3R - 113

REPORTS

DATE:

2005

3R0113

XTO ENERGY

May 15, 2006

Mr. Glenn von Gonten
Hydrologist – Groundwater Remediation
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Annual Groundwater Remediation Reports

Dear Mr. von Gonten:

XTO Energy Inc. (XTO) is presenting a second submission of the Annual Groundwater Remediation Report in accordance with the NMOCD approved Groundwater Management Plan (GMP), which will complete this years reporting. Enclosed are summary reports with analytical data, summary tables, site maps, potentiometric surface diagrams and recommendations/proposed actions for:

- Baca Gas Com A #1A
- Frost, Jack B #2
- Haney Gas Com B #1E
- Hare Gas Com B #1E
- Masden Gas Com #1E
- McDaniel Gas Com B #1E
- Snyder Gas Com #1A
- Stedje Gas Com #1
- Sullivan Frame A #1E

Thank you for your review of the reports and allowing some flexibility with this years reporting schedule. If you have any questions please do not hesitate to contact me at (505) 566-7942.

Sincerely,

Lisa Winn
Environmental Specialist
San Juan Division

cc: Mr. Denny Foust, Environmental, NMOCD District III Office, Aztec, NM
File – San Juan Groundwater

3R 0113

XTO ENERGY INC.

ANNUAL GROUNDWATER REPORT

2005

HANEY GC B #1E
(M) SECTION 20 – T29N – R10W, NMPM
SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR:
MR. GLENN VON GONTEN
NEW MEXICO OIL CONSERVATION DIVISION

APRIL 2006

TABLE OF CONTENTS

XTO Energy Inc.
Haney GC B #1E
SW/4 SW/4 S20, T29N, R10W

Pit Assessment Date: 6/3/92 (Documentation Included)

Pit Closure Date: 2/12-16/96 (Documentation Included)

Monitor Well Installations: 12/17/97

Monitor Well Sampling: 12/18/97, 5/25/99

Historical Information:

- June 1992- Groundwater impact was found during a pit assessment of a site operated by Amoco Production Company (Amoco).
- February 1996- Amoco excavated approximately 3,000 cubic yards of hydrocarbon impacted soil and landfarmed on site. Amoco installed air injection system (Operated 6/96 – 12/97) to enhance site remediation.
- December 1997- Monitor wells MW1, MW2 and MW3 were installed to evaluate groundwater quality. Initial sampling indicated groundwater met closure standards. Site sampling was terminated.
- January 1998- XTO Energy Inc. (XTO) acquired the Haney GC B #1E from Amoco.
- February 1999- Request submitted for site closure.
- April 1999- Correspondence was received from New Mexico Oil Conservation Division (NMOCD) denying the request for closure requesting additional information regarding down gradient contamination.
- February 2000- Request submitted for site closure.
- December 2000- Correspondence was received from NMOCD denying the request for closure pending submittal of four consecutive quarters of sample analyses.
- April 2006- XTO submits annual groundwater report recommending continued monitoring.

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells (Figure 1) following US EPA: SW-846 protocol. Samples were collected using new disposable bailers and placed in laboratory supplied containers and stored in a cooler on ice. The samples were delivered to an accredited environmental laboratory according to chain-of-custody procedures. The samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per US EPA Method 8021B and general water chemistry per US EPA Method 600/4-79-020. Analytical results are summarized on Tables 1 & 2. Waste generated (groundwater) during monitor well sampling and development was placed in the produced water separator tank located on the well site.

Water Quality and Gradient Information:

Groundwater elevation data (Figures 2-3) indicates groundwater at this site trends towards the north with east and west components.

XTO understands the initial evaluation of groundwater impact came from samples of groundwater collected in test holes during the assessment phase followed by groundwater samples collected from the bottom of the pit following excavation of hydrocarbon impacted soil. Laboratory analysis of the initial samples indicated elevated levels of dissolved phase BTEX constituents in groundwater. In 1997 groundwater monitoring wells were installed to delineate the extent of hydrocarbon impact to groundwater. Monitoring well numbered MW#2 was installed within the area excavated and backfilled during closure activities. Monitoring well numbered MW#1 was installed up to cross gradient of MW#2 and monitoring well numbered MW#3 was located down gradient of the source area. Samples collected from groundwater monitoring wells in 1997 exhibit trace levels or levels below the detection limits of laboratory equipment (0.2 ug/L). Sampling was terminated and site closure requests were submitted.

Summary:

Analytical data from the December 1997 groundwater monitoring well sampling event indicated that groundwater quality standards were observed. Correspondence from NMOCD in 2000 requested four consecutive quarters of testing in compliance with XTO's Groundwater Management Plan. XTO proposes to install an additional groundwater monitoring well to confirm gradient and place this site on a quarterly sampling schedule.

TABLE 1

XTO ENERGY INC. GROUNDWATER MONITOR WELL LABORATORY RESULTS
SUBMITTED BY BLAGG ENGINEERING, INC.

HANEY GC B #1E - SEPARATOR PIT
UNIT M, SEC. 20, T29N, R10W

REVISED DATE: DECEMBER 31, 1997

FILENAME: (HA-4Q-97.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB) Benzene	Toluene	Ethyl Benzene	Total Xylene
18-Dec-97	MW #1	6.75	9.00	2807	3300	7.1		ND	ND	ND	0.1
18-Dec-97	MW #2	9.07	15.00	1620	2700	7.1		ND	ND	1.5	0.4
18-Dec-97	MW #3	10.34	15.00	1544	2700	7.0		ND	0.7	2.4	10.6

TABLE 2

GENERAL WATER QUALITY

XTO ENERGY INC.

HANEY GC B # 1E

SAMPLE DATE : DECEMBER 18, 1997

PARAMETERS		MW # 1	MW # 2	MW # 3	Units
GENERAL	LAB pH	7.27	7.07	7.07	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	5,584	3,280	3,092	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	2,792	1,636	1,544	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	2,807	1,620	1,544	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	620	400	438	mg / L
	BICARBONATE ALKALINITY (AS HCO3)	620	400	438	mg / L
	CARBONATE ALKALINITY (AS CO3)	< 1	< 1	< 1	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	< 1	< 1	< 1	mg / L
	CHLORIDE	1546	755	719	mg / L
	SULFATE	46.6	54.5	23.2	mg / L
	PHOSPHATE	0.8	0.2	0.1	mg / L
	FLUORIDE	1.75	4.40	1.14	mg / L
	NITRATE NITROGEN	0.4	0.3	0.2	mg / L
	NITRITE NITROGEN	0.013	0.001	0.007	mg / L
CATIONS	TOTAL HARDNESS AS CaCO3	2,704	1,378	1,332	mg / L
	CALCIUM	402	476	448	mg / L
	MAGNESIUM	415	46.0	51.8	mg / L
	POTASSIUM	7.00	4.70	5.70	mg / L
	SODIUM	11.0	36.2	28.7	mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	0.00	0.00	0.00	+/- 5 %
	SODIUM ABSORPTION RATIO	0.1	0.4	0.3	

