

3R - 414

2011 AGWMR

02 / 01 / 2012



February 1, 2012

Mr. Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
(505) 476-3488

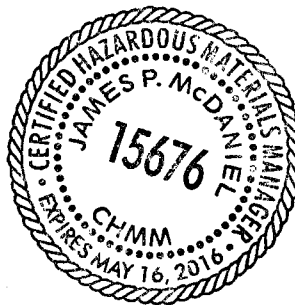
**RE: McCoy Gas Com D #1E – 2011 Annual Groundwater Report
Case File No. – 3RP-414**

Mr. Von Gonten,

Please find attached the *2011 Annual Groundwater Report* for the McCoy Gas Com D #1E well site, located in Unit E, Section 28, Township 30N, Range 12W, San Juan County, New Mexico. If you have any questions or comments, please feel free to contact me at your convenience.

A handwritten signature in black ink, appearing to read 'James McDaniel'.

James McDaniel
EH&S Supervisor, CHMM #15676
XTO Energy, Inc.
(505) 333-3701



CC: Brandon Powell, OCD Aztec Division



2011 ANNUAL GROUNDWATER REPORT

McCoy Gas Com D #1E

3RP-414

**Unit E, Section 28, Township 30N, Range 12
San Juan County, New Mexico**

PREPARED FOR:

**Mr. Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Street
Santa Fe, New Mexico 87505
(505) 476-3488**

January 2012

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2011 XTO GROUNDWATER REPORT

McCOY GAS COM D #1E 3RP-414

SITE DETAILS

LEGALS - TWN: 30N
OCD HAZARD RANKING: 30
LATITUDE: 36.78668

RNG: 12W

SEC: 28
LAND TYPE: FEE
LONGITUDE: 108.10751

INTRODUCTION

XTO Energy Inc. (XTO) acquired the McCoy Gas Com D #1E well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone and is currently active. There is an irrigation ditch directly south of the location that flows in the summer months while remaining dry in the winter months. A topographic map is presented as *Figure 1*.

HISTORY

In February 2006, while removing a 95 barrel steel separator pit tank, XTO discovered a historical earthen separator pit that was included in a 1992 Envirotech, Inc. site assessment. The report detailing this site assessment is included in this report as *Attachment 1*. Impacted soil was excavated to a depth of approximately 23 feet and an estimated 750 cubic yards of impacted soil was removed. A Blagg Engineering, Inc. report detailing the closure methods is included with this report as *Attachment 2*. The floor of the excavation was sampled and no groundwater was encountered. Monitoring well MW-1R was installed in September 2006 and sampled in October 2006. Completion Diagrams and Borehole Logs are presented as *Figure 3-4*. Laboratory results for groundwater samples from monitoring well MW-1R revealed benzene, toluene, ethyl benzene and total xylene (BTEX) constituents above New Mexico Water Quality Control Commission (WQCC) standards.

The 2006 annual groundwater report was submitted to the New Mexico Oil Conservation Division (OCD) in February 2007, proposing the installation of two (2) downgradient monitoring wells to further delineate impact to groundwater in accordance with the OCD approved Groundwater Management Plan.

XTO installed two (2) downgradient monitoring wells (MW-2 and MW-3) in May 2007. Completion Diagrams and Borehole Logs for the monitoring wells installed during 2007 are presented as *Figure 5-6*. All three (3) monitoring wells were sampled in May 2007. Laboratory results of groundwater samples revealed elevated BTEX concentrations in monitoring well MW-1 (source area) but BTEX constituents were not detected above the laboratory equipment detection limits (0.2 ug/L) in monitoring wells MW-2 and MW-3.

In a remediation work plan dated October 31, 2007 and submitted to OCD, XTO proposed installation of ORC socks in monitoring well MW-1R. In November 2007 ORC socks that produce a controlled release of oxygen into the groundwater for up to 12 months were installed in monitoring well MW-1R across the vertical length of the water column within the monitoring well.

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The 2007 annual groundwater report was submitted to the OCD in February 2008, proposing annual sampling of monitoring well MW-1R to verify dissolved oxygen concentrations, annual sampling of MW-2 and MW-3 to confirm no migration and continued annual monitoring of water levels to assess gradient.

The 2008 annual groundwater report was submitted to the OCD in April 2009 proposing replacement of the ORC sock in monitoring well MW-1R along with annual sampling of all three (3) monitoring wells.

In January 2009 OCD requested XTO sample monitoring well MW-1R while an OCD representative collected a duplicate sample. This was done on January 21, 2009.

The 2009 annual groundwater report was submitted to Mr. Glenn Von Gonten in March of 2010 recommending that monitoring well MW-1R continue to be sampled on a quarterly basis, with monitoring wells MW-2 and MW-3 being sampled on an annual basis to ensure that the hydrocarbon constituents in the groundwater were not migrating off-site.

The 2010 annual groundwater report was submitted to Mr. Glenn Von Gonten in March of 2011. This report recommended the continued use of ORC socks in monitoring well MW-1R to oxygenate the groundwater aquifer and enhance the natural degradation occurring at this site. XTO also proposed a specific capacity test be performed on MW-1R at this site during the irrigation season to determine a flow rate. XTO will use this data to determine what methods of remediation are available at this site.

Summaries of water level data and laboratory results from historical and current groundwater monitoring are presented as **Table 1** and **Table 2**. Copies of the laboratory data sheets and associated quality assurance/quality control data for 2011 are included for your review as **Attachment 3**.

METHODOLOGY

ORC socks were removed from monitoring well MW-1R at least seven days prior to sampling to allow groundwater to equilibrate. After sampling the ORC socks were replaced. Samples of groundwater were collected quarterly during 2011.

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. The data collected during this monitoring is presented on **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 (3) 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 (3) consecutive

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stable readings for each water property (± 0.4 units for pH, ± 10 percent for electric conductivity and $\pm 2^\circ$ C for temperature). All purge water is disposed of into tanks on site.

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two (2) 40-milliliter (ml) glass vials. The pre-cleaned non-preserved vials are then filled with sample water 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 Environmental Science Corporation (ESC) based out of Mt. Juliet, Tennessee for analysis. All samples were sealed in a cooler, and shipped to ESC via Fed-Ex overnight to ensure they were received by the lab cold, and within the allotted holding time for BTEX. 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. Copies of the analytical laboratory reports are included in **Attachment 3** and copies of the field notes for 2011 are included in **Attachment 4**.

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

Monitoring well MW-1R was sampled quarterly during 2011 and analyzed via USEPA Method 8021B. Monitoring wells MW-2 and MW-3 were not sampled during 2011. Benzene concentrations in MW-1R varied from a maximum of 300 parts per billion (ppb) in May 2011 to a minimum of less than 5 ppb in August 2011. Total xylenes concentrations declined through the year from a maximum of 13,000 ppb in both February and May 2011 to a low of 1,600 ppb in November 2011. Toluene concentrations declined through the year from a maximum of 1,000 ppb in February 2011 to a minimum of less than 50 ppb in November 2011. Ethylbenzene concentrations declined through the year from a maximum of 870 ppb in February 2011 to a minimum of less than 5 ppb in November 2011.

The unlined irrigation ditch adjacent to the location controls groundwater behavior at the site. Groundwater flows towards the northeast or northwest when the ditch is running and towards the south or southwest when it is empty. The ditch typically runs at full capacity in May and is dry by November for the winter season. This pattern has been observed yearly since 2007. **Figure 2** illustrates the estimated groundwater gradients obtained for 2011.

CONCLUSIONS

Laboratory analysis indicates benzene was in excess of the WQCC standards during February, May, and November 2011; toluene was in excess of the WQCC standards during February 2011, ethylbenzene was in excess of the WQCC standards in February and May 2011; and total xylenes exceeded the WQCC standard in February, May, August, and November 2011. BTEX concentrations are decreasing, most likely as a result of ORC application.

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RECOMMENDATIONS

XTO proposed conducting a pump test on MW-1R in 2011; however, it was not completed because XTO did not receive approval from NMOCD in 2011. Details of the pump test are provided in the attached plan prepared by LT Environmental (**Attachment 5**). Due to the decreasing trend of BTEX concentrations in MW-1R during 2011, XTO does not recommend conducting a pump test on MW-1R in 2012; however, XTO does propose continued use of ORC socks in monitoring well MW-1R to oxygenate the groundwater aquifer and enhance the natural degradation occurring at this site. Quarterly sampling of monitor well MW-1R will continue until WQCC standards have been met for four (4) consecutive quarters

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

Table 1

Water Level Summary Table

TABLE 3

**GROUNDWATER ELEVATION SUMMARY
MCCOY GAS COM D #001E
XTO ENERGY, INC.**

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1R	10/16/2006	32.86	5502.27
MW-1R	5/16/2007	30.69	5504.44
MW-1R	7/23/2007	30.57	5504.56
MW-1R	9/27/2007	32.01	5503.12
MW-1R	11/27/2007	34.60	5500.53
MW-1R	5/13/2008	31.97	5503.16
MW-1R	1/21/2009	36.88	5498.25
MW-1R	5/26/2009	30.68	5504.45
MW-1R	5/25/2010	30.13	5505.00
MW-1R	8/12/2010	30.87	5504.26
MW-1R	11/17/2010	33.96	5501.17
MW-1R	2/14/2011	37.27	5497.86
MW-1R *	5/17/2011	29.31	5504.27
MW-1R	8/9/2011	29.04	5504.54
MW-1R	11/9/2011	31.51	5502.07

MW-2	5/17/2007	30.56	5505.12
MW-2	7/23/2007	31.98	5503.70
MW-2	9/27/2007	32.44	5503.24
MW-2	11/27/2007	35.29	5500.39
MW-2	5/13/2008	31.98	5503.70
MW-2	5/26/2009	36.46	5499.22
MW-2	5/25/2010	29.88	5505.80
MW-2	8/12/2010	31.30	5504.38
MW-2	11/17/2010	34.61	5501.07
MW-2	2/14/2011	Dry	Dry
MW-2	5/17/2011	30.60	5505.08
MW-2	8/9/2011	31.22	5504.46
MW-2	11/9/2011	33.70	5501.98

MW-3	5/17/2007	21.55	5505.56
MW-3	7/23/2007	30.65	5496.46
MW-3	9/27/2007	24.02	5503.09



TABLE 3

**GROUNDWATER ELEVATION SUMMARY
MCCOY GAS COM D #001E
XTO ENERGY, INC.**

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	11/27/2007	28.94	5498.17
MW-3	5/12/2008	22.55	5504.56
MW-3	5/26/2009	21.37	5505.74
MW-3	5/25/2010	20.99	5506.12
MW-3	8/12/2010	23.03	5504.08
MW-3	11/17/2010	26.85	5500.26
MW-3	2/14/2011	Dry	Dry
MW-3	5/17/2011	21.49	5505.62
MW-3	8/9/2011	22.12	5504.99
MW-3	11/9/2011	25.69	5501.42

Notes:

BTOC - Below Top of Casing

AMSL - Above Mean Sea Level

* - New Top of Casing Elevation; Casing Cut Off 1.55 Feet to Remove ORC Socks in May 2011.



