3R - 110

2013 AGWMR

JAN 2014

2013 ANNUAL GROUNDWATER REPORT

Federal Gas Com H #1

3RP-110

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

PREPARED FOR:

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

January 2014

TABLE OF CONTENTS

2013 XTO GROUNDWATER REPORT

Attachment 3: 2013 Laboratory Reports

Attachment 4: 2013 Field Notes

FEDERAL GAS COM H #1
3RP-110

SITE DETAILS

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

INTRODUCTION

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

HISTORY

In November 1999, XTO responded to a release of a produced water and condensate mixture of approximately 69 barrels. The response involved excavating and disposing of 304 cubic yards of impacted soil and collecting confirmation soil samples from the perimeter of the excavation. A Spill Cleanup Report dated January 28, 2000 and completed by Blagg Engineering, Inc. detailing response activities is included as ***Attachment 1***. Field and analytical data available at the time of the report suggested vertical extent of the release had been established and lateral extent of soil impact met closure standards with the exception of the source area. Vertical vent piping was installed in the source area in January 2000 in an effort to passively remediate the remaining impacted soil.

In March 2005 while upgrading equipment on location, XTO discovered what was believed to be a historical earthen blow pit. Approximately 300 cubic yards of impacted soil were excavated and disposed of off-site. Groundwater was encountered during the second excavation and monitoring wells were installed in each of the source areas. Completion Diagrams and Borehole Logs documenting drilling that occurred in 2005 are presented in ***Attachment 2***.

In April 2006 a third monitoring well (MW-3) was installed cross-gradient of the source area. In June 2010, MW-3 was plugged and abandoned. In January 2011, MW-3R was installed near the former location of MW-3. A Completion Diagram is included in ***Attachment 2***. A borehole log was not completed for MW-3R since it was completed in the former location of MW-3.

The 2006 annual groundwater report was submitted to the New Mexico Oil Conservation

Division (NMOCD) in February 2007 proposing removal of the passive remediation system (wind turbines) and quarterly sampling of monitoring wells in accordance with an NMOCD approved Groundwater Management Plan. In June 2010, the vertical vent piping was removed.

Between 2007 and 2009, XTO conducted regular groundwater sampling of source monitoring wells MW-1 and MW-2 and measured groundwater elevations in all wells. XTO submitted annual groundwater reports comparing laboratory analytical results to New Mexico Water Quality Control Commission (NMWQCC) groundwater standards.

The 2010 and 2011 annual groundwater reports submitted to NMOCD recommended continued quarterly sampling at monitoring wells MW-1 and MW-2 until analytical results indicated hydrocarbon constituents were below NMWQCC groundwater standards for four consecutive quarters. Additionally, XTO recommended injection of hydrogen peroxide to the groundwater aquifer using monitoring wells MW-1 and MW-2 as injection points to oxygenate the aquifer and enhance naturally occurring bioremediation. XTO met with the NMOCD in October 2011 to present a brief history of the site and the hydrogen peroxide injection work plan. NMOCD did not provide comments for the hydrogen peroxide work plan; therefore, XTO did not proceed with the remediation action but continued to sample MW-1 and MW-2 and monitor groundwater elevations in all monitoring wells quarterly through 2012.

In the 2012 annual groundwater report, submitted to the NMOCD in January 2013, XTO presented laboratory analytical results of benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in groundwater samples collected from MW-2 for four consecutive quarters that were below NMWQCC standards. As a result, XTO proposed to cease sampling of MW-2 and continue to sample MW-1 and monitor groundwater elevations in MW-1, MW-2 and MW-3R quarterly during 2013.

A summary of groundwater elevations and laboratory analytical results from historical and current groundwater monitoring is presented in ***Table 1*** and ***Table 2*** respectively.

METHODOLOGY

In 2013, quarterly depth to groundwater data was collected at MW-1, MW-2, and MW-3R. Quarterly groundwater samples were collected from groundwater monitoring well MW-1 and submitted for laboratory analysis of BTEX using United States Environmental Protection Agency Method 8021B.

Water Level Measurements

Static groundwater level monitoring included recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement.

Groundwater Sampling

Prior to sampling groundwater, depth to groundwater and total depth of the well was measured with a Keck oil/water interface probe. Presence of any free-phase petroleum hydrocarbons was also investigated using the interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the well was calculated, and a minimum of three casing volumes of water were purged from the well using a new disposable polyvinyl chloride (PVC) bailer or a dedicated PVC bailer or the monitoring well was purged dry. All purge water was disposed of into tanks on site.

Once the monitoring well was purged, groundwater samples were collected by filling at least two 40-milliliter (ml) glass vials. The laboratory supplied vials were filled and capped with no air inside to prevent degradation of the sample. Samples were labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They were immediately sealed, packed on ice, and shipped via FedEx to Environmental Science Corporation (ESC) in Mt. Juliet, Tennessee for analysis. Proper chain-of-custody (COC) procedures were followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used (if any), analyses required and sampler's signature. A copy of the laboratory reports are presented in ***Attachment 3*** and copies of the Filed Notes are presented in ***Attachment 4***.

Groundwater Contour Maps

Groundwater elevations obtained from monitoring wells during quarterly site visits were used to draft groundwater contour maps. Contours were inferred based on measured groundwater elevations and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.).

RESULTS

During 2013, benzene concentrations in MW-1 exceeded the NMWQCC standard during all four quarterly sampling events ranging from a minimum of 16 micrograms per liter (µg/L) in March 2013 to a maximum of 28 µg/L in December 2013. Toluene, ethylbenzene, and total xylenes concentrations in MW-1 were below the NMWQCC standards during all four quarterly sampling events.

Groundwater elevations measured during site monitoring events in 2013 indicate the groundwater gradient trends to the southeast. ***Figure 2*** through ***Figure 5*** depict the quarterly groundwater elevations and groundwater analytical results for 2013.

CONCLUSIONS

Laboratory analytical results indicate benzene concentrations are stable in monitoring well MW-1, suggesting hydrocarbons in the remaining source area are stable.

RECOMMENDATIONS

XTO proposes continued quarterly sampling at monitoring well MW-1 until analytical results indicate hydrocarbon constituents are below NMWQCC standards for four consecutive quarters. Depth to groundwater in monitoring wells MW-1, MW-2, and MW-3R will be measured quarterly in 2014. Following NMOCD approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

TABLE 1
GROUNDWATER ELEVATION SUMMARY

TABLE 1

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

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	3/29/2007	31.34	5504.48
MW-1	7/23/2007	31.55	5504.27
MW-1	10/11/2007	31.09	5504.73
MW-1	1/8/2008	31.26	5504.56
MW-1	7/1/2008	31.40	5504.42
MW-1	1/20/2009	31.29	5504.53
MW-1	7/8/2009	31.58	5504.24
MW-1	10/20/2009	31.31	5504.51
MW-1	1/12/2010	31.29	5504.53
MW-1	4/7/2010	31.03	5504.79
MW-1	7/20/2010	31.11	5504.71
MW-1	10/7/2010	30.51	5505.31
MW-1	1/18/2011	30.56	5505.26
MW-1	4/12/2011	30.83	5504.99
MW-1	8/9/2011	30.92	5504.90
MW-1	11/9/2011	30.46	5505.36
MW-1	3/8/2012	30.64	5505.18
MW-1	6/14/2012	31.00	5504.82
MW-1	9/12/2012	31.11	5504.71
MW-1	12/12/2012	31.05	5504.77
MW-1	3/14/2013	29.94	5505.88
MW-1	6/17/2013	30.98	5504.84
MW-1	9/11/2013	31.05	5504.77
MW-1	12/16/2031	30.14	5505.68
MW-2	3/29/2007	33.05	5501.91
MW-2	7/23/2007	33.24	5501.72
MW-2	10/11/2007	32.87	5502.09
MW-2	1/8/2008	32.98	5501.98
MW-2	7/1/2008	33.08	5501.88
MW-2	1/20/2009	35.34	5499.62
MW-2	7/8/2009	33.23	5501.73
MW-2	10/20/2009	32.94	5502.02
MW-2	1/12/2010	32.94	5502.02
MW-2	4/7/2010	32.71	5502.25
MW-2	7/20/2010	32.80	5502.16
MW-2	10/7/2010	32.30	5502.66
MW-2	1/18/2011	32.33	5502.63
MW-2	4/12/2011	32.55	5502.41
MW-2	8/9/2011	32.70	5502.26
MW-2	11/9/2011	32.28	5502.68
MW-2	3/8/2012	32.39	5502.57
MW-2	6/14/2012	32.74	5502.22
MW-2	9/12/2012	32.84	5502.12