TABLE 3

GENERAL WATER QUALITY

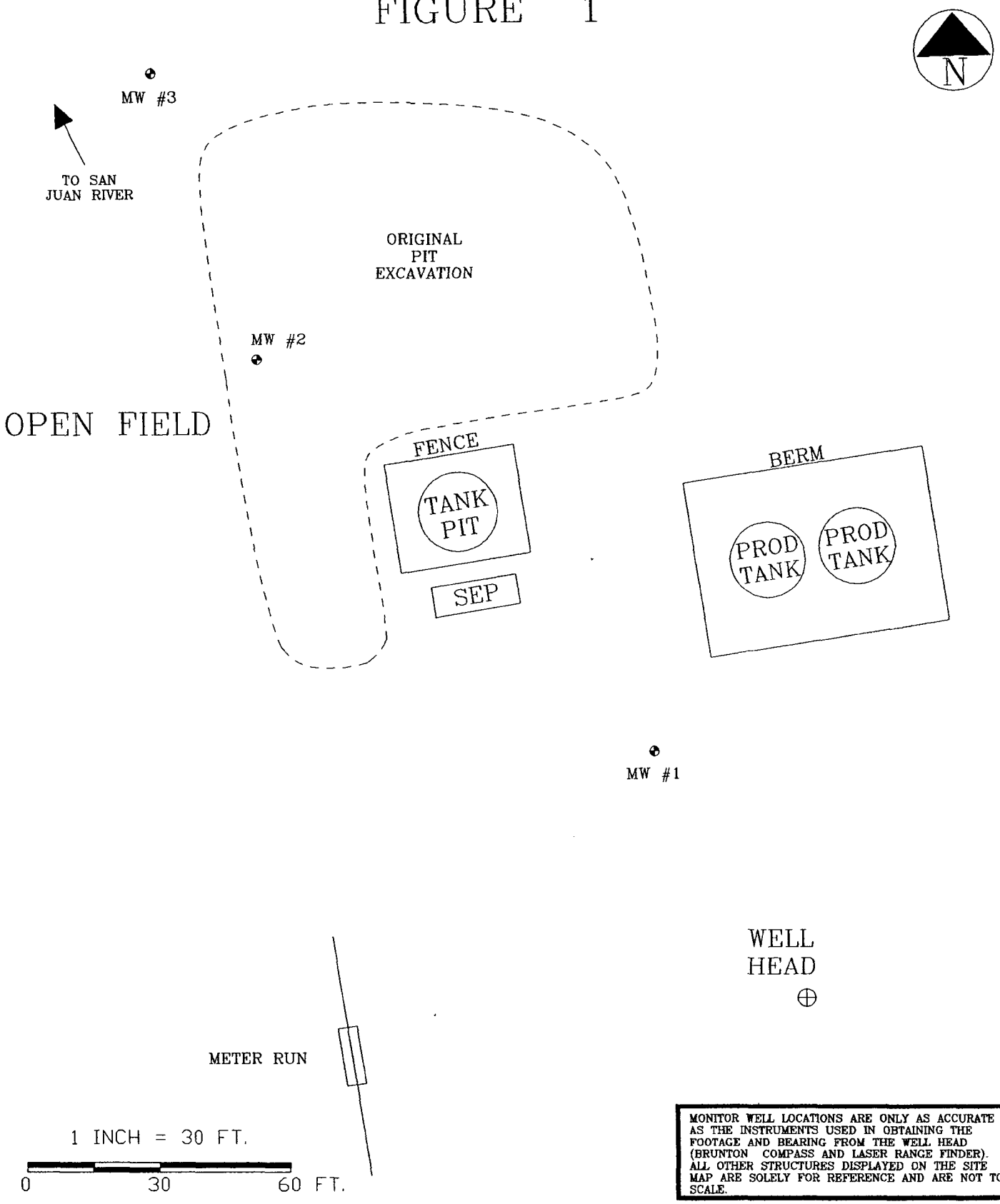
XTO ENERGY INC.

HANEY GC B #1E

SAMPLE DATE : May 25 , 1999

PARAMETERS	MW # 1	MW # 2	MW # 3	Units
LAB pH	7.57	7.06	7.24	s. u.
LAB CONDUCTIVITY @ 25 C	6,500	6,680	7,830	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	3,225	3,330	3,910	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	3,202	3,296	3,851	mg / L
SODIUM ABSORPTION RATIO	8.3	7.6	8.9	ratio
TOTAL ALKALINITY AS CaCO3	652	622	480	mg / L
TOTAL HARDNESS AS CaCO3	1,052	1,130	1,250	mg / L
BICARBONATE as HCO3	652	622	480	mg / L
CARBONATE AS CO3	< 1	< 1	< 1	mg / L
HYDROXIDE AS OH	< 1	< 1	< 1	mg / L
NITRATE NITROGEN	0.1	0.2	0.4	mg / L
NITRITE NITROGEN	0.001	0.004	0.003	mg / L
CHLORIDE	5.6	6.0	4.8	mg / L
FLUORIDE	1.07	1.06	1.18	mg / L
PHOSPHATE	23.6	< 0.1	18.2	mg / L
SULFATE	1,760	1,860	2,320	mg / L
IRON	0.10	1.65	1.63	mg / L
CALCIUM	331	373	413	mg / L
MAGNESIUM	54.7	47.9	52.7	mg / L
POTASSIUM	10.0	40.0	30.0	mg / L
SODIUM	620	590	720	mg / L
CATION / ANION DIFFERENCE	0.10	0.17	0.13	

