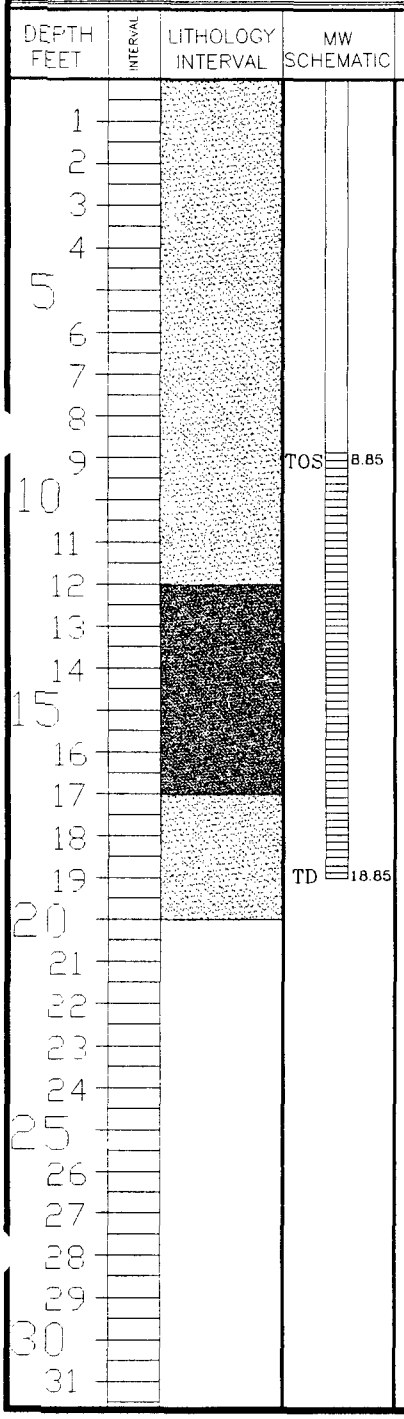
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N77W, 120 FEET FROM WELL HEAD.

BORING #.....	BH - 5
MW #.....	5
PAGE #.....	5
DATE STARTED	2/10/98
DATE FINISHED	2/10/98
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.15 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM TO LOOSE, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED (0.0 - 12.00 FT. INTERVAL).

▼ GW DEPTH ON 2/24/98 = 13.02 FT. (APPROX.) FROM GROUND SURFACE.

MEDIUM TO DARK GRAY SAND, NON COHESIVE, SLIGHTLY MOIST TO SATURATED, FIRM TO LOOSE, STRONG HYDROCARBON ODOR DETECTED (12.0 - 17.00 FT. INTERVAL).

DARK YELLOWISH BROWN TO OLIVE GRAY SILTY SAND, COHESIVE, SATURATED, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED (17.0 - 20.00 FT. INTERVAL).

NOTES:
- SAND TO SILTY SAND.
- SAND (DISCOLORED).
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: GCU93E-5	DATE: 2/20/98	DWN BY: NJV

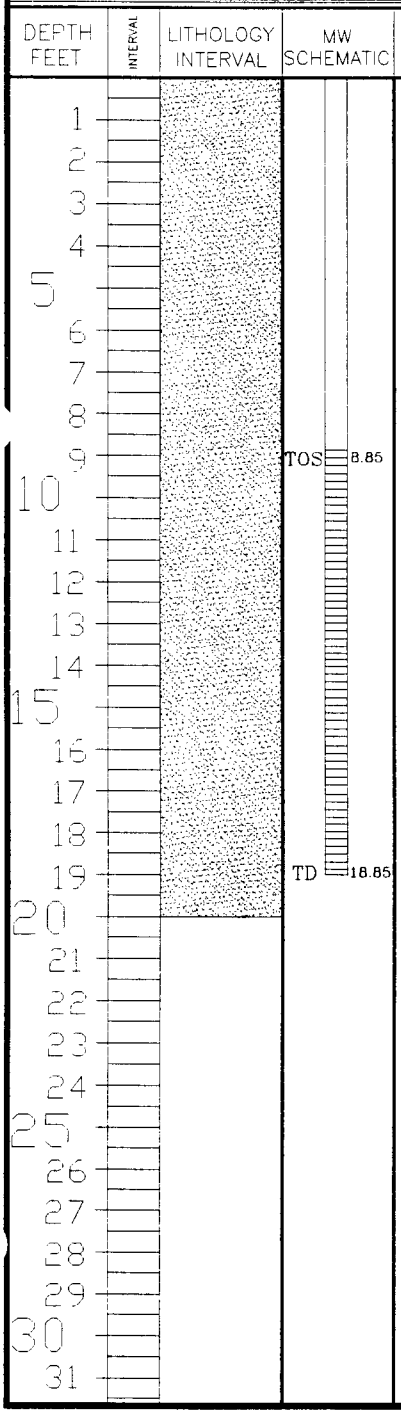
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N74.5W, 200 FEET FROM WELL HEAD.

BORING #.....	BH - 6
MW #.....	6
PAGE #.....	6
DATE STARTED	2/10/98
DATE FINISHED	2/10/98
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 1.15 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (IN GROUNDWATER), FIRM TO LOOSE, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED (0.0 - 20.00 FT. INTERVAL).

▼ GW DEPTH ON 2/24/98 = 12.97 FT. (APPROX.) FROM GROUND SURFACE.

NOTES: ▒ - SAND TO SILTY SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

DRAWING: GCU93E-6	DATE: 2/20/98	DWN BY: NJV

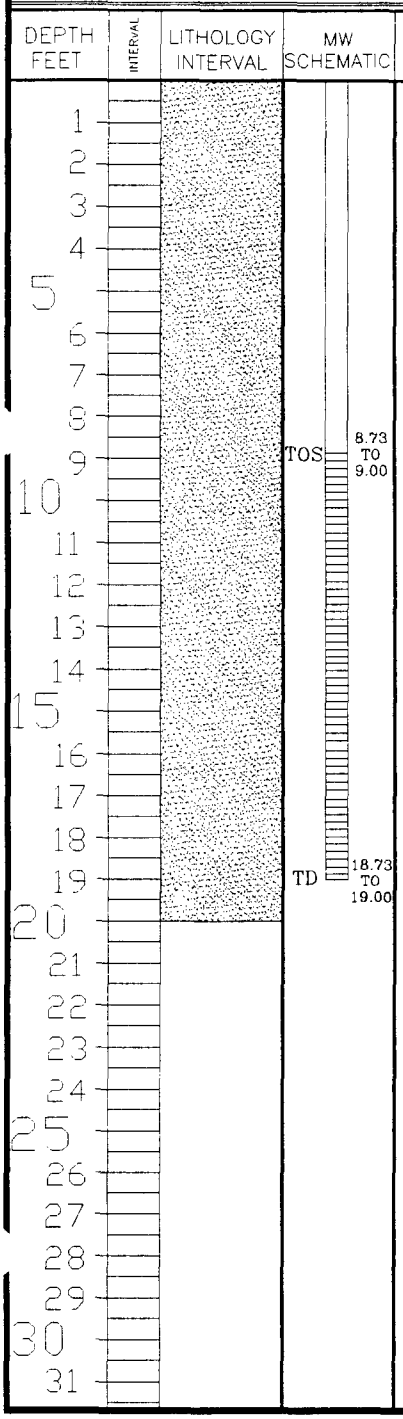
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU # 93E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	SEE NOTES BELOW

BORING #.....	BH7-12
MW #.....	TW1-6
PAGE #.....	7
DATE STARTED	3/19/98
DATE FINISHED	3/24/98
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

TW-1 TOP OF CASING APPROX. 1.17 FT. ABOVE GROUND SURFACE.
TW-2 TOP OF CASING APPROX. 1.20 FT. ABOVE GROUND SURFACE.
TW-3 TOP OF CASING APPROX. 1.27 FT. ABOVE GROUND SURFACE.
TW-4 TOP OF CASING APPROX. 1.20 FT. ABOVE GROUND SURFACE.
TW-5 TOP OF CASING APPROX. 1.12 FT. ABOVE GROUND SURFACE.
TW-6 TOP OF CASING APPROX. 1.00 FT. ABOVE GROUND SURFACE.

ALL TW # WELLS DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (IN GROUNDWATER), FIRM TO LOOSE, NO APPARENT DISCOLORATION OBSERVED OR HYDROCARBON ODOR DETECTED (0.0 - 20.00 FT. INTERVAL).

TW-1 GW DEPTH ON 3/20/98 = 13.01 FT. (APPROX.) FROM GROUND SURFACE.
TW-2 GW DEPTH ON 3/20/98 = 12.69 FT. (APPROX.) FROM GROUND SURFACE.
TW-3 GW DEPTH ON 3/20/98 = 12.98 FT. (APPROX.) FROM GROUND SURFACE.
TW-4 GW DEPTH ON 3/25/98 = 12.75 FT. (APPROX.) FROM GROUND SURFACE.
TW-5 GW DEPTH ON 3/25/98 = 12.48 FT. (APPROX.) FROM GROUND SURFACE.
TW-6 GW DEPTH ON 3/25/98 = 12.43 FT. (APPROX.) FROM GROUND SURFACE.

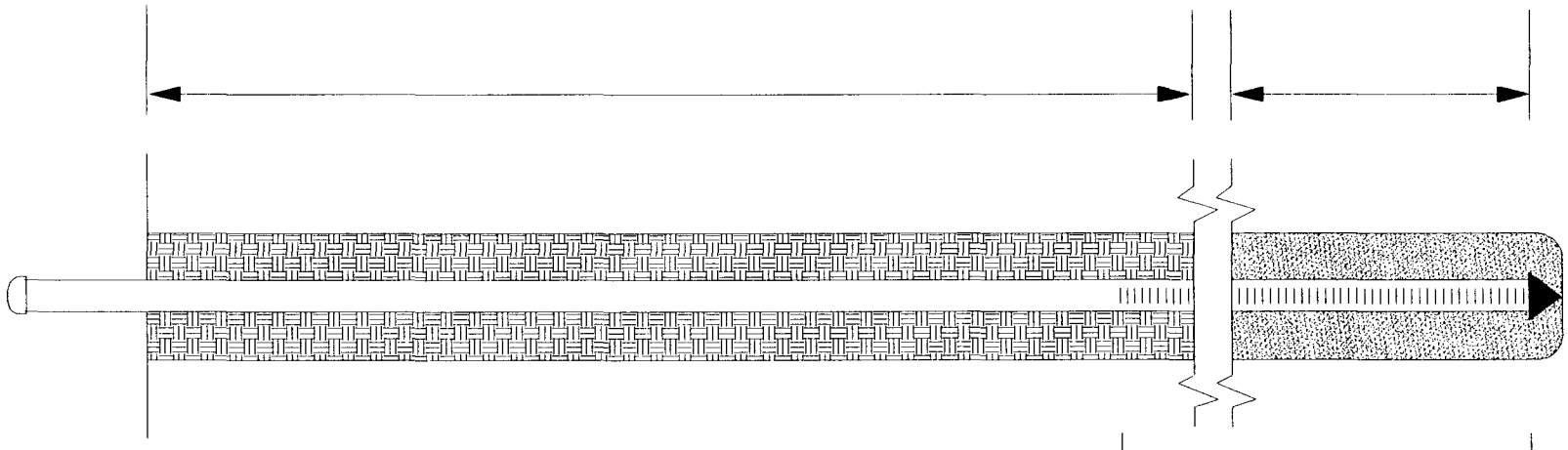
NOTES: ▒ - SAND TO SILTY SAND.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

TW-1 LOCATION: 138 FT. N62W FROM WELL HEAD.
TW-2 LOCATION: 171 FT. N64W FROM WELL HEAD.
TW-3 LOCATION: 99 FT. N62.5W FROM WELL HEAD.
TW-4 LOCATION: 138 FT. N49W FROM WELL HEAD.
TW-5 LOCATION: 180 FT. N50W FROM WELL HEAD.
TW-6 LOCATION: 210 FT. N55W FROM WELL HEAD.

DRAWING: GCU93E-7	DATE: 3/27/98	DWN BY: NJV

MONITOR WELL #1



AMOCO PRODUCTION COMPANY

GCU # 93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: MAR. '97

FILENAME: MW-1

MONITOR WELL #2

AMOCO PRODUCTION COMPANY

GCU # 93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

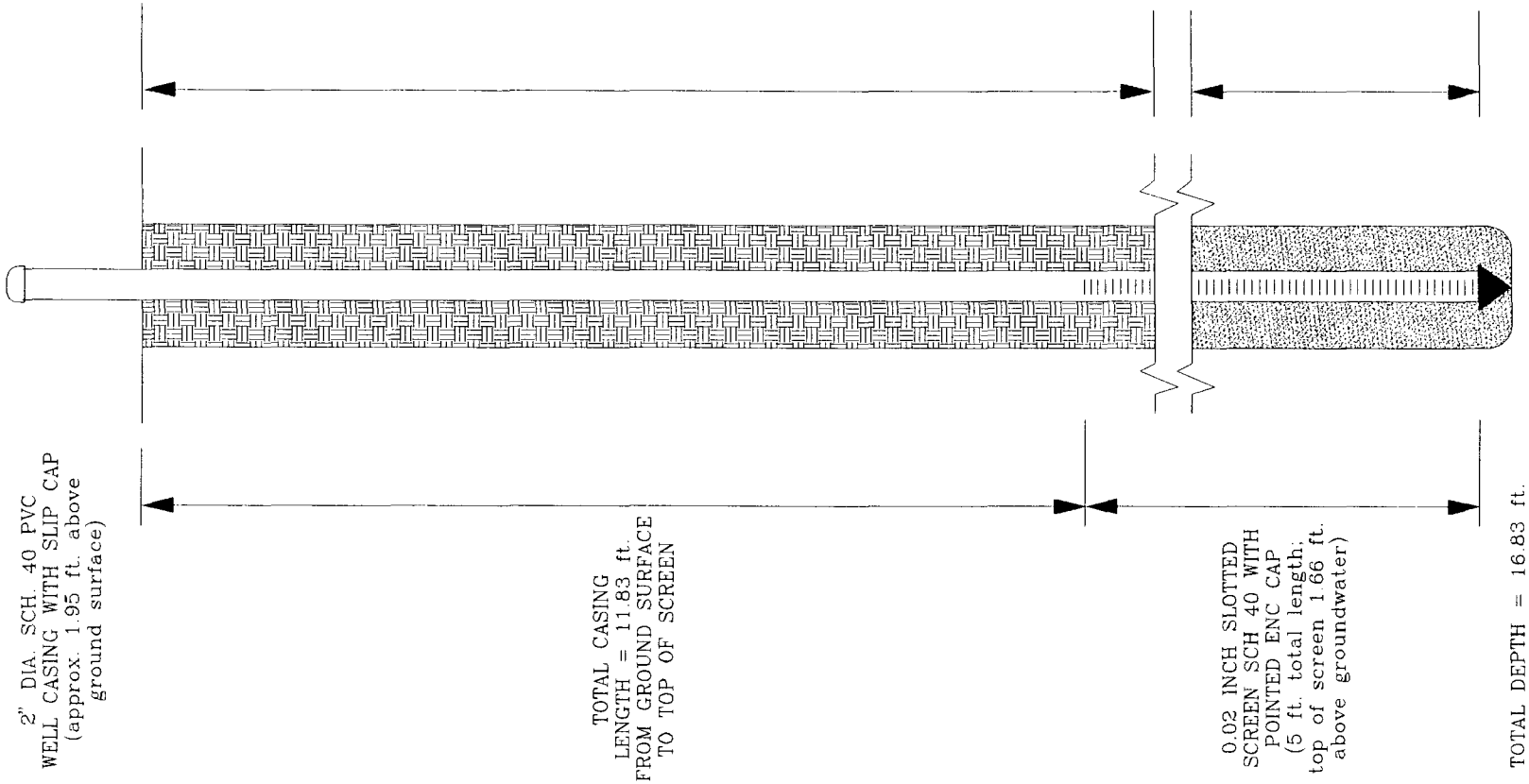
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: MAR. '97

