3R - 414

2011 AGWMR

JAN 2012

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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Appendices

2011 XTO GROUNDWATER REPORT

McCOY GAS COM D #1E
3RP-414

SITE DETAILS

LEGALS - TWN: 30N **RNG:** 12W **SEC:** 28 **UNIT:** E
OCD HAZARD RANKING: 30 **LAND TYPE:** FEE
LATITUDE: 36.78668 **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.

2011 XTO GROUNDWATER REPORT

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

stable readings for each water property (±0.4 units for pH, ±10 percent for electric conductivity and ±2º 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.

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

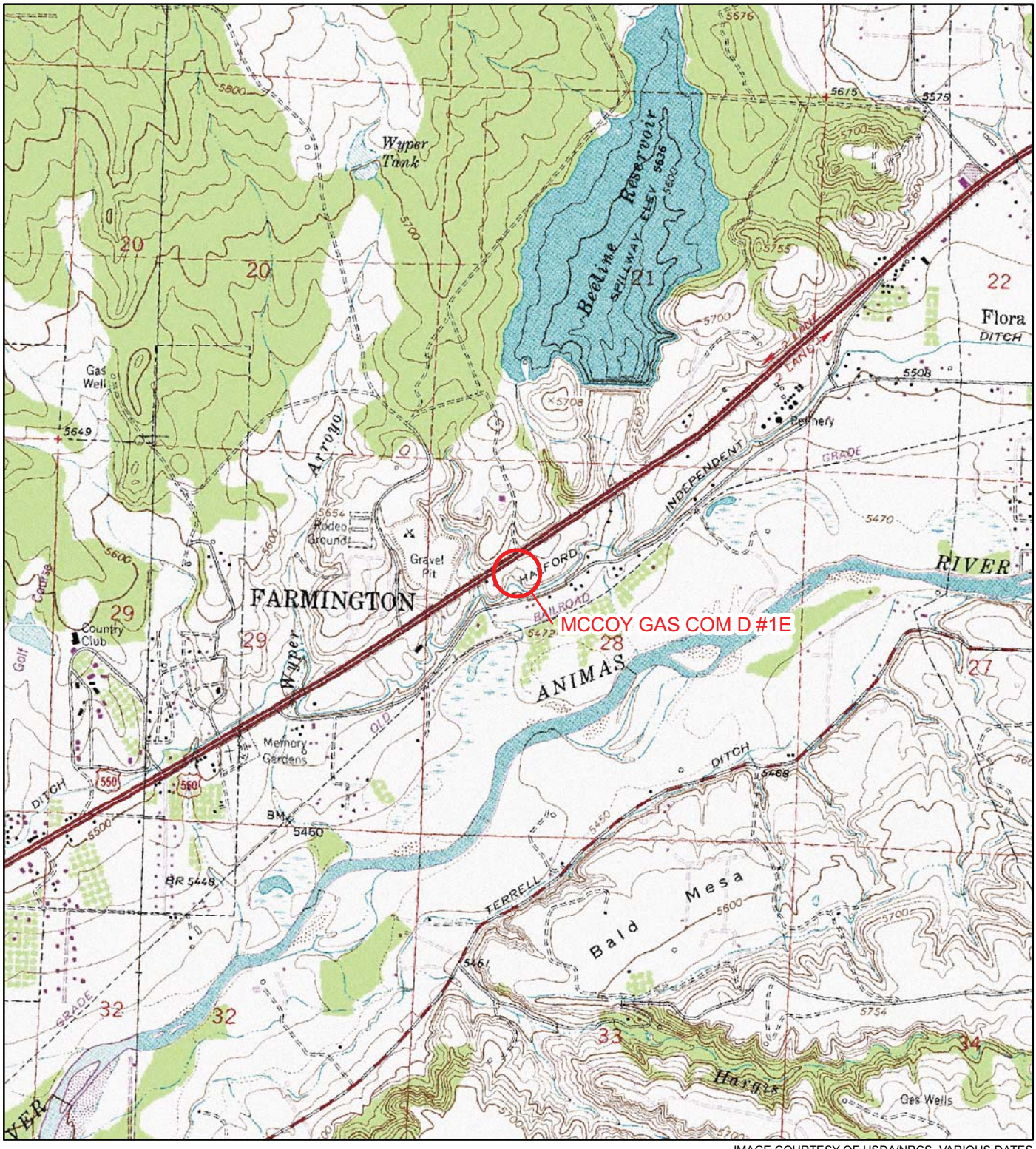

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

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

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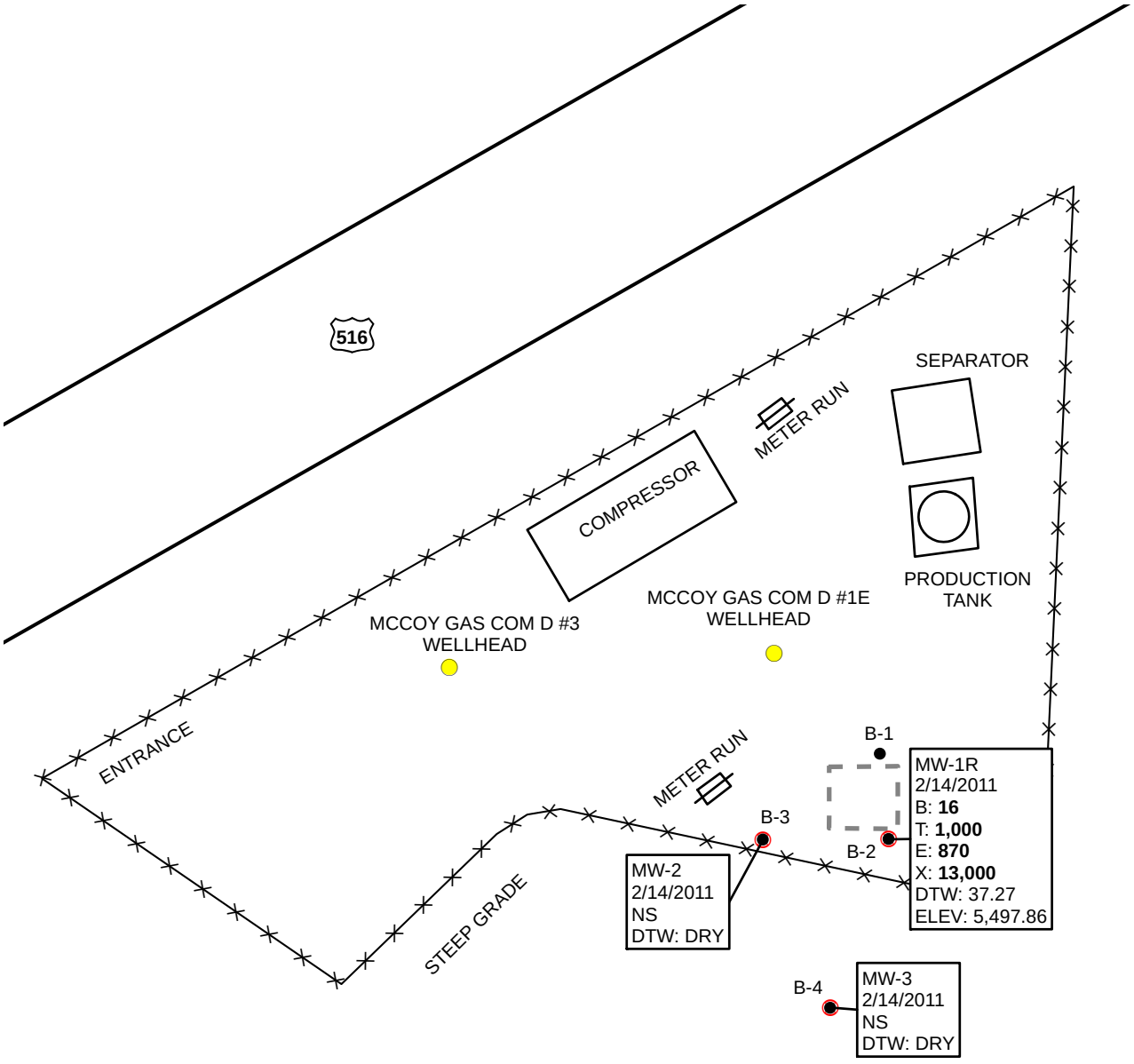
Figure 2

