3R - 110

2010 AGWMR

MAR 2011

2010 ANNUAL GROUNDWATER REPORT

FEDERAL GAS COM H #1

3RP-110

Unit C, Section 31, Township 30N, Range 12W
San Juan County, New Mexico

PREPARED FOR:

MR. GLENN VON GONTEN
NEW MEXICO OIL CONSERVATION DIVISION
1220 SOUTH ST FRANCIS DRIVE
SANTA FE, NEW MEXICO 87505
(505) 476-3488

March 2011

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FEDERAL GAS COM H #1
3RP-110

SITE DETAILS

LEGALS - TWN: 30N **RNG:** 12W **SEC:** 31 **UNIT:** C
OCD HAZARD RANKING: 30 **LAND TYPE:** FEE
LATITUDE: 36.77306 **LONGITUDE:** 108.14085

INTRODUCTION

XTO Energy Inc. (XTO) acquired the Federal Gas Com H #1 well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone and is currently active. A topographic map detailing the well site location is attached as ***Figure 1***.

HISTORY

In November 1999 XTO responded to a release of a produced water/condensate mixture of approximately 69 barrels. The clean up involved excavating and disposing of 304 cubic yards of impacted soil and sampling the perimeter of the excavation. A copy of the spill cleanup report, completed by Blagg Engineering, Inc in 2000, detailing cleanup activities is attached to this report as ***Attachment 1***. In reviewing the field and analytical data at the time it appeared that vertical extent had been established and lateral extent of the impact met closure standards with the exception of the source area. Vertical vent piping was installed in January 2000 in an effort to passively remediate the remaining impacted soil.

In March 2005, while upgrading equipment on location, XTO discovered what was believed to be a historical earthen blow pit. Approximately 300 cubic yards of impacted soil was excavated and disposed of off site. This excavation overlapped part of the previous excavation from 1999. Groundwater was encountered during the second excavation and monitoring wells were installed in each of the source areas, but were not sampled at the time of installation. Completion Diagram and Borehole Logs documenting drilling that occurred in 2005 are presented in ***Figure 3-4***.

In April 2006 a third monitoring well (MW-3) was installed cross gradient of the source area. Completion Diagram and Borehole Log for monitoring well MW-3 is presented in ***Figure 5***.

The 2006 annual groundwater report was submitted to the New Mexico Oil Conservation Division (OCD) in February 2007 proposing removal of passive remediation system (wind turbines) and quarterly sampling of monitoring wells in accordance with the OCD approved Groundwater Management Plan.

The 2007 annual groundwater report was submitted to the OCD in February 2008 proposing semi-annual sampling of monitoring wells MW-1 and MW-2 until analytical results show hydrocarbon constituents below New Mexico Water Quality Control Commission (WQCC) groundwater standards.

2010 XTO GROUNDWATER REPORT

The 2008 annual groundwater report was submitted to the OCD in April 2009 proposing installation of an additional monitoring well, quarterly sampling of monitoring wells MW-1 and MW-2, annual sampling of monitoring well MW-3 and possible addition of an oxygenate in monitoring wells MW-1 and MW-2.

The 2009 Annual Groundwater Report was submitted to Mr. Glenn Von Gonten in March of 2010, recommending quarterly groundwater sampling of monitoring wells MW-1 and MW-2 until four (4) consecutive quarters of analytical results show BTEX to be below the WQCC standards.

A summary of water levels and laboratory results from historical and current groundwater monitoring is presented as ***Table 1*** and ***Table 2***. Laboratory reports for quarterly groundwater monitoring are attached to this report in ***Attachment 2***.

METHODOLOGY

Quarterly groundwater samples were collected from monitoring wells MW-1 and MW-2 and submitted for laboratory analysis of benzene, toluene, ethyl benzene and total xylene (BTEX) in 2009.

Water Level Measurements

Static groundwater level monitoring includes recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. This data is recorded in ***Table 1***.

Groundwater Sampling

Prior to sampling groundwater, depth to groundwater and total depth of wells is measured with a Keck oil/water interface probe. Presence of any free-phase crude oil is also investigated using the interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells is calculated, and a minimum of three casing volumes of water is purged from each well using a disposable bailer or a permanent decontaminated PVC bailer. As water is extracted, pH, electric conductivity and temperature are monitored. Wells are purged until these properties stabilize, indicating that the purge water is representative of aquifer conditions. Stabilization is defined as three consecutive stable readings for each water property (±0.4 units for pH, ±10 percent for electric conductivity and ±2° C for temperature). All purge water is disposed of into tanks on site. A copy of field sheets submitted to XTO Energy, Inc. during the 2010 monitoring are submitted in ***Attachment 3***.

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two 40-millititer (ml) glass vials. The pre-cleaned and pre-preserved (with hydrochloric acid or mercuric chloride) vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico in a sealed cooler via bus before designated holding times expire. In October of 2010, XTO Energy, Inc. changed from HEAL to Environmental Science Corporation (ESC) based out of Mt. Juliet, Tennessee. Samples are still shipped in a sealed cooler, but via Fed Ex overnight.

Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signature.

Groundwater Contour Maps
Top of casing well elevations were surveyed using a surveyor's level; and groundwater elevations obtained from monitoring wells during site visits were used to draft groundwater contour maps. Contours were inferred based on groundwater elevations obtained and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.).

RESULTS

Laboratory results from 2010 remain constant in monitoring wells MW-1 and MW-2. Benzene levels in both wells fluctuated between 37 ppb (parts per billion) and 17 ppb, still slightly above the WQCC levels of 10 ppb. Total xylene levels in monitoring well MW-1 showed a downward trend in 2010, which is consistent with the downward trend seen in this well since 2007, going from 2,300 ppb in March of 2007, to current levels of 600 ppb in October of 2010.

Field data collected during site monitoring activities in the first and second quarter indicate that the groundwater gradient trends toward the south-west with a gradient of approximately 0.034 ft/ft. ***Figure 2*** contains the groundwater gradient maps for 2010. Between the second and third quarter of 2010, monitoring well MW-3 was inadvertently removed by a contractor. This is why there are no groundwater gradients for the third and fourth quarter monitoring, and no annual groundwater sample for monitoring well MW-3. MW-3 is scheduled to be replaced in early 2011.

CONCLUSIONS

Laboratory analysis indicates a downward trend in the xylene levels in monitoring well MW-1 with a fairly constant benzene level throughout 2010. The date indicates that the hydrocarbons in the source areas are degrading, and installation of a downgradient monitoring well to the south/southwest of monitoring well MW-2 is not needed.

RECOMMENDATIONS

XTO proposed continued quarterly sampling at monitoring wells MW-1 and MW-2 until analytical results show hydrocarbon constituents are below New Mexico groundwater standards along with annual sampling of MW-3 to confirm migration has not occurred.

XTO also proposes the addition of a hydrogen peroxide slug into the aquifer using monitoring wells MW-1 and MW-2 as a conduit. XTO believes that the addition of the hydrogen peroxide will enhance the bioremediation already naturally occurring in this groundwater aquifer. The hydrogen peroxide will be added pursuant to the attached plan submitted by LT Environmental in ***Attachment 4***.

Following OCD approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

Water Level Data

Project Name: XTO GW
Project Manager: ALA
Client Company: XTO

Site Name: Federal GC H#1
Date: 1/12/2010

Location	Well	Date	Depth to Water (ft)	Depth to Product (ft)	Total Depth (ft)	TOC Elevation (ft)	Groundwater Elevation (ft)	Well Comments
Federal GC H#1	MW-1	12-Jan-10	31.29		37.20	5535.82	5504.53	
Federal GC H#1	MW-2	12-Jan-10	32.94		35.34	5534.96	5502.02	
Federal GC H#1	MW-3	12-Jan-10	34.71		39.64	5539.55	5504.84	

General Comments:

Signature: Ashley Ager

Date: 1/12/2010

TABLE 1

GROUNDWATER RESULT & WATER LEVEL SUMMARY TABLE
FEDERAL GAS COM H #1 SITE
XTO ENERGY, INC.

Well ID	Date	DTW (feet BTOC)	GW Elevation (feet BTOC)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
New Mexico Groundwater Standard				10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-1	3/29/2007	31.34	5504.48	**39**	ND	560	**2300**
MW-1	7/23/2007	31.55	5504.27	**32**	ND	610	**2300**
MW-1	10/11/2007	31.09	5504.73	**50**	18	440	**1500**
MW-1	1/8/2008	31.26	5504.56	**47**	7.1	730	**3000**
MW-1	7/1/2008	31.40	5504.42	**18**	9.6	350	**980**
MW-1	1/20/2009	31.29	5504.56	**30**	22	370	**910**
MW-1	7/8/2009	31.58	5504.24	**16**	ND	280	530
MW-1	10/20/2009	31.31	5504.51	**33**	9.7	310	**630**
MW-1	1/12/2010	31.29	5504.53	**31**	<1.0	270	500
MW-1	4/7/2010	31.03	5504.79	**33**	16	290	**630**
MW-1	7/20/2010	31.11	5504.71	**27**	10	360	**710**
MW-2	3/29/2007	33.05	5501.91	**55**	ND	39	60
MW-2	7/23/2007	33.24	5501.72	**39**	ND	25	9.2
MW-2	10/11/2007	32.87	5502.09	**86**	ND	97	140
MW-2	1/8/2008	32.98	5501.98	**65**	ND	82	56
MW-2	7/1/2008	33.08	5501.88	**15**	ND	22	7.3
MW-2	1/20/2009	35.34	5499.62	**38**	ND	85	49
MW-2	7/8/2009	33.23	5501.73	7.5	ND	13	3.0
MW-2	10/20/2009	32.94	5502.02	**20**	<1.0	31	29
MW-2	1/12/2010	32.94	5502.02	**22**	<1.0	54	41
MW-2	4/7/2010	32.71	5502.25	**37**	1.3	110	130
MW-2	7/20/2010	32.80	5502.16	**17**	<1.0	94	92

GROUNDWATER RESULT & WATER LEVEL SUMMARY TABLE
FEDERAL GAS COM H #1 SITE
XTO ENERGY, INC.

Well ID	Date	DTW (feet BTOC)	GW Elevation (feet BTOC)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
New Mexico Groundwater Standard				10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-3	12/6/2006	34.76	5504.79	ND	ND	ND	ND
MW-3	3/29/2007	34.85	5504.7	ND	ND	ND	ND
MW-3	7/23/2007	35	5504.55	ND	ND	ND	ND
MW-3	10/11/2007	34.55	5505.00	ND	ND	ND	ND
MW-3	1/8/2008	31.74	5507.81	ND	ND	ND	ND
MW-3	7/1/2008	34.86	5504.69	N/S	N/S	N/S	N/S
MW-3	1/20/2009	34.75	5504.80	N/S	N/S	N/S	N/S
MW-3	7/8/2009	35.01	5504.54	N/S	N/S	N/S	N/S
MW-3	10/20/2009	34.68	5504.87	N/S	N/S	N/S	N/S
MW-3	1/12/2010	34.71	5504.84	N/S	N/S	N/S	N/S
MW-3	4/7/2010	34.53	5504.79	N/S	N/S	N/S	N/S
MW-3 *	7/20/2010	N/M	N/M	N/S	N/S	N/S	N/S

Notes:

ug/l - micrograms per liter

< indicates result is less than the stated laboratory method detection limit

NMOCD - New Mexico Oil Conservation Division

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8021

BTOC = Below Top of Casing

N/S = Not Sampled

N/M = Not Measured

ND = None Detected

* MW-3 was abandoned on May 10, 2010

TABLE 1

WATER LEVEL SUMMARY TABLE
FEDERAL GAS COM H #1 SITE
XTO ENERGY, INC.

Well ID	Date:	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	3/29/2007	31.34	5504.48
MW-1	7/23/2007	31.55	5504.27
MW-1	10/11/2007	31.09	5504.73
MW-1	1/8/2008	31.26	5504.56
MW-1	7/1/2008	31.40	5504.42
MW-1	1/20/2009	31.29	5504.53
MW-1	7/8/2009	31.58	5504.24
MW-1	10/20/2009	31.31	5504.51
MW-1	1/12/2010	31.29	5504.53
MW-1	4/7/2010	31.03	5504.79
MW-1	7/20/2010	31.11	5504.71
MW-1	10/7/2010	30.51	5505.31
MW-2	3/29/2007	33.05	5501.91
MW-2	7/23/2007	33.24	5501.72
MW-2	10/11/2007	32.87	5502.09
MW-2	1/8/2008	32.98	5501.98
MW-2	7/1/2008	33.08	5501.88
MW-2	1/20/2009	35.34	5499.62
MW-2	7/8/2009	33.23	5501.73
MW-2	10/20/2009	32.94	5502.02
MW-2	1/12/2010	32.94	5502.02
MW-2	4/7/2010	32.71	5502.25
MW-2	7/20/2010	32.80	5502.16
MW-2	10/7/2010	32.30	5502.66
MW-3	12/6/2006	34.76	5504.79
MW-3	3/29/2007	34.85	5504.70
MW-3	7/23/2007	35.00	5504.55
MW-3	10/11/2007	34.55	5505.00
MW-3	1/8/2008	31.74	5507.81
MW-3	7/1/2008	34.86	5504.69

Well ID	Date:	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	1/20/2009	34.75	5504.80
MW-3	7/8/2009	35.01	5504.54
MW-3	10/20/2009	34.68	5504.87
MW-3	1/12/2010	34.71	5504.84
MW-3	4/7/2010	34.53	5505.02