FILENAME: MW-2

MONITOR WELL #3



AMOCO PRODUCTION COMPANY

GCU # 93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

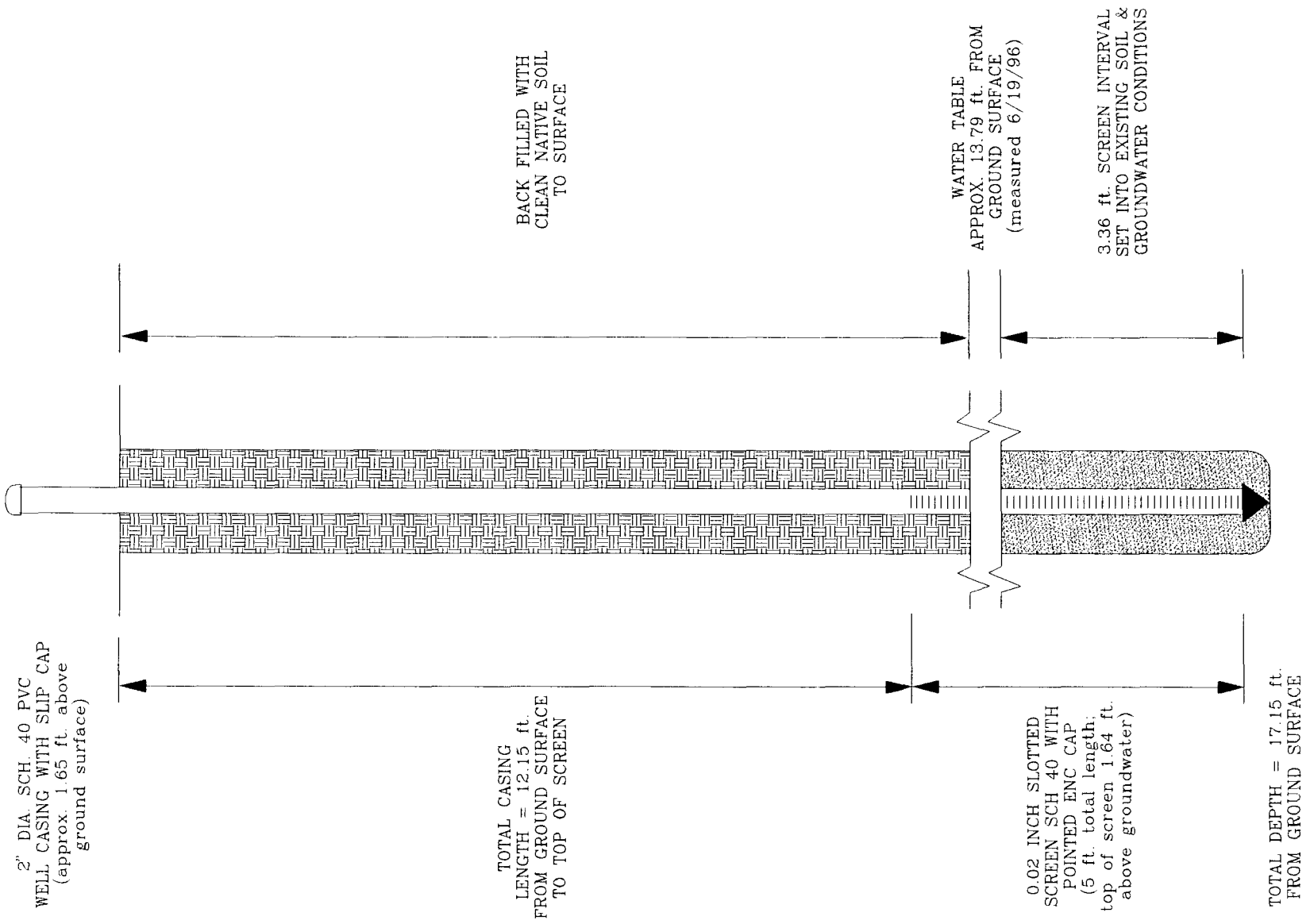
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: MAR. '97

FILENAME: MW-3

MONITOR WELL #4
(USED FOR GROUNDWATER ELEVATION ONLY)



AMOCO PRODUCTION COMPANY

GCU # 93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: MAR. '97

FILENAME: MW-4

MONITOR WELL #5

AMOCO PRODUCTION COMPANY

GCU #93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

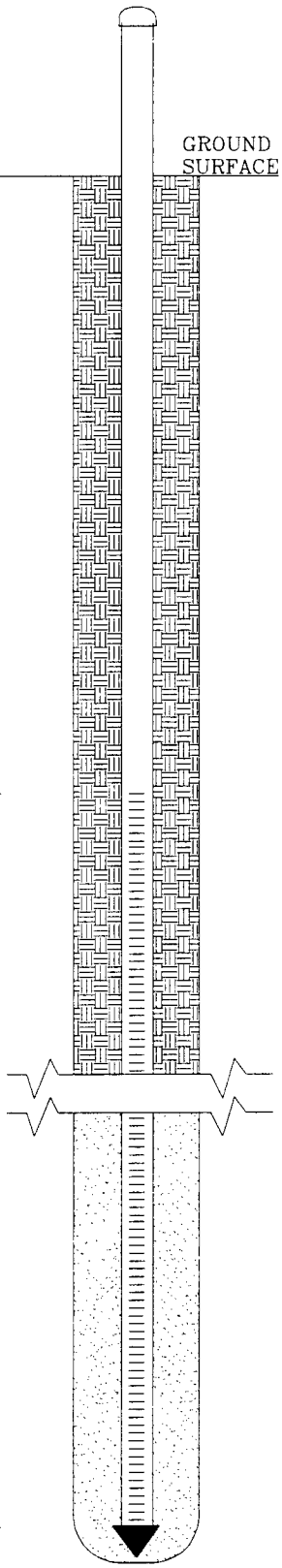
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

INSTALL. DATE: FEB. '98

FILENAME: MW-5



2" DIA. SCH. 40 PVC WELL CASING WITH SLIP CAP (approx. 1.15 ft. above ground surface)

GROUND SURFACE

TOTAL CASING LENGTH = 8.85 ft. FROM GROUND SURFACE TO TOP OF SCREEN

13.02 ft. ANNULAR ABOVE WATER TABLE COMPLETED WITH COLORADO SILICA SAND

0.02 INCH SLOTTED SCREEN SCH 40 (top of screen approx. 4.17 ft. above water table)

WATER TABLE APPROX. 13.02 ft. FROM GROUND SURFACE (measured 2/24/98)

0.02 INCH SLOTTED SCREEN SCH 40 WITH POINTED END CAP (10 ft. total length; approx. 5.83 ft. below water table)

6.98 ft. ANNULAR BELOW WATER TABLE COMPLETED WITH EXISTING SOIL

TOTAL DEPTH = 18.85 ft. FROM GROUND SURFACE

MONITOR WELL #6

AMOCO PRODUCTION COMPANY

GCU #93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

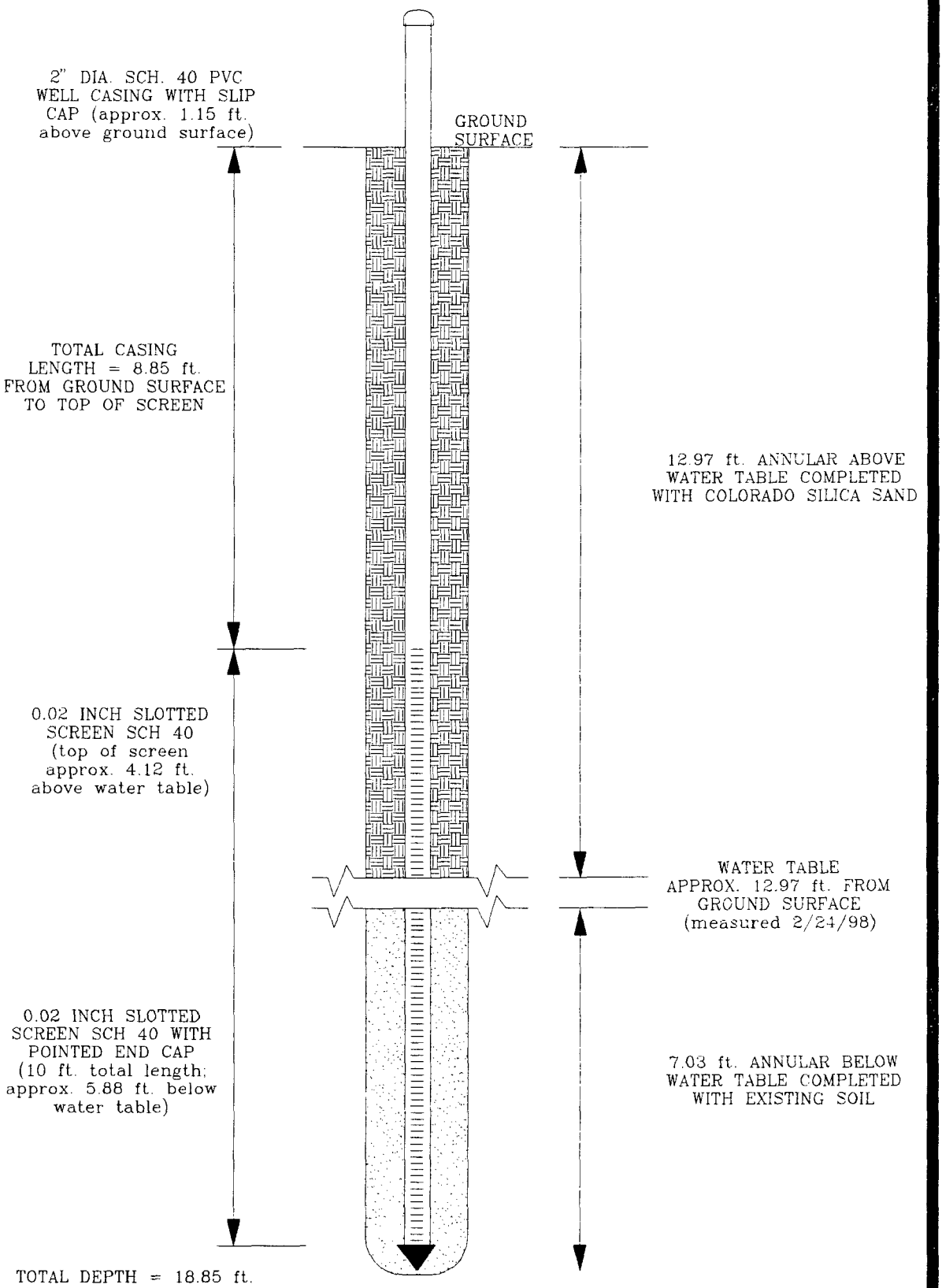
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

INSTALL. DATE: FEB. '98

FILENAME: MW 6



TW-1 THRU TW-6

AMOCO PRODUCTION COMPANY

GCU #93E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

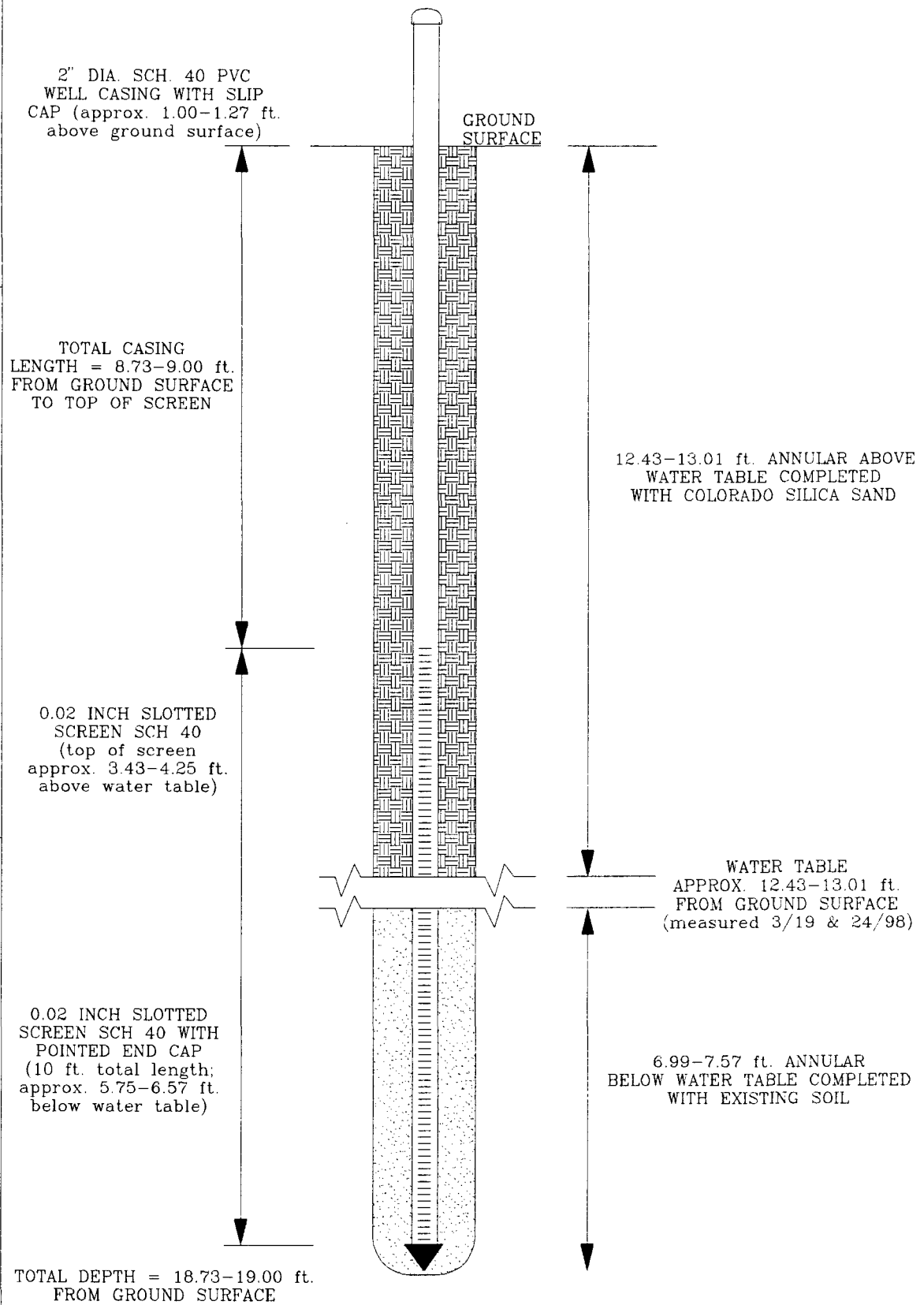
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

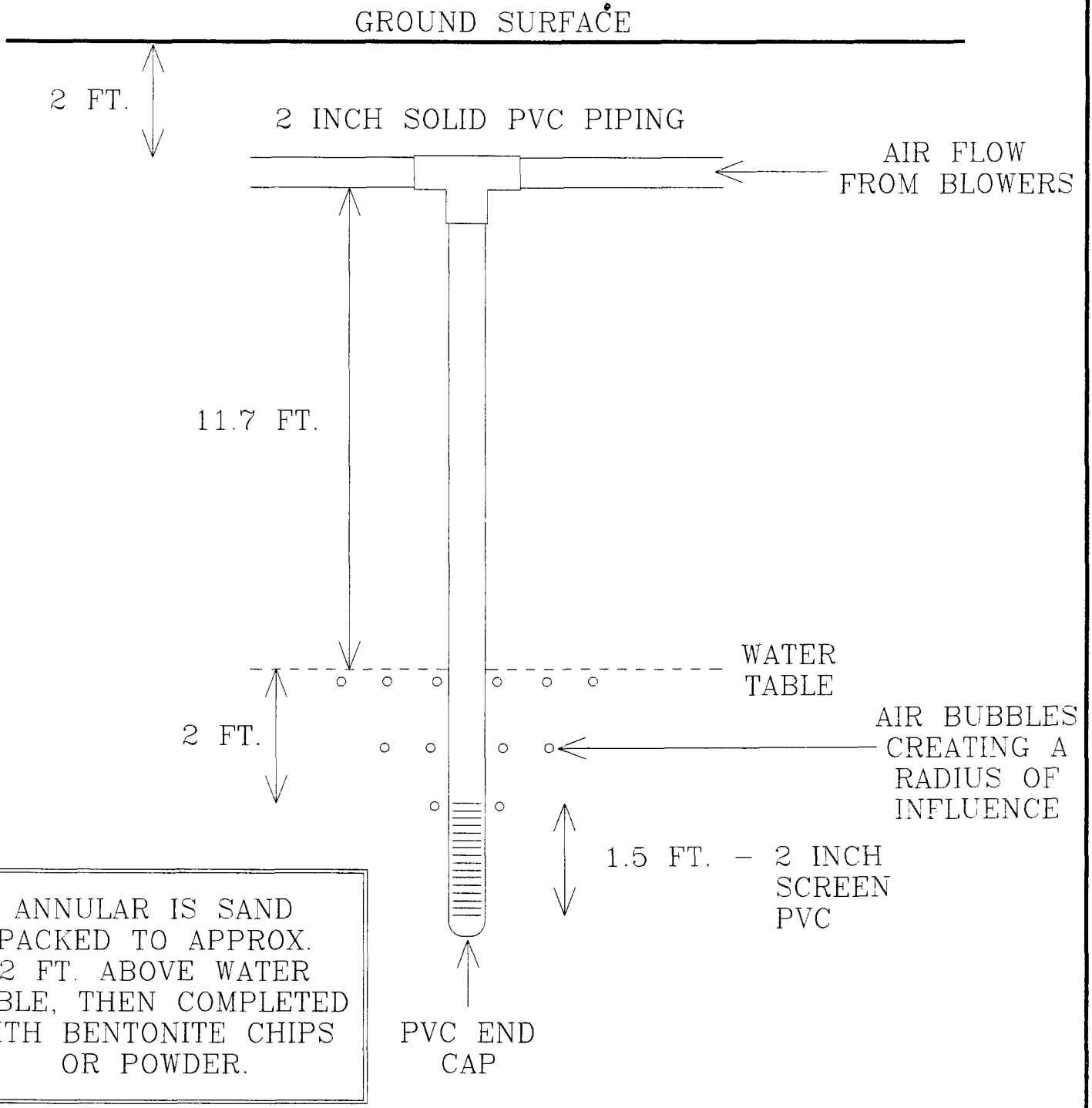
DRAFTED BY: NJV

INSTALL. DATE: MAR. '98

FILENAME: TW1-6



SIMPLISTIC AIR SPARGE POINT CONSTRUCTION



AMOCO PRODUCTION COMPANY GCU # 93E NW/4 SW/4 SEC. 36, T29N, R12W 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: RECLAM. SYS. DRAWN BY: NJV FILENAME: ASP-TEMP DRAFTED: 3/21/00 NJV	AIR SPARGE POINT 3/00

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU 93E	Report Date:	06/21/96
Sample ID:	MW - 1	Date Sampled:	06/12/96
Lab ID:	3923	Date Received:	06/12/96
Sample Matrix:	Water	Date Analyzed:	06/20/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

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	ND

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	89	88 - 110%
Bromofluorobenzene	92	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU 93E	Report Date:	06/21/96
Sample ID:	MW - 2	Date Sampled:	06/12/96
Lab ID:	3924	Date Received:	06/12/96
Sample Matrix:	Water	Date Analyzed:	06/20/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	359	125
Toluene	416	125
Ethylbenzene	1,070	125
m,p-Xylenes	10,400	250
o-Xylene	2,180	125

Total BTEX	14,400

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	96	88 - 110%
Bromofluorobenzene	96	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	GCU 93 E	Date Reported:	06/28/96
Sample ID:	MW - 1	Date Sampled:	06/12/96
Laboratory ID:	3923	Time Sampled:	13:40
Sample Matrix:	Water	Date Received:	06/12/96

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	964	µmhos/cm
	Total Dissolved Solids @ 180°C	570	mg/L
	Total Dissolved Solids (Calc)	501	mg/L
Anions	Total Alkalinity as $CaCO_3$	310	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	310	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	3.33	mg/L
	Sulfate	136	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	174	mg/L
	Calcium	23.9	mg/L
	Magnesium	27.8	mg/L
	Potassium	< 5.0	mg/L
	Sodium	120	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	1.82	+/- 2 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality
Blagg Engineering, Inc.

