

3R - 394

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**ANNUAL  
MONITORING  
REPORT**

**03/07/2008**



March 7, 2008

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 submitting the Annual Groundwater Remediation Reports in accordance with the NMOCD approved Groundwater Management Plan (GMP). Enclosed are summary reports with analytical data, summary tables, site maps, potentiometric surface diagrams and recommendations/proposed actions for:

- Bruington Gas Com #1- 3RP106
- Carson Gas Com #1E
- EJ Johnson C #1E- 3RP385
- Federal Gas Com #H1 3R 110
- Frost, Jack B #2
- McCoy GC D #1E
- OH Randel #7- 3RP386
- PO Pipken #3E 3R 409
- Rowland Gas Com #1- 3RP124
- Snyder Gas Com #1A- 3RP126
- Sullivan Gas Com D #1- 3RP131
- Valdez A #1E- 3RP134

We have also enclosed an Annual Report for ten sites that meet the closure requirements outlined in the GMP. XTO respectfully requests closure of:

- Baca Gas Com A #1A- 3RP104
- Garcia Gas Com B #1- 3RP111
- Haney Gas Com B #1E- 3RP113
- Hare Gas Com B #1
- Hare Gas Com B #1E- 3RP384
- Hare Gas Com I #1
- Masden Gas Com #1E- 3RP120
- McDaniel Gas Com B #1E- 3RP121
- Stedje Gas Com #1- 3RP128
- Sullivan Frame A #1E- 3RP130

In previously submitted reports five sites met the closure requirements outlined in the GMP and XTO requested closure on those sites in 2006 and 2007. The reports for the below listed sites are being submitted again for your review.

- Abrams J #1- 3RP100
- Armenta Gas Com C #1E- 3RP394
- Bergin Gas Com #1E- 3RP105
- Romero Gas Com A #1- 3RP123
- State Gas Com BS #1- 3RP127

Thank you for your review of the reports. XTO looks forward to hearing from you regarding closure requests and proposed remediation actions. If you have any questions please do not hesitate to contact me at (505) 333-3100.

Respectfully,



Lisa Winn  
EH & S Manager  
San Juan Division

cc: Mr. Brandon Powell, Environmental, NMOCD District III Office, Aztec, NM  
Mr. Martin Nee, Lodestar Services Inc.  
File- San Juan Groundwater

3R394

**XTO ENERGY INC.**

**ANNUAL GROUNDWATER REMEDIATION REPORT**

**2005**

**ARMENTA GC C #1E  
(C) SECTION 27, T29N, R10W, NMPM  
SAN JUAN COUNTY, NEW MEXICO**

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

**JANUARY 2006**

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

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

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Field Sampling Data Summaries

Laboratory Reports

Pit Closure Documentation & NMOCD Correspondence Letter

**XTO ENERGY INC.**  
**Armenta GC C # 1E - Abandoned Blow Pit**  
**NE/4 NW/4 Sec. 27, T29N, R10W**

**Pit Closure Dates:** 4/14/03 and 8/01-06/03

**Monitor Well Installation Dates:**  
MW 2 - 4/22/03  
MW 1, 3 - 4/30/03  
MW 4 - 3/17/04  
MW 2R - 3/23/04

**Monitor Well Sampling Dates:** 5/12/03; 3/30/04; 6/16/04; 9/27/04; 12/29/04

**Historical Information:**

- January 1998 - XTO Energy Inc. (XTO) acquires the Armenta GC C #1E from Amoco Production Company.
- April 2003 – Soil and groundwater impacts were discovered during work to close a historical blow pit. Approximately 75 cubic yards of soil were excavated and composted on site (Figure 1). A source area monitor well installed following backfill operations identified the presence of free product. Up and down gradient monitoring wells did not test water impacts in excess of New Mexico Water Quality Control Commission (NMWQCC) standards.
- August 2003 – Aggressive site remediation was conducted by re-excavating the source area and removing all impacted soils (Figure 1A). Approximately 1,050 cubic yards of soil were removed and composted on site.
- March 2004 – Installation and sampling of a replacement source area well determined water impacts were below NMWQCC standards.
- March 2004 to December 2004 – Quarterly sampling and analysis determined site closure had been achieved.

**Groundwater Monitor Well Sampling Procedures:**

Groundwater samples were collected from site monitor wells (MW) 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 - 3. 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:**

The groundwater gradient at this site consistently appears to flow in a south to south west direction (Figures 2 - 6). Groundwater is found at a depth of approximately 13 feet below surface grade.

Analytical data indicates groundwater from MW 2, located in the center of the source area (named MW #2R following site remediation by excavation), is below NMWQCC closure standards. Initial testing of well MW2 found free phase product. Following aggressive remediation by excavation of impacted soils to below the water table and re-installation of this source area well no free phase product has been observed. Groundwater from up-gradient monitor well MW 1 exhibited no detectable levels of hydrocarbons and the down-gradient monitoring wells MW 3 and MW 4 exhibited no detectable levels or trace levels of BTEX constituents.

## Summary:

XTO requests closure of this groundwater site according to the NMOCD approved Groundwater Management Plan. Analytical data from monitor well sampling indicates that water quality standards have been achieved in the source area and down-gradient wells. Permanent closure of this site is recommended. Following NMOCD approval for closure, all site monitor wells will be abandoned by placing a cement/bentonite grout mix in the well and cutting the casing to below surface grade.

# TABLE 1

## XTO ENERGY INC. GROUNDWATER LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

**ARMENTA GC C #1E - BLOW PIT II**  
**UNIT C, SEC. 27, T29N, R10W**

REVISED DATE: NOVEMBER 5, 2005

FILENAME: (C1E-4Q04.WK4) NJV

SAMPLE DATE	WELL NAME or No.	D.T.W. (ft)	T.D. (ft)	TDS (mg/L)	COND. umhos	pH	PRODUCT (ft)	BTEX EPA METHOD 8021B ( ppb )			
								Benzene	Toluene	Ethyl Benzene	Total Xylene
12-May-03	MW #1	15.91	20.00	1,040	2,070	7.52		ND	ND	ND	ND
12-May-03	MW #2	13.49	20.00				<b>0.73</b>	NA	NA	NA	NA
23-Apr-03		13.61					<b>0.76</b>	NA	NA	NA	NA
06-May-03		13.64					<b>0.92</b>	NA	NA	NA	NA
20-May-03		13.52					<b>0.74</b>	NA	NA	NA	NA
28-May-03		13.46					<b>0.68</b>	NA	NA	NA	NA
06-Jun-03		13.52					<b>0.74</b>	NA	NA	NA	NA
19-Jun-03		13.43					<b>0.66</b>	NA	NA	NA	NA
27-Jun-03		13.42					<b>0.58</b>	NA	NA	NA	NA
30-Mar-04	MW #2R	15.23	25.00		2,100	7.13	-	<b>4.1</b>	ND	<b>15</b>	<b>47</b>
16-Jun-04		15.19			2,000	6.91	-	<b>0.65</b>	ND	<b>ND</b>	<b>4.1</b>
27-Sep-04		14.65			2,000	6.96	-	ND	ND	<b>1.0</b>	<b>0.68</b>
29-Dec-04								ND	ND	<b>0.55</b>	<b>0.66</b>
12-May-03	MW #3	12.16	19.00	912	1,820	7.57		ND	ND	ND	ND
30-Mar-04	MW #4	13.59	20.00		2,000	7.10		ND	ND	ND	ND
<b>NMWQCC GROUNDWATER STANDARDS</b>								<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>

- NOTES :
- 1) RESULTS IN BOLD RED TYPE INDICATE - EXCEEDING NMWQCC STANDARDS .
  - 2) RESULTS IN BOLD BLUE TYPE INDICATE - BELOW NMWQCC STANDARDS AFTER PROCEEDING RESULTS EXCEEDED .
  - 3) NA - INDICATES NOT AVAILABLE .

**TABLE 2**  
**GENERAL WATER QUALITY**  
**XTO ENERGY INC.**  
**ARMENTA GC C # 1E**

SAMPLE DATE : May 12 , 2003

PARAMETERS	MW # 1	MW # 3	Units
LAB pH	7.52	7.57	s. u.
LAB CONDUCTIVITY @ 25 C	2,070	1,820	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	1,040	912	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	1,160	927	mg / L
SODIUM ABSORPTION RATIO	5.1	1.1	ratio
TOTAL ALKALINITY AS CaCO <sub>3</sub>	660	440	mg / L
TOTAL HARDNESS AS CaCO <sub>3</sub>	412	604	mg / L
BICARBONATE as HCO <sub>3</sub>	660	440	mg / L
CARBONATE AS CO <sub>3</sub>	< 0.1	< 0.1	mg / L
HYDROXIDE AS OH	< 0.1	< 0.1	mg / L
NITRATE NITROGEN	0.1	0.2	mg / L
NITRITE NITROGEN	0.007	0.004	mg / L
CHLORIDE	26.4	32.4	mg / L
FLUORIDE	0.46	1.09	mg / L
PHOSPHATE	1.4	0.6	mg / L
SULFATE	337	330	mg / L
IRON	0.003	0.081	mg / L
CALCIUM	142	195	mg / L
MAGNESIUM	13.7	28.3	mg / L
POTASSIUM	5.20	8.85	mg / L
SODIUM	236	63.6	mg / L
CATION / ANION DIFFERENCE	0.03	0.07	%

TABLE 3  
 GENERAL WATER QUALITY  
 XTO ENERGY INC.  
**ARMENTA GC C # 1E**

SAMPLE DATE : November 8 , 2005

PARAMETERS	MW # 1	MW # 2R	MW # 3	MW # 4	Units
LAB pH	6.87	7.29	7.54	7.57	s. u.
LAB CONDUCTIVITY @ 25 C	1,150	2,710	3,010	2,580	umhos / cm
TOTAL DISSOLVED SOLIDS @ 180 C	972	1,930	2,120	1,870	mg / L
TOTAL DISSOLVED SOLIDS (Calc)	978	1,981	2,137	1,858	mg / L
SODIUM ABSORPTION RATIO	1.8	6.4	6.0	5.7	ratio
TOTAL ALKALINITY AS CaCO3	537	348	427	350	mg / L
TOTAL HARDNESS AS CaCO3	572	660	764	662	mg / L
BICARBONATE as HCO3	537	348	427	350	mg / L
CARBONATE AS CO3	< 0.1	< 0.1	< 0.1	< 0.1	mg / L
HYDROXIDE AS OH	< 0.1	< 0.1	< 0.1	< 0.1	mg / L
NITRATE NITROGEN	< 0.1	0.2	< 0.1	0	mg / L
NITRITE NITROGEN	0.005	0.012	0.010	0.006	mg / L
CHLORIDE	28.8	37.6	35.2	34.0	mg / L
FLUORIDE	0.61	0.85	1.17	0.82	mg / L
PHOSPHATE	0.10	0.80	0.30	0.5	mg / L
SULFATE	293	1,090	1,150	1,010	mg / L
IRON	< 0.01	0.251	0.402	< 0.01	mg / L
CALCIUM	229	264	306	265	mg / L
MAGNESIUM	< 0.1	< 0.1	< 0.1	< 0.1	mg / L
POTASSIUM	3.14	1.28	1.46	0.94	mg / L
SODIUM	97.5	375	384	334	mg / L
CATION / ANION DIFFERENCE	0.01	0.01	0.06	0.03	%