Notes:
BTOC - below top of casing
AMSL - above mean sea level

TABLE 2

GROUNDWATER RESULTS SUMMARY TABLE
FEDERAL GAS COM H #1 SITE
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Groundwater Standard		10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-1	3/29/2007	**39**	ND	560	**2,300**
MW-1	7/23/2007	**32**	ND	610	**2,300**
MW-1	10/11/2007	**50**	18	440	**1,500**
MW-1	1/8/2008	**47**	7.1	730	**3,000**
MW-1	7/1/2008	**18**	9.6	350	**980**
MW-1	1/20/2009	**30**	22	370	**910**
MW-1	7/8/2009	**16**	ND	280	**530**
MW-1	10/20/2009	**33**	9.7	310	**630**
MW-1	1/12/2010	**31**	<1.0	270	**500**
MW-1	4/7/2010	**33**	16	290	**630**
MW-1	7/20/2010	**27**	10	360	**710**
MW-1	10/7/2010	**26**	<50	320	600
MW-2	3/29/2007	**55**	ND	39	60
MW-2	7/23/2007	**39**	ND	25	9.2
MW-2	10/11/2007	**86**	ND	97	140
MW-2	1/8/2008	**65**	ND	82	56
MW-2	7/1/2008	**15**	ND	22	7.3
MW-2	1/20/2009	**38**	ND	85	49
MW-2	7/8/2009	7.5	ND	13	3.0
MW-2	10/20/2009	**20**	<1.0	31	29
MW-2	1/12/2010	**22**	<1.0	54	41
MW-2	4/7/2010	**37**	1.3	110	130
MW-2	7/20/2010	**17**	<1.0	94	92
MW-2	10/7/2010	**34**	<5	120	140
MW-3	12/6/2006	ND	ND	ND	ND
MW-3	3/29/2007	ND	ND	ND	ND
MW-3	7/23/2007	ND	ND	ND	ND
MW-3	10/11/2007	ND	ND	ND	ND
MW-3*	1/8/2008	ND	ND	ND	ND

Notes:

ug/l - micrograms per liter

< - indicates result is less than the stated laboratory method detection limit

NMWQCC - New Mexico Water Quality Control Commission

ND - Not detected above the laboratory detection limit

BOLD values exceed the NMWQCC Standard

* MW-3 was abandoned on May 10, 2010

TABLE 1

GROUNDWATER QUALITY SUMMARY TABLE
FEDERAL GAS COM H #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Standard		10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-1	3/29/2007	**39**	ND	560	**2,300**
MW-1	7/23/2007	**32**	ND	610	**2,300**
MW-1	10/11/2007	**50**	18	440	**1,500**
MW-1	1/8/2008	**47**	7.1	730	**3,000**
MW-1	7/1/2008	**18**	9.6	350	**980**
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MW-1	4/7/2010	**33**	16	290	**630**
MW-1	7/20/2010	**27**	10	360	**710**
MW-1	10/7/2010	**26**	<50	320	600
MW-1	1/18/2011	**33**	50	300	600
MW-2	3/29/2007	**55**	ND	39	60
MW-2	7/23/2007	**39**	ND	25	9.2
MW-2	10/11/2007	**86**	ND	97	140
MW-2	1/8/2008	**65**	ND	82	56
MW-2	7/1/2008	**15**	ND	22	7.3
MW-2	1/20/2009	**38**	ND	85	49
MW-2	7/8/2009	7.5	ND	13	3.0
MW-2	10/20/2009	**20**	<1.0	31	29
MW-2	1/12/2010	**22**	<1.0	54	41
MW-2	4/7/2010	**37**	1.3	110	130
MW-2	7/20/2010	**17**	<1.0	94	92
MW-2	10/7/2010	**34**	<5	120	140
MW-2	1/18/2011	**30**	<50	160	170

TABLE 1

GROUNDWATER QUALITY SUMMARY TABLE
FEDERAL GAS COM H #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Standard		10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-3	12/6/2006	ND	ND	ND	ND
MW-3	3/29/2007	ND	ND	ND	ND
MW-3	7/23/2007	ND	ND	ND	ND
MW-3	10/11/2007	ND	ND	ND	ND
MW-3	1/8/2008	ND	ND	ND	ND

Notes:

ug/l - micrograms per liter

< - indicates result is less than the stated laboratory method detection limit

NMWQCC - New Mexico Water Quality Control Commission

ND - Not Detected

MW-3 was replaced with MW-3R on 1/7/2011

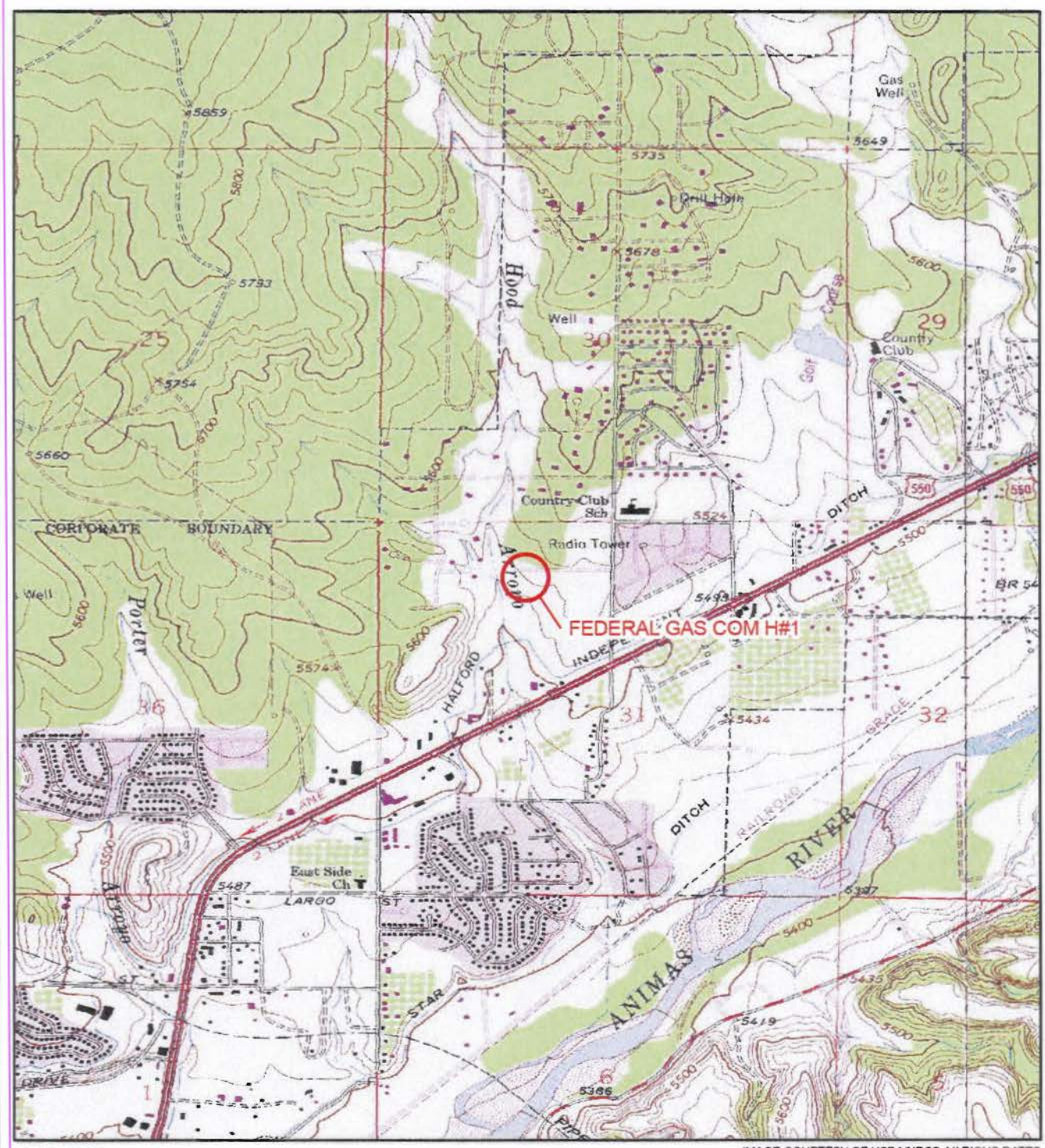


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

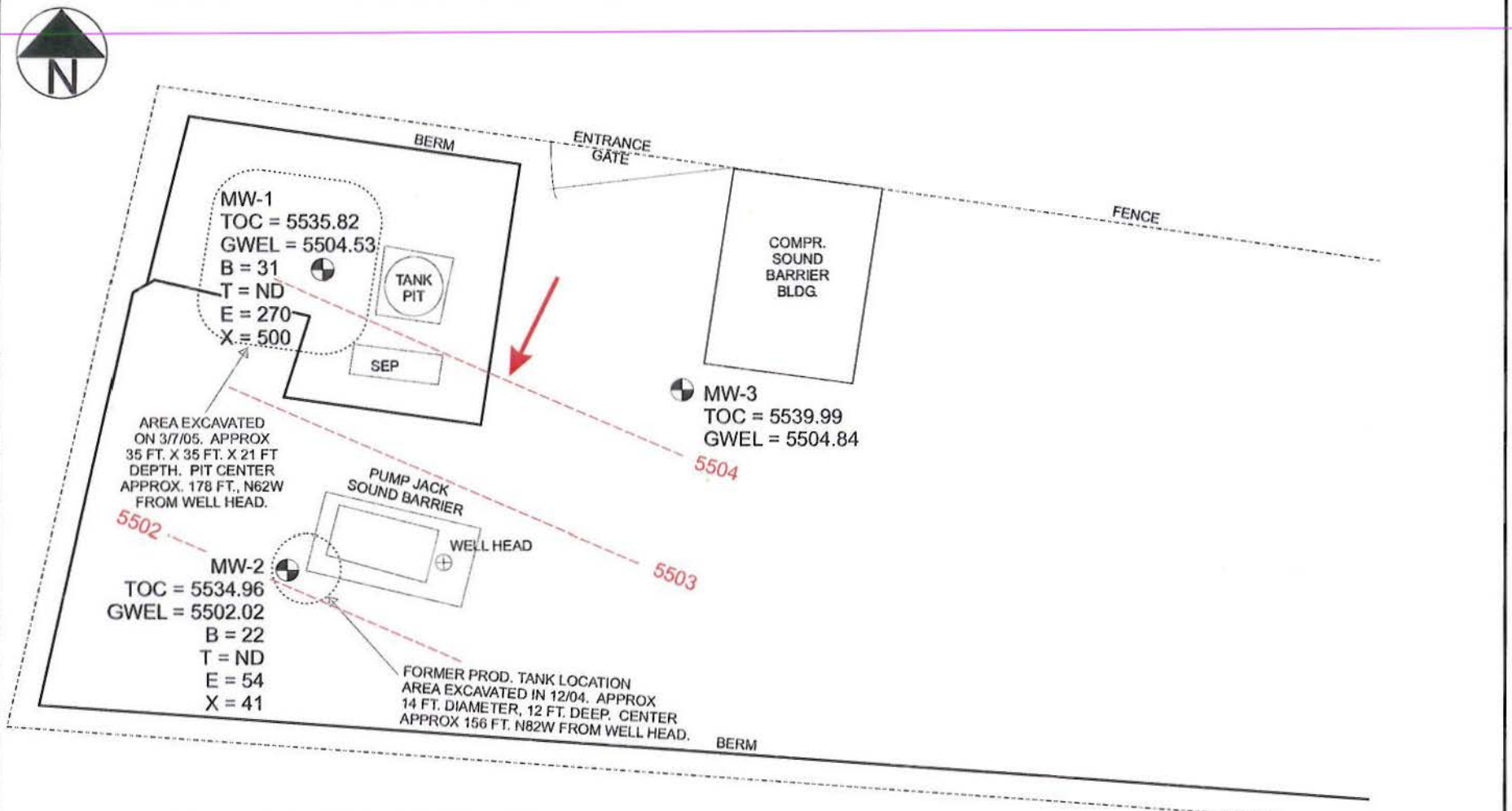
0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_FEDERAL_H#1_FIG01_SL.mxd



TOC	= TOP OF CASING ELEVATION
GWEL	= GROUNDWATER ELEVATION
----------	= INFERRED GROUNDWATER CONTOUR LINE
B	= BENZENE (ug/L)
T	= TOLUENE (ug/L)
E	= ETHYLBENZENE (ug/L)
X	= TOTAL XYLENES (ug/L)
ND	= NOT DETECTED

1 INCH = 30 FEET

0 30 60 FT.

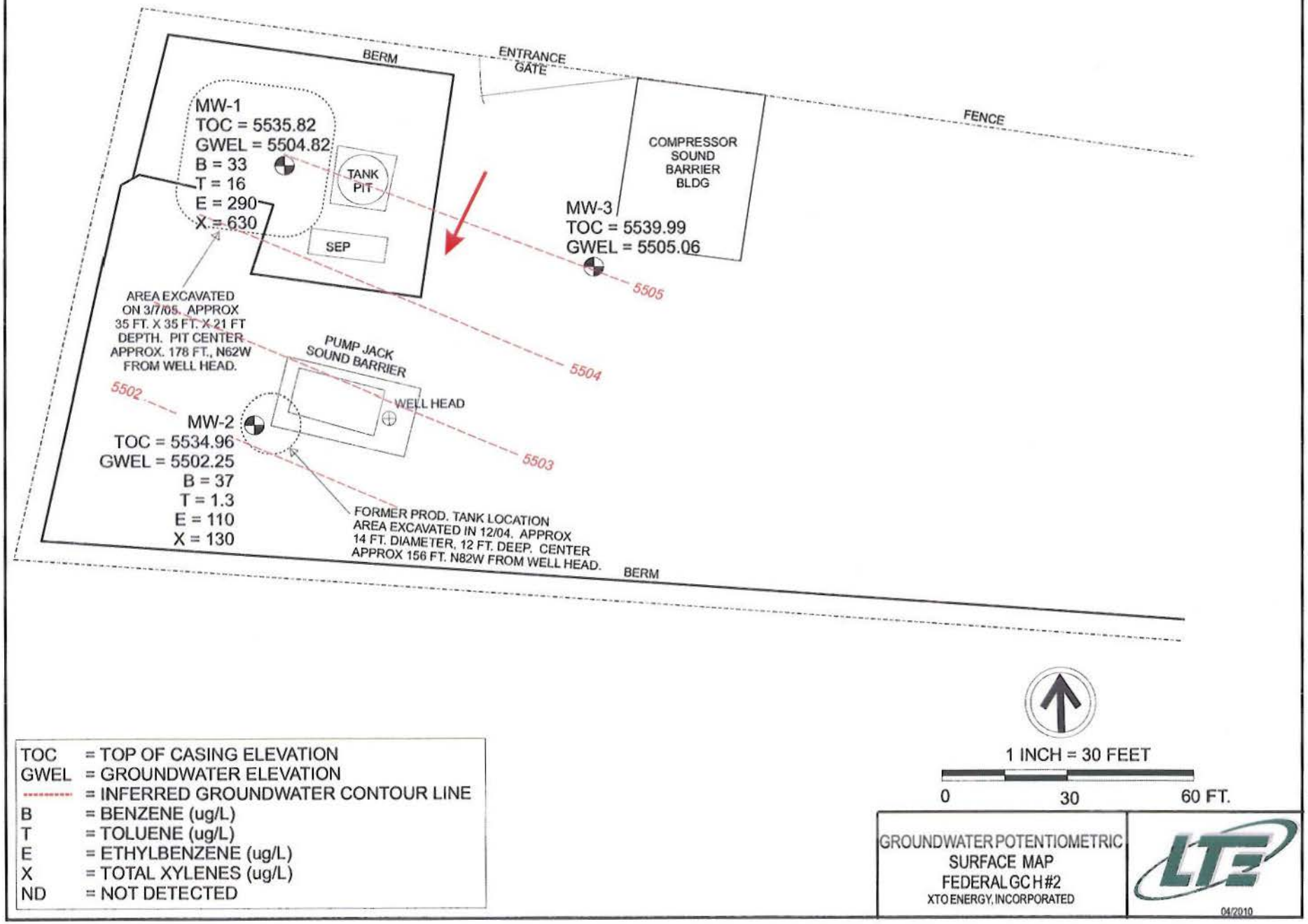
MONITORING WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