Project ID:	GCU 93 E	Date Reported:	06/28/96
Sample ID:	MW - 2	Date Sampled:	06/12/96
Laboratory ID:	3924	Time Sampled:	14:00
Sample Matrix:	Water	Date Received:	06/12/96

Parameter		Analytical Result	Units
General	Lab pH	7.5	s.u.
	Lab Conductivity @ 25° C	1,150	µmhos/cm
	Total Dissolved Solids @ 180°C	860	mg/L
	Total Dissolved Solids (Calc)	682	mg/L
Anions	Total Alkalinity as $CaCO_3$	430	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	430	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	7.50	mg/L
	Sulfate	154	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	368	mg/L
	Calcium	128	mg/L
	Magnesium	12.1	mg/L
	Potassium	< 5.0	mg/L
	Sodium	120	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	2.59	+/- 5 %
	TDS (180):TDS (calculated)	1.3	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS
ENVIRONMENTAL LABS

June 20, 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 12, 1996. The samples were from the GCU 93 E site. Analysis for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) was 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 btex analytes were found in the samples, 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,

Denise A. Bohemier
Lab Director

807 SOUTH CARLTON • FARMINGTON, NM 87401• (505) 326-2395 PH • 326-2486 FAX

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample Matrix:	Water	Report Date:	06/21/96
Lab ID:	MB35236	Date Analyzed:	06/20/96

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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	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:	3808Dup	Report Date:	06/21/96
Sample Matrix:	Water	Date Sampled:	06/07/96
Preservative:	Cool, HgCl2	Date Received:	06/07/96
Condition:	Intact	Date Analyzed:	06/20/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	347	339	280 - 406
Toluene	28.5	26.2	21.5 - 33.2
Ethylbenzene	156	148	99.4 - 205
m,p-Xylenes	1,580	1,550	NE
o-Xylene	ND	ND	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.

	Surrogate	Percent Recovery	Acceptance Limits
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:	3807Spk	Report Date:	06/21/96
Sample Matrix:	Water	Date Sampled:	06/07/96
Preservative:	Cool, HgCl2	Date Received:	06/07/96
Condition:	Intact	Date Analyzed:	06/20/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	10.5	101%	39 -150
Toluene	10	1.84	11.5	97%	46 - 148
Ethylbenzene	10	ND	10.5	103%	32 - 160
m,p-Xylenes	20	ND	20.9	102%	NE
o-Xylene	10	ND	10.2	98%	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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	103	88 - 110%
Bromofluorobenzene	104	86 - 115%

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

Comments:

Analyst

Review

~194

ANAITAS ENVIRONMENTAL LABS

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

CHAIN OF CUSTODY

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone: 632-1199
Fax:

Bill To: SAME
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID	ORGANIC ANALYSES: 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):	WATER ANALYSES: 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):	METALS: Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	COMMENTS
MW-1	6-12	1340	WATER					✓										✓												
MW-2	6-12	1400	WATER					✓										✓												

Project Information		Sample Receipt	
Proj. #:		No. Containers:	
Proj. Name:	AMOCO	Custody Seals: Y / N / NA	
P. O. No:		Received Intact:	
Shipped Via:	DEL'D	Received Cold:	

Required Turnaround Time (Prior Authorization Required for Rush)

GC 493 E

Sampled By:		Relinquished By:		Relinquished By:	
Signature: R??	Date: 6-12-96	Signature: R??	Date: 6-12-96	Signature:	Date:
Company: BEI	Time: –	Company: BEI	Time: 1445	Company:	Time:

Received By:		Received By:		Received By:	
Signature:	Date:	Signature:	Date:	Signature: [signature]	Date: 6/12
Company:	Time:	Company:	Time:	Company: Anaitas	Time: 2:50

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 # : 2119

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : December 27, 1996

SAMPLER : R E O

Filename : 12-27-96.WK4

PROJECT MANAGER : R E O

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	101.28	88.38	12.90	19.00	-	-	-	-	-
2	100.98		-	18.90	-	-	-	-	-
3	101.06	87.36	13.70	18.70	1250	7.7	600	2.50	-
4	101.27	87.67	13.60	18.80	-	-	-	-	-

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 from MW # 3 only . MW # 4 used for groundwater flow direction only .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU 93E	Report Date:	01/08/97
Sample ID:	MW #3	Date Sampled:	12/27/96
Lab ID:	6060	Date Received:	12/27/96
Sample Matrix:	Water	Date Analyzed:	01/07/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	56.2	25.0
Toluene	744	25.0
Ethylbenzene	179	25.0
m,p-Xylenes	4,810	200
o-Xylene	1,840	100

Total BTEX	**5,750**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	105	88 - 110%
Bromofluorobenzene	95	86 - 115%

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

Comments:

Analyst

Review

ANAITAS
ENVIRONMENTAL LABS

January 8, 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 GCU 93E 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,

Denise A. Bohemier
Lab Director

807 SOUTH CARLTON • FARMINGTON, NM 87401• (505) 326-2395 PH • 326-2486 FAX

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample ID:	Water	Report Date:	01/08/97
Lab ID:	MB35437	Date Analyzed:	01/07/97

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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	101	88 - 110%
Bromofluorobenzene	90	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:	6077Spk	Report Date:	01/08/97
Sample Matrix:	Water	Date Sampled:	12/31/96
Preservative:	Cool	Date Received:	12/31/96
Condition:	Intact	Date Analyzed:	01/07/97

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	100	ND	96.8	94%	39 -150
Toluene	100	14.4	109	94%	46 - 148
Ethylbenzene	100	26.9	131	104%	32 - 160
m,p-Xylenes	200	86.9	288	101%	NE
o-Xylene	100	33.8	132	98%	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:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	105	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

Duplicate Analysis

Lab ID:	6077Dup	Report Date:	01/08/97
Sample Matrix:	Water	Date Sampled:	12/31/96
Preservative:	Cool	Date Received:	12/31/96
Condition:	Intact	Date Analyzed:	01/07/97

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	ND	ND	NA
Toluene	14.4	14.5	10.9 - 18.1
Ethylbenzene	26.9	30.9	18.2 - 39.7
m,p-Xylenes	86.9	96.9	NE
o-Xylene	33.8	36.9	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.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	Trifluorotoluene	101	88 - 110%
	Bromofluorobenzene	95	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

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

CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone:
Fax:

Bill To: SAME AS ABOVE
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID
MW #3	12/27/96	1250	WATER	

ORGANIC ANALYSES														
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):
			✓									

WATER ANALYSES								
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):

METALS			
Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):

COMMENTS
PRESERV. - COULD $HgCl_2$

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: GCU 93E	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold:
Required Turnaround Time (Prior Authorization Required for Rush)	

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: Nelson Velez 12/27/96	Signature / Date: Nelson Velez 12/27/96	Signature / Date:
Company / Time: BLAGG 1250	Company / Time: BLAGG 1317	Company / Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: 12/27/96
Company / Time:	Company / Time:	Company / Time: Hilcorp 13:17

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 # : 2130

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : *March 20, 1997*

Filename : *03-20-97.WK3*

SAMPLER : N J V

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)
1	101.28	87.03	14.25	19.00	-	-	-	-	-
2	100.98	86.66	14.32	18.90	1140	7.1	2,000	2.50	-
3	101.06	86.26	14.80	18.78	1205	7.7	800	2.25	-
4	101.27	86.50	14.77	18.80	-	-	-	-	-

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 # 2, - poor recovery . Collected BTEX samples for both MW # 2 & 3 .

MW # 4 used solely for groundwater flow direction information .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU #93E	Report Date:	03/28/97
Sample ID:	MW - 2	Date Sampled:	03/20/97
Lab ID:	6476	Date Received:	03/24/97
Sample Matrix:	Water	Date Analyzed:	03/26/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	1,020	125
Toluene	41.4	8.33
Ethylbenzene	148	8.33
m,p-Xylenes	745	16.7
o-Xylene	94.8	8.33
Total BTEX	**2,040**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%
Bromofluorobenzene	106	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	GCU #93E	Report Date:	03/28/97
Sample ID:	MW - 3	Date Sampled:	03/20/97
Lab ID:	6477	Date Received:	03/24/97
Sample Matrix:	Water	Date Analyzed:	03/26/97
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	13.9	5.00
Toluene	113	5.00
Ethylbenzene	20.0	5.00
m,p-Xylenes	306	10.0
o-Xylene	63.1	5.00

Total BTEX	**516**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	101	88 - 110%
Bromofluorobenzene	111	86 - 115%

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

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

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

CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone:
Fax:

Bill To: SAME AS ABOVE
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID
MW #2	3/20/97	11:40	WATER	
MW #3	3/20/97	12:05	WATER	

ORGANIC ANALYSES															WATER ANALYSES									METALS				COMMENTS
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):	
			✓																						BOTH SAMPLES PRESERV. - COOL & $HgCl_2$
			✓																						

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: GCU #93E	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: Nelson Velez 3/20/97	Signature / Date: Nelson Velez 3/24/97	Signature / Date:
Company: BLAGG Time: SEE SAMPLE ID	Company: BLAGG Time: 10:50	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: 3/24/97
Company: Time:	Company: Time:	Company: Anaitas Time: 1055

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 # : 5117

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *June 24, 1997*

Filename : *06-24-97.WK3*

SAMPLER : N J V

PROJECT MANAGER : N J V

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	101.28	86.11	15.17	19.00	-	-	-	-	-
2	100.98	85.72	15.26	18.90	1400	7.2	1,500	1.85	-
3	101.06	85.39	15.67	18.70	1430	7.1	1,200	1.55	-
4	101.27	85.64	15.63	18.80	-	-	-	-	-

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 # 2, - poor recovery . Collected BTEX samples for both MW # 2 & 3 .

MW # 4 used solely for groundwater flow direction information .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	06-26-97
Chain of Custody:	5117	Date Sampled:	06-24-97
Laboratory Number:	B501	Date Received:	06-24-97
Sample Matrix:	Water	Date Analyzed:	06-25-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1,468**	**5**	**0.9**
Toluene	**111**	**5**	**0.8**
Ethylbenzene	**1,087**	**5**	**0.8**
p,m-Xylene	**1,220**	**5**	**1.1**
o-Xylene	**183**	**5**	**0.5**
Total BTEX	**4,068**		

ND - Parameter not detected at the stated detection limit.

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

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: **GCU #93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #3	Date Reported:	06-26-97
Chain of Custody:	5117	Date Sampled:	06-24-97
Laboratory Number:	B502	Date Received:	06-24-97
Sample Matrix:	Water	Date Analyzed:	06-25-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1,426**	**5**	**0.9**
Toluene	**22.9**	**5**	**0.8**
Ethylbenzene	**33.1**	**5**	**0.8**
p,m-Xylene	**133**	**5**	**1.1**
o-Xylene	**29.2**	**5**	**0.5**
Total BTEX	**1,645**		

ND - Parameter not detected at the stated detection limit.

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: **GCU #93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

5117

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG/AMOCO	GCU #93E	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW #2	6/24/97	1400	B501	WATER	2	✓						PRESERV - COOL + HgCl2
MW #3	6/24/97	1430	B502	WATER	2	✓						" "
				Samples received cool & intact								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/24/97	1537	Glenn L. Spencer	6/24/97	1537
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 # : 5408

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : Sept. 17, 1997

Filename : 09-17-97.WK3

SAMPLER : N J V

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)
1	101.28	87.24	14.04	19.00	-	-	-	-	-
2	100.98	86.75	14.23	18.90	1400	7.1	2,100	2.30	-
3	101.06	86.34	14.72	18.70	1415	7.8	700	2.00	-
4	101.27	86.63	14.64	18.80	-	-	-	-	-

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 # 2, - poor recovery. Collected BTEX samples for both MW # 2 & 3.

MW # 4 used solely for groundwater flow direction information.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 2	Date Reported:	09-18-97
Chain of Custody:	5408	Date Sampled:	09-17-97
Laboratory Number:	C058	Date Received:	09-17-97
Sample Matrix:	Water	Date Analyzed:	09-17-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**8.9**	**1**	**0.2**
Toluene	**4.7**	**1**	**0.2**
Ethylbenzene	**45.6**	**1**	**0.2**
p,m-Xylene	**191**	**1**	**0.2**
o-Xylene	**23.1**	**1**	**0.1**
Total BTEX	**274**		

ND - Parameter not detected at the stated detection limit.

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

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: **GCU #93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 3	Date Reported:	09-18-97
Chain of Custody:	5408	Date Sampled:	09-17-97
Laboratory Number:	C059	Date Received:	09-17-97
Sample Matrix:	Water	Date Analyzed:	09-17-97
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	**21.0**	**1**	**0.2**
Ethylbenzene	**12.3**	**1**	**0.2**
p,m-Xylene	**196**	**1**	**0.2**
o-Xylene	**22.2**	**1**	**0.1**
Total BTEX	**252**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	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: **GCU #93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

5408

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG / AMOCO	GCU #93E	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
												BOTH SAMPLES PRESERV. - COOL & $HgCl_2$
MW #2	9/17/97	1400	C058	WATER	2	✓						
MW #3	9/17/97	1415	C059	WATER	2	✓						
				samples received cool & intact								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	9/17/97	1437	Dawn L. Ogburn	9-17-97	1437
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref Coc's 5406, 5407, 5408

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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:	06-26-97
Laboratory Number:	06-25-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-25-97
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**

ND - Parameter not detected at the stated detection limit.

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: **QA/QC for samples B494 - B503.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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:	06-26-97
Laboratory Number:	B494	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-25-97
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	**44.7**	**43.9**	**1.8%**	**0.2**	**1**
Toluene	**0.5**	**0.5**	**0.0%**	**0.2**	**1**
Ethylbenzene	**0.4**	**0.4**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.8**	**0.8**	**0.0%**	**0.2**	**1**
o-Xylene	**2.2**	**2.2**	**0.0%**	**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 B494 - B503.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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 Spike	Date Reported:	06-26-97
Laboratory Number:	B494	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	06-25-97
Condition:	Cool and Intact		

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	**44.7**	**50.0**	**94.4**	**0.2**	**100%**	**39-150**
Toluene	**0.5**	**50.0**	**50.4**	**0.2**	**100%**	**46-148**
Ethylbenzene	**0.4**	**50.0**	**50.3**	**0.2**	**100%**	**32-160**
p,m-Xylene	**0.8**	**100**	**100**	**0.2**	**100%**	**46-148**
o-Xylene	**2.2**	**50.0**	**52.6**	**0.1**	**101%**	**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 B494 - B503.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	09-18-97
Laboratory Number:	09-17-PM-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-17-97
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**

ND - Parameter not detected at the stated detection limit.

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.
USEPA, Sept. 1994.

Comments: **QA/QC for samples C055 - C059.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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:	09-18-97
Laboratory Number:	C055	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	09-17-97
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Diff.	Det. Limit (ug/L)	Dilution Factor
Benzene	**ND**	**ND**	**0.0%**	**0.2**	**1**
Toluene	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**52.0**	**51.5**	**1.0%**	**0.2**	**1**
p,m-Xylene	**256**	**253**	**1.4%**	**0.2**	**1**
o-Xylene	**49.6**	**49.1**	**1.0%**	**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 C055 - C059.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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 Spike	Date Reported:	09-18-97
Laboratory Number:	C055	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	09-17-97
Condition:	Cool and Intact		

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	**ND**	**50.0**	**48.0**	**0.2**	**96%**	**39-150**
Toluene	**ND**	**50.0**	**48.4**	**0.2**	**97%**	**46-148**
Ethylbenzene	**52.0**	**50.0**	**101**	**0.2**	**99%**	**32-160**
p,m-Xylene	**256**	**100**	**352**	**0.2**	**99%**	**46-148**
o-Xylene	**49.6**	**50.0**	**97.5**	**0.1**	**98%**	**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 C055 - C059.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5662

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *December 18, 1997*

SAMPLER : N J V

Filename : *12-18-97.WK3*

PROJECT MANAGER : N J V

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	101.28	87.54	13.74	19.00	-	-	-	-	-
2	100.98	89.19	11.79	18.90	0830	7.7	2,300	3.50	-
3	101.06	86.83	14.23	18.70	0900	8.6	700	2.25	-
4	101.27	86.92	14.35	18.80	-	-	-	-	-

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 both MW # 2 & 3 .