TABLE 1

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

Well ID	Date	Depth to Groundwater (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-2	12/12/2012	32.78	5502.18
MW-2	3/14/2013	32.67	5502.29
MW-2	6/17/2013	32.68	5502.28
MW-2	9/11/2013	32.76	5502.20
MW-2	12/16/2013	31.90	5503.06
MW-3	12/6/2006	34.76	5504.79
MW-3	3/29/2007	34.85	5504.70
MW-3	7/23/2007	35.00	5504.55
MW-3	10/11/2007	34.55	5505.00
MW-3	1/8/2008	31.74	5507.81
MW-3	7/1/2008	34.86	5504.69
MW-3	1/20/2009	34.75	5504.80
MW-3	7/8/2009	35.01	5504.54
MW-3	10/20/2009	34.68	5504.87
MW-3	1/12/2010	34.71	5504.84
MW-3	4/7/2010	34.53	5505.02
MW-3R	1/18/2011	34.69	5501.91
MW-3R	4/12/2011	34.91	5501.69
MW-3R	8/9/2011	35.01	5501.59
MW-3R	11/9/2011	34.59	5502.01
MW-3R	3/8/2012	34.72	5501.88
MW-3R	6/14/2012	35.04	5501.56
MW-3R	9/12/2012	35.13	5501.47
MW-3R	12/12/2012	35.07	5501.53
MW-3R	3/14/2013	34.97	5501.63
MW-3R	6/17/2013	34.98	5501.62
MW-3R	9/11/2013	35.05	5501.55
MW-3R	12/16/2013	34.28	5502.32

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

TABLE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

TABLE 2

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

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-1	3/29/2007	**39**	ND	560	**2,300**
MW-1	7/23/2007	**32**	ND	610	**2,300**
MW-1	10/11/2007	**50**	18	440	**1,500**
MW-1	1/8/2008	**47**	7.1	730	**3,000**
MW-1	7/1/2008	**18**	9.6	350	**980**
MW-1	1/20/2009	**30**	22	370	**910**
MW-1	7/8/2009	**16**	ND	280	**530**
MW-1	10/20/2009	**33**	9.7	310	**630**
MW-1	1/12/2010	**31**	<1.0	270	**500**
MW-1	4/7/2010	**33**	16	290	**630**
MW-1	7/20/2010	**27**	10	360	**710**
MW-1	10/7/2010	**26**	<50	320	600
MW-1	1/18/2011	**33**	50	300	600
MW-1	4/12/2011	**27**	<100	320	**700**
MW-1	8/9/2011	**20.8**	21	257	444
MW-1	11/9/2011	**17**	<250	240	390
MW-1	3/8/2012	**22**	<50	200	260
MW-1	6/14/2012	**14**	<50	170	170
MW-1	9/12/2012	**11**	<5	110	73
MW-1	12/12/2012	**23**	<25	170	270
MW-1	3/14/2013	**16**	14	130	220
MW-1	6/17/2013	**20**	16	99	160
MW-1	9/11/2013	**23**	<50	120	230
MW-1	12/16/2013	**28**	61	160	310
MW-2	3/29/2007	**55**	ND	39	60
MW-2	7/23/2007	**39**	ND	25	9.2
MW-2	10/11/2007	**86**	ND	97	140
MW-2	1/8/2008	**65**	ND	82	56
MW-2	7/1/2008	**15**	ND	22	7.3
MW-2	1/20/2009	**38**	ND	85	49
MW-2	7/8/2009	7.5	ND	13	3
MW-2	10/20/2009	**20**	<1.0	31	29
MW-2	1/12/2010	**22**	<1.0	54	41
MW-2	4/7/2010	**37**	1.3	110	130
MW-2	7/20/2010	**17**	<1.0	94	92
MW-2	10/7/2010	**34**	<5	120	140
MW-2	1/18/2011	**30**	<50	160	170
MW-2	4/12/2011	**25**	<25	62	100

TABLE 2

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

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Groundwater Standard		**10**	**750**	**750**	**620**
MW-2	8/9/2011	4	<1	9.8	33.2
MW-2	11/9/2011	**26**	<5	160	160
MW-2	3/8/2012	9.3	<10	79	90
MW-2	6/14/2012	2.6	<5	29	44
MW-2	9/12/2012	0.91	<5	8.8	5.2
MW-2	12/12/2012	0.71	<5	3.5	3.9
MW-3	12/6/2006	ND	ND	ND	ND
MW-3	3/29/2007	ND	ND	ND	ND
MW-3	7/23/2007	ND	ND	ND	ND
MW-3	10/11/2007	ND	ND	ND	ND
MW-3*	1/8/2008	ND	ND	ND	ND

Notes:
BOLD values exceed the NMWQCC Standard
ND - Not detected above the laboratory detection limit
NMWQCC - New Mexico Water Quality Control Commission
ug/L - micrograms per liter
< - indicates result is less than the stated laboratory method detection limit
* MW-3 was abandoned on May 10, 2010