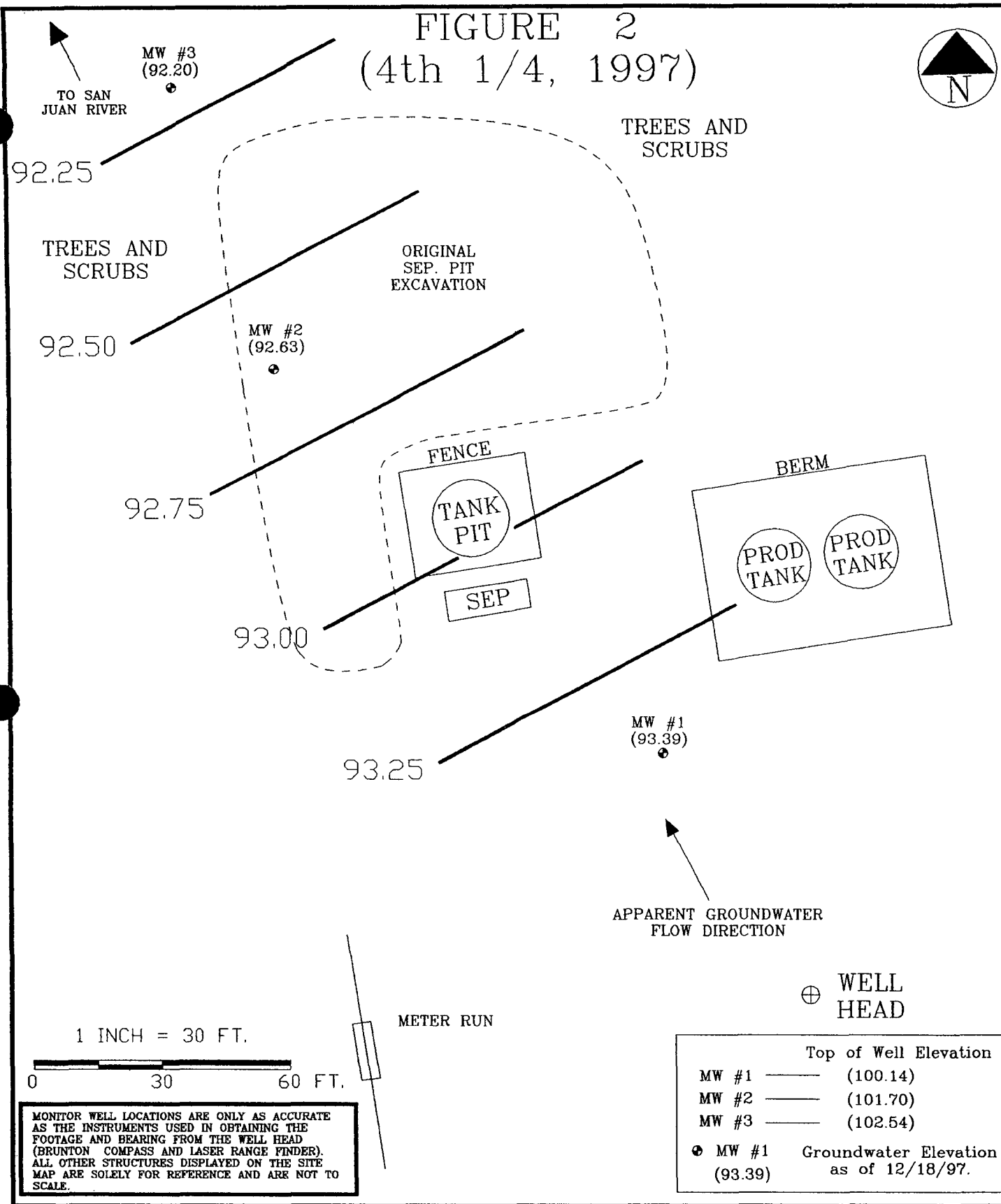
FIGURE 1



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

XTO ENERGY INC. HANEY GC # 1E SW/4 SW/4 SEC. 20, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Samp. DRAWN BY: NJV FILENAME: HANE-SM REVISED: 5/11/98 NJV	SITE MAP 12/97

FIGURE 2
(4th 1/4, 1997)

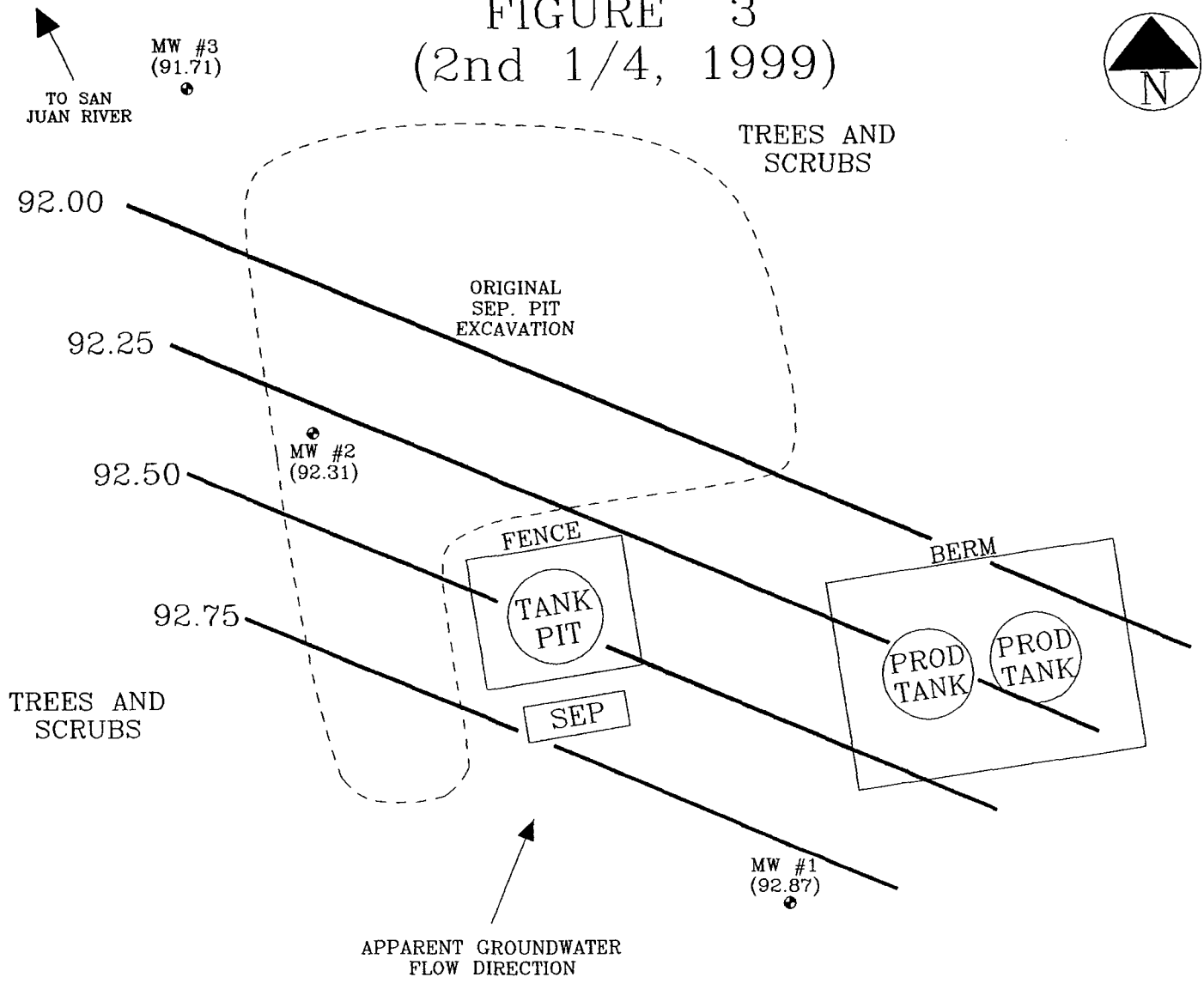


Top of Well Elevation	
MW #1	(100.14)
MW #2	(101.70)
MW #3	(102.54)
MW #1 (93.39)	Groundwater Elevation as of 12/18/97.

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.

XTO ENERGY INC. HANEY GC # 1E SW/4 SW/4 SEC. 20, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Samp. DRAWN BY: NJV FILENAME: HANE-GW REVISED: 5/11/98 NJV	GROUNDWATER GRADIENT MAP 12/97

FIGURE 3
(2nd 1/4, 1999)



METER RUN

⊕ WELL HEAD

1 INCH = 30 FT.

0 30 60 FT.