MW # 4 used solely for groundwater flow direction information .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 2	Date Reported:	12-23-97
Chain of Custody:	5662	Date Sampled:	12-19-97
Laboratory Number:	C717	Date Received:	12-19-97
Sample Matrix:	Water	Date Analyzed:	12-22-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1.5**	**1**	**0.2**
Toluene	**1.4**	**1**	**0.2**
Ethylbenzene	**3.9**	**1**	**0.2**
p,m-Xylene	**20.2**	**1**	**0.2**
o-Xylene	**2.1**	**1**	**0.1**
Total BTEX	**29.1**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	MW # 3	Date Reported:	12-23-97
Chain of Custody:	5662	Date Sampled:	12-19-97
Laboratory Number:	C718	Date Received:	12-19-97
Sample Matrix:	Water	Date Analyzed:	12-22-97
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	**0.6**	**1**	**0.2**
Ethylbenzene	**0.6**	**1**	**0.2**
p,m-Xylene	**3.5**	**1**	**0.2**
o-Xylene	**1.1**	**1**	**0.1**
Total BTEX	**5.8**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
Blagg/ Amoco	GCU # 93E	

Sampler: (Signature) Nelson Velez

Chain of Custody Tape No. 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW #2	12/19/97	0830	C717	WATER	2	✓						PRESERV. - COOL & $HgCl_2$
MW #3	12/19/97	0900	C718	WATER	2	✓						PRESERV. - COOL & $HgCl_2$
				SAMPLES RECEIVED COOL & INTACT							DLM	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/19/97	1253	Drew L. Pierce	12-19-97	1253
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref COC's 5662 - 5664

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

5796 U.S. Highway 64-3014 • 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
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	12-23-97
Laboratory Number:	12-22-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-22-97
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**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**101 %**
	Bromofluorobenzene	**102 %**

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 C717- C725.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	12-23-97
Laboratory Number:	C717	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	12-22-97
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Diff.	Det. Limit (ug/L)	Dilution Factor
Benzene	**1.5**	**1.5**	**0.0%**	**0.2**	**1**
Toluene	**1.4**	**1.4**	**0.0%**	**0.2**	**1**
Ethylbenzene	**3.9**	**3.9**	**0.0%**	**0.2**	**1**
p,m-Xylene	**20.2**	**19.9**	**1.4%**	**0.2**	**1**
o-Xylene	**2.1**	**2.1**	**0.0%**	**0.1**	**1**

ND - Parameter not detected at the stated detection limit.

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

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 C717- C725.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	12-23-97
Laboratory Number:	C717	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	12-22-97
Condition:	Cool and Intact		

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	**1.5**	**50.0**	**51.7**	**0.2**	**100%**	**39-150**
Toluene	**1.4**	**50.0**	**51.9**	**0.2**	**101%**	**46-148**
Ethylbenzene	**3.9**	**50.0**	**54.9**	**0.2**	**102%**	**32-160**
p,m-Xylene	**20.2**	**100**	**121**	**0.2**	**100%**	**46-148**
o-Xylene	**2.1**	**50.0**	**52.2**	**0.1**	**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 C717- C725.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5727

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : February 24, 1998

Filename : 02-24-98.WK3

SAMPLER : N J V

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)
1	101.28	86.76	14.52	19.00	-	-	-	-	-
2	100.98	86.13	14.85	18.90	0900	7.7	2,100	2.00	-
3	101.06	85.88	15.18	18.70	0930	8.6	600	1.75	-
4	101.27	86.23	15.04	18.80	-	-	-	-	-
5	100.14	85.97	14.17	20.00	1015	7.3	1,100	3.00	-
6	99.80	85.68	14.12	20.00	1045	7.3	1,000	3.00	-

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 MW # 2, 3, 5, & 6 . Colected Anion / Cation for MW #'s 5 & 6 only . MW # 4 used solely for groundwater flow direction information .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 2	Date Reported:	02-26-98
Chain of Custody:	5727	Date Sampled:	02-24-98
Laboratory Number:	C931	Date Received:	02-24-98
Sample Matrix:	Water	Date Analyzed:	02-25-98
Preservative:	HgCl2 & Cool	Analysis Requested:	btex-mtbe
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.4**	**1**	**0.2**
Toluene	**0.9**	**1**	**0.2**
Ethylbenzene	**5.6**	**1**	**0.2**
p,m-Xylene	**4.0**	**1**	**0.2**
o-Xylene	**3.6**	**1**	**0.1**
Total BTEX	**14.4**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	MW # 3	Date Reported:	02-26-98
Chain of Custody:	5727	Date Sampled:	02-24-98
Laboratory Number:	C932	Date Received:	02-24-98
Sample Matrix:	Water	Date Analyzed:	02-25-98
Preservative:	HgCl2 & Cool	Analysis Requested:	btex-mtbe
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**0.5**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**5.9**	**1**	**0.2**
o-Xylene	**2.0**	**1**	**0.1**
Total BTEX	**8.7**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	MW # 5	Date Reported:	02-26-98
Chain of Custody:	5727	Date Sampled:	02-24-98
Laboratory Number:	C933	Date Received:	02-24-98
Sample Matrix:	Water	Date Analyzed:	02-25-98
Preservative:	HgCl2 & Cool	Analysis Requested:	btex-mtbe
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**1,455**	**10**	**1.8**
Toluene	**1,393**	**10**	**1.7**
Ethylbenzene	**459**	**10**	**1.5**
p,m-Xylene	**287**	**10**	**2.2**
o-Xylene	**692**	**10**	**1.0**
Total BTEX	**4,286**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	MW # 6	Date Reported:	02-26-98
Chain of Custody:	5727	Date Sampled:	02-24-98
Laboratory Number:	C934	Date Received:	02-24-98
Sample Matrix:	Water	Date Analyzed:	02-25-98
Preservative:	HgCl2 & Cool	Analysis Requested:	btex-mtbe
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**57.3**	**1**	**0.2**
Toluene	**61.5**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**28.3**	**1**	**0.2**
o-Xylene	**8.2**	**1**	**0.1**
Total BTEX	**155**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 5	Date Reported:	02-26-98
Laboratory Number:	C933	Date Sampled:	02-24-98
Chain of Custody:	5727	Date Received:	02-24-98
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-25 - 02-26-98
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**6.91**	s.u.		
Conductivity @ 25° C	**1,165**	umhos/cm		
Total Dissolved Solids @ 180C	**580**	mg/L		
Total Dissolved Solids (Calc)	**578**	mg/L		
SAR	**0.0**	ratio		
Total Alkalinity as CaCO3	**510**	mg/L		
Total Hardness as CaCO3	**494**	mg/L		
Bicarbonate as HCO3	**510**	mg/L	8.36	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.6**	mg/L	0.01	meq/L
Nitrite Nitrogen	**0.001**	mg/L	0.00	meq/L
Chloride	**26.2**	mg/L	0.74	meq/L
Fluoride	**0.60**	mg/L	0.03	meq/L
Phosphate	**0.7**	mg/L	0.02	meq/L
Sulfate	**44.6**	mg/L	0.93	meq/L
Calcium	**172**	mg/L	8.58	meq/L
Magnesium	**15.6**	mg/L	1.28	meq/L
Potassium	**7.0**	mg/L	0.18	meq/L
Sodium	**1.2**	mg/L	0.05	meq/L
Cations			10.10	meq/L
Anions			10.09	meq/L
Cation/Anion Difference			**0.08%**	

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

Comments: **GCU # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 6	Date Reported:	02-26-98
Laboratory Number:	C934	Date Sampled:	02-24-98
Chain of Custody:	5727	Date Received:	02-24-98
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-25 - 02-26-98
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**6.97**	s.u.		
Conductivity @ 25° C	**1,100**	umhos/cm		
Total Dissolved Solids @ 180C	**550**	mg/L		
Total Dissolved Solids (Calc)	**549**	mg/L		
SAR	**0.4**	ratio		
Total Alkalinity as CaCO3	**490**	mg/L		
Total Hardness as CaCO3	**436**	mg/L		
Bicarbonate as HCO3	**490**	mg/L	8.03	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.4**	mg/L	0.01	meq/L
Nitrite Nitrogen	**<0.001**	mg/L	0.00	meq/L
Chloride	**9.6**	mg/L	0.27	meq/L
Fluoride	**0.71**	mg/L	0.04	meq/L
Phosphate	**0.4**	mg/L	0.01	meq/L
Sulfate	**57.1**	mg/L	1.19	meq/L
Calcium	**146**	mg/L	7.29	meq/L
Magnesium	**17.6**	mg/L	1.45	meq/L
Potassium	**2.5**	mg/L	0.06	meq/L
Sodium	**17.2**	mg/L	0.75	meq/L
Cations			9.55	meq/L
Anions			9.55	meq/L
Cation/Anion Difference			**0.01%**	

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

Comments: **GCU # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

5727

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG / AMOCO	GCU # 93E	

Sampler: (Signature)	Chain of Custody Tape No.
Nelson Velez	04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)	ANION / CATION					Remarks
												ANION/CATION SAMPLES PRESERV. - COOL ONLY.
MW # 2	2/24/98	0900	C931	WATER	2	✓						
MW # 3	2/24/98	0930	C932	WATER	2	✓						BTEX SAMPLES
MW # 5	2/24/98	1015	C933	WATER	3	✓	✓					PRESERV. - $HgCl_2$ &
MW # 6	2/24/98	1045	C934	WATER	3	✓	✓					COOL.
				SAMPLES RECEIVED COOL & INTACT DLM								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	2/24/98	1241	Glenna L. Ojeda	2.24.98	12:41
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

RP COC 5727-5728

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

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:	02-25-BTEX QA/QC	Date Reported:	02-26-98
Laboratory Number:	C931	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-25-98
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	6.8842E-05	7.1785E-05	4.28%	ND	0.2
Toluene	7.5643E-05	7.8386E-05	3.63%	ND	0.2
Ethylbenzene	8.8155E-05	9.1637E-05	3.95%	ND	0.2
p,m-Xylene	6.5684E-05	6.7715E-05	3.09%	ND	0.2
o-Xylene	8.7047E-05	9.0580E-05	4.06%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff	Accept Limit
Benzene	0.4	0.3	3.4%	0 - 30%
Toluene	0.9	0.8	3.4%	0 - 30%
Ethylbenzene	5.6	5.4	3.4%	0 - 30%
p,m-Xylene	4.0	3.9	3.4%	0 - 30%
o-Xylene	3.6	3.5	3.4%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	0.4	50.0	50.3	100.0%	39 - 150
Toluene	0.9	50.0	50.8	99.9%	46 - 148
Ethylbenzene	5.6	50.0	55.3	99.4%	32 - 160
p,m-Xylene	4.0	100.0	103.8	99.8%	46 - 148
o-Xylene	3.6	50.0	53.4	99.6%	46 - 148

ND - Parameter not detected at the stated detection limit.

* - Administrative Recovery Acceptance Range = 80% - 115%.

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 C931 - C939.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5735

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *March 20, 1998*

Filename : *03-20-98.WK3*

SAMPLER : N J V

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)
1	101.28	86.40	14.88	19.00	-	-	-	-	-
2	100.98	-	-	18.90	-	-	-	-	-
3	101.06	-	-	18.70	-	-	-	-	-
4	101.27	85.90	15.37	18.80	-	-	-	-	-
5	100.14	-	-	20.00	-	-	-	-	-
6	99.80	85.36	14.44	20.00	-	-	-	-	-
TW-1	99.58	85.40	14.18	20.00	0800	-	-	2.25	-
TW-2	99.20	85.31	13.89	20.00	0830	-	-	2.50	-
TW-3	99.77	85.52	14.25	20.00	0900	-	-	2.25	-

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 TW # 1, 2, & 3 .

MW # 4 used solely for groundwater flow direction information .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	TW - 1	Date Reported:	03-20-98
Chain of Custody:	5735	Date Sampled:	03-20-98
Laboratory Number:	D015	Date Received:	03-20-98
Sample Matrix:	Water	Date Analyzed:	03-20-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**86.2**	**1**	**0.2**
Toluene	**1.0**	**1**	**0.2**
Ethylbenzene	**2.9**	**1**	**0.2**
p,m-Xylene	**523**	**1**	**0.2**
o-Xylene	**210**	**1**	**0.1**
Total BTEX	**823**		

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 # 93 E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	TW - 2	Date Reported:	03-20-98
Chain of Custody:	5735	Date Sampled:	03-20-98
Laboratory Number:	D016	Date Received:	03-20-98
Sample Matrix:	Water	Date Analyzed:	03-20-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**800**	**1**	**0.2**
Toluene	**0.3**	**1**	**0.2**
Ethylbenzene	**32.1**	**1**	**0.2**
p,m-Xylene	**436**	**1**	**0.2**
o-Xylene	**150**	**1**	**0.1**
Total BTEX	**1,418**		

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 # 93 E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	TW - 3	Date Reported:	03-20-98
Chain of Custody:	5735	Date Sampled:	03-20-98
Laboratory Number:	D017	Date Received:	03-20-98
Sample Matrix:	Water	Date Analyzed:	03-20-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**97.8**	**1**	**0.2**
Toluene	**6.8**	**1**	**0.2**
Ethylbenzene	**591**	**1**	**0.2**
p,m-Xylene	**319**	**1**	**0.2**
o-Xylene	**383**	**1**	**0.1**
Total BTEX	**1,398**		

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 # 93 E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

CHAIN OF CUSTODY RECORD

Client/Project Name: BLAGG / Amoco

Project Location: GCU #93E

Sampler: (Signature) Nelson Velez

Chain of Custody Tape No.: 0403440

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
												ALL SAMPLES PRESERV. HgCl₂ & COOL)
TW - 1	3/20/98	0800	D015	WATER	2	✓						
TW - 2	3/20/98	0830	D016	WATER	2	✓						
TW - 3	3/20/98	0900	D017	WATER	2	✓						

SAMPLES RECEIVED COOL & INTACT DLA

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	3/20/98	0938	Dean L. [illegible]	3.20.98	0938
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

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:	03-20-BTEX QA/QC	Date Reported:	03-20-98
Laboratory Number:	D012	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-20-98
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	6.8842E-05	7.1785E-05	4.28%	ND	0.2
Toluene	7.5643E-05	7.8386E-05	3.63%	ND	0.2
Ethylbenzene	8.8155E-05	9.1637E-05	3.95%	ND	0.2
p,m-Xylene	6.5684E-05	6.7715E-05	3.09%	ND	0.2
o-Xylene	8.7047E-05	9.0580E-05	4.06%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	0.6	0.6	0.0%	0 - 30%
Toluene	ND	ND	0.0%	0 - 30%
Ethylbenzene	ND	ND	0.0%	0 - 30%
p,m-Xylene	0.7	0.7	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	0.6	50.0	50.6	100%	39 - 150
Toluene	ND	50.0	50.0	100%	46 - 148
Ethylbenzene	ND	50.0	50.1	100%	32 - 160
p,m-Xylene	0.7	100.0	101	100%	46 - 148
o-Xylene	ND	50.0	50.1	100%	46 - 148

ND - Parameter not detected at the stated detection limit.

* - Administrative Recovery Acceptance Range = 80% - 115%.