Potentiometric Surface Diagrams



LEGEND

- MONITORING WELL
- SOIL BORING
- WELLHEAD
- PIT TANK
- FENCE

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

0 80 160
Feet

N

FIGURE 1
GROUNDWATER ANALYTICAL RESULTS
MCCOY GAS COM D #001E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

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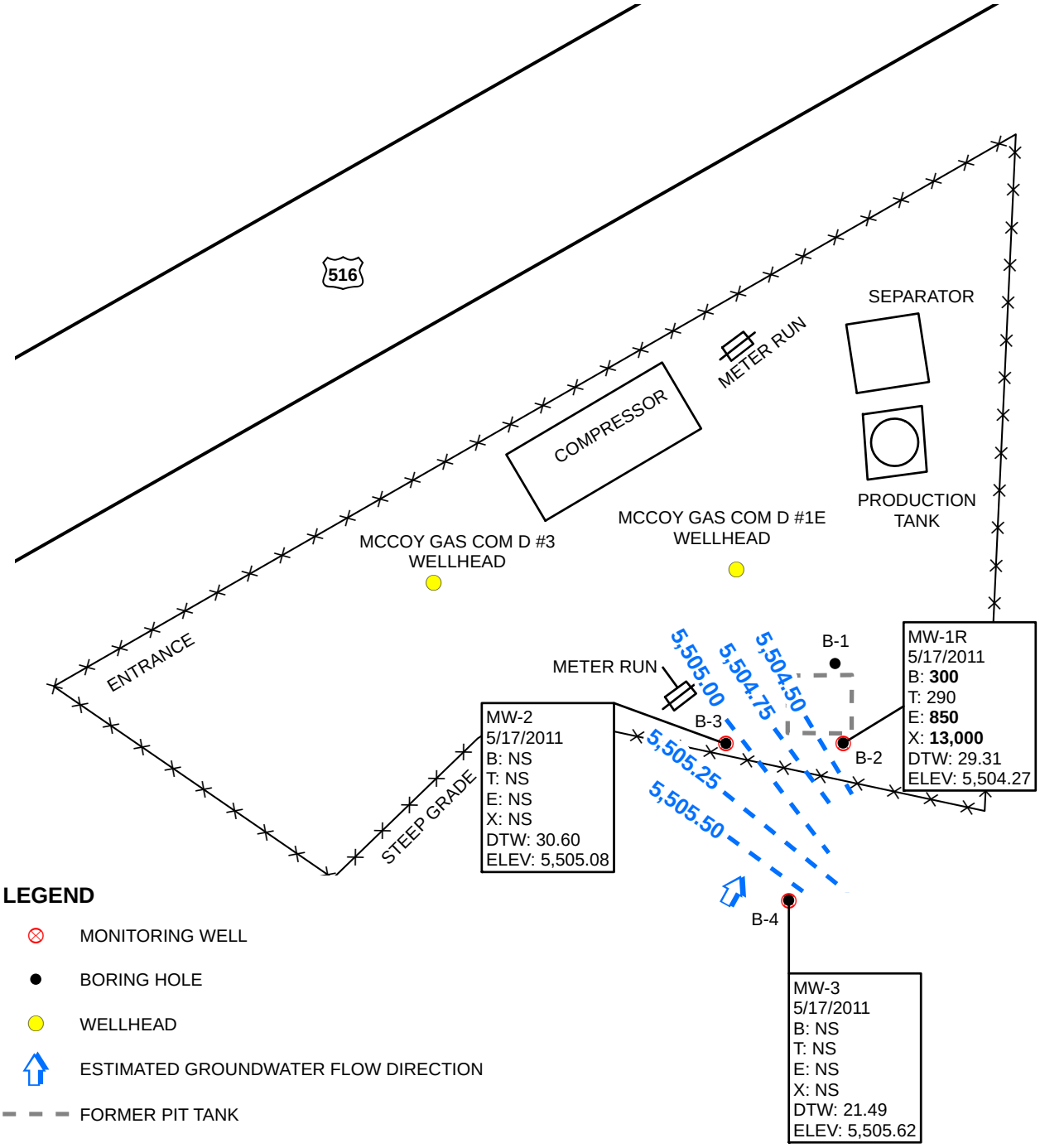

LEGEND

- MONITORING WELL
- BORING HOLE
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PIT TANK
- FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 0.25 FEET

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

0 80 160
Feet

N

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL MAP
MCCOY GAS COM D #001E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

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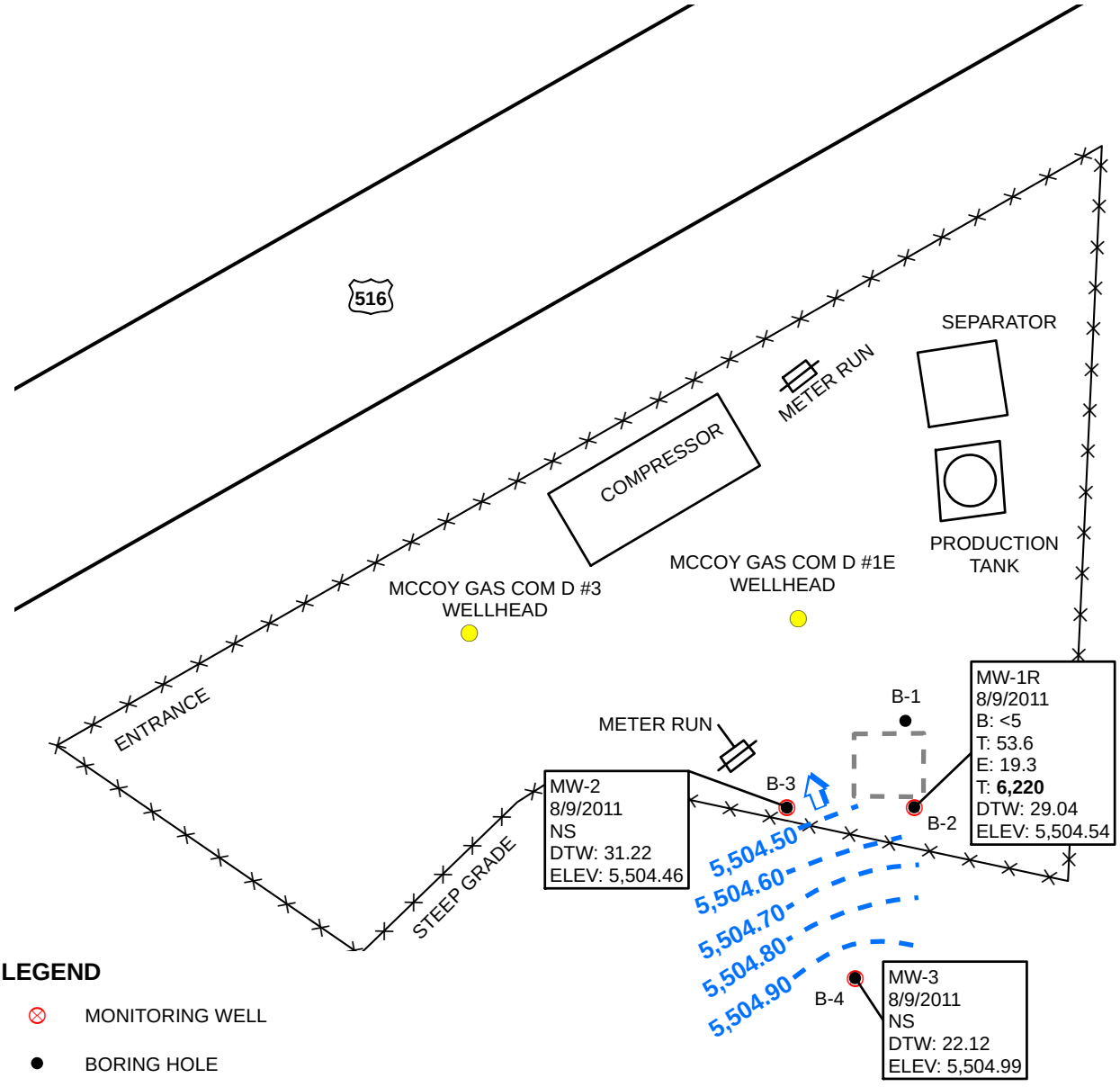