Table 2

Groundwater Results Summary Table

TABLE 4

**GROUNDWATER ANALYTICAL RESULTS
MCCOY GAS COM D #001E
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-1R	10/16/2006	22	2,500	2,700	19,000
MW-1R	5/16/2007	30	760	1,700	24,000
MW-1R	5/13/2008	<10	640	540	11,000
MW-1R	1/21/2009	<100	1,200	1,100	12,000
MW-1R	5/26/2009	<10	620	640	11,000
MW-1R	5/25/2010	130	160	430	7,100
MW-1R	8/12/2010	120	<120	260	6,700
MW-1R	11/17/2010	360	<2,500	1,400	16,000
MW-1R	2/14/2011	16	1,000	870	13,000
MW-1R	5/17/2011	300	290	850	13,000
MW-1R	8/9/2011	<5	53.6	19.3	6,220
MW-1R	11/9/2011	11	<50	<5	1,600
MW-2	5/17/2007	<1.0	<1.0	<1.0	3.10
MW-2	5/13/2008	<1.0	<1.0	<1.0	<2.0
MW-2	5/25/2010	<1.0	<1.0	<1.0	<2.0
MW-3	5/17/2007	<1.0	<1.0	<1.0	<2.0
MW-3	5/12/2008	<1.0	<1.0	<1.0	<2.0
MW-3	5/25/2010	<1.0	<1.0	<1.0	<2.0

Notes:

ug/L - micrograms per liter

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

NMWQCC - New Mexico Water Quality Control Commission

NS - Not Sampled

BOLD indicates the result exceeds the NMWQCC Standard

Figure 1

Topographic Map

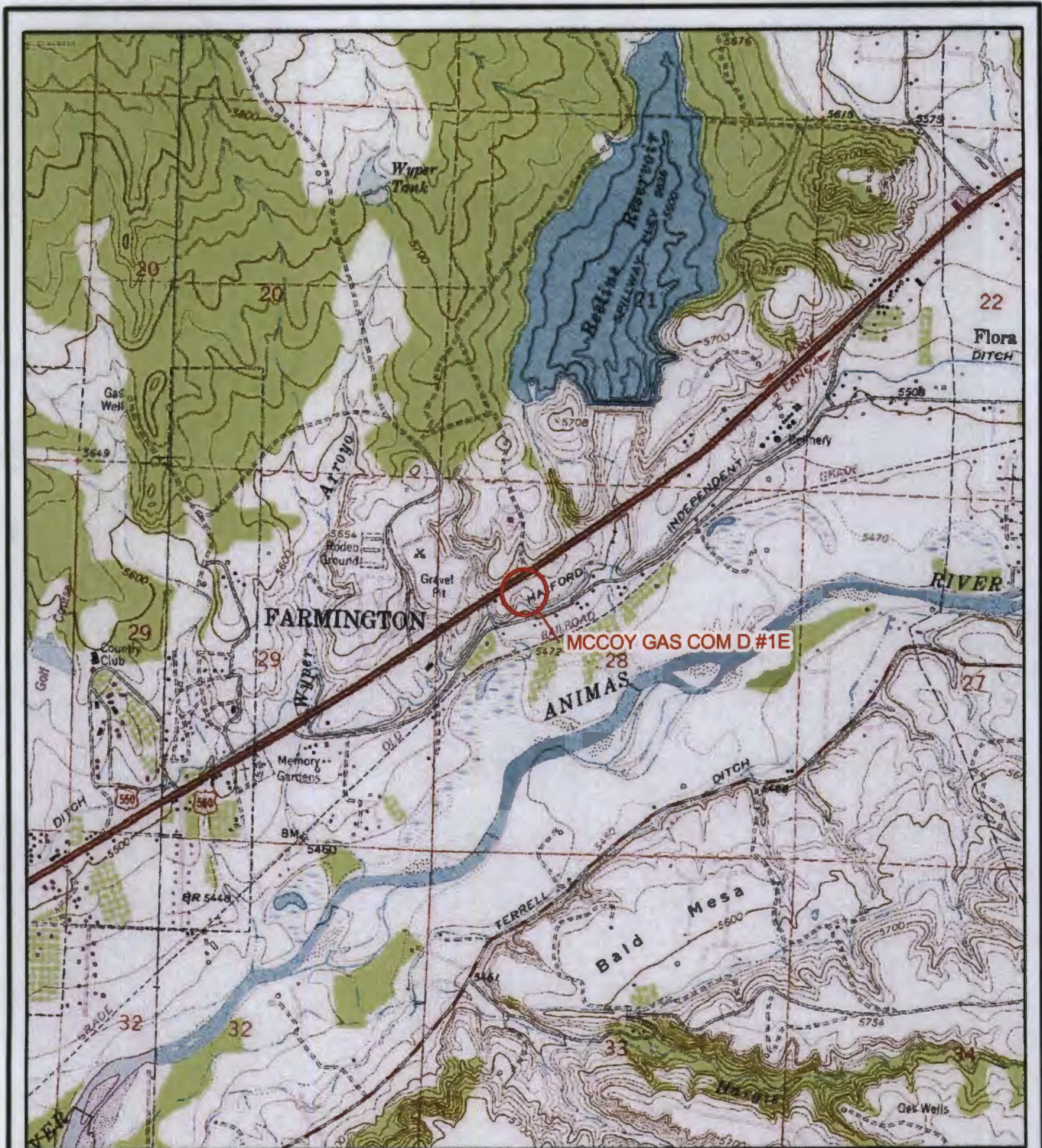


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

○ SITE LOCATION

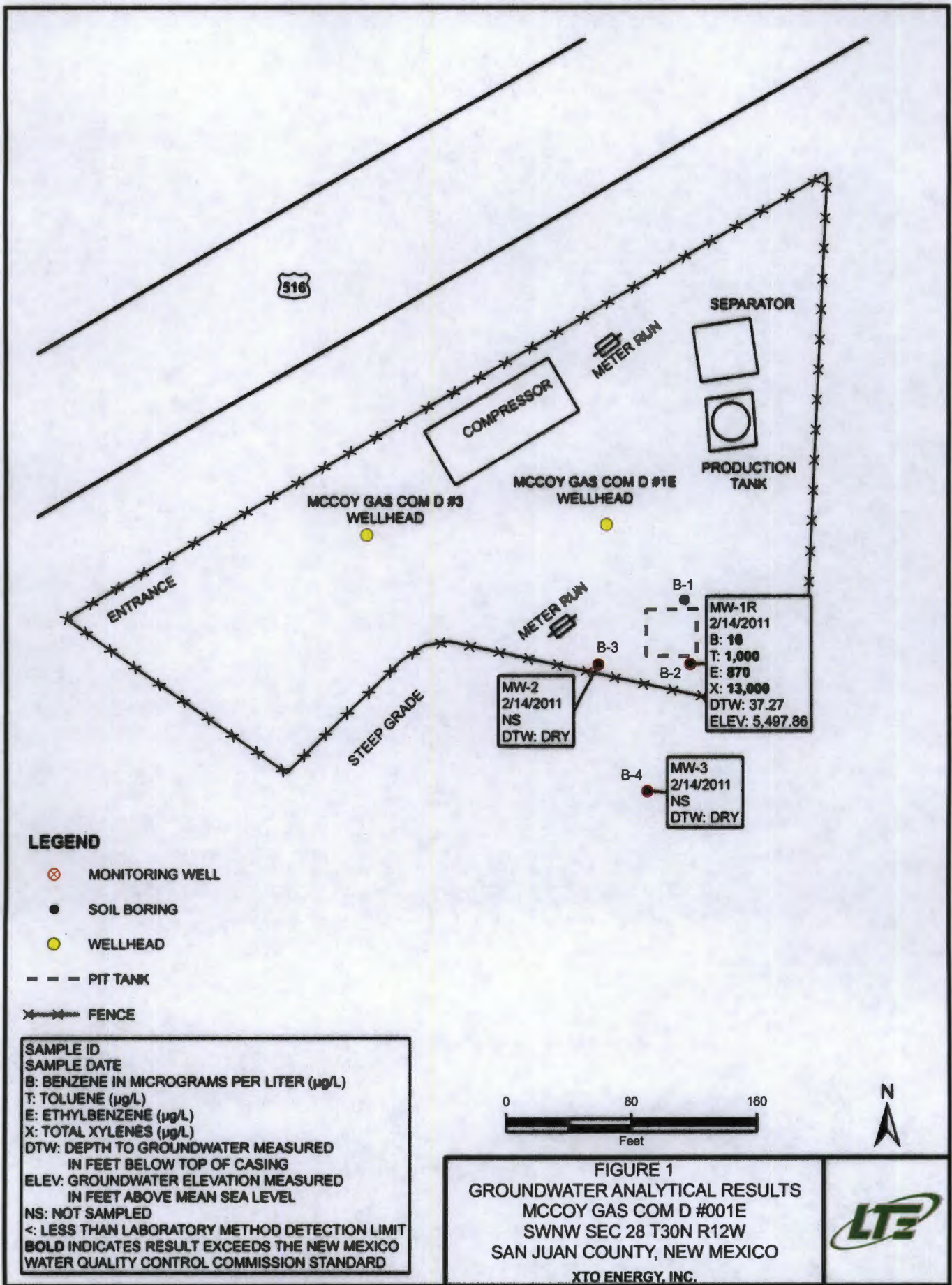


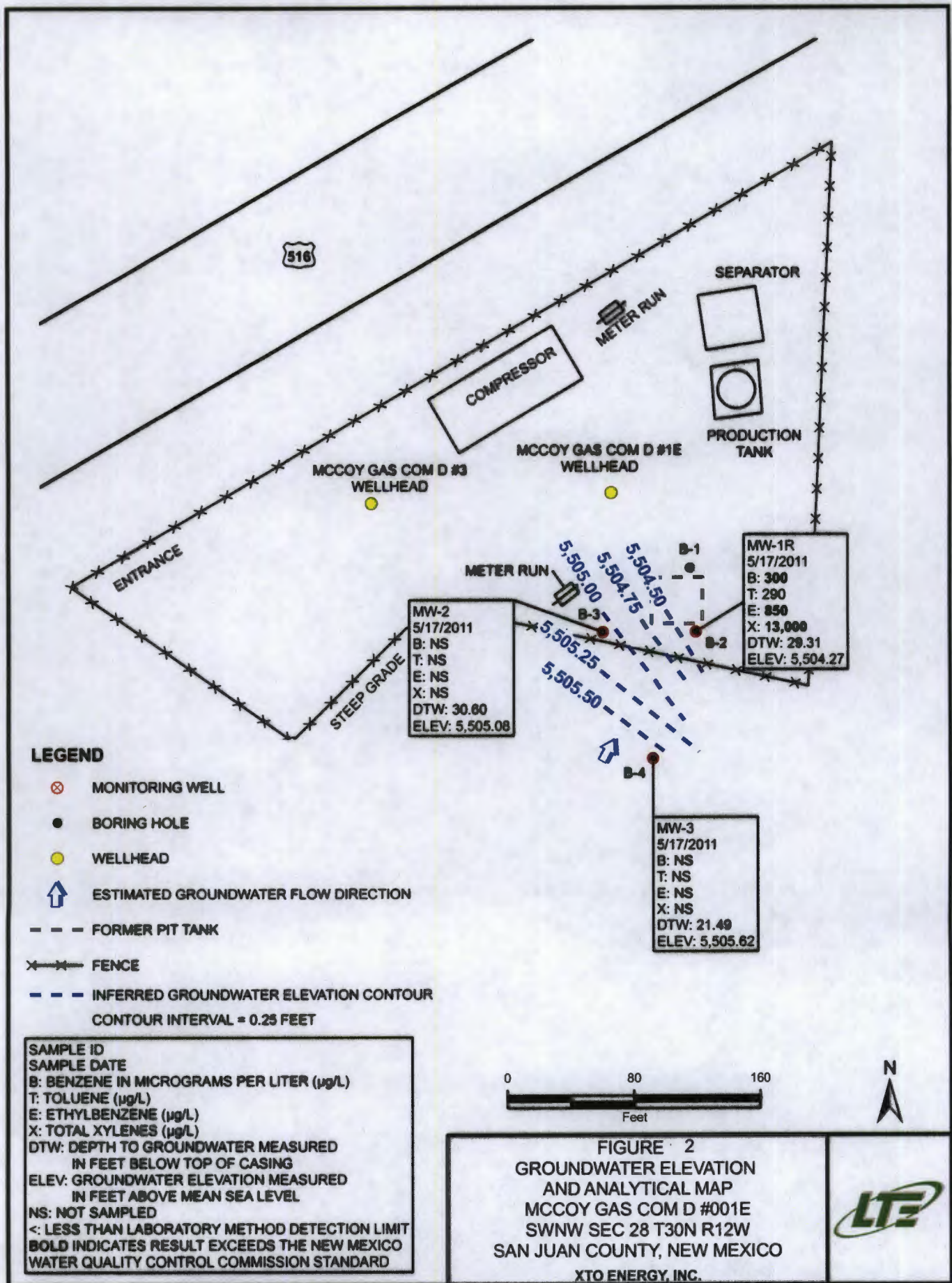
FIGURE 1
SITE LOCATION MAP
MCCOY GAS COM D #1E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

