3R - 100

BERGIN #1E

REPORTS

DATE:

1998 - 1996

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1996-1998

BERGIN GC #1E
(F) SECTION 21, T29N, R11W, NMPM
SAN JUAN COUNTY, NEW MEXICO

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

FEBRUARY 1999

PREPARD BY:
BLAGG ENGINEERING, INC.

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

BERGIN GC # 1E - Separator Pit
Se/4 Nw/4 Sec. 21, T29N, R11W

Site Assessment Date:	**May 12, 1992 (Documentation Included)**
Pit Closure Date:	**November 16, 1993 - January 3, 1994 (Documentation Included)**
Monitor Well Installation Date:	**April 22, 1996**
Monitor Well Sampling Date:	**June 5, 1996**

Groundwater Monitor Well Sampling Procedures:

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

Water Quality Information:

BTEX and general chemistry results for the 1996 quarterly sampling events are summarized in the following tables. Following Amoco's NMOCD approved groundwater plan, sampling of MW #1 was terminated after the initial BTEX results revealed non detectable levels for all constituents. MW # 2 & #3 showed benzene levels slightly below and above the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentration for groundwater respectively. MW #2 & #3 were then sampled the next quarterly event and revealed a decrease in benzene for MW #2 and an increase in benzene for MW #3 (34.80 parts per billion). Afterwards, quarterly sampling of MW #2 was continued in December while MW #3 was placed on an annual sampling schedule. The general chemistry results indicate that the total dissolved solids for the pit area and immediate down gradient direction are below that of the apparent background levels (MW #1).

Summary and/or Recommendations:

Based on the enclosed documentation, the groundwater within the separator pit area appears to have been remediated during the pit closure activities. However, down gradient delineation has not been achieved. Therefore, it is advised that an additional monitor well be installed as to define the remaining groundwater contamination possibly off site. MW #2 will continue to be sampled until 4 consecutive events of below NMWQCC standards are acheived. MW #3 will be sampled annually until results indicate otherwise. All aspects of the Amoco revised groundwater plan dated October 22, 1996 (approved by NMOCD with letter dated February 7, 1997) has been adhered to.

BERGIN GC # 1E - Separator Pit
Se/4 Nw/4 Sec. 21, T29N, R11W

Monitor Well Installation Date: **June 5, 1998 (MW # 3 replacement well)**

Monitor Well Sampling Date: **Jun. 12, 1998**

Water Quality Information:

The BTEX results for the 1998 annual sampling event are summarized in the following table. During the initial visit to the site on May 30th, an insufficient amount of groundwater was encountered in MW #3 (the only monitor well to be sampled). Amoco then approved to pull and redrill the well as to increase total depth (see Bore/Test Hole Report, page 3A and Monitor Well Completion Schematic labeled Monitor Well #3 Replacement Well). Completion of the monitor well was conducted on June 5th and then sampled on June 12th. MW #3 benzene, toluene, and ethylbenzene levels had tested at non detectable levels, while total xylenes equalled 0.8 parts per billion.

Summary and/or Recommendations:

Based on the enclosed documentation, the groundwater within the separator pit area appears to have been remediated during the pit closure activities and possibly by natural attenuation. It is recommended that MW # 3 continued to be sampled on a quarterly basis until laboratory results suggest otherwise. It is also recommended that MW #4, although originally tested below 25% of the NMWQCC allowable concentrations for groundwater, be tested in the future to assure no further down gradient migration has occurred.

BERGIN GC # 1E - Separator Pit
Se/4 Nw/4 Sec. 21, T29N, R11W

Monitor Well Installation Date: Nov. 26, 1997 (MW # 4)

Monitor Well Sampling Date: Dec. 18, 1997

Groundwater Monitor Well Sampling Procedures:

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

Water Quality Information:

BTEX and general chemistry results for the 1997 quarterly sampling events are summarized in the following tables. MW #2 BTEX levels were below the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentration for groundwater during March 19, 1997 sampling event. MW #3 BTEX levels were also below NMWQCC allowable concentrations during June 23rd and September 23rd sampling events, but exceeded levels for benzene and total xylenes for the December 18th sampling event. MW #4 was installed on November 26, 1997 to address down gradient delineation (see site map for location). Sampling of MW #4 will be terminated after the initial BTEX results revealed non detectable levels for all constituents.

Summary and/or Recommendations:

Based on the enclosed documentation, the groundwater within the separator pit area appears to have been remediated during the pit closure activities with the exception of what appears to be a small isolated area in and around MW #3. MW #2 has achieved four consecutive events of below NMWQCC standards for BTEX, thus sampling will be terminated as closure has been met based on Amoco's groundwater plan. Sampling of MW #3 will continue to be on an annual event until results reveal a different course of action.

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

REVISED DATE: January 25, 1999

FILENAME: (BE-1Q-99.WK3) NJV

								BTEX EPA METHOD 8020 (PPB)			
SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	Benzene	Toluene	Ethyl Benzene	Total Xylene
05-Jun-96	MW #1	11.65	15.00	2990	2400	7.0		ND	ND	ND	ND
05-Jun-96	MW #2	12.28	15.00	1230	1800	6.5		9.92	8	20	89
11-Sep-96		10.03			1600	6.9		5.86	8	12	25
27-Dec-96		10.30			5900	6.8		1.42	1	2	9
19-Mar-97		12.11			4600	7.2		2.54	ND	ND	ND
05-Jun-96	MW #3	13.24	15.00	1080	1700	6.7		11.80	23	12	138
11-Sep-96		11.00			1600	7.2		36.40	12	135	529
23-Jun-97		14.21			NA	NA		0.5	0.8	1.2	3.9
17-Sep-97		12.02			2000	6.9		ND	ND	52	305.6
18-Dec-97		11.41			1900	7.2		42.6	4.0	107	632
12-Jun-98		14.01	20.00		1900	7.1		ND	ND	ND	0.8
25-Jan-99		11.10			1700	7.2		ND	0.7	26.7	219.9
18-Dec-97	MW #4	11.31			2100	7.0		ND	ND	ND	ND

GENERAL WATER QUALITY

AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

SAMPLE DATE : JUNE 10, 1996

PARAMETERS		MW # 1	MW # 2	MW # 3	Units
GENERAL	LAB pH	7.3	6.8	7.2	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	3,100	1,450	2,240	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	2,990	1,230	1,080	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	2,780	1,030	942	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	239	597	478	mg / L
	BICARBONATE ALKALINITY (AS CaCO3)	239	597	478	mg / L
	CARBONATE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	CHLORIDE	12.5	32.5	33	mg / L
	SULFATE	1,800	243	277	mg / L
	NITRATE + NITRITE – N	NA	NA	NA	
	NITRATE – N	NA	NA	NA	
	NITRITE – N	NA	NA	NA	
CATIONS	TOTAL HARDNESS AS CaCO3	1,770	682	505	mg / L
	CALCIUM	680	257	125	mg / L
	MAGNESIUM	18.4	9.82	46.6	mg / L
	POTASSIUM	<5.0	5.00	<5.0	mg / L
	SODIUM	120	120	170	mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	2.21	2.90	4.00	+/– 5 %
	TDS (180):TDS (CALCULATED)	1.1	1.2	1.1	1.0 – 1.2

GENERAL WATER QUALITY

AMOCO PRODUCTION COMPANY
GENERAL WATER QUALITY

AMOCO PRODUCTION COMPANY

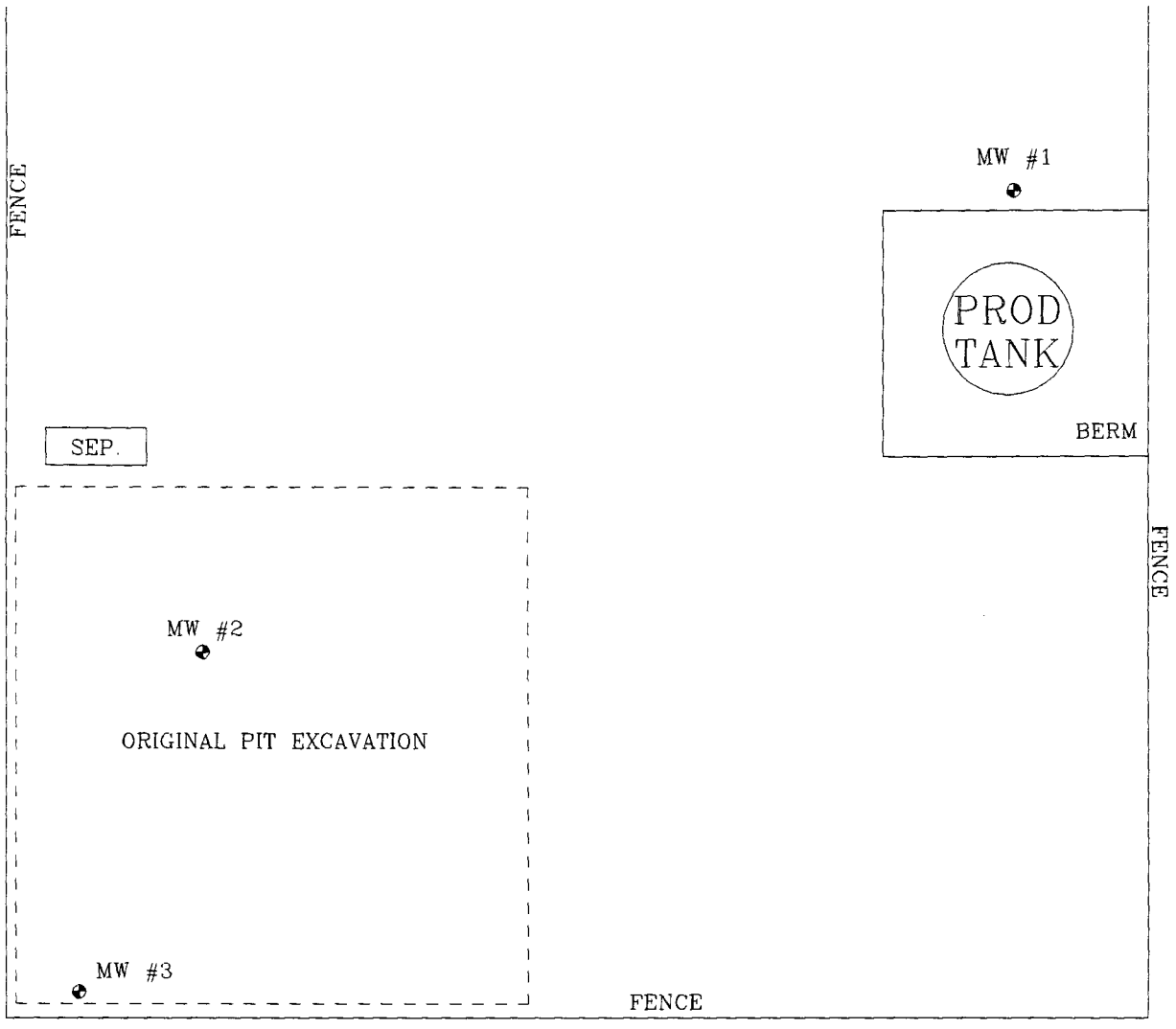
BERGIN GC # 1E

SAMPLE DATE : DECEMBER 18, 1997

PARAMETERS		MW # 4			Units
GENERAL	LAB pH	7.05			s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	3,335			umhos/cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	1,664			mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	1,675			mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	290			mg / L
	BICARBONATE ALKALINITY (AS CaCO3)	290			mg / L
	CARBONATE ALKALINITY (AS CaCO3)	< 1			mg / L
	HYDROXIDE ALKALINITY (AS OH)	< 1			mg / L
	CHLORIDE	859			mg / L
	SULFATE	28.2			mg / L
	PHOSPHATE	0.1			mg / L
	NITRATE + NITRITE – N	NA			
	NITRATE – N	8.0			
	NITRITE – N	0.580			
CATIONS	TOTAL HARDNESS AS CaCO3	1,422			mg / L
	CALCIUM	569			mg / L
	MAGNESIUM	< 0.1			mg / L
	POTASSIUM	3.10			mg / L
	SODIUM	30.2			mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	0.00			+/– 5 %
	SODIUM ABSORPTION RATIO	0.3			

FIGURE 1

⊕ WELL HEAD



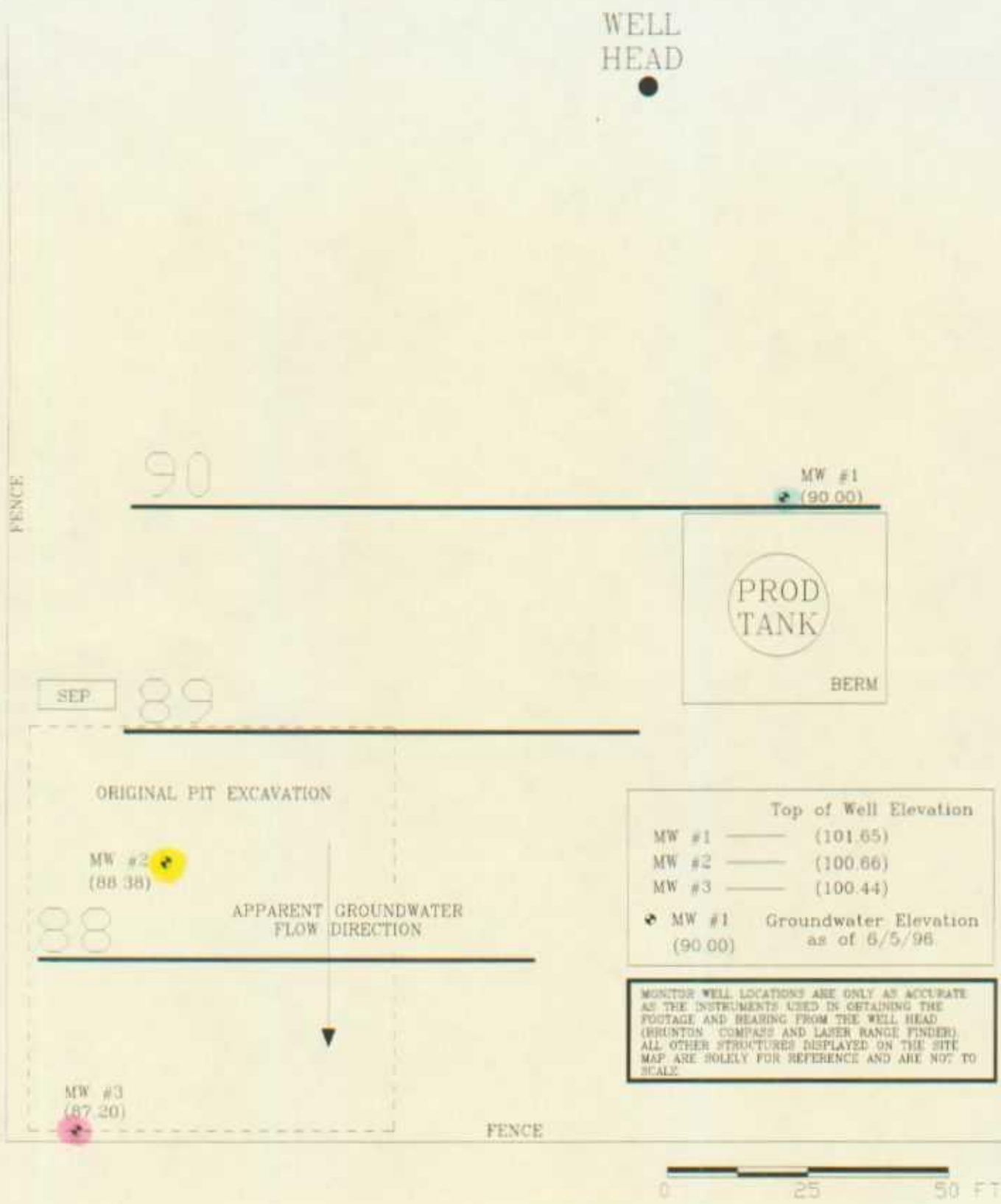
MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

MW #4

0 25 50 FT.