LT Environmental, Inc.
PO Box 4465
Durango, Colorado 81302
T 970.946.1093 / F 970.385.6794

FEDERAL GAS COM H #1
NE/4 NW/4 SEC.31, T30N, R12W
SAN JUAN COUNTY, NEW MEXICO

PROJECT: XTO GROUND WATER
DRAWN BY: DMH
REVISED: 28 Jan 10

GROUNDWATER GRADIENT MAP
12 Jan 10



TOC	= TOP OF CASING ELEVATION
GWEL	= GROUNDWATER ELEVATION
----------	= INFERRED GROUNDWATER CONTOUR LINE
B	= BENZENE (ug/L)
T	= TOLUENE (ug/L)
E	= ETHYLBENZENE (ug/L)
X	= TOTAL XYLENES (ug/L)
ND	= NOT DETECTED

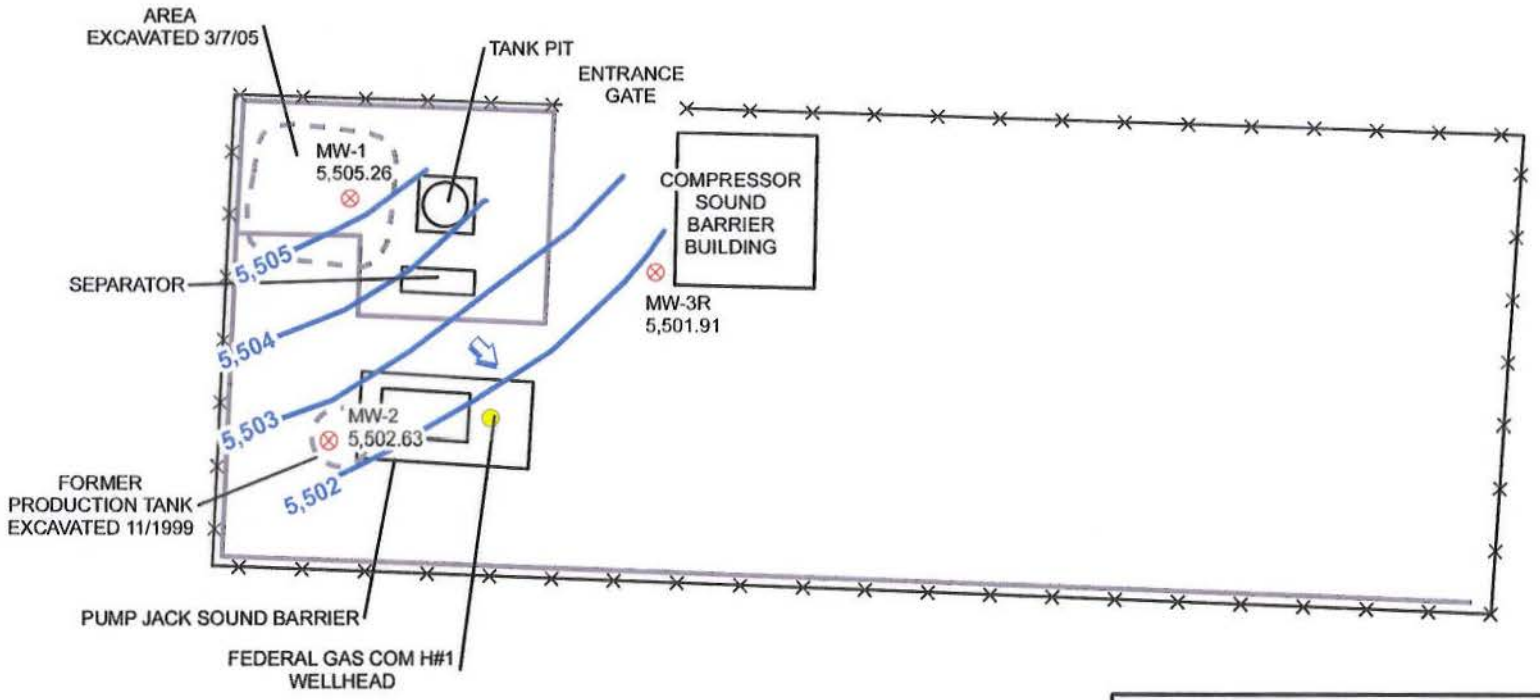
1 INCH = 30 FEET

0 30 60 FT.

GROUNDWATER POTENTIOMETRIC SURFACE MAP
FEDERAL GC H #2
XTO ENERGY, INCORPORATED

LTE

04/2010



NOTE: MONITORING 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 MAY NOT BE TO SCALE.

LEGEND

- MONITORING WELL
- WELLHEAD
- FENCE
- BERM
- FORMER PRODUCTION FEATURE
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT
  GROUNDWATER ELEVATIONS MEASURED IN FEET
  ABOVE MEAN SEA LEVEL ON JANUARY 18, 2011

0 50 100
Feet

N

FIGURE 2
SITE MAP
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

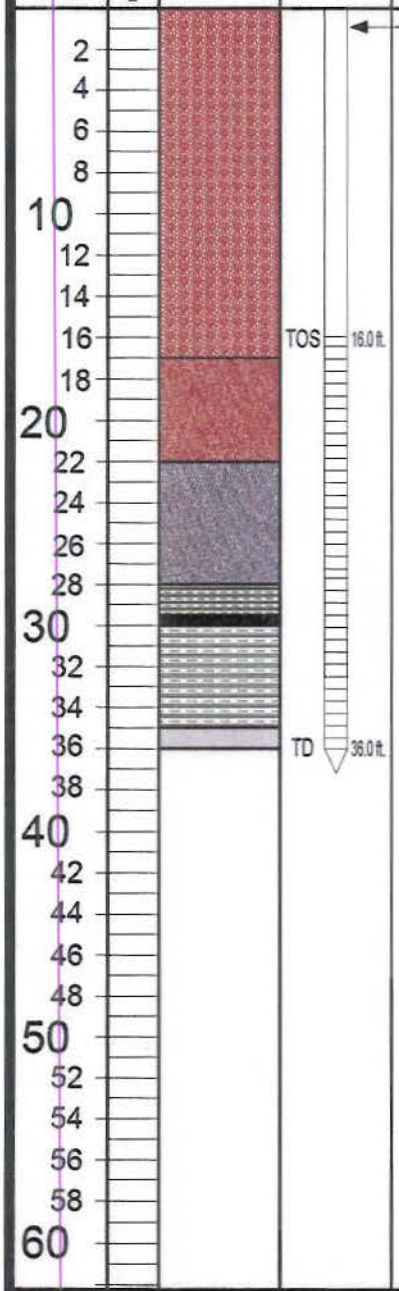
P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_FEDERAL_H#1_FIG02_GWELEV_2011_Q1.mxd

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	03/14/05
DATE FINISHED	03/14/05
OPERATOR.....	KP
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: FEDERAL GC H # 1 UNIT C, SEC. 31, T30N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC./ENVIROTECH
EQUIPMENT USED: MOBILE DRILL RIG SIMILAR TO CME 75
BORING LOCATION: 171 FEET, N61.5W FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 4.00 FEET ABOVE GRADE.

MODERATE TO DARK YELLOWISH BROWN SAND & ROCK AGGREGATE, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 17.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SAND, NON COHESIVE, LOOSE TO FIRM, MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 22.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT MEDIUM GRAY TO BLACK, WET (22.0 - 28.0 FT. BELOW GRADE).

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, MOIST TO WET, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (30.5 - 35.0 FT. BELOW GRADE).

SAMPLE COLLECTED FROM SPLIT SPOON SAMPLER BH-2 @ 30.5 FT. OVM READING - 18.1 ppm, COLLECTED - 3/14/05, TIME - 9:30 am, blow count = 11/2 ft.

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, MOIST TO WET, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (30.5 - 35.0 FT. BELOW GRADE).

LIGHT GRAY BEDROCK (SANDSTONE), DRY, FINE GRAIN, WELL CONSOLIDATED, WELL CEMENTED, COMPETENT, HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (35.0 - 36.0 FT. BELOW GRADE).

NOTES:

- IMPORTED SAND & ROCK AGGREGATE.
- SAND (IMPACTED).
- SILTY CLAY TO CLAY (IMPACTED).

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
OVM - Organic Vapor Meter or Photoionization Detector (PID).
TPH - Total Petroleum Hydrocarbon US EPA method modified 8015B.
ppm - Parts per million or milligrams per liter (mg/L).

Monitor well consist of 2 inch PVC piping - casing from 4.0 ft. above grade to 16.0 ft. below grade, 0.010 slotted screen between 16.0 to 36.0 feet below grade, sand packed annular to 13 ft. below grade, bentonite plugged to 5 ft. below grade, then finished to surface with clean soil.

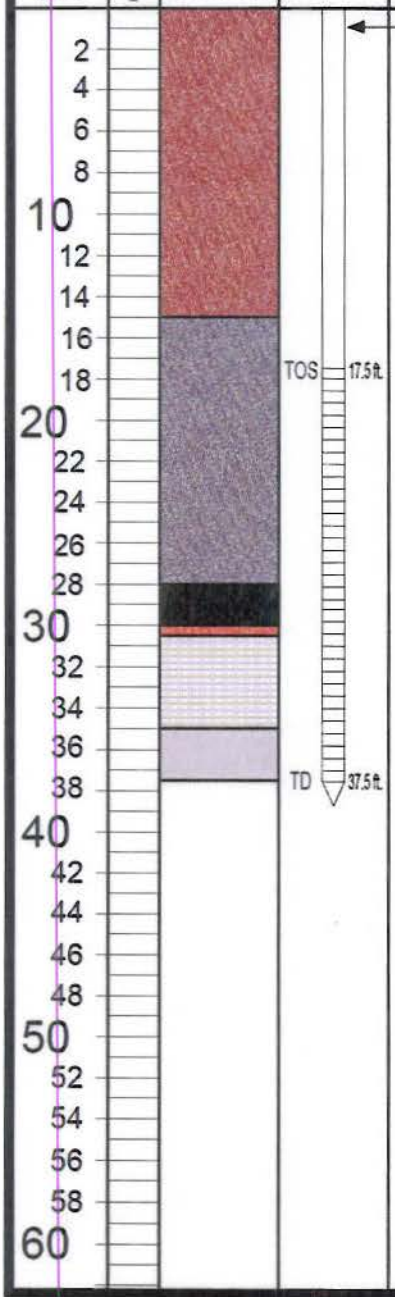
DRAWING: FED-GC-H1-MW1. SKF | DATE: 03/14/05 | DWN BY: NJV

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	03/14/05
DATE FINISHED	03/14/05
OPERATOR.....	KP
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: FEDERAL GC H # 1 UNIT C, SEC. 31, T30N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC./ENVIROTECH
EQUIPMENT USED: MOBILE DRILL RIG SIMILAR TO CME 75
BORING LOCATION: 156 FEET, N82W FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.50 FEET ABOVE GRADE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 15.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN TO MEDIUM GRAY SAND, NON COHESIVE, MOIST, STRONG HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (15.0 - 28.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT BLACK AND SATURATED (28.0 - 30.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT DARK YELLOWISH ORANGE (30.0 - 30.5 FT. BELOW GRADE).

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (30.5 - 35.0 FT. BELOW GRADE).

LIGHT GRAY BEDROCK (SANDSTONE), DRY, FINE GRAIN, WELL CONSOLIDATED, WELL CEMENTED, COMPETENT, HC ODOR DETECTED PHYSICALLY WITHIN SPLIT SPOON SAMPLER (35.0 - 37.5 FT. BELOW GRADE).

NOTES:
- SAND.
- SAND (IMPACTED).
- SILTY CLAY TO CLAY (IMPACTED).

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.

Monitor well consist of 2 inch PVC piping - casing from 2.5 ft. above grade to 17.5 ft. below grade, 0.010 slotted screen between 17.5 to 37.5 feet below grade, sand packed annular to 13 ft. below grade, bentonite plugged to 5 ft. below grade, then finished to surface with clean soil.