LEGEND

- MONITORING WELL
- BORING HOLE
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PIT TANK
- FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 0.10 FOOT

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

0 80 160
Feet

N

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL MAP
MCCOY GAS COM D #001E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO

XTO ENERGY, INC.

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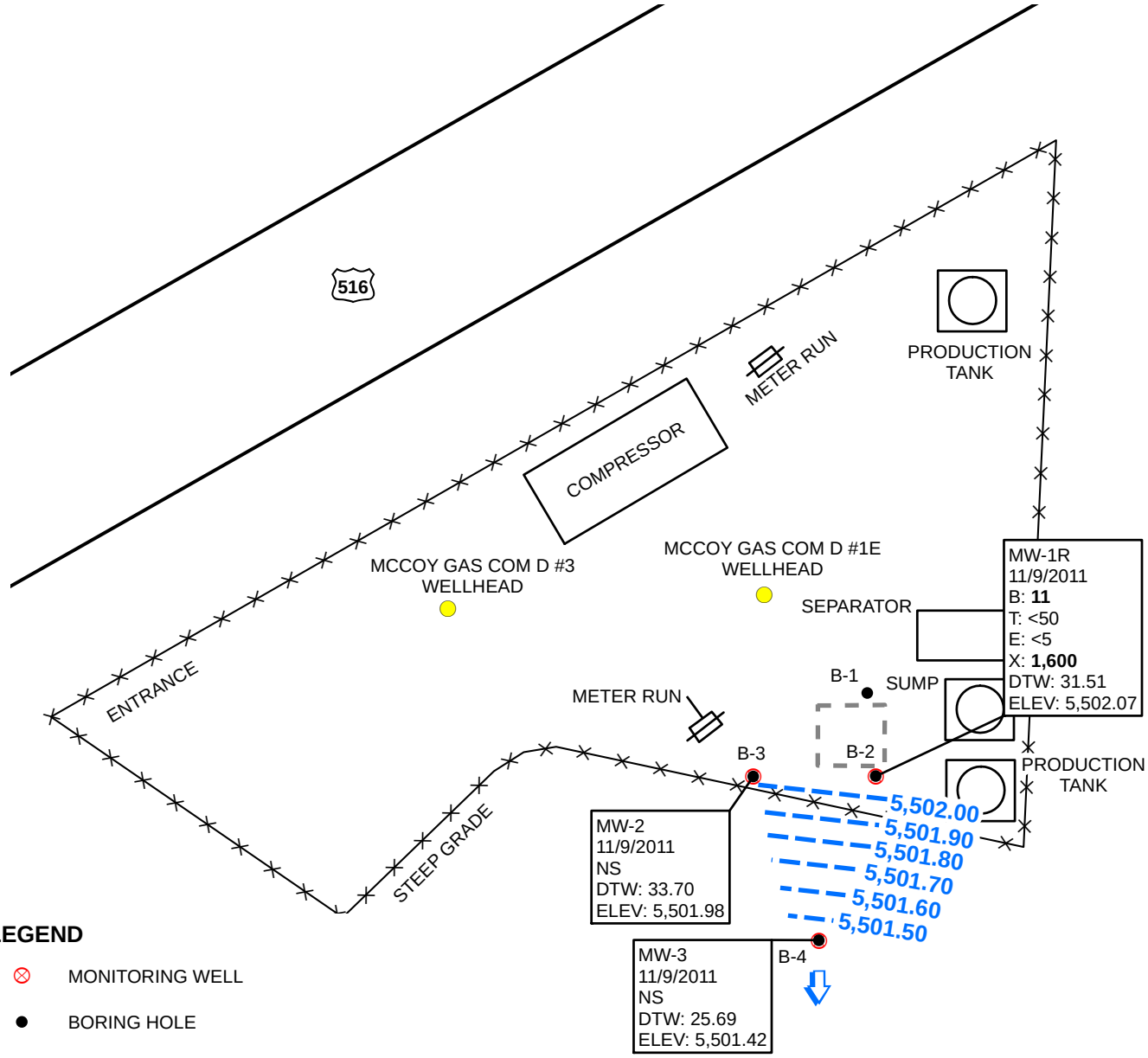