AMOCO PRODUCTION COMPANY BERGIN GC 1E SE/4 NW/4 SEC. 21, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Monitor. DRAWN BY: NJV FILENAME: 12-18-SM.SKD REVISED: 12/23/97 NJV	SITE MAP 12/97

FIGURE 2
(2nd 1/4, 1996)



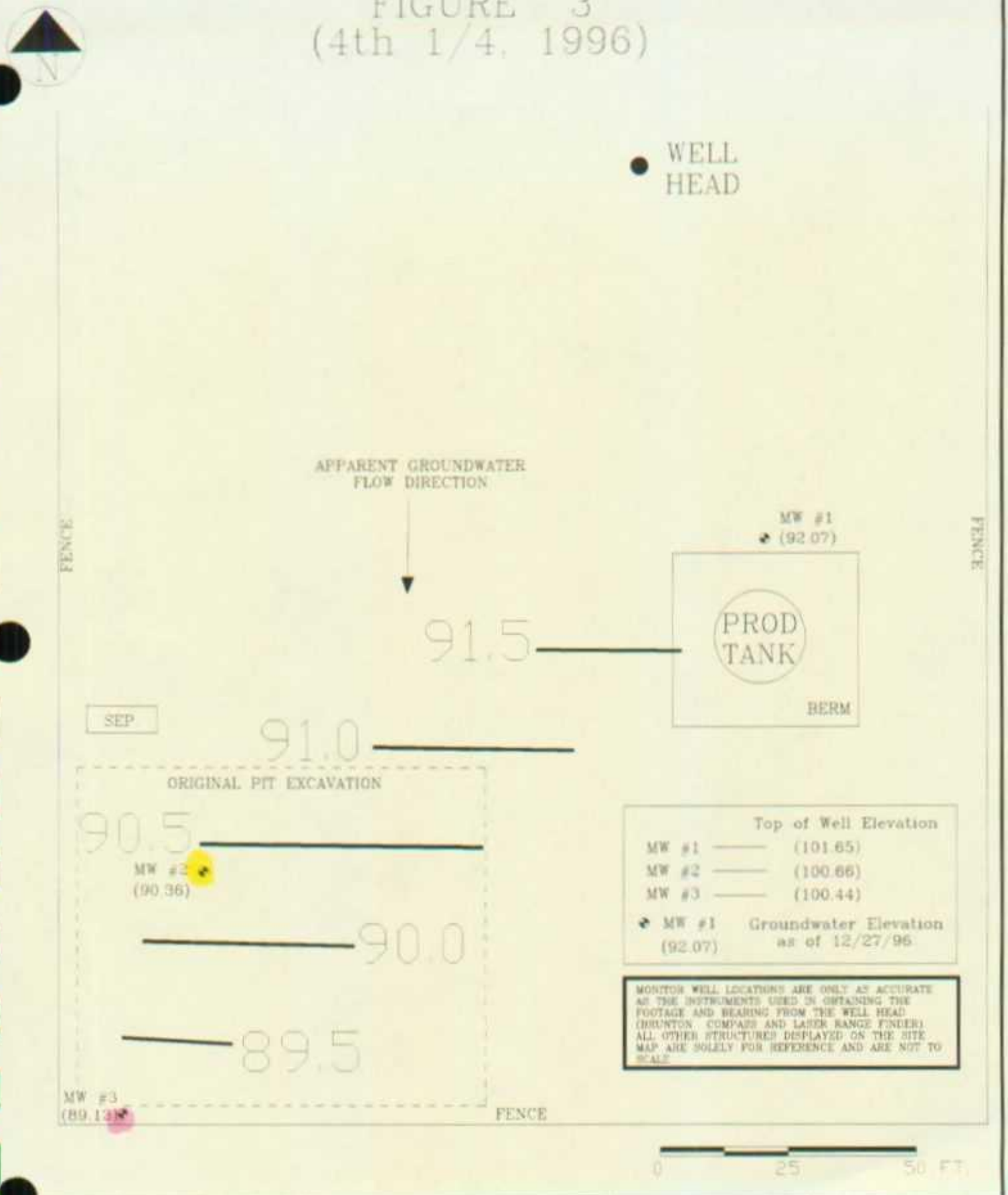
AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC. 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: MW INSTALL.
DRAWN BY: NJV
FILENAME: BERGIN
REVISED: 7/15/96 RED

GROUNDWATER GRADIENT MAP 6/96

FIGURE 3
(4th 1/4, 1996)



AMOCO PRODUCTION COMPANY

BERGIN GC 1E

SE/4 NW/4 SEC. 21 T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE (505) 632-1199

PROJECT: 1/4th Monitor

DRAWN BY: MJV

FILENAME: BERG-4

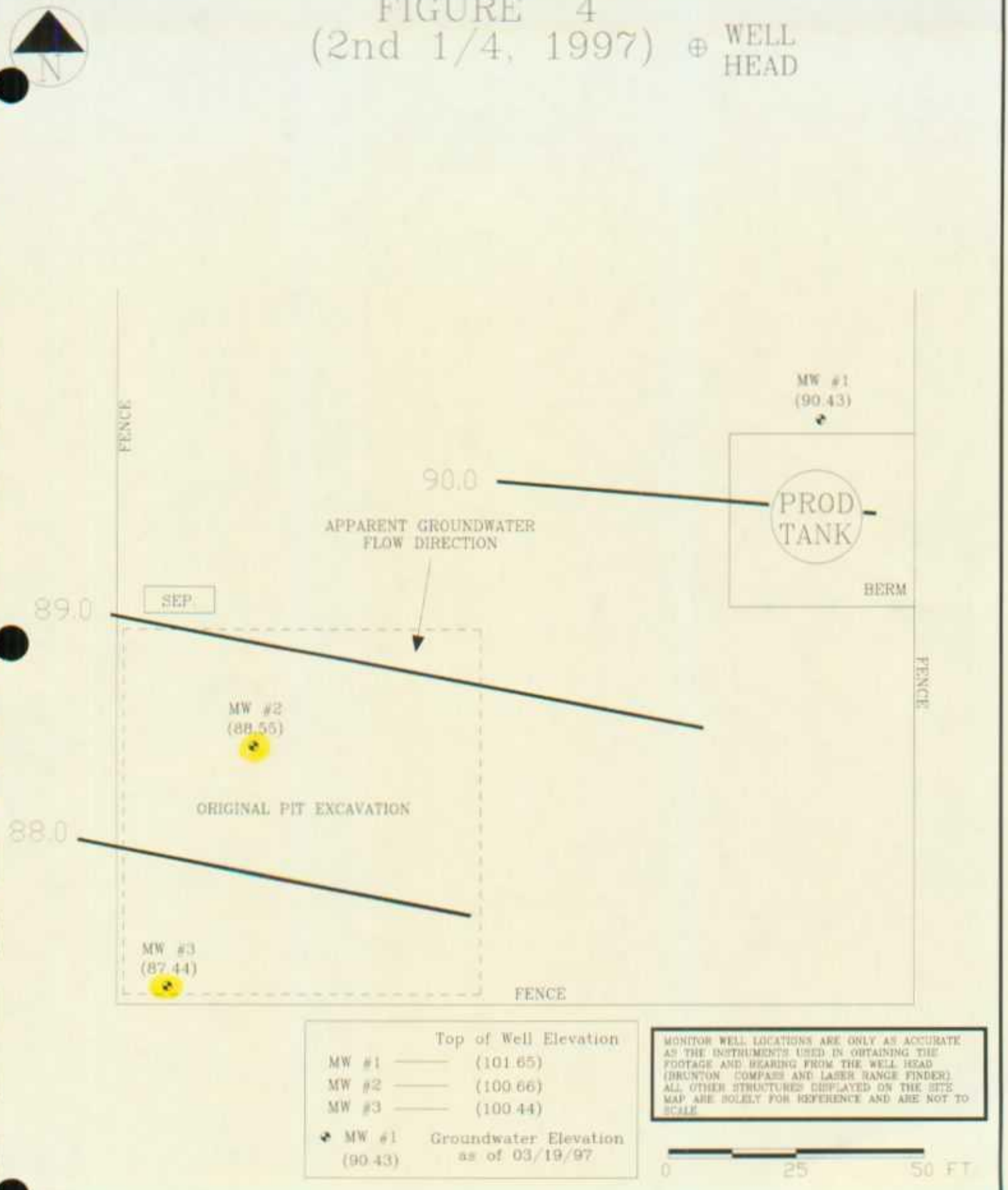
REVISED: 2/10/97 MJV

GROUNDWATER GRADIENT MAP

12/96

FIGURE 4
(2nd 1/4, 1997)

⊕ WELL HEAD



	Top of Well Elevation
MW #1	(101.65)
MW #2	(100.66)
MW #3	(100.44)
MW #1 (90.43)	Groundwater Elevation as of 03/19/97

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

0 25 50 FT

AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC. 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

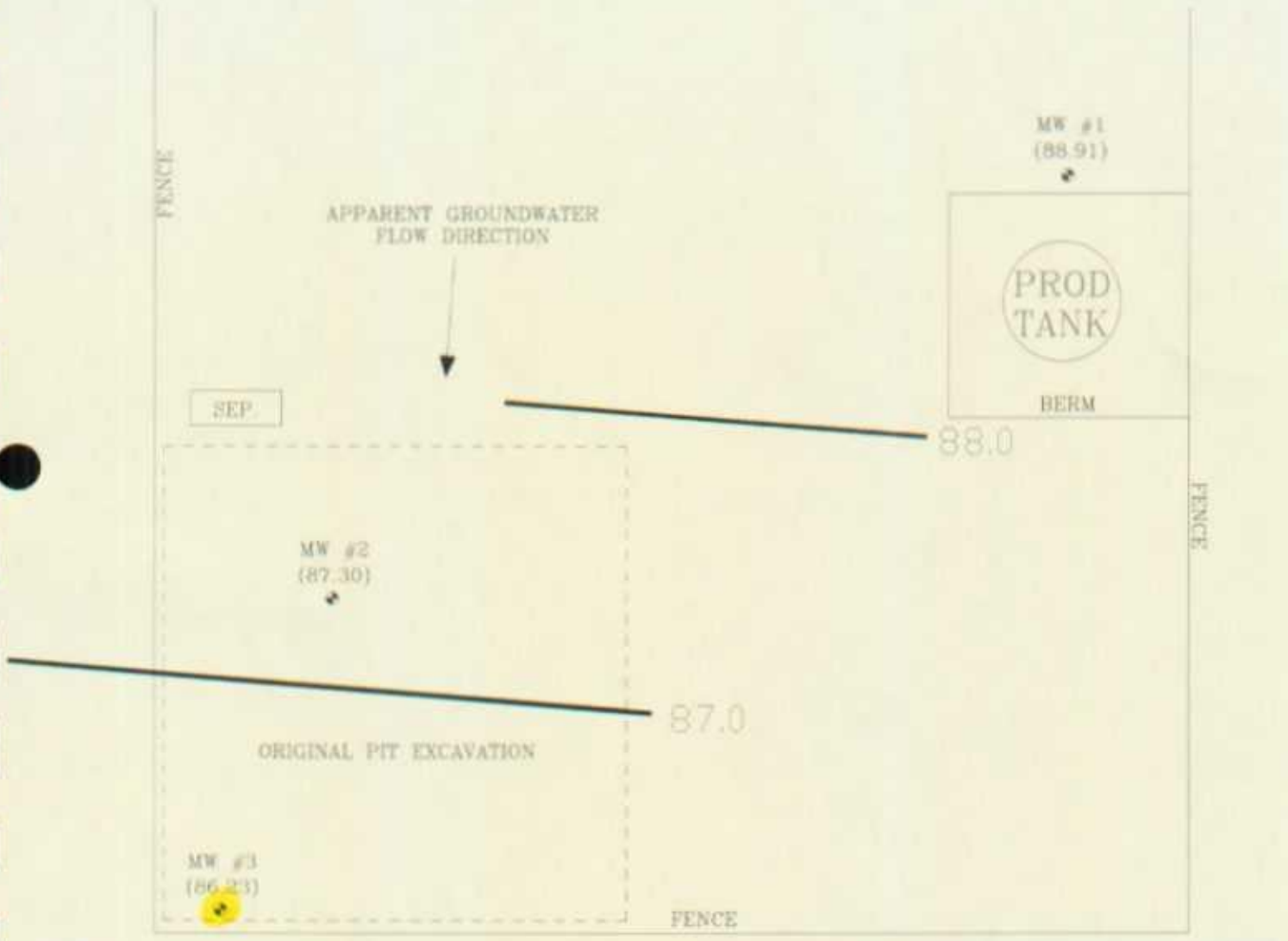
BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE (505) 632-1199

PROJECT: 1/4ly Monitor
DRAWN BY: NJV
FILENAME: 03-19-GW.SKD
REVISED: 03/22/97 NJV

GROUNDWATER GRADIENT MAP
03/97

FIGURE 5
(3rd 1/4, 1997)

⊕ WELL HEAD



	Top of Well Elevation
MW #1	(101.65)
MW #2	(100.66)
MW #3	(100.44)
MW #1 (88.91)	Groundwater Elevation as of 06/23/97

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.