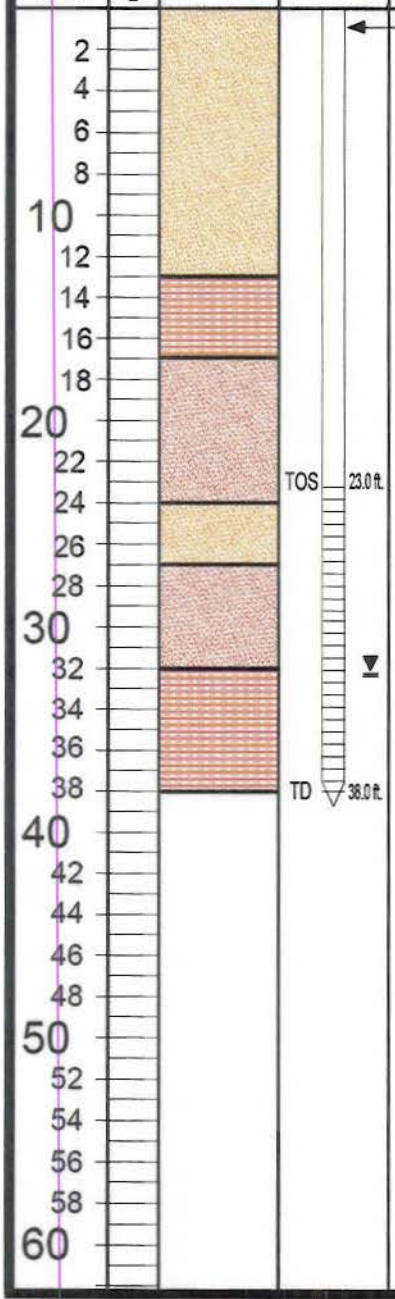
DRAWING: FED-GC-H1-MW2. SKF | DATE: 03/14/05 | DWN BY: NJV

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

BORE / TEST HOLE REPORT

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	04/26/06
DATE FINISHED	04/26/06
OPERATOR.....	DP
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: FEDERAL GC H # 1 UNIT C, SEC. 31, T30N, R12W
CONTRACTOR: BLAGG ENGINEERING, INC./ENVIROTECH
EQUIPMENT USED: MOBILE DRILL RIG SIMILAR TO CME 75
BORING LOCATION: 96.5FEET, N53W FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.50 FEET ABOVE GRADE.

MODERATE TO DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS, (0.0 - 13.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SILTY CLAY, MEDIUM PLASTIC, FIRM TO STIFF, SLIGHTLY MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (13.0 - 17.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SAND, NON COHESIVE, FIRM, SLIGHTLY MOIST TO MOIST, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 24.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT DARK YELLOWISH ORANGE (24.0 - 27.0 FT. BELOW GRADE).

SAME AS ABOVE EXCEPT DARK YELLOWISH BROWN, MOIST TO WET (27.0 - 32.0 FT. BELOW GRADE).

DEPTH TO WATER APPROX. 32.18 FT. BELOW GRADE, MEASURED 4/28/06.

DARK YELLOWISH BROWN SAND PHASING INTO SILTY CLAY, WET TO SATURATED, NON COHESIVE TO MEDIUM PLASTIC, FIRM TO STIFF, SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (32.0 - 38.0 FT. BELOW GRADE).

NOTES:

- SAND.
- SILTY CLAY TO CLAY (IMPACTED).

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.

Monitor well consist of 2 inch PVC piping - casing from 2.50 ft. above grade to 23.0 ft. below grade, 0.010 slotted screen between 23.0 to 38.0 feet below grade, sand packed annular to 21 ft. below grade, bentonite plugged between 18 to 21 ft. below grade, then finished to surface with clean soil.

DRAWING: FED-GC-H1-BH3-MW3. SKF | DATE: 04/26/06 | DWN BY: NJV

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

January 28, 2000

Mr. Denny G. Foust -Environmental Geologist
New Mexico Oil Conservation Division - (NMOCD)
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Cross Timbers Oil Co. Federal GC H # 1 Spill Cleanup Report
Unit C, SEC. 31, T30N, R12W, San Juan County, New Mexico

Dear Mr. Foust:

On behalf of Cross Timbers Oil Company, Blagg Engineering, Inc. (BEI) respectfully submits the attached report affiliated with the Federal GC H # 1 spill release (approximately 69 barrels) which occurred on approximately November 25, 1999.

In briefly summarizing the cleanup effort which took place between November 26th and 29th, 1999, approximately 304 cubic yards of impacted soil was removed (refer to Figure 1) and transported to Envirotech, Inc.'s Soil Remediation Facility (NMOCD rule 7/11 permit for commercial facility - Landfarm #2) located in NW/4, Sec. 6, T26N, R10W, NMPM, San Juan County, NM. The excavation perimeter was arbitrarily and judgmentally sampled during and upon completion of the excavation activity (refer to Figure 2 for sample locations and result summary). In revicwing the field and analytical results, it appears that vertical extent has been established utilizing the PB @ 12 ft. and PB5 @ 14 ft. data and that lateral extent of contamination appears to have met state closure standards with the exception of the 2A sample point area (point of release). It was then suggested and agreed upon between BEI and NMOCD to remediate the remaining contamination passively (estimated to be 20-30 cubic yards) utilizing vertical vent piping (refer to Figure 3) and a 50% Nitrogen, 0% Phosphorus, 0% Potassium fertilizer application (installed and introduced on January 25, 2000 by BEI).

Based upon the attached information given, Cross Timbers Oil Company is requesting closure based on risk that the remaining soil contamination does not appear to pose a present or future threat to groundwater (estimated at a depth greater than 30 feet), health, or the environment.

If you have any questions or comments concerning this report, please contact myself or Jeff Blagg at the address or phone number listed above. Thank you for your cooperation.

Respectfully submitted,
Blagg Engineering, Inc.

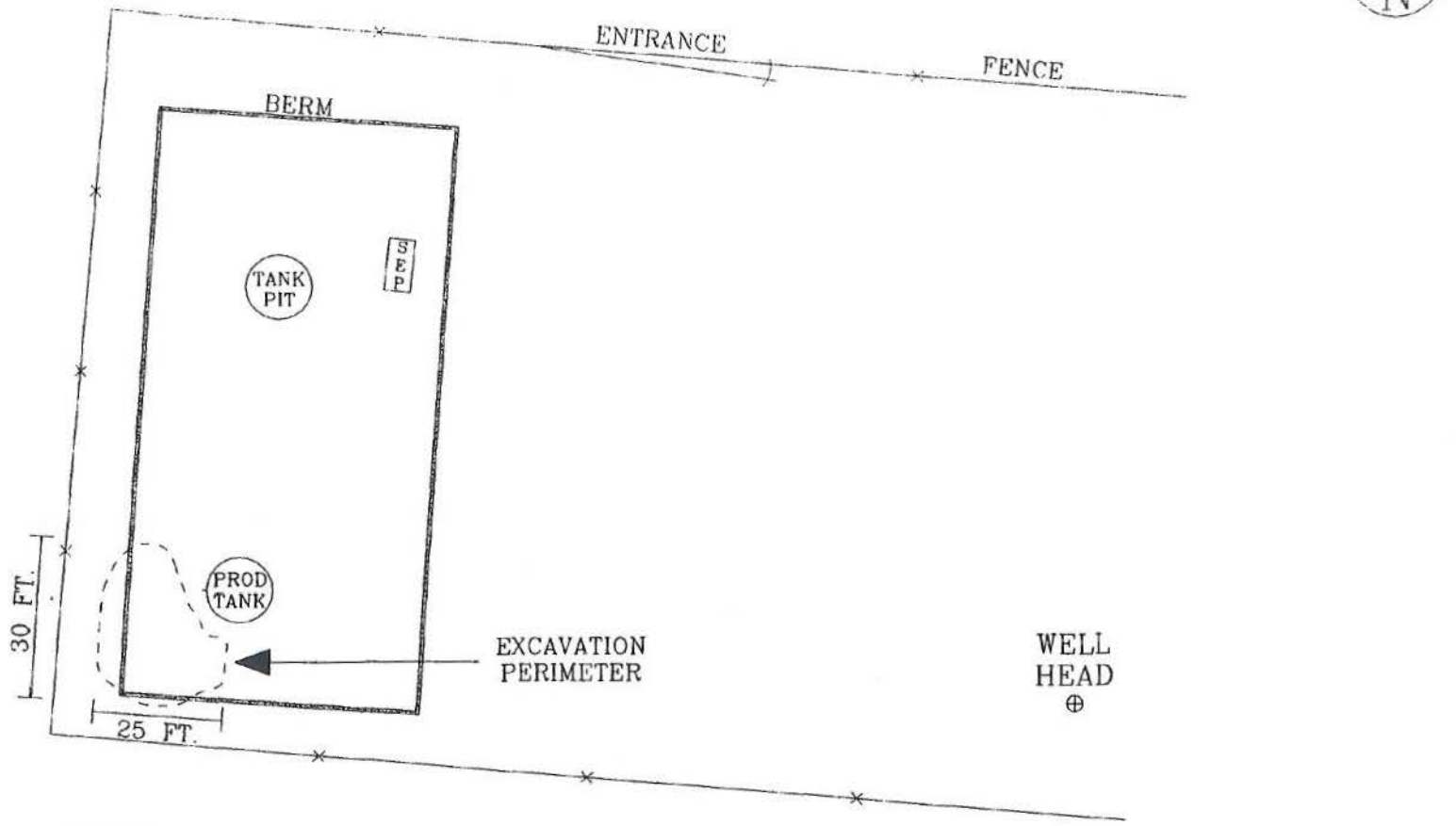
Nelson J. Velez
Staff Geologist

Attachments: Spill Cleanup Report

xc: Bill Olson, Hydrologist, NMOCD, Santa Fe Office, NM
Rueben Sanchez, Environmental Team Lead, BLM, Farmington, NM (2 copies)
Terry Matthews, Regional Supervisor, Cross Timbers Oil Co., Farmington, NM

NJV/njv FED-H1.CVL

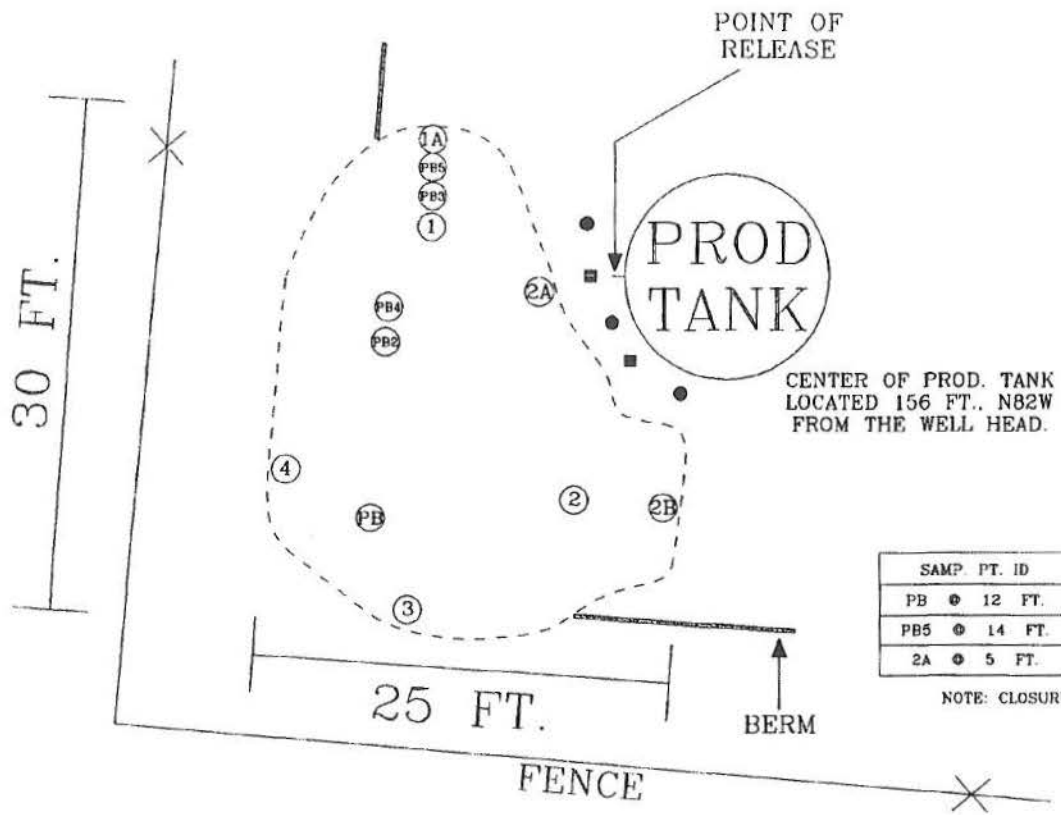
FIGURE 1



PRODUCTION TANK & SEPARATOR 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.

CROSS TIMBERS OIL COMPANY FEDERAL GC H #1 NE/4 NW/4 SEC. 31, T30N, R12W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: SPILL CLEAN UP DRAWN BY: NJV FILENAME: FED-MAP.SKD	SITE MAP 11/99

FIGURE 2



NOV. 29, 1999

SAMP PT ID	OVM READING (ppm)
1 @ 6 FT.	219
1A @ 6 FT.	131.6
2 @ 5 FT.	242
2A @ 5 FT.	248
2B @ 6 FT.	126.7
3 @ 6 FT.	115.2
4 @ 6 FT.	97.1
PB @ 12 FT.	78.3
PB2 @ 11 FT.	275
PB3 @ 11 FT.	510
PB4 @ 12 FT.	121.9
PB5 @ 14 FT.	142.1

NOTE: CLOSURE STANDARD – OVM < 100 ppm.

SAMP. PT. ID	TPH (ppm)	BENZENE (ppb)	TOTAL BTEX (ppb)
PB @ 12 FT.	19.7	–	–
PB5 @ 14 FT.	12.0	820	5,240
2A @ 5 FT.	3,540	12,130	41,460

NOTE: CLOSURE STANDARDS – TPH < 100 ppm, benzene < 10,000 ppb, & total BTEX < 50,000 ppb.

LEGEND:
- ■ DENOTES BORING LOCATION OF FERTILIZER APPLICATION.
- ● DENOTES BORING LOCATION OF VERTICAL PASSIVE VENT PIPING.