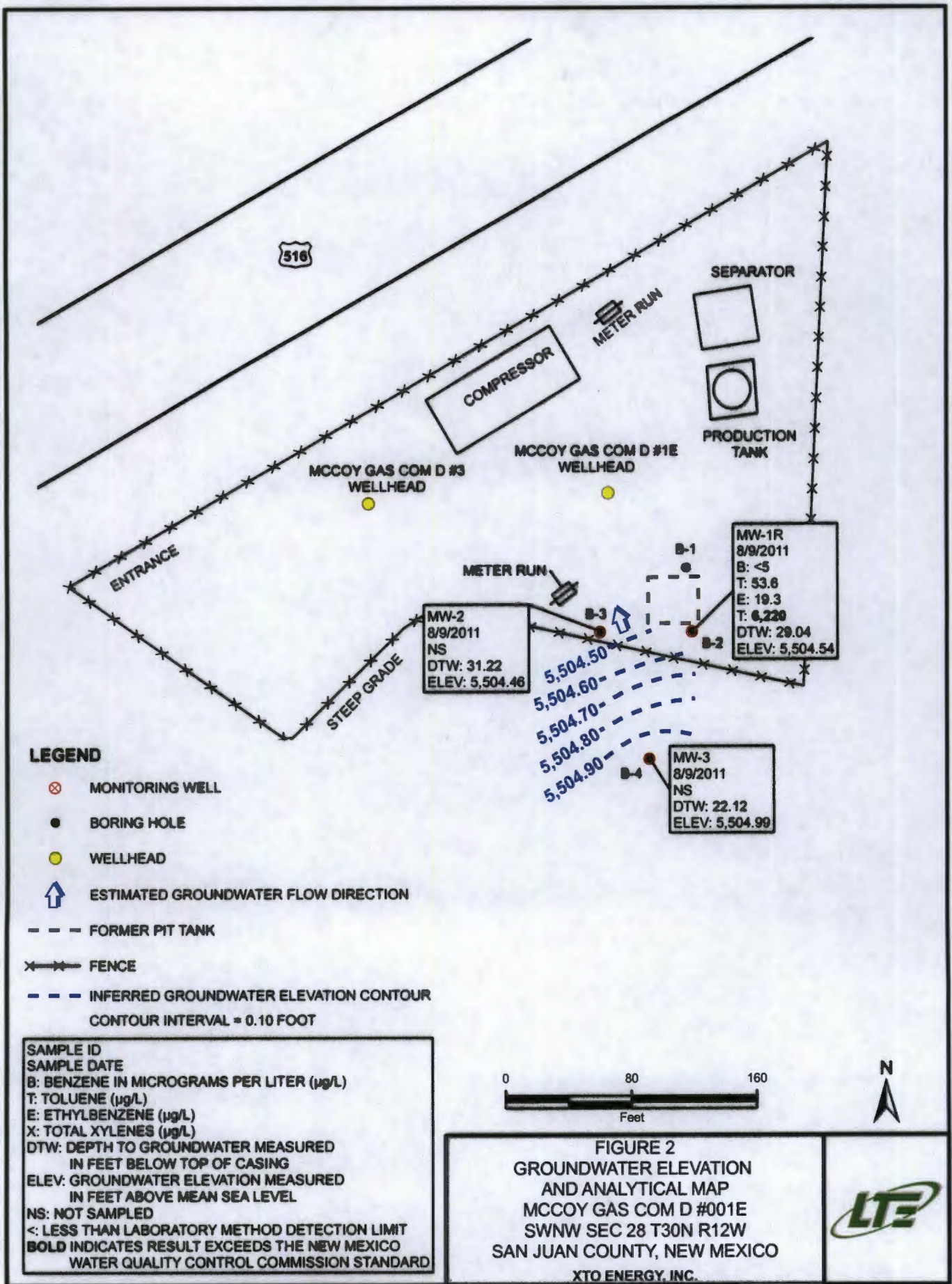


Figure 2

**Potentiometric Surface
Diagrams**







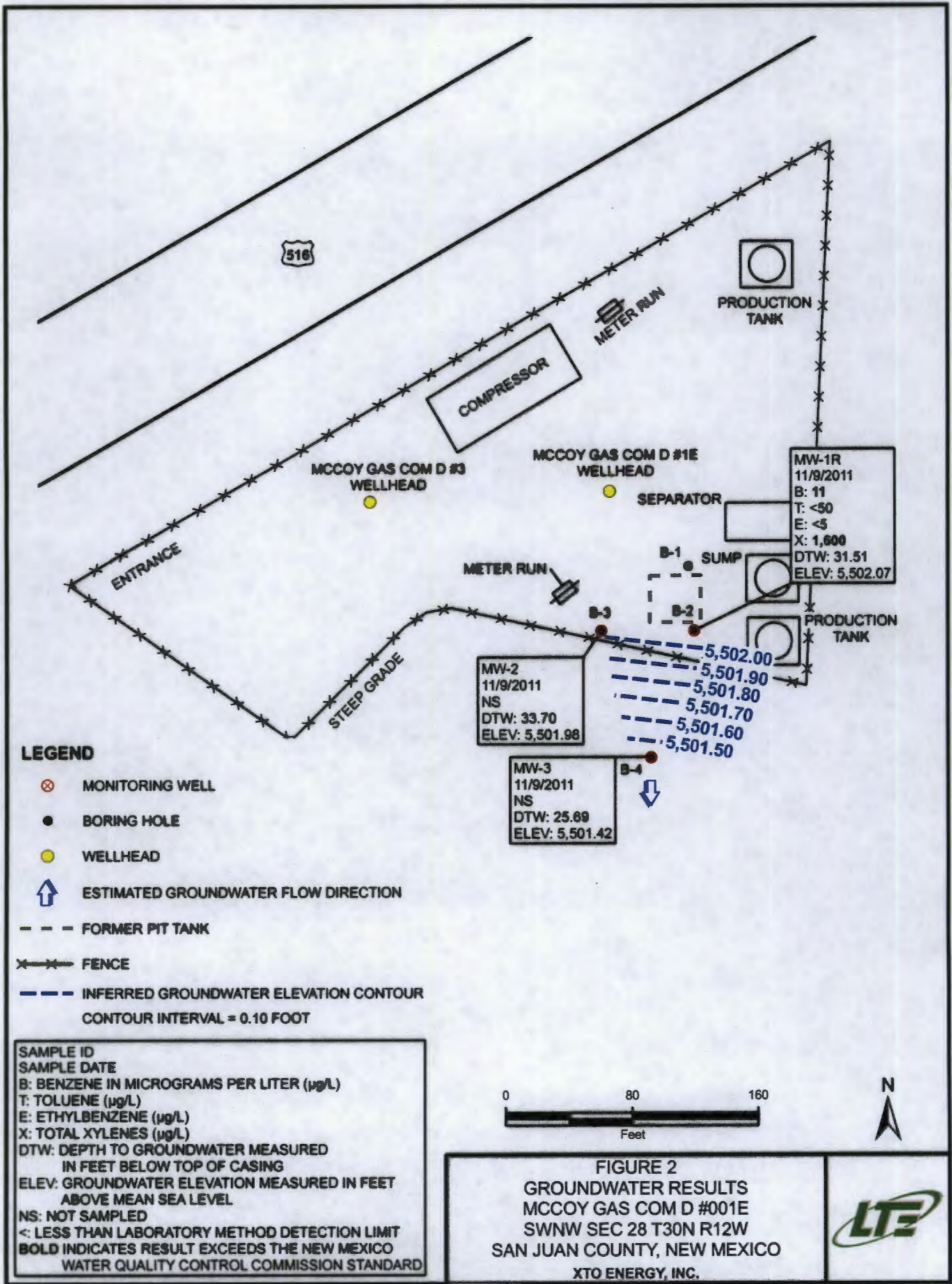


Figure 3-6

**Completion Diagram
And
Borehole Logs**

MONITORING WELL INSTALLATION RECORD

Borehole # 2
 Well # MW-1
 Page 1 of 1

Lodestar Services, Inc
 PO Box 3861
 Farmington, New Mexico 87499
 (505) 334-2791

Project Name XTO Ground Water
 Project Number _____ Cost Code _____
 Project Location McCoy Gas Com D 1E

Elevation 5532
 Well Location 36° 47.196' N, 108° 06.468' W
 GWL Depth 34'
 Installed By Envirotech

On-Site Geologist Ashley Ager
 Personnel On-Site _____
 Contractors On-Site Kelly Padilla and assistant
 Client Personnel On-Site _____

Date/Time Started 09/21/06, 15:23
 Date/Time Completed 09/22/06, 10:35

Depths in Reference to Ground Surface			Diagram	Key Points
Item	Material	Depth (feet)		
Top of Protective Casing		2.9		Top of Protective Casing <u>2.9</u>
Bottom of Protective Casing		-0.9		Top of Riser <u>2.8</u>
Top of Permanent Borehole Casing	Sch. 40 PVC	2.8		Ground Surface <u>0</u>
Bottom of Permanent Borehole Casing		-40.40		
Top of Concrete	Concrete	.25		
Bottom of Concrete		-5.0		
Top of Grout		-5.0		
Bottom of Grout		-16.0		
Top of Well Riser	Sch. 40 PVC	2.8		
Bottom of Well Riser		-39.95		
Top of Well Screen	Sch. 40 PVC	-19.9		
Bottom of Well Screen		-39.9		
Top of Peltonite Seal	Bentonite	-16.0		
Bottom of Peltonite Seal		-18.0		Top of Seal <u>-16</u>
Top of Gravel Pack	Sand	-18.0		Top of Gravel Pack <u>-18</u>
Bottom of Gravel Pack		-39.95		Top of Screen <u>-19.9</u>
Top of Natural Cave-In	Sand	-39.95		
Bottom of Natural Cave-In		-40		
Top of Groundwater		-34.0		Bottom of Screen <u>-39.9</u>
Total Depth of Borehole		-40		Bottom of Borehole <u>-40</u>

Comments: 50 lb bags of sand used: 18 ea.
50 lb bags of bentonite used: 6 ea.

Geologist Signature Ashley L. Ager

MONITORING WELL INSTALLATION RECORD

Lodestar Services, Inc
 PO Box 3861
 Farmington, New Mexico 87499
 (505) 334-2791

Borehole # 3
 Well # MW-2
 Page 1 of 1

Project Name XTO Ground Water
 Project Number _____ Cost Code _____
 Project Location McCoy Gas Com D 1E

Elevation 5525
 Well Location 36° 47.194' N, 108° 06.474' W
 GWL Depth 32.5'
 Installed By Enviro-Drill

On-Site Geologist Ashley Ager
 Personnel On-Site _____
 Contractors On-Site Shad Betts, Rodney Begay
 Client Personnel On-Site _____

Date/Time Started 05/08/07, 12:27
 Date/Time Completed 05/08/07, 13:55

Depths in Reference to Ground Surface		
Item	Material	Depth (feet)
Top of Protective Casing		3
Bottom of Protective Casing	steel	-2
Top of Permanent Borehole Casing		NA
Bottom of Permanent Borehole Casing		NA
Top of Concrete	quikcrete	0.2
Bottom of Concrete		-0.8
Top of Grout	quikcrete and quikgrout	-0.8
Bottom of Grout		-23
Top of Well Riser	Sch. 40 PVC	2.5
Bottom of Well Riser		-42.4
Top of Well Screen	Sch. 40 PVC	-27.2
Bottom of Well Screen		-42.2
Top of Peltonite Seal	3/8" Bentonite hole plug	-23
Bottom of Peltonite Seal		-25
Top of Gravel Pack	10-20 grade silica sand	-25
Bottom of Gravel Pack		-42.4
Top of Natural Cave-In	Sand and cobbles	-42.4
Bottom of Natural Cave-In		-45
Top of Groundwater		-32.5
Total Depth of Borehole		-42.4

Comments: PVC riser pulled out of hole 2'8" while pulling auger.
50 lb bags of sand used: 6 ea. . 50 lb bags of bentonite used: 1 ea.. Grout: 1 bag bentonite, 1 bag quikcrete; concrete: 1 bag of quikcrete used

Geologist Signature Ashley L. Ager

MONITORING WELL INSTALLATION RECORD

Lodestar Services, Inc
 PO Box 3861
 Farmington, New Mexico 87499
 (505) 334-2791

Borehole # 4
 Well # MW-3
 Page 1 of 1

Project Name XTO Ground Water
 Project Number _____ Cost Code _____
 Project Location McCoy Gas Com D 1E

Elevation 5525
 Well Location 36° 47.181' N, 108° 06.462' W
 GWL Depth 24'
 Installed By Enviro-Drill

On-Site Geologist Ashley Ager
 Personnel On-Site _____
 Contractors On-Site Shad Betts, Rodney Begay
 Client Personnel On-Site _____

Date/Time Started 05/09/07, 1209
 Date/Time Completed 05/09/07, 1740

Depths in Reference to Ground Surface			Diagram		
Item	Material	Depth (feet)			
Top of Protective Casing		2.5		Top of Protective Casing	<u>2.5</u>
Bottom of Protective Casing	steel	-2.5		Top of Riser	<u>2.2</u>
Top of Permanent Borehole Casing		NA		Ground Surface	<u>0</u>
Bottom of Permanent Borehole Casing		NA			
Top of Concrete	quikcrete	0.2			
Bottom of Concrete		-1			
Top of Grout	quikcrete and quikgrout	-1			
Bottom of Grout		-17			
Top of Well Riser	Sch. 40 PVC	2.2			
Bottom of Well Riser		-32			
Top of Well Screen	Sch. 40 PVC	-21.8			
Bottom of Well Screen		-31.8			
Top of Peltonite Seal	3/8" Bentonite hole plug	-17		Top of Seal	<u>-17</u>
Bottom of Peltonite Seal		-19			
Top of Gravel Pack	10-20 grade silica sand	-19		Top of Gravel Pack	<u>-19</u>
Bottom of Gravel Pack		-32		Top of Screen	<u>-21.8</u>
Top of Natural Cave-In		NA			
Bottom of Natural Cave-In		NA			
Top of Groundwater		-24			
Total Depth of Borehole		-32		Bottom of Screen	<u>-31.8</u>
			Bottom of Borehole	<u>-32</u>	

Comments: Hole caved in while installing bentonite plug. Had to auger out cave in mixed with bentonite to reform seal. 50 lb bags of sand used: 4.5 ea., 50 lb bags of bentonite used: 2 ea., Grout: 2 bags bentonite, 2 bags quikcrete; concrete: 1 bag of quikcrete

Geologist Signature Ashley L. Ager

Attachment 1

Envirotech Site Assessment Report (1992)

ENVIROTECH Inc.