0 25 50 FT

AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC
CONSULTING PETROLEUM / RECLAMATION SERVICES
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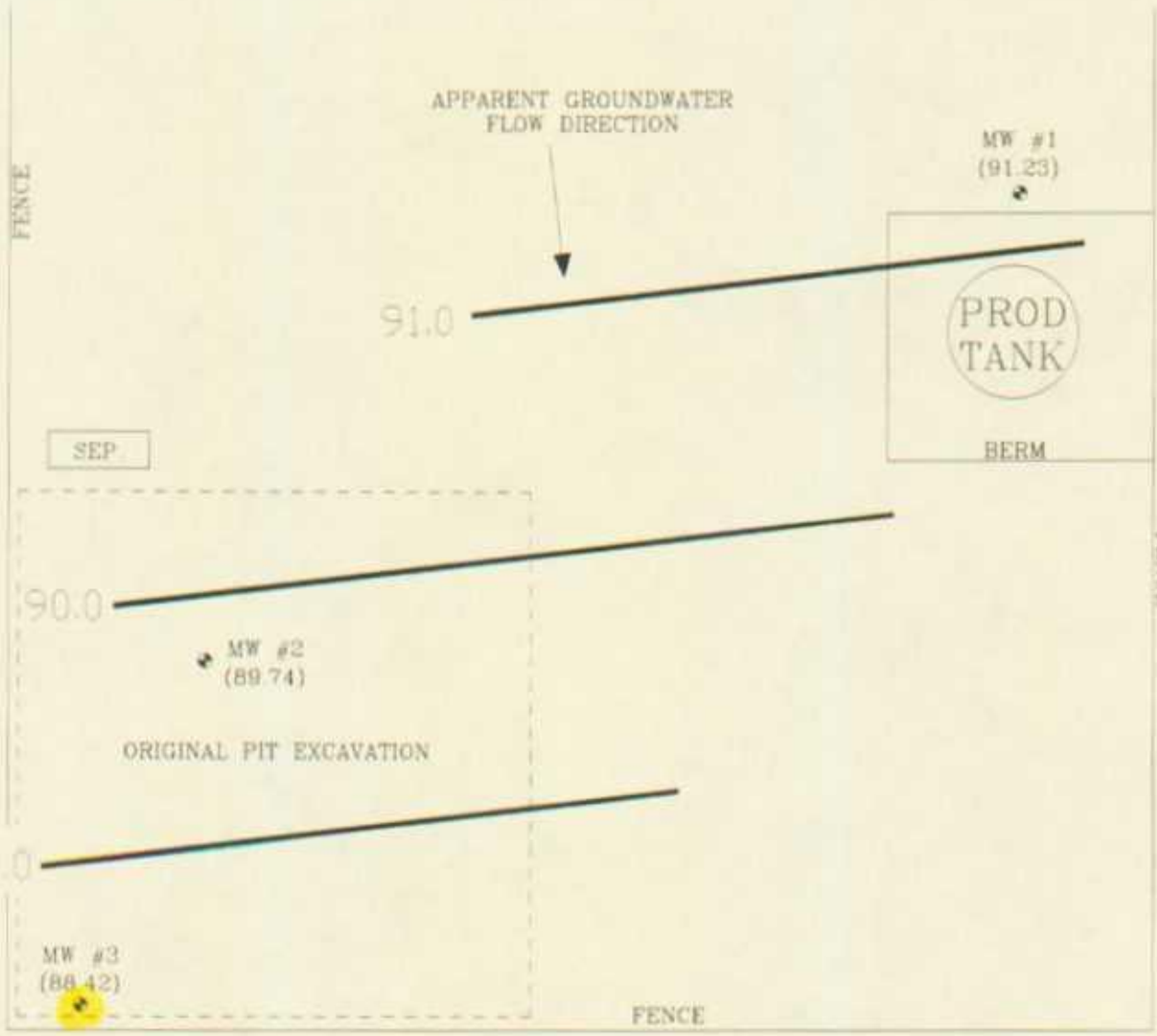
PHONE (505) 632-1199

PROJECT: 1/4ly Monitor
DRAWN BY: MJV
FILENAME: 06-23-GW.SKD
REVISED: 06/29/97 MJV

GROUNDWATER GRADIENT MAP 06/97

FIGURE 6
(3rd 1/4, 1997)

⊕ WELL HEAD



Top of Well Elevation	
MW #1	(101.65)
MW #2	(100.66)
MW #3	(100.44)
MW #1 (91.23)	Groundwater Elevation as of 09/17/97

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.

0 25 50 FT

AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC. 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

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CONSULTING PETROLEUM / RECLAMATION SERVICES
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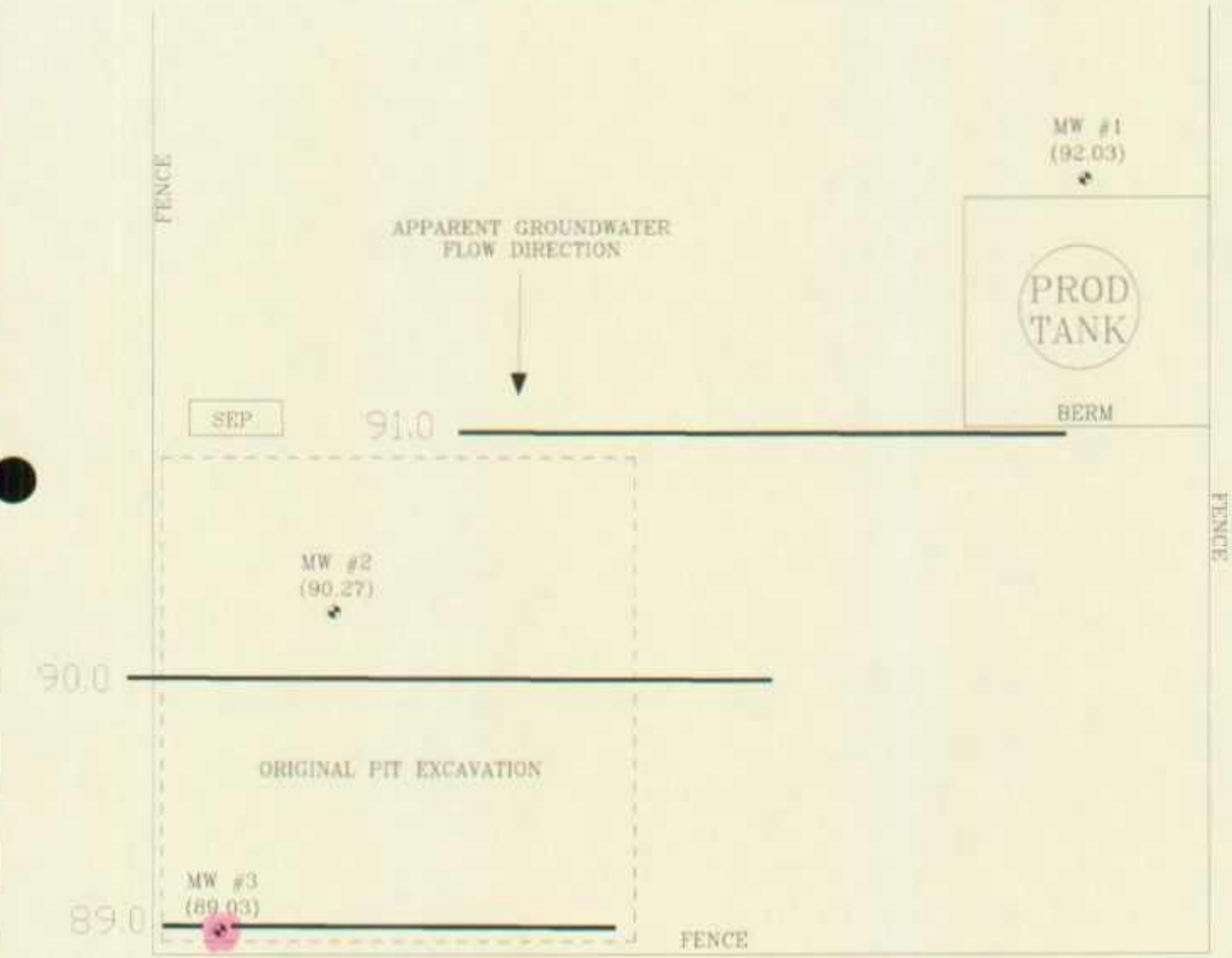
PHONE (505) 632-1199

PROJECT: 1/4ly Monitor
DRAWN BY: NJV
FILENAME: 09-17-GW.SKD
REVISED 09/29/97 NJV

GROUNDWATER GRADIENT MAP
09/97

FIGURE 7
(4th 1/4, 1997)

⊕ WELL HEAD



	Top of Well Elevation
MW #1	(101.65)
MW #2	(100.66)
MW #3	(100.44)
MW #1 (92.03)	Groundwater Elevation as of 12/18/97

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

0 25 50 FT.

AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC. 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

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CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
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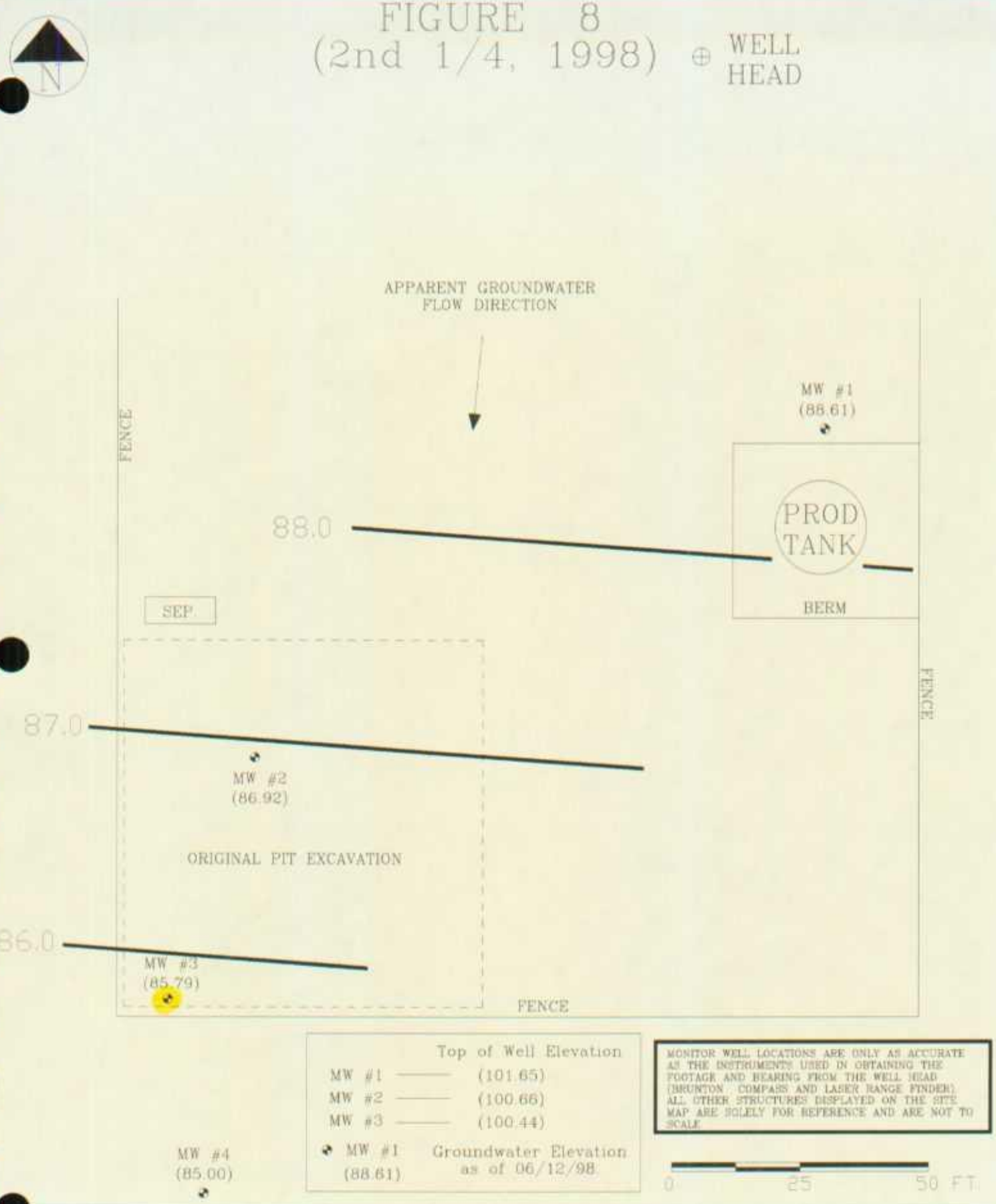
PHONE (505) 632-1199

PROJECT: 1/4ly Monitor
DRAWN BY: NJV
FILENAME: 12-18-GW.SKD
REVISED: 12/23/97 NJV

GROUNDWATER GRADIENT MAP 12/97

FIGURE 8
(2nd 1/4, 1998)

⊕ WELL HEAD



	Top of Well Elevation
MW #1	(101.65)
MW #2	(100.66)
MW #3	(100.44)
MW #1 (88.61)	Groundwater Elevation as of 06/12/98

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.

0 25 50 FT.