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 D012 - D017.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5737

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *March 25, 1998*

Filename : *03-25-98.WK3*

SAMPLER : N J V

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)
1	101.28	86.40	14.88	19.00	-	-	-	-	-
2	100.98	-	-	18.90	-	-	-	-	-
3	101.06	-	-	18.70	-	-	-	-	-
4	101.27	85.90	15.37	18.80	-	-	-	-	-
5	100.14	-	-	20.00	-	-	-	-	-
6	99.80	85.36	14.44	20.00	-	-	-	-	-
TW-4	99.19	85.24	13.95	20.00	0835	-	-	3.00	-
TW-5	98.66	85.06	13.60	20.00	0900	-	-	3.25	-
TW-6	98.42	84.99	13.43	20.00	0920	-	-	3.25	-

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 TW # 4, 5, & 6 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	TW - 4	Date Reported:	03-25-98
Chain of Custody:	5737	Date Sampled:	03-25-98
Laboratory Number:	D037	Date Received:	03-25-98
Sample Matrix:	Water	Date Analyzed:	03-25-98
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	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**1.1**	**1**	**0.2**
o-Xylene	**0.4**	**1**	**0.1**
Total BTEX	**1.5**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • 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 #:	04034-10
Sample ID:	TW - 6	Date Reported:	03-25-98
Chain of Custody:	5737	Date Sampled:	03-25-98
Laboratory Number:	D039	Date Received:	03-25-98
Sample Matrix:	Water	Date Analyzed:	03-25-98
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	**1.6**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**2.1**	**1**	**0.2**
o-Xylene	**0.4**	**1**	**0.1**
Total BTEX	**4.1**		

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 # 93E.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

5737

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG/ Amoco	GCU # 93E	
Sampler: (Signature) Nelson Velez	Chain of Custody Tape No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
												ALL SAMPLES PRESERV. $HgCl_2$ & cool
TW - 4	3/25/98	0835	D037	WATER	2	✓						
TW - 5	3/25/98	0900	D038	WATER	2	✓						
TW - 6	3/25/98	0925	D039	WATER	2	✓						
				SAMPLES RECEIVED COOL & INTACT								ILAB

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	3/25/98	0935	Dawn L. Spencer	3.25.98	0935
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

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:	03-25-BTEX QA/QC	Date Reported:	03-25-98
Laboratory Number:	D037	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-25-98
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	6.8842E-05	7.0319E-05	2.15%	ND	0.2
Toluene	7.5643E-05	7.7582E-05	2.56%	ND	0.2
Ethylbenzene	8.8155E-05	9.0694E-05	2.88%	ND	0.2
p,m-Xylene	6.5684E-05	6.7715E-05	3.09%	ND	0.2
o-Xylene	8.7047E-05	8.8733E-05	1.94%	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	1.1	1.1	0.0%	0 - 30%
o-Xylene	0.4	0.4	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	50.1	100%	39 - 150
Toluene	ND	50.0	50.1	100%	46 - 148
Ethylbenzene	ND	50.0	50.1	100%	32 - 160
p,m-Xylene	1.1	100.0	101	100%	46 - 148
o-Xylene	0.4	50.0	50.4	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 D037 - D039.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6011

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 2, 1998

Filename : 06-02-98.WK3

SAMPLER : N J V

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)
1	101.28	85.89	15.39	19.00	-	-	-	-	-
2	100.98	85.37	15.61	18.90	0910	7.0	2,000	1.75	-
3	101.06	85.06	16.00	18.70	0940	7.4	900	1.50	-
4	101.27	85.39	15.88	18.80	-	-	-	-	-
5	100.14	85.14	15.00	20.00	1015	7.0	1,200	2.50	-
6	99.80	84.86	14.94	20.00	1045	6.9	1,200	2.50	-

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 MW # 2, 3, 5, & 6 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	06-03-98
Chain of Custody:	6011	Date Sampled:	06-02-98
Laboratory Number:	D326	Date Received:	06-02-98
Sample Matrix:	Water	Date Analyzed:	06-03-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**3.2**	**1**	**0.2**
Toluene	**5.9**	**1**	**0.2**
Ethylbenzene	**3.3**	**1**	**0.2**
p,m-Xylene	**3.0**	**1**	**0.2**
o-Xylene	**1.4**	**1**	**0.1**
Total BTEX	**16.8**		

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 #93E.**

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 #:	04034-10
Sample ID:	MW #3	Date Reported:	06-03-98
Chain of Custody:	6011	Date Sampled:	06-02-98
Laboratory Number:	D327	Date Received:	06-02-98
Sample Matrix:	Water	Date Analyzed:	06-03-98
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	**4.6**	**1**	**0.2**
Ethylbenzene	**1.9**	**1**	**0.2**
p,m-Xylene	**6.5**	**1**	**0.2**
o-Xylene	**4.8**	**1**	**0.1**
Total BTEX	**17.8**		

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 #93E.**

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 #:	04034-10
Sample ID:	MW #5	Date Reported:	06-03-98
Chain of Custody:	6011	Date Sampled:	06-02-98
Laboratory Number:	D328	Date Received:	06-02-98
Sample Matrix:	Water	Date Analyzed:	06-03-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**505**	**5**	**0.9**
Toluene	**479**	**5**	**0.8**
Ethylbenzene	**30.8**	**5**	**0.8**
p,m-Xylene	**281**	**5**	**1.1**
o-Xylene	**116**	**5**	**0.5**
Total BTEX	**1,410**		

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 #93E.**

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 #:	04034-10
Sample ID:	MW #6	Date Reported:	06-03-98
Chain of Custody:	6011	Date Sampled:	06-02-98
Laboratory Number:	D329	Date Received:	06-02-98
Sample Matrix:	Water	Date Analyzed:	06-03-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.2**	**1**	**0.2**
Toluene	**12.2**	**1**	**0.2**
Ethylbenzene	**2.7**	**1**	**0.2**
p,m-Xylene	**11.0**	**1**	**0.2**
o-Xylene	**4.4**	**1**	**0.1**
Total BTEX	**32.5**		

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 #93E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6011

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	GCU #93E	
Sampler: NJV	Client No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
												ALL SAMPLES PRESERV. - $HgCl_2$ & COOL
MW #2	6/2/98	0910	D326	WATER	2	✓						
MW # 3	6/2/98	0940	D327	WATER	2	✓						
MW # 5	6/2/98	1015	D328	WATER	2	✓						
MW #6	6/2/98	1045	D329	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/2/98	1448	Glenna L. Apodaca	6.2.98	1448
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	✓		

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:	06-03-BTEX QA/QC	Date Reported:	06-03-98
Laboratory Number:	D326	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-03-98
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	1.4863E-02	1.4878E-02	0.10%	ND	0.2
Toluene	2.2878E-02	2.2947E-02	0.30%	ND	0.2
Ethylbenzene	1.0578E-02	1.0663E-02	0.81%	ND	0.2
p,m-Xylene	8.4559E-03	8.5155E-03	0.70%	ND	0.2
o-Xylene	8.7385E-03	8.7912E-03	0.60%	ND	0.1
1,3,5-trimethylbenzene	6.2277E-03	6.2402E-03	0.20%	ND	0.2
1,2,4-trimethylbenzene	7.3319E-03	7.3687E-03	0.50%	ND	0.2

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	3.2	3.1	3.1%	0 - 30%
Toluene	5.9	5.8	1.7%	0 - 30%
Ethylbenzene	3.3	3.3	0.0%	0 - 30%
p,m-Xylene	3.0	3.0	0.0%	0 - 30%
o-Xylene	1.4	1.4	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	3.2	50.0	53.0	100%	39 - 150
Toluene	5.9	50.0	55.6	99%	46 - 148
Ethylbenzene	3.3	50.0	53.1	100%	32 - 160
p,m-Xylene	3.0	100.0	103	100%	46 - 148
o-Xylene	1.4	50.0	51.3	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 D326 - D333.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6301

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : September 29, 1998

Filename : 09-29-98.WK3

SAMPLER : N J V

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)
1	101.28	88.34	12.94	19.00	-	-	-	-	-
2	100.98	-	-	18.90	-	-	-	-	-
3	101.06	-	-	18.70	-	-	-	-	-
4	101.27	-	-	18.80	-	-	-	-	-
5	100.14	86.53	13.61	20.00	1445	7.5	1,000	3.25	-
6	99.80	87.20	12.60	20.00	1530	7.5	1,000	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 ".

Collected BTEX samples for MW # 5, & 6 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #5	Date Reported:	10-01-98
Chain of Custody:	6300	Date Sampled:	09-29-98
Laboratory Number:	D998	Date Received:	09-30-98
Sample Matrix:	Water	Date Analyzed:	09-30-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**170**	**1**	**0.2**
Toluene	**295**	**1**	**0.2**
Ethylbenzene	**44.6**	**1**	**0.2**
p,m-Xylene	**413**	**1**	**0.2**
o-Xylene	**166**	**1**	**0.1**
Total BTEX	**1,090**		

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 #93E.**

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 #:	04034-10
Sample ID:	MW #6	Date Reported:	10-01-98
Chain of Custody:	6300	Date Sampled:	09-29-98
Laboratory Number:	D999	Date Received:	09-30-98
Sample Matrix:	Water	Date Analyzed:	09-30-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.9**	**1**	**0.2**
Toluene	**0.8**	**1**	**0.2**
Ethylbenzene	**0.4**	**1**	**0.2**
p,m-Xylene	**3.1**	**1**	**0.2**
o-Xylene	**1.5**	**1**	**0.1**
Total BTEX	**6.7**		

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 #93E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6300

Client / Project Name			Project Location		ANALYSIS / PARAMETERS						
BLAGG / AMOCO			GCU #93E								
Sampler: NJV			Client No. 04034-10		No. of Containers	BTEX (8021)					Remarks
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix							
MW #5	9/29/98	1945	D998	WATER	2	✓					PRESERV. - COOL
MW #6	9/29/98	1530	D999	WATER	2	✓					PRESERV. - COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	9/30/98	0700	Denise L. Aguirre	9.30.98	0700
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	✓		

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	09-30-BTEX QA/QC	Date Reported:	10-01-98
Laboratory Number:	D996	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-30-98
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	5.7865E-002	5.8051E-002	0.3%	ND	0.2
Toluene	1.8978E-002	1.9042E-002	0.3%	ND	0.2
Ethylbenzene	2.0822E-002	2.0902E-002	0.4%	ND	0.2
p,m-Xylene	1.6870E-002	1.6955E-002	0.5%	ND	0.2
o-Xylene	1.7776E-002	1.7829E-002	0.3%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	498	504	0.9%	0 - 30%	8.8
Toluene	3,400	3,430	0.9%	0 - 30%	8.4
Ethylbenzene	2,920	2,940	0.7%	0 - 30%	7.6
p,m-Xylene	12,720	12,850	1.0%	0 - 30%	10.8
o-Xylene	6,210	6,310	1.6%	0 - 30%	5.2

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	498	50.0	542	100%	39 - 150
Toluene	3,400	50.0	3,410	100%	46 - 148
Ethylbenzene	2,920	50.0	2,940	99%	32 - 160
p,m-Xylene	12,720	100	12,580	99%	46 - 148
o-Xylene	6,210	50.0	6,190	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 D996, D998 - E002 and E004 - E007.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6429

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 17, 1998

Filename : 12-17-98.WK3

SAMPLER : N J V

PROJECT MANAGER : N J V

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	101.28	88.58	12.70	19.00	-	-	-	-	-
2	100.98	-	-	18.90	-	-	-	-	-
3	101.06	-	-	18.70	-	-	-	-	-
4	101.27	87.76	13.51	18.80	-	-	-	-	-
5	100.14	87.49	12.65	20.00	1400	7.7	600	3.75	-
6	99.80	87.28	12.52	20.00	1330	7.1	900	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 ".

Collected BTEX samples for MW # 5, & 6 . Air sparge compressor not operating at time of arrival

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 5	Date Reported:	12-18-98
Chain of Custody:	6429	Date Sampled:	12-17-98
Laboratory Number:	E378	Date Received:	12-17-98
Sample Matrix:	Water	Date Analyzed:	12-18-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**37.1**	**1**	**0.2**
Toluene	**27.5**	**1**	**0.2**
Ethylbenzene	**3.9**	**1**	**0.2**
p,m-Xylene	**84.3**	**1**	**0.2**
o-Xylene	**49.1**	**1**	**0.1**
Total BTEX	**202**		

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 # 93 E.**

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 #:	04034-10
Sample ID:	MW # 6	Date Reported:	12-18-98
Chain of Custody:	6429	Date Sampled:	12-17-98
Laboratory Number:	E379	Date Received:	12-17-98
Sample Matrix:	Water	Date Analyzed:	12-18-98
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	**0.7**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**2.1**	**1**	**0.2**
o-Xylene	**1.1**	**1**	**0.1**
Total BTEX	**3.9**		

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 # 93 E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6429

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / Amoco	GCU #93E	
Sampler: NJV	Client No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #5	12/17/98	1400	E378	WATER	2	✓						PRESERV. - $HgCl_2$ & COOL
MW #6	12/17/98	1330	E379	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/17/98	14:10	Andrew L. Ogburn	12.17.98	14:10
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Rel COC 6427 - 6429

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	✓		

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:	12-18-BTEX QA/QC	Date Reported:	12-18-98
Laboratory Number:	E373	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-18-98
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	3.3006E-002	3.3112E-002	0.32%	ND	0.2
Toluene	1.3687E-002	1.3715E-002	0.20%	ND	0.2
Ethylbenzene	1.7638E-002	1.7712E-002	0.42%	ND	0.2
p,m-Xylene	1.5312E-002	1.5315E-002	0.02%	ND	0.2
o-Xylene	1.5548E-002	1.5595E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	13.2	13.2	0.0%	0 - 30%
Toluene	3.2	3.3	3.0%	0 - 30%
Ethylbenzene	2.4	2.4	0.0%	0 - 30%
p,m-Xylene	4.8	5.0	4.0%	0 - 30%
o-Xylene	5.2	5.2	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	13.2	50.0	62.8	99%	39 - 150
Toluene	3.2	50.0	53.1	100%	46 - 148
Ethylbenzene	2.4	50.0	52.3	100%	32 - 160
p,m-Xylene	4.8	100.0	104.6	100%	46 - 148
o-Xylene	5.2	50.0	55.0	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 E373 - E379.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6621

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : February 22, 1999

SAMPLER : R E P / N J V

Filename : 02-22-99.WK4

PROJECT MANAGER : N J V

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	101.28	87.58	13.70	19.00	-	-	-	-	-
2	-	-	-	18.90	-	-	-	-	-
3	-	-	-	18.70	-	-	-	-	-
4	101.27	87.01	14.26	18.80	-	-	-	-	-
5	100.14	86.75	13.39	20.00	1305	7.5	700	2.60	-
6	99.80	86.46	13.34	20.00	1425	7.8	1,000	3.25	-
TW-1	99.95	86.54	13.41	20.00	1330	7.5	800	3.10	-
TW-2	99.32	86.45	12.87	20.00	1345	7.5	900	3.00	-
TW-3	99.72	86.69	13.03	20.00	1310	7.3	700	3.10	-
TW-4	99.42	86.39	13.03	20.00	1330	7.6	700	3.25	-
TW-5	100.31	86.19	14.12	20.00	-	-	-	-	-
TW-6	98.69	86.12	12.57	20.00	1405	7.6	900	3.25	-

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 ".

TW - 5 contained abundant amount of sediment & unable to collect sample. Collected BTEX for MW #'s 5 & 6, TW #'s 1, 2, 3, 4, & 6. Air sparge sys. operational @ time of arrival. Shut down air going to alfalfa field prior to collecting DTW (2 / 24 / 99) & samples.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 5	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E698	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**4.9**	**1**	**0.2**
Toluene	**3.6**	**1**	**0.2**
Ethylbenzene	**2.1**	**1**	**0.2**
p,m-Xylene	**39.4**	**1**	**0.2**
o-Xylene	**10.4**	**1**	**0.1**
Total BTEX	**60.4**		

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 # 93 E.**

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 # 6	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E699	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**3.0**	**1**	**0.2**
Toluene	**2.1**	**1**	**0.2**
Ethylbenzene	**2.8**	**1**	**0.2**
p,m-Xylene	**13.4**	**1**	**0.2**
o-Xylene	**8.3**	**1**	**0.1**
Total BTEX	**29.6**		

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 # 93 E.**

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:	TW - 1	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E702	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
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	**0.2**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**0.7**	**1**	**0.2**
o-Xylene	**0.4**	**1**	**0.1**
Total BTEX	**1.5**		

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 # 93 E.**

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:	TW - 2	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E701	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**6.8**	**1**	**0.2**
Toluene	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**5.2**	**1**	**0.2**
o-Xylene	**1.1**	**1**	**0.1**
Total BTEX	**13.1**		

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 # 93 E.**

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:	TW - 3	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E700	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.7**	**1**	**0.2**
Toluene	**0.2**	**1**	**0.2**
Ethylbenzene	**1.5**	**1**	**0.2**
p,m-Xylene	**3.0**	**1**	**0.2**
o-Xylene	**0.7**	**1**	**0.1**
Total BTEX	**6.1**		

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 # 93 E.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2494

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ANAITAS

Date : June 12, 1996

SAMPLER : R E O

Filename : 06-12-96.WK4

PROJECT MANAGER : R E O

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	101.28	86.67	14.61	19.00	1340	7.1	1,000	2.25	-
2	100.98	86.19	14.79	18.90	1400	7.0	1,100	2.00	-
3	101.06		-	18.70	1415	-	-	-	0.17
4	101.27	85.83	15.44	18.80	-	-	-	-	-

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".