LEGEND

- MONITORING WELL
- BORING HOLE
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PIT TANK
- FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 0.10 FOOT

SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

0 80 160
Feet

N

FIGURE 2
GROUNDWATER RESULTS
MCCOY GAS COM D #001E
SWNW SEC 28 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

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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

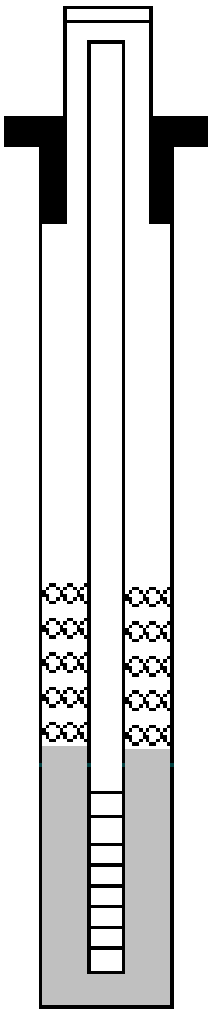
Elevation 5532
Well Location 36º 47.196' N, 108º 06.468' W
GWL Depth 34'
Installed By Envirotech

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

Item	Material	Depth (feet)
Top of Protective Casing		2.9
Bottom of Protective Casing		-0.9
Top of Permanent Borehole Casing	Sch. 40 PVC	2.8
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 Gravel Pack	Sand	-18.0
Bottom of Gravel Pack		-39.95
Top of Natural Cave-In	Sand	-39.95
Bottom of Natural Cave-In		-40
Top of Groundwater		-34.0
Total Depth of Borehole		-40



Top of Protective Casing 2.9
Top of Riser 2.8
Ground Surface 0
Top of Seal -16
Top of Gravel Pack -18
Top of Screen -19.9
Bottom of Screen -39.9
Bottom of Borehole -40

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

50 lb bags of bentontie used: 6 ea.

Geologist Signature *Ashley L. Ager*

MONITORING WELL INSTALLATION RECORD

Borehole # 3
Well # MW-2
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

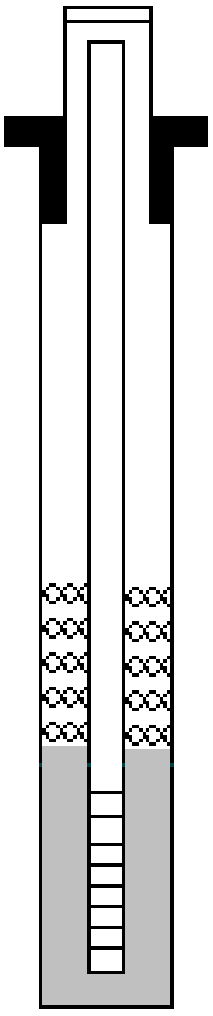
Elevation 5525
Well Location 36º 47.194' N, 108º 06.474' W
GWL Depth 32.5'
Installed By Enviro-Drill

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



Top of Protective Casing 3
Top of Riser 2.5
Ground Surface 0
Top of Seal -23
Top of Gravel Pack -25
Top of Screen -27.2
Bottom of Screen -42.2
Bottom 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

Borehole # 4
Well # MW-3
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

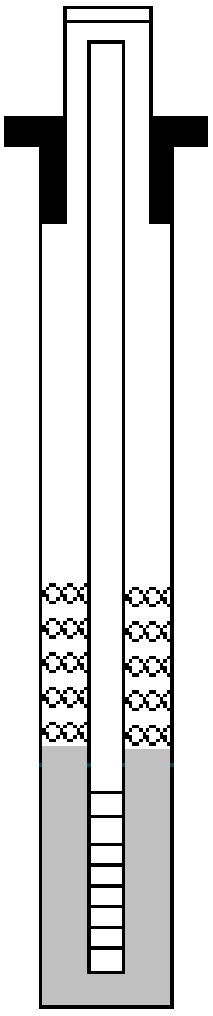
Elevation 5525
Well Location 36º 47.181' N, 108º 06.462' W
GWL Depth 24'
Installed By Enviro-Drill