FIGURE 1
SITE LOCATION MAP

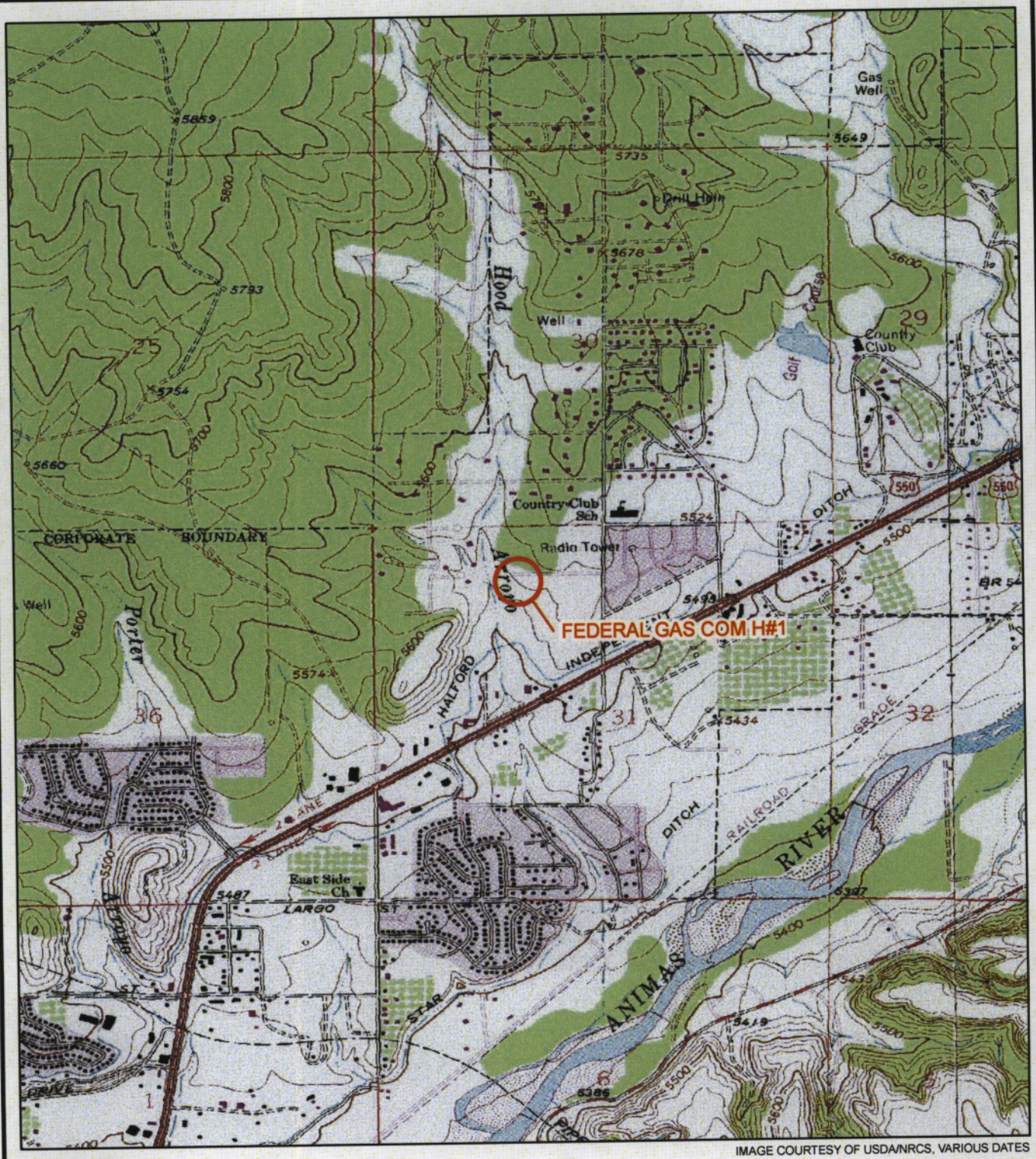


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

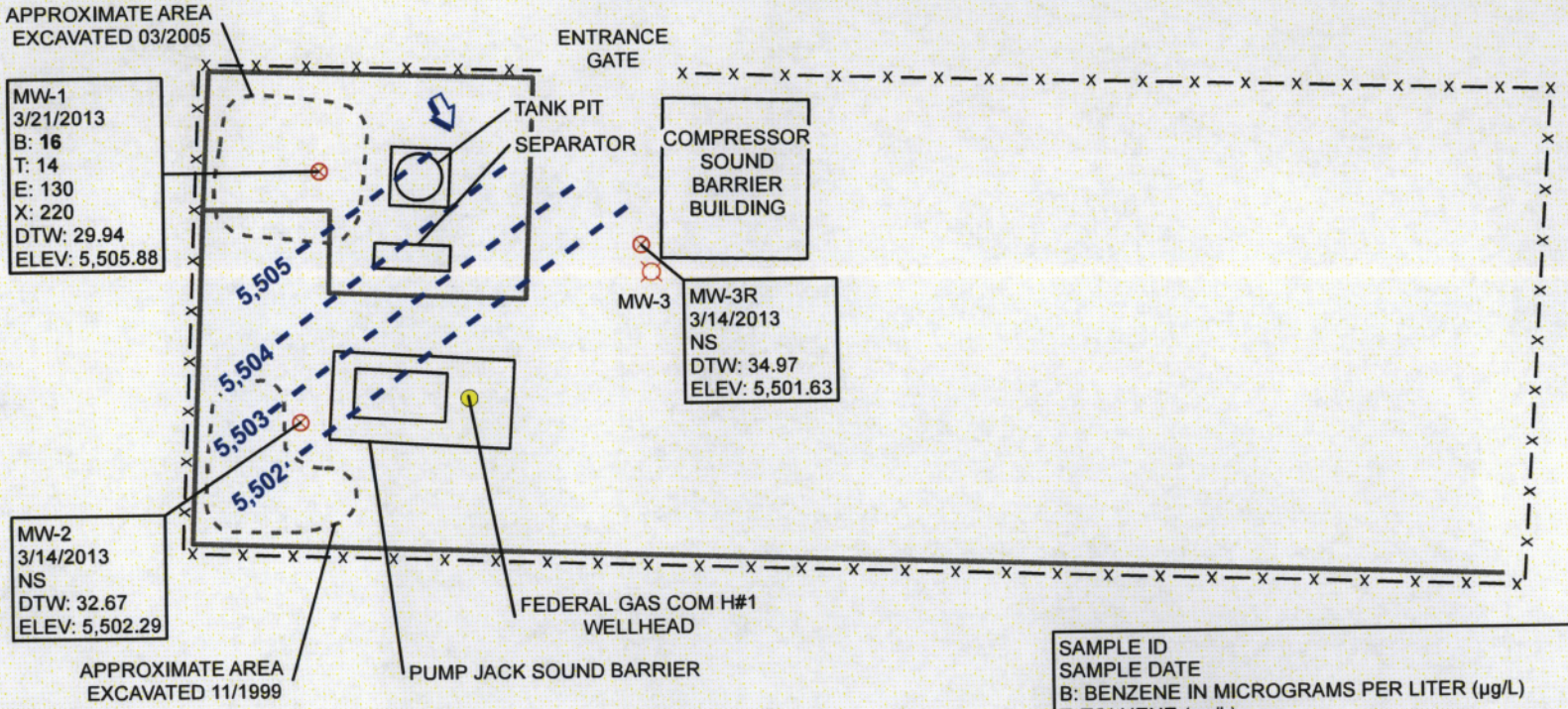
Feet

N

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

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

FIGURE 2
MARCH 2013
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS



LEGEND

- MONITORING WELL
- ABANDONED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- BERM
- FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT

RELATIVE GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL

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
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

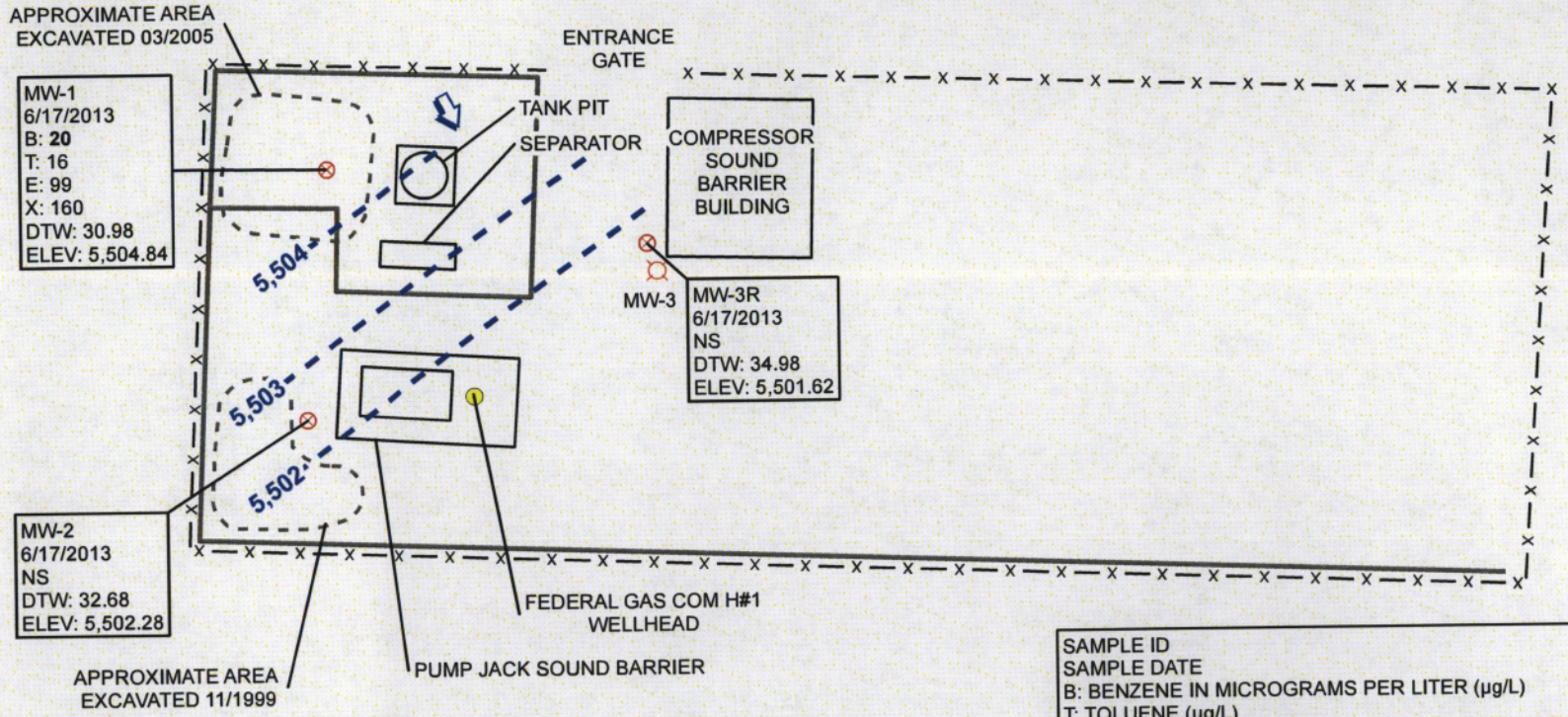
0 50 100
Feet

N

FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009 ROWLAND\012911009_002_FEDERAL_H#1_FIG01_GWE_GWA_2013_Q1.mxd

FIGURE 3
JUNE 2013
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS



LEGEND

- MONITORING WELL
- ABANDONED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- BERM
- x — x FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT

RELATIVE GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL

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
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