AMOCO PRODUCTION COMPANY
BERGIN GC 1E
SE/4 NW/4 SEC. 21, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
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PHONE (505) 632-1199

PROJECT: 1/4ly Monitor
DRAWN BY: NJV
FILENAME: 06-12-GW.SKD
REVISED 06/15/98 NJV

GROUNDWATER GRADIENT MAP
06/98

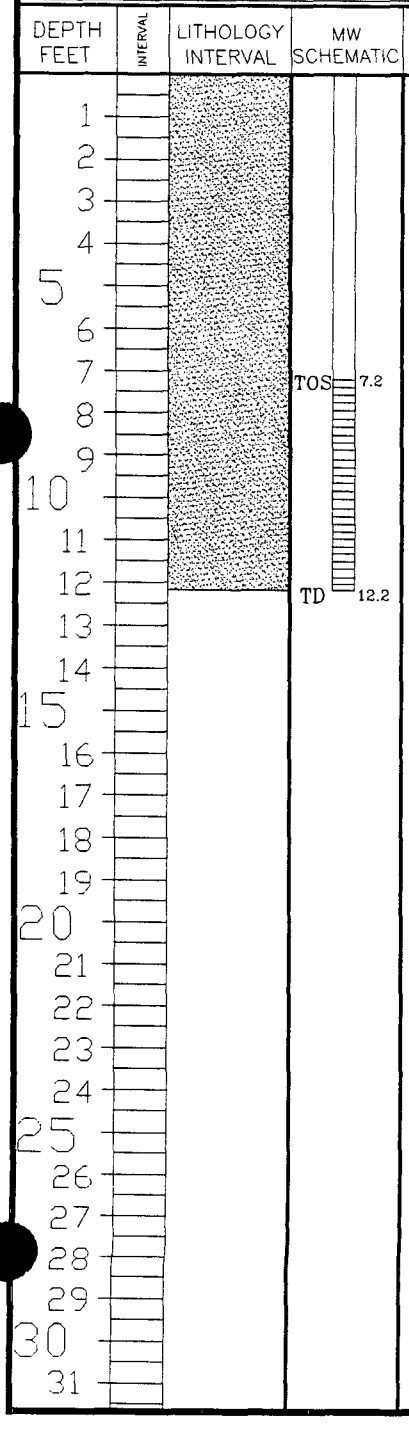
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	BERGIN GC # 1E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S19E, 76 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	4/22/96
DATE FINISHED	4/22/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.80 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 - 12.2 FT. INTERVAL).

▼ GW DEPTH ON 6/5/96 = 8.85 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: BERGIN-1	DATE: 1/20/97	DWN BY: NJV

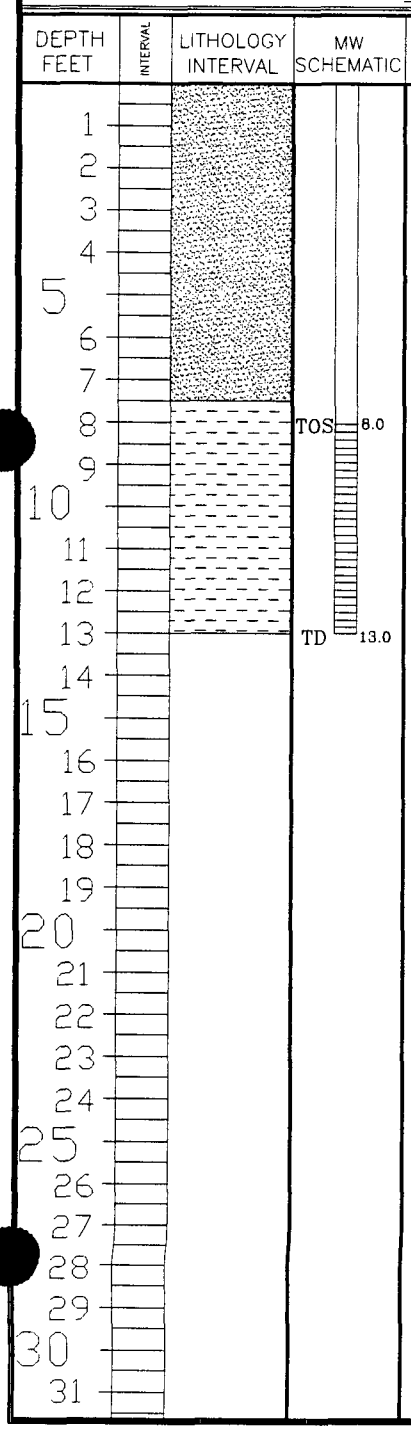
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	BERGIN GC # 1E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S33W, 159 FEET FROM WELL HEAD.

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	4/22/96
DATE FINISHED	4/22/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 7.5 FT. INTERVAL).

LT. TO MED. GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, HYDROCARBON ODOR OBSERVED (7.5 - 13.0 FT. INTERVAL).

▼ GW DEPTH ON 6/5/96 = 10.28 FT. (APPROX.) FROM GROUND SURFACE.

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: BERGIN-2	DATE: 1/20/97	DWN BY: NJV

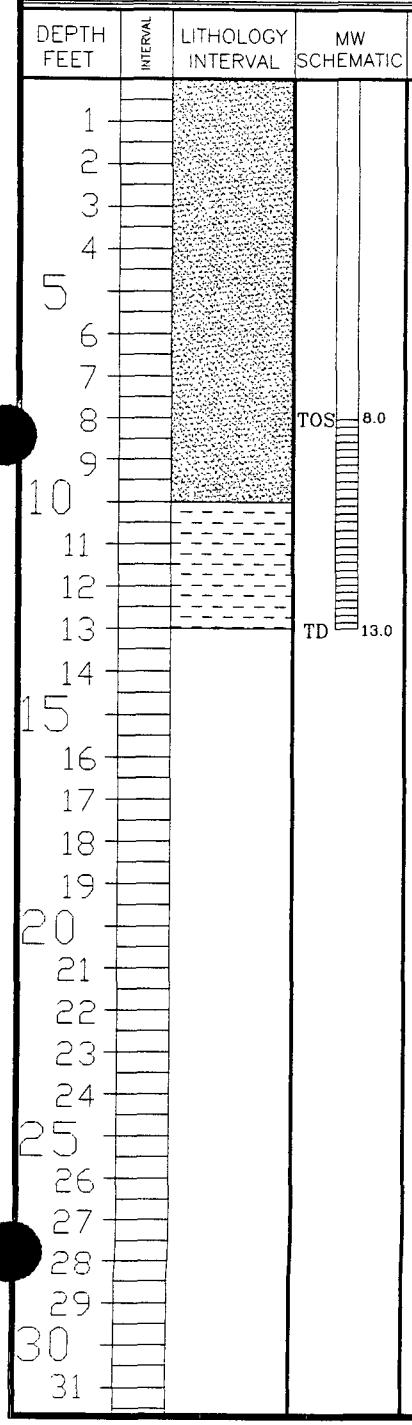
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	BERGIN GC # 1E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S30W, 207 FEET FROM WELL HEAD.

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	4/22/96
DATE FINISHED	4/22/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 10.0 FT. INTERVAL).

LT. TO MED. GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, HYDROCARBON ODOR OBSERVED (10.0 - 13.0 FT. INTERVAL).

▼ GW DEPTH ON 6/5/96 = 11.24 FT. (APPROX.) FROM GROUND SURFACE.

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: BERGIN-3	DATE: 1/20/97	DWN BY: NJV

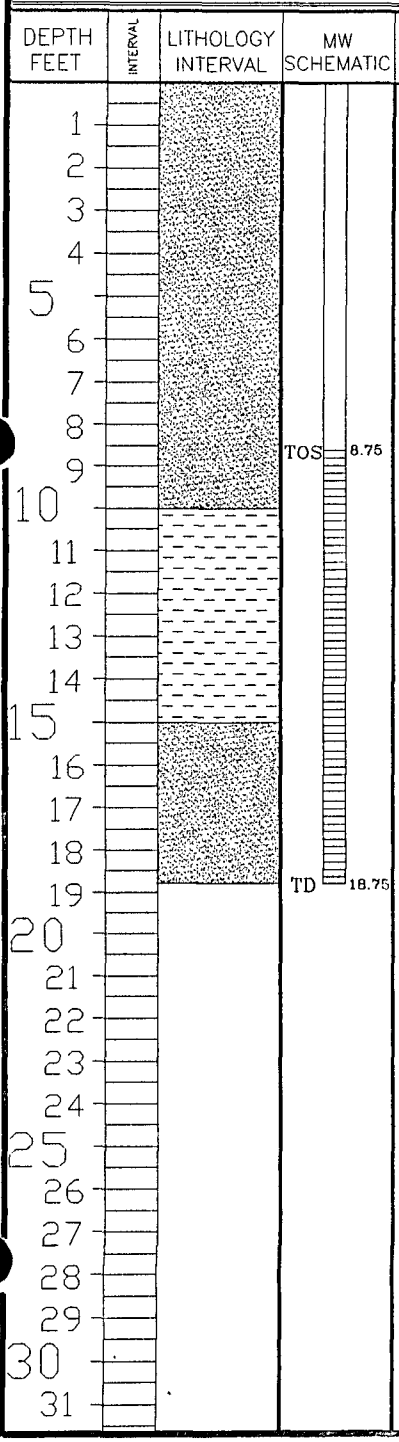
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	BERGIN GC # 1E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S30W, 207 FEET FROM WELL HEAD.

BORING #.....	BH - 3R
MW #.....	3
PAGE #.....	3A
DATE STARTED	6/5/98
DATE FINISHED	6/5/98
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.25 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.00 - 10.00 FT. INTERVAL).

LT. TO MED. GRAY SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, POSSIBLE HYDROCARBON ODOR DETECTED (10.00 - 15.00 FT. INTERVAL).

GW DEPTH ON 6/12/98 = 12.76 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (15.00 - 18.75 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: BERG-3R	DATE: 6/15/98	DWN BY: NJV

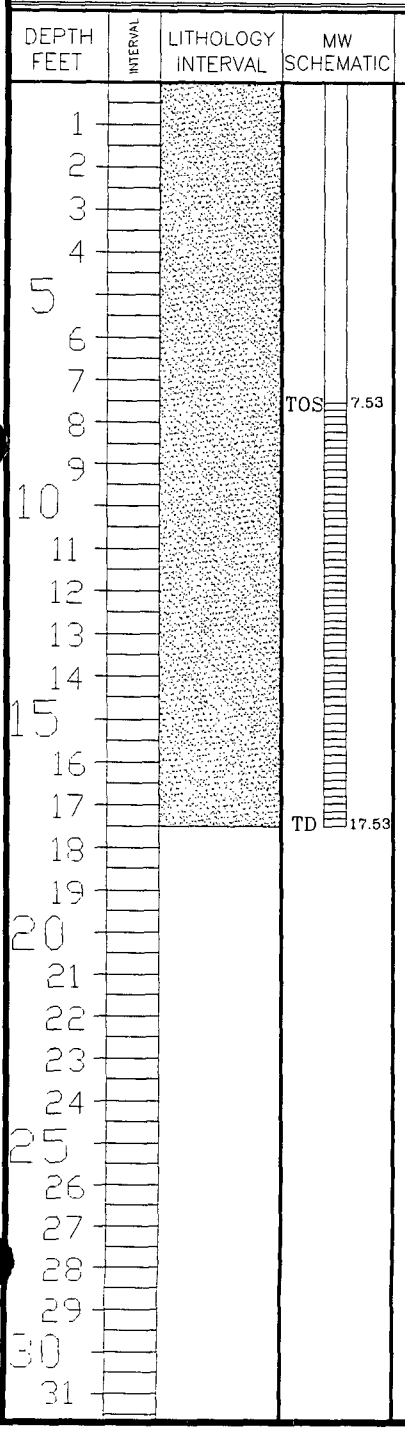
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	BERGIN GC # 1E
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S24W, 237 FEET FROM WELL HEAD.

BORING #.....	BH - 4
MW #.....	4
PAGE #.....	4
DATE STARTED	11/26/97
DATE FINISHED	11/26/97
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.75 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, THROUGHOUT ENTIRE BORING (0.0 – 17.53 FT. INTERVAL).

▼ GW DEPTH ON 12/18/97 = 9.56 FT. (APPROX.) FROM GROUND SURFACE.

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: BERGIN-4 | DATE: 12/23/97 | DWN BY: NJV

MONITOR WELL #1

AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

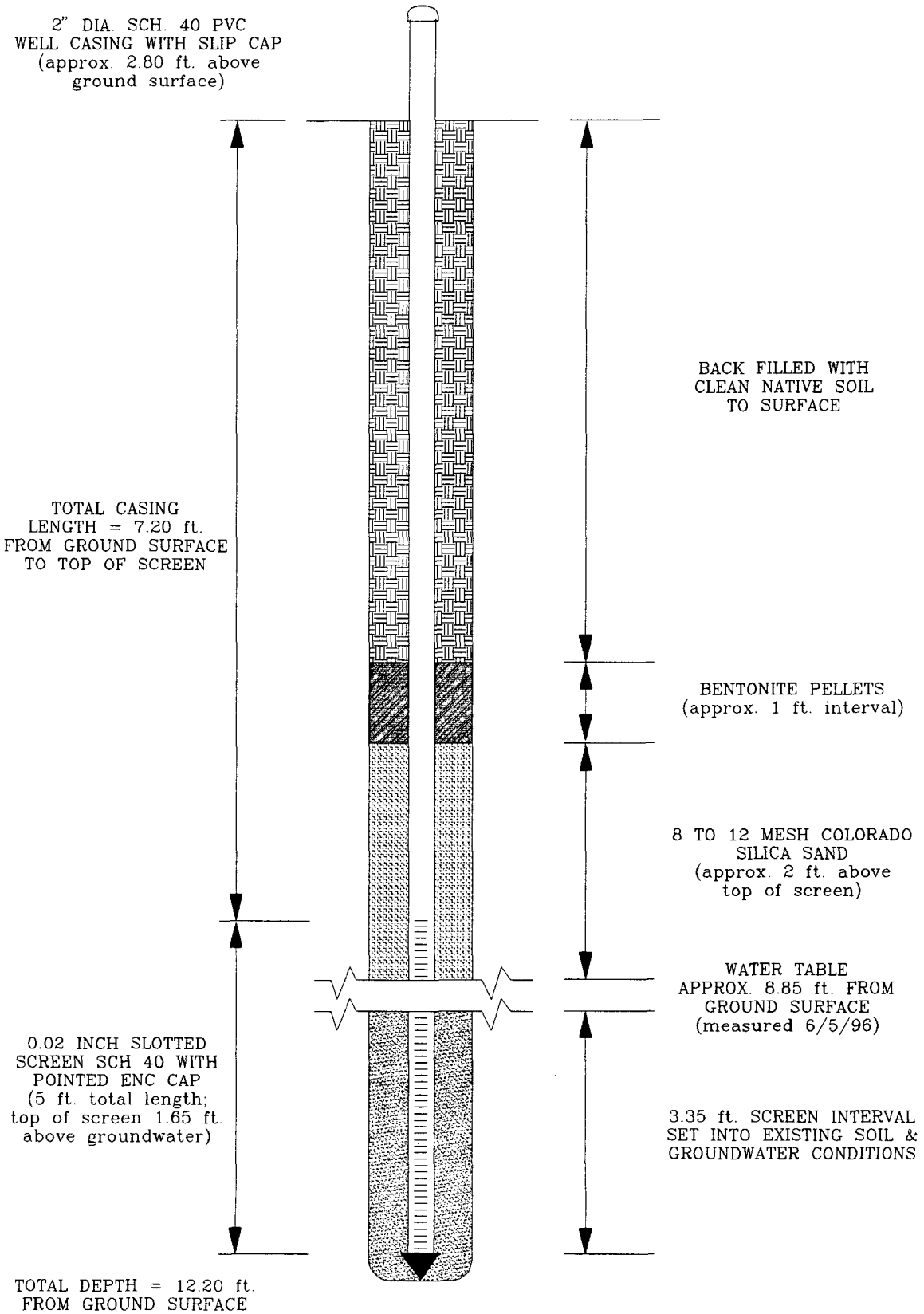
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: FEB. '97