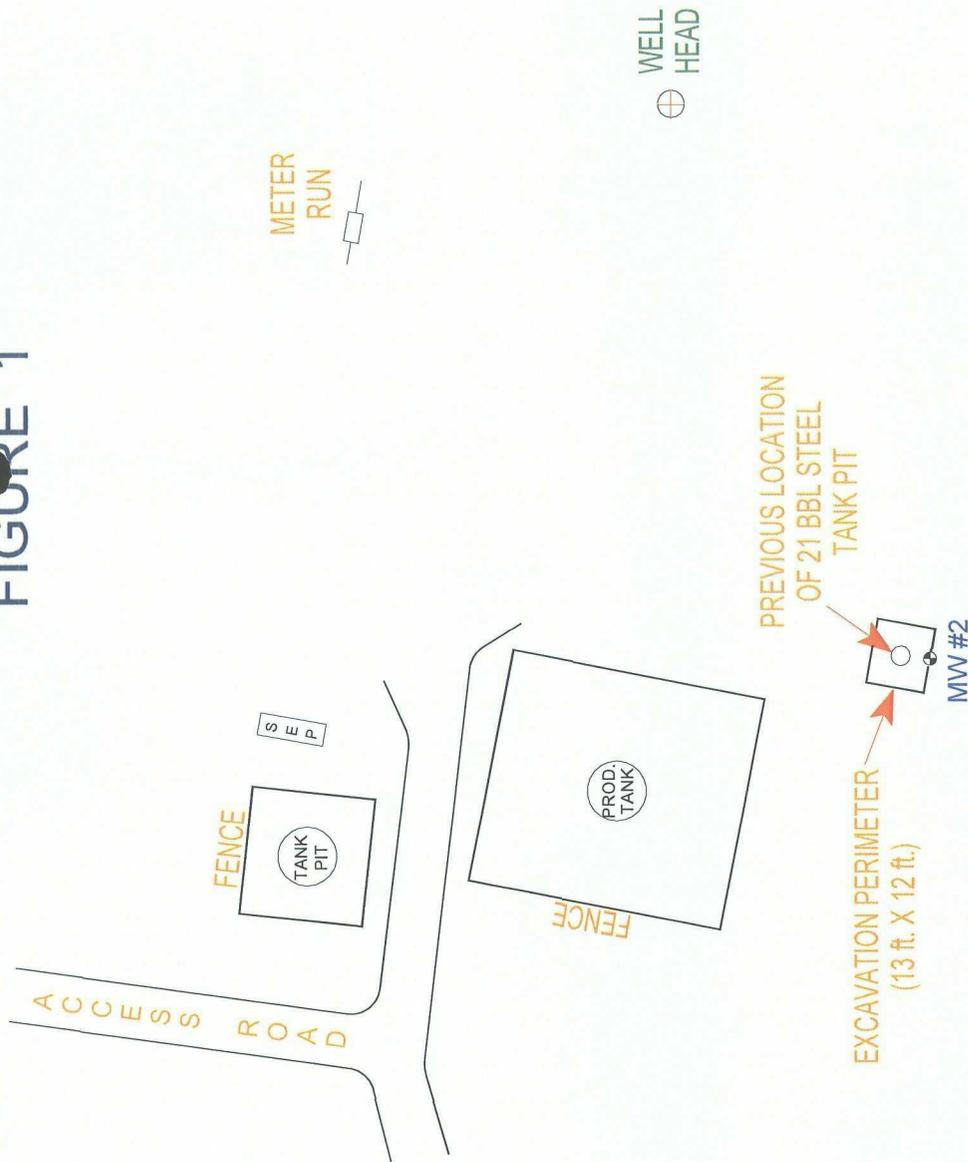
**TABLE 4**  
**TRACE METALS RESULTS OF LABORATORY GROUNDWATER ANALYSIS**

MW #	Sample Date	Mercury	Aluminum	Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Copper
1	11/08/05	0.0016	0.51	ND	0.088	0.20	ND	ND	ND	ND
2R	11/08/05	0.0017	2.2	ND	0.078	0.18	ND	ND	0.016	ND
3	11/08/05	0.0015	0.64	ND	0.064	0.20	ND	ND	ND	ND
4	11/08/05	0.0047	1.8	ND	0.054	0.13	ND	ND	0.0078	0.0067
NMWQCC STANDARDS		.002	5.0	0.1	1.0	0.75	0.01	0.05	0.05	1.0

MW #	Sample Date	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Zinc
1	11/08/05	0.25	ND	0.12	ND	ND	ND	ND	ND
2R	11/08/05	10	0.0077	4.8	ND	0.012	ND	ND	ND
3	11/08/05	3.4	ND	3.1	ND	ND	ND	ND	ND
4	11/08/05	1.4	0.0080	5.6	ND	ND	ND	ND	ND
NMWQCC STANDARDS		1.0	0.05	0.2	1.0	0.2	0.05	0.05	10.0

- NOTES :
- 1) MW = monitor well.
  - 2) NMWQCC - New Mexico Water Quality Control Commission.
  - 3) Unit of data is parts per million or mg/L.
  - 4) ND = not detected at or above reporting limit.

FIGURE 1



1 INCH = 40 FT.



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM WELL HEAD (LASER RANGE FINDER, TAPE MEASURE, AND BRUNTON COMPASS). ALL OTHER FEATURES AND/OR STRUCTURES DISPLAYED ARE SOLELY FOR REFERENCE AND MAY NOT REFLECT TRUE OR EXACT ACCURACY AND/OR SCALE. THIS MAP IS A GENERALIZATION OF THE WORK CONDUCTED AND SHOULD NOT BE USED FOR SURVEY INFORMATION.

XTO ENERGY, INC.

ARMENTA GC C # 1E

NE 1/4 NW 1/4 SEC. 27, T29N, R10W, NMPM

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: GW MONITORING

DRAWN BY: NJV

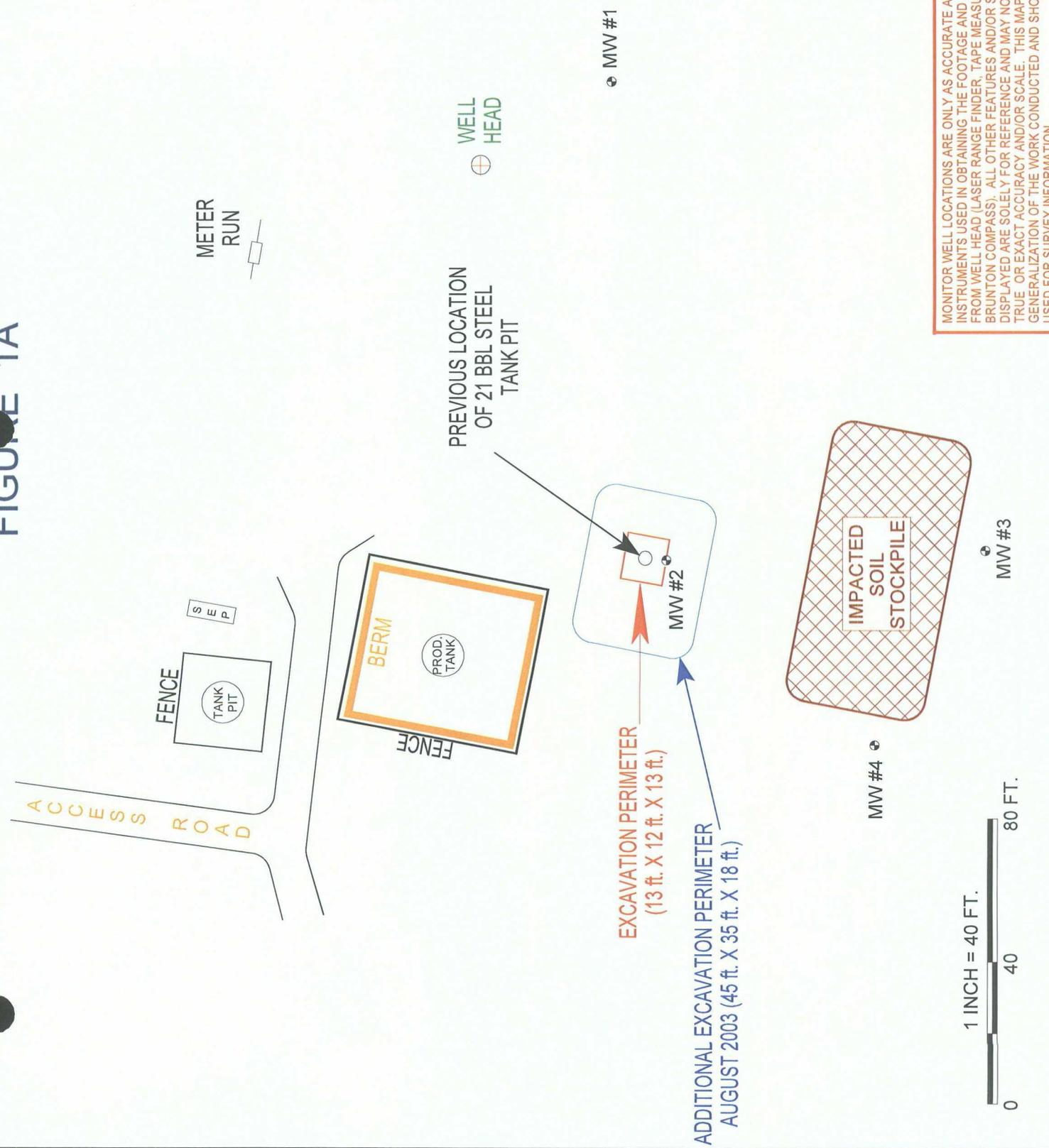
FILENAME: 04-24-03-SM2.SKF

REVISED: 4/29/03 NJV

**SITE  
MAP**

04/03

FIGURE 1A



<b>XTO ENERGY INC.</b>
<b>ARMENTA GC C # 1E</b>
NE¼ NW¼ SEC. 27, T29N, R10W, N1PH
SAN JUAN COUNTY, NEW MEXICO
<b>BLAGG ENGINEERING, INC.</b>
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199
<b>PROJECT: SITE REMEDIATION</b>
<b>DRAWN BY: NJV</b>
<b>FILENAME: 09-01-03-SM.SKF</b>
<b>REVISED: 11/04/05 NJV</b>