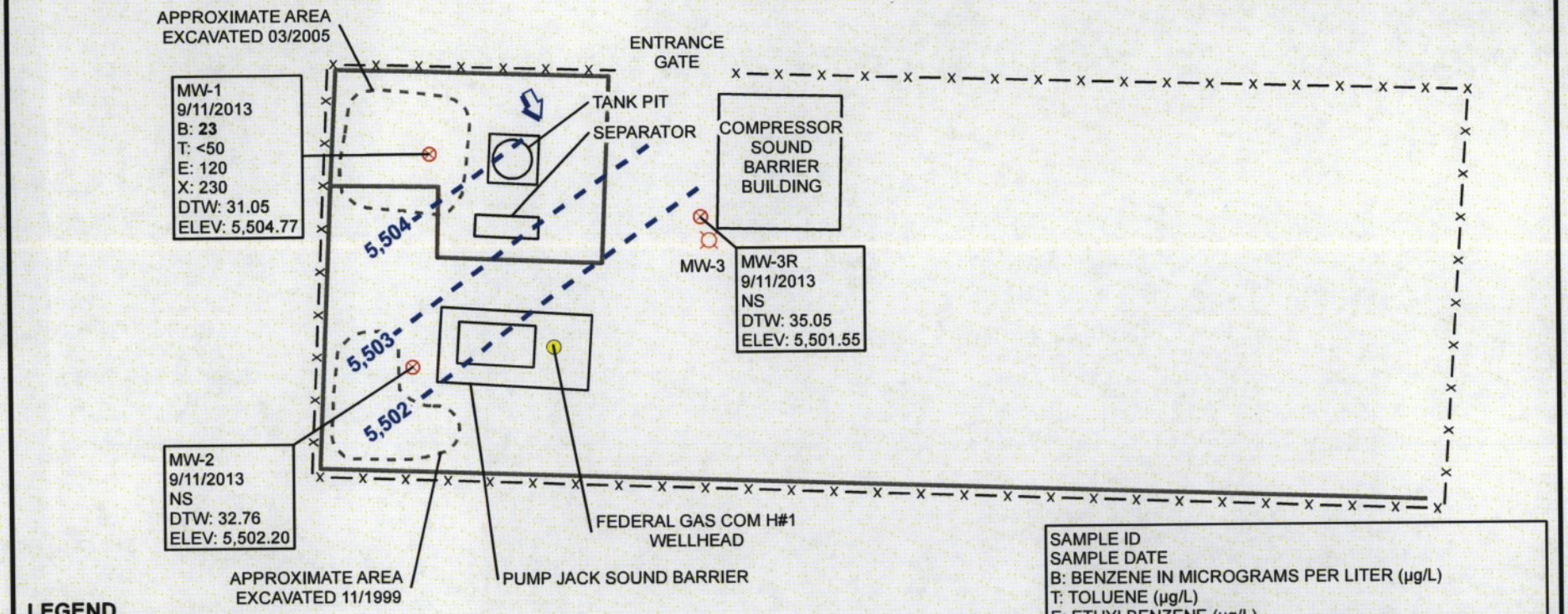
0 50 100
Feet

N

FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009 ROWLAND\012911009_002_FEDERAL_H#1_FIG01_GWE_GWA_2013_Q2.mxd

FIGURE 4
SEPTEMBER 2013
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS



LEGEND

- MONITORING WELL
- ABANDONED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- BERM
- x — x FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT

RELATIVE GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL

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

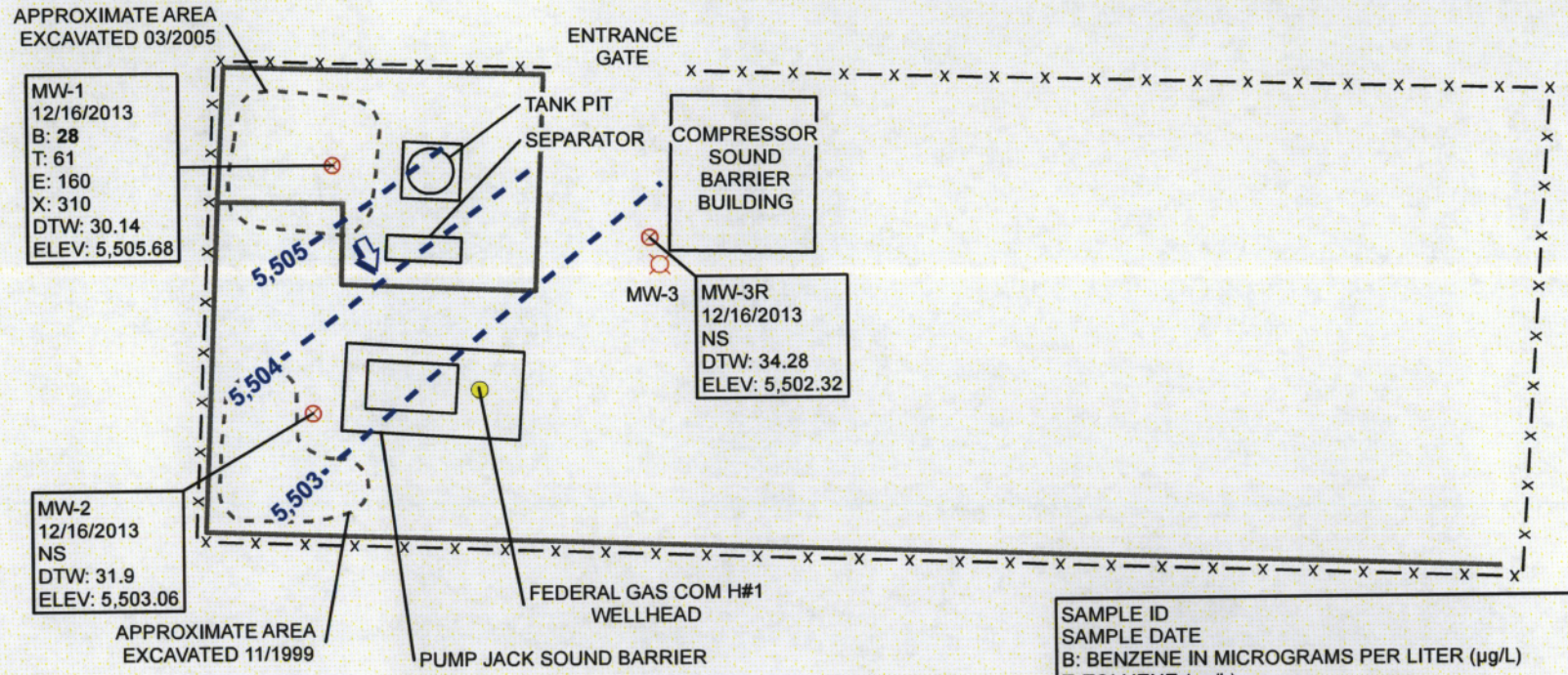
0 50 100
Feet

N

FIGURE 4
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009 ROWLAND\012911009_002_FEDERAL_H#1_FIG01_GWE_GWA_2013_Q3.mxd

FIGURE 5
DECEMBER 2013
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS



LEGEND

- MONITORING WELL
- ABANDONED MONITORING WELL
- WELLHEAD
- ESTIMATED GROUNDWATER FLOW DIRECTION
- FORMER PRODUCTION INFRASTRUCTURE
- BERM
- x — x FENCE
- INFERRED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT

RELATIVE GROUNDWATER ELEVATIONS WERE MEASURED IN FEET ABOVE MEAN SEA LEVEL

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 50 100
Feet

N

FIGURE 5
GROUNDWATER ELEVATION AND ANALYTICAL RESULTS
FEDERAL GAS COM H#1
NENE SEC 31 T30N R12W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\012911009_002_FEDERAL_H#1_FIG01_GWELEV_ANALY_2011_Q4.mxd

ATTACHMENT 1
BLAGG ENGINEERING, INC. SPILL CLEANUP REPORT (1999)

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

January 28, 2000

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

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

Dear Mr. Foust:

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

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

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

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

Respectfully submitted,
Blagg Engineering, Inc.