FILENAME: MW-1



MONITOR WELL #2

AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

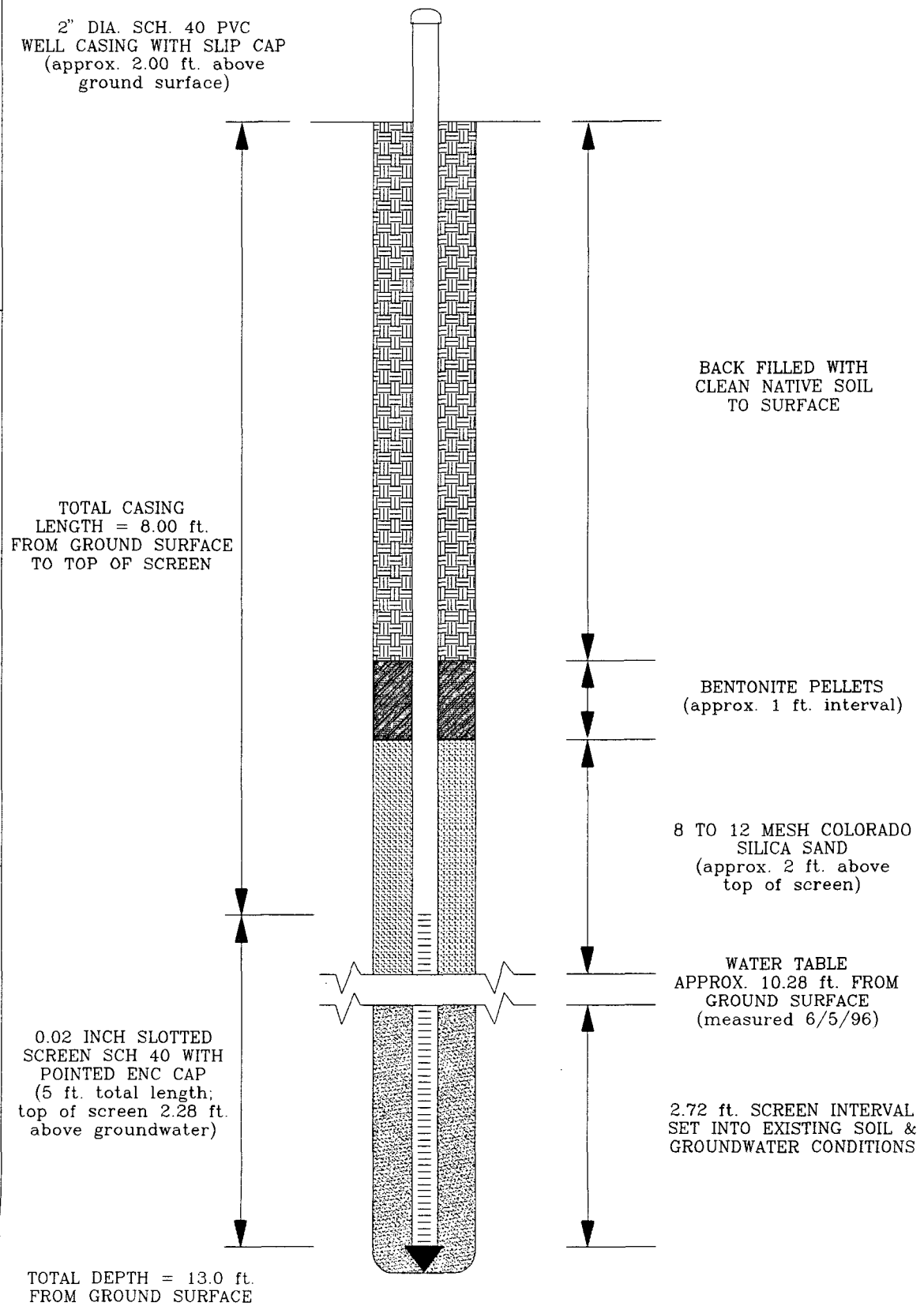
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: FEB. '97

FILENAME: MW-2



MONITOR WELL #3

AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

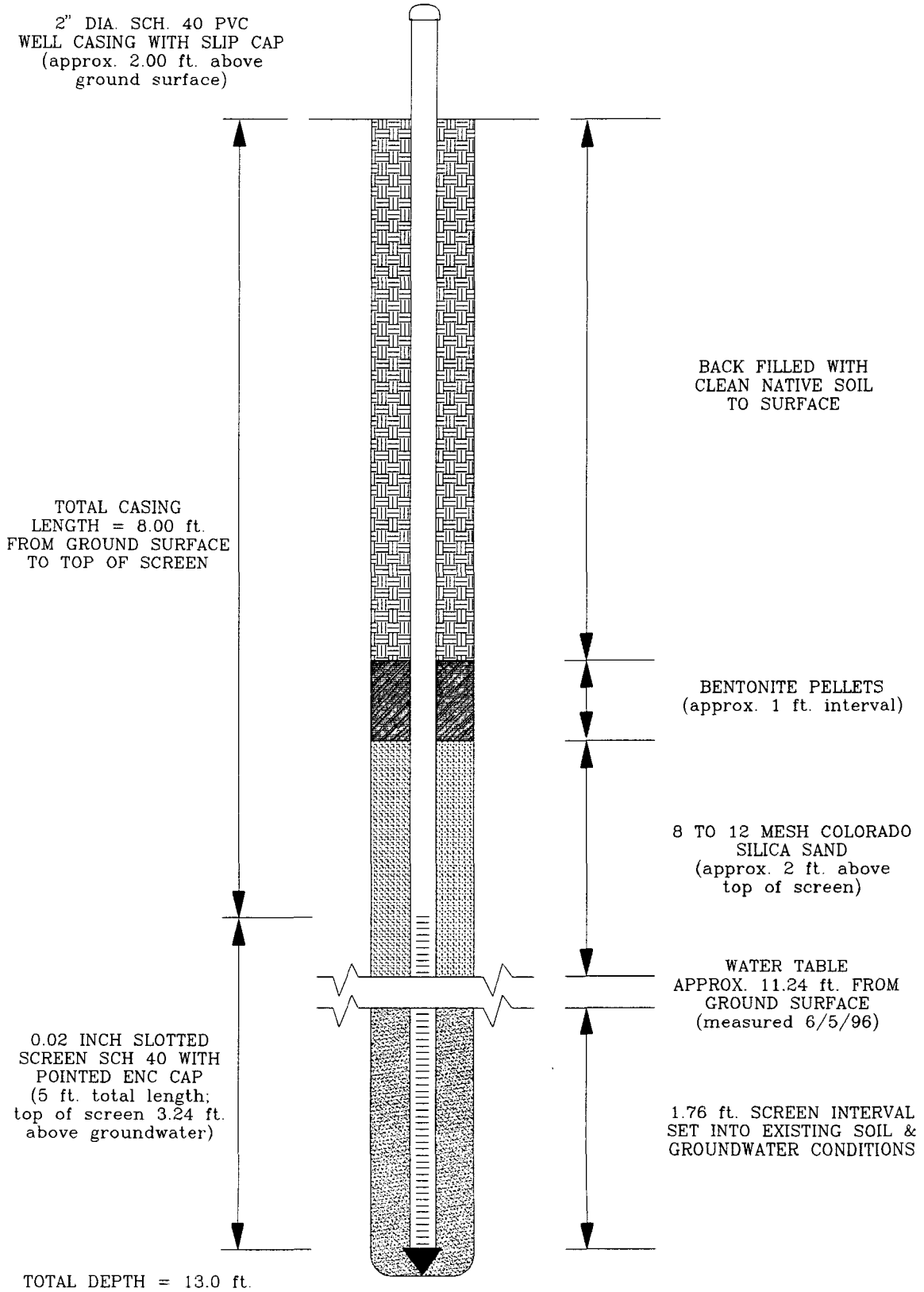
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

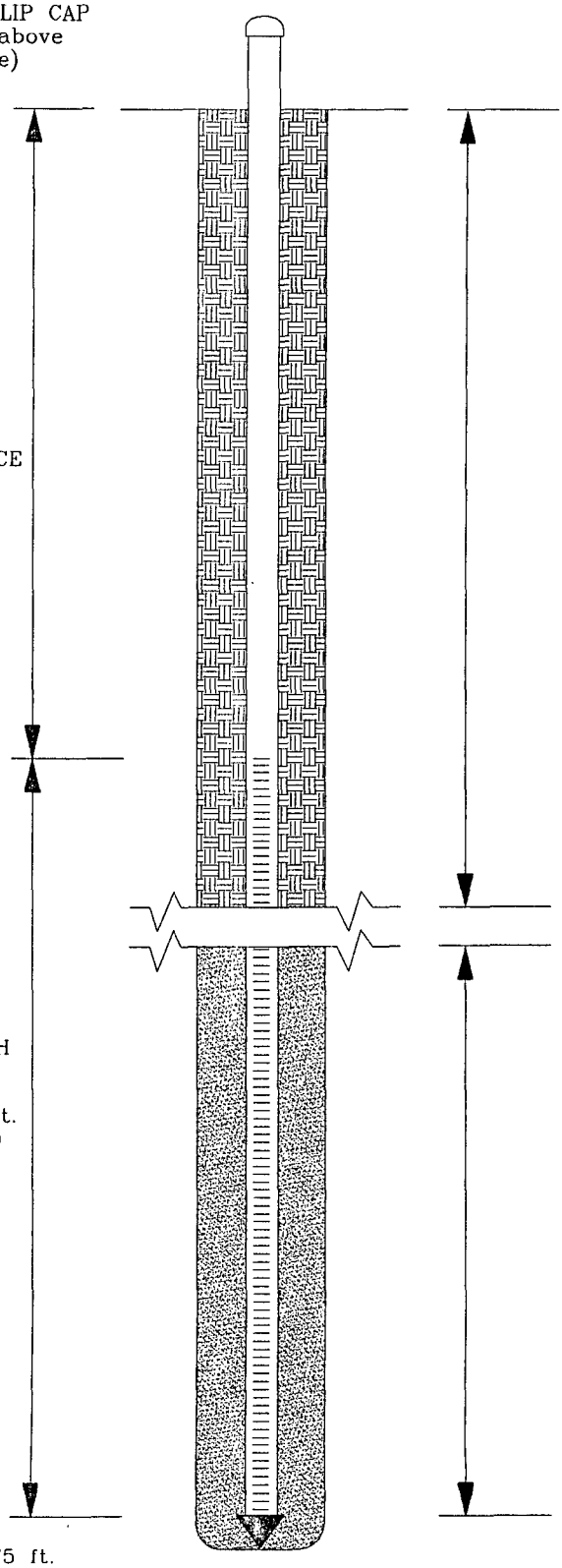
DRAFTED BY: NJV

DATE: FEB. '97

FILENAME: MW-



MONITOR WELL #3
(REPLACEMENT WELL)



AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

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

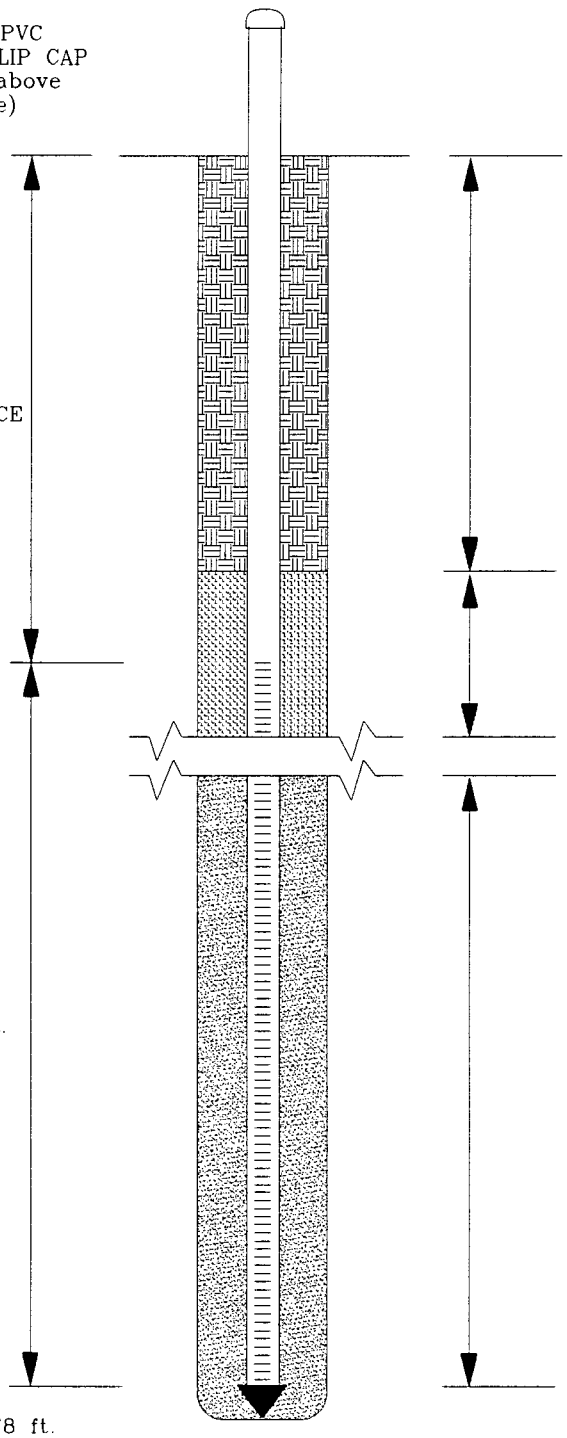
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JUN. '98

FILENAME: MW-3R

MONITOR WELL #4



AMOCO PRODUCTION COMPANY

BERGIN GC # 1E

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: DEC. '97

FILENAME: MW-1

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2480
2485

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : June 5, 1996

SAMPLER : REO

Filename : 06-05-96.WK3

PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.65	90.00	11.65	15.37	0830	7.0	2,400	0.50	-
2	100.66	88.38	12.28	15.35	0855	6.5	1,800	0.40	-
3	100.44	87.20	13.24	15.37	0915	6.7	1,700	0.20	-

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 # 3 - very poor recovery . Collected BTEX samples for all MW's listed above .