5796 US HWY. 84, FARMINGTON, NM 87401
(505) 832-0815

94022

FIELD REPORT: SITE ASSESSMENT

JOB# No: 92140
PAGE No: 1 of 1

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

DATE STARTED: 4-29-92
DATE FINISHED: 4-29-92
ENVIRO. SPCLT: MKL
OPERATOR: MS
ASSISTANT: PV

LOCATION: LSE: M'COY G.C. WELL: "D" 1E QD: SW/4 NW/4 (E)
SEC: 28 TWP: 30N RNG: 12W PM: NM CNTY: SJ ST: NM PIT: SEP PIT

LAND USE: RURAL RESIDENTIAL & COMMERCIAL (FEET MAILLET TO EAST)

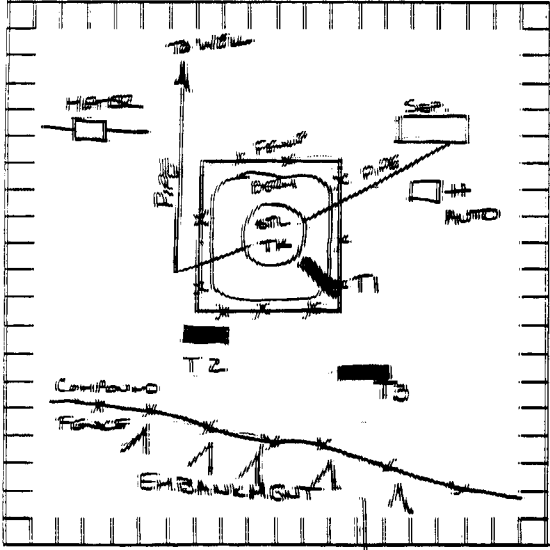
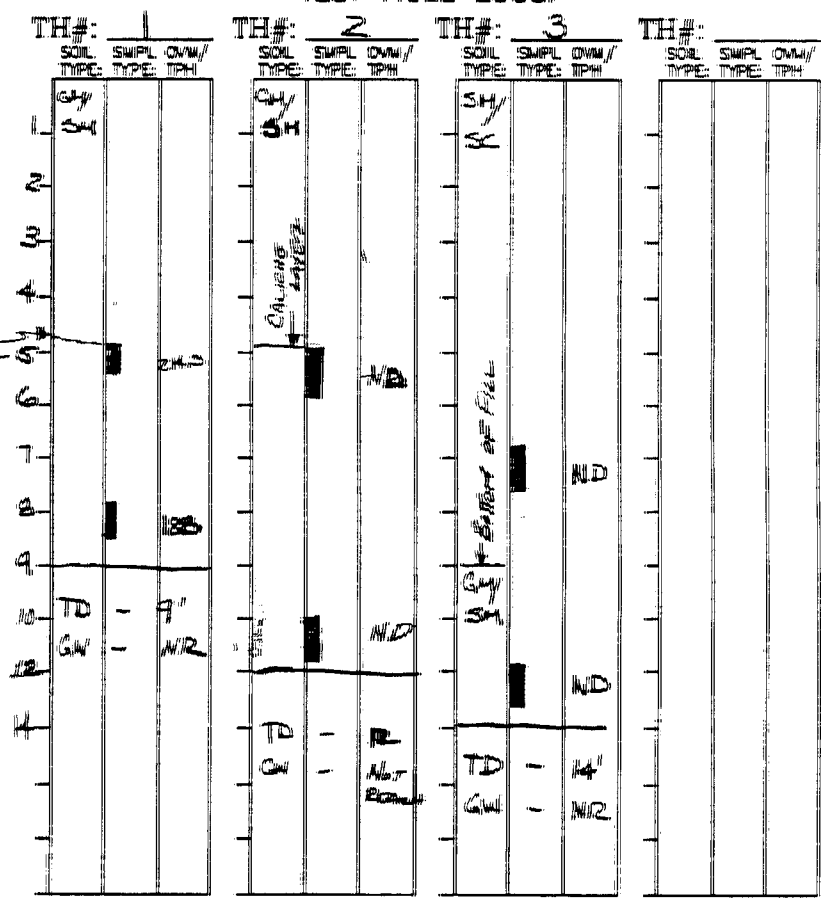
SURFACE CONDITIONS: STEE DOUBLE LINED TANK 7' DIA (12' DIA S') BELOW GROUND

FIELD NOTES & REMARKS: LOCATED TO SOUTH & 30' EAST OF WELL HEAD. SOIL CONDITIONS: BROWN SILTY SAND TO GRAVEL, MOIST, DENSE (POSSIBLE FILL). PIT LOCATED W

SOUTH EAST CORNER OF LOCATION ABOVE DRAINAGE D SOUTH. APPEARS THAT WELL LOCATION HAS 20 ± FEET OF FILL. IRRIGATION DITCH UNLINED FLOWING WEST, 150' SOUTH OF LOCATION. TANK BEGINS IN PEA GRADE.

SAMPLE INVENTORY:		
SAMPL ID:	SAMPL TYPE:	LABORATORY ANALYSIS:
T1S	Soil	HEAD
T1ES	Soil	SO2S/TPH

TEST HOLE LOGS:



SOIL TYPE: C - Clay, M - Sil, S - Sand, G - Gravel FILLING: L - Loose, H - Hard GRADING: P - Paved, W - Wet

Attachment 2

Blagg Engineering, Inc. Pit Closure Report (2006)

CLIENT: XTO **BLAGG ENGINEERING, INC.** LOCATION NO: _____
P.O. BOX 87, BLOOMFIELD, NM 87413 COCR NO: HALL
(505) 632-1199

FIELD REPORT: PIT CLOSURE VERIFICATION PAGE No: 1 of 1

LOCATION: NAME: McCoy GC D WELL#: 1E TYPE: SEP. DATE STARTED: 2/17/06
 QUAD/UNIT: E SEC: 28 TWP: 30N RNG: 12W PM: NM CNTY: SJ ST: NM DATE FINISHED: _____
 QTR/FOOTAGE: 1600'N/1230'W SWLNW CONTRACTOR: HDI (HEBGE) ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 30 FT. x 30 FT. x 23 FT. DEEP. CUBIC YARDAGE: 750
 DISPOSAL FACILITY: JFY LF - CROWN MESA REMEDIATION METHOD: LANDFARM
 LAND USE: INDUSTRIAL LEASE: FEE FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 80 FT. S24E FROM WELLHEAD.
 DEPTH TO GROUNDWATER: <100' NEAREST WATER SOURCE: >1,000' NEAREST SURFACE WATER: <200
 NMOC D RANKING SCORE: 30 NMOC D TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: ELEV. - 5,524' OVM CALIB. READ. = 53.3 ppm
 OVM CALIB. GAS = 100 ppm RF = 0.92
 TIME: 3:20 am/pm DATE: 2/16/06

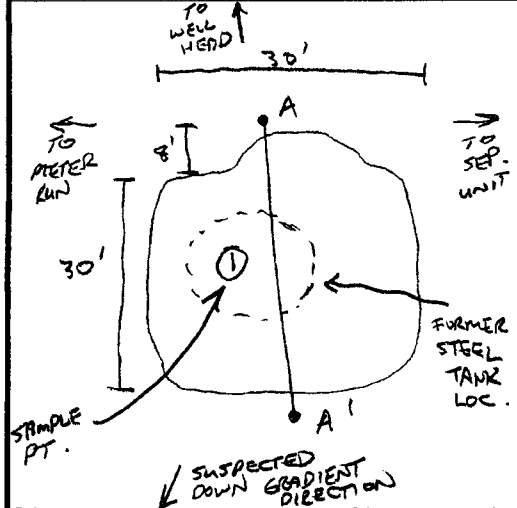
SOIL TYPE: ~~SAND~~ SILTY SAND / SILT / SILTY CLAY / CLAY / ~~GRAVEL~~ / OTHER _____
 SOIL COLOR: DK. YELL. ORANGE TO BLACK
 COHESION (ALL OTHERS): ~~NON COHESIVE~~ / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE
 CONSISTENCY (NON COHESIVE SOILS): ~~LOOSE~~ / FIRM / DENSE / VERY DENSE
 PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC
 DENSITY (COHESIVE CLAYS & SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD
 MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED
 DISCOLORATION/STAINING OBSERVED: YES NO EXPLANATION - VARIING GRAY TO BLACK STARTING @ 1' BELOW GRADE
 HC ODOR DETECTED: YES NO EXPLANATION - DISCOLORED PORTION ONLY. AROUND TANK PERIMETER
 SAMPLE TYPE: GRAB / COMPOSITE - # OF PTS. _____
 ADDITIONAL COMMENTS: ORIGINAL PIT DIMENSION 17x19' w/ STEEL TANK ~ 5' BELOW GRADE.

NEED TO ESTABLISH HORIZ. + VERT. EXTENT

FIELD 418.1 CALCULATIONS

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

PIT PERIMETER



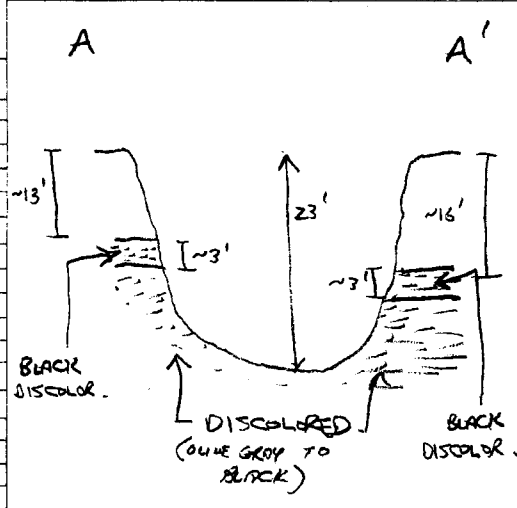
OVM READING

SAMPLE ID	FIELD HEADSPACE (ppm)
1 @ 23'	768
2 @	
3 @	
4 @	
5 @	

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
DC23	TPH (80158)	10:13
"	STEX (80218)	"
"	CHLORIDE	"

PIT PROFILE



TRAVEL NOTES: CALLOUT: 2/16/06 - MORN. ONSITE: 2/16/06 - NOON 2/17/06 - MORN. 9am

Attachment 3

2011 Laboratory Results



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Est. 1970

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

Report Summary

Wednesday February 23, 2011

Report Number: L501725

Samples Received: 02/15/11

Client Project:

Description: McCoy CGD 1E

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 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.