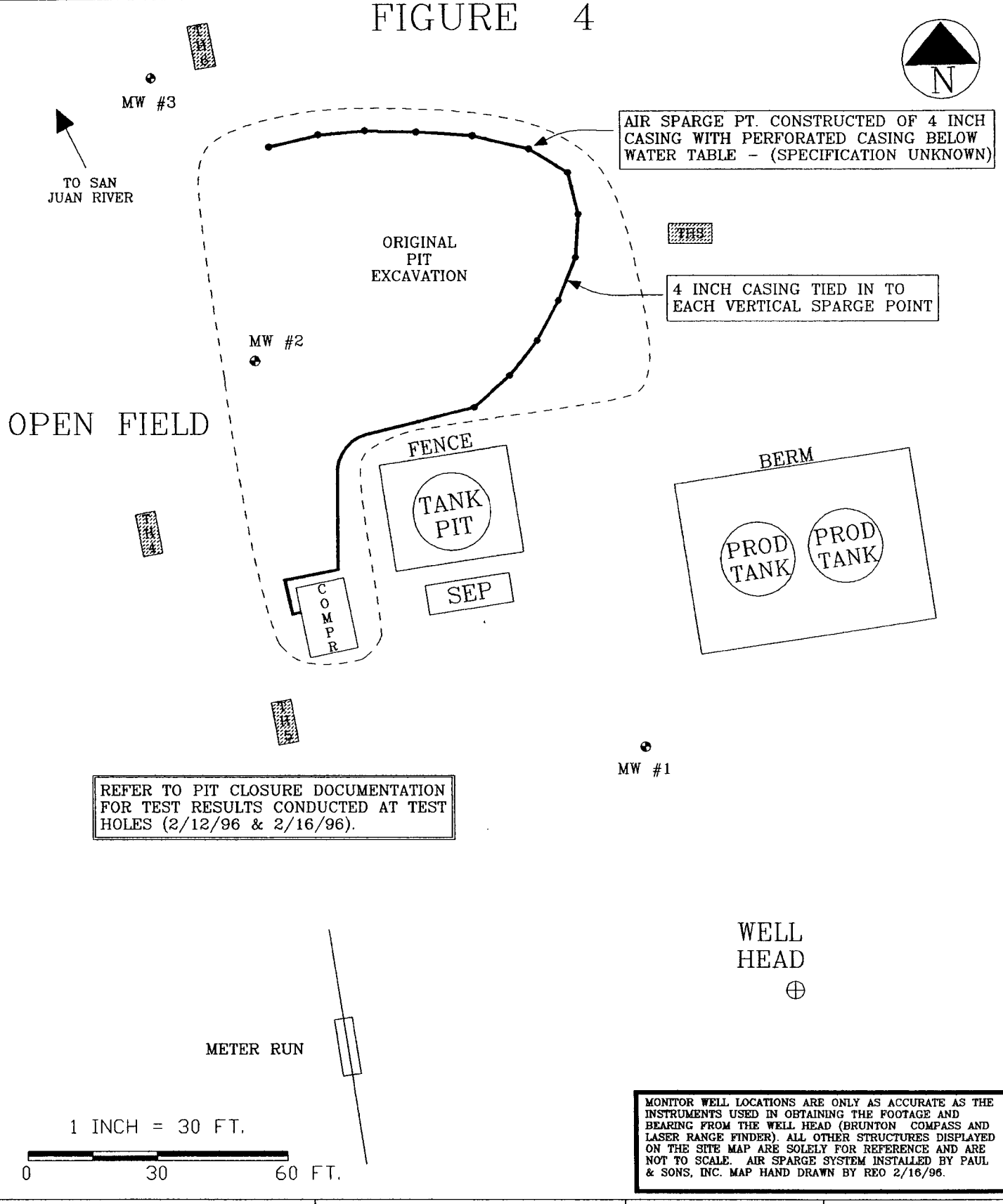
MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

Top of Well Elevation	
MW #1	(100.14)
MW #2	(101.70)
MW #3	(102.54)

◕ MW #1 (92.87) Groundwater Elevation as of 5/25/99.

XTO ENERGY INC. HANEY GC # 1E SW/4 SW/4 SEC. 20, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Samp. DRAWN BY: NJV FILENAME: 05-25-GW REVISED: 6/15/99 NJV	GROUNDWATER GRADIENT MAP 5/99

FIGURE 4



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. AIR SPARGE SYSTEM INSTALLED BY PAUL & SONS, INC. MAP HAND DRAWN BY REO 2/16/96.

XTO ENERGY INC. HANEY GC # 1E SW/4 SW/4 SEC. 20, T29N, R10W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Samp. DRAWN BY: REO FILENAME: HANE-AS REVISED: 2/3/99 NJV	AIR SPARGE SYSTEM LAY OUT 12/97

FIGURE 5

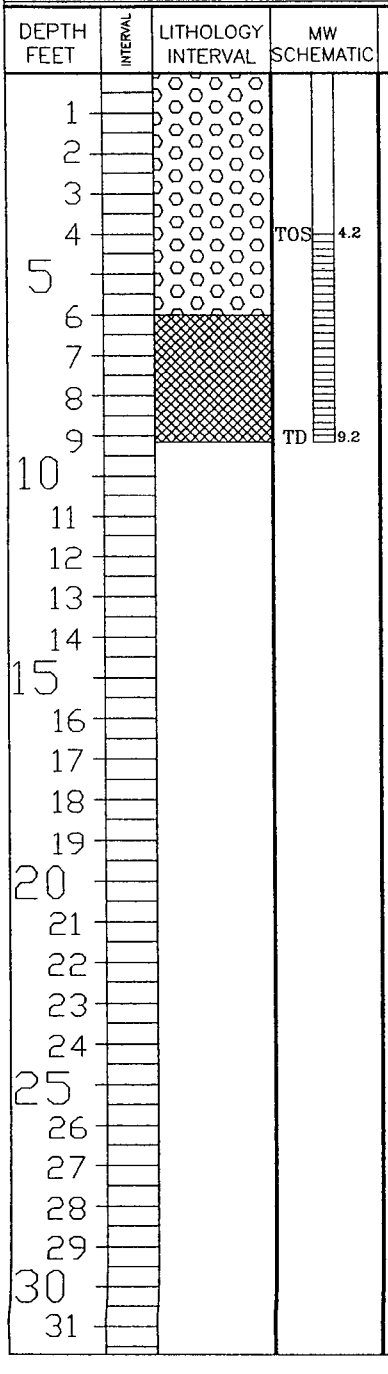
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	HANEY GC B # 1E
CLIENT:	XTO ENERGY INC.
CONTRACTOR:	BLAGG ENGINEERING, INC. / PAUL & SONS
EQUIPMENT USED:	MOBILE DRILL RIG/PAUL & SONS
BORING LOCATION:	N31.5W, 66 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	12/17/97
DATE FINISHED	12/17/97
OPERATOR.....	GG
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 0.80 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND AND GRAVEL, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.0 - 6.0 FT. INTERVAL).

▼ GW DEPTH ON 12/18/97 = 5.95 FT. (APPROX.) FROM GROUND SURFACE.

DARK GRAY SILTY SAND & GRAVEL, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (6.0 - 9.2 FT. INTERVAL).

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

DRAWING: HANE-1	DATE: 12/22/97	DWN BY: NJV

FIGURE 6

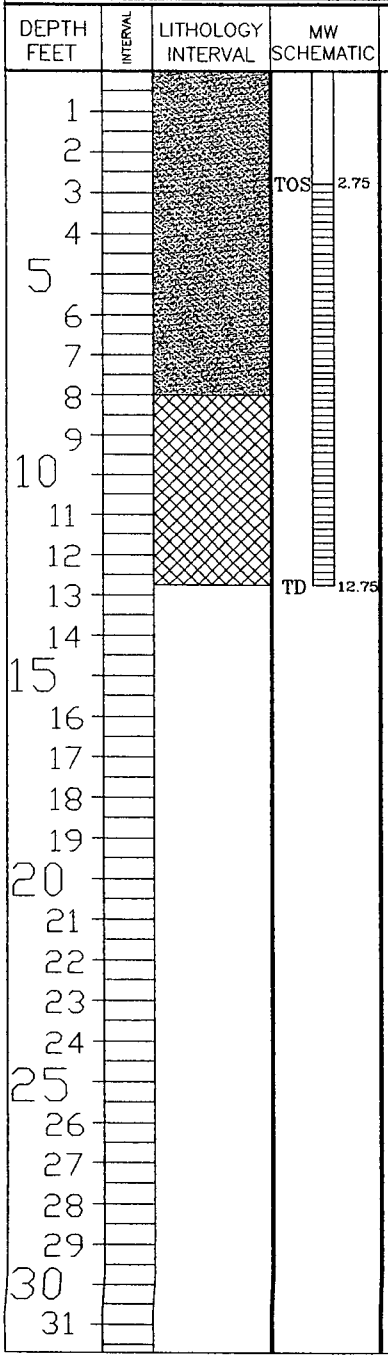
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	HANEY GC B # 1E
CLIENT:	XTO ENERGY INC.
CONTRACTOR:	BLAGG ENGINEERING, INC. / PAUL & SONS
EQUIPMENT USED:	MOBILE DRILL RIG / PAUL & SONS
BORING LOCATION:	N40.5W, 192 FEET FROM WELL HEAD.