Nelson J. Velez
Staff Geologist

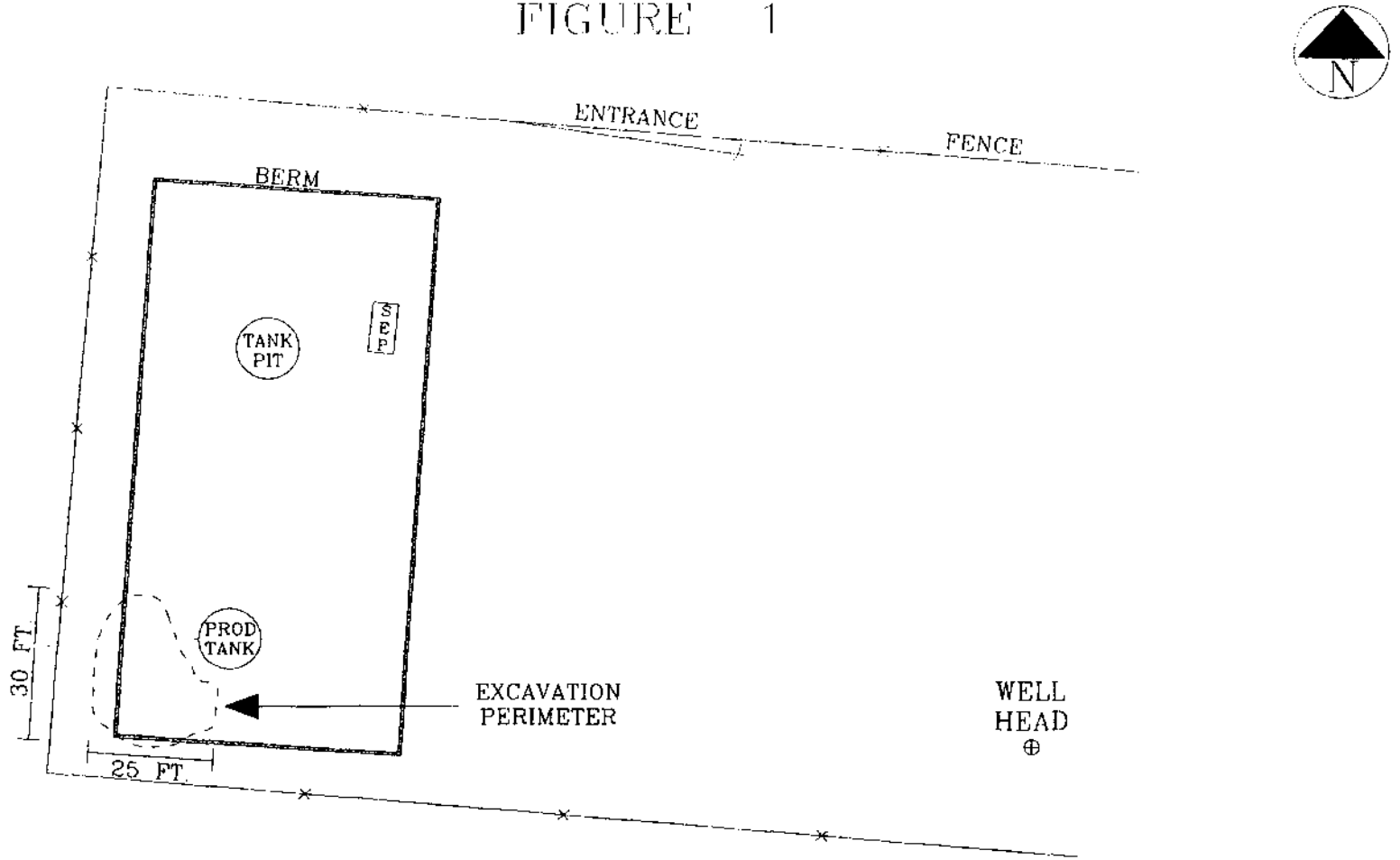
Attachments: Spill Cleanup Report

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

NJV/njv

FED-H1.CVL

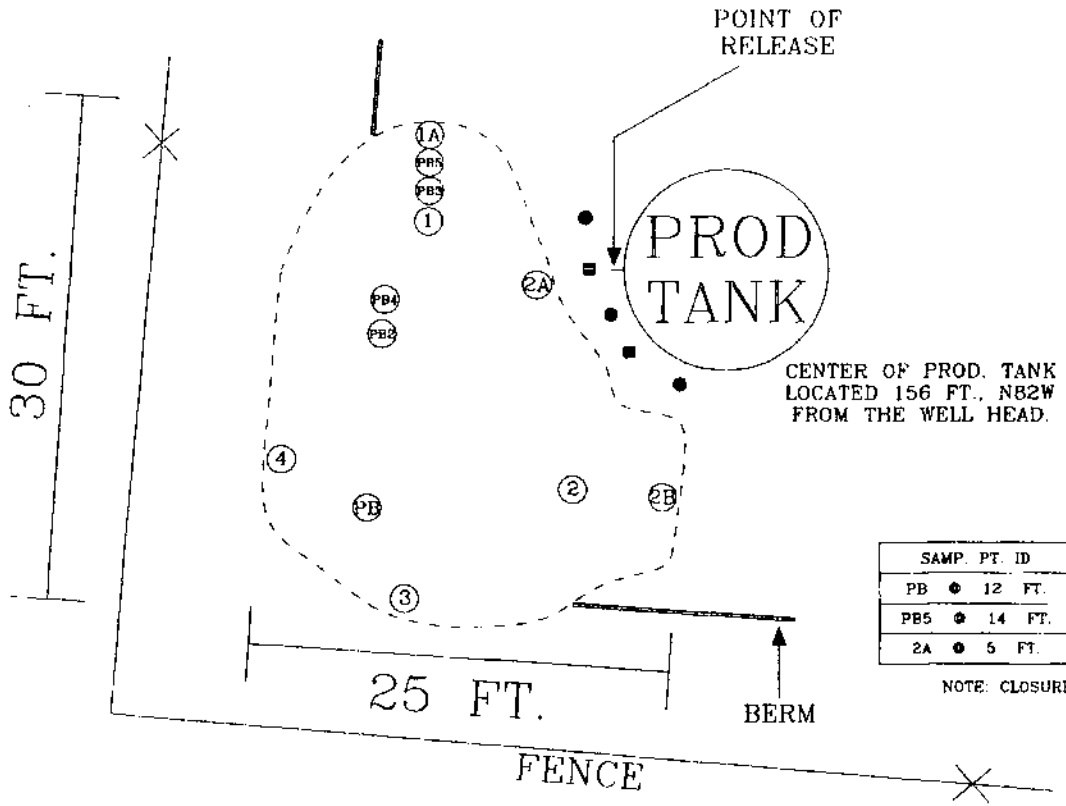
FIGURE 1



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

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

FIGURE 2



NOV. 29, 1998

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

NOTE: CLOSURE STANDARD - OVM < 100 ppm.

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

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

LEGEND. ■ DENOTES BORING LOCATION OF FERTILIZER APPLICATION.

● DENOTES BORING LOCATION OF VERTICAL PASSIVE VENT PIPING.

1 INCH = 10 FT.

0 10 20 FT.

CROSS TIMBERS OIL COMPANY

FEDERAL GC H #1

NE/4 NW/4 SEC. 31, T30N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: SPILL CLEAN UP

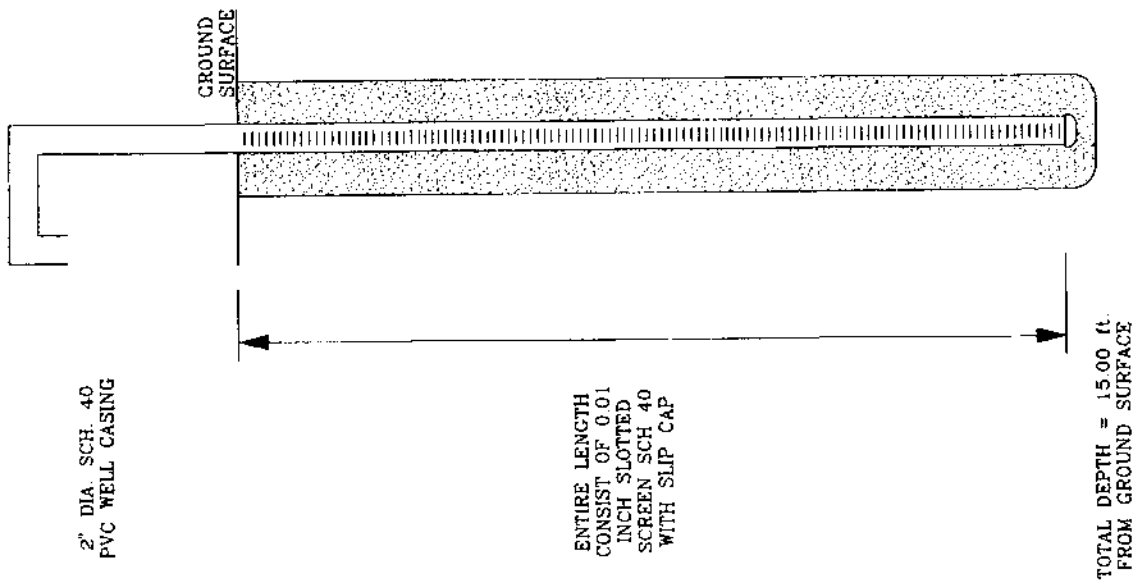
DRAWN BY: NJV

FILENAME FED-MAP2.SKD

SITE MAP

11/99

FIGURE 3



CROSS TIMBERS OIL COMPANY

FEDERAL GC H # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH HAND AUGER

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

VENT PIPING SCHEMATIC

DRAFTED BY: NJV

DATE: JAN. '00

FILENAME: FED-PVP.SKD

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

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

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

ND - Parameter not detected at the stated detection limit.

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

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

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

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

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

ND - Parameter not detected at the stated detection limit.

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

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

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

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

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

ND - Parameter not detected at the stated detection limit.

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

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

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

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

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

ND - Parameter not detected at the stated detection limit.

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

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

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

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

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

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

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

ND - Parameter not detected at the stated detection limit.

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

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

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

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

Analyst

Review

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

CHAIN OF CUSTODY RECORD

7443

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

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

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

ENVIROTECH INC.

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

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

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

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

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

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

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

ND - Parameter not detected at the stated detection limit.

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

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

Analyst

Review

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

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

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

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

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

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

ND - Parameter not detected at the stated detection limit.