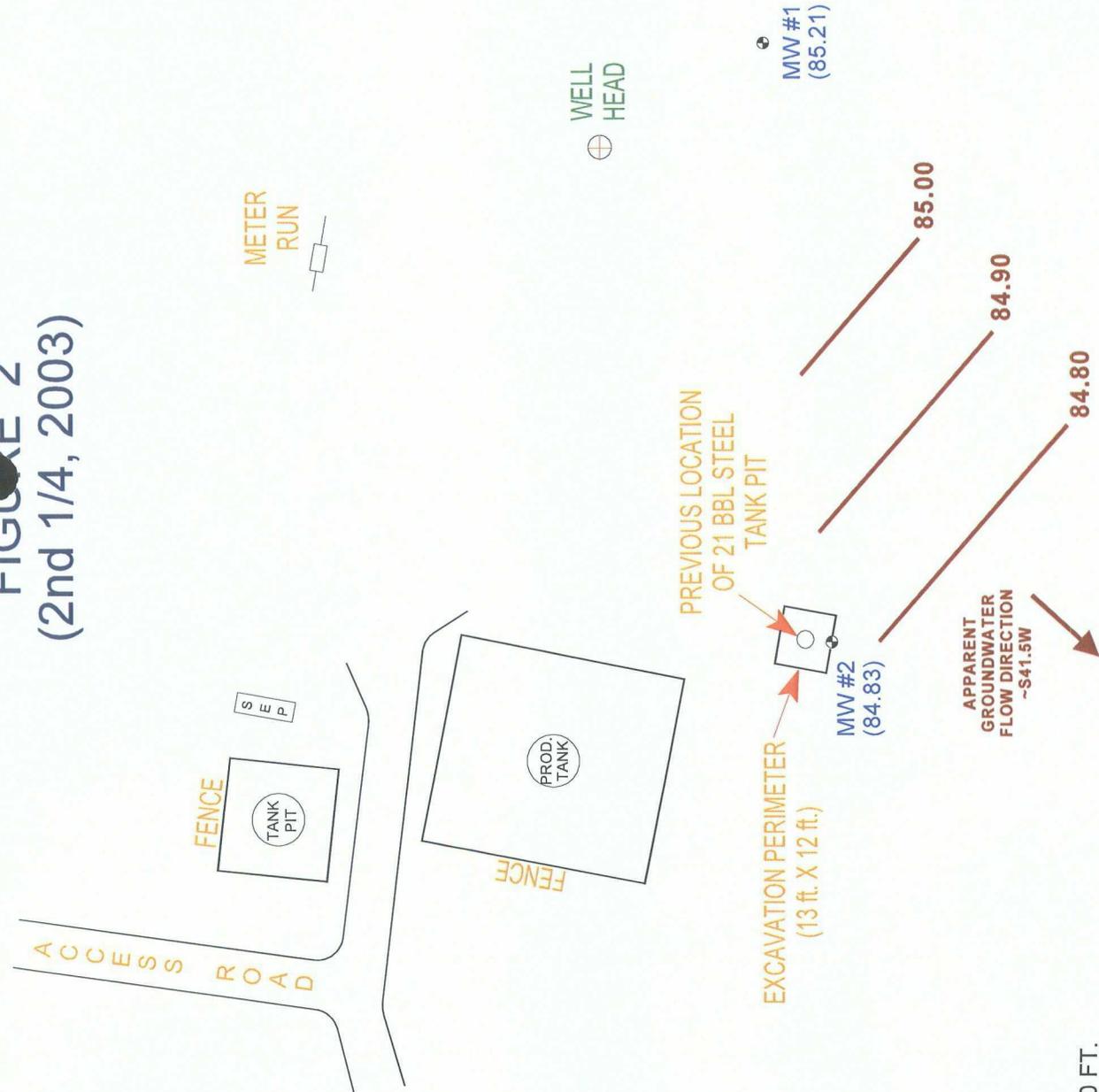
# SITE MAP

09/03

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM WELL HEAD (LASER RANGE FINDER, TAPE MEASURE, AND BRUNTON COMPASS). ALL OTHER FEATURES AND/OR STRUCTURES DISPLAYED ARE SOLELY FOR REFERENCE AND MAY NOT REFLECT TRUE OR EXACT ACCURACY AND/OR SCALE. THIS MAP IS A GENERALIZATION OF THE WORK CONDUCTED AND SHOULD NOT BE USED FOR SURVEY INFORMATION.



**FIGURE 2**  
(2nd 1/4, 2003)



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM WELL HEAD (LASER RANGE FINDER, TAPE MEASURE, AND BRUNTON COMPASS). ALL OTHER FEATURES AND/OR STRUCTURES DISPLAYED ARE SOLELY FOR REFERENCE AND MAY NOT REFLECT TRUE OR EXACT ACCURACY AND/OR SCALE. THIS MAP IS A GENERALIZATION OF THE WORK CONDUCTED AND SHOULD NOT BE USED FOR SURVEY INFORMATION.

MW #	Top of Well Elevation
MW #1	(101.25)
MW #2	(98.47)
MW #3	(96.86)
MW #1	Groundwater Elevation as of 5/6/03.
⊕ (85.21)	

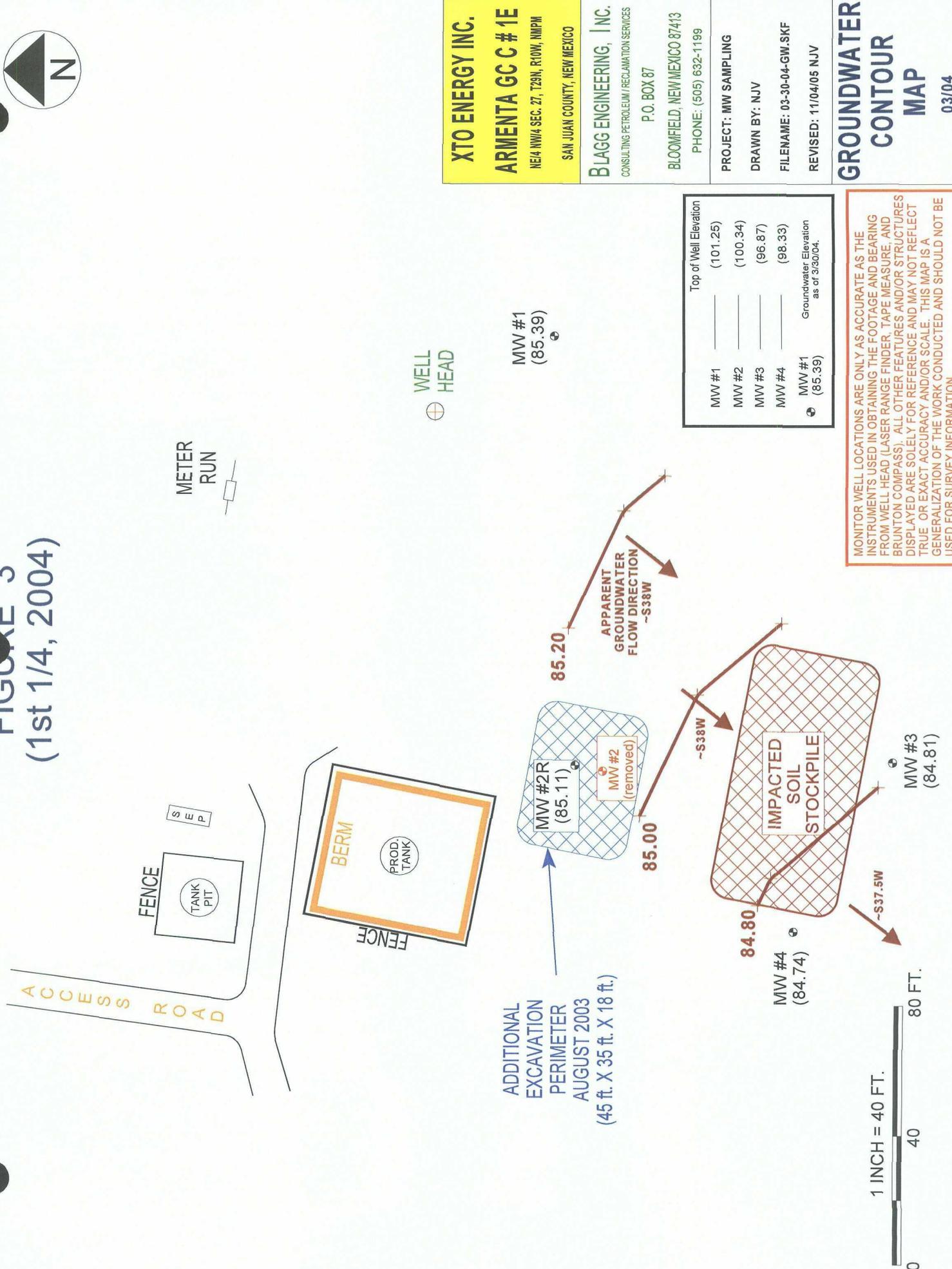
**XTO ENERGY, INC.**  
**ARMENTA GCC #1E**  
 NE1/4 NW1/4 SEC. 27, T29N, R10W, N14PM  
 SAN JUAN COUNTY, NEW MEXICO

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

**PROJECT: GW MONITORING**  
**DRAWN BY: NJV**  
**FILENAME: 05-06-03-GW-SKF**  
**REVISED: 5/6/03 NJV**

**GROUNDWATER CONTOUR MAP**  
**05/03**

**FIGURE 3**  
(1st 1/4, 2004)



**XTO ENERGY INC.**  
**ARMENTA GCC # 1E**  
 NE1/4 NW1/4 SEC. 27, T29N, R10W, N1PM  
 SAN JUAN COUNTY, NEW MEXICO

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

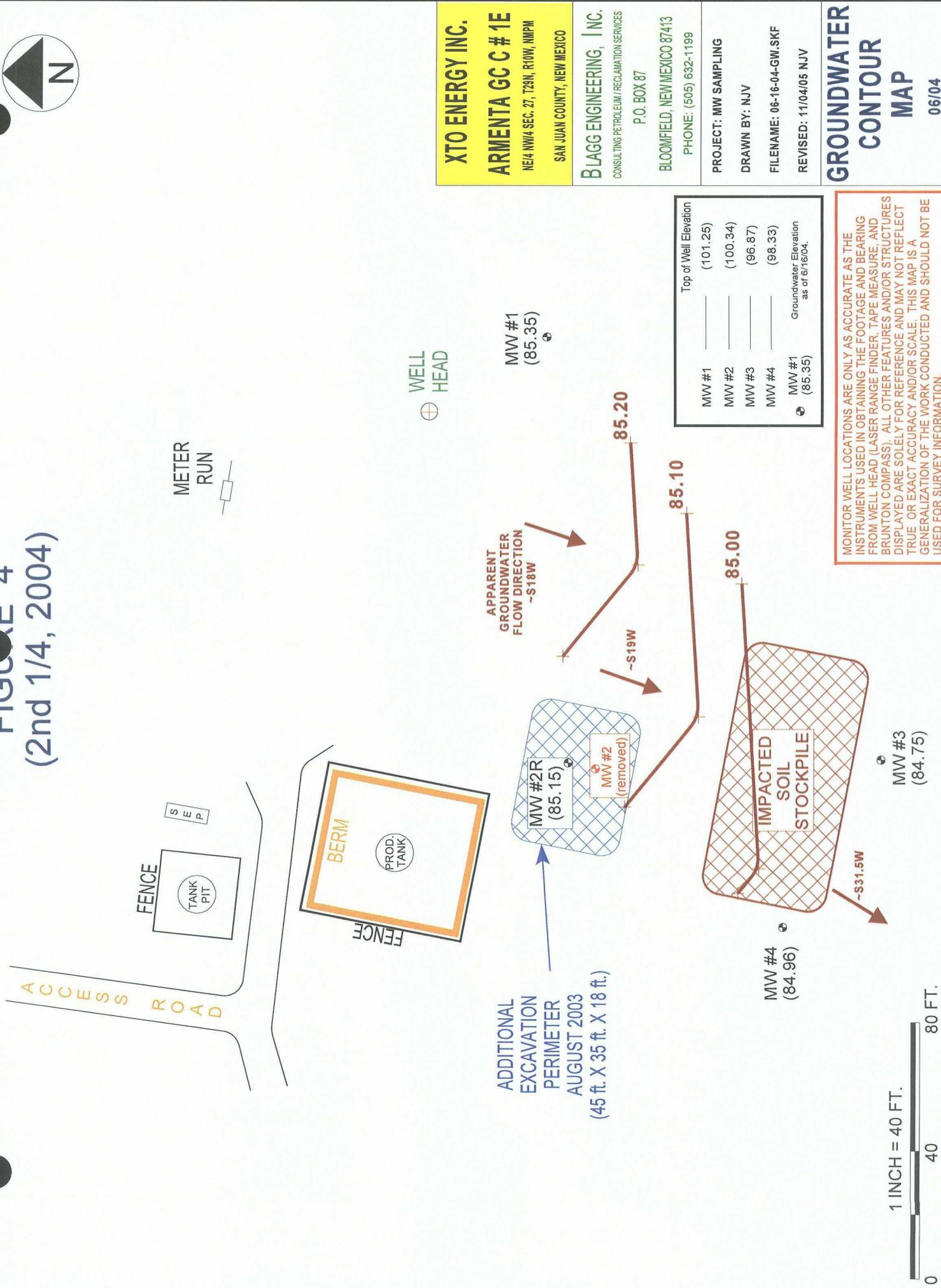
**PROJECT: MW SAMPLING**  
**DRAWN BY: NJV**  
**FILENAME: 03-30-04-GW-SKF**  
**REVISED: 11/04/05 NJV**