Depth to water measurements collected on June 19, 1996. Collected BTEX and anion / cation sampl from MW # 1 & 2 only. MW # 4 used for groundwater flow direction only.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	TW - 6	Date Reported:	02-23-99
Chain of Custody:	6621	Date Sampled:	02-22-99
Laboratory Number:	E704	Date Received:	02-22-99
Sample Matrix:	Water	Date Analyzed:	02-23-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**2.1**	**1**	**0.2**
Toluene	**13.2**	**1**	**0.2**
Ethylbenzene	**16.2**	**1**	**0.2**
p,m-Xylene	**24.2**	**1**	**0.2**
o-Xylene	**9.1**	**1**	**0.1**
Total BTEX	**64.8**		

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 # 93 E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6621

Client / Project Name	Project Location
BLAGG /AMOCO	GCU #93E
Sampler: REP /NJV	**Client No.** 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)					Remarks
MW #5	2/22/99	1305	E698	WATER	2	✓					ALL SAMPLES
MW #6	2/22/99	1425	E699	WATER	2	✓					PRESERV. - HgCl2
TW-3	2/22/99	1310	E700	WATER	2	✓					& COOL
TW-2	2/22/99	1345	E701	WATER	2	✓					
TW-1	2/22/99	1330	E702	WATER	2	✓					
TW-4	2/22/99	1350	E703	WATER	2	✓					
~~TW-5~~	~~2/22/99~~			~~WATER~~	~~2~~	~~✓~~	NV				
TW-6	2/22/99	1405	E704	WATER	2	✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	2/22/99	1440	[signature]	2.22.99	1440
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	✓		

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:	02-23-BTEX QA/QC	Date Reported:	02-23-99
Laboratory Number:	E698	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-23-99
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	7.0480E-002	7.0706E-002	0.32%	ND	0.2
Toluene	3.5438E-002	3.5445E-002	0.02%	ND	0.2
Ethylbenzene	4.3145E-002	4.3196E-002	0.12%	ND	0.2
p,m-Xylene	3.9965E-002	3.9973E-002	0.02%	ND	0.2
o-Xylene	3.9081E-002	3.9199E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	4.9	5.0	2.0%	0 - 30%
Toluene	3.6	3.7	2.8%	0 - 30%
Ethylbenzene	2.1	2.2	4.8%	0 - 30%
p,m-Xylene	39.4	41.5	5.3%	0 - 30%
o-Xylene	10.4	10.6	1.9%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	4.9	50.0	54.7	100%	39 - 150
Toluene	3.6	50.0	53.5	100%	46 - 148
Ethylbenzene	2.1	50.0	52.0	100%	32 - 160
p,m-Xylene	39.4	100.0	137.3	98%	46 - 148
o-Xylene	10.4	50.0	59.8	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 E698 - E704.**

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 #5	Date Reported:	06-02-99
Chain of Custody:	6688	Date Sampled:	05-28-99
Laboratory Number:	F425	Date Received:	05-28-99
Sample Matrix:	Water	Date Analyzed:	06-01-99
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	**1.4**	**1**	**0.2**
Ethylbenzene	**1.7**	**1**	**0.2**
p,m-Xylene	**5.5**	**1**	**0.2**
o-Xylene	**2.6**	**1**	**0.1**
Total BTEX	**13.6**		

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 #93E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6688

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / Amoco	Gcu #93E	
Sampler: NJV	**Client No.** 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)					Remarks
MW #5	5/28/99	1005	F425	WATER	2	✓					PRESERV. - $HgCl_2$
											& COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	5/28/99	1323	[signature]	5.28.99	1323
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	✓		

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:	06-01-PM-BTEX QA/QC	Date Reported:	06-02-99
Laboratory Number:	F424	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-01-99
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	1.6360E-002	1.6412E-002	0.32%	ND	0.2
Toluene	1.7563E-002	1.7566E-002	0.02%	ND	0.2
Ethylbenzene	7.1313E-003	7.1398E-003	0.12%	ND	0.2
p,m-Xylene	8.5740E-003	8.5758E-003	0.02%	ND	0.2
o-Xylene	7.9281E-003	7.9520E-003	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	221	213	3.5%	0 - 30%
Toluene	10.6	10.3	2.8%	0 - 30%
Ethylbenzene	11.1	10.9	1.8%	0 - 30%
p,m-Xylene	17.7	17.8	0.6%	0 - 30%
o-Xylene	4.9	4.8	2.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	221	50.0	274	101%	39 - 150
Toluene	10.6	50.0	60.9	100%	46 - 148
Ethylbenzene	11.1	50.0	61.4	100%	32 - 160
p,m-Xylene	17.7	100.0	118	100%	46 - 148
o-Xylene	4.9	50.0	55.0	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 F424 - F430 and F435.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6706

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : August 30, 1999

SAMPLER : N J V

Filename : 08-30-99.WK4

PROJECT MANAGER : N J V

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	101.28	87.19	14.09	19.00	-	-	-	-	-
2	100.98		-	18.90	-	-	-	-	-
3	101.06		-	18.70	-	-	-	-	-
4	101.27	86.58	14.69	18.80	-	-	-	-	-
5	100.14	86.31	13.83	20.00	1200	7.8	800	3.00	-
6	99.80	85.98	13.82	20.00	-	-	-	-	-

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 ".

Compressor operational @ time of sampling. Collected BTEX sample for MW # 5 only. Switched air gate valves after sampling (initiating airflow into pit area). Measured DTW for MW #'s 4, 5 & 6 on August 31 , 1999 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 5	Date Reported:	09-01-99
Chain of Custody:	6706	Date Sampled:	08-30-99
Laboratory Number:	G035	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	**1.7**	**1**	**0.2**
Toluene	**0.5**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**0.6**	**1**	**0.2**
o-Xylene	**0.1**	**1**	**0.1**
Total Xylene	**0.7**		
Total BTEX	**2.9**		

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 # 93 E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

6760

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	GCU #93E	

Sampler:	Client No.
NTV	403410

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #5	8/30/99	1200	G035	WATER	2	✓						PRESERV. - $HgCl_2$ & COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	8/31/99	1009	Glenna L. Apodaca	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	✓		

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.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 7451

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : December 13, 1999

SAMPLER : N J V

Filename : 12-13-99.WK4

PROJECT MANAGER : N J V

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	101.28	87.90	13.38	19.00	-	-	-	-	-
2	100.98		-	18.90	-	-	-	-	-
3	101.06		-	18.70	-	-	-	-	-
4	101.27	86.15	15.12	18.80	-	-	-	-	-
5	100.14	86.99	13.15	20.00	1055	7.9	800	3.00	-
6	99.80	85.63	14.17	20.00	-	-	-	-	-

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 ".

Compressor operational @ time of sampling. Collected BTEX sample for MW # 5 only.

Switched air gate valves after sampling (initiating airflow into pit area). Measured DTW for MW #'s 4, 5 & 6 on August 31 , 1999 .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	403410
Sample ID:	MW # 5	Date Reported:	12-14-99
Chain of Custody:	7451	Date Sampled:	12-13-99
Laboratory Number:	G585	Date Received:	12-13-99
Sample Matrix:	Water	Date Analyzed:	12-14-99
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	**14.8**	**1**	**0.2**
Ethylbenzene	**4.9**	**1**	**0.2**
p,m-Xylene	**16.2**	**1**	**0.2**
o-Xylene	**5.1**	**1**	**0.1**
Total Xylene	**21.3**		
Total BTEX	**44.4**		

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 # 93E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

7451

Client / Project Name: BLAGG/AMOCO

Project Location: GCU #93E

Sampler: NJV

Client No.: 403410

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #5	12/13/99	1055	6585	WATER	2	✓						PRESERV. - $HgCl_2$ & COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12/13/99	1258	[signature]	12.13.99	1258
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	✓		

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:	12-14-BTEX QA/QC	Date Reported:	12-14-99
Laboratory Number:	G585	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-14-99
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	2.3405E-001	2.3480E-001	0.32%	ND	0.2
Toluene	1.1660E-001	1.1663E-001	0.02%	ND	0.2
Ethylbenzene	1.1783E-001	1.1797E-001	0.12%	ND	0.2
p,m-Xylene	1.3259E-001	1.3262E-001	0.02%	ND	0.2
o-Xylene	1.0255E-001	1.0286E-001	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	3.4	3.3	2.9%	0 - 30%
Toluene	14.8	15.0	1.4%	0 - 30%
Ethylbenzene	4.9	4.8	2.0%	0 - 30%
p,m-Xylene	16.2	16.1	0.6%	0 - 30%
o-Xylene	5.1	5.0	2.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	3.4	50.0	53.4	100%	39 - 150
Toluene	14.8	50.0	65.2	101%	46 - 148
Ethylbenzene	4.9	50.0	55.0	100%	32 - 160
p,m-Xylene	16.2	100.0	116	100%	46 - 148
o-Xylene	5.1	50.0	55.2	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 G584 - G588.**

Analyst

Review

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

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : BP AMOCO

CHAIN-OF-CUSTODY # : 10363

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ON - SITE TECH.

Date : February 25, 2000

SAMPLER : N J V

Filename : 02-25-00.WK4

PROJECT MANAGER : N J V

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	101.28	87.14	14.14	19.00	-	-	-	-	-
2	100.98	86.72	14.26	18.90	1130	7.7	2,200	2.25	-
3	101.06	86.33	14.73	18.70	1140	7.8	1,000	2.00	-
4	101.27	86.63	14.64	18.80	-	-	-	-	-
5	100.14	86.34	13.80	20.00	1220	7.4	1,000	3.00	-
6	99.80	86.01	13.79	20.00	1150	7.6	900	3.00	-
TW-2	98.99	85.99	13.00	20.00	1315	7.2	900	3.50	-
TW-6	98.51	85.67	12.84	20.00	1305	7.4	800	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 ".

Fair to poor recovery in MW # 2 . MW # 3 contained orange (rust) color during purging , then became clear . MW # 5 - slightly murky (brownish tinge from fine sediment) in appearance . Collected BTEX samples from all MW 's listed above except MW #'s 1 & 4 .

BEI reclamation system not operational since 12 / 30 / 99 .

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	MW #2
Lab ID:	0002059-01A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 11:30:00 AM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	5.1	0.5		µg/L	1	2/29/2000
m,p-Xylene	6	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	MW #3
Lab ID:	0002059-02A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 11:40:00 AM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	ND	0.5		µg/L	1	2/29/2000
m,p-Xylene	ND	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	MW #5
Lab ID:	0002059-03A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 12:20:00 PM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	5.5	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	ND	0.5		µg/L	1	2/29/2000
m,p-Xylene	ND	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	MW #6
Lab ID:	0002059-04A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 11:50:00 AM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	ND	0.5		µg/L	1	2/29/2000
m,p-Xylene	ND	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	TW #2
Lab ID:	0002059-05A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 1:15:00 PM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	ND	0.5		µg/L	1	2/29/2000
m,p-Xylene	ND	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *02-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	GCU #93E
Work Order:	0002059	**Client Sample ID:**	TW #6
Lab ID:	0002059-06A **Matrix:** AQUEOUS	**Collection Date:**	2/25/2000 1:05:00 PM
Project:	BP Amoco - GCU #93E	**COC Record:**	10364

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DM**
Benzene	ND	0.5		µg/L	1	2/29/2000
Toluene	ND	0.5		µg/L	1	2/29/2000
Ethylbenzene	ND	0.5		µg/L	1	2/29/2000
m,p-Xylene	ND	1		µg/L	1	2/29/2000
o-Xylene	ND	0.5		µg/L	1	2/29/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: 2/25/00

Page: 1 of 1

Purchase Order No.:		Project No.	
SEND INVOICE TO	Name: Nelson Velez		
	Company: Blagg Engineering Inc.	Dept.	
	Address: P.O. Box 87		
	City, State, Zip: Bloomfield NM 87413		
REPORT RESULTS TO	Name: Same	Title	
	Company		
	Mailing Address		
	City, State, Zip		
	Telephone No.: 632-1199	Telefax No.: 632-3903	

PROJECT LOCATION: BP Amoco - Gcu # 93E

SAMPLER'S SIGNATURE: Nelson Velez

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	BTEX (8021)	LAB ID
MW # 2	2/25/00	1130	WATER	COOL & HCl	2	✓	0002055-01A
MW # 3	2/25/00	1140	WATER	COOL & HCl	2	✓	-02A
MW # 5	2/25/00	1220	WATER	COOL & HCl	2	✓	-03A
MW # 6	2/25/00	1150	WATER	COOL & HCl	2	✓	-04A
918 Amoco TW - 2	2/25/00	1315	WATER	COOL & HCl	2	✓	-05A
TW - 6	2/25/00	1315	WATER	COOL & HCl	2	✓	-06A

Relinquished by: Nelson Velez	Date/Time: 2/25/00 1345	Received by:	Date/Time: 2/25/00 1343
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | | 24-48 Hours | | 10 Working Days | | By Date: 3/3/00

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Special Instructions / Remarks:
Please Fax Results upon Analytical Completion.

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

On Site Technologies, LTD.

Date: *02-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT

Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0873	0.5									J
Ethylbenzene	.0742	0.5									J
m,p-Xylene	.2172	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.0814	0.5									J
Toluene	.1879	0.5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *02-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0002054-01AMS** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	687	5	400	288.1	99.7%	73	126				
Ethylbenzene	531.7	5	400	134.6	99.3%	88	113				
m,p-Xylene	1964	10	800	1178	98.3%	83	112				
Methyl tert-Butyl Ether	402	10	400	0	100.5%	81	125				
o-Xylene	619.8	5	400	223.8	99.0%	93	110				
Toluene	1200	5	400	787	103.3%	76	126				

Sample ID: **0002054-01AMSD** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	661.9	5	400	288.1	93.4%	73	126	687	3.7%	6	
Ethylbenzene	513.1	5	400	134.6	94.6%	88	113	531.7	3.6%	5	
m,p-Xylene	1894	10	800	1178	89.5%	83	112	1964	3.6%	7	
Methyl tert-Butyl Ether	393.2	10	400	0	98.3%	81	125	402	2.2%	9	
o-Xylene	620.4	5	400	223.8	99.2%	93	110	619.8	0.1%	6	
Toluene	1156	5	400	787	92.3%	76	126	1200	3.8%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *02-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.59	0.5	40	0.0873	98.8%	89	112				
Ethylbenzene	40.28	0.5	40	0.0742	100.5%	93	112				
m,p-Xylene	76.5	1	80	0.2172	95.4%	88	108				
Methyl tert-Butyl Ether	39.41	1	40	0	98.5%	87	115				
o-Xylene	40.09	0.5	40	0.0814	100.0%	93	112				
Toluene	40.02	0.5	40	0.1879	99.6%	92	111				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *02-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0001** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.78	0.5	20	0	98.9%	85	115				
Ethylbenzene	20.37	0.5	20	0	101.9%	85	115				
m,p-Xylene	38.43	1	40	0	96.1%	85	115				
Methyl tert-Butyl Ether	20.01	1	20	0	100.0%	85	115				
o-Xylene	20.25	0.5	20	0	101.2%	85	115				
Toluene	19.98	0.5	20	0	99.9%	85	115				
1,4-Difluorobenzene	89.73	0	100	0	89.7%	80	105				
4-Bromochlorobenzene	90.01	0	100	0	90.0%	78	108				
Fluorobenzene	88.26	0	100	0	88.3%	78	108				

Sample ID: **CCV2 BTEX_0001** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.1	0.5	20	0	95.5%	85	115				
Ethylbenzene	19.64	0.5	20	0	98.2%	85	115				
m,p-Xylene	36.94	1	40	0	92.3%	85	115				
Methyl tert-Butyl Ether	19.41	1	20	0	97.0%	85	115				
o-Xylene	19.59	0.5	20	0	98.0%	85	115				
Toluene	19.28	0.5	20	0	96.4%	85	115				
1,4-Difluorobenzene	89.93	0	100	0	89.9%	80	105				
4-Bromochlorobenzene	90.04	0	100	0	90.0%	78	108				
Fluorobenzene	88.09	0	100	0	88.1%	78	108				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3 BTEX_0001** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:
Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.44	0.5	40	0	96.1%	85	115				
Ethylbenzene	38.91	0.5	40	0	97.3%	85	115				
m,p-Xylene	73.62	1	80	0	92.0%	85	115				
Methyl tert-Butyl Ether	39.67	1	40	0	99.2%	85	115				
o-Xylene	38.98	0.5	40	0	97.5%	85	115				
Toluene	38.82	0.5	40	0	97.0%	85	115				
1,4-Difluorobenzene	89.07	0	100	0	89.1%	80	105				
4-Bromochlorobenzene	90.83	0	100	0	90.8%	78	108				
Fluorobenzene	87.69	0	100	0	87.7%	78	108				

Sample ID: **CCV4 BTEX_0001** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:
Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.78	0.5	20	0	103.9%	85	115				
Ethylbenzene	21.36	0.5	20	0	106.8%	85	115				
m,p-Xylene	40.26	1	40	0	100.6%	85	115				
Methyl tert-Butyl Ether	17.61	1	20	0	88.1%	85	115				
o-Xylene	21.27	0.5	20	0	106.3%	85	115				
Toluene	20.96	0.5	20	0	104.8%	85	115				
1,4-Difluorobenzene	88.96	0	100	0	89.0%	80	105				
4-Bromochlorobenzene	88	0	100	0	88.0%	78	108				
Fluorobenzene	88.46	0	100	0	88.5%	78	108				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV5 BTEX_0001** Batch ID: **GC-1_000229** Test Code: **SW8021B** Units: **µg/L** Analysis Date **2/29/2000** Prep Date:

Client ID: **0002059** Run ID: **GC-1_000229A** SeqNo: **24669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.23	0.5	20	0	101.2%	85	115				
Ethylbenzene	20.81	0.5	20	0	104.1%	85	115				
m,p-Xylene	39.26	1	40	0	98.2%	85	115				
Methyl tert-Butyl Ether	20.94	1	20	0	104.7%	85	115				
o-Xylene	20.83	0.5	20	0	104.2%	85	115				
Toluene	20.48	0.5	20	0	102.4%	85	115				
1,4-Difluorobenzene	90.04	0	100	0	90.0%	80	105				
4-Bromochlorobenzene	88.66	0	100	0	88.7%	78	108				
Fluorobenzene	88.26	0	100	0	88.3%	78	108				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 02-Mar-00

CLIENT: Blagg Engineering
Work Order: 0002059
Project: BP Amoco - GCU #93E
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0002054-01A	88	88.9	87.9
0002054-01AMS	88.3	89.1	87.2
0002054-01AMSD	87.8	88.6	86.2
0002054-02A	90.1	89.9	89.1
0002055-01A	91.1	89.6	90.4
0002055-02A	89.7	87.8	88.9
0002055-03A	89.7	89.7	89.5
0002055-04A	90	89.7	90.8
0002055-05A	90.8	89.7	89.1
0002055-06A	89.5	88.6	89.4
0002058-01A	89.8	89.4	89.7
0002059-01A	90	90.7	89
0002059-02A	89.5	90	88.8
0002059-03A	90.8	90.6	88.7
0002059-04A	89.4	89.2	88.6
0002059-05A	90.4	90.1	88.9
0002059-06A	90.1	90.4	89.1
0002063-01A	87.5	86.6	86.8
CCV1 BTEX_00010	89.7	90	88.2
CCV2 BTEX_00010	89.9	90	88.1
CCV3 BTEX_00010	89.1	90.8	87.7
CCV4 BTEX_00010	89	88	88.5
CCV5 BTEX_00010	90	88.7	88.2
LCS WATER	89.1	89.9	87.8
MB1	90	88.9	89.3

Acronym		Surrogate	QC Limits
14FBZ	=	1,4-Difluorobenzene	80-105
4BCBZ	=	4-Bromochlorobenzene	78-108
FLBZ	=	Fluorobenzene	78-108

*** Surrogate recovery outside acceptance limits**

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : BP AMOCO

CHAIN-OF-CUSTODY # : 10366

7463 & 6714

GCU # 93E - SEPARATOR PIT
UNIT L, SEC. 36, T29N, R12W

LABORATORY (S) USED : ON - SITE TECH.