* - Administrative level set at 80 - 120.

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

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

Analyst

Review

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

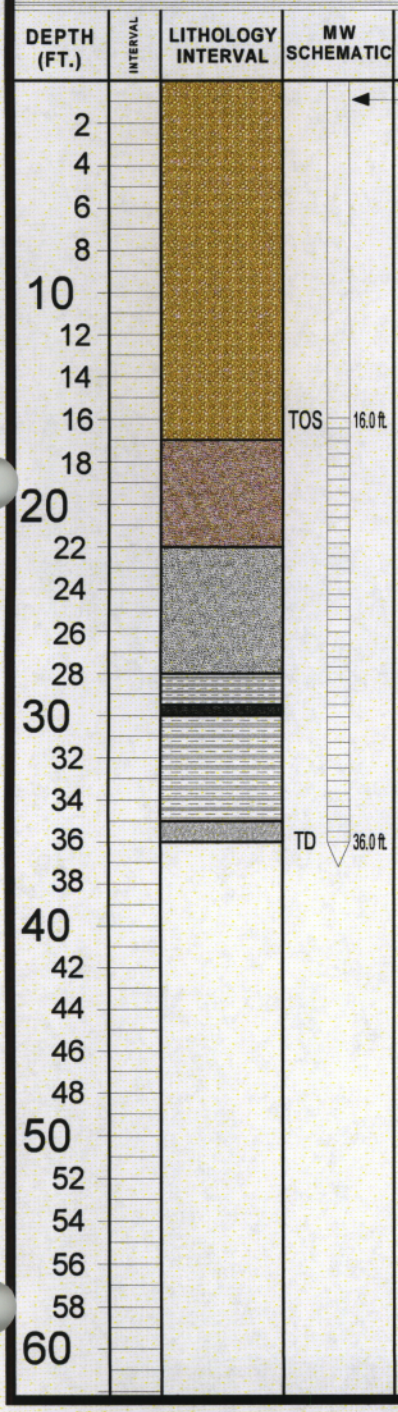
ATTACHMENT 2
COMPLETION DIAGRAMS AND BOREHOLE LOGS

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

BORE / TEST HOLE REPORT

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

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



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 4.00 FEET ABOVE GRADE.

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

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

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

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

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

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

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

NOTES:

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

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

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

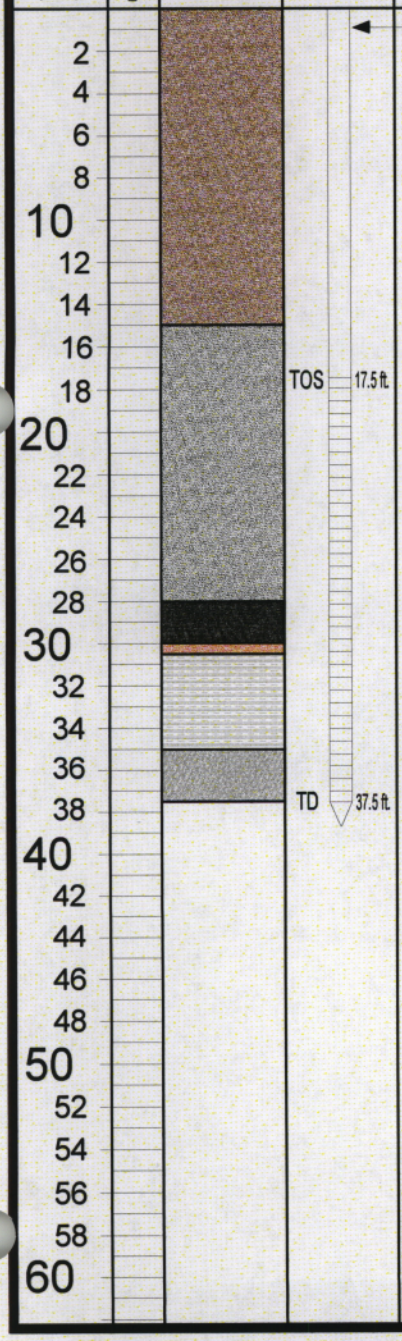
DRAWING: FED-GC-H1-MW1. SKF | DATE: 03/14/05 | DWN BY: NJV

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

BORE / TEST HOLE REPORT

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

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



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.50 FEET ABOVE GRADE.

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

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

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

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

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

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

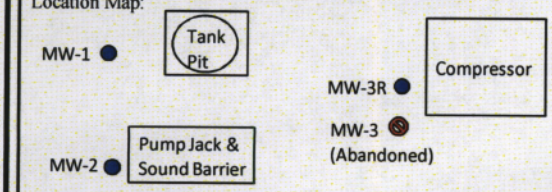
NOTES:
- SAND.
- SAND (IMPACTED).
- SILTY CLAY TO CLAY (IMPACTED).

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

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

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

Location Map:



Compliance • Engineering • Remediation
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: MW-3R		Project: XTO Groundwater Monitoring	
Site Name: Federal H#1	Date: 1/7/2011	Project Number: XTO1002	
Location: 36.774886; -108.142525	Logged By: D. Hencmann	Drilled By: EnviroDrill, Inc.	
Elevation: 5536.6 / Detector: N/A	Drilling Method: Hollow Stem Auger	Sampling Method: N/A	
Gravel Pack: 10/20 Colorado Silica Sand	Seal: Bentonite Pellets	Grout: Neat Cement	
Casing Type: Schedule 40 PVC	Diameter: 2 inch / Length: 28 feet	Hole Diameter:	Depth to Liquid: None
Screen Type: Schedule 40 PVC / Slot: 0.010 inch	Diameter: 2 inch / Length: 15 feet	Total Depth: 40 feet	Depth to Water: 34 feet

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Not Logged (replacement well)	
					4				
					8				
					12				
					16				
					20				
					24				
					28				
					32				
					36				
					40				

ATTACHMENT 3
2013 LABORATORY REPORTS

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

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

Tax I.D. 62-0814289

Est. 1970

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

Report Summary

Thursday March 21, 2013

Report Number: L625290
Samples Received: 03/15/13
Client Project:

Description: Federal GC H 1

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

Entire Report Reviewed By: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

March 21, 2013

ESC Sample # : L625290-01

Date Received : March 15, 2013
Description : Federal GC H 1

Site ID :

Sample ID : MW-1

Project # :

Collected By : Kyla Vaughan
Collection Date : 03/14/13 13:33

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.016	0.00050	mg/l	8021B	03/21/13	1
Toluene	0.014	0.0050	mg/l	8021B	03/21/13	1
Ethylbenzene	0.13	0.00050	mg/l	8021B	03/21/13	1
Total Xylene	0.22	0.0015	mg/l	8021B	03/21/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	96.7		% Rec.	8021B	03/21/13	1

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

.
Reported: 03/21/13 17:10 Printed: 03/21/13 17:10

Summary of Remarks For Samples Printed
03/21/13 at 17:10:29

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests

Sample: L625290-01 Account: XTORNM Received: 03/15/13 09:00 Due Date: 03/22/13 00:00 RPT Date: 03/21/13 17:10

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L625290

March 21, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG652020	03/21/13 05:31
Ethylbenzene	< .0005	mg/l			WG652020	03/21/13 05:31
Toluene	< .005	mg/l			WG652020	03/21/13 05:31
Total Xylene	< .0015	mg/l			WG652020	03/21/13 05:31
a,a,a-Trifluorotoluene(PID)		% Rec.	100.3	55-122	WG652020	03/21/13 05:31

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0484	96.7	79-114	WG652020
Ethylbenzene	mg/l	.05	0.0493	98.7	80-116	WG652020
Toluene	mg/l	.05	0.0485	97.0	79-112	WG652020
Total Xylene	mg/l	.15	0.151	101.	84-118	WG652020
a,a,a-Trifluorotoluene(PID)				102.9	55-122	WG652020

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0457	0.0484	91.0	79-114	5.60	20	WG652020
Ethylbenzene	mg/l	0.0464	0.0493	93.0	80-116	6.09	20	WG652020
Toluene	mg/l	0.0456	0.0485	91.0	79-112	6.09	20	WG652020
Total Xylene	mg/l	0.143	0.151	95.0	84-118	5.31	20	WG652020
a,a,a-Trifluorotoluene(PID)				100.1	55-122			WG652020

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0496	0	.05	99.2	35-147	L625975-08	WG652020
Ethylbenzene	mg/l	0.0508	0	.05	102.	39-141	L625975-08	WG652020
Toluene	mg/l	0.0503	0	.05	101.	35-148	L625975-08	WG652020
Total Xylene	mg/l	0.156	0	.15	104.	33-151	L625975-08	WG652020
a,a,a-Trifluorotoluene(PID)					102.4	55-122		WG652020

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0510	0.0496	102.	35-147	2.72	20	L625975-08	WG652020
Ethylbenzene	mg/l	0.0521	0.0508	104.	39-141	2.49	20	L625975-08	WG652020
Toluene	mg/l	0.0509	0.0503	102.	35-148	1.12	20	L625975-08	WG652020
Total Xylene	mg/l	0.159	0.156	106.	33-151	1.57	20	L625975-08	WG652020
a,a,a-Trifluorotoluene(PID)				103.0	55-122				WG652020

Batch number /Run number / Sample number cross reference

WG652020: R2591899: L625290-01

* * 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.'