**GROUNDWATER CONTOUR MAP**  
 03/04

MW #	Top of Well Elevation	Groundwater Elevation as of 3/30/04.
MW #1	(101.25)	
MW #2	(100.34)	
MW #3	(96.87)	
MW #4	(98.33)	
MW #1 (85.39)		

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM WELL HEAD (LASER RANGE FINDER, TAPE MEASURE, AND BRUNTON COMPASS). ALL OTHER FEATURES AND/OR STRUCTURES DISPLAYED ARE SOLELY FOR REFERENCE AND MAY NOT REFLECT TRUE OR EXACT ACCURACY AND/OR SCALE. THIS MAP IS A GENERALIZATION OF THE WORK CONDUCTED AND SHOULD NOT BE USED FOR SURVEY INFORMATION.

**FIGURE 4**  
(2nd 1/4, 2004)



**XTO ENERGY INC.**  
**ARMENTA GC C # 1E**  
NE1/4 NW1/4 SEC. 27, T29N, R10W, N10PM  
SAN JUAN COUNTY, NEW MEXICO

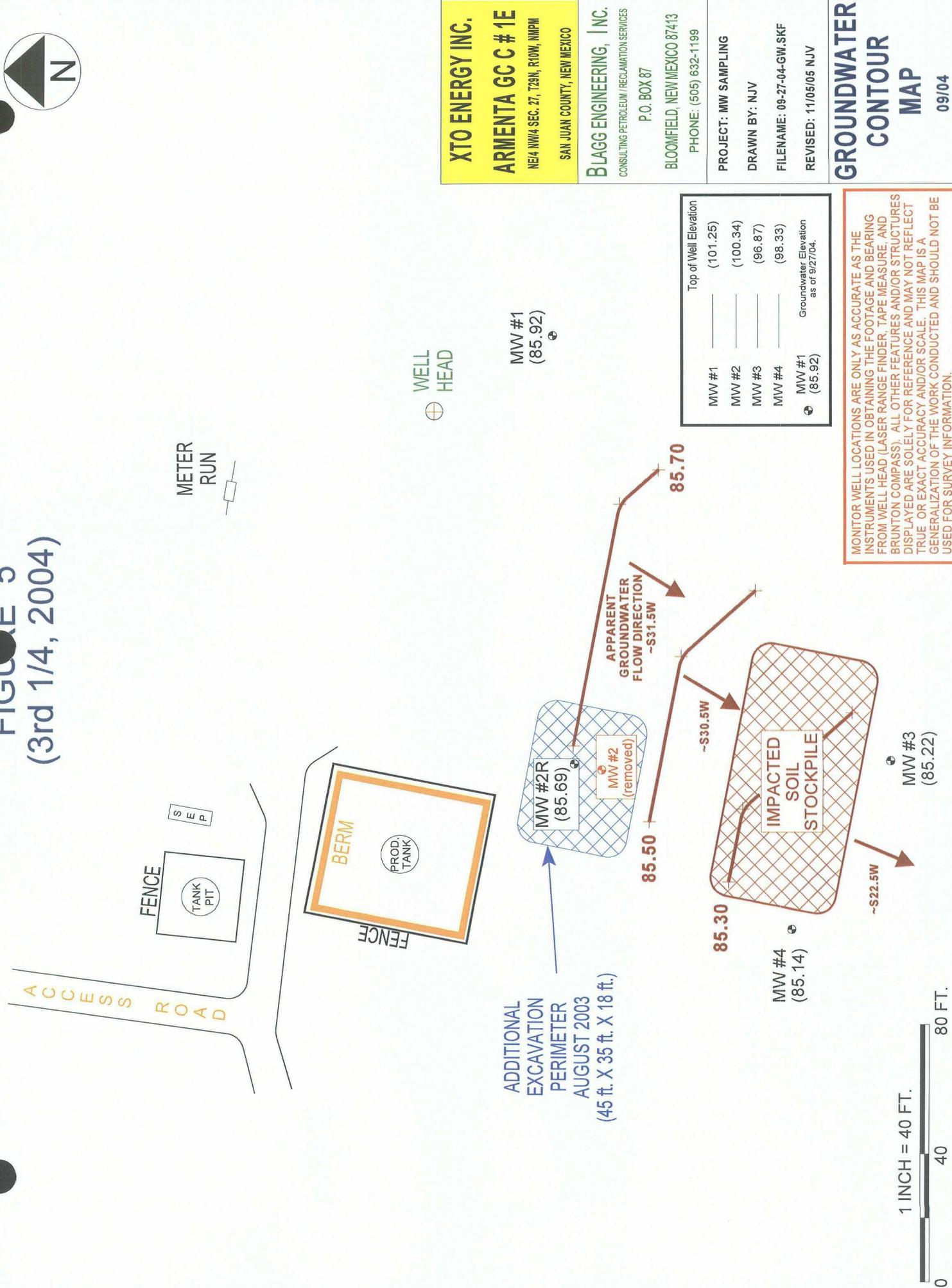
**BLAGG ENGINEERING, INC.**  
CONSULTING PETROLEUM/RECLAMATION SERVICES  
P.O. BOX 87  
BLOOMFIELD, NEW MEXICO 87413  
PHONE: (505) 632-1199

**PROJECT: MW SAMPLING**  
**DRAWN BY: NJV**  
**FILENAME: 06-16-04-GW-SKF**  
**REVISED: 11/04/05 NJV**

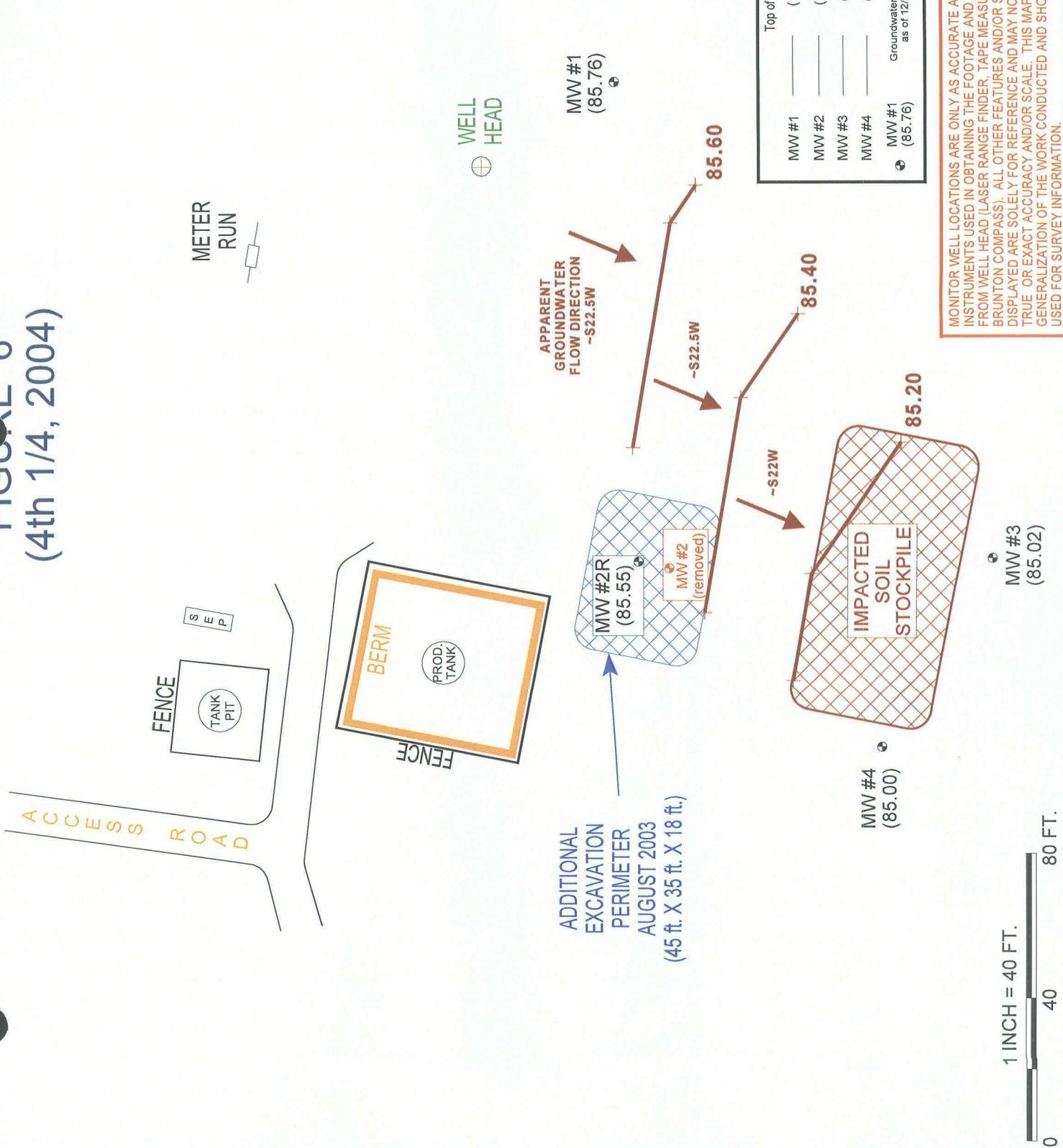
**GROUNDWATER CONTOUR MAP**  
06/04

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM WELL HEAD (LASER RANGE FINDER, TAPE MEASURE, AND BRUNTON COMPASS). ALL OTHER FEATURES AND/OR STRUCTURES DISPLAYED ARE SOLELY FOR REFERENCE AND MAY NOT REFLECT TRUE OR EXACT ACCURACY AND/OR SCALE. THIS MAP IS A GENERALIZATION OF THE WORK CONDUCTED AND SHOULD NOT BE USED FOR SURVEY INFORMATION.