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

Item	Material	Depth (feet)
Top of Protective Casing		2.5
Bottom of Protective Casing	steel	-2.5
Top of Permanent Borehole Casing		NA
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
Bottom of Peltonite Seal		-19
Top of Gravel Pack	10-20 grade silica sand	-19
Bottom of Gravel Pack		-32
Top of Natural Cave-In		NA
Bottom of Natural Cave-In		NA
Top of Groundwater		-24
Total Depth of Borehole		-32



Top of Protective Casing 2.5
Top of Riser 2.2
Ground Surface 0
Top of Seal -17
Top of Gravel Pack -19
Top of Screen -21.8
Bottom of Screen -31.8
Bottom of Borehole -32

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

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: EXTENDAHOE

DATE STARTED: 4-24-92
DATE FINISHED: 4-24-92
ENVIRO. SPCLT: MKL
OPERATOR: MS
ASSISTANT: PV

LOCATION: LSE: McCOY 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 (FLEA MARKET TO EAST)
SURFACE CONDITIONS: STEEL DOUBLE LINED TANK W/SAND (12'DIA X 5') BELOW GRADE

FIELD NOTES & REMARKS: LOCATED 70' SOUTH & 30' EAST OF WELL HEAD. SOIL CONDITIONS; BROWN SILTY SAND TO GRAVEL, MOIST, DENSE (POSSIBLE FILL). PIT LOCATED ON SOUTH EAST CORNER OF LOCATION ABOVE DRAINAGE TO SOUTH. APPEARS THAT WELL LOCATION HAS 20± FEET OF FILL. IRRIGATION DITCH UNLINED FLOWING WEST, 150' SOUTH OF LOCATION. TANK BEDDED IN PEA GRAVEL.

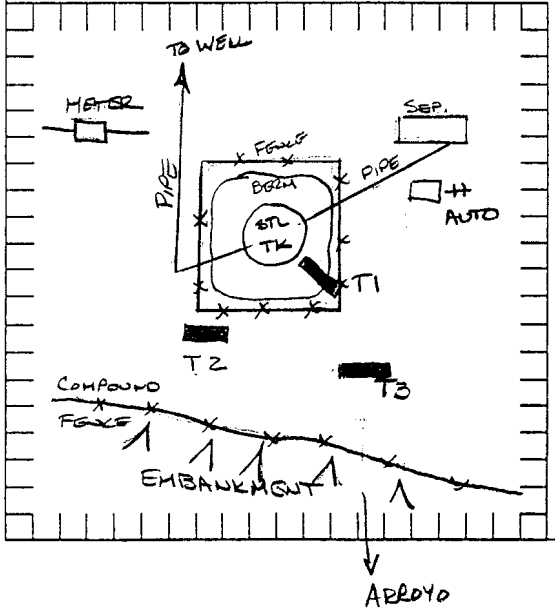
SAMPLE INVENTORY:

SMPL ID:	SMPL TYPE:	LABORATORY ANALYSIS:
T1@5'	SOIL	HEAD
T1@5'	SOIL	8020/TPH

SCALE
0 10 20 FEET

N

SITE DIAGRAM



TEST HOLE LOGS:

TH#: 1

SOIL TYPE:	SMPL TYPE:	OVM/TPH
GM/SM		
		2K.3
		188
TD - 9'		
GW - NR		

TH#: 2

SOIL TYPE:	SMPL TYPE:	OVM/TPH
GM/SM		
CALICHE LAYER		
		ND
		ND
TD - 12		
GW - NOT REACH		

TH#: 3

SOIL TYPE:	SMPL TYPE:	OVM/TPH
SM/SC		
BOTTOM OF FILL		
		ND
GM/SM		
		ND
TD - 14'		
GW - NR		

TH#:

SOIL TYPE:	SMPL TYPE:	OVM/TPH

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

Attachment 2

Blagg Engineering, Inc. Pit Closure Report (2006)

FLORA VISTA QUAD. VW 30045 24873 36.78677 / 108.10784

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

FIELD REPORT: PIT CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: McCoy GC D WELL #: 1E TYPE: SEP.
QUAD/UNIT: E SEC: 28 TWP: 30N RNG: 12W PM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: 1600'N/1230'W SW/NW CONTRACTOR: HDI (HERB)

DATE STARTED: 2/17/06
DATE FINISHED:
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 30 FT. x 30 FT. x 23 FT. DEEP. CUBIC YARDAGE: 750
DISPOSAL FACILITY: JFJ LF - CROUCH 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'
NMOCD RANKING SCORE: 30 NMOCD TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: ELEV. - 5,524'

OVM CALIB. READ. = 53.3 ppm
OVM CALIB. GAS = 100 ppm RF = 0.52
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 - VARYING 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 17'x19' W/ STEEL TANK ~ 5' BELOW GRADE.