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REPORT OF ANALYSIS

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

February 23, 2011

Date Received : February 15, 2011
 Description : McCoy CGD 1E
 Sample ID : MCCOY MW-1
 Collected By :
 Collection Date : 02/14/11 15:42

ESC Sample # : L501725-01
 Site ID : MCCOY GCD 1E
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.016	0.016	mg/l	8021B	02/15/11	50
Toluene	1.0	0.25	mg/l	8021B	02/15/11	50
Ethylbenzene	0.87	0.025	mg/l	8021B	02/15/11	50
Total Xylene	13.	0.075	mg/l	8021B	02/15/11	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene (PID)	119.		% Rec.	8021B	02/15/11	50

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
 The reported analytical results relate only to the sample submitted.
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 Reported: 02/16/11 09:22 Revised: 02/23/11 10:12

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L501725-01	WG521649	SAMP	Benzene	R1576129	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



YOUR LAB OF CHOICE

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L501725

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Est. 1970

February 23, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG521649	02/15/11 13:56
Ethylbenzene	< .0005	mg/l			WG521649	02/15/11 13:56
Toluene	< .0005	mg/l			WG521649	02/15/11 13:56
Total Xylene	< .0015	mg/l			WG521649	02/15/11 13:56
a,a,a-Trifluorotoluene (PID)		% Rec.	118.2	55-122	WG521649	02/15/11 13:56

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0548	110.	79-114	WG521649
Ethylbenzene	mg/l	.05	0.0568	114.	80-116	WG521649
Toluene	mg/l	.05	0.0554	111.	79-112	WG521649
Total Xylene	mg/l	.15	0.165	110.	84-118	WG521649
a,a,a-Trifluorotoluene (PID)				117.0	55-122	WG521649

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0519	0.0548	104.	79-114	5.41	20	WG521649
Ethylbenzene	mg/l	0.0525	0.0568	105.	80-116	7.80	20	WG521649
Toluene	mg/l	0.0518	0.0554	104.	79-112	6.68	20	WG521649
Total Xylene	mg/l	0.153	0.165	102.	84-118	7.59	20	WG521649
a,a,a-Trifluorotoluene (PID)				115.8	55-122			WG521649

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0734	0.0210	.05	105.	35-147	L501427-02	WG521649
Ethylbenzene	mg/l	0.0573	0.00370	.05	107.	39-141	L501427-02	WG521649
Toluene	mg/l	0.0577	0	.05	115.	35-148	L501427-02	WG521649
Total Xylene	mg/l	0.205	0.0510	.15	103.	33-151	L501427-02	WG521649
a,a,a-Trifluorotoluene (PID)					117.1	55-122		WG521649

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0754	0.0734	109.	35-147	2.66	20	L501427-02	WG521649
Ethylbenzene	mg/l	0.0598	0.0573	112.	39-141	4.21	20	L501427-02	WG521649
Toluene	mg/l	0.0594	0.0577	119.	35-148	2.89	20	L501427-02	WG521649
Total Xylene	mg/l	0.213	0.205	108.	33-151	3.70	20	L501427-02	WG521649
a,a,a-Trifluorotoluene (PID)				117.7	55-122				WG521649

Batch number /Run number / Sample number cross reference

WG521649: R1576129: L501725-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L501725

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February 23, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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

Report Summary

Friday May 20, 2011

Report Number: L516627

Samples Received: 05/18/11

Client Project:

Description: McCoy Gas Com D 1E

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 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

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REPORT OF ANALYSIS

May 20, 2011

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

Date Received : May 18, 2011
Description : McCoy Gas Com D 1E
Sample ID : MW-1R
Collected By : Brooke Herb
Collection Date : 05/17/11 12:05

ESC Sample # : L516627-01

Site ID : MCCOY GAS COM D1E

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.30	0.025	mg/l	8021B	05/20/11	50
Toluene	0.29	0.25	mg/l	8021B	05/20/11	50
Ethylbenzene	0.85	0.025	mg/l	8021B	05/20/11	50
Total Xylene	13.	0.075	mg/l	8021B	05/20/11	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene (PID)	103.		% Rec.	8021B	05/20/11	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 05/20/11 14:39 Printed: 05/20/11 14:39

Summary of Remarks For Samples Printed
05/20/11 at 14:39:53

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L516627-01 Account: XTORNM Received: 05/18/11 09:00 Due Date: 05/25/11 00:00 RPT Date: 05/20/11 14:39



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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L516627

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May 20, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG536606	05/20/11 01:19
Ethylbenzene	< .0005	mg/l			WG536606	05/20/11 01:19
Toluene	< .0005	mg/l			WG536606	05/20/11 01:19
Total Xylene	< .0015	mg/l			WG536606	05/20/11 01:19
a,a,a-Trifluorotoluene(PID)		% Rec.	102.2	55-122	WG536606	05/20/11 01:19

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0527	105.	79-114	WG536606
Ethylbenzene	mg/l	.05	0.0535	107.	80-116	WG536606
Toluene	mg/l	.05	0.0555	111.	79-112	WG536606
Total Xylene	mg/l	.15	0.163	109.	84-118	WG536606
a,a,a-Trifluorotoluene(PID)				102.9	55-122	WG536606

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0527	0.0527	105.	79-114	0.0800	20	WG536606
Ethylbenzene	mg/l	0.0524	0.0535	105.	80-116	2.11	20	WG536606
Toluene	mg/l	0.0551	0.0555	110.	79-112	0.620	20	WG536606
Total Xylene	mg/l	0.158	0.163	105.	84-118	3.19	20	WG536606
a,a,a-Trifluorotoluene(PID)				103.1	55-122			WG536606

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0511	0	.05	102.	35-147	L516357-01	WG536606
Ethylbenzene	mg/l	0.0505	0	.05	101.	39-141	L516357-01	WG536606
Toluene	mg/l	0.0534	0	.05	107.	35-148	L516357-01	WG536606
Total Xylene	mg/l	0.154	0	.15	102.	33-151	L516357-01	WG536606
a,a,a-Trifluorotoluene(PID)					101.9	55-122		WG536606

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0511	0.0511	102.	35-147	0.0100	20	L516357-01	WG536606
Ethylbenzene	mg/l	0.0502	0.0505	100.	39-141	0.550	20	L516357-01	WG536606
Toluene	mg/l	0.0534	0.0534	107.	35-148	0.0700	20	L516357-01	WG536606
Total Xylene	mg/l	0.150	0.154	100.	33-151	2.52	20	L516357-01	WG536606
a,a,a-Trifluorotoluene(PID)				102.6	55-122				WG536606

Batch number /Run number / Sample number cross reference

WG536606: R1694649: L516627-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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<p>Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410</p>	<p>Alternate Billing XTORN031810S</p> <p>Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com</p>	<p>Analysis/Container/Preservative</p>
<p>Project Description: XTO Groundwater Monitoring PHONE: 505-333-3701 FAX:</p>	<p>City/State Collector: Lab Project #</p>	<p>Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859</p>
<p>Collected by: Brooke Herb <i>Brooke Herb</i> Collected by (Signature): Packed on Ice N <u> </u> Y <u> </u> X</p>	<p>Site/Facility ID# McCoy Gas Com D # IE Rush? (Lab MUST be Notified) Next Day 100% Two Day 50% Three Day 25%</p>	<p>CoCode (lab use only) XTORN Template/Prelogin Shipped Via: Fed Ex</p>
<p>Client Project No. McCoy Gas Com D # IE</p>	<p>Date Results Needed Email? No <u> </u> Yes <u> </u> FAX? No <u> </u> Yes <u> </u></p>	<p>Remarks/contaminant BTEX (8021) ✓</p>
<p>Comp/Grab Matrix Grab GW</p>	<p>Date Time 5/17/11 12:05 3</p>	<p>Sample # (lab only) 65166270</p>
<p>Sample ID MN-1R</p>	<p>Depth</p>	<p>Condition (lab use only) AK</p>
<p>Relinquisher by (Signature) <i>Brooke Herb</i></p>	<p>Received by (Signature) </p>	<p>pH Checked: NCF:</p>
<p>Date Time 5/17/11 10:00</p>	<p>Date Time 5/18/11 09:00</p>	<p>Samples returned via: FedEx <u> </u> UPS <u> </u> Other <u> </u> 43559317 3645 Temp. 34. Bottles Received: 30</p>

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____
pH _____ Temp _____ Flow _____ Other _____

Remarks: "ONLY 1 COC Per Site!"



08/23/11

Technical Report for

LT Environmental

LT: XTO Energy

Mccoys Gas Com D #1, Flora Vista NM

Accutest Job Number: T83905

Sampling Date: 08/09/11

Report to:

LT Environmental
2243 Main Ave S.
Durango, CO 87301
jlinn@ltenv.com

ATTN: Julie Linn

Total number of pages in report: **13**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul R Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) AZ (AZ0769) FL (E87628) KS (E-10366)
LA (85695/04004) OK (9103)

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Test results relate only to samples analyzed.

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Sample Summary

LT Environmental

Job No: T83905

LT: XTO Energy

Project No: Mccoy Gas Com D #1, Flora Vista NM

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
T83905-1	08/09/11	14:26	08/10/11	AQ Ground Water	MW-1R

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MW-1R	
Lab Sample ID: T83905-1	Date Sampled: 08/09/11
Matrix: AQ - Ground Water	Date Received: 08/10/11
Method: SW846 8021B	Percent Solids: n/a
Project: LT: XTO Energy	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT000922.D	5	08/12/11	WV	n/a	n/a	GTT39
Run #2	TT000921.D	20	08/12/11	WV	n/a	n/a	GTT39

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene ^a	ND	5.0	ug/l	
108-88-3	Toluene	53.6	5.0	ug/l	
100-41-4	Ethylbenzene ^b	19.3	5.0	ug/l	
1330-20-7	Xylenes (total)	6220 ^c	60	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	141% ^d	109%	58-125%
98-08-8	aaa-Trifluorotoluene	99%	97%	73-139%

- (a) Outside control limits due to dilution.
- (b) More than 40% RPD for detected concentrations between two GC columns.
- (c) Result is from Run# 2
- (d) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