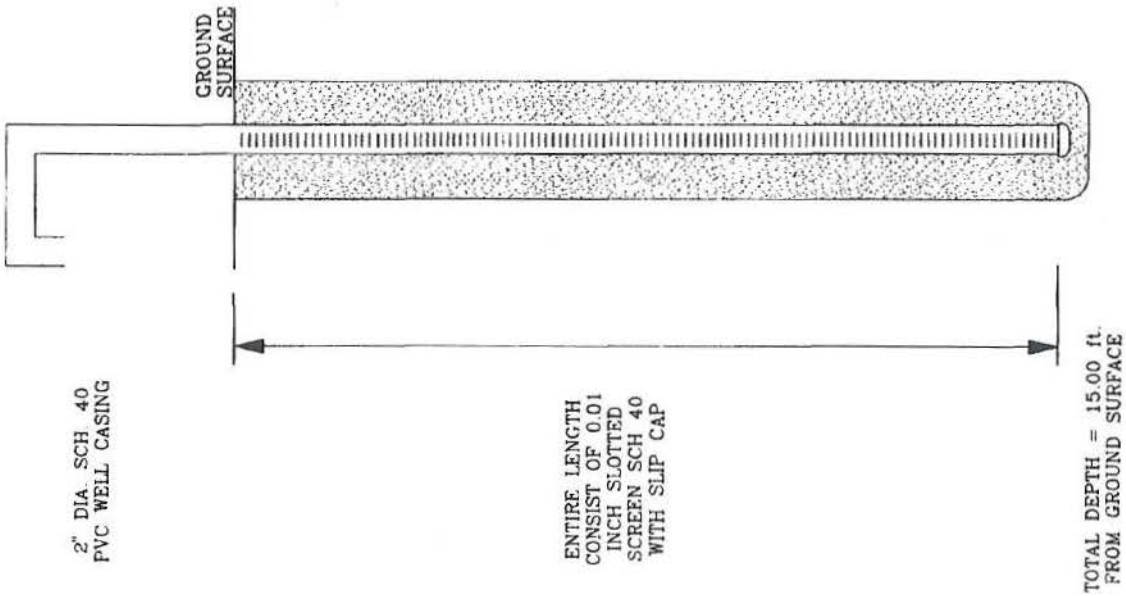
CROSS TIMBERS OIL COMPANY
FEDERAL GC H #1
NE/4 NW/4 SEC. 31, T30N, R12W
SAN JUAN COUNTY, NEW MEXICO

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

PROJECT: SPILL CLEAN UP
DRAWN BY: NJV
FILENAME: FED-MAP2.SKD

SITE MAP
11/99

FIGURE 3



CROSS TIMBERS OIL COMPANY

FEDERAL GC H # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH HAND AUGER

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

VENT PIPING SCHEMATIC

DRAFTED BY: NJV

DATE: JAN. '00

FILENAME: FED-PVP.SKD

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	PB @ 12'	Date Reported:	11-30-99
Laboratory Number:	G509	Date Sampled:	11-29-99
Chain of Custody No:	7443	Date Received:	11-30-99
Sample Matrix:	Soil	Date Extracted:	11-30-99
Preservative:	Cool	Date Analyzed:	11-30-99
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**0.6**	**0.2**
Diesel Range (C10 - C28)	**19.1**	**0.1**
Total Petroleum Hydrocarbons	**19.7**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Federal GC H #1 Tank Spill.**

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	PB5 @ 14'	Date Reported:	11-30-99
Laboratory Number:	G510	Date Sampled:	11-29-99
Chain of Custody No:	7443	Date Received:	11-30-99
Sample Matrix:	Soil	Date Extracted:	11-30-99
Preservative:	Cool	Date Analyzed:	11-30-99
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**8.2**	**0.2**
Diesel Range (C10 - C28)	**3.8**	**0.1**
Total Petroleum Hydrocarbons	**12.0**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Federal GC H #1 Tank Spill.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	2A @ 5'	Date Reported:	11-30-99
Laboratory Number:	G511	Date Sampled:	11-29-99
Chain of Custody No:	7443	Date Received:	11-30-99
Sample Matrix:	Soil	Date Extracted:	11-30-99
Preservative:	Cool	Date Analyzed:	11-30-99
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**3,170**	**0.2**
Diesel Range (C10 - C28)	**372**	**0.1**
Total Petroleum Hydrocarbons	**3,540**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Federal GC H #1 Tank Spill.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	PB5 @ 14'	Date Reported:	11-30-99
Laboratory Number:	G510	Date Sampled:	11-29-99
Chain of Custody:	7443	Date Received:	11-30-99
Sample Matrix:	Soil	Date Analyzed:	11-30-99
Preservative:	Cool	Date Extracted:	11-30-99
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**820**	**10.4**
Toluene	**506**	**10.4**
Ethylbenzene	**159**	**10.4**
p,m-Xylene	**3,280**	**10.4**
o-Xylene	**475**	**5.2**
Total BTEX	**5,240**	

ND - Parameter not detected at the stated detection limit.

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

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

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Federal GC H #1 Tank Spill.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Cross Timbers	Project #:	403410
Sample ID:	2A @ 5'	Date Reported:	11-30-99
Laboratory Number:	G511	Date Sampled:	11-29-99
Chain of Custody:	7443	Date Received:	11-30-99
Sample Matrix:	Soil	Date Analyzed:	11-30-99
Preservative:	Cool	Date Extracted:	11-30-99
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**12,130**	**10.4**
Toluene	**4,690**	**10.4**
Ethylbenzene	**15,590**	**10.4**
p,m-Xylene	**5,860**	**10.4**
o-Xylene	**3,190**	**5.2**
Total BTEX	**41,460**	

ND - Parameter not detected at the stated detection limit.

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

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

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Federal GC H #1 Tank Spill.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7443

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / CROSS TIMBERS	TANK SPILL FEDERAL GC H #1	
Sampler: NJV	Client No. 403410	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015)	BTEX (8021)					Remarks
PB @ 12'	11/29/99	1205	G509	SOIL	1	✓						PRESERV. - COOL
PB5 @ 14'	11/29/99	1540	G510	SOIL	1	✓	✓					PRESERV. - COOL
2A @ 5'	11/29/99	1520	G511	SOIL	1	✓	✓					PRESERV. - COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	11/30/99	0722	Denise L. Ajeman	11.30.99	0722
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	11-30-TPH QA/QC	Date Reported:	11-30-99
Laboratory Number:	G509	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	11-30-99
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	06-17-99	2.6810E-002	2.6783E-002	0.10%	0 - 15%
Diesel Range C10 - C28	06-17-99	2.6962E-002	2.6908E-002	0.20%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	0.6	0.6	0.0%	0 - 30%
Diesel Range C10 - C28	19.1	19.1	0.0%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	0.6	250	250	100%	75 - 125%
Diesel Range C10 - C28	19.1	250	269	100%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for samples G509 - G511.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	11-30-BTEX QA/QC	Date Reported:	11-30-99
Laboratory Number:	G503	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	11-30-99
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	7.0291E-002	7.0516E-002	0.32%	ND	0.2
Toluene	6.3951E-002	6.3963E-002	0.02%	ND	0.2
Ethylbenzene	5.2614E-002	5.2677E-002	0.12%	ND	0.2
p,m-Xylene	3.9700E-002	3.9708E-002	0.02%	ND	0.2
o-Xylene	6.5791E-003	6.5989E-003	0.30%	ND	0.1

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

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

ND - Parameter not detected at the stated detection limit.

* - Administrative level set at 80 - 120.

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

Comments: **QA/QC for samples G503 - G508 and G510 - G511.**

Analyst

Review

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

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Jan-10*

CLIENT: XTO Energy
Project: XTO Groundwater
Lab Order: 1001144

Lab ID: 1001144-01 **Collection Date:** 1/12/2010 10:40:00 AM
Client Sample ID: MW-2 P.O. Pipken #3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	1/14/2010 12:58:05 AM
Toluene	ND	1.0		µg/L	1	1/14/2010 12:58:05 AM
Ethylbenzene	ND	1.0		µg/L	1	1/14/2010 12:58:05 AM
Xylenes, Total	ND	2.0		µg/L	1	1/14/2010 12:58:05 AM
Surr: 4-Bromofluorobenzene	106	65.9-130		%REC	1	1/14/2010 12:58:05 AM

Lab ID: 1001144-02 **Collection Date:** 1/12/2010 2:35:00 PM
Client Sample ID: Federal MW-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	22	1.0		µg/L	1	1/14/2010 1:28:29 AM
Toluene	ND	1.0		µg/L	1	1/14/2010 1:28:29 AM
Ethylbenzene	54	1.0		µg/L	1	1/14/2010 1:28:29 AM
Xylenes, Total	41	2.0		µg/L	1	1/14/2010 1:28:29 AM
Surr: 4-Bromofluorobenzene	113	65.9-130		%REC	1	1/14/2010 1:28:29 AM

Lab ID: 1001144-03 **Collection Date:** 1/12/2010 3:09:00 PM
Client Sample ID: Federal MW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	31	5.0		µg/L	5	1/14/2010 1:58:43 AM
Toluene	ND	5.0		µg/L	5	1/14/2010 1:58:43 AM
Ethylbenzene	270	5.0		µg/L	5	1/14/2010 1:58:43 AM
Xylenes, Total	500	10		µg/L	5	1/14/2010 1:58:43 AM
Surr: 4-Bromofluorobenzene	115	65.9-130		%REC	5	1/14/2010 1:58:43 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: XTO Groundwater **Work Order:** 1001144

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		*MBLK*				**Batch ID:**	**R36936**	**Analysis Date:**		**1/13/2010 9:14:25 AM**	
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		*LCS*				**Batch ID:**	**R36936**	**Analysis Date:**		**1/13/2010 7:24:24 PM**	
Benzene	19.97	µg/L	1.0	20	0	99.9	85.9	113			
Toluene	20.28	µg/L	1.0	20	0	101	86.4	113			
Ethylbenzene	21.19	µg/L	1.0	20	0.076	106	83.5	118			
Xylenes, Total	64.83	µg/L	2.0	60	0	108	83.4	122			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY | Date Received: 1/13/2010

Work Order Number 1001144 | Received by: TLS

Checklist completed by: _____ Jan 13, 10 | Sample ID labels checked by: _____

Signature | Date | Initials

Matrix: | Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	4.6°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: XTO

Kim Champlin

Mailing Address: 382 CR 3100

Aztec NM 87410

Phone #: 505-333-3207

email or Fax#:

QA/QC Package:

☑ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: XTO Groundwater

Project #:

Project Manager: Ashley Ager

Sampler: Devin Hencmann

On Ice: ☒ Yes ☐ No

Sample Temperature: 4 to

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1001144	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
1-12-10	10:40	AQ	MW-2 P.O. Pipken #3	3 total	Hcl	1	X											
1-12-10	14:35	AQ	Federal MW-2	3 total	Hcl	2	X											
1-12-10	15:09	AQ	Federal MW-3	3 total	$HgCl_2$	3	X											

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
1-12-10	17:00			1/13/09	945	Please copy results to: aager@ltenv.com
Date:	Time:	Relinquished by:	Received by:	Date	Time	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, April 15, 2010

Kim Champlin
XTO Energy
382 County Road 3100
Aztec, NM 87410

TEL: (505) 333-3100
FAX (505) 333-3280

RE: XTO Ground Water

Order No.: 1004141

Dear Kim Champlin:

Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 4/8/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Apr-10*

CLIENT: XTO Energy
Project: XTO Ground Water
Lab Order: 1004141

Lab ID: 1004141-01 **Collection Date:** 4/7/2010 4:20:00 PM
Client Sample ID: Federal GC HI MW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	33	5.0		µg/L	5	4/10/2010 6:24:03 AM
Toluene	16	5.0		µg/L	5	4/10/2010 6:24:03 AM
Ethylbenzene	290	5.0		µg/L	5	4/10/2010 6:24:03 AM
Xylenes, Total	630	10		µg/L	5	4/10/2010 6:24:03 AM
Surr: 4-Bromofluorobenzene	102	65.9-130		%REC	5	4/10/2010 6:24:03 AM

Lab ID: 1004141-02 **Collection Date:** 4/7/2010 3:32:00 PM
Client Sample ID: Federal GC HI MW-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	37	1.0		µg/L	1	4/10/2010 6:54:20 AM
Toluene	1.3	1.0		µg/L	1	4/10/2010 6:54:20 AM
Ethylbenzene	110	5.0		µg/L	5	4/14/2010 12:26:06 PM
Xylenes, Total	130	2.0		µg/L	1	4/10/2010 6:54:20 AM
Surr: 4-Bromofluorobenzene	103	65.9-130		%REC	1	4/10/2010 6:54:20 AM

Lab ID: 1004141-03 **Collection Date:** 4/7/2010 1:46:00 PM
Client Sample ID: PO Pipken #3E MW-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/10/2010 7:24:35 AM
Toluene	ND	1.0		µg/L	1	4/10/2010 7:24:35 AM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2010 7:24:35 AM
Xylenes, Total	ND	2.0		µg/L	1	4/10/2010 7:24:35 AM
Surr: 4-Bromofluorobenzene	89.6	65.9-130		%REC	1	4/10/2010 7:24:35 AM

Lab ID: 1004141-04 **Collection Date:**
Client Sample ID: Trip Blank **Matrix:** TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/10/2010 7:54:46 AM
Toluene	ND	1.0		µg/L	1	4/10/2010 7:54:46 AM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2010 7:54:46 AM
Xylenes, Total	ND	2.0		µg/L	1	4/10/2010 7:54:46 AM
Surr: 4-Bromofluorobenzene	88.9	65.9-130		%REC	1	4/10/2010 7:54:46 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: XTO Ground Water **Work Order:** 1004141