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	12/17/97
DATE FINISHED	12/17/97
OPERATOR.....	GG
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.25 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.0 - 8.0 FT. INTERVAL).

▼ GW DEPTH ON 12/18/97 = 6.82 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT GRAY SILTY SAND & GRAVEL, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (8.0 - 12.75 FT. INTERVAL).

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

DRAWING: HANE-2	DATE: 12/22/97	DWN BY: NJV

FIGURE 7

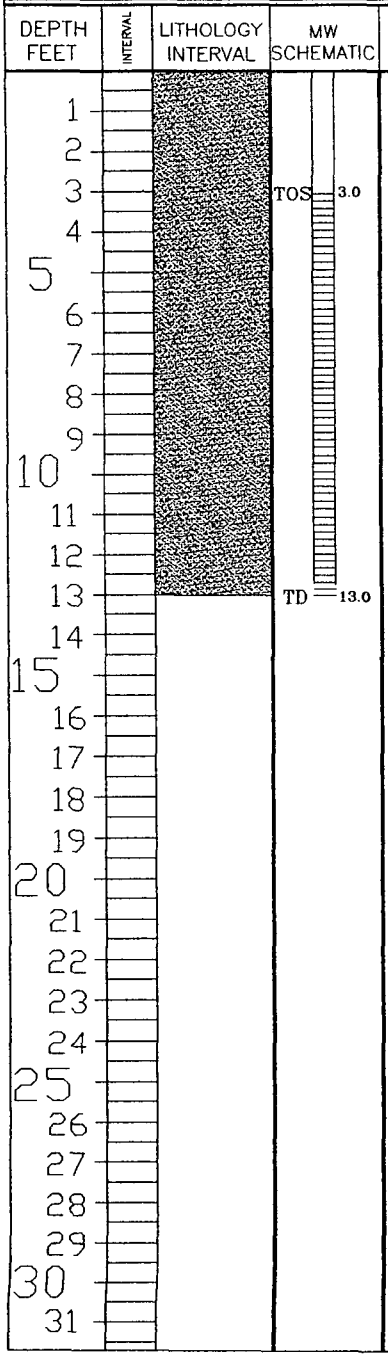
BLAGG ENGINEERING, Inc.

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

BORE / TEST HOLE REPORT

LOCATION NAME:	HANEY GC B # 1E
CLIENT:	XTO ENERGY INC.
CONTRACTOR:	BLAGG ENGINEERING, INC. / PAUL & SONS
EQUIPMENT USED:	MOBILE DRILL RIG / PAUL & SONS
BORING LOCATION:	N35W, 258 FEET FROM WELL HEAD.

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	12/17/97
DATE FINISHED	12/17/97
OPERATOR.....	GG
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

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

DARK YELLOWISH BROWN SAND THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HYDROCARBON ODOR OR DISCOLORATION DETECTED (0.0 - 13.0 FT. INTERVAL).

▼ GW DEPTH ON 12/18/97 = 8.34 FT. (APPROX.) FROM GROUND SURFACE.

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

DRAWING: HANE-3	DATE: 12/22/97	DWN BY: NJV

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW # 1	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C711	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	**0.7**	**1**	**0.2**
o-Xylene	**0.3**	**1**	**0.1**
Total BTEX	**1.0**		

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: **Haney GC B #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 # 2	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C712	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	**1.5**	**1**	**0.2**
p,m-Xylene	**0.4**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**1.9**		

ND - Parameter not detected at the stated detection limit.

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

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, 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: **Haney GC B #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 # 3	Date Reported:	12-19-97
Chain of Custody:	5660	Date Sampled:	12-18-97
Laboratory Number:	C713	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	**0.7**	**1**	**0.2**
Ethylbenzene	**2.4**	**1**	**0.2**
p,m-Xylene	**5.7**	**1**	**0.2**
o-Xylene	**4.9**	**1**	**0.1**
Total BTEX	**13.7**		

ND - Parameter not detected at the stated detection limit.

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

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, 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: **Haney GC B #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 #1	Date Reported:	12-22-97
Laboratory Number:	C711	Date Sampled:	12-18-97
Chain of Custody:	5660	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	**7.27**	s.u.		
Conductivity @ 25° C	**5,584**	umhos/cm		
Total Dissolved Solids @ 180C	**2,792**	mg/L		
Total Dissolved Solids (Calc)	**2,807**	mg/L		
SAR	**0.1**	ratio		
Total Alkalinity as CaCO3	**620**	mg/L		
Total Hardness as CaCO3	**2,704**	mg/L		
Bicarbonate as HCO3	**620**	mg/L	10.16	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.4**	mg/L	0.01	meq/L
Nitrite Nitrogen	**0.013**	mg/L	0.00	meq/L
Chloride	**1,546**	mg/L	43.61	meq/L
Fluoride	**1.75**	mg/L	0.09	meq/L
Phosphate	**0.8**	mg/L	0.03	meq/L
Sulfate	**46.6**	mg/L	0.97	meq/L
Calcium	**402**	mg/L	20.06	meq/L
Magnesium	**415**	mg/L	34.15	meq/L
Potassium	**7.00**	mg/L	0.18	meq/L
Sodium	**11.0**	mg/L	0.48	meq/L
Cations			54.87	meq/L
Anions			54.87	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: **Haney GC B #1E.**

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	12-22-97
Laboratory Number:	C712	Date Sampled:	12-18-97
Chain of Custody:	5660	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	**7.07**	s.u.		
Conductivity @ 25° C	**3,280**	umhos/cm		
Total Dissolved Solids @ 180C	**1,636**	mg/L		
Total Dissolved Solids (Calc)	**1,620**	mg/L		
SAR	**0.4**	ratio		
Total Alkalinity as CaCO3	**400**	mg/L		
Total Hardness as CaCO3	**1,378**	mg/L		
Bicarbonate as HCO3	**400**	mg/L	6.56	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.3**	mg/L	0.00	meq/L
Nitrite Nitrogen	**0.001**	mg/L	0.00	meq/L
Chloride	**755**	mg/L	21.30	meq/L
Fluoride	**4.40**	mg/L	0.23	meq/L
Phosphate	**0.2**	mg/L	0.01	meq/L
Sulfate	**54.5**	mg/L	1.13	meq/L
Calcium	**476**	mg/L	23.75	meq/L
Magnesium	**46.0**	mg/L	3.79	meq/L
Potassium	**4.70**	mg/L	0.12	meq/L
Sodium	**36.2**	mg/L	1.57	meq/L
Cations			29.23	meq/L
Anions			29.23	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: **Haney GC B #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 #3	Date Reported:	12-22-97
Laboratory Number:	C713	Date Sampled:	12-18-97
Chain of Custody:	5660	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	**7.07**	s.u.		
Conductivity @ 25° C	**3,092**	umhos/cm		
Total Dissolved Solids @ 180C	**1,544**	mg/L		
Total Dissolved Solids (Calc)	**1,544**	mg/L		
SAR	**0.3**	ratio		
Total Alkalinity as CaCO3	**438**	mg/L		
Total Hardness as CaCO3	**1,332**	mg/L		
Bicarbonate as HCO3	**438**	mg/L	7.18	meq/L
Carbonate as CO3	**<1**	mg/L	0.00	meq/L
Hydroxide as OH	**<1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.2**	mg/L	0.00	meq/L
Nitrite Nitrogen	**0.007**	mg/L	0.00	meq/L
Chloride	**719**	mg/L	20.28	meq/L
Fluoride	**1.14**	mg/L	0.06	meq/L
Phosphate	**0.1**	mg/L	0.00	meq/L
Sulfate	**23.2**	mg/L	0.48	meq/L
Calcium	**448**	mg/L	22.36	meq/L
Magnesium	**51.8**	mg/L	4.26	meq/L
Potassium	**5.70**	mg/L	0.15	meq/L
Sodium	**28.7**	mg/L	1.25	meq/L
Cations			28.01	meq/L
Anions			28.01	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: **Haney GC B #1E.**