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

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

Tax I.D. 62-0814289

Esc. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L625290

March 21, 2013

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 contro. 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.

XTO Energy, Inc
382 County Road 3100
Aztec NM 87410

Billing Information: XTORNM031810S

Report to: James McDaniel

Email to: james_mcdaniel@xtoenergy.com

Project Description: Federal GC H #1

City/State Collected:

Phone: 505-333-3701
FAX:

Client Project #:

ESC Key:

Collected by: Kyla Vaughan

Site/Facility ID#:

P.O.#:

Collected by (signature): K Vaughan

Immediately Packed on Ice N Y

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

Date Results Needed:

Email? __No__Yes

FAX? __No__Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX 8021	Remarks/Contaminant	Sample # (lab only)
MW-1		GW		3/14/13	13:33	3	✓	L625290	-01

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

5435550 09382

Chain of Custody
Page 1 of 1

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

CoCode XTORNM (lab use only)

Template/Prelogin

Shipped Via:

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
K Vaughan	3/14/13	15:18	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 2.6°C

Bottles Received: 3v

Date: 3/15

Time: 0900

Condition: (lab use only) OK JR

CoC Seals Intact: ___ Y ___ N ___ NA

pH Checked:

NCF:

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

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

Tax I.D. 62-0814289

Est. 1970

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

Report Summary

Wednesday June 26, 2013

Report Number: L641990
Samples Received: 06/18/13
Client Project:

Description: Federal GC H 1

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

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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, 060305, and 060304.

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

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

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

June 26, 2013

ESC Sample # : L641990-01

Site ID : FEDERAL GC H 1

Project # :

Date Received : June 18, 2013
Description : Federal GC H 1

Sample ID : MW-1

Collected By : Brooke Herb
Collection Date : 06/17/13 16:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.020	0.0010	mg/l	8021B	06/25/13	2
Toluene	0.016	0.010	mg/l	8021B	06/25/13	2
Ethylbenzene	0.099	0.0010	mg/l	8021B	06/25/13	2
Total Xylene	0.16	0.0030	mg/l	8021B	06/25/13	2
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	96.6		% Rec.	8021B	06/25/13	2

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

.
Reported: 06/26/13 15:41 Printed: 06/26/13 15:41

Summary of Remarks For Samples Printed
06/26/13 at 15:41:50

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests EDD's

Sample: L641990-01 Account: XTORNM Received: 06/18/13 09:00 Due Date: 06/25/13 00:00 RPT Date: 06/26/13 15:41

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L641990

June 26, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG668260	06/25/13 18:13
Ethylbenzene	< .0005	mg/l			WG668260	06/25/13 18:13
Toluene	< .005	mg/l			WG668260	06/25/13 18:13
Total Xylene	< .0015	mg/l			WG668260	06/25/13 18:13
a,a,a-Trifluorotoluene(PID)		% Rec.	99.01	55-122	WG668260	06/25/13 18:13

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0446	89.2	79-114	WG668260
Ethylbenzene	mg/l	.05	0.0466	93.3	80-116	WG668260
Toluene	mg/l	.05	0.0454	90.8	79-112	WG668260
Total Xylene	mg/l	.15	0.137	91.6	84-118	WG668260
a,a,a-Trifluorotoluene(PID)				98.13	55-122	WG668260

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0457	0.0446	91.6	79-114	2.45	20	WG668260
Ethylbenzene	mg/l	0.0473	0.0466	94.8	80-116	1.28	20	WG668260
Toluene	mg/l	0.0458	0.0454	92.0	79-112	0.870	20	WG668260
Total Xylene	mg/l	0.138	0.137	92.0	84-118	0.500	20	WG668260
a,a,a-Trifluorotoluene(PID)				98.38	55-122			WG668260

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0495	0	.05	99.1	35-147	L642885-02	WG668260
Ethylbenzene	mg/l	0.0520	0	.05	104.	39-141	L642885-02	WG668260
Toluene	mg/l	0.0510	0.000347	.05	101.	35-148	L642885-02	WG668260
Total Xylene	mg/l	0.154	0.000253	.15	103.	33-151	L642885-02	WG668260
a,a,a-Trifluorotoluene(PID)					97.84	55-122		WG668260

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0456	0.0495	91.2	35-147	8.27	20	L642885-02	WG668260
Ethylbenzene	mg/l	0.0477	0.0520	95.3	39-141	8.69	20	L642885-02	WG668260
Toluene	mg/l	0.0460	0.0510	91.5	35-148	10.3	20	L642885-02	WG668260
Total Xylene	mg/l	0.140	0.154	93.1	33-151	9.73	20	L642885-02	WG668260
a,a,a-Trifluorotoluene(PID)				97.94	55-122				WG668260

Batch number /Run number / Sample number cross reference

WG668260: R2722380: L641990-01

' ' 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.'

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L641990

June 26, 2013

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 al. calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

B057

Chain of Custody
Page 1 of 1

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

Analysis/Container/Preservative: 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: Federal GC H #1		City/State Collected: Farmington NM	
PHONE: 505-333-3701 FAX	Client Project No.	Lab Project #	
Collected by: Brooke Herb	Site/Facility ID# Federal GC H #1	P.O #	
Collected by(signature):	Rush? (Lab MUST be Notified) ____Next Day ....100% ____Two Day.....50% ____Three Day.....25%	Date Results Needed: Standard Email? ___No_X__Yes FAX? ____No___Yes	No of Cntrs
Packed on ice N__ Y X			

CoCode (lab use only)
XTORNM
Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
MW-1	Grab	GW	30'	6/17/13	1630	3	✓	641990-01

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

Remarks: "ONLY 1 COC Per Site!!" 5040063621 07 Flow_____ Other_____

Relinquished by (Signature)	Date	Time	Received by (Signature)	Samples returned via: FedEx_X_UPS__Other__	Condition (lab use only)
	6/17/13	1700			OK
Relinquished by (Signature)	Date:	Time	Received by (Signature)	Temp: 3.1 / Bottles Received: 3 VOA	
Relinquished by (Signature)	Date	Time	Received for lab by: (Signature)	Date: 6-18-13 / Time: 0900	pH Checked / NCF:

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

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

Fax I.D. 62-0814289

Est. 1970

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

Report Summary

Wednesday September 18, 2013

Report Number: L657039
Samples Received: 09/12/13
Client Project:

Description: Federal G C H 1

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

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

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

September 18, 2013

ESC Sample # : L657039-01

Date Received : September 12, 2013
Description : Federal G C H 1

Site ID :

Sample ID : FEDERAL G C H 1

Project # :

Collected By : Morgan Wagoner
Collection Date : 09/11/13 15:05

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.023	0.0050	mg/l	8021B	09/17/13	10
Toluene	BDL	0.050	mg/l	8021B	09/17/13	10
Ethylbenzene	0.12	0.0050	mg/l	8021B	09/17/13	10
Total Xylene	0.23	0.015	mg/l	8021B	09/17/13	10
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	09/17/13	10

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

.
Reported: 09/18/13 11:12 Printed: 09/18/13 11:12

Summary of Remarks For Samples Printed
09/18/13 at 11:12:29

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests EDD's on ALL projects email James, Kurt and Logan all reports

Sample: L657039-01 Account: XTORNM Received: 09/12/13 09:00 Due Date: 09/19/13 00:00 RPT Date: 09/18/13 11:12

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L657039

September 18, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG682147	09/17/13 15:27
Ethylbenzene	< .0005	mg/l			WG682147	09/17/13 15:27
Toluene	< .005	mg/l			WG682147	09/17/13 15:27
Total Xylene	< .0015	mg/l			WG682147	09/17/13 15:27
a,a,a-Trifluorotoluene(PID)		% Rec.	102.0	55-122	WG682147	09/17/13 15:27

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0595	119.	70-130	WG682147
Ethylbenzene	mg/l	.05	0.0571	114.	70-130	WG682147
Toluene	mg/l	.05	0.0594	119.	70-130	WG682147
Total Xylene	mg/l	.15	0.175	116.	70-130	WG682147
a,a,a-Trifluorotoluene(PID)				101.0	55-122	WG682147