**FIGURE 5**  
(3rd 1/4, 2004)



**FIGURE 6**  
(4th 1/4, 2004)



**XTO ENERGY INC.**  
**ARMENTA GC C # 1E**  
NE4 NW/4 SEC. 27, T29N, R10W, N1PM  
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 SAMPLING**  
**DRAWN BY: NJV**  
**FILENAME: 12-29-04-GW-SKF**  
**REVISED: 11/05/05 NJV**

**GROUNDWATER CONTOUR MAP**  
12/04

# FIGURE 7

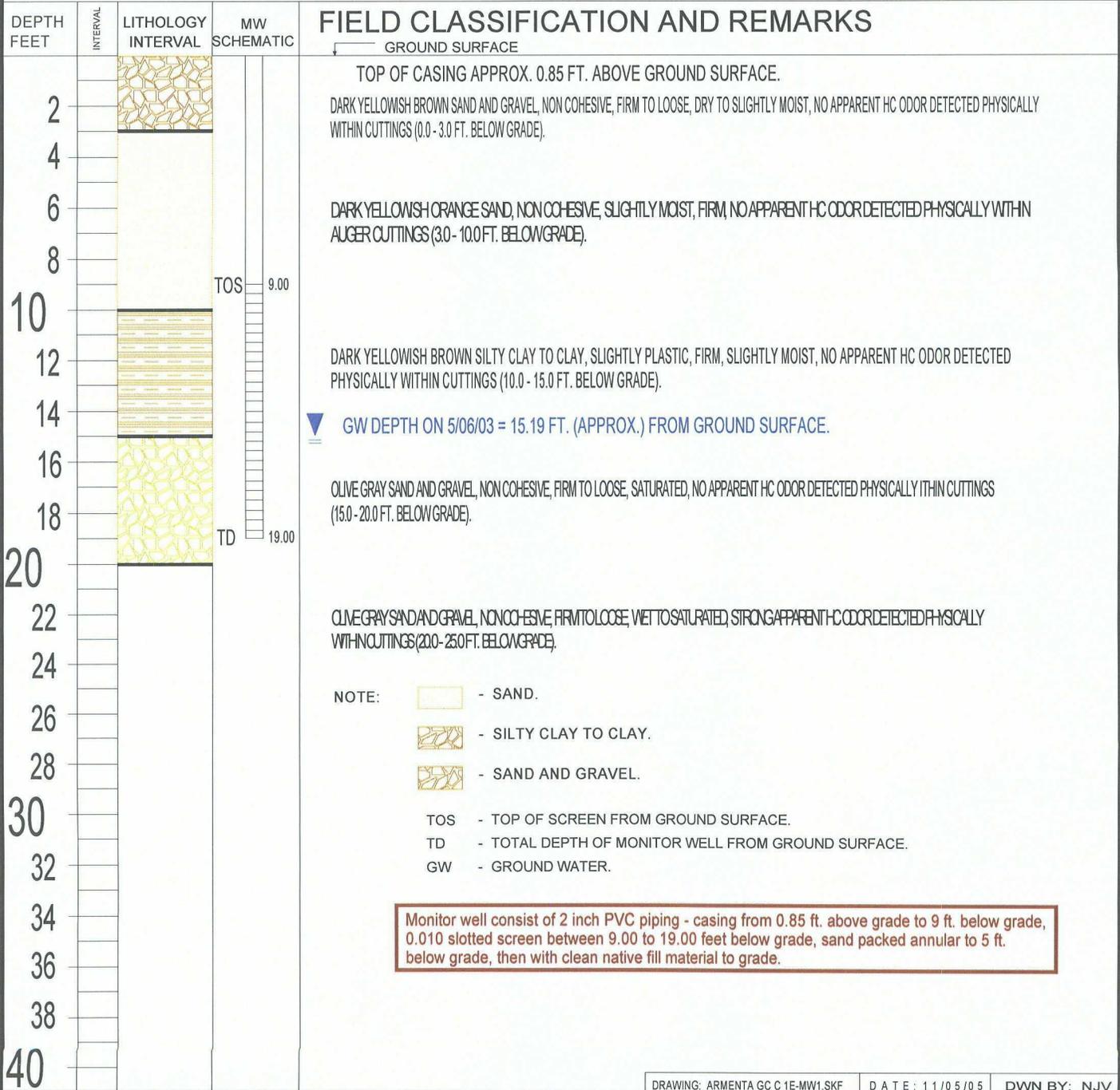
## BLAGG ENGINEERING, INC.

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

# BORE / TEST HOLE REPORT

BORING #.....	BH - 2
MW #.....	1
PAGE #.....	1
DATE STARTED	4/30/03
DATE FINISHED	4/30/03
OPERATOR.....	JCB
PREPARED BY	NJV

**CLIENT:** XTO ENERGY INC.  
**LOCATION NAME:** ARMENTA GC C #1E - BLOW PIT, UNIT C, SEC. 27, T29N, R10W  
**CONTRACTOR:** BLAGG ENGINEERING, INC.  
**EQUIPMENT USED:** MOBILE DRILL RIG ( EARTHROBE 200 )  
**BORING LOCATION:** 44 FT., S32E FEET FROM WELL HEAD.



# FIGURE 8

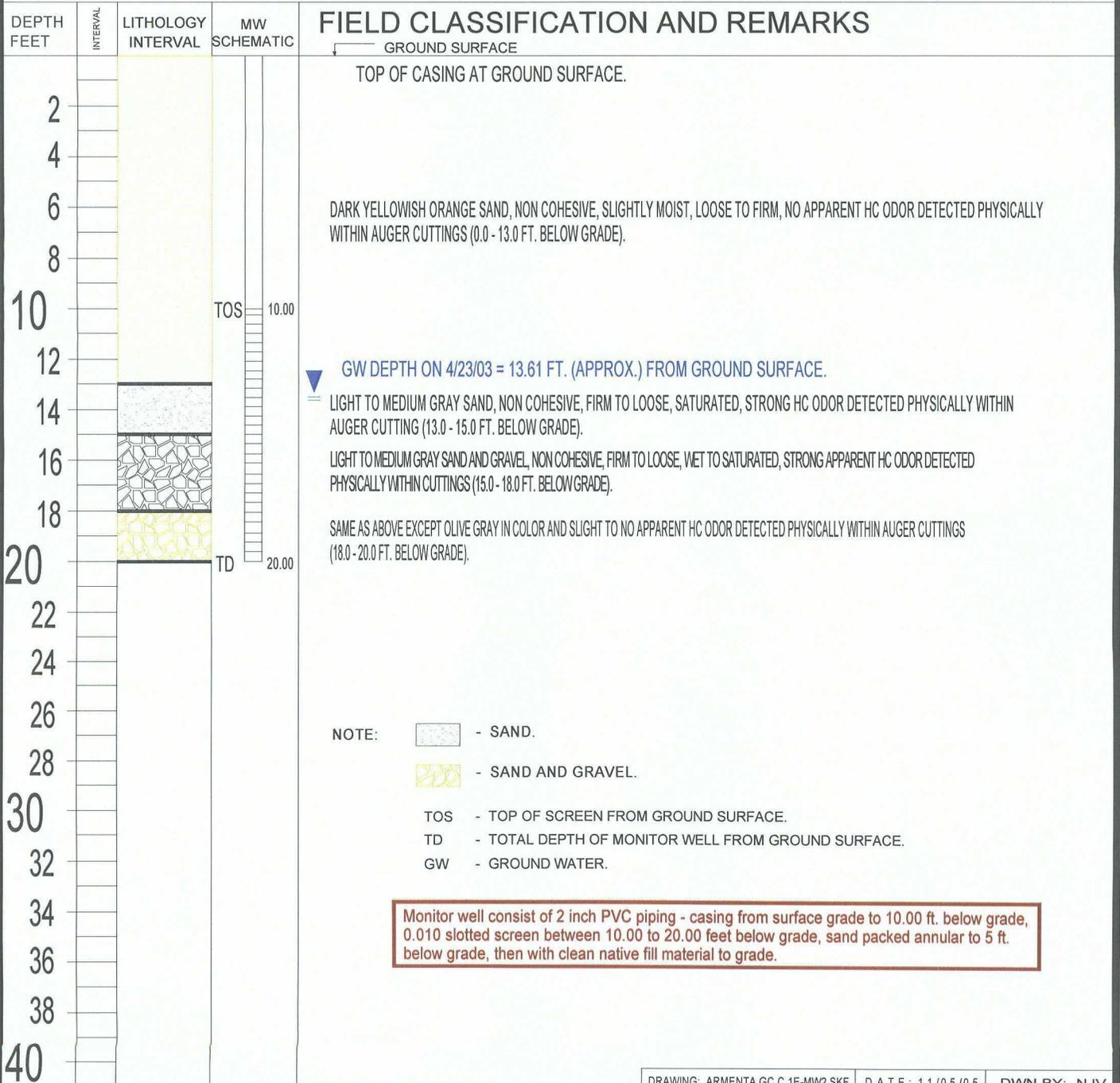
## BLAGG ENGINEERING, INC.

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

# BORE / TEST HOLE REPORT

BORING #.....	BH - 1
MW #.....	2
PAGE #.....	2
DATE STARTED	4/22/03
DATE FINISHED	4/22/03
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	<u>XTO ENERGY INC.</u>
LOCATION NAME:	<u>ARMENTA GC C #1E - BLOW PIT, UNIT C, SEC. 27, T29N, R10W</u>
CONTRACTOR:	<u>BLAGG ENGINEERING, INC.</u>
EQUIPMENT USED:	<u>MOBILE DRILL RIG ( EARTHPROBE )</u>
BORING LOCATION:	<u>123 FT., S64.5W FEET FROM WELL HEAD.</u>



- NOTE:
- ☐ - SAND.
  - ☐ - SAND AND GRAVEL.
  - TOS - TOP OF SCREEN FROM GROUND SURFACE.
  - TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
  - GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from surface grade to 10.00 ft. below grade, 0.010 slotted screen between 10.00 to 20.00 feet below grade, sand packed annular to 5 ft. below grade, then with clean native fill material to grade.