T83905

Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410		Alternate Billing XTORN031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com		Analysis/Container/Preservative			Chain of Custody Page 1 of 1																																																																																															
Project Description: McCoy Gas Com D #1 PHONE: 505-333-3701 FAX:		Client Project No. McCoy Gas Com D #1 Site/Facility ID# McCoy Gas Com D #1 Rush? (Lab MUST be Notified) <input type="checkbox"/> Next Day.....100% <input type="checkbox"/> Two Day.....50% <input type="checkbox"/> Three Day.....25%		City/State Collected: FLOXA VISOR, NM Lab Project # P.O.# Date Results Needed Email? <input type="checkbox"/> No <input type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes			Prepared by: ENVIRONMENTAL Science corp 12085 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 787-5859 FAX (615)758-5859																																																																																															
Collected by: Brooke Herb Collected by (Signature): Brooke Herb Packed on ice N <input checked="" type="checkbox"/> Y <input type="checkbox"/> X		Date Results Needed No of Cnts		BTEX 8021			CoCode (lab use only) XTORN031810S Template/Prelogin Shipped Via: Fed Ex																																																																																															
<table border="1"> <thead> <tr> <th>Sample ID</th> <th>Comp/Grab</th> <th>Matrix</th> <th>Depth</th> <th>Date</th> <th>Time</th> <th>Cnts</th> <th>Remarks/contaminant</th> <th>Sample # (lab only)</th> </tr> </thead> <tbody> <tr> <td>MW-1R</td> <td>Grab</td> <td>GW</td> <td>-</td> <td>8/9/11</td> <td>1426</td> <td>3</td> <td></td> <td></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Sample ID	Comp/Grab				Matrix	Depth	Date	Time	Cnts	Remarks/contaminant	Sample # (lab only)	MW-1R	Grab	GW	-	8/9/11	1426	3																																																																																		
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MW-1R	Grab	GW	-	8/9/11	1426	3																																																																																																
Released by (Signature): [Signature] Date: 8/9/11 Time: 1700 Received by (Signature): [Signature]		Samples returned via: FedEx <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other _____ Condition: (lab use only)		Temp: _____ Batches Received: _____			pH Checked: _____ NCF: _____																																																																																															
Released by (Signature): [Signature] Date: _____ Time: _____ Received for lab by (Signature): _____		Date: _____ Time: _____ Received for lab by (Signature): _____		Date: _____ Time: _____			pH Checked: _____ NCF: _____																																																																																															

T83905: Chain of Custody
 Page 1 of 3

Accutest Job Number: T83905 Client: XTO ENERGY Project: MCCOY GAS COM D#1
 Date / Time Received: 8/10/2011 Delivery Method: Airbill #'s: 854263473292
 No. Coolers: 1 Therm ID: IRGUN4; Temp Adjustment Factor: -0.1;
 Cooler Temps (Initial/Adjusted): #1:(5.2/5.1);

Cooler Security		<u>Y or N</u>		<u>Y or N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. SmpI Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>
Cooler Temperature		<u>Y or N</u>		
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Cooler temp verification:	IR Gun			
3. Cooler media:	Ice (Bag)			
Quality Control Preservation		<u>Y or N</u>	<u>N/A</u>	<u>WTB</u> <u>STB</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
4. VOCs headspace free:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Sample Integrity - Documentation		<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sample Integrity - Condition		<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Condition of sample:	Intact		
Sample Integrity - Instructions		<u>Y or N</u> <u>N/A</u>	
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

Shirley Thomas

8/10/11

Job #: T83905

Date / Time Received: 8/10/2011 9:15:00 AM

Initials: VG

Client: XTO ENERGY



Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	T83905-1	40 ml	1	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1
1	T83905-1	40 ml	2	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1
1	T83905-1	40 ml	3	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1

T83905: Chain of Custody
Page 3 of 3

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T83905
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTT39-MB	TT000905.D 1		08/12/11	WV	n/a	n/a	GTT39

4.1.1
4

The QC reported here applies to the following samples:

Method: SW846 8021B

T83905-1

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	90%	58-125%
98-08-8	aaa-Trifluorotoluene	93%	73-139%

Blank Spike Summary

Job Number: T83905
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTT39-BS	TT000904.D	1	08/12/11	WV	n/a	n/a	GTT39

4.2.1
4

The QC reported here applies to the following samples:

Method: SW846 8021B

T83905-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	18.0	90	86-121
100-41-4	Ethylbenzene	20	18.2	91	81-116
108-88-3	Toluene	20	18.2	91	87-117
1330-20-7	Xylenes (total)	60	55.0	92	85-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	91%	58-125%
98-08-8	aaa-Trifluorotoluene	93%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T83905
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T83996-4MS	TT000910.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4MSD	TT000911.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4	TT000912.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4	TT000931.D	20	08/12/11	WV	n/a	n/a	GTT39

4.3.1
4

The QC reported here applies to the following samples:

Method: SW846 8021B

T83905-1

CAS No.	Compound	T83996-4 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	40.2	20	58.3	91	58.3	91	0	86-121/19
100-41-4	Ethylbenzene	1150 ^b	20	1170	100	1180	150* ^a	1	81-116/14
108-88-3	Toluene	29.7	20	49.0	97	49.3	98	1	87-117/16
1330-20-7	Xylenes (total)	556 ^b	60	637	135* ^a	643	145* ^a	1	85-115/12

CAS No.	Surrogate Recoveries	MS	MSD	T83996-4	T83996-4	Limits
460-00-4	4-Bromofluorobenzene	499%*	503%*	515%* ^c	111%	58-125%
98-08-8	aaa-Trifluorotoluene	283%*	279%*	274%* ^c	103%	73-139%

- (a) Outside control limits due to high level in sample relative to spike amount.
- (b) Result is from Run #2.
- (c) Outside control limits due to matrix interference. Confirmed by reanalysis.



12065 Lebanon Rd.
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Est. 1970

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

Report Summary

Thursday November 17, 2011

Report Number: L546126

Samples Received: 11/10/11

Client Project:

Description: MCCOY GC D 1E

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 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, PA - 68-02979

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

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

November 17, 2011

Date Received : November 10, 2011
Description : MCCOY GC D 1E
Sample ID : MW-1R
Collected By : Brooke Herb
Collection Date : 11/09/11 13:40

ESC Sample # : L546126-01
Site ID : MCCOY GC D 1E
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.011	0.0050	mg/l	8021B	11/16/11	10
Toluene	BDL	0.050	mg/l	8021B	11/16/11	10
Ethylbenzene	BDL	0.0050	mg/l	8021B	11/16/11	10
Total Xylene	1.6	0.015	mg/l	8021B	11/16/11	10
Surrogate Recovery(%) a,a,a-Trifluorotoluene (PID)	94.1		% Rec.	8021B	11/16/11	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 11/17/11 10:08 Printed: 11/17/11 10:08

Summary of Remarks For Samples Printed
11/17/11 at 10:08:46

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L546126-01 Account: XTORNM Received: 11/10/11 09:00 Due Date: 11/17/11 00:00 RPT Date: 11/17/11 10:08
Non-Preserved



YOUR LAB OF CHOICE

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L546126

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

November 17, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG565901	11/16/11 12:49
Ethylbenzene	< .0005	mg/l			WG565901	11/16/11 12:49
Toluene	< .0005	mg/l			WG565901	11/16/11 12:49
Total Xylene	< .0015	mg/l			WG565901	11/16/11 12:49
a,a,a-Trifluorotoluene (PID)		% Rec.	93.18	55-122	WG565901	11/16/11 12:49

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0432	86.4	79-114	WG565901
Ethylbenzene	mg/l	.05	0.0482	96.5	80-116	WG565901
Toluene	mg/l	.05	0.0471	94.1	79-112	WG565901
Total Xylene	mg/l	.15	0.143	95.6	84-118	WG565901
a,a,a-Trifluorotoluene (PID)				94.65	55-122	WG565901

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0434	0.0432	87.0	79-114	0.440	20	WG565901
Ethylbenzene	mg/l	0.0479	0.0482	96.0	80-116	0.710	20	WG565901
Toluene	mg/l	0.0472	0.0471	94.0	79-112	0.180	20	WG565901
Total Xylene	mg/l	0.143	0.143	95.0	84-118	0.280	20	WG565901
a,a,a-Trifluorotoluene (PID)				93.99	55-122			WG565901

Analyte	Units	MS Res	Matrix Spike			% Rec	Limit	Ref Samp	Batch
			Ref Res	TV					
Benzene	mg/l	0.0420	0	.05	84.1	35-147	L546373-12	WG565901	
Ethylbenzene	mg/l	0.0468	0	.05	93.7	39-141	L546373-12	WG565901	
Toluene	mg/l	0.0459	0	.05	91.9	35-148	L546373-12	WG565901	
Total Xylene	mg/l	0.139	0	.15	92.7	33-151	L546373-12	WG565901	
a,a,a-Trifluorotoluene (PID)					93.33	55-122		WG565901	

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0404	0.0420	80.8	35-147	3.94	20	L546373-12	WG565901
Ethylbenzene	mg/l	0.0450	0.0468	89.9	39-141	4.12	20	L546373-12	WG565901
Toluene	mg/l	0.0437	0.0459	87.4	35-148	5.02	20	L546373-12	WG565901
Total Xylene	mg/l	0.134	0.139	89.1	33-151	3.93	20	L546373-12	WG565901
a,a,a-Trifluorotoluene (PID)				93.80	55-122				WG565901

Batch number / Run number / Sample number cross reference

WG565901: R1934272: L546126-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L546126

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November 17, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.


Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

<p>Company Name/Address XTO Energy, Inc. 382 County Road 3100 Aztec, NM 87410</p>	<p>Alternate Billing XTORNM031810S</p> <p>Report to: James McDaniel E-mail to: james_modaniel@xtoenergy.com</p>	<p>Chain of Custody Page <u>1</u> of <u>1</u></p> <p>Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859</p>
<p>Project Description: McCOY GC D #1E</p> <p>PHONE: 505-333-3701 FAX:</p>	<p>Client Project No.</p> <p>City/State Collected: Flora Vista NM</p>	<p>Analysis/Container/Preservative</p>
<p>Collected by: Brooke Herb Collected by (signature): <i>Brooke Herb</i></p> <p>Packed on Ice <u>N</u> <u>Y</u> <u>X</u></p>	<p>Site/Facility ID# McCOY GC D #1E</p> <p>Rush? (Lab MUST be Notified) <input checked="" type="checkbox"/> Next Day 100% <input type="checkbox"/> Two Day 50% <input type="checkbox"/> Three Day 25%</p>	<p>CoCode (lab use only) XTORNM</p> <p>Template/Prelogin</p>
<p>Comp/Grab G Matrix GW Depth 11/9/11 1340 Date 11/9/11 1340 Time 3 Cntrs</p>	<p>Date Results Needed</p> <p>Email? <input type="checkbox"/> No <input type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes</p>	<p>Shipped Via: Fed Ex</p> <p>Remarks/contaminant non - preserved</p> <p>Sample # (lab only) 654626-01</p>

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____ Flow _____ Other _____

Remarks: "ONLY 1 DOC Per Site!"