Analyst

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5660

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
BLAGG / Amoco	HANEY GC B#1E	

Sampler: (Signature)	Chain of Custody Tape No.
Thom Vig	04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)	ANION/ CATION					Remarks
MW #1	12/18/97	1200	C711	WATER	3	✓	✓					PRESERV. - $HgCl_2$ & COOL
MW #2	12/18/97	1225	C712	WATER	3	✓	✓					PRESERV. - $HgCl_2$ & COOL
MW #3	12/18/97	1300	C713	WATER	3	✓	✓					PRESERV. - $HgCl_2$ & COOL
												ANION/CATION
												SAMPLES PRESERV. -
				SAMPLES RECEIVED COOL & INTACT								COOL ONLY.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Thom Vig	12/18/97	1453	[signature]	12-18-97	1415
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref COC's 5659 - 5661

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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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.**

Analyst

Review

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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

Review

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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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BO 332

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.
FED. COM # 94000208

6. If Indian, Allottee or Tribe Name

7. If Unit or (CA,) Agreement Designation
SW 208

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

8. Well Name and No.
HANEY GC B 1E

2. Name of Operator
Amoco Production Company

9. API Well No.
3004524646

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

10. Field and Pool, or Exploratory Area
DAKOTA

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SW/SW SEC, 20, T29N, R10W. NMPM,

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

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

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

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

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

Pit closure verification - see attached documentation.

SEPARATOR PIT - ABANDONED, GROUNDWATER IMPACTED.

14. I hereby certify that the foregoing is true and correct
Signed BA Shaw Title ENVIRO. COORDINATOR Date 4-9-96

(This space for Federal or State office use)

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

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

*See Instruction on Reverse Side

B0332

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

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

Address: 200 Amoco Court, Farmington, New Mexico 87401

Facility Or: HANEY GC B 1E
Well Name

Location: Unit or Qtr/Qtr Sec M Sec 20 T 29N R 10W County SAN JUAN

Pit Type: Separator X Dehydrator ___ Other ___

Land Type: BLM ___, State ___, Fee ___, Other COM. AGMT.

Pit Location: (Attach diagram)
Pit dimensions: length 110', width 100', depth 8'
Reference: wellhead X, other ___
Footage from reference: 150
Direction from reference: 45 Degrees ___ East North X of X West South ___

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):	50

B0332

Date Remediation Started: _____ **Date Completed:** IN PROGRESS

Remediation Method: (Check all appropriate sections) Excavation X Approx. cubic yards 3000

Landfarmed ___ Insitu Bioremediation ___

Other COMPOST

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility) Onsite X Offsite _____

General Description Of Remedial Action:

Excavation OF SOILS - PUMP CONTAMINATED WATER.
GROUNDWATER CONTAMINATION EXTENT DEFINED - SOIL EXCAVATION LIMITED BY EQUIPMENT ON LOCATION. AIR SYSTEM INSTALLED TO REMEDIATE REMAINING SOIL + WATER CONTAMINATION.

Ground Water Encountered: No ___ Yes X Depth 8'

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

Sample location see Attached Documents - MULTIPLE SAMPLES

Sample depth ~ 8'

Sample date 2/12 - 2/16 Sample time _____

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) _____

TPH _____

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

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

DATE 4-9-96

SIGNATURE BJ Shaw PRINTED NAME AND TITLE Buddy D. Shaw Environmental Coordinator

CLIENT: AMOCO

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

LOCATION NO: B0332
C.O.C. NO: ANALYTICA

FIELD REPORT: PIT CLOSURE VERIFICATION

P. 1/2

LOCATION: HANEY GAS Com B 1E PIT TYPE: SEP.
QUAD/UNIT: M SEC: 20 TWP: 29N RNG: 10W BM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: SW/SW CONTRACTOR: EPC

DATE STARTED: 2-12-96
DATE FINISHED: 2-16-96
ENVIRONMENTAL SPECIALIST: RGT

EXCAVATION APPROX. 110 FT. x 100 FT. x 8 FT. DEEP. CUBIC YARDS: 3000
DISPOSAL FACILITY: ON SITE REMEDIATION METHOD: COMPOST
LAND USE: RIVER BOTTOMS LEASE: FED. COM # 94000208 FORMATION:

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 150 FEET N45°W FROM WELLHEAD.
DEPTH TO GROUNDWATER: 8' NEAREST WATER SOURCE: 200' NEAREST SURFACE WATER: 200' SAN JUAN RIVER
NMOCD RANKING SCORE: 60 NMOCD TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: PIT DISPOSITION: ABANDONED

SOIL MIXTURE OF SAND - SILT - CLAY - COBBLE - EXCAVATED INTO GROUNDWATER ~ 1-2' GRAY STAINED SOIL ABOVE WATER TABLE. PIT HAS BEEN PUMPED - NEED TEST HOLES DUG.
TH1 ENCOUNTERED DARK GRAY CONTAMINATED SOIL @ 3.5' - GROUNDWATER AT 8' - HEAVY ODOR - NO SAMPLE COLLECTED.
TH2 " " " " " @ 7' - GROUNDWATER AT 10' - HEAVY ODOR - NO SAMPLE.
TH3 SILTY SILTY OVER SAND - LIGHT GRAY / BROWN - SAMPLE OF G.W. COLLECTED
ADDITIONAL EXCAVATION WILL BE DONE. TH4=55' WEST OF STEEL PIT (20' WEST OF EXCAVATION)

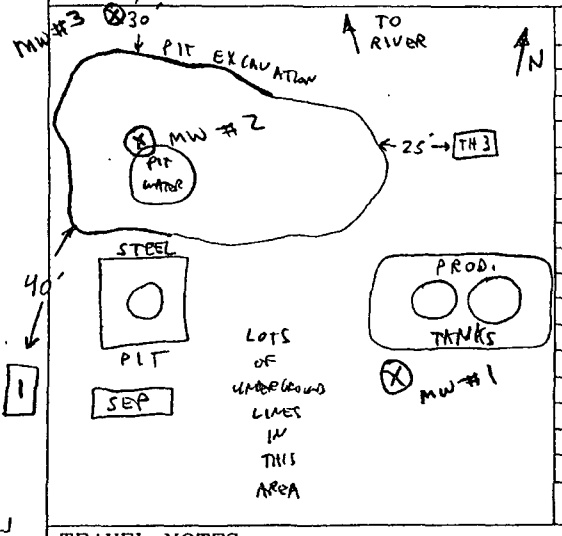
SEE ATTACHED DIAGRAM

FIELD 418.1 CALCULATIONS

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

SCALE 0 10 20 FT

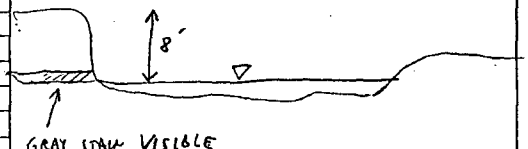
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1	
2	
3	
4	
5	
LAB	SAMPLES
PIT WATER	BTEX
	CATION/ANION
TH3 @ 5'	BTEX
TH4 @ 8'	BTEX
TH6 @ 8'	BTEX