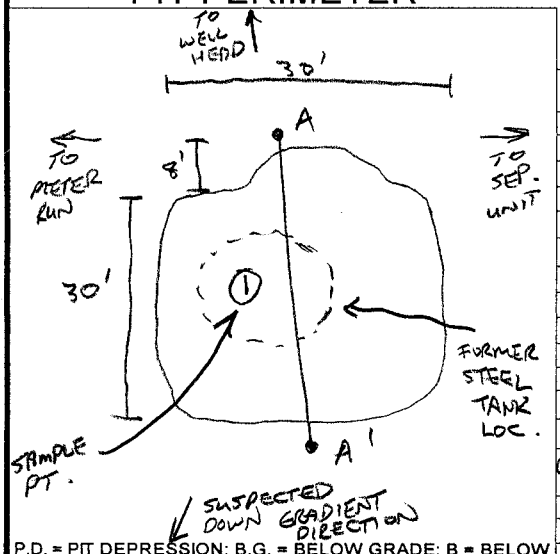
NEED TO ESTABLISH HORIZ. & VERT. EXTENT

FIELD 418.1 CALCULATIONS

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

SCALE 0 FT

PIT PERIMETER



P.D. = PIT DEPRESSION; B.G. = BELOW GRADE; B = BELOW T.H. = TEST HOLE; ~ = APPROX.; T.B. = TANK BOTTOM

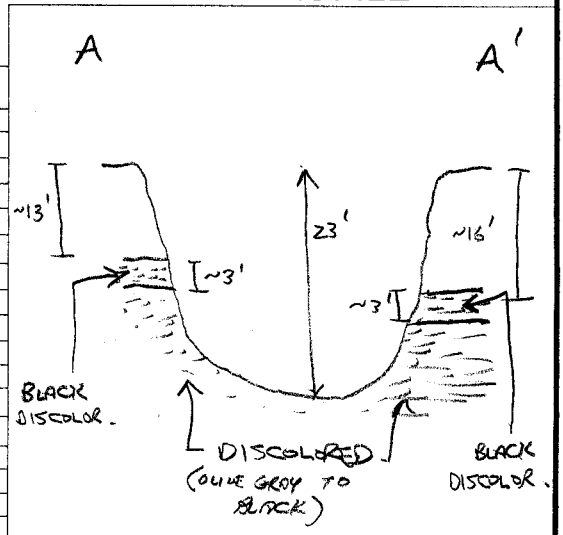
OVM READING

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

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
① @ 23'	TPH (8015B)	1043
"	BTEX (8021B)	"
"	CHLORIDE	"

PIT PROFILE



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

revised: 09/04/02 bei1005C.skf

Attachment 3

2011 Laboratory Results

12065 Lebanon Rd.
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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

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 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.

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REPORT OF ANALYSIS

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

February 23, 2011

ESC Sample # : L501725-01

Date Received : February 15, 2011
Description : McCoy CGD 1E

Site ID : MCCOY GCD 1E

Sample ID : MCCOY MW-1

Project # :

Collected By :
Collection Date : 02/14/11 15:42

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.

.
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 Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography 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.

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L501725

February 23, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG521649	02/15/11 13:56
Ethylbenzene	< .0005	mg/l			WG521649	02/15/11 13:56
Toluene	< .005	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

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
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

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
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

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
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

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
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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Aztec, NM 87410

Quality Assurance Report
Level II

L501725

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 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.

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REPORT OF ANALYSIS

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

May 20, 2011

ESC Sample # : L516627-01

Date Received : May 18, 2011
Description : McCoy Gas Com D 1E

Site ID : MCCOY GAS COM D1E

Sample ID : MW-1R

Project # :

Collected By : Brooke Herb
Collection Date : 05/17/11 12:05

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.

.
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

May 20, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG536606	05/20/11 01:19
Ethylbenzene	< .0005	mg/l			WG536606	05/20/11 01:19
Toluene	< .005	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

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
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

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
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

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
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

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
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.'

12065 Lebanon Rd.
Mt. Juliet, TN 37122
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YOUR LAB OF CHOICE

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L516627

May 20, 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.

E007

Chain of Custody
Page 1 of 1

Company Name/Address	Alternate Billing	Analysis/Container/Preservative
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S	BTEX (8021)
	Report to: James McDaniel	
	E-mail to: james_mcdaniel@xtoenergy.com	
Project Description: ~~XTO Groundwater Monitoring~~ McCoy Gas Com D #1E BH	City/State Collected:	
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #
Collected by: Brooke Herb	Site/Facility ID# McCoy Gas COM D #1E	P.O.#
Collected by(signature): Brooke Herb Packed on Ice N___ Y_X_	**Rush?** (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	**Date Results Needed** Email?___No_X__Yes FAX?____No___Yes

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

CoCode (lab use only)
XTORNM
Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	Remarks/contaminant	Sample # (lab only)
MW-1R	Grab	GW		5/17/11	12:05	3 ✓		L516627-01