Requisitioner by (Signature) <i>Brooke Herb</i>	Date: 11/9/11 1600	Received by (Signature) 	Samples returned via: FedEx_X_UPS_Other_
Requisitioner by (Signature)	Date:	Received by (Signature)	43419819 2/63
Requisitioner by (Signature)	Date:	Received for lab by (Signature) <i>James McDaniel</i>	Bottles Received: 3
			Temp: 21.2
			Date: 11/10/11
			Time: 0900
			pH Checked: NCF:

Attachment 4

Field Notes

SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>McCoy GC D #1E</u>	Well No: <u>MW-1</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>2/14/2011</u>	Time: <u>11:30</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Sam LaRue</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>37.27</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>40.4</u> ft	Product Thickness: <u>NA</u> ft
Water Column Height: <u>3.13</u> 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			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	3.13	0.510503	1.53

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:38	6.23	6.47	15.2				0.25	dark grey, silty, strong odor
11:40	6.48	6.34	15.7				0.5	black silty, strong odor, sheen
11:42	6.52	6.43	15.8				0.65	no change
11:45	6.61	6.43	15.7				0.8	no change, bailing down
11:47	6.64	6.46	15.7				1.05	dark silty black with sheen, strong odor, bailing down
11:50	6.65	6.50	15.8				1.35	no change
11:52	6.66	6.54	15.6				1.5	no change
Final:	6.66	6.54	15.6				1.5	

COMMENTS: ORC Socks removed on 2/7/11; Dissolved Oxygen 0.13 mg/l on 2/7/11; ORC socks replaced on 2/14/11

Instrumentation: pH Meter DO Monitor Conductivity Meter Temperature Meter Other _____

Water Disposal: on site sump

Sample ID: McCoy MW-1 Sample Time: 12:00

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

Other _____

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>McCoy GC D #001E</u>	Well No: <u>MW-1R</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>5/17/2011</u>	Time: <u>11:31</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Brooke Herb</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>29.31</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>38.6</u> ft	Product Thickness: <u>NA</u> ft
Water Column Height: <u>9.29</u> 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			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	9.29	1.515199	4.55

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:36	6.22	921	16.1				0.25	Black Strong HC odor, black particles
	6.46	915	15.9				0.5	no change
	6.55	947	15.8				0.75	no change
	6.58	951	15.9				1	no change
	6.57	1110	15.7				1.5	dark gray with black particles, strong odor
	6.57	1202	15.8				2	Lighter gray, black particles, strong odor
	6.59	1252	15.9				2.5	dark gray with black particles, strong odor
	6.6	1290	15.9				3	no change
	6.55	1312	16.1				4	Light gray, black particles, strong odor
	6.55	1191	16.1				4.25	no change
	6.58	1220	16.2				4.5	no change
Final: 12:03	6.56	1300	16.2				4.75	Lighter gray, black particles,

COMMENTS: ORC Socks removed on 5/11/11; Dissolved Oxygen 1.50 mg/l on 5/11/11. Cut off 1.55 feet of casing in order to remove socks; 9 ORC socks replaced on 5/17/11.

Instrumentation: pH Meter DO Monitor Conductivity Meter Temperature Meter Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 12:05

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

Trip Blank: No

Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>McCoy</u>	Well No: <u>MW-1R</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>8/9/2011</u>	Time: <u>13:47</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Brooke Herb</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>29.04</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>38.86</u> ft	Product Thickness: <u>NA</u> ft
Water Column Height: <u>9.82</u> 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			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	9.82	1.601642	4.80

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
13:58	6.41	541	18.4				0.25	Silty, Black, Strong HC odor
13:59	6.61	509	17.7				0.50	no change
14:02	6.63	519	17.1				0.75	no change
14:05	6.90	517	17.5				1.00	no change
14:07	6.76	633	17.2				2.00	less silt, lighter, very strong odor, black flecks
14:09	6.79	699	17.7				3.00	no change
14:12	6.80	757	17.6				4.00	light gray, strong odor, black flecks
14:14	6.98	598	16.5				4.25	darker gray
14:16	6.96	631	16.3				4.50	no change
14:18	6.94	636	17.2				4.75	no change
14:20	6.95	650	16.8				5.00	no change
14:24	6.96	648	16.7				5.25	no change
Final:	6.96	648	16.7				5.25	

COMMENTS:

Instrumentation: pH Meter DO Monitor Conductivity Meter Temperature Meter Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 14:26

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

Trip Blank: No Duplicate Sample: No



SAMPLING PURGE LOG

Project Name: <u>XTO Groundwater</u>	Location: <u>McCoy</u>	Well No: <u>MW-1R</u>
Client: <u>XTO Energy, Inc.</u>	Date: <u>11/9/2011</u>	Time: <u>13:09</u>
Project Manager: <u>Julie Linn</u>	Sampler's Name: <u>Brooke Herb</u>	

Measuring Point: <u>TOC</u>	Depth to Water: <u>31.51</u> ft	Depth to Product: <u>NA</u> ft
Well Diameter: <u>2"</u>	Total Depth: <u>38.95</u> ft	Product Thickness: <u>NA</u> ft
Water Column Height: <u>7.44</u> 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			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	7.44	1.213464	3.64

Time (military)	pH (su)	EC (us)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
13:10	6.58	683	16.7				0.25	clear, very strong hydrocarbon odor
13:12	6.68	705	16.1				0.50	gray with black particles, strong HC odor
13:14	6.76	771	16.1				0.75	no change
13:16	6.84	745	16.0				1.00	siltier
13:22	6.96	691	16.1				1.50	no change
13:26	6.91	692	16.0				2.50	no change
13:28	7.07	660	15.9				2.75	no change
13:30	7.11	660	15.9				3.00	no change
13:33	7.18	658	15.8				3.25	no change
13:36	7.17	651	15.9				3.50	no change
Final:								
13:39	7.17	650	15.9				3.75	no change

COMMENTS:

Instrumentation: pH Meter DO Monitor Conductivity Meter Temperature Meter Other _____

Water Disposal: on site sump

Sample ID: MW-1R Sample Time: 13:40

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

Trip Blank: No Duplicate Sample: No



Attachment 5

LT Environmental Workplan



LT Environmental, Inc.

2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1973

January 28, 2011

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

**RE: Pump Test Work Plan
XTO Energy, Inc.
McCoy GC D#1E
Farmington, New Mexico**

Dear Mr. McDaniel:

LT Environmental (LTE) is pleased to present the following scope of work to XTO Energy, Inc. (XTO) to conduct an aquifer pump test at the McCoy Gas Com D#1E site (site). A cost estimate will be sent under a separate cover letter.

Site Description

The site is located at latitude 36.786741° north by -108.107801° west, World Geodetic System 1984 (WGS 84) in San Juan County, New Mexico. It is on the southeast side of Highway 516 between Flora Vista and Farmington, New Mexico. Groundwater at the Site contains levels of petroleum hydrocarbons in excess of the New Mexico Water Quality Control Commission (NMWQCC) standards.

Depth to groundwater varies seasonally from 29 to 30 feet below ground surface (bgs) during the spring and summer to 34 to 36 feet during the winter. An irrigation ditch is located approximately 230 feet west/southwest of the site. The flow of water in the ditch impacts the depth to groundwater and groundwater flow direction. Groundwater flow direction is variable, flowing to the northeast when the irrigation ditch contains water. When the ditch does not contain water, groundwater flow direction is to the south. Both depth to groundwater and groundwater flow direction vary seasonally, and are highly influenced by the flow of water in the irrigation ditch.

Table 1 provides sample results for the groundwater monitoring wells. MW-1R has been sampled periodically for BTEX since October of 2006. MW-2 and MW-3 were sampled in May 2007, May 2008, and May 2010. Benzene concentrations in MW-1R were less than 100 µg/l from October 2006 through May 2009. During 2010, benzene concentrations increased to a maximum of 360 µg/l in November. Toluene concentrations, ethylbenzene, and total xylene concentrations have all been variable between October 2006 and November 2010. The minimum toluene concentration was 160 µg/l and the maximum toluene concentration of 2,500 µg/l. The minimum ethylbenzene concentration was 260 µg/l and the maximum ethylbenzene concentration



was 2,700 µg/l. The minimum total xylenes concentration was 7,100 µg/l and the maximum total xylenes concentration was 24,000 µg/l.

Lithology at the site is predominantly coarser grained materials, ranging from sands to cobbles.

Scope of Work

Currently, the only remedial action at this site is the use of socks containing oxygen release compound in MW-1R. XTO intends to conduct an aquifer pump test at this site on MW-1R. The following sequence of events is suggested for this pump test:

1. XTO will mobilize a large tank to the site to containerize the pumped water.
2. LTE will rent a variable speed submersible pump with a control box to control the flow of water.
3. LTE will provide a discharge hose from the pump discharge into the water tank.
4. LTE will provide a water level meter to monitor depth to water during the pumping phase of the test. Depth to water will not be monitored during the recovery phase.
5. XTO is solely responsible for transportation and disposal of all purge water.
6. LTE will pump maximum of 8 hours at a rate to be determined during the pump test or until the tank reaches maximum capacity of purge water.
7. LTE will prepare a report summarizing the volume of water pumped and the rate(s) of pumping. This report will include any recommendations.

LTE will utilize the existing health and safety plan (HASP) for the groundwater monitoring activities. A cost estimate for this work plan will be transmitted to XTO under a separate cover letter.

Schedule

LTE plans to implement this plan in May of 2011, prior to conducting the quarterly sampling at the site. Water should be flowing in the irrigation ditch during the May pump test. Upon completion of the pump test, LTE will evaluate the data and submit a report to XTO. The report will include recommendations for any additional activities at the site.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read 'Julie L', is written in a cursive style.



Julie Linn, P.G.
Senior Geologist