PIT PROFILE



GRAY STAIN VISIBLE ABOVE WATER LINE
CONTAMINATION IN SANDY SOIL

TRAVEL NOTES: CALLOUT: 2-8-96 ONSITE: 2-9-96

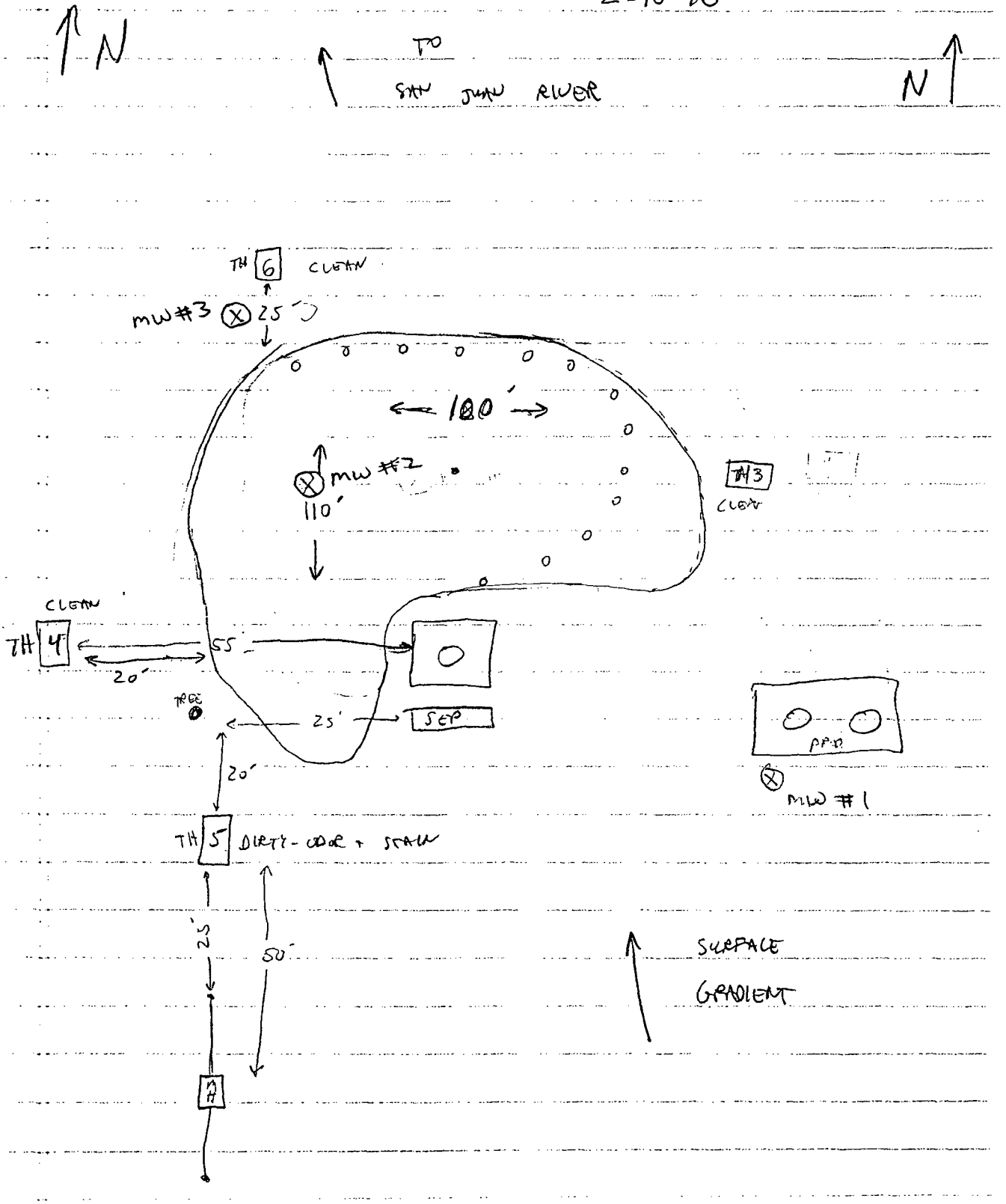
FORM REVISED 7/95

AMOCO

B0332

HAMET GC BIE

2-16-96



ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Haney GC B1E	Report Date:	02/13/96
Sample ID:	Pit water	Date Sampled:	02/12/96
Lab ID:	2615	Date Received:	02/12/96
Sample Matrix:	Water	Date Analyzed:	02/12/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	195	40.0
Toluene	720	40.0
Ethylbenzene	127	40.0
m,p-Xylenes	1,350	80.0
o-Xylene	287	40.0
Total BTEX	**2,680**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%

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

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Haney GC B1E	Report Date:	02/13/96
Sample ID:	TH - 3 @ 5'	Date Sampled:	02/12/96
Lab ID:	2616	Date Received:	02/12/96
Sample Matrix:	Water	Date Analyzed:	02/12/96
Preservative:	Cool, $HgCl_2$		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	3.77	0.20
Toluene	15.2	0.20
Ethylbenzene	13.4	0.20
m,p-Xylenes	95.0	4.00
o-Xylene	21.8	0.20
Total BTEX	**168**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	102	88 - 110%

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

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Haney GC B 1E	Report Date:	02/23/96
Sample ID:	TH - 4	Date Sampled:	02/16/96
Lab ID:	2691	Date Received:	02/16/96
Sample Matrix:	Water	Date Analyzed:	02/19/96
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	2.21	1.00
o-Xylene	ND	0.50
Total BTEX	**2.21**	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	88 - 110%

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

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Haney GC B 1E	Report Date:	02/22/96
Sample ID:	TH - 6	Date Sampled:	02/16/96
Lab ID:	2692	Date Received:	02/16/96
Sample Matrix:	Water	Date Analyzed:	02/19/96
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	98	88 - 110%

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

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

General Water Quality

Blagg Engineering, Inc.

Project ID:	Haney GC B1E	Date Reported:	02/15/96
Sample ID:	Pit Water	Date Sampled:	02/12/96
Laboratory ID:	2615	Time Sampled:	8:30
Sample Matrix:	Water	Date Received:	02/12/96

Parameter		Analytical Result	Units
General	Lab pH	7.3	s.u.
	Lab Conductivity @ 25° C	5,090	µmhos/cm
	Total Dissolved Solids @ 180°C	4,650	mg/L
	Total Dissolved Solids (Calc)	4,330	mg/L
Anions	Total Alkalinity as $CaCO_3$	503	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	503	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	5.50	mg/L
	Sulfate	2,740	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,560	mg/L
	Calcium	424	mg/L
	Magnesium	121	mg/L
	Potassium	13	mg/L
	Sodium	720	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	3.53	+/- 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

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

CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Analytica Lab I.D.:

Company: BLAGG
Address:

Phone: 632-1199
Fax:

Bill To: SAME
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID
PIT WATER	2-12	0830	WATER	
TH 3 @ 5'	2-12	0930	WATER	

ORGANIC ANALYSES														WATER ANALYSES								METALS				COMMENTS
Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs (BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):		Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH_4^+ / NO_2^- / NO_3^- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	
			✓											✓												PRES:
			✓																							Cool + HgCl2 (BEB)
																										" "

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

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature: R. E. O'Neill Date: 2-12-96	Signature: REO Date: 2-12-96	Signature: Date:
Company: BEI Time: —	Company: BEI Time: 1043	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: Date: 2/13
Company: Time:	Company: Time:	Company: Analytica 10:45

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Analytica
Pink: Client

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CHAIN OF CUSTODY

Page 1 of 1

PROJECT MANAGER:
Analytica Lab I.D.:

Company: BLAGG
Address:

Phone: 632-1199
Fax:

Bill To: SAME
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID
TH #4	2-16	0950	WATER	
TH #6	2-16	1030	"	

ORGANIC ANALYSES																WATER ANALYSES									METALS				COMMENTS
Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2– / NO3– / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	PRES:
			✓																						$HgCl_2$ – cool
			✓																						" "

Project Information	Sample Receipt
Proj. #: Amoco	No. Containers:
Proj. Name: HANEY GC	Custody Seals: Y / N / NA
~~P.O. No.:~~ B IE	Received Intact:
Shipped Via: DELTA	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature: R. G. O'Neill Date: 2-16-96	Signature: R. G. O'Neill Date: 2-16-96	Signature: Date:
Company: BEI Time: —	Company: BEI Time: 1137	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: Date: 2/16/96
Company: Time:	Company: Time:	Company: ANALYTICA Time: 11:45

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Analytica
Pink: Client

94238 JJ

ENVIROTECH Inc.