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 5ML RB		*MBLK*				Batch ID:	**R38155**	Analysis Date:		4/9/2010 9:33:53 AM	
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ML RB		*MBLK*				Batch ID:	**R38202**	Analysis Date:		4/14/2010 9:23:46 AM	
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		*LCS*				Batch ID:	**R38155**	Analysis Date:		4/9/2010 9:13:29 PM	
Benzene	18.32	µg/L	1.0	20	0	91.6	85.9	113			
Toluene	17.21	µg/L	1.0	20	0	86.0	86.4	113			S
Ethylbenzene	16.95	µg/L	1.0	20	0.11	84.2	83.5	118			
Xylenes, Total	52.47	µg/L	2.0	60	0	87.5	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*				Batch ID:	**R38202**	Analysis Date:		4/14/2010 9:01:27 PM	
Benzene	23.04	µg/L	1.0	20	0	115	85.9	113			S
Toluene	23.91	µg/L	1.0	20	0	120	86.4	113			S
Ethylbenzene	23.05	µg/L	1.0	20	0	115	83.5	118			
Xylenes, Total	68.16	µg/L	2.0	60	0	114	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*				Batch ID:	**R38202**	Analysis Date:		4/14/2010 9:31:37 PM	
Benzene	21.36	µg/L	1.0	20	0	107	85.9	113	7.57	27	
Toluene	21.09	µg/L	1.0	20	0	105	86.4	113	12.5	19	
Ethylbenzene	20.70	µg/L	1.0	20	0	104	83.5	118	10.7	10	R
Xylenes, Total	62.42	µg/L	2.0	60	0	104	83.4	122	8.79	13	

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY | Date Received: 4/8/2010

Work Order Number 1004141 | Received by: TLS

Checklist completed by: _____ 4/8/10 | Sample ID labels checked by: _____

Signature | Date | Initials

Matrix: | Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3.8°	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: _____

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: XTO

Kim Champlin
Mailing Address: 382 CR 3100
Aztec, NM 87410
Phone #: 505-333-3207
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: XTO GroundWater
Project #:
Project Manager: Ashley Ager
Sampler: Devin Hencmann
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1004141	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
4/7/10	1620	Aq	Federal GC H1 MW-1	40ml/3	HgCl2	1	X															
4/7/10	1532	Aq	Federal GC H1 MW-2	40ml/3	HgCl2	2	X															
4/7/10	1346	Aq	PoPipkin #3E MW-2	40ml/3	HgCl2	3	X															
4/7/10		Aq	Trip Blank	40ml/2	HCl	4	X															

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/7/10	2100			4/8/10	940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please forward results to aager@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, July 28, 2010

Kim Champlin
XTO Energy
382 County Road 3100
Aztec, NM 87410

TEL: (505) 333-3207
FAX (505) 333-3280

RE: Federal GC H#1 XTO Ground Water

Order No.: 1007783

Dear Kim Champlin:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/22/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

for Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc. Date: *28-Jul-10*

CLIENT:	XTO Energy
Project:	Federal GC H#1 XTO Ground Water
Lab Order:	1007783

CASE NARRATIVE

"S" flags denote that the surrogate was high due to matrix interferences.

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Jul-10*

CLIENT: XTO Energy
Project: Federal GC H#1 XTO Ground Water
Lab Order: 1007783

Lab ID: 1007783-01 **Collection Date:** 7/20/2010 12:10:00 PM
Client Sample ID: MW-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	17	1.0		µg/L	1	7/26/2010 2:53:47 PM
Toluene	ND	1.0		µg/L	1	7/26/2010 2:53:47 PM
Ethylbenzene	94	1.0		µg/L	1	7/26/2010 2:53:47 PM
Xylenes, Total	92	2.0		µg/L	1	7/26/2010 2:53:47 PM
Surr: 4-Bromofluorobenzene	112	65.9-130		%REC	1	7/26/2010 2:53:47 PM

Lab ID: 1007783-02 **Collection Date:** 7/20/2010 12:56:00 PM
Client Sample ID: MW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	27	5.0		µg/L	5	7/26/2010 3:54:16 PM
Toluene	10	5.0		µg/L	5	7/26/2010 3:54:16 PM
Ethylbenzene	360	5.0		µg/L	5	7/26/2010 3:54:16 PM
Xylenes, Total	710	10		µg/L	5	7/26/2010 3:54:16 PM
Surr: 4-Bromofluorobenzene	141	65.9-130	S	%REC	5	7/26/2010 3:54:16 PM

Lab ID: 1007783-03 **Collection Date:**
Client Sample ID: TRIP BLANK **Matrix:** TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	7/26/2010 4:24:36 PM
Toluene	ND	1.0		µg/L	1	7/26/2010 4:24:36 PM
Ethylbenzene	ND	1.0		µg/L	1	7/26/2010 4:24:36 PM
Xylenes, Total	ND	2.0		µg/L	1	7/26/2010 4:24:36 PM
Surr: 4-Bromofluorobenzene	99.5	65.9-130		%REC	1	7/26/2010 4:24:36 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Federal GC H#1 XTO Ground Water **Work Order:** 1007783

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 1007783-01A MSD		*MSD*				Batch ID:	**R40035**	Analysis Date:		7/26/2010 7:56:25 PM	
Benzene	33.90	µg/L	1.0	20	16.83	85.3	85.9	113	2.84	27	S
Toluene	18.81	µg/L	1.0	20	0.368	92.2	86.4	113	5.24	19	
Ethylbenzene	107.1	µg/L	1.0	20	93.75	66.9	83.5	118	4.03	10	SE
Xylenes, Total	144.8	µg/L	2.0	60	92.07	88.0	83.4	122	3.82	13	
Sample ID: 5ML RB		*MBLK*				Batch ID:	**R40035**	Analysis Date:		7/26/2010 9:47:15 AM	
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS		*LCS*				Batch ID:	**R40035**	Analysis Date:		7/26/2010 12:19:12 PM	
Benzene	19.22	µg/L	1.0	20	0	96.1	87.9	121			
Toluene	20.45	µg/L	1.0	20	0	102	83	124			
Ethylbenzene	20.00	µg/L	1.0	20	0	100	81.7	122			
Xylenes, Total	60.28	µg/L	2.0	60	0	100	85.6	121			
Sample ID: 1007783-01A MS		*MS*				Batch ID:	**R40035**	Analysis Date:		7/26/2010 7:26:15 PM	
Benzene	34.88	µg/L	1.0	20	16.83	90.2	85.9	113			
Toluene	19.82	µg/L	1.0	20	0.368	97.3	86.4	113			
Ethylbenzene	111.5	µg/L	1.0	20	93.75	88.9	83.5	118			E
Xylenes, Total	150.5	µg/L	2.0	60	92.07	97.4	83.4	122			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **XTO ENERGY** Date Received: **7/22/2010**

Work Order Number **1007783** Received by: **TLS**

Checklist completed by: _____ 7/22/10 Sample ID labels checked by: dam
Signature Date Initials

Matrix: Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**2.3°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

Chain-of-Custody Record

Client: XTO

Kim Champlin

Mailing Address: 382 CR 3100

Aztec, NM 87410

Phone #: 505-333-3207

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Federal GC H#1 XTO Ground Water

Project #:

Project Manager: Ashley Ager

Sampler: Devin Hermann

On Ice: ☒ Yes ☐ No

Sample Temperature: 2 5°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1007732	BTEX + [illegible] (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	BTEX 8021				Air Bubbles (Y or N)
7/20/10	12:10	Aq	MW-2	3 x 40mL	HCl	1												X				N
7/20/10	12:56	Aq	MW-1	3 x 40mL	HCl	2												X				N
			Trip Blank	2x 40mL	$HgCl_2$	3																

Date	Time	Relinquished by:	Received by	Date	Time
7/20/10	2100			7/22	8:25
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please forward results to aager@ltenv.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Tuesday October 12, 2010

Report Number: L482903
Samples Received: 10/08/10
Client Project: XTO1002

Description: XTO Groundwater-Federal H#1

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards
Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ESC
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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

October 12, 2010

ESC Sample # : L482903-01

Site ID :

Project # : XTO1002

Date Received : October 08, 2010
Description : XTO Groundwater Monitoring

Sample ID : MW-2

Collected By : T. Laverty
Collection Date : 10/07/10 13:10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.034	0.00050	mg/l	8021B	10/09/10	1
Toluene	BDL	0.0050	mg/l	8021B	10/09/10	1
Ethylbenzene	0.12	0.00050	mg/l	8021B	10/09/10	1
Total Xylene	0.14	0.0015	mg/l	8021B	10/09/10	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	93.9		% Rec.	8021B	10/09/10	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 10/12/10 11:06 Printed: 10/12/10 14:29

ESC
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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

October 12, 2010

ESC Sample # : L482903-02

Site ID :

Project # : XTO1002

Date Received : October 08, 2010
Description : XTO Groundwater Monitoring

Sample ID : MW-3

Collected By : T. Laverty
Collection Date : 10/07/10 13:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.026	0.0050	mg/l	8021B	10/11/10	10
Toluene	BDL	0.050	mg/l	8021B	10/11/10	10
Ethylbenzene	0.32	0.0050	mg/l	8021B	10/11/10	10
Total Xylene	0.60	0.015	mg/l	8021B	10/11/10	10
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	10/11/10	10

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 10/12/10 11:06 Printed: 10/12/10 14:29

ESC
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Est. 1970

REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

October 12, 2010

ESC Sample # : L482903-03

Site ID :

Project # : XTO1002

Date Received : October 08, 2010
Description : XTO Groundwater Monitoring

Sample ID : TRIP BLANK

Collected By : T. Laverty
Collection Date : 10/07/10 11:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	10/11/10	1
Toluene	BDL	0.0050	mg/l	8021B	10/11/10	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/11/10	1
Total Xylene	BDL	0.0015	mg/l	8021B	10/11/10	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	10/11/10	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 10/12/10 11:06 Printed: 10/12/10 14:29

C024

XTO Energy
Attn: James McDaniel
382 CR 3100
Aztec, NM 87410

Billing Information:
Bill to: XTO
Results to: Julie Linn, LTE and James McDaniel, XTO

Report to: Julie Linn, RG, LTE
Email to: jlinn@ltenv.com

Project Description: XTO Groundwater Monitoring
City/State Collected: Federal H#1
Phone:
FAX:
Client Project #:
ESC Key:
Collected by: T. Laverty, LTE
Site/Facility ID#:
P.O.#:
Collected by (signature): TL
Immediately Packed on Ice N Y

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%
____ Three Day.....25%

Date Results Needed:
Email? __No ✓Yes
FAX? ✓No __Yes

Analysis/Container/Preservative: 8021 BTEX Non Plus

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks/Contaminant	Sample # (lab only)
mw2	Grab	GW		10/7/10	1310	3	L482903	01
mw3	Grab	GW		↓	1345	3		02
Trip Blank				10/7/10	1100	3		03

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks:

pH _____ Temp _____
872687941151 Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
T~~	10-7-10	1352	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Matthew Morales

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____
Temp: 3.2 <
Bottles Received: 9
Date: 10/8/10
Time: 09:00
Condition: OK (lab use only)
CoC Seals Intact: ___ Y ___ N ✓ NA
pH Checked:
NCF:

Chain of Custody
Page 1 of 1

ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

CoCode XTORNM (lab use only)
Template/Prelogin
Shipped Via:

Environmental Science Corp.
Login Confirmation Report
Oct 09 2010, 12:15 pm
Login Number: L482903 Template Number: N/A
Account: XTORNM XTO Energy - San Juan Division

Report To: Julie Linn
: 382 Road 3100
:
: Aztec, NM, 87410
Telephone #: 505-333-3100
Fax #:
Email: , James_McDaniel@xtoenergy.com
Project/Account Comments: report J's if above limits-B 0.01, T 0.75, E 0.75, X 0.62 mg/l

Client Project #: XTO1002
Project Description: XTO Groundwater Bruington
PO#:
PO# Required: N
Lab Project #: XTRONM-XTO1002
Client Design: DEFAULT

TSR:288
Payment Terms: Net 30
Regulatory State: NM
Fax Report: N
Quote#:
Report Design:

Lab Sample #	Test	Sample ID	Desc.	Collect Date & Time	Collected By	Site	Receive Date	PR	Est.DueDate(1)	Method		Unit Price
L482903-01		MW-2		07-Oct-10, 13:10	T. Laverty		08-OCT-10	R4	13-OCT-10			
no pres												
XTO Groundwater Monitoring												
GW	S	BTEX	BTEX		10883630	40mlAmb-NoPres	DEFAULT			8021	$	50.00
Misc	S	DISPOSAL	Sample Disposal Charge								$	2.00
Misc	S	ENERGY	Energy Surcharge								$	10.00
Misc	S	HARDCOPY	Hardcopy Report Charge								$	0.00
Misc	S	SHIPPING	Inbound Transport Charge								$	0.00
L482903-02		MW-3		07-Oct-10, 13:45	T. Laverty		08-OCT-10	R4	13-OCT-10			
no pres												
XTO Groundwater Monitoring												
GW	S	BTEX	BTEX		10883651	40mlAmb-NoPres	DEFAULT			8021	$	50.00
L482903-03		TRIP BLANK		07-Oct-10, 11:00	T. Laverty		08-OCT-10	R4	13-OCT-10			
no pres												
XTO Groundwater Monitoring												
GW	S	BTEX	BTEX		10883653	40mlAmb-NoPres	DEFAULT			8021	$	50.00

Not An Invoice! Do Not Pay Total: $ 162.00

Entered 08-OCT-10 By ESTES_J

(1) Due Date listed is an estimate based on average workloads. Please communicate required due dates to your TSR.