# FIGURE 9

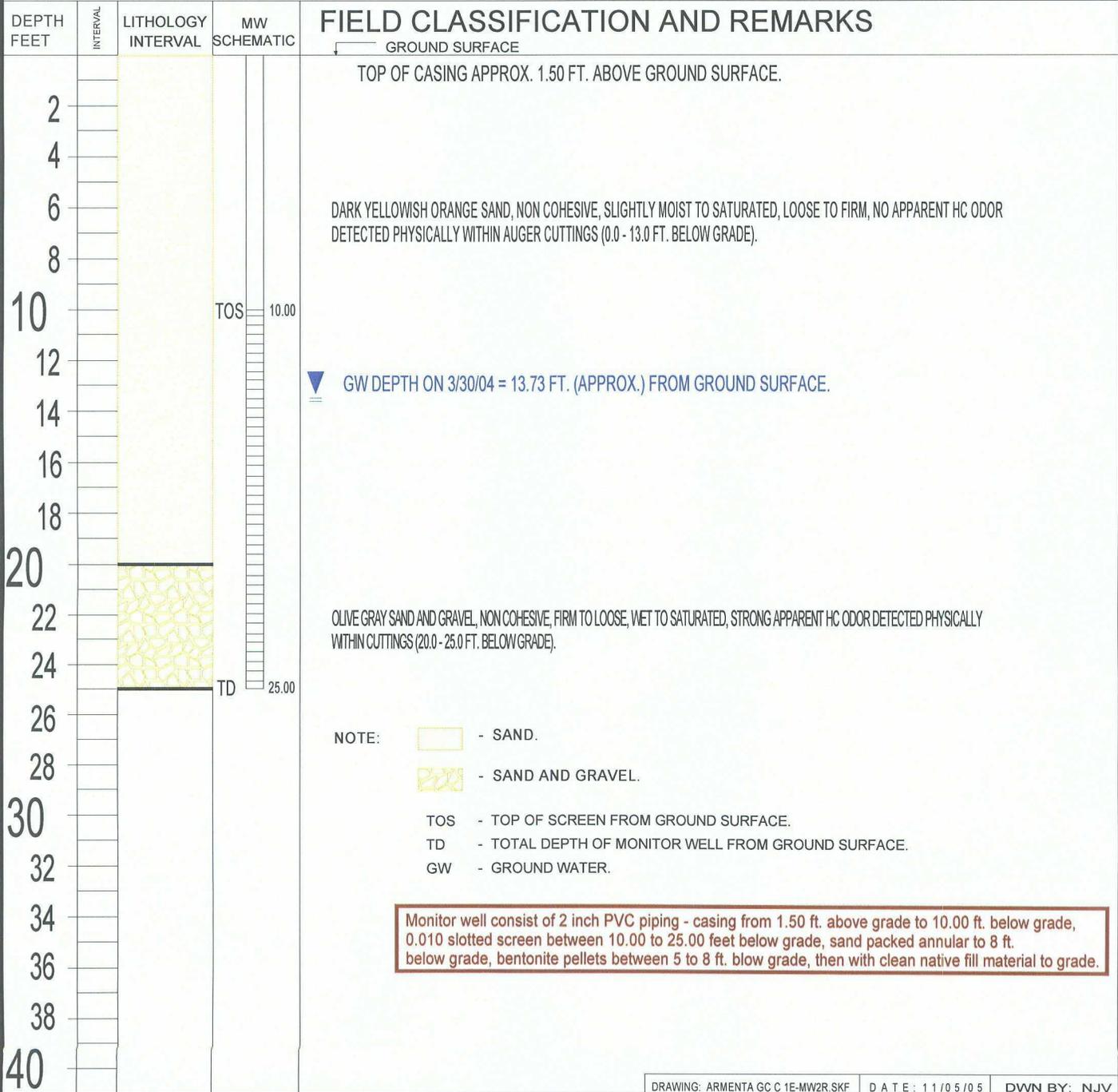
## BLAGG ENGINEERING, INC.

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

# BORE / TEST HOLE REPORT

BORING #.....	BH - 5
MW #.....	2R
PAGE #.....	3
DATE STARTED	3/23/04
DATE FINISHED	3/23/04
OPERATOR.....	KP
PREPARED BY	NJV

CLIENT:	<b>XTO ENERGY INC.</b>
LOCATION NAME:	ARMENTA GC C #1E - BLOW PIT, UNIT C, SEC. 27, T29N, R10W
CONTRACTOR:	BLAGG ENGINEERING, INC. / ENVIROTECH
EQUIPMENT USED:	MOBILE DRILL RIG ( SIMILAR TO CME 75 )
BORING LOCATION:	118 FT., S68W FEET FROM WELL HEAD.



NOTE:

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

Monitor well consist of 2 inch PVC piping - casing from 1.50 ft. above grade to 10.00 ft. below grade, 0.010 slotted screen between 10.00 to 25.00 feet below grade, sand packed annular to 8 ft. below grade, bentonite pellets between 5 to 8 ft. blow grade, then with clean native fill material to grade.

# FIGURE 10

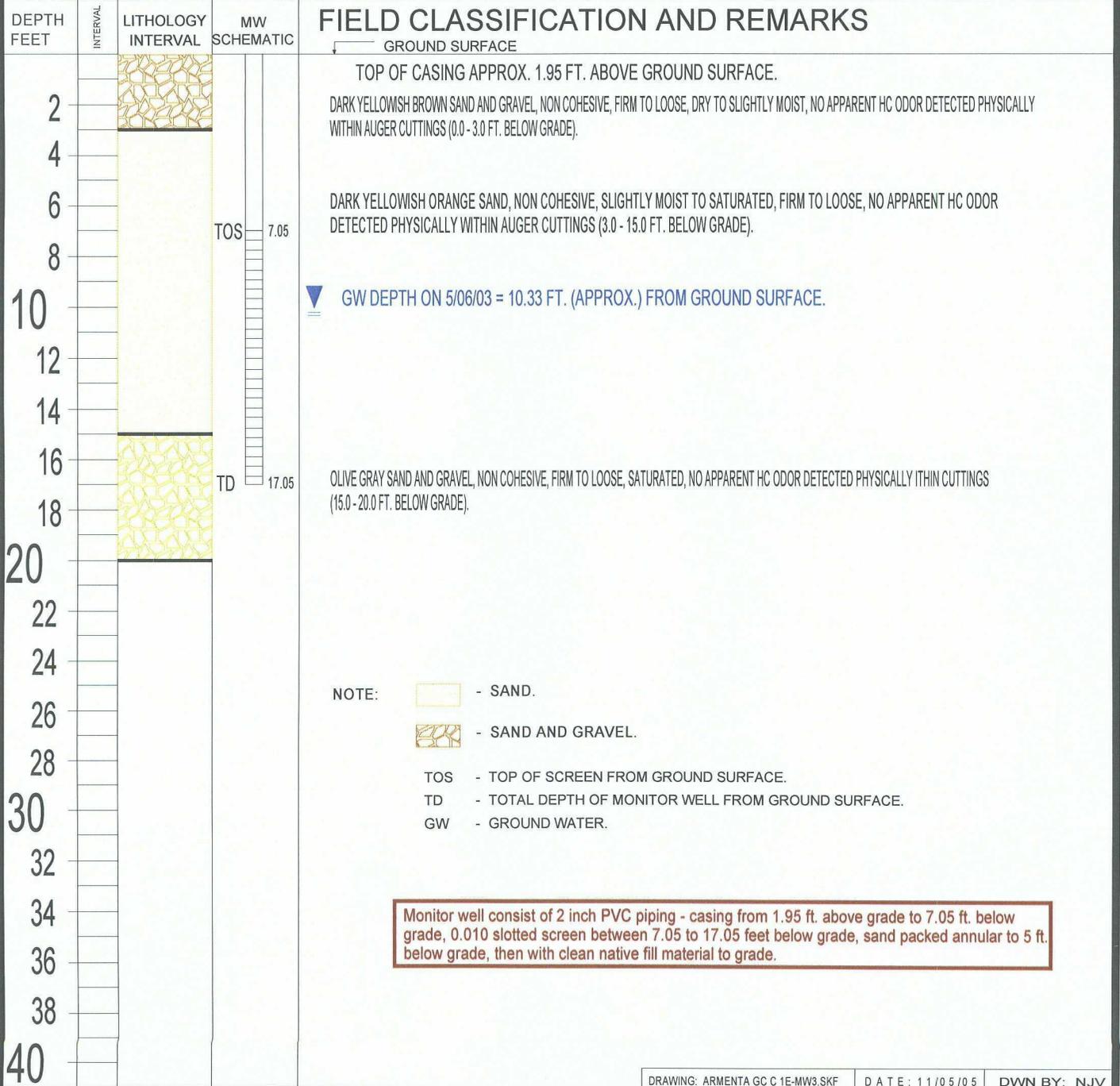
## BLAGG ENGINEERING, INC.

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

# BORE / TEST HOLE REPORT

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	4
DATE STARTED	4/30/03
DATE FINISHED	4/30/03
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	<b>XTO ENERGY INC.</b>
LOCATION NAME:	ARMENTA GC C #1E - BLOW PIT, UNIT C, SEC. 27, T29N, R10W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG ( EARTHROBE 200 )
BORING LOCATION:	180 FT., S37W FEET FROM WELL HEAD.



# FIGURE 11

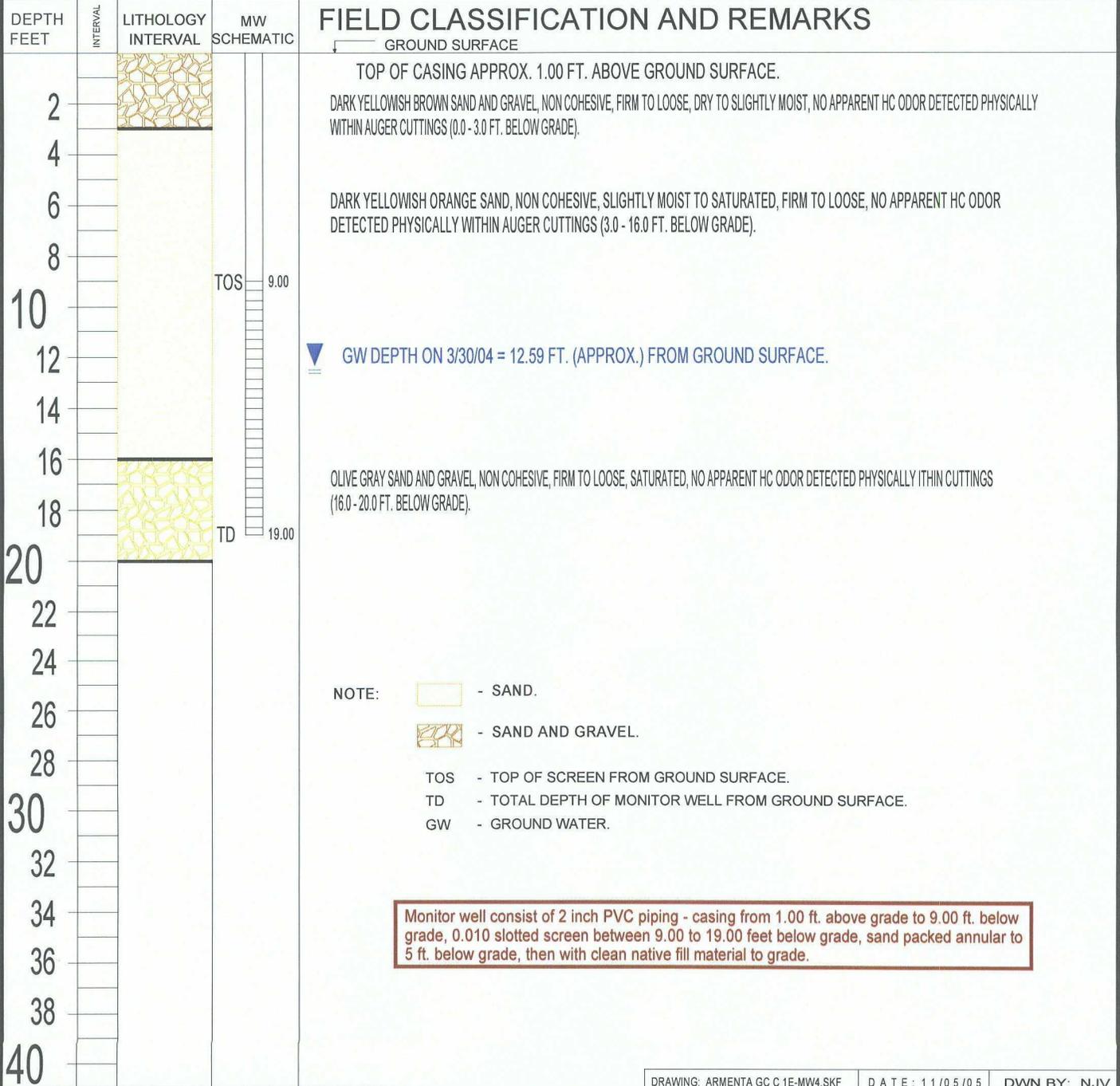
## BLAGG ENGINEERING, INC.