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

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Brooke Herb	5/17/11	16:00		4135 5931 7 3645	OK
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 3.4° Bottles Received: 3U	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature) Kim Wolcott	Date: 5/18/11 Time: 0900	pH Checked: NCF:

Gulf Coast ACCUTEST LABORATORIES

08/23/11

Technical Report for

LT Environmental

LT: XTO Energy

Mccoy 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 K 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)

Sections: 1 2 3 4

Table of Contents

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

Gulf Coast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

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		

	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

	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	Alternate Billing	Analysis/Container/Preservative	Chain of Custody
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com	BTEX 8021	Page 1 of 1 Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859

Project Description: McCoy Gas Com D#1	City/State Collected: Flora Vista, NM		
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #	
Collected by: Brooke Herb	Site/Facility ID# McCoy Gas Com D#1	P.O.#	CoCode (lab use only) XTORNM Template/Prelogin Shipped Via: Fed Ex
Collected by(signature): Brooke Herb Packed on Ice N___ Y X	Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?___No_X__Yes FAX?___No___Yes	No of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time		Remarks/contaminant	Sample # (lab only)
MW-1R	Grab	GW	—	8/9/11	1426	3 X		

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp 5.1

Remarks: "ONLY 1 COC Per Site!!" Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Brooke Herb	8/9/11	1700		Temp: / Bottles Received:	
Relinquisher by:(Signature) FedEx	Date: 8/10	Time: 915	Received by: (Signature)		
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: / Time:	pH Checked: / NCF:

T83905: Chain of Custody
Page 1 of 3

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

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	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☑	☐	☐	☐
2. Trip Blank listed on COC:	☐		☑	☐		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☑		☐	☐		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

8/10/11

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive
F: 713.271.4770

Houston, TX 77036
www.accutest.com

T83905: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Sample Receipt Log

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

Gulf Coast ACCUTEST LABORATORIES

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

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

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

The QC reported here applies to the following samples: **Method:** SW846 8021B

T83905-1

CAS No.	Compound	T83996-4 ug/l	Q	Spike 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.

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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 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, PA - 68-02979

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
L·A·B S·C·I·E·N·C·E·S
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REPORT OF ANALYSIS

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

November 17, 2011

ESC Sample # : L546126-01

Date Received : November 10, 2011
Description : MCCOY GC D 1E

Site ID : MCCOY GC D 1E

Sample ID : MW-1R

Project # :

Collected By : Brooke Herb
Collection Date : 11/09/11 13:40

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.

.
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

ESC LAB SCIENCES
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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L546126

November 17, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG565901	11/16/11 12:49
Ethylbenzene	< .0005	mg/l			WG565901	11/16/11 12:49
Toluene	< .005	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

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
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

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
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

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
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

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
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.'

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YOUR LAB OF CHOICE

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L546126

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.

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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.

F226

Chain of Custody Page 1 of 1

Company Name/Address	Alternate Billing	Analysis/Container/Preservative
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com	BTEX 8021

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: McCoy GC D #1E		City/State Collected: Flora Vista, NM	CoCode (lab use only): XTORNM
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #	Template/Prelogin
Collected by: Brooke Herb	Site/Facility ID# McCoy GC D #1E	P.O.#	Shipped Via: Fed Ex
Collected by(signature): Brooke Herb Packed on Ice N___ Y_X_	Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?___No_X__Yes FAX?___No___Yes	No of Cntrs: 3

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Remarks/contaminant	Sample # (lab only)
MW-1R	G	GW		11/9/11	1340	non-preserved	L546126-01

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

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature) Brooke Herb	Date: 11/9/11	Time: 1600	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__ 4134198192163	Condition (lab use only): OK	
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.1°C	Bottles Received: 3	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 11/10/11	Time: 0900	pH Checked: NCF:

Attachment 4

Field Notes

SAMPLING PURGE LOG

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

Measuring Point: TOC | Depth to Water: 37.27 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 40.4 ft | Product Thickness: NA ft
Water Column Height: 3.13 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: XTO Groundwater | Location: McCoy GC D #001E | Well No: MW-1R
Client: XTO Energy, Inc. | Date: 5/17/2011 | Time: 11:31
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 29.31 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.6 ft | Product Thickness: NA ft
Water Column Height: 9.29 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 prarticles, 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 prarticles, 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: XTO Groundwater | Location: McCoy | Well No: MW-1R
Client: XTO Energy, Inc. | Date: 8/9/2011 | Time: 13:47
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 29.04 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.86 ft | Product Thickness: NA ft
Water Column Height: 9.82 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: XTO Groundwater | Location: McCoy | Well No: MW-1R
Client: XTO Energy, Inc. | Date: 11/9/2011 | Time: 13:09
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 31.51 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 38.95 ft | Product Thickness: NA ft
Water Column Height: 7.44 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

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: 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.

Julie Linn, P.G.
Senior Geologist