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0574	0.0595	115.	70-130	3.52	20	WG682147
Ethylbenzene	mg/l	0.0552	0.0571	110.	70-130	3.38	20	WG682147
Toluene	mg/l	0.0570	0.0594	114.	70-130	3.76	20	WG682147
Total Xylene	mg/l	0.168	0.175	112.	70-130	3.74	20	WG682147
a,a,a-Trifluorotoluene(PID)				100.0	55-122			WG682147

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0517	0.0	.05	100.	57.2-131	L657287-17	WG682147
Ethylbenzene	mg/l	0.0498	0.0	.05	100.	67.5-135	L657287-17	WG682147
Toluene	mg/l	0.0526	0.0	.05	100.	63.7-134	L657287-17	WG682147
Total Xylene	mg/l	0.153	0.000336	.15	100.	65.9-138	L657287-17	WG682147
a,a,a-Trifluorotoluene(PID)					100.0	55-122		WG682147

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0571	0.0517	114.	57.2-131	9.91	20	L657287-17	WG682147
Ethylbenzene	mg/l	0.0547	0.0498	110.	67.5-135	9.40	20	L657287-17	WG682147
Toluene	mg/l	0.0572	0.0526	114.	63.7-134	8.40	20	L657287-17	WG682147
Total Xylene	mg/l	0.168	0.153	112.	65.9-138	9.13	20	L657287-17	WG682147
a,a,a-Trifluorotoluene(PID)				101.0	55-122				WG682147

Batch number /Run number / Sample number cross reference

WG682147: R2818840: L657039 31

* * 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.'

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L657039

September 18, 2013

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.

XTO ENERGY
Western Division

Quote Number	XTONCRM
Page	1 of 1
XTO Contact	James McDaniel
XTO Contact Phone #	[illegible]
Email Results to:	james_mcdaniel@xtoenergy.com
Well Site/Location	Federal GC H #1
API Number	
Test Reason	Quarterly Sample
Collected By	Morgan Wagoner
Samples on Ice (Y / N)	Y
Company	LT Environmental
QA/QC Requested	Standard
Signature	Morgan Wagoner
Grey Area for Lab Use Only!	

Turnaround
x Standard
____ Next Day
____ Two Day
____ Three Day
____ Std. 5 Bus. Days (by contract)
Date Needed __________

Lab Information

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

Sample ID	Sample Name	Media	Date	Time	Preservative	No. of Conts.	Analysis: BTEX 8021							Sample Number
Federal GC H #1	MW-2	GW	9-11-13	1505	HCl	3	X							

Media : Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

Relinquished By: (Signature)	Date:	Time:	Received By: (Signature)	Number of Bottles	Sample Condition
Morgan Wagoner	9-11-13	[illegible]			
Relinquished By: (Signature)	**Date:**	**Time:**	**Received By: (Signature)**	Temperature	Other Information
Relinquished By: (Signature)	**Date:**	**Time:**	**Received for Lab by: (Signature)**	Date / Time	

Comments

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

0224

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

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

Tax I.D. 62-0814289

Est. 1970

Kurt Hoekstra
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

Report Summary

Monday December 23, 2013

Report Number: L674377
Samples Received: 12/17/13
Client Project:

Description: Federal Gas Com H 3

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: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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 LAB SCIENCES
YOUR LAB OF CHOICE

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

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Kurt Hoekstra
XTO Energy - San Juan Division
382 County Road 3100
Aztec, NM 87410

December 23, 2013

ESC Sample # : L674377-01

Date Received : December 17, 2013
Description : Federal Gas Com H 3

Site ID :

Sample ID : FARDN-121613-1606

Project # :

Collected By : Daniel Newman
Collection Date : 12/16/13 16:06

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.028	0.0025	mg/l	8021B	12/20/13	5
Toluene	0.061	0.025	mg/l	8021B	12/20/13	5
Ethylbenzene	0.16	0.0025	mg/l	8021B	12/20/13	5
Total Xylene	0.31	0.0075	mg/l	8021B	12/20/13	5
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	12/20/13	5

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

.
Reported: 12/23/13 08:44 Printed: 12/23/13 08:45

Summary of Remarks For Samples Printed
12/23/13 at 08:45:10

TSR Signing Reports: 288
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests EDD's on ALL projects email James, Kurt and Logan all reports

Sample: L674377-01 Account: XTORNM Received: 12/17/13 10:00 Due Date: 12/24/13 00:00 RPT Date: 12/23/13 08:44

XTO ENERGY
Western Division

Quote Number: X10	Page 1 of 1
XTO Contact: James McDaniel	XTO Contact Phone #: 505-333-3701
Email Results to: JamesMcdaniel@XTOenergy.com	
Well Site/Location: Federal Gas Com H #3	API Number: 30-045-31769
Collected By: Daniel Newman	Samples on Ice: (Y) N
Company: LT Environmental	QA/QC Requested: Standard
Signature:	Gray Areas for Lab Use Only!

Test Reason: Quarterly GW

Turnaround:
- X Standard
- ___ Next Day
- ___ Two Day
- ___ Three Day
- ___ Std. 5 Bus. Days (by contract)
- Date Needed ___

Analysis: BTEX 8021

Lab Information

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

Sample ID	Sample Name	Media	Date	Time	Preservative	No. of Conts.	BTEX 8021	Sample Number
FARDN-121613-1606	MW-1	GW	12/16/13	1606	HCL	3	X	162377 -01

Media: Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

Relinquished By: (Signature)	Date: 12/16/13	Time: 1630	Received By: (Signature)	Number of Bottles	Sample Condition
Relinquished By: (Signature)	Date:	Time:	Received By: (Signature)	Temperature: 3.4°C	Other Information
Relinquished By: (Signature)	Date:	Time:	Received for Lab by: (Signature)	Date: 12/17/13 Time: 1000	

Comments: count-3TB TD SK

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

5435 5511 4370 0214

ATTACHMENT 4
2013 FIELD NOTES

Water Sample Collection Form

Sample Location	Federal GC H #1	Client	XTO
Sample Date	3/14/13	Project Name	Groundwater Sampling
Sample Time	13:33	Project #	012911009.002
Sample ID	MW-1	Sampler	K. Vaughan
Analyses	BTEX 8021		
Matrix	Groundwater	Laboratory	ESC
Turn Around Time	Standard	Shipping Method	Fed Ex, Hand delivery
Trip Blank	No	Other QA/QC	None
Depth to Water	29.94	TD of Well	38.11
Time	13:04	Depth to Product	—
Vol. of H2O to purge	8.17 - 29.94 = 1.33 = 3.99		

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*

Method of Purging: Disposable Bailer

Method of Sampling: Disposable Bailer

Time	Vol. Removed (gal.)	Total Vol H2O removed (gal.)	pH (std. units)	Temp. (C)	Conductivity (us or ms)	Comments
			N/A	N/A	N/A	
13:33	3.99	4.25				Clear w/ blk flecks Strong Odor
	Sample @ 13:33					
MW-2 Was Stuck, very difficult to get top off.						

Comments: 3/14/13 → arrive site 12:46 → MW-3 Twine + top & bailer as well as plug is all on the ground. Only a small piece of bailer top is attached to the twine. What the heck?

Describe Deviations from SOP:

Signature: Kyla Vaughan **Date:** 3/14/13

LT Environmental

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.

Water Level Data Collection Form

Project Name: XTO Groundwater Monitoring
Project Number: 012911009
Date: 3/14/2013
Employee Name: Kyla Vaughan

Well ID	Depth to Product (ft)	Depth to Water (ft)	Dissolved Oxygen (mg/L)	Comments
Valdez A #1E				
MW-1	—	13.69	—	9:55
MW-3	—	13.77	—	9:59
MW-6	—	10.01	—	10:03
Federal GC H #1	MW-2 was stuck had hard time getting lid off			
MW-2	—	32.67	—	14:02
MW-3R	—	34.97	—	12:56
McCoy GC D #1E				Prod on bottom in dirt
MW-2	—	DRY	—	TD=37.28
MW-3	—	DRY	—	TD=32.61
Rowland GC #1				
MW-3	N/A			
MW-4R				
MW-6				

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environment
2243 Main Avenu
Durango, Colora
T 970.385.1096 /
970.385.1873

Water Sample Collection Form

Project Name XTO Groundwater Monitoring
Project Number 129[illegible]1007

Site Name Federal 6C H ~~#~~ 1
Sampler Brooke Herb
Sample Date 10/17/13
Matrix Groundwater
Analyses 8021 BTEX
Laboratory ESC
Turn Around Time Standard
Shipping FedEx
Trip Blank No
Method of Purging Dedicated bailer
Method of Sampling Purge 3 volumes or bail dry

Sample ID	Depth to Water (ft)	Total Depth (ft)	Vol to Purge (gal)*	Actual Vol Purged