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

1359

FIELD REPORT: SITE ASSESSMENT

JOB No: 92140
PAGE No: 1 of 1

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

DATE STARTED: 6-3-92
DATE FINISHED: 6-3-92
ENVIRO. SPCLT: J.W.
OPERATOR: G.S.
ASSISTANT: T.C.

LOCATION: LSE: Haney Gas Com 'B' WELL: No. 1E QD: SW¼ SW¼ (M)
SEC: 20 TWP: 29N RNG: 10W PM: N.M CNTY: S.J. ST: N.M PIT: Separator
LAND USE: River Bottom Federal Com. No. 94000208
SURFACE CONDITIONS: Steel tank 12'x5'

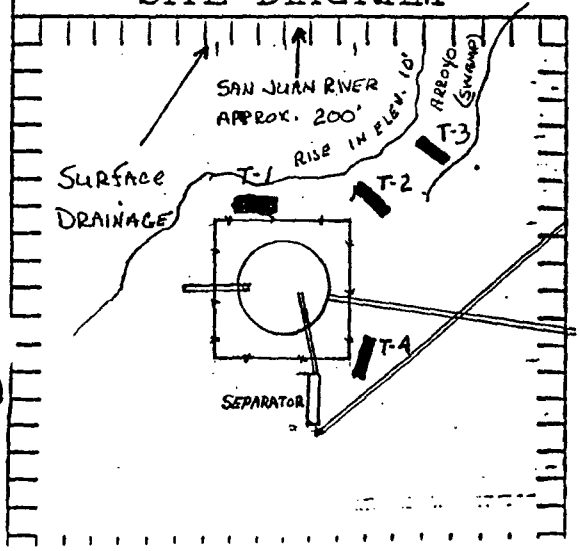
FIELD NOTES & REMARKS: ~~Pit is~~ located approx. 115' North and 95' west of well head. Most of the contamination seems to be on North side of pit area.

SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:
T-1@5'	Soil	TPH
T-1@5'	WATER	TPH
T-1@5'	WATER	BETEX - (8020)
T-1@5'	WATER	BETEX - (8020)
T-2@5'	WATER	HEADSPACE Betex
T-3@5'	WATER	HEADSPACE Betex
T-4@8'	WATER	HEADSPACE Betex

SCALE
0 5' 10' FEET

SITE DIAGRAM



TEST HOLE LOGS:

TH #: 1 SOIL TYPE:	SMPL TYPE:	OVM/TPH
SP	Soil	235
	H2o	319

TH #: 2 SOIL TYPE:	SMPL TYPE:	OVM/TPH
SC	SOIL	875
	H2o	724

TH #: 3 SOIL TYPE:	SMPL TYPE:	OVM/TPH
	H2o	26.0

TH #: 4 SOIL TYPE:	SMPL TYPE:	OVM/TPH
SC	Soil	3.6
	H2o	5.3

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ 5'	Date Reported:	07-16-92
Laboratory Number:	1074	Date Sampled:	06-03-92
Sample Matrix:	Soil	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	07-15-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	2,790	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: Haney Gas Com. 'B' #1E Separator Pit 94238

Vanessa Pansom
Analyst

Review

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	10-05-92
Laboratory Number:	1074	Date Sampled:	06-03-92
Sample Matrix:	Soil	Date Received:	06-03-92
Preservative:	Cool	Date Extracted:	07-15-92
Condition:	Cool & Intact	Date Analyzed:	10-01-92
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	20,800	19.6
Toluene	326,100	79
Ethylbenzene	118,700	29.5
p,m-Xylene	444,600	59
o-Xylene	225,200	39.3

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromfluorobenzene	101 %

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: Haney Gas Com B 1E---Separator Pit---94238.

Robert M Young
Analyst

Review

ENVIROTECH LABS

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	92140
Sample ID:	T-1 @ 5'	Date Reported:	06-18-92
Laboratory Number:	1075	Date Sampled:	06-03-92
Sample Matrix:	Water	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	06-04-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
TPH	2,630	10.0

Method: Method 418.1, Total 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: Haney Gas Com. 'B' 1E Separator Pit 94238

Analyst

Review

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	T1 @ 5'	Date Reported:	09-15-92
Laboratory Number:	1076	Date Sampled:	06-03-92
Sample Matrix:	Water	Date Received:	06-03-92
Preservative:	HgCl & Cool	Date Analyzed:	07-22-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	8,000	40.0
Toluene	12,900	100
Ethylbenzene	740	40.0
p,m-Xylene	5,100	60
o-Xylene	1,810	60

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	80.8 %

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: Haney Gas Com 'B' No.1E---Separator Pit---94238

Analyst

Review

ENVIROTECH LABS

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EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	Amoco	Project #:	92140
Sample ID:	T2 @ 5'	Date Reported:	09-03-92
Laboratory Number:	1077	Date Sampled:	06-03-92
Sample Matrix:	Water	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	08-13-92
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	9.0	6.4
Toluene	16.0	1.6
Ethylbenzene	6.4	5.6
p,m-Xylene	ND	6.4
o-Xylene	33.9	4.0

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: Haney Gas Com 'B' No. 1E Separator Pit 94238

Analyst

Review

ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
HEADSPACE EXTRACTION

Client:	AMOCO	Project #:	92140
Sample ID:	T4 @ 8'	Date Reported:	11-02-92
Laboratory Number:	1079	Date Sampled:	06-03-92
Sample Matrix:	Soil	Date Received:	06-03-92
Preservative:	Cool	Date Analyzed:	08-17-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.6
Toluene	ND	4.8
Ethylbenzene	ND	10.4
p,m-Xylene	ND	6.4
o-Xylene	ND	4.8

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: Haney GC B 1E---Separator Pit---94238.

Robert M Young
Analyst

Review

CHAIN OF CUSTODY RECORD

94 238

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
Amoco 92140	Separator Pit HANEY Gas Com 'B' No 1E	
Sampler: (Signature) Jim Weaver	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH	BETEX	HEADSPACE BETEX				Remarks
T-1@5'	6-3-92	917	1074	SOIL	1	✓	✓					
T-1@5'	6-3-92	940	1075	WATER	1	✓						
T-1@5'	6-3-92	940	1076	WATER	2		✓					
T-2@5'	6-3-92	1015	1077	WATER	1			✓				
T-3@5'	6-3-92	1030	1078	WATER	1			✓				not analyzed TT 11/18/92
T-4@8'	6-3-92	1050	1079	WATER	1			✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jim Weaver	6-3-92	1725	Michael D. Gum	6-3-92	1725
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