Collected anion / cation samples on June 10, 1996 .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bergin GC 1E	Report Date:	06/20/96
Sample ID:	MW - 1	Date Sampled:	06/05/96
Lab ID:	3791	Date Received:	06/05/96
Sample Matrix:	Water	Date Analyzed:	06/19/96
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	102	88 - 110%
Bromofluorobenzene	102	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:	Bergin GC 1E	Report Date:	06/20/96
Sample ID:	MW - 2	Date Sampled:	06/05/96
Lab ID:	3792	Date Received:	06/05/96
Sample Matrix:	Water	Date Analyzed:	06/19/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	9.92	0.50
Toluene	7.85	2.50
Ethylbenzene	19.6	0.50
m,p-Xylenes	85.1	5.00
o-Xylene	4.10	0.50

Total BTEX	126

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	108	88 - 110%
Bromofluorobenzene	105	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:	Bergin GC 1E	Report Date:	06/20/96
Sample ID:	MW - 3	Date Sampled:	06/05/96
Lab ID:	3793	Date Received:	06/05/96
Sample Matrix:	Water	Date Analyzed:	06/19/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	11.8	0.50
Toluene	23.1	0.50
Ethylbenzene	12.0	0.50
m,p-Xylenes	117	5.00
o-Xylene	20.9	0.50

Total BTEX	184

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	103	88 - 110%
Bromofluorobenzene	102	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:	Bergin GC 1E	Date Reported:	06/20/96
Sample ID:	MW - 1	Date Sampled:	06/10/96
Laboratory ID:	3870	Time Sampled:	7:40
Sample Matrix:	Water	Date Received:	06/10/96

Parameter		Analytical Result	Units
General	Lab pH	7.3	s.u.
	Lab Conductivity @ 25° C	3,100	µmhos/cm
	Total Dissolved Solids @ 180°C	2,990	mg/L
	Total Dissolved Solids (Calc)	2,780	mg/L
Anions	Total Alkalinity as $CaCO_3$	239	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	239	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	12.5	mg/L
	Sulfate	1,800	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,770	mg/L
	Calcium	680	mg/L
	Magnesium	18.4	mg/L
	Potassium	< 5.0	mg/L
	Sodium	120	mg/L

			Acceptance Level
Data Validation			
	Cation/Anion Difference	2.21	+/- 5 %
	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:	Bergin GC 1E	Date Reported:	06/20/96
Sample ID:	MW -2	Date Sampled:	06/10/96
Laboratory ID:	3871	Time Sampled:	7:47
Sample Matrix:	Water	Date Received:	06/10/96

Parameter		Analytical Result	Units
General	Lab pH	6.8	s.u.
	Lab Conductivity @ 25° C	1,450	µmhos/cm
	Total Dissolved Solids @ 180°C	1,230	mg/L
	Total Dissolved Solids (Calc)	1,030	mg/L
Anions	Total Alkalinity as $CaCO_3$	597	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	597	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	32.5	mg/L
	Sulfate	243	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	682	mg/L
	Calcium	257	mg/L
	Magnesium	9.82	mg/L
	Potassium	5.00	mg/L
	Sodium	120	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	2.90	+/- 5 %
	TDS (180):TDS (calculated)	1.2	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:	Bergin GC 1E	Date Reported:	06/20/96
Sample ID:	MW - 3	Date Sampled:	06/10/96
Laboratory ID:	3872	Time Sampled:	7:50
Sample Matrix:	Water	Date Received:	06/10/96

Parameter		Analytical Result	Units
General	Lab pH	7.2	s.u.
	Lab Conductivity @ 25° C	2,240	µmhos/cm
	Total Dissolved Solids @ 180°C	1,080	mg/L
	Total Dissolved Solids (Calc)	942	mg/L
Anions	Total Alkalinity as $CaCO_3$	478	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	478	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	32.5	mg/L
	Sulfate	277	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	505	mg/L
	Calcium	125	mg/L
	Magnesium	46.6	mg/L
	Potassium	< 5.0	mg/L
	Sodium	170	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	4.00	+/- 5 %
	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

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 5 and 10, 1996. The samples were from the Bergin GC 1E site. Analysis for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and General Water Quality were performed on the samples 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 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:	06/20/96
Lab ID:	MB35235	Date Analyzed:	06/19/96

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	99	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:	3796Dup	Report Date:	06/20/96
Sample Matrix:	Water	Date Sampled:	06/05/96
Preservative:	Cool, $HgCl_2$	Date Received:	06/05/96
Condition:	Intact	Date Analyzed:	06/19/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	ND	ND	NA
Toluene	23.6	20.9	17.3 - 27.2
Ethylbenzene	6.94	6.30	3.45 - 9.79
m,p-Xylenes	3.14	2.71	NE
o-Xylene	3.48	3.01	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	105	88 - 110%
	Bromofluorobenzene	125	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.

Analyst

Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID:	3794Spk	Report Date:	06/20/96
Sample Matrix:	Water	Date Sampled:	06/05/96
Preservative:	Cool, $HgCl_2$	Date Received:	06/05/96
Condition:	Intact	Date Analyzed:	06/19/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	9.92	99%	39 -150
Toluene	10	ND	9.97	98%	46 - 148
Ethylbenzene	10	ND	10.0	100%	32 - 160
m,p-Xylenes	20	ND	19.9	98%	NE
o-Xylene	10	ND	10.2	101%	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	99	88 - 110%
Bromofluorobenzene	101	86 - 115%

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

Comments:

Analyst

Review

General Water Quality
Quality Control Report

Blagg Engineering, Inc.

Report Date: 6/20/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	9.05	9.09	8.89 - 9.92	s.u.
Conductivity	1341	1210	1030 - 1400	µmhos/cm
Total Dissolved Solids	990	913	794 - 1030	mg/L
Total Alkalinity	191	180	160 - 200	mg/L
Chloride	130	138	128 - 148	mg/L
Sulfate	111	124	107 - 141	mg/L
Total Hardness	257	254	218 - 290	mg/L
Calcium	56.7	54.6	47.0 - 62.2	mg/L
Magnesium	NA	NA	NA	mg/L
Potassium	120	123	105 - 141	mg/L
Sodium	170	173	147 - 199	mg/L

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.

Comments:

Review

ANAITAS ENVIRONMENTAL LABS

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

180

CHAIN OF CUSTODY

Page 1 of 1

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	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):	COMMENTS
MW-1	6-5	0830	WATER					✓																					
MW-2	"	0855	"					✓																					
MW-3	"	0915	"					✓																					

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)

BERGIN GC IE

Sampled By:	Relinquished By:	Relinquished By:
Signature: R&O Date: 6-5-96	Signature: R&O Date: 6-5-96	Signature: Date:
Company: BEI Time: —	Company: BEI Time: 1410	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: Date: 6/5/96
Company: Time:	Company: Time:	Company: Anaitas Time: 1710

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

ANAITAS ENVIRONMENTAL LABS

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

CHAIN OF CUSTODY

185

Page 1 of 1

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
MW-1	6-10	0740	WATER	
MW-2	"	0747	"	
MW-3	"	0750	"	

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: NH_4^+ / NO_2^- / NO_3^- / TKN	Oil and Grease	Other (specify):		Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	
														✓												
														✓												
														✓												

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)

BERGIN GC IE

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: REO 6-10-96	Signature / Date: REO 6-10-96	Signature / Date:
Company: BEI Time: —	Company: BEI Time: 1420	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date:
Company: Time:	Company: Time:	Company: Time:

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 # : 2267

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : September 11, 1996

SAMPLER : REO

Filename : 09-11-96.WK3

PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.65	–	–	15.37	–	–	–	–	–
2	100.66	90.63	10.03	15.35	1300	6.9	1,600	1.00	–
3	100.44	89.44	11.00	15.37	1315	7.2	1,600	0.50	–

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

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

Ideally a minimum of three (3) wellbore volumes:

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

2 bails per foot – small teflon bailer.

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

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

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

Comments or note well diameter if not standard 2 ".

MW # 3 – very poor recovery . Collected BTEX samples for MW's # 2 & # 3 only .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bergin GC 1E	Report Date:	09/17/96
Sample ID:	MW - 2	Date Sampled:	09/11/96
Lab ID:	4971	Date Received:	09/12/96
Sample Matrix:	Water	Date Analyzed:	09/13/96
Preservative:	Cool , $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	5.86	5.00
Toluene	7.57	5.00
Ethylbenzene	11.8	5.00
m,p-Xylenes	24.6	10.0
o-Xylene	ND	5.00

Total BTEX	**49.8**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	110	88 - 110%
Bromofluorobenzene	117	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bergin GC 1E	Report Date:	09/17/96
Sample ID:	MW - 3	Date Sampled:	09/11/96
Lab ID:	4972	Date Received:	09/12/96
Sample Matrix:	Water	Date Analyzed:	09/13/96
Preservative:	Cool , $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	36.4	2.00
Toluene	11.7	2.00
Ethylbenzene	135	2.00
m,p-Xylenes	434	4.00
o-Xylene	95.0	2.00

Total BTEX	**711**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	106	88 - 110%
Bromofluorobenzene	117	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.

Analyst

Review

ANAITAS
ENVIRONMENTAL LABS

September 16, 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 September 12, 1996. The samples were from the Bergin GC 1E location. 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 hydrocarbon: Water
Lab ID: MB35321

Report Date: 09/17/96
Date Analyzed: 09/13/96

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	97	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:	4970Dup	Report Date:	09/17/96
Sample Matrix:	Water	Date Sampled:	09/11/96
Preservative:	Cool, HgCl2	Date Received:	09/12/96
Condition:	Intact	Date Analyzed:	09/13/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	17.3	17.1	12.9 - 21.4
Toluene	19.7	18.2	14.6 - 23.3
Ethylbenzene	177	170	114 - 234
m,p-Xylenes	188	183	NE
o-Xylene	9.23	9.90	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	95	88 - 110%
	Bromofluorobenzene	118	86 - 115%

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

Comments: High bromofluorobenzene recovery is due to hydrocarbon interference at the BFB retention times.

Analyst

Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID:	4970Spk	Report Date:	09/17/96
Sample Matrix:	Water	Date Sampled:	09/11/96
Preservative:	Cool, HgCl2	Date Received:	09/12/96
Condition:	Intact	Date Analyzed:	09/13/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	100	17.3	118	101%	39 -150
Toluene	100	19.7	113	94%	46 - 148
Ethylbenzene	100	177	273	96%	32 - 160
m,p-Xylenes	200	188	373	93%	NE
o-Xylene	100	9.23	113	104%	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	93	88 - 110%
Bromofluorobenzene	122	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

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	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HC's 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):	COMMENTS
MW # 2	9-11	1300	WATER					✓																						
MW # 3	9-11	1315	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)

BERGIN GC 1E

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: R. F. O'Neill 9-11-96	Signature / Date: R. F. O'Neill 9-12-96	Signature / Date:
Company: BEJ	Company: BEJ	Company:
Time: —	Time: 1105	Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: Dick 9/12/96
Company:	Company:	Company: Anaitas
Time:	Time:	Time: 1105

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 # : 2118

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : December 27, 1996

SAMPLER : N J V

Filename : 12-27-96.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	101.65	92.07	9.58	15.37	–	–	–	–	–
2	100.66	90.36	10.30	15.35	1020	6.8	5,900	2.50	–
3	100.44	89.13	11.31	15.37	–	–	–	–	–

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 only .

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bergin GC 1E	Report Date:	01/08/97
Sample ID:	MW - 2	Date Sampled:	12/27/96
Lab ID:	6061	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	1.42	1.00
Toluene	1.33	1.00
Ethylbenzene	1.89	1.00
m,p-Xylenes	8.99	2.00
o-Xylene	ND	1.00

Total BTEX	**13.6**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	95	88 - 110%
Bromofluorobenzene	101	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 Bergin GC 1E 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

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

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

Quality Control Report

Method Blank Analysis

Sample hydrocarbon: Water
Lab ID: MB35710

Report Date: 01/08/97
Date Analyzed: 10/07/97

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

2118

ANAITAS ENVIRONMENTAL LABS

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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	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):	COMMENTS
MW #2	12/27/96	1020	WATER					✓																						PRESERV. - COOL & HCl

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: BERGIN GC #1E	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 1020	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: Anaitas 15:17

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 # : 2127

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : March 19, 1997

SAMPLER : N J V

Filename : 03-19-97.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	101.65	90.43	11.22	15.00	–	–	–	–	–
2	100.66	88.55	12.11	15.00	0845	7.2	4,600	1.55	–
3	100.44	87.44	13.00	15.00	–	–	–	–	–

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 only.

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bergin GC #1E	Report Date:	03/28/97
Sample ID:	MW - 2	Date Sampled:	03/19/97
Lab ID:	6478	Date Received:	03/24/97
Sample Matrix:	Water	Date Analyzed:	03/26/97
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	2.54	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX	**2.54**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	96	88 - 110%
Bromofluorobenzene	101	86 - 115%

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

Comments:

Analyst

Review

2127

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	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):
MW #2	3/19/97	8:45	WATER					✓																					

COMMENTS
PRESERV. - COOL & HgCl2

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: BERGIN GC #12	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: [signature] Date: 3/19/97	Signature: [signature] Date: 3/24/97	Signature: Date:
Company: BLAGG Time: 8:45	Company: BLAGG Time: 10:50	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: [signature] Date: 3/24/97
Company: Time:	Company: Time:	Company: Anaitas Time: 1052

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 # : 5113

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 23, 1997

SAMPLER : N J V

Filename : 06-23-97.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	101.65	88.91	12.74	15.00	–	–	–	–	–
2	100.66	87.30	13.36	15.00	–	–	–	–	–
3	100.44	86.23	14.21	15.00	1430	NA	NA	0.50	–

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

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

Ideally a minimum of three (3) wellbore volumes:

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

2 bails per foot – small teflon bailer.

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

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

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

Comments or note well diameter if not standard 2 ".