ENVIROTECH

Date : March 8, 2000

SAMPLER : N J V

Filename : 03-08-00.WK4

PROJECT MANAGER : N J V

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	101.28	86.99	14.29	19.00	0820	7.5	900	2.50	-
2	100.98	86.58	14.40	18.90	0845	7.6	2,250	2.25	-
TW-6	98.51	85.55	12.96	20.00	0915	7.4	800	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 ".

Fair to poor recovery in MW # 2, good recovery in MW # 1, excellent recovery in MW # 3 . Collected anion / cation samples from all MW 's listed above, collected BTEX samples from MW # 2 (duplicate and split samples - submitted to labs for QA / QC) including a distilled water sample (labeled MW # 3) under fake well name - State # 1) .

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #1	Date Reported:	03-08-00
Chain of Custody:	6714	Date Sampled:	03-07-00
Laboratory Number:	G902	Date Received:	03-08-00
Sample Matrix:	Water	Date Analyzed:	03-08-00
Preservative:	HCl & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

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

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: **State #1.**

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 #2	Date Reported:	03-08-00
Chain of Custody:	6714	Date Sampled:	03-07-00
Laboratory Number:	G903	Date Received:	03-08-00
Sample Matrix:	Water	Date Analyzed:	03-08-00
Preservative:	HCl & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.2**	**1**	**0.2**
Toluene	**0.4**	**1**	**0.2**
Ethylbenzene	**0.3**	**1**	**0.2**
p,m-Xylene	**1.6**	**1**	**0.2**
o-Xylene	**0.3**	**1**	**0.1**
Total Xylene	**1.9**		
Total BTEX	**2.8**		

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: **State #1.**

Analyst

Review

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

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *15-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	BP Amoco - State #1
Work Order:	0003010	**Client Sample ID:**	MW-1
Lab ID:	0003010-01A **Matrix:** AQUEOUS	**Collection Date:**	3/7/2000 1:00:00 PM
Project:	BP Amoco; State 1	**COC Record:**	10366

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	0.5		µg/L	1	3/14/2000
Toluene	ND	0.5		µg/L	1	3/14/2000
Ethylbenzene	3	0.5		µg/L	1	3/14/2000
m,p-Xylene	3.8	1		µg/L	1	3/14/2000
o-Xylene	ND	0.5		µg/L	1	3/14/2000

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *15-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	BP Amoco - State #1
Work Order:	0003010	**Client Sample ID:**	MW-2
Lab ID:	0003010-02A **Matrix:** AQUEOUS	**Collection Date:**	3/7/2000 1:30:00 PM
Project:	BP Amoco: State 1	**COC Record:**	10366

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	0.5		µg/L	1	3/14/2000
Toluene	ND	0.5		µg/L	1	3/14/2000
Ethylbenzene	2.8	0.5		µg/L	1	3/14/2000
m,p-Xylene	3.5	1		µg/L	1	3/14/2000
o-Xylene	ND	0.5		µg/L	1	3/14/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW #3	Date Reported:	03-08-00
Chain of Custody:	6714	Date Sampled:	03-07-00
Laboratory Number:	G904	Date Received:	03-08-00
Sample Matrix:	Water	Date Analyzed:	03-08-00
Preservative:	HCl & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.2**	**1**	**0.2**
Toluene	**0.2**	**1**	**0.2**
Ethylbenzene	**0.2**	**1**	**0.2**
p,m-Xylene	**0.4**	**1**	**0.2**
o-Xylene	**0.3**	**1**	**0.1**
Total Xylene	**0.7**		
Total BTEX	**1.3**		

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: **State #1.**

Analyst

Review

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

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *15-Mar-00*

Client:	Blagg Engineering	**Client Sample Info:**	BP Amoco - State #1
Work Order:	0003010	**Client Sample ID:**	MW-3
Lab ID:	0003010-03A **Matrix:** AQUEOUS	**Collection Date:**	3/7/2000 2:00:00 PM
Project:	BP Amoco; State 1	**COC Record:**	10366

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	ND	0.5		µg/L	1	3/14/2000
Toluene	ND	0.5		µg/L	1	3/14/2000
Ethylbenzene	ND	0.5		µg/L	1	3/14/2000
m,p-Xylene	ND	1		µg/L	1	3/14/2000
o-Xylene	ND	0.5		µg/L	1	3/14/2000

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 1	Date Reported:	03-08-00
Laboratory Number:	G905	Date Sampled:	03-08-00
Chain of Custody:	7463	Date Received:	03-08-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	03-08-00
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.04**	s.u.		
Conductivity @ 25° C	**1,250**	umhos/cm		
Total Dissolved Solids @ 180C	**620**	mg/L		
Total Dissolved Solids (Calc)	**596**	mg/L		
SAR	**1.2**	ratio		
Total Alkalinity as CaCO3	**420**	mg/L		
Total Hardness as CaCO3	**371**	mg/L		
Bicarbonate as HCO3	**420**	mg/L	6.88	meq/L
Carbonate as CO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as OH	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**1.0**	mg/L	0.02	meq/L
Nitrite Nitrogen	**0.002**	mg/L	0.00	meq/L
Chloride	**2.5**	mg/L	0.07	meq/L
Fluoride	**0.30**	mg/L	0.02	meq/L
Phosphate	**0.8**	mg/L	0.03	meq/L
Sulfate	**137**	mg/L	2.85	meq/L
Iron	**0.012**	mg/L		
Calcium	**129**	mg/L	6.43	meq/L
Magnesium	**11.9**	mg/L	0.98	meq/L
Potassium	**4.5**	mg/L	0.12	meq/L
Sodium	**53.8**	mg/L	2.34	meq/L
Cations			9.87	meq/L
Anions			9.86	meq/L
Cation/Anion Difference			**0.03%**	

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 # 93 E.**

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

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	MW # 2	Date Reported:	03-08-00
Laboratory Number:	G906	Date Sampled:	03-08-00
Chain of Custody:	7463	Date Received:	03-08-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	03-08-00
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.16**	s.u.		
Conductivity @ 25° C	**4,420**	umhos/cm		
Total Dissolved Solids @ 180C	**2,200**	mg/L		
Total Dissolved Solids (Calc)	**2,178**	mg/L		
SAR	**1.7**	ratio		
Total Alkalinity as CaCO3	**160**	mg/L		
Total Hardness as CaCO3	**1,310**	mg/L		
Bicarbonate as HCO3	**160**	mg/L	2.62	meq/L
Carbonate as CO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as OH	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**27.8**	mg/L	0.45	meq/L
Nitrite Nitrogen	**0.304**	mg/L	0.01	meq/L
Chloride	**3.0**	mg/L	0.08	meq/L
Fluoride	**1.94**	mg/L	0.10	meq/L
Phosphate	**0.4**	mg/L	0.01	meq/L
Sulfate	**1,390**	mg/L	28.94	meq/L
Iron	**0.014**	mg/L		
Calcium	**506**	mg/L	25.23	meq/L
Magnesium	**10.7**	mg/L	0.88	meq/L
Potassium	**0.7**	mg/L	0.02	meq/L
Sodium	**140**	mg/L	6.09	meq/L
Cations			32.22	meq/L
Anions			32.22	meq/L
Cation/Anion Difference			**0.00%**	

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 # 93 E.**

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

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	TW - 6	Date Reported:	03-08-00
Laboratory Number:	G907	Date Sampled:	03-08-00
Chain of Custody:	7463	Date Received:	03-08-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	03-08-00
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.34**	s.u.		
Conductivity @ 25° C	**1,150**	umhos/cm		
Total Dissolved Solids @ 180C	**574**	mg/L		
Total Dissolved Solids (Calc)	**562**	mg/L		
SAR	**1.3**	ratio		
Total Alkalinity as CaCO3	**292**	mg/L		
Total Hardness as CaCO3	**332**	mg/L		
Bicarbonate as HCO3	**292**	mg/L	4.79	meq/L
Carbonate as CO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as OH	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**1.5**	mg/L	0.02	meq/L
Nitrite Nitrogen	**0.003**	mg/L	0.00	meq/L
Chloride	**5.2**	mg/L	0.15	meq/L
Fluoride	**0.33**	mg/L	0.02	meq/L
Phosphate	**0.8**	mg/L	0.03	meq/L
Sulfate	**195**	mg/L	4.05	meq/L
Iron	**0.005**	mg/L		
Calcium	**115**	mg/L	5.75	meq/L
Magnesium	**10.7**	mg/L	0.88	meq/L
Potassium	**0.8**	mg/L	0.02	meq/L
Sodium	**55.2**	mg/L	2.40	meq/L
Cations			9.05	meq/L
Anions			9.05	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 # 93 E.**

Analyst

Review

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

CHAIN OF CUSTODY RECORD

7463

Client / Project Name: BLAGG / AMOCO

Project Location: GCU #93E

Sampler: NV

Client No.: 403410

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	ANION/CATION						Remarks
												ALL SAMPLES PRESERV. - COOL
MW #1	3/8/00	0820	G905	WATER	1	✓						
MW #2	3/8/00	0845	G906	WATER	1	✓						
TW - 6	3/8/00	0915	G907	WATER	1	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	3/8/00	0958	[signature]	3-8-00	0958
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	✓		

CHAIN OF CUSTODY RECORD

6714

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	STATE #1	
Sampler: NV	Client No. 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
												ALL SAMPLES PRESERV. - COOL & HCl
MW #1	3/7/00	1300	G902	WATER	2	✓						
MW #2	3/7/00	1330	G903	WATER	2	✓						
MW #3	3/7/00	1400	G904	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	3/8/00	0958	Glenn L. Spencer	3.8.00	0958
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	✓		

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: 3/7/00

Page: 1 of 1

Purchase Order No.:	Project No.		
SEND INVOICE TO Name	JEFF BUGG	**REPORT RESULTS TO** Name	NELSON VELEZ / Title
Company	BUGG ENGINEERING, INC. / Dept.	Company	SAME
Address	P.O. BOX 87	Mailing Address	
City, State, Zip	BLOOMFIELD, NM 87413	City, State, Zip	
		Telephone No.	632-1199 / Telefax No. 632-3903

PROJECT LOCATION: BP AMOCO - STATE #1

SAMPLER'S SIGNATURE: [signature]

SAMPLE IDENTIFICATION	SAMPLE DATE	TIME	MATRIX	PRES.	Number of Containers	BTEX (8021)	LAB ID
MW #1	3/7/00	1300	WATER	COOL & HCl	2	✓	[illegible]
MW #2	3/7/00	1330	WATER	COOL & HCl	2	✓	-01
MW #3	3/7/00	1400	WATER	COOL & HCl	2	✓	-02

ANALYSIS REQUESTED

Relinquished by: [signature]	Date/Time 3/8/00 1021	Received by: [signature]	Date/Time 3/8/00 1021
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | | 24-48 Hours | X | 10 Working Days | | By Date |

Authorized by: [signature] Date 3/8/00
(Client Signature Must Accompany Request)

Special Instructions / Remarks: PLEASE CALL & FAX RESULTS UPON ANALYTICAL COMPLETION.

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

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:	03-08-BTEX QA/QC	Date Reported:	03-08-00
Laboratory Number:	G902	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-08-00
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	5.5550E-002	5.5728E-002	0.32%	ND	0.2
Toluene	5.4692E-002	5.4703E-002	0.02%	ND	0.2
Ethylbenzene	6.4324E-002	6.4401E-002	0.12%	ND	0.2
p,m-Xylene	7.3322E-002	7.3336E-002	0.02%	ND	0.2
o-Xylene	6.7093E-002	6.7295E-002	0.30%	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	ND	ND	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	50.1	100%	39 - 150
Toluene	ND	50.0	50.1	100%	46 - 148
Ethylbenzene	ND	50.0	50.1	100%	32 - 160
p,m-Xylene	ND	100.0	100.1	100%	46 - 148
o-Xylene	ND	50.0	50.0	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 G902 - G904.**

Analyst

Review

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

On Site Technologies, LTD.

Date: *15-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1

QC SUMMARY REPORT

Method Blank

Sample ID: **MB1** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0396	0.5									J
Ethylbenzene	.065	0.5									J
m,p-Xylene	.1824	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.1453	0.5									J
Toluene	.2372	0.5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0003019-01AMS** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	235.3	2.5	200	44.56	95.4%	73	126				
Ethylbenzene	333.9	2.5	200	135.2	99.3%	88	113				
m,p-Xylene	1218	5	400	805.8	103.1%	83	112				
Methyl tert-Butyl Ether	205.3	5	200	15.73	94.8%	81	125				
o-Xylene	310.7	2.5	200	114.4	98.1%	93	110				
Toluene	208.1	2.5	200	36.55	85.8%	76	126				

Sample ID: **0003019-01AMSD** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	224.8	2.5	200	44.56	90.1%	73	126	235.3	4.6%	6	
Ethylbenzene	320.1	2.5	200	135.2	92.5%	88	113	333.9	4.2%	5	
m,p-Xylene	1168	5	400	805.8	90.7%	83	112	1218	4.2%	7	
Methyl tert-Butyl Ether	200.2	5	200	15.73	92.2%	81	125	205.3	2.5%	9	
o-Xylene	302	2.5	200	114.4	93.8%	93	110	310.7	2.8%	6	
Toluene	200.2	2.5	200	36.55	81.8%	76	126	208.1	3.9%	6	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS WATER** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.31	0.5	40	0.0396	95.7%	89	112				
Ethylbenzene	39.42	0.5	40	0.065	98.4%	93	112				
m,p-Xylene	74.86	1	80	0.1824	93.3%	88	108				
Methyl tert-Butyl Ether	38.63	1	40	0	96.6%	87	115				
o-Xylene	39.41	0.5	40	0.1453	98.2%	93	112				
Toluene	39.19	0.5	40	0.2372	97.4%	92	111				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *15-Mar-00*

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 BTEX_0001** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.67	0.5	20	0	103.4%	85	115				
Ethylbenzene	21.4	0.5	20	0	107.0%	85	115				
m,p-Xylene	40.35	1	40	0	100.9%	85	115				
Methyl tert-Butyl Ether	20.84	1	20	0	104.2%	85	115				
o-Xylene	21.37	0.5	20	0	106.9%	85	115				
Toluene	21.11	0.5	20	0	105.6%	85	115				
1,4-Difluorobenzene	89.09	0	100	0	89.1%	80	105				
4-Bromochlorobenzene	89.47	0	100	0	89.5%	78	108				
Fluorobenzene	86.62	0	100	0	86.6%	78	108				

Sample ID: **CCV2 BTEX_0001** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.59	0.5	20	0	98.0%	85	115				
Ethylbenzene	20.23	0.5	20	0	101.2%	85	115				
m,p-Xylene	38.08	1	40	0	95.2%	85	115				
Methyl tert-Butyl Ether	20.17	1	20	0	100.8%	85	115				
o-Xylene	20.22	0.5	20	0	101.1%	85	115				
Toluene	19.94	0.5	20	0	99.7%	85	115				
1,4-Difluorobenzene	88.71	0	100	0	88.7%	80	105				
4-Bromochlorobenzene	90.52	0	100	0	90.5%	78	108				
Fluorobenzene	86.87	0	100	0	86.9%	78	108				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3 BTEX_0001** Batch ID: **GC-1_000314** Test Code: **SW8021B** Units: **µg/L** Analysis Date **3/14/2000** Prep Date:

Client ID: **0003010** Run ID: **GC-1_000314A** SeqNo: **25644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.76	0.5	40	0	96.9%	85	115				
Ethylbenzene	39.61	0.5	40	0	99.0%	85	115				
m,p-Xylene	74.89	1	80	0	93.6%	85	115				
Methyl tert-Butyl Ether	38.99	1	40	0	97.5%	85	115				
o-Xylene	39.58	0.5	40	0	99.0%	85	115				
Toluene	39.39	0.5	40	0	98.5%	85	115				
1,4-Difluorobenzene	88.62	0	100	0	88.6%	80	105				
4-Bromochlorobenzene	89.92	0	100	0	89.9%	78	108				
Fluorobenzene	86.49	0	100	0	86.5%	78	108				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 15-Mar-00

CLIENT: Blagg Engineering
Work Order: 0003010
Project: BP Amoco; State 1
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0003009-01A	89.8	90.3	87.4
0003009-02A	85.6	83.5	87.2
0003009-03A	90.1	89.4	87.6
0003009-04A	89.6	91.4	87.6
0003009-05A	89.9	90	87.5
0003009-06A	89.4	90.4	87.9
0003010-01A	89.4	90.2	87.2
0003010-02A	89.3	90.3	87.4
0003010-03A	89.2	89.8	87.4
0003012-03A	90.1	89.9	87.3
0003012-04A	88.8	88.6	87.3
0003012-05A	86.8	89	85.4
0003012-06A	87	88.9	85.4
0003013-07A	89.8	90	87
0003016-01A	88.1	89.9	86.8
0003017-01A	90.2	91.1	87.3
0003018-01A	86.6	88.6	84.2
0003019-01A	90.2	90.6	91.5
0003019-01AMS	85.9	88.6	88.4
0003019-01AMSD	86.2	89.7	88.7
0003020-01A	86.9	87.8	84.9
CCV1 BTEX_00010	89.1	89.5	86.6
CCV2 BTEX_00010	88.7	90.5	86.9
CCV3 BTEX_00010	88.6	89.9	86.5
LCS WATER	88.1	90.2	85.8
MB1	89.2	89.6	87

Acronym		Surrogate	QC Limits
14FBZ	=	1,4-Difluorobenzene	80-105
4BCBZ	=	4-Bromochlorobenzene	78-108
FLBZ	=	Fluorobenzene	78-108

*** Surrogate recovery outside acceptance limits**

94207

ENVIROTECH Inc.