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

# BORE / TEST HOLE REPORT

BORING #.....	BH - 4
MW #.....	4
PAGE #.....	5
DATE STARTED	3/17/04
DATE FINISHED	3/17/04
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	<b>XTO ENERGY INC.</b>
LOCATION NAME:	ARMENTA GC C #1E - BLOW PIT, UNIT C, SEC. 27, T29N, R10W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG ( EARTHROBE 200 )
BORING LOCATION:	196 FT., S55W FEET FROM WELL HEAD.



**BLAGG ENGINEERING, INC.**

**MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA**

CLIENT : XTO ENERGY, INC.

CHAIN-OF-CUSTODY # : \_\_\_\_\_

ARMENTA GC C # 1E - BLOW PIT II UNIT C, SEC. 27, T29N, R10W
--

LABORATORY (S) USED : \_\_\_\_\_

Date : April 23, 2003

SAMPLER : N J V

Filename : 04-23-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
<b>2</b>	-	-	13.61 *	20.00	-	-	-	-	1.50
DEPTH TO PRODUCT ( FT. ) =			13.34	PRODUCT THICKNESS ( FT. ) =				0.76	

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

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

Comments or note well diameter if not standard 2"

BAILED MW TO TOTAL DEPTH - COMPLETED @ TIME 1408 . REMEASURED DEPTH TO PRODUCT = 13.38 FT. , DEPTH TO WATER = 13.90 FT. @ TIME 1518 .

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casing approx. @ grade .

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : XTO ENERGY, INC.

CHAIN-OF-CUSTODY # : \_\_\_\_\_

ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : \_\_\_\_\_

Date : May 6, 2003

SAMPLER : N J V

Filename : 05-06-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)	
1	101.25	85.21	16.04	20.00	-	-	-	-	1.00	
2	98.47	84.83	13.64 *	20.00	-	-	-	-	1.00	
DEPTH TO PRODUCT ( FT. ) =			13.32	PRODUCT THICKNESS ( FT. ) =			0.92			
3	96.86	84.58	12.28	19.00	-	-	-	-	4.00	

INSTRUMENT CALIBRATIONS =

7.01	2,800
05/07/03	09:15 AM

DATE & TIME =

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

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

Comments or note well diameter if not standard 2".

SURVEYED MW TOPS & COLLECTED DEPTH TO WATER INFO. IN THE MORNING .

MW # 1 RECOVERY RATE = 0.1 ft. / 19.05 sec. FULL RECOVERY ~ 12.6 MINUTES . MW # 3 -

EXCELLENT RECOVERY . REMOVED FREE PRODUCT FROM MW # 2 - ~ 1.00 GALLON OF FLUID PURGED .

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : XTO ENERGY, INC.

CHAIN-OF-CUSTODY # : N / A & 10873

ARMENTA GC C # 1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : HALL ENVIRONMENTAL  
ENVIROTECH

Date : May 12, 2003

SAMPLER : N J V

Filename : 05-12-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)	
1	101.25	85.34	15.91	20.00	935	7.07	1,100	15.7	1.00	
2	98.47	84.98	13.49 *	20.00	-	-	-	-	-	
<b>DEPTH TO PRODUCT ( FT. ) =</b>			<b>13.23</b>	<b>PRODUCT THICKNESS ( FT. ) =</b>				<b>0.73</b>		
3	96.86	84.70	12.16	19.00	0915	7.06	1,200	15.3	3.50	

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	05/12/03	08:55

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$   
(i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$ ) (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

**BAILED APPROX. 0.50 GAL. OF FLUID FROM MW # 2 . COLLECTED BTEX & MAJOR ANION / CATION SA FROM MW # 1 & # 2 .**

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : XTO ENERGY, INC.

CHAIN-OF-CUSTODY # : \_\_\_\_\_

ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : \_\_\_\_\_

Date : May 20, 2003

SAMPLER : N J V

Filename : 05-20-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)	
1	101.25	-	-	20.00	-	-	-	-	-	
2	98.47		13.52 *	20.00	-	-	-	-	-	
DEPTH TO PRODUCT ( FT. ) =			13.26	PRODUCT THICKNESS ( FT. ) =				0.74		
3	96.86	-	-	19.00	-	-	-	-	-	

INSTRUMENT CALIBRATIONS = 

-	-
-	-

DATE & TIME = 

-	-
-	-

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

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

Comments or note well diameter if not standard 2"

BAILED APPROX. 0.50 GAL. OF FLUID FROM MW # 2 .

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : \_\_\_\_\_

ARMENTA GC C # 1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : \_\_\_\_\_

Date : May 28, 2003

SAMPLER : N J V

Filename : 05-28-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)	
1	101.25	-	-	20.00	-	-	-	-	-	
2	98.47		13.46 *	20.00	-	-	-	-	-	
DEPTH TO PRODUCT ( FT. ) =			13.22	PRODUCT THICKNESS ( FT. ) =				0.68		
3	96.86	-	-	19.00	-	-	-	-	-	

INSTRUMENT CALIBRATIONS = 

-	-
-	-

DATE & TIME = 

-	-
-	-

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
(i.e. 2" MW  $r = (1/12) \text{ ft.}$   $h = 1 \text{ ft.}$ ) (i.e. 4" MW  $r = (2/12) \text{ ft.}$   $h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

BAILED APPROX. 0.50 - 0.75 GAL. OF FLUID FROM MW # 2 .

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : **XTO ENERGY INC.**

CHAIN-OF-CUSTODY # : \_\_\_\_\_

**ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W**

LABORATORY (S) USED : \_\_\_\_\_

Date : June 6, 2003

SAMPLER : N J V

Filename : 06-06-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)	
1	101.25	-	-	20.00	-	-	-	-	-	
2	98.47		13.52 *	20.00	-	-	-	-	-	
<b>DEPTH TO PRODUCT ( FT. ) =</b>			<b>13.26</b>	<b>PRODUCT THICKNESS ( FT. ) =</b>				<b>0.74</b>		
3	96.86	-	-	19.00	-	-	-	-	-	

INSTRUMENT CALIBRATIONS = 

-	-
-	-

DATE & TIME = 

-	-
-	-

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

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

Comments or note well diameter if not standard 2 "

**BAILED APPROX. 0.50 - 0.75 GAL. OF FLUID FROM MW # 2 .**

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\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : **XTO ENERGY INC.**

CHAIN-OF-CUSTODY # : \_\_\_\_\_

**ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W**

LABORATORY (S) USED : \_\_\_\_\_

Date : June 19, 2003

SAMPLER : N J V

Filename : 06-19-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.25	-	-	20.00	-	-	-	-	-
2	98.47		13.43 *	20.00	-	-	-	-	-
<b>DEPTH TO PRODUCT ( FT. ) =</b>			<b>13.20</b>	<b>PRODUCT THICKNESS ( FT. ) =</b>				<b>0.66</b>	
3	96.86	-	-	19.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS = 

-	-
-	-

DATE & TIME = 

-	-
-	-

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
 (i.e. 2" MW  $r = (1/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .) (i.e. 4" MW  $r = (2/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

**BAILED APPROX. 2.50 - 3.00 GAL. OF FLUID FROM MW # 2 .**

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\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : **XTO ENERGY INC.**

CHAIN-OF-CUSTODY # : \_\_\_\_\_

**ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W**

LABORATORY (S) USED : \_\_\_\_\_

Date : June 27, 2003

SAMPLER : N J V

Filename : 06-27-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.25	-	-	20.00	-	-	-	-	-
2	98.47		13.42 *	20.00	-	-	-	-	-
<b>DEPTH TO PRODUCT ( FT. ) =</b>			<b>13.22</b>	<b>PRODUCT THICKNESS ( FT. ) =</b>				<b>0.58</b>	
3	96.86	-	-	19.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS = 

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 DATE & TIME = 

-	-
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NOTES : Volume of water purged from well prior to sampling; V = pi X r<sup>2</sup> X h X 7.48 gal./ft<sup>3</sup> 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:  
 2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2".

**BAILED APPROX. 2.50 - 3.00 GAL. OF FLUID FROM MW # 2 .**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .  
Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : \_\_\_\_\_

ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : \_\_\_\_\_

Date : July 3, 2003

SAMPLER : N J V

Filename : 07-03-03.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.25	-	-	20.00	-	-	-	-	-
2	98.47	-	13.48 *	20.00	-	-	-	-	-
<b>DEPTH TO PRODUCT ( FT. ) =</b>			<b>13.25</b>	<b>PRODUCT THICKNESS ( FT. ) =</b>				<b>0.66</b>	
3	96.86	-	-	19.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS = 

-	-
-	-

DATE & TIME = 

-	-
-	-

NOTES : Volume of water purged from well prior to sampling;  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
(i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$ ) (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

**BAILED APPROX. 2.50 - 3.00 GAL. OF FLUID FROM MW # 2 .**

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\* INDICATES PRODUCT SPECIFIC GRAVITY ASSUMED TO = 0.65 .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - @ grade , MW # 3 - 1.95 ft.

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : N / A

ARMENTA GC C # 1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : March 30, 2004

SAMPLER : N J V

Filename : 03-30-04.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
<b>1</b>	101.25	85.39	15.86	20.00	-	-	-	-	-
<b>2R</b>	100.34	85.11	15.23	25.00	1107	7.13	2,100	15.5	4.75
<b>3</b>	96.87	84.81	12.06	19.00	-	-	-	-	-
<b>4</b>	98.33	84.74	13.59	20.00	1010	7.10	2,000	14.4	3.25

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	03/27/04	0800

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
 (i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$ ) (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2".

MW # 4 installed 2 / 27 / 04 , MW # 2R installed 3 / 23 / 04 . MW # 4 - 10 ft. , MW # 2R - 15 ft. slotted screen . Both developed on 3 / 29 / 04 . Excellent recovery in both wells . Collected BTEX samples from MW # 2R & # 4 only . MW # 3 contained abundant amount of organic ( root ) material , therefore all depth to water measurement collected on 4 / 01 / 04 after clearing out MW # 3 .  
MW # 2R - 118 ft. , S 68 W from well head ; MW # 4 - 78 ft. , S 40 W from MW # 2R .  
Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - 1.50 ft. , MW # 3 - 1.95 ft. , MW # 4 - 1.00 ft. above grade .

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : N / A

ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : June 16, 2004

SAMPLER : N J V

Filename : 06-16-04.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
<b>1</b>	101.25	85.35	15.9	20.00	-	-	-	-	-
<b>2R</b>	100.34	85.15	15.19	25.00	1420	6.91	2,000	21.6	4.75
<b>3</b>	96.87	84.75	12.12	19.00	-	-	-	-	-
<b>4</b>	98.33	84.96	13.37	20.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	06/16/04	1130

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$   
 (i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$ ) (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in MW # 2R. Collected BTEX sample from MW # 2R only .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - 1.50 ft. , MW # 3 - 1.95 ft. , MW # 4 - 1.00 ft. above grade .

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : N / A

ARMENTA GC C #1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : September 27, 2004

SAMPLER : N J V

Filename : 09-27-04.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.25	85.92	15.33	20.00	-	-	-	-	-
2R	100.34	85.69	14.65	25.00	1250	6.96	2,000	20.3	5.00
3	96.87	85.22	11.65	19.00	-	-	-	-	-
4	98.33	85.14	13.19	20.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	09/27/04	1025

NOTES : Volume of water purged from well prior to sampling;  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
 (i.e. 2" MW  $r = (1/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .) (i.e. 4" MW  $r = (2/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in MW # 2R . Collected BTEX sample from MW # 2R only .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - 1.50 ft. , MW # 3 - 1.95 ft. , MW # 4 - 1.00 ft. above grade .