MW # 3 – very poor recovery . NA = not available . Collected BTEX samples for MW # 3 only.

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:	06-25-97
Chain of Custody:	5113	Date Sampled:	06-23-97
Laboratory Number:	B493	Date Received:	06-24-97
Sample Matrix:	Water	Date Analyzed:	06-24-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**0.5**	**1**	**0.2**
Toluene	**0.8**	**1**	**0.2**
Ethylbenzene	**1.2**	**1**	**0.2**
p,m-Xylene	**3.1**	**1**	**0.2**
o-Xylene	**0.8**	**1**	**0.1**
Total BTEX	**6.4**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**98 %**
	Bromofluorobenzene	**100 %**

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

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

Comments: **Bergin GC #1E.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG / AMOCO	BERGIN GC #1E	

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 #3	6/23/97	1430	B493	WATER 6/24/97	1	✓	PRESERV. - COOL & $HgCl_2$

Sample received cool & intact - DA

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/24/97	0725	Dena L. Alfaro	6/24/97	07:25
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 # : 5406

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

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 TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	101.65	91.23	10.42	15.00	–	–	–	–	–
2	100.66	89.74	10.92	15.00	–	–	–	–	–
3	100.44	88.42	12.02	15.00	1155	6.9	2,000	1.50	–

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

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

Ideally a minimum of three (3) wellbore volumes:

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

2 bails per foot – small teflon bailer.

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

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

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

Comments or note well diameter if not standard 2 ".

MW # 3 – very poor recovery . Collected BTEX samples for MW # 3 only.

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:	5406	Date Sampled:	09-17-97
Laboratory Number:	C055	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	**ND**	**1**	**0.2**
Ethylbenzene	**52.0**	**1**	**0.2**
p,m-Xylene	**256**	**1**	**0.2**
o-Xylene	**49.6**	**1**	**0.1**
Total BTEX	**358**		

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: **Bergin GC #1E.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

Client/Project Name: BLAGG / AMOCO

Project Location: BERGIN GC #1E

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
MW #3	9/17/97	1155	C055	WATER	2	✓						PRESERV. - COOL & $HgCl_2$

sample received cool & intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	9/17/97	1437	[signature]	9.17.97	1437

Ref COC's 5406, 5407, 5408

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(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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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:	06-25-97
Laboratory Number:	06-24-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-24-97
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	**96 %**
	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 B486 - B493.**

Analyst

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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:	06-25-97
Laboratory Number:	B487	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-24-97
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	**ND**	**ND**	**0.0%**	**0.2**	**1**
Toluene	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**ND**	**ND**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.3**	**0.3**	**0.0%**	**0.2**	**1**
o-Xylene	**0.1**	**0.1**	**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 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 B486 - B493.**

Analyst

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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:	06-25-97
Laboratory Number:	B487	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	06-24-97
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**	**50.2**	**0.2**	**100%**	**39-150**
Toluene	**ND**	**50.0**	**50.1**	**0.2**	**100%**	**46-148**
Ethylbenzene	**ND**	**50.0**	**51.3**	**0.2**	**102%**	**32-160**
p,m-Xylene	**0.3**	**100**	**100**	**0.2**	**100%**	**46-148**
o-Xylene	**0.1**	**50.0**	**50.8**	**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 B486 - B493.**

Analyst

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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

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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

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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

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BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5661

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

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	101.65	92.03	9.62	15.00	–	–	–	–	–
2	100.66	90.27	10.39	15.00	–	–	–	–	–
3	100.44	89.03	11.41	15.00	1435	7.2	1,900	1.75	–
4	99.25	87.94	11.31	17.53	1410	7.0	2,100	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 ".

MW # 3 – very poor recovery. Collected BTEX samples for MW # 3 & 4,

collected anion / cation for MW # 4 only.

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:	12-19-97
Chain of Custody:	5661	Date Sampled:	12-18-97
Laboratory Number:	C715	Date Received:	12-18-97
Sample Matrix:	Water	Date Analyzed:	12-19-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**42.6**	**1**	**0.2**
Toluene	**4.0**	**1**	**0.2**
Ethylbenzene	**107**	**1**	**0.2**
p,m-Xylene	**460**	**1**	**0.2**
o-Xylene	**172**	**1**	**0.1**
Total BTEX	**786**		

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, USEP December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: **Bergin GC #1E.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 4	Date Reported:	12-19-97
Chain of Custody:	5661	Date Sampled:	12-18-97
Laboratory Number:	C714	Date Received:	12-18-97
Sample Matrix:	Water	Date Analyzed:	12-19-97
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	**ND**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**ND**		

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, USEP December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: **Bergin GC #1E.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #4	Date Reported:	12-22-97
Laboratory Number:	C714	Date Sampled:	12-18-97
Chain of Custody:	5661	Date Received:	12-18-97
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	12-19-97
Condition:	Cool & Intact		

Parameter	Analytical Result	Units		Units
pH	**7.05**	s.u.		
Conductivity @ 25° C	**3,335**	umhos/cm		
Total Dissolved Solids @ 180C	**1,664**	mg/L		
Total Dissolved Solids (Calc)	**1,675**	mg/L		
SAR	**0.3**	ratio		
Total Alkalinity as CaCO3	**290**	mg/L		
Total Hardness as CaCO3	**1,422**	mg/L		
Bicarbonate as HCO3	**290**	mg/L	4.75	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**8.0**	mg/L	0.13	meq/L
Nitrite Nitrogen	**0.580**	mg/L	0.01	meq/L
Chloride	**859**	mg/L	24.23	meq/L
Fluoride	**1.28**	mg/L	0.07	meq/L
Phosphate	**0.1**	mg/L	0.00	meq/L
Sulfate	**28.2**	mg/L	0.59	meq/L
Calcium	**569**	mg/L	28.39	meq/L
Magnesium	**<0.1**	mg/L	0.00	meq/L
Potassium	**3.10**	mg/L	0.08	meq/L
Sodium	**30.2**	mg/L	1.31	meq/L
Cations			29.79	meq/L
Anions			29.78	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.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Bergin GC # 1E.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	12-19-97
Laboratory Number:	12-19-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	12-19-97
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	**99 %**
	Bromofluorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEP December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 199

Comments: **QA/QC for samples C709- C715.**

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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:	12-19-97
Laboratory Number:	C709	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	12-19-97
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	**0.4**	**0.4**	**0.0%**	**0.2**	**1**
Ethylbenzene	**ND**	**ND**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.5**	**0.5**	**0.0%**	**0.2**	**1**
o-Xylene	**0.1**	**0.1**	**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 C709- C715.**

Analyst

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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:	12-19-97
Laboratory Number:	C709	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	12-19-97
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**	**50.0**	**0.2**	**100%**	**39-150**
Toluene	**0.4**	**50.0**	**50.8**	**0.2**	**101%**	**46-148**
Ethylbenzene	**ND**	**50.0**	**50.8**	**0.2**	**101%**	**32-160**
p,m-Xylene	**0.5**	**100**	**101**	**0.2**	**100%**	**46-148**
o-Xylene	**0.1**	**50.0**	**50.0**	**0.1**	**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 C709- C715.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLAGG / AMOCO	BERGIN GC #1E

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 (8020)	ANION / CATION					Remarks
												ANION/CATION PRESERV. - COOL ONLY
MW #4	12/18/97	1410	C714	WATER	3	✓	✓					PRESERV - $HgCl_2$ & COOL
MW #3	12/18/97	1435	C715	WATER	2	✓						PRESERV. - $HgCl_2$ + COOL
				SAMPLES RECEIVED COOL & INTACT								

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	12/18/97	1453	Dennis L. Ogburn	12-18-97	1453
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref COCs 5658 – 5661

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 # : 6026

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *June 12, 1998*

Filename : *06-12-98.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	101.65	88.61	13.04	15.00	-	-	-	-	-
2	100.66	86.92	13.74	15.00	-	-	-	-	-
3	-	-	-	15.00	measured on May 30, 1998 .				
3R	99.80	85.79	14.01	20.00	1525	7.1	1,900	3.00	
4	-	-	-	17.53	-	-	-	-	-

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 ".

Insufficient amount of GW to sample during initial visit 5 / 30 / 98 . Redrilled MW # 3 - 6 / 5 / 98 .

Tot. Leng. = 20 ft., screen interval = 10 ft., top of casing approx. 1.30 ft. above ground surface .

TD @ 18.70 ft. below ground surface . Depth to water on 6 / 12 /98 = 14.01 ft. .

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:	06-16-98
Chain of Custody:	6026	Date Sampled:	06-12-98
Laboratory Number:	D409	Date Received:	06-14-98
Sample Matrix:	Water	Date Analyzed:	06-16-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

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

ND - Parameter not detected at the stated detection limit.

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

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

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

Comments: **Bergin GC #1E.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

6026

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	BERGIN GC #1E	
Sampler: NJV	Client No. 0403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)					Remarks
MW #3	6/12/98	1525	D409	WATER	2	✓					PRESERV. - $HgCl_2$
											& COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	6/14/98	1510	[signature]	6.14.98	1510
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

RP COC's 6021, 6023, 6024, 6026 — 6028

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

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

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

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

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

ND - Parameter not detected at the stated detection limit.

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

Comments: **QA/QC for samples D409- D416.**

Analyst

Review

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JJ

1/2

ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
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94134

FIELD REPORT: SITE ASSESSMENT 1225

JOB No: 92140
PAGE No: 1 of 2

PROJECT: PIT ASSESSMENTS & CLOSURE
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: ENVIROTECH, INC.
EQUIPMENT USED: Backhoe w/ 24"

DATE STARTED: 5/12/92
DATE FINISHED:
ENVIRO. SPCLT: RB
OPERATOR: DB
ASSISTANT: LT

LOCATION: LSE: Bergin Gas WELL: 1E QD: SE/4 NW/4
SEC: 21 TWP: T29N RNG: R11W PM: NMPM CNTY: SJ ST: NM PIT: SEP PIT
LAND USE: Agricultural field adjacent to site on west
SURFACE CONDITIONS: Fiberglass tank (8' d x 6' h) buried on site.

FIELD NOTES & REMARKS: Soils clean from surface to 4' depth. 4' to 13' depth is highly contaminated w/ gray to black discoloration throughout pit area. Some groundwater seepage occurs @ 13' (max depth) but slough off from TH sides prevented sufficient gravity to collect @ bottom for sampling. T4 dug down gradient from SEP PIT, reads 460 OVM @ 10' depth. T4 has gray-black soils from 4' depth-TD.

SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:
T1@5'	SOIL	HEAD
T2@10'	SOIL	TPH / 418.1

TEST HOLE LOGS:

TH#: 1

SOIL TYPE:	SMPL TYPE:	OVM/TPH
SW	MSCP	
		3
CW		1206
		672
SW		1016
	TD	13'

TH#: 2

SOIL TYPE:	SMPL TYPE:	OVM/TPH
MW		
		26
CW		939
		610
SW		27
	TD	13'

TH#: 3

SOIL TYPE:	SMPL TYPE:	OVM/TPH
MCW		
		120
		887
		601
SW		9
	TD	13'

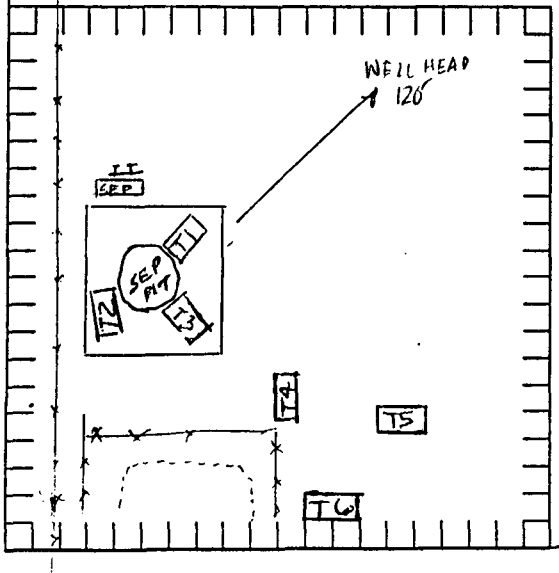
TH#: 4

SOIL TYPE:	SMPL TYPE:	OVM/TPH
MCW		
		20
		9
		4660
SW		
	TD	15'
		4

SOIL TYPE: C - Clay, M - Silt, S - Sand, G - Gravel Plasticity: L - None, H - Plastic Grading: P - Poorly, W - Well

SCALE
0 10 60 FEET

SITE DIAGRAM



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94134

FIELD REPORT: SITE ASSESSMENT

1225

JOB No: 92140
PAGE No: 2 of 2

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

DATE STARTED: 5/12/92
DATE FINISHED: 5/12/92
ENVIRO. SPCLT: RCB
OPERATOR: DPS
ASSISTANT: CT

LOCATION: LSE: Bergin Gas WELL: 1E QD:
SEC: TWP: RNG: PM: CNTY: ST: PIT:

LAND USE:
SURFACE CONDITIONS:

FIELD NOTES & REMARKS:

Cont w/ previous page
TS shows gray black soils from 5' - 13' depth.

SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:

SCALE
0 FEET

SITE DIAGRAM

TEST HOLE LOGS:

TH#: 5

SOIL TYPE:	SMPL TYPE:	OVM/TPH
MCW		
		7
		21
		40
		TD 15'
SW/CH		TD 15'
		N/D

TH#: 6

SOIL TYPE:	SMPL TYPE:	OVM/TPH
SMP		
		N/D
		N/D
		20
		TD 10'

TH#: _____

SOIL TYPE:	SMPL TYPE:	OVM/TPH

TH#: _____

SOIL TYPE:	SMPL TYPE:	OVM/TPH

SOIL TYPE: C - Clay, M - Silt, S - Sand, G - Gravel Plasticity: L - None, H - Plastic Grading: P - Poorly, W - Well

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	AMOCO	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	09-01-92
Laboratory Number:	0625	Date Sampled:	05-12-92
Sample Matrix:	Soil	Date Received:	05-12-92
Preservative:	NA	Date Analyzed:	07-10-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	35.3	1.6
Toluene	38.6	1.6
Ethylbenzene	2,870	1.6
p,m-Xylene	81,800	1.6
o-Xylene	15,000	1.6

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

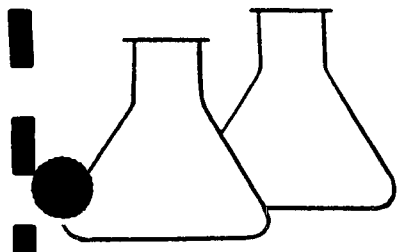
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bergin GC 1E---Separator Pit---94134

Analyst

Review



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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:		Project #:	92140
Sample ID:	T-2 @ 10'	Date Reported:	06-13-92
Laboratory Number:	0627	Date Sampled:	05-12-92
Sample Matrix:	Soil	Date Received:	NA
Preservative:	Cool	Date Analyzed:	06-05-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	0.0	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: Bergin Gas 1-E Separator Pit 94134

Tony Tristano
Analyst

Review

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T 2 @ 10'	Date Reported:	09-24-92
Laboratory Number:	0627	Date Sampled:	05-12-92
Sample Matrix:	Soil	Date Received:	05-12-92
Preservative:	Cool	Date Extracted:	06-05-92
Condition:	Cool & Intact	Date Analyzed:	09-23-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	24,000	119.7
Toluene	199,900	69.8
Ethylbenzene	ND	19.9
p,m-Xylene	69,300	69.8
o-Xylene	51,200	59.8

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	133 %
Bromfluorobenzene	84 %

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: Bergin GC 1E Separator Pit 94134

Analyst

Review

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	AMOCO	Project #:	92140
Sample ID:	T3 @ 5'	Date Reported:	09-01-92
Laboratory Number:	0626	Date Sampled:	05-12-92
Sample Matrix:	Soil	Date Received:	05-12-92
Preservative:	NA	Date Analyzed:	07-10-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	12.4	1.6
Toluene	33.2	1.6
Ethylbenzene	ND	1.6
p,m-Xylene	1,290	1.6
o-Xylene	444	1.6

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: Bergin Gas Com 1E---Separator Pit---94134

Analyst

Review

94134

1225

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO / 92140	SEP PIT Bergin Gas, IE	
Sampler: (Signature) Larry Benally	Chain of Custody Tape No. 1 COM AC	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BETX HEAD	8020	TPH/418.1				Remarks
T1 @ 5'	5/12/92	1330	0625	SOIL	1	✓						
T3 @ 5'	5/12/92	1430	0626	SOIL	1	✓						
T2 @ 10'	5/12/92	1450	0627	SOIL	1		✓	✓				
NO BLANKS												

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Larry Benally	5/12/92	1720	Michael L. Ea	5-12-92	1720
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Farmington, New Mexico 87401
(505) 632-0615

12/7/93 LAB RESULTS TO PAUL V. - WATER STILL CONTAMINATED

ENVIROTECH Inc.

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

PIT NO: C4134
C.O.C. NO: 3196 3239

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE BERGIN GAS COMWELL #1E QD. SE/4, NW/4, (F)
SEC. 21 TWP: 29N RNG: 11W BM: NM CNTY: SJ ST: NM PIT: SEP.
CONTRACTOR:
EQUIPMENT USED:

DATE STARTED: 11-16-93
DATE FINISHED: 12-3-93
ENVIRONMENTAL SPECIALIST: REO

SOIL REMEDIATION: QUANTITY: ~ 70' x 70' x 10' DEEP = 1600 CUBIC YARDS
DISPOSAL FACILITY: STOCKPILED ON SITE
LAND USE: FARM / RESIDENTIAL
SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 120 FEET S.10°W. FROM WELLHEAD.
PIT BOTTOM CONTAINS 1-2 FEET WATER
UPPER POND WATER ELEVATION APPROX. ONE FOOT HIGHER THAN LOWER POND.
SAMPLES WERE COMPOSITE OF 2 PONDS.
POSSIBLE EVIDENCE OF SEWAGE IN LOWER POND

12-3-93 : COLLECT WATER SAMPLE - ICE ON POND SURFACE
WATER LEVEL HAS STABILIZED - BOTH PONDS NOW AT "UPPER POND" LEVEL

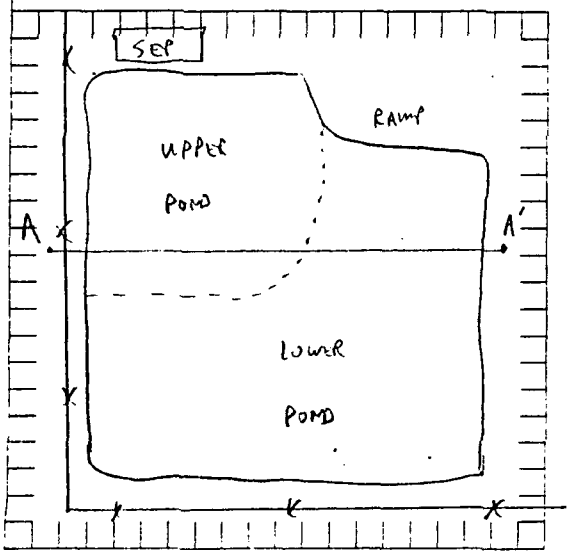
FIELD 418.1 CALCULATIONS

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

DEPTH TO GROUNDWATER: ~10 FT.
NEAREST WATER SOURCE:
NEAREST SURFACE WATER:
NMOCD RANKING SCORE:
NMOCD TPH CLOSURE STD: 100 ppm TPH

SCALE
0 10 20 FEET

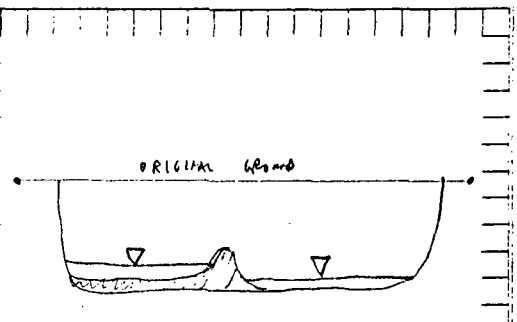
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
11-16-93	LAB
PIT	BTEX
"	418.1
"	TOTAL COLIFORM
12-3-93	LAB
PIT @ 9'	BTEX
TEMP	4° C.
PH	7.3
COD	1700

PIT PROFILE



TRAVEL NOTES: CALLOUT: 11-16-93 ONSITE: 11-16-93 1300 HRS
12-2-93 BY P.V. ONSITE 12-3-93 0800 HRS.

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Sampled:	11-16-93
Laboratory Number:	6509	Date Received:	11-16-93
Sample Matrix:	Water	Date Analyzed:	11-18-93
Preservative:	Cool	Date Reported:	11-18-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
TPH	7.36	0.50

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

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

Comments: Bergin Gas Com #1E, Sep Pit, C4134

Tony Tristano
Analyst

Morris D. Young
Review

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	11-17-93
Laboratory Number:	6508	Date Sampled:	11-16-93
Sample Matrix:	Water	Date Received:	11-16-93
Preservative:	HgCl and Cool	Date Analyzed:	11-17-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	1,490	1.0
Toluene	3,590	3.5
Ethylbenzene	128	1.5
p,m-Xylene	2,150	3.5
o-Xylene	680	2.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	92 %
Bromofluorobenzene	101 %

Method: Method 5030A, 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. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bergin Gas Com #1E Separator Pit C4134

Analyst

Review

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit @ 9'	Date Reported:	12-06-93
Laboratory Number:	6609	Date Sampled:	12-03-93
Sample Matrix:	Water	Date Received:	12-03-93
Preservative:	HgCl & Cool	Date Analyzed:	12-06-93
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	740	0.2
Toluene	1,040	0.6
Ethylbenzene	60	0.3
p,m-Xylene	950	0.5
o-Xylene	710	0.3

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	105 %
Bromofluorobenzene	104 %

Method: 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. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bergin Gas Com #1E C4134

Analyst

Review

3196

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO #92140	BERGIN GAS COM #1E SEP. PIT	C4134
Sampler: (Signature) R. E. O'Neill	Chain of Custody Tape No. -	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX	418.1	FECAL COLIFORM				Remarks
PIT WATER	11-16-93	1340	6508	WATER	2	✓						
PIT WATER	11-16-93	1340	6509	WATER	1		✓					
PIT WATER	11-16-93	1330	6510	WATER	1			✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
R. E. O'Neill	11-16-93	1414	Tony Tinton	11/1/93	1430
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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CHAIN OF CUSTODY RECORD

C4134

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO # 92140	BERGIN GAS COM #1E	
Sampler: (Signature) R. E. O'Neill	Chain of Custody Tape No. -	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX						Remarks
PIT @ 9'	12-3-93	0800	6609	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
R. E. O'Neill	12-3-93	1600	Debbie L. Spencer	12-3-93	1600
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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san juan repro Form 578-81

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

C4134

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

Address: 200 Amoco Court, Farmington, New Mexico 87401

Facility Or: BERGIN GC # 1E
Well Name

Location: Unit or Qtr/Qtr Sec F Sec 21 T 29N R 11W County SAN JUAN

Pit Type: Separator X Dehydrator ___ Other ___

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

Pit Location: (Attach diagram)
Pit dimensions: length 65', width 70', depth 9'
Reference: wellhead X, other ___
Footage from reference: 210'
Direction from reference: 25 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)	20
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)	10
	RANKING SCORE (TOTAL POINTS):	40

Date Remediation Started: _____ **Date Completed:** 1/3/94

Remediation Method: (Check all appropriate sections) Excavation X Approx. cubic yards 1520

Landfarmed ___ Insitu Bioremediation ___

Other _____

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility) Onsite ___ Offsite X AMOCO COMPOSTING FACILITY

General Description Of Remedial Action: _____

Ground Water Encountered: No ___ Yes X Depth 9'

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location REFER TO "CLOSURE VERIFICATION" SHEET

Sample depth _____

Sample date _____ Sample time _____

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) _____

TPH _____

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

HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BES MY KNOWLEDGE AND BELIEF

DATE 4/27/94

SIGNATURE BJ Shaw

PRINTED NAME AND TITLE Buddy D. Shaw ENVIRONMENTAL COORDINATOR

LOCATION: LEASE: BERGIN CC WELL #: 1E QD: SW4 NW14 SEC: 21 TWP: 29N RNG: 11W BM: NM CNTY: SAN JUAN ST: NM PIT: SEP

CONTRACTOR: PAUL VELASQUEZ

EQUIPMENT USED: TRACKHOE

DATE STARTED: 1/3/94

DATE FINISHED: 1/3/94

ENVIRONMENTAL SPECIALIST: NV

SOIL REMEDIATION: QUANTITY: 65' X 70' X 9'

DISPOSAL FACILITY: UNKNOWN

LAND USE: RESIDENTIAL

SURFACE CONDITIONS: UNKNOWN (SEE SITE ASSESSMENT FIELD REPORT 94134)

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 70 YARDS S25°W FROM WELLHEAD.

DEPTH TO GROUNDWATER: 9'

NEAREST WATER SOURCE: <300'

NEAREST SURFACE WATER: <300'

COLLECTED GW SAMPLES FOR BTEX. (2)

NO VISUAL EVIDENCE OF ANY SOIL HYDROCARBON CONTAMINATION (SIDEWALLS NOT ACCESSIBLE)

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	2 - Pit Water	Date Reported:	01-04-94
Laboratory Number:	6697	Date Sampled:	01-03-94
Sample Matrix:	Water	Date Received:	01-03-94
Preservative:	HgCl and Cool	Date Analyzed:	01-04-94
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	68	0.2
Toluene	112	0.3
Ethylbenzene	8.7	0.2
p,m-Xylene	297	0.3
o-Xylene	78	0.3

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	100 %
Bromofluorobenzene	100 %

Method: Method 5030A, 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. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bergin GC #1E Separator Pit C4134

Analyst

Review

3292

CHAIN OF CUSTODY RECORD

C4134

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO 92140	SEP PIT BERGIN GC #1E	
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
(1) PIT WATER	1/3/94	1400	6696	WATER	2	✓						
(2) PIT WATER	1/3/94	1410	6697	WATER	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	1/3/94	1446	Denise L. Spencer	1-3-94	1446
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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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 # : 6436

BERGIN GC # 1E - SEPARATOR PIT
UNIT F, SEC. 21, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *January 25, 1999*

Filename : *01-25-99.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	101.65	91.82	9.83	15.00	-	-	-	-	-
2	100.66	90.15	10.51	15.00	-	-	-	-	-
3R	99.80	88.70	11.10	20.00	1400	7.2	1,700	4.50	
4	-	-	-	17.53	-	-	-	-	-

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 ".

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	04034-10
Sample ID:	MW # 3R	Date Reported:	01-27-99
Chain of Custody:	6436	Date Sampled:	01-25-99
Laboratory Number:	E580	Date Received:	01-26-99
Sample Matrix:	Water	Date Analyzed:	01-27-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		0

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**ND**	**1**	**0.2**
Toluene	**0.7**	**1**	**0.2**
Ethylbenzene	**26.7**	**1**	**0.2**
p,m-Xylene	**172**	**1**	**0.2**
o-Xylene	**47.9**	**1**	**0.1**
Total BTEX	**248**		

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: **Bergin GC #1E.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

6436

Client / Project Name: BLAGG / CROSS TIMBERS

Project Location: BERGIN GC #1E

Sampler: NJV

Client No.: 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #3R	1/25/99	1400	E580	WATER	2	✓						PRESERV. - $HgCl_2$ & COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	1/26/99	0659	[signature]	1.26.99	0659
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref COC 6435 - 6436

ENVIROTECH INC.

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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:	01-27-BTEX QA/QC	Date Reported:	01-27-99
Laboratory Number:	E580	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-27-99
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	1.0822E-001	1.0857E-001	0.32%	ND	0.2
Toluene	5.6859E-002	5.6972E-002	0.20%	ND	0.2
Ethylbenzene	6.8692E-002	6.8982E-002	0.42%	ND	0.2
p,m-Xylene	6.7811E-002	6.7824E-002	0.02%	ND	0.2
o-Xylene	7.0740E-002	7.0953E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	ND	ND	0.0%	0 - 30%
Toluene	0.7	0.7	0.0%	0 - 30%
Ethylbenzene	26.7	25.8	3.4%	0 - 30%
p,m-Xylene	172	172	0.0%	0 - 30%
o-Xylene	47.9	46.1	3.8%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	50.0	100%	39 - 150
Toluene	0.7	50.0	50.7	100%	46 - 148
Ethylbenzene	26.7	50.0	75.6	99%	32 - 160
p,m-Xylene	172	100.0	264	97%	46 - 148
o-Xylene	47.9	50.0	95.3	97%	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 E576 - E580.**

Analyst

Review

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