JJ

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

1307

FIELD REPORT: SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1

PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH INC.
EQUIPMENT USED: EXTENDAHOE

DATE STARTED: 5-27-92
DATE FINISHED: 5-27-92
ENVIRO. SPCLT: J.W.
OPERATOR: B.W
ASSISTANT: T.C.

LOCATION: LSE: Gallegos Canyon Unit WELL: No. 93E QD: NW 1/4 SW 1/4
SEC: 36 TWP: 29N RNG: 12W PM: N.M CNTY: S.J. ST: N.M PIT: Separator

LAND USE: IRRIGATED FIELDS
SURFACE CONDITIONS: Fiberglas TANK 8x6

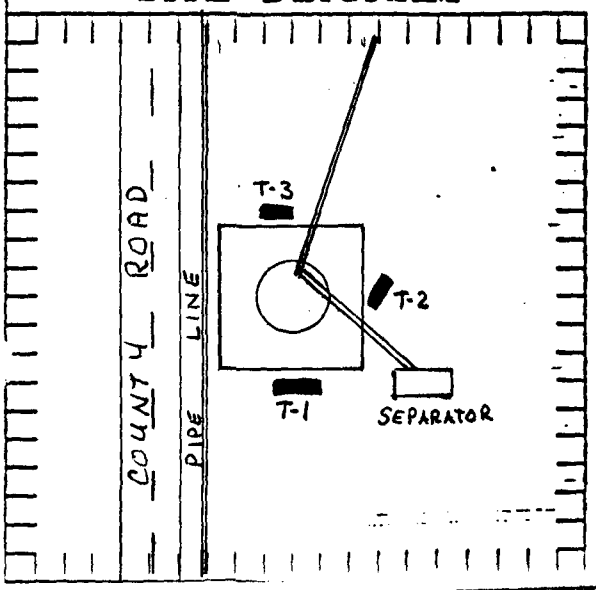
FIELD NOTES & REMARKS: ~~Pit is~~ located approx. 25' south and 145' west of well head.

SAMPLE INVENTORY:

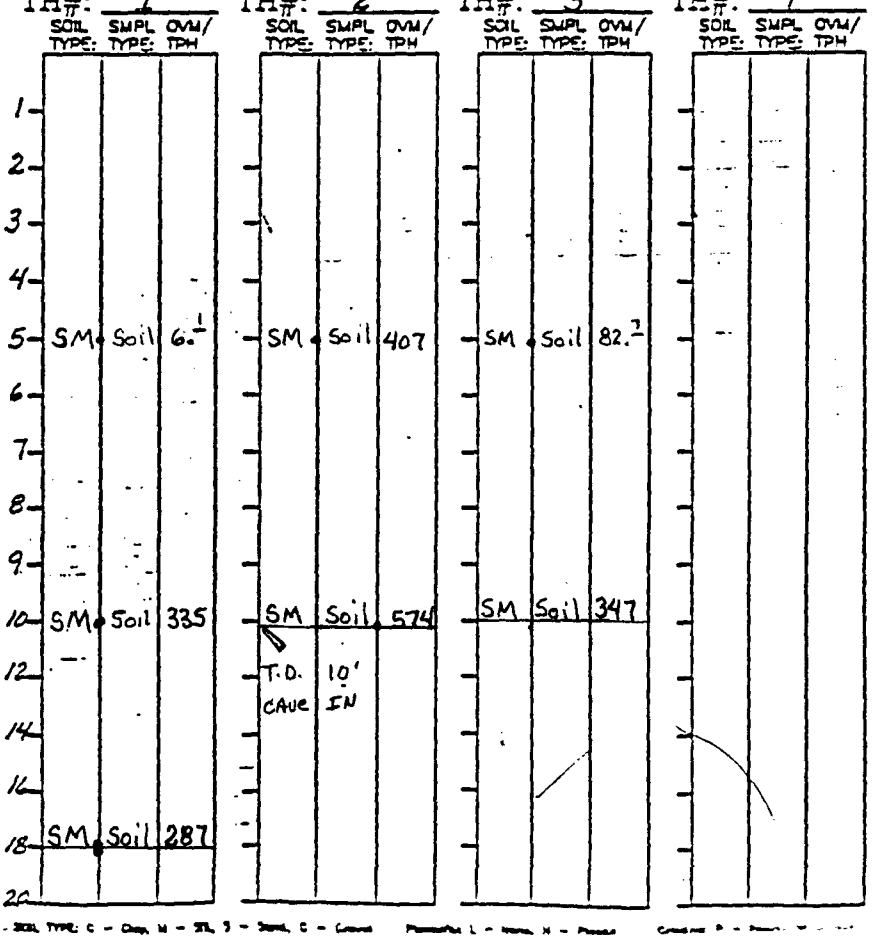
SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:
T-1@18'	Soil	TPH
T-2@10'	Soil	HEAD SPACE
T-3@10'	Soil	Headspace

SCALE
0 FEET

SITE DIAGRAM



TEST HOLE LOGS:



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ 18'	Date Reported:	06-16-92
Laboratory Number:	0913	Date Sampled:	05-27-92
Sample Matrix:	Soil	Date Received:	NA
Preservative:	Cool	Date Analyzed:	06-09-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	5.0

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Gallegos Canyon Unit #93E Separator Pit 94207

Tony Tristano
Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 10'	Date Reported:	10-02-92
Laboratory Number:	0915	Date Sampled:	05-27-92
Sample Matrix:	Soil	Date Received:	05-27-92
Preservative:	Cool	Date Extracted:	06-09-92
Condition:	Cool & Intact	Date Analyzed:	09-30-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	860	39.9
Toluene	14,900	90
Ethylbenzene	18,000	29.9
p,m-Xylene	173,000	110
o-Xylene	125,700	39.9

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Gallegos Canyon Unit #93E---Separator Pit---94207.

Robert W Young
Analyst

David D Young
Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 10'	Date Reported:	08-31-92
Laboratory Number:	0915	Date Sampled:	05-27-92
Sample Matrix:	Soil	Date Received:	05-27-92
Preservative:	Cool	Date Analyzed:	08-07-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	4010	1.6
Toluene	10400	7.2
Ethylbenzene	2070	8.0
p,m-Xylene	9900	11.2
o-Xylene	4000	7.2

Method: Method 3810, Headspace, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Gallegos Canyon Unit #93E Separator Pit 94207

Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T3 @ 10'	Date Reported:	08-31-92
Laboratory Number:	0916	Date Sampled:	05-27-92
Sample Matrix:	Soil	Date Received:	05-27-92
Preservative:	Cool	Date Analyzed:	08-07-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	2350	1.6
Toluene	6600	7.2
Ethylbenzene	590	8.0
p,m-Xylene	4580	11.2
o-Xylene	1180	7.2

Method: Method 3810, Headspace, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Gallegos Canyon Unit #93E Separator Pit 94207

Analyst

Review

1507

CHAIN OF CUSTODY RECORD

94207

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
Amoco 92140	Separator Pit Gallegos Canyon Unit #93E	
Sampler: (Signature) Jim Weakfee	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH	Headspace 8020/BTEX					Remarks
T-1 @ 18'	5-27-92	1430	0913	Soil	1	✓						
T-2 @ 10'	5-27-92	1530	0915	Soil	1		✓	✓				
T-3 @ 10'	5-27-92	1555	0916	Soil	1		✓					
TRAVEL BLANK	5-27-92		0917	Soil	1		✓					
TRAVEL BLANK	5-27-92		0918	WATER	1							not analyzed 11/02/92 JT
Equip. BLANK	5-27-92		0919	WATER	1							1

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jim Weakfee	5-27-92	1755	Nicki Trujillo	5/27/92	1755
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

B0294

Form 3160-5
(June 1990).

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.
—

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation
892000844F

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
GC4 93E

2. Name of Operator
Amoco Production Company

9. API Well No.
3004524177

3. Address and Telephone No.
200 Amoco Court, Farmington, N.M. 87401 Tel: (505) 326-9200

10. Field and Pool, or Exploratory Area
DAKOTA

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
NW/SW SEC. 36, T29N, R12W NMPM

11. County or Parish, State
SAN JUAN, N.M.

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Other Pit closure	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Pit closure verification - see attached documentation.

SEPARATOR PIT - ABANDONED

14. I hereby certify that the foregoing is true and correct

Signed RA Shaw Title Enviro. Coordinator Date 8-8-95

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

80294

Operator: Amoco Production Company **Telephone:** (505) - 326-9200

Address: 200 Amoco Court, Farmington, New Mexico 87401

Facility Or: Well Name GCU 93 E

Location: Unit or Qtr/Qtr Sec L Sec 36 T 29N R 12W County SAN JUAN

Pit Type: Separator X Dehydrator ___ Other ___

Land Type: BLM X, State ___, Fee ___, Other ___

Pit Location: (Attach diagram)
Pit dimensions: length 40', width 20', depth 15'
Reference: wellhead X, other ___
Footage from reference: 140'
Direction from reference: 50° Degrees ___ East North ___ of X West South X

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	20

Date Remediation Started: 5-31-95 **Date Completed:** _____

Remediation Method: (Check all appropriate sections)
Excavation X Approx. cubic yards 400
Landfarmed X Insitu Bioremediation ___
Other ~~STOCKPILE SOILS~~ NR

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility)
Onsite ~~X~~ NR Offsite X GCU 199E

General Description Of Remedial Action:
Excavation - GROUNDWATER CONTAMINATION REMAINS

Ground Water Encountered: No ___ Yes X Depth 15'

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)
Sample location see Attached Documents
Sample depth 15'
Sample date 5/31 + 6/27 + 9/15 Sample time _____
Sample Results
Benzene(ppm) 0.0355 (WATER 6/15)
Total BTEX(ppm) _____
Field headspace(ppm) _____
TPH _____

Ground Water Sample: Yes X No ___ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 8-8-95
SIGNATURE B J Shaw
PRINTED NAME AND TITLE Buddy D. Shaw Environmental Coordinator

R E

CLIENT: AMOCO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: 80294
C.O.C. NO: 3054

FIELD REPORT: PIT CLOSURE VERIFICATION

LOCATION: NAME: GCU WELL #: 93E PIT: SEP.
QUAD/UNIT: L SEC: 36 TWP: 29N RNG: 12W BM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: NW/SW CONTRACTOR: PAUL

DATE STARTED: 5-31-95
DATE FINISHED:
ENVIRONMENTAL SPECIALIST: RCO

EXCAVATION APPROX. 40 FT. x 20 FT. x 15 FT. DEEP. CUBIC YARDS: 400
DISPOSAL FACILITY: GCU 199E REMEDIATION METHOD: LANDFARMED
LAND USE: AGRICULTURAL LEASE: — FORMATION: DAKOTA

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 140 FEET S50°W FROM WELLHEAD.
DEPTH TO GROUNDWATER: 15' NEAREST WATER SOURCE: 71000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 20 NMOCD TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: PIT DISPOSITION: ABANDONED

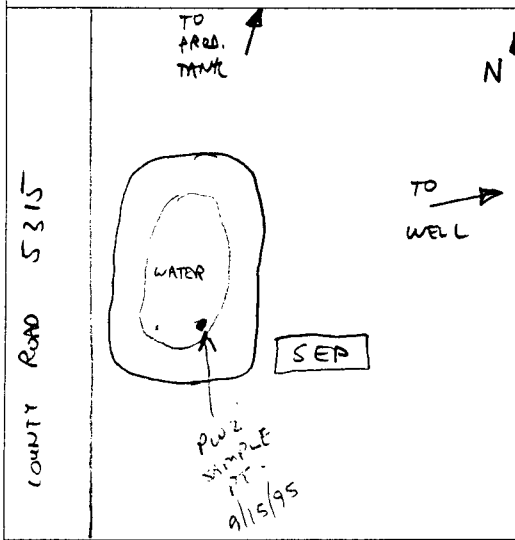
PIT EXCAVATED TO GROUNDWATER AT 15'
MOIST, BROWN, SANDY SOILS.

FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE
0 10 20 FT

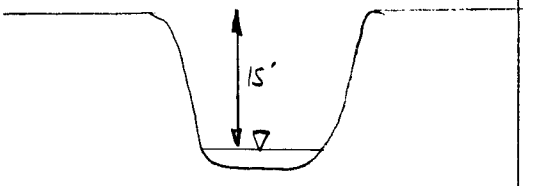
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1	
2	
3	
4	
5	
LAB	SAMPLES
PIT WATER @ 15'	BTEX
PW2@GCU (15')	BTEX Time: 1400 9/15/95

PIT PROFILE



TRAVEL NOTES: CALLOUT: 5-30-95 ONSITE: 5-31-95 0930

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*R.E. O'Neill*	Date:	5/31/95
Company:	*Blagg Engineering, Inc.*	*COC No.:*	*3054*
Address:	*P.O. Box 87*	*Sample ID:*	*6582*
City, State:	*Bloomfield, NM 87413*	*Job No.*	*2-1000*

Project Name:	***GCU 93 E***				
Project Location:	***Pit Water @ 15'***				
Sampled by:	REO	Date:	5/31/95	Time:	9:50
Analyzed by:	DC	Date:	5/31/95		
Sample Matrix:	*Water*				

Aromatic Volatile Organics

Component	***Measured Concentration ug/L***	***Detection Limit Concentration ug/L***
Benzene	470.2	*0.2*
Toluene	1548.0	*0.2*
Ethylbenzene	11.1	*0.2*
m,p-Xylene	739.6	*0.2*
o-Xylene	214.2	*0.2*
	TOTAL 2983.1 *ug/L*	

ND - Not Detectable

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: Da 4
Date: 6/1/95

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Amoco	Report Date:	06/30/95
Sample ID:	GCU 93E	Date Sampled:	06/27/95
Lab ID:	1170	Date Received:	06/27/95
Sample Matrix:	Water	Date Analyzed:	06/28/95
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	1,960	50.0
Toluene	6,330	50.0
Ethylbenzene	ND	50.0
m,p-Xylenes	4,150	100
o-Xylene	1,320	50.0
Total BTEX	**13,800**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	101	88 - 110%
Bromofluorobenzene	98	86 - 115%

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

Comments:

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg Eng. / Amoco	Project #:	04034
Sample ID:	PW 2 @ GW (15')	Date Reported:	09-19-95
Chain of Custody:	4413	Date Sampled:	09-15-95
Laboratory Number:	8994	Date Received:	09-15-95
Sample Matrix:	Water	Date Analyzed:	09-19-95
Preservative:	HgCl & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**35.5**	**1**	**0.4**
Toluene	**132**	**1**	**0.5**
Ethylbenzene	**3.1**	**1**	**0.5**
p,m-Xylene	**73.4**	**1**	**0.4**
o-Xylene	**21.8**	**1**	**0.4**
Total BTEX	**266**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**97 %**

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: **GCU 93E - Separator Pit.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

3054

CHAIN OF CUS . ODY RECORD

ON SITE TECHNOLOGIES, LTD.

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

Date: 5-31-95

Page 1 of 1

80294

Purchase Order No.:	Job No.:
SEND INVOICE TO Name:	
Company: BLAGG ENGINEERING	Dept.:
Address:	
City, State, Zip:	

REPORT RESULTS TO Name: R E O'NEILL	Title:
Company:	
Mailing Address:	
City, State, Zip:	
Telephone No.:	Telefax No.:

Sampling Location: 664 93E

Sampler: R E O'Neill

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	ANALYSIS REQUESTED: BTEX									LAB ID
PIT WATER @ 15'	5-31	0930	WATER	HgCl	2	✓									1552-3054

Relinquished by: R E O'Neill	Date/Time 5-31 1315	Received by: [illegible]	Date/Time 05-31-95 1315
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Authorized by: R E O'Neill Date 5-31-95
(Client Signature Must Accompany Request)

Rush	24-48 Hours	10 Working Days	Special Instructions:

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

0926

B0294

ANALYTICA
ENVIRONMENTAL LABORATORY

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

CHAIN OF CUSTODY

PROJECT MANAGER: R.E. O'NEILL
Analytica Lab I.D.:

Company: [illegible] ENGINEERING INC.
Address: P.O. Box 87
[illegible]
Phone: 632- 1199
Fax: 632- 0103

Bill To: [illegible] Energy
Company:
Address:

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):
[illegible] ICE	6-27-95	1115	Water					X																					

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj Name: AMOCO	Custody Seals: Y / N / NA
P.O. No.	Received Intact:
Shipped Via:	Received Cold

Required Turnaround Time (Prior Authorization Required for Rush)

NORMAL

Sampled by:	Relinquished by:	Relinquished by:
Signature: [illegible] Date: 6-27-95	Signature: [illegible] Date: 6/28/95	Signature: Date:
Company: [illegible] Time: 1530	Company: ACT Time: 10:25	Company: Time:
Received By:	Received By:	Received By:
Signature: [illegible] Date: 6/28/95	Signature: Date:	Signature: [illegible] Date: 6/28/95
Company: ACT Time: 1530	Company: Time:	Company: Analytica Time: 11:30

4413

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG ENG. / AMOCO	GCU 93E - SEP. PIT	

Sampler: (Signature): Nelson Velez

Chain of Custody Tape No.: 04034

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX						Remarks
PW 2 @ GW (15')	9/15/95	1400	8994	WATER	2	✓						$HgCl_2$ PRESERV.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	1413	9/15/95	Glenn L. Spencer	9-15-95	1413
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