# BLAGG ENGINEERING, INC.

## MONITOR WELL DEVELOPMENT & /OR SAMPLING DATA

CLIENT : XTO ENERGY INC.

CHAIN-OF-CUSTODY # : N / A

ARMENTA GC C # 1E - BLOW PIT II  
UNIT C, SEC. 27, T29N, R10W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : December 29, 2004

SAMPLER : N J V

Filename : 12-29-04.WK4

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.25	85.76	15.49	20.00	-	-	-	-	-
2R	100.34	85.55	14.79	25.00	1540	6.98	2,100	15.2	5.00
3	96.87	85.02	11.85	19.00	-	-	-	-	-
4	98.33	85.00	13.33	20.00	-	-	-	-	-

INSTRUMENT CALIBRATIONS =	7.00	2,800
DATE & TIME =	12/29/04	1025

NOTES : Volume of water purged from well prior to sampling;  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
 (i.e. 2" MW  $r = (1/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .) (i.e. 4" MW  $r = (2/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .)

Ideally a minimum of three (3) wellbore volumes:

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

Comments or note well diameter if not standard 2 "

Excellent recovery in MW # 2R . Collected BTEX sample from MW # 2R only .

Top of casings ( approx. ) MW # 1 - 0.85 ft. , MW # 2 - 1.50 ft. , MW # 3 - 1.95 ft. , MW # 4 - 1.00 ft. above grade .

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410

State of New Mexico  
Energy Minerals and Natural Resources

Form C-144  
June 1, 2004

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe office

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

**Pit or Below-Grade Tank Registration or Closure**

Is pit or below-grade tank covered by a "general plan"? Yes  No

Type of action: Registration of a pit or below-grade tank  Closure of a pit or below-grade tank

Operator: XTO ENERGY INC. Telephone: (505)-324-1090 e-mail address: \_\_\_\_\_  
 Address: 2700 FARMINGTON AVE.. BLDG. K. SUITE 1. FARMINGTON. NM 87401  
 Facility or well name: ARMENTA GAS COM C #1E API #: 30-045- 23856 U/L or Qtr/Qtr C Sec 27 T 29N R 10  
 County: SAN JUAN Latitude 36.70320 Longitude 107.87558 NAD: 1927  1983  Surface Owner Federal  State  Private  Indian

<b>Pit</b>	<b>Below-grade tank</b>	
Type: Drilling <input type="checkbox"/> Production <input checked="" type="checkbox"/> Disposal <input type="checkbox"/> <u>BLOW</u> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input checked="" type="checkbox"/> Unlined <input checked="" type="checkbox"/> <u>STEEL TANK</u> Liner type: Synthetic <input type="checkbox"/> Thickness _____ mil Clay <input type="checkbox"/> Pit Volume _____ bbl	Volume: _____ bbl Type of fluid: _____ Construction material: <u>N/A</u> Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet (20 points) 50 feet or more, but less than 100 feet (10 points) 100 feet or more ( 0 points)	<b>20</b>
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)	<b>0</b>
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet (20 points) 200 feet or more, but less than 1000 feet (10 points) 1000 feet or more ( 0 points)	<b>10</b>
<b>Ranking Score (Total Points)</b>		<b>30</b>

**If this is a pit closure:** (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite  offsite  If offsite, name of facility \_\_\_\_\_. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No  Yes  If yes, show depth below ground surface 14 ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments: PIT LOCATED APPROXIMATELY 123 FT. S64W FROM WELL HEAD.  
PIT EXCAVATION: WIDTH 45 ft., LENGTH 35 ft., DEPTH 18 ft. .  
PIT REMEDIATION: CLOSE AS IS: , LANDFARM: , COMPOST: , STOCKPILE: , OTHER  (explain)  
Cubic yards:   
Groundwater impacted. Implemented XTO's Groundwater Management Plan (GMP).

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines , a general permit , or an alternative OCD-approved plan .

Date: 11/14/05

PrintedName/Title Jeff Blagg – P.E. # 11607 Signature *Jeff Blagg*

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:  
 Printed Name/Title \_\_\_\_\_ Signature \_\_\_\_\_ Date: \_\_\_\_\_

CLIENT: <u>XTC</u>	<b>BLAGG ENGINEERING, INC.</b> P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: _____ COCR NO: _____
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**FIELD REPORT: PIT CLOSURE VERIFICATION** PAGE No: 1 of 1

LOCATION: NAME: <u>ARMENIA GC C</u> WELL#: <u>1E</u> TYPE: <u>BLOW</u>	DATE STARTED: <u>4/14/03</u>
QUAD/UNIT: <u>C SEC. 7.7 TWP. 29N RNG. 10W PM. N1M CNTY. SJ ST. NML</u>	DATE FINISHED: _____
QTR/FOOTAGE: <u>435' N/1590' W</u> NE(NEW) CONTRACTOR: <u>HDE (LACK)</u>	ENVIRONMENTAL SPECIALIST: <u>NV</u>

EXCAVATION APPROX. 12 FT. x 13 FT. x 13 FT. DEEP. CUBIC YARDAGE: 75

DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: LANDFILL

LAND USE: OPEN PASTURE LEASE: FEE FORMATION: MV

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 120 FT. S67W FROM WELLHEAD.

DEPTH TO GROUNDWATER: <50' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: <1000'

NMOC D RANKING SCORE: 30 NMOC D TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: 5506' ELEV.

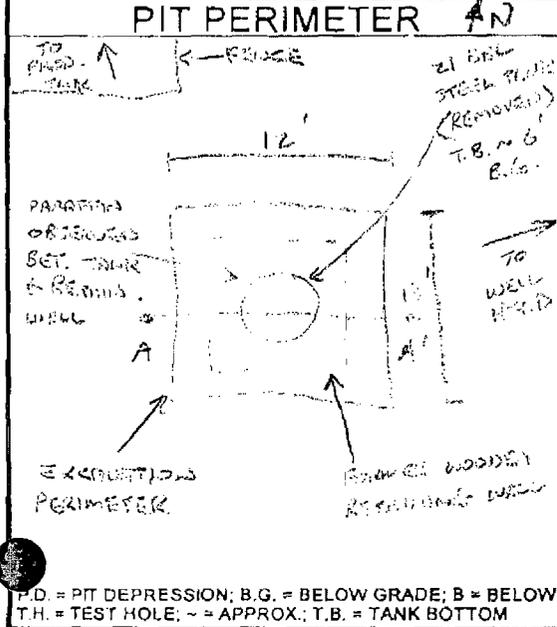
OVM CALIB. READ. = \_\_\_\_\_ ppm  
OVM CALIB. GAS = \_\_\_\_\_ ppm RF = 0.52  
TIME: \_\_\_\_\_ am/pm DATE: \_\_\_\_\_

SOIL TYPE: SAND / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER \_\_\_\_\_  
 SOIL COLOR: LT. GRAY TO BLACK  
 COHESION (ALL OTHERS): NON COHESIVE / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE  
 CONSISTENCY (NON COHESIVE SOILS): LOOSE / FIRM / DENSE / VERY DENSE  
 PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC  
 DENSITY (COHESIVE CLAYS & SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD  
 MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED  
 DISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION - \_\_\_\_\_  
 HC ODOR DETECTED: YES / NO EXPLANATION - \_\_\_\_\_

SAMPLE TYPE: GRAB / COMPOSITE - # OF PTS. \_\_\_\_\_  
 ADDITIONAL COMMENTS: NO SAMPLES COLLECTED. GROUNDWATER ~ 13' BELOW GRADE. OLIVE GRAY SAND DETECTED. TEST HOLE ABANDONED BELOW 13' BEFORE COLLAPSING DUE TO GROUNDWATER. W/ DRILLER & LATER INSTALL MONITOR WELL.

SCALE 

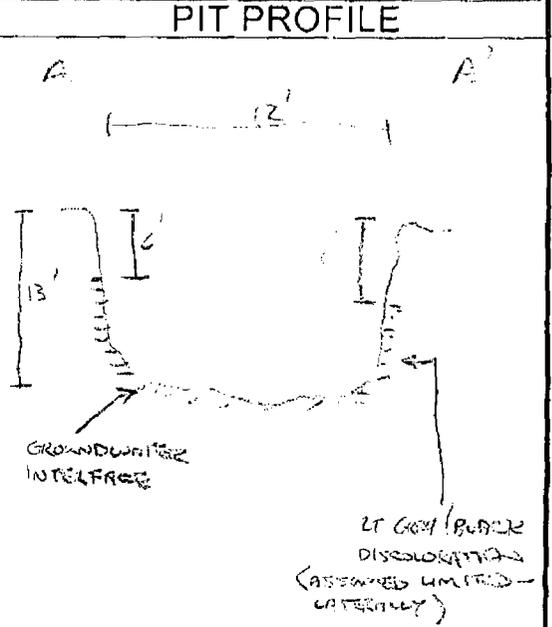
SAMP. TIME	SAMP. ID	LAB NO.	WEIGHT (g)	mL FREON	DILUTION	READING	CALC. (ppm)



SAMPLE ID	FIELD HEADSPACE (ppm)
1 @	
2 @	
3 @	
4 @	
5 @	

SAMPLE ID	ANALYSIS	TIME



TRAVEL NOTES: CALLOUT: 4/14/03 - INTER. ONSITE: 4/14/03 - AFTER.

**BLAGG ENGINEERING, INC.**  
P.O. Box 87, Bismarck, New Mexico 57417

April 25, 2003

Mr. Roger Anderson  
Chief of Environmental Bureau  
State of New Mexico Oil Conservation Division (NMOCD)  
1220 St. Francis Drive  
Santa Fe, New Mexico 87505

**RE: Groundwater Impact  
XTO Energy, Inc.**

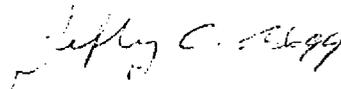
**Armenta GC C # 1E Well site  
Legal Description: Unit C, Sec. 27, T29N, R10W  
San Juan County, New Mexico**

Dear Mr. Anderson:

Physical observation of groundwater at the above referenced well site indicates approximately 0.76 ft. or 9.12 inches of free phase product on April 23, 2003. Monitor well installation and construction was completed on April 22, 2003. The monitor well is located within an abandoned blow pit excavated on April 18, 2003 to approximately the groundwater interface (thirteen [13] feet below grade). XTO Energy will adhere to its NMOCD approved groundwater management plan during further assessment of the apparent hydrocarbon contamination encountered. Depth to free phase product in the monitor well was approximately 13.34 ft. below grade.

If you have any questions concerning this information, please do not hesitate to contact Nelson Velez or myself at (505) 632-1199. Thank you for your cooperation.

Respectfully submitted,  
**Blagg Engineering, Inc.**

  
Jeffrey C. Blagg, P.E.  
President

cc: Denny Foust, Environmental Geologist, NMOCD, Aztec, NM  
Terry Mathews, Production Superintendent, XTO Energy, Inc., Farmington, NM  
Darrin Steed, Environmental & Safety Manager, XTO Energy, Inc., Farmington, NM

NJV/njv

ARMENTA-C1E.LTR