WELL DEVELOPMENT AND SAMPLING LOG

Project Name XTO GW Client: XTO Project Manager: ALA
Location: Federal GC H#1 Well No MW-1 Development or **Sampling**

Date: 12-Jan-10 Weather: sunny/cold Sampling Method: Bottom Valve Bailer
Start Time: 14:00 Measure Point: TOC

Total Depth: 37.20 Depth to Water: 31.29
Well Diameter: 2.00 Depth to Product:
MeasurePt: TOC Water Column Height: 5.91

ft of Water x Gal/Ft	Water Volume in Well		Water to be Removed	
	Gallons	Ounces	Gallons	Ounces
5.91 X 0.16	0.95 X 3	121.04 X 3	2.84	363.11

Purging Criteria: X 3 to 5 Casing Volumes of Water Removal X Other: or bail dry
X Stabilization of Indicator Parameters

Time: (military)	pH: (su)	Temp: (C)	SC:	ORP: (millivolts)	DO: (mg/l)	Turbidity: (NTU)	Vol Evac: (oz)	Comments / Flow rate:
14:40	6.88	14.20	5.30 mS				34	
	6.88	14.80	5.52 mS				34	
	6.90	14.80	5.52 mS				34	
	6.90	14.40	5.52 mS				34	
	6.91	15.00	5.57 mS				34	
	6.92	15.30	5.59 mS				34	
	6.90	14.80	5.49 mS				68	
	6.86	14.80	5.55 mS				68	
15:09	6.87	14.90	5.52 mS				34	

INSTRUMENTATION: pH Meter Conductivity Meter
Temperature Meter

Water Disposal: On Site

Sample ID: Federal GC H#1 MW-1 Sample Time: #Error

Sample Tests: 8021 BTEX

MS/MSD BD BD Name/Time: TB: Trip Blank

WELL DEVELOPMENT AND SAMPLING LOG

Project Name XTO GW Client: XTO Project Manager: ALA
Location: Federal GC H#1 Well No MW-2 Development or **Sampling**

Date: 12-Jan-10 Weather: sunny/cold Sampling Method: Bottom Valve Bailer
Start Time: 14:00 Measure Point: TOC

Total Depth: 35.34 Depth to Water: 32.94
Well Diameter: 2.00 Depth to Product:
MeasurePt: TOC Water Column Height: 2.40

ft of Water x Gal/Ft	Water Volume in Well		Water to be Removed	
	Gallons	Ounces	Gallons	Ounces
2.40X 0.16	0.38X 3	49.15X 3	1.15	147.46

Purging Criteria: X 3 to 5 Casing Volumes of Water Removal X Other: or bail dry
X Stabilization of Indicator Parameters

Time: (military)	pH: (su)	Temp: (C)	SC:	ORP: (millivolts)	DO: (mg/l)	Turbidity: (NTU)	Vol Evac: (oz)	Comments / Flow rate:
14:00	6.80	14.70	3.71 mS				34	
	6.78	13.70	3.84 mS				34	
	6.80	14.00	3.84 mS				34	
	6.80	14.30	4.04 mS				34	
	6.82	13.80	4.00 mS				34	
	6.83	14.20	4.03 mS				34	
	6.84	14.50	4.13 mS				34	
	6.82	13.70	4.07 mS				34	
	6.84	14.10	4.13 mS				34	
14:35	6.85	14.90	4.26 mS				34	

INSTRUMENTATION: pH Meter Conductivity Meter
Temperature Meter

Water Disposal: On Site

Sample ID: Federal GC H#1 MW-2 Sample Time: #Error

Sample Tests: 8021 BTEX

MS/MSD BD BD Name/Time: TB: Trip Blank

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: XTO GW Sampling | Location: FEDERAL GC #1 | Well No: MW-1
Client: XTO | Date: 4/7/2010 | Time: 15:01
Project Manager: Ashley Ager | Sampler's Name: Devin Hencmann

Measuring Point: TOC | Depth to Water: 31.03 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 37.17 ft | Product Thickness: ft
Water Column Height: 6.14 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Othe bail dry

Water Volume in Well			
ounces/ft x ft of water	Gallons	Ounces	Volume to be removed
6.14 x .16	125.7 x 3	377	377 oz

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
15:40	6.96	4.93	16.2				34	HC odor, dark black silty,sheen
	6.97	4.88	16.3				34	"
	6.98	4.80	16.1				34	strong HC odor, sheen
	6.98	4.86	16.0				34	increasing cloudiness, black hc
	7.00	4.70	16.3				34	some small white flecks
	6.98	4.77	16.3				34	"
	6.99	4.81	15.8				34	"
	6.99	4.81	16.1				34	"
	7.03	4.78	16				34	becoming more clear, light sheen
	7.02	4.80	16.1				34	strong odor
	7.03	4.78	16.1				34	"
Final: 16:20	7.01	4.80	16.3				408	" "

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Othe

Water Disposal: On Site

Sample ID: MW-1 | Sample Time: 16:20

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: XTO GW Sampling | Location: FEDERAL GC #1 | Well No: MW-2
Client: XTO | Date: 4/7/2010 | Time: 15:01
Project Manager: Ashley Ager | Sampler's Name: Devin Hencmann

Measuring Point: TOC | Depth to Water: 32.71 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 38.28 ft | Product Thickness: ft
Water Column Height: 5.57 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Othe bail dry

Water Volume in Well			
ounces/ft x ft of water	Gallons	Ounces	Volume to be removed
5.57 x .16	114 x 3	342	342 oz

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
15:01	6.89	3.59	15.3				34	HC odor, dark black silty
	6.97	3.49	15.5				34	"
	7.01	3.60	15.5				34	dark,Strong HC odor white flecks
	7.02	3.49	15.7				34	increasing cloudiness, black hc
	7.04	3.63	15.5				34	"
	7.02	3.58	15.6				34	"
	7.00	3.60	15.8				18	"
	7.02	3.57	15.7				15	"
	6.99	3.61	15.6				13	becoming less silty
	7	3.58	15.7				10	strong odor
	6.99	3.59	15.8				16	"
Final: 15:32	6.99	3.59	15.8				374	" "

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Othe

Water Disposal: On Site

Sample ID: MW-2 | Sample Time: 15:32

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: | Duplicate Sample:

Project Name: Groundwater | Location: Federal GC H#1 | Well No: MW-1
Client: XTO | Date: 7/20/2010 | Time: 12:15
Project Manager: Julie Linn, RG | Sampler's Name: Devin Hencmann

Measuring Point: TOC | Depth to Water: 31.11 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 37.19 ft | Product Thickness: NA ft
Water Column Height: 6.08 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☐ Stabilization of Indicator Parameters ☐ Other bail dry

Water Volume in Well			
ounces/ft x ft of water	Ounces	Ounces	Volume to be removed
6.08 x 0.16	0.972 x 128	124.5x 3	373.5 oz

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. oz	Comments/Flow Rate
12:15	7.05	4.74	17.3				32	cloudy, strong HC odor, sheen
	7.06	4.73	17.4				64	water color darkening black
	7.07	4.73	17.1				96	water color darkening black
	7.07	4.73	15.9				128	water color darkening black
	7.06	4.72	16.6				160	water color darkening black
	7.06	4.72	16.1				192	water color darkening black
	7.05	4.73	16.2				224	water color darkening black
	7.06	4.72	16.1				256	water color dark
	7.06	4.70	16.1				288	water color dark
	7.07	4.72	16.2				320	water color dark
	7.07	4.74	16.1				352	water color dark
	7.07	4.72	16.1				384	water color dark
	7.07	4.71	16				416	water color dark
Final:	7.07	4.71	16.0				416	

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: On Site

Sample ID: MW-1 | Sample Time: 12:56

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: TRIP BLANK | Duplicate Sample: NA

Project Name: Groundwater | Location: Federal GC H#1 | Well No: MW-2
Client: XTO | Date: 7/20/2010 | Time: 11:40
Project Manager: Julie Linn, RG | Sampler's Name: Devin Hencmann

Measuring Point: TOC | Depth to Water: 32.8 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.29 ft | Product Thickness: NA ft
Water Column Height: 5.49 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other bail dry

Water Volume in Well			
ounces/ft x ft of water	Ounces	Ounces	Volume to be removed
5.49 x 0.16	0.878 x 128	112.4 x 3	337.3 oz

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. oz	Comments/Flow Rate
11:40	7.07	3.60	16.8				32	white cloudy, sulfur odor
	7.02	3.57	17.4				64	white cloudy, sulfur odor
	7.12	3.60	16.2				96	getting darker grey/black in color, odor strong
	7.10	3.63	16.2				128	getting darker grey/black in color, odor strong
	7.12	3.58	16.4				160	getting darker grey/black in color, odor strong
	7.15	3.61	16.3				192	getting darker grey/black in color, odor strong
	7.15	3.64	16.4				224	getting darker grey/black in color, odor strong
	7.15	3.66	16.5				256	getting darker grey/black in color, odor strong
	7.13	3.67	16.5				288	getting darker grey/black in color, odor strong
	7.13	3.65	16.3				320	getting darker grey/black in color, odor strong
	7.14	3.67	16.5				352	getting darker grey/black in color, odor strong
	7.13	3.66	16.6				384	getting darker grey/black in color, odor strong
Final:12:10	7.13	3.66	16.6				384	

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: On Site

Sample ID: MW-2 | Sample Time: 12:10

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: TRIP BLANK | Duplicate Sample: NA

Project Name: Groundwater | Location: Federal H#1 | Well No: MW-1
Client: XTO | Date: 10/7/2010 | Time: 13:20
Project Manager: Julie Linn, RG | Sampler's Name: T. Laverty

Measuring Point: TOC | Depth to Water: 30.51 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.21 ft | Product Thickness: NA ft
Water Column Height: 7.7 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gal/ft x ft of water	Gallons	Ounces	Volume to be removed
7.7 x 0.16	3.696	3.696 x 128	473.088 oz

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. oz	Comments/Flow Rate
	6.93	4.72	17.9				32	Clear, odor
	6.94	4.80	16.9				64	Clear, odor
	6.92	4.71	17.1				96	Cloudy, odor
	6.92	4.73	16.7				128	Cloudy, odor, sheen
	6.93	4.71	16.4				160	Cloudy, odor, sheen
	6.94	4.72	16.5				192	Cloudy, odor, sheen
	6.96	4.73	16.2				224	Cloudy, odor, sheen
	6.96	4.68	16.6				256	Cloudy, odor, sheen
	6.95	4.74	16.3				288	Cloudy, odor, sheen
	6.95	4.64	17				320	Cloudy, odor, sheen
	6.98	4.74	16.3				384	Clear, odor
	6.94	4.70	16.5				448	Clear, odor
	6.94	4.64	16.6				512	Clear, odor
Final:	6.94	4.64	16.6				512	

COMMENTS: Sampled in 3 non-preserved VOA's

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: On Site BGT

Sample ID: MW-1 Sample Time: 13:45

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: Yes Duplicate Sample: No

Project Name: Groundwater | Location: Federal H#1 | Well No: MW-2
Client: XTO | Date: 10/7/2010 | Time: 12:20
Project Manager: Julie Linn, RG | Sampler's Name: T. Laverty

Measuring Point: TOC | Depth to Water: 32.3 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.7 ft | Product Thickness: NA ft
Water Column Height: 6.4 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gal/ft x ft of water	Gallons	Ounces	Volume to be removed
6.46 x 0.16	3.102	3.102 x 128	397.056 oz

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. oz	Comments/Flow Rate
	6.87	4.00	17.2				32	Clear, odor
	7.01	4.47	16.8				64	Grey, odor
	7.09	3.75	16.6				96	Grey, odor
	7.03	3.71	17.0				128	Grey, odor
	7.09	3.77	16.6				160	Grey, odor
	7.03	3.76	16.9				192	Grey, odor
	7.03	3.79	17.2				224	Grey, odor
	7.02	3.74	16.8				256	Grey, odor
	7.03	3.83	16.8				288	Grey, odor
	7.02	3.83	16.2				320	cloudy grey odor
	7.02	3.83	16.3				352	cloudy grey odor
	7.02	3.76	16.5				384	cloudy grey odor
	7.04	3.85	16.4				416	cloudy grey odor
Final:	7.04	3.85	16.4				416	

COMMENTS: Sampled in 3 non-preserved VOA's

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: On Site BGT

Sample ID: MW-2 | Sample Time: 13:10

Analysis Requested: ☑ BTEX ☐ VOC ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: Yes | Duplicate Sample: No

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385. 1096 / F 970.385.1873

January 28, 2011

Mr. James McDaniel
XTO Energy, Inc.
382 Road 3100
Aztec, New Mexico 87410

RE: Hydrogen Peroxide Treatment Work Plan
XTO Energy, Inc.
Federal Gas Com H#1
Farmington, New Mexico

Dear Mr. McDaniel:

LT Environmental, Inc. (LTE) has prepared the following scope of work for XTO Energy, Inc. (XTO) to conduct hydrogen peroxide application as a remedial alternative at the Federal H #1 (Site) to address the presence of petroleum hydrocarbon in groundwater at the Site.

Site Description

The Site is located north of Piñon Hills Boulevard near the intersection of East Main Street and Piñon Hills Boulevard at latitude 36.774785 degrees (°) north by -108.142302° west, World Geodetic System 1984 (WGS 84) in San Juan County, New Mexico (Figure 1).

Groundwater at the Site contains concentrations of benzene, toluene, ethylbenzene and total xylenes (BTEX) in excess of the New Mexico Water Quality Control Commission (NMWQCC) standards as a result of two historic releases. In November of 1999, impacted soil was excavated in response to the release of 69 barrels of produced water and natural gas condensate. Impacts were confined to the source area and a vent pipe was installed for passive remediation of soil contamination. In 2005, a historical earthen blow pit was discovered by XTO during equipment upgrades. Excavation of impacted soils from the pit was conducted, and groundwater was encountered. Monitoring wells (MW-1 and MW-2) were installed in the two source areas in 2005 (Figure 2). A third monitoring well (MW-3) was installed cross gradient of the source area in 2006. This well was replaced in 2011 (MW-3R).

XTO has conducted regular groundwater monitoring at the Site since 2007. Sampling results are presented in Table 1 and indicate BTEX concentrations remain elevated in MW-1 and MW-2. Benzene concentrations in MW-1 range from 50 micrograms per liter (µg/l) on October 11, 2007 to 16 µg/l on July 8, 2009. Concentrations of total xylenes have steadily declined in MW-1 from a high of 3,000 µg/l in January of 2008 to the most recent result of 600 µg/l. Benzene concentrations from groundwater sampled out of MW-2 range from 86 µg/l on October 11, 2007 to 7.5 µg/l on July 8, 2009. Toluene and ethylbenzene levels are below NMWQCC standards in both MW-1 and MW-2, and xylene concentrations are below standards in MW-2.

Groundwater occurs at a depth from approximately 30 feet to 35 feet below ground surface (bgs) at the Site. Monitoring has shown that groundwater flow direction is relatively consistent towards

the south (Figure 2). Neither depth to groundwater nor groundwater flow direction exhibit significant seasonal variations.

Lithology at the Site consists of sand from ground surface to approximately 32 feet bgs. There is a silty clay to clay layer from approximately 32 feet bgs to approximately 35 feet bgs, and sandstone bedrock is encountered at 35 feet bgs. Borehole logs from installation of MW-1 and MW-2 indicate the alluvium from 30.5 feet bgs to 36.0 feet bgs contained detectable hydrocarbon odors. This suggests impacts are primarily distributed by groundwater advection. Hydraulic conductivity has not been calculated at the Site, but is likely to be low due to the low permeability exhibited by silty clay to clay soils.

Scope of Work

LTE understands that XTO desires to pursue an aggressive remedial option, consisting of liquid hydrogen peroxide applied via gravity feed into MW-1 and MW-2. Hydrogen peroxide will directly oxidize organics (such as BTEX) and enhance the *in situ* aerobic degradation by increasing oxidation-reduction reactions in the subsurface, thereby creating strong oxidizing groundwater conditions. This allows for a greater mass transfer of available dissolved oxygen for ongoing bio-activity. Furthermore, the hydrogen peroxide can act as a surfactant at the groundwater interface where absorbed-phase contaminants are present.

The proposed passive treatment will take place over a period of 30 days and will be closely monitored for effectiveness. During this period, it is estimated that approximately 86.5 gallons of 8 percent (%) hydrogen peroxide will be applied over four weekly events. The following sequence is proposed:

1. Purge the groundwater from MW-1 and MW-2 until dry.

2. Inject a diluted hydrogen peroxide solution into each well casing. The total well casing volume of MW-1 is 6.20 gallons and for MW-2 it is 6.25 gallons. These volumes will be used as a starting point for hydrogen peroxide volume application. Additional volumes may be necessary, and the goal is to provide enough solution to supply 8 pounds of hydrogen peroxide to the subsurface at each injection point. LTE estimates that at least 8 pounds are necessary to treat hydrocarbons present within the radius of influence at each well. To meet this target, approximately 11 gallons of an 8% solution is required. Should the solution not infiltrate the surrounding soils immediately, LTE will fill the wells until the solution is within 6 inches of the top of the well casing and then stop.

3. For safety reasons, the concentration of the hydrogen peroxide will not exceed 8%, the level at which hydrogen peroxide is classified as a Class 1 Oxidizer by the U.S. Department of Transportation. An 8% solution will also minimize the temperature rise anticipated by the introduction of hydrogen peroxide as it reacts with hydrocarbons in the groundwater.

4. Schedule a 7-day interval to allow time for treatment to occur.

5. Measure depth to groundwater in MW-1 and MW-2.

6. Monitor for dissolved oxygen.

7. Purge three well casing volumes from MW-1 and MW-2. If three well casing volumes cannot be purged, then purge the wells until dry. Monitor field parameters, including pH, electrical conductivity, dissolved oxygen (DO) and temperature, during purging. If DO is above acceptable limits purging will be discontinued and the well reassessed. Collect a groundwater sample for analysis of BTEX by EPA Method 8021B to determine effectiveness of the treatment and alter hydrogen peroxide concentrations and volumes as necessary.

8. Repeat steps 1 through 6 weekly for a total of 4 weekly events.

9. After 4 treatments, collect a weekly groundwater sample for analysis of BTEX.

10. Analyze results and make recommendations for additional treatment or monitoring.

All samples will be shipped via overnight courier to ESC Lab Sciences in Mt. Juliet, Tennessee for analysis with a standard turn-around time. LTE will prepare a site-specific health and safety plan (HASP) for the hydrogen peroxide injection and the groundwater sampling activities. A cost estimate for this work plan will be submitted to XTO under separate cover.

Schedule

LTE proposes implementation of this plan in April and May of 20 11. Upon completion of the 8 weeks of activities, LTE will evaluate the data and submit a report to XTO. The report will include recommendations for any additional activities at the Site that may be necessary.

LTE appreciates the opportunity to provide this work plan to XTO. Should you have any questions, please do not hesitate to call LTE at 970-385-1096.

Sincerely,

LT ENVIRONMENTAL, INC.

julie L

Senior Geologist

CC: Ashley Ager, LTE

Attachments (3)

Figure 1 – Site Location Map
Figure 2 – Site Map
Table 1 – Groundwater Quality Summary Table

FIGURES

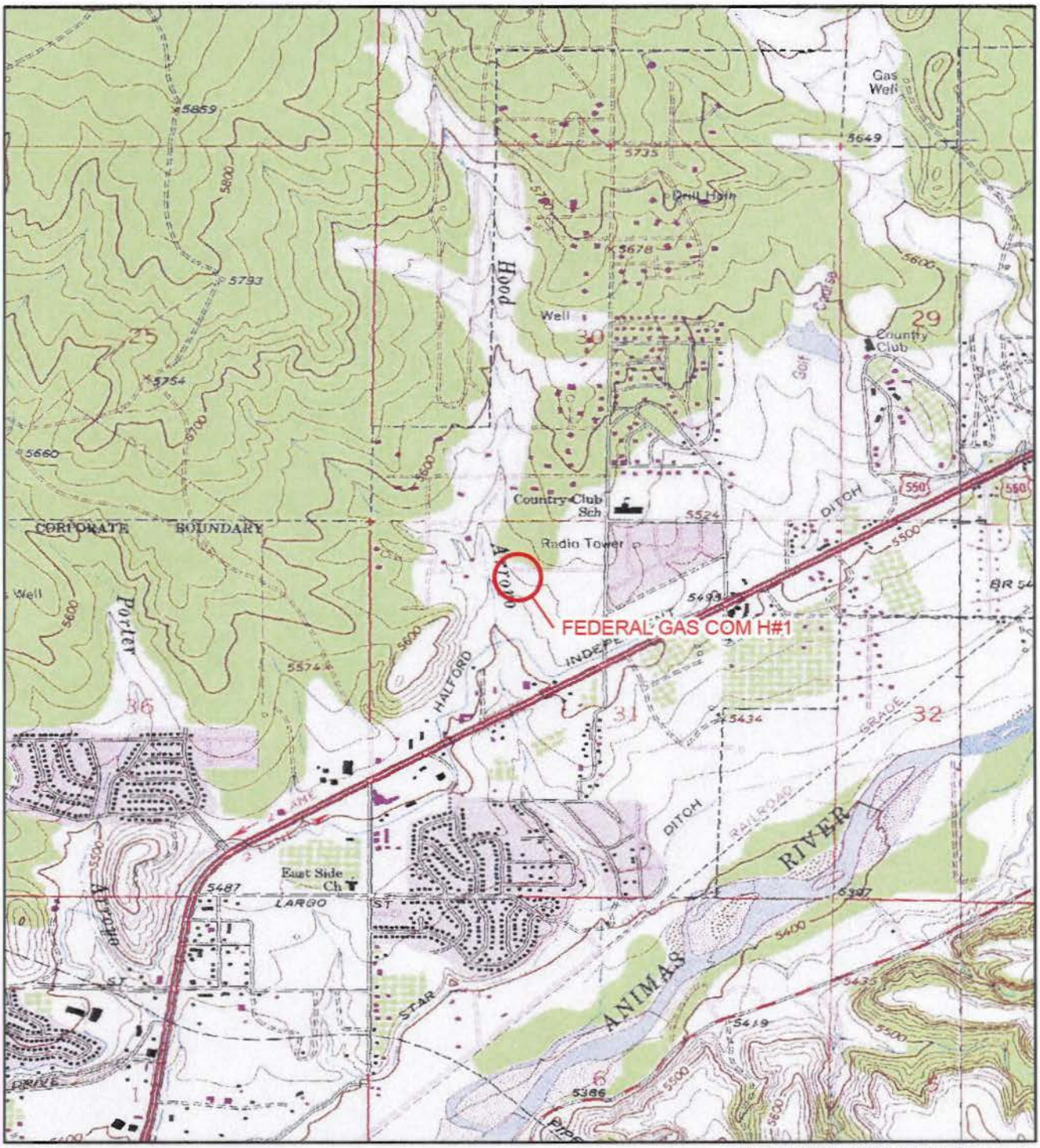

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

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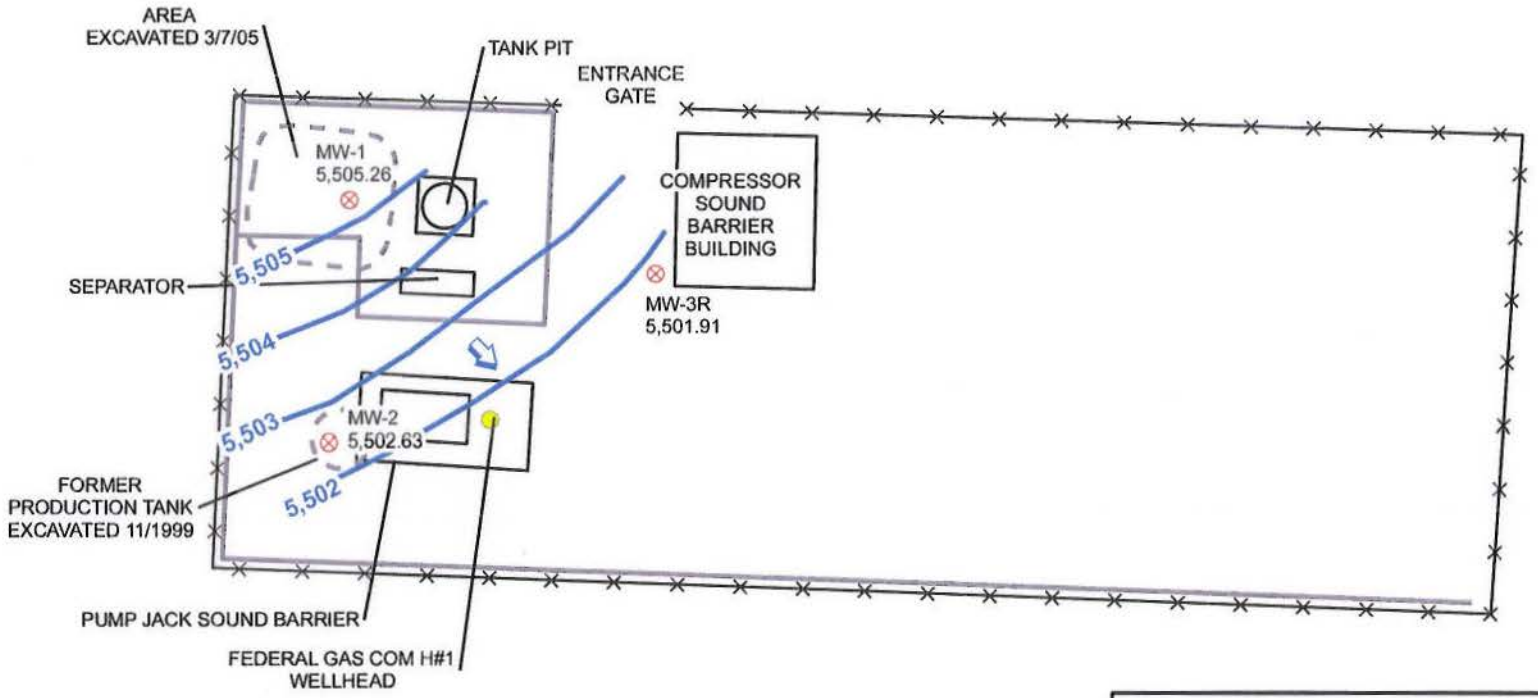

NOTE: MONITORING WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

LEGEND

- MONITORING WELL
- WELLHEAD
- FENCE
- BERM
- FORMER PRODUCTION FEATURE
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT
  GROUNDWATER ELEVATIONS MEASURED IN FEET
  ABOVE MEAN SEA LEVEL ON JANUARY 18, 2011

0 50 100
Feet

N

FIGURE 2
SITE MAP
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

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TABLE

TABLE 1

GROUNDWATER QUALITY SUMMARY TABLE
FEDERAL GAS COM H #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Standard		10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-1	3/29/2007	**39**	ND	560	**2,300**
MW-1	7/23/2007	**32**	ND	610	**2,300**
MW-1	10/11/2007	**50**	18	440	**1,500**
MW-1	1/8/2008	**47**	7.1	730	**3,000**
MW-1	7/1/2008	**18**	9.6	350	**980**
MW-1	1/20/2009	**30**	22	370	**910**
MW-1	7/8/2009	**16**	ND	280	530
MW-1	10/20/2009	**33**	9.7	310	**630**
MW-1	1/12/2010	**31**	<1.0	270	500
MW-1	4/7/2010	**33**	16	290	**630**
MW-1	7/20/2010	**27**	10	360	**710**
MW-1	10/7/2010	**26**	<50	320	600
MW-1	1/18/2011	**33**	50	300	600
MW-2	3/29/2007	**55**	ND	39	60
MW-2	7/23/2007	**39**	ND	25	9.2
MW-2	10/11/2007	**86**	ND	97	140
MW-2	1/8/2008	**65**	ND	82	56
MW-2	7/1/2008	**15**	ND	22	7.3
MW-2	1/20/2009	**38**	ND	85	49
MW-2	7/8/2009	7.5	ND	13	3.0
MW-2	10/20/2009	**20**	<1.0	31	29
MW-2	1/12/2010	**22**	<1.0	54	41
MW-2	4/7/2010	**37**	1.3	110	130
MW-2	7/20/2010	**17**	<1.0	94	92
MW-2	10/7/2010	**34**	<5	120	140
MW-2	1/18/2011	**30**	<50	160	170

TABLE 1

GROUNDWATER QUALITY SUMMARY TABLE
FEDERAL GAS COM H #1
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
NMWQCC Standard		10 ug/l	750 ug/l	750 ug/l	620 ug/l
MW-3	12/6/2006	ND	ND	ND	ND
MW-3	3/29/2007	ND	ND	ND	ND
MW-3	7/23/2007	ND	ND	ND	ND
MW-3	10/11/2007	ND	ND	ND	ND
MW-3	1/8/2008	ND	ND	ND	ND

Notes:

ug/l - micrograms per liter

< - indicates result is less than the stated laboratory method detection limit

NMWQCC - New Mexico Water Quality Control Commission

ND - Not Detected

MW-3 was replaced with MW-3R on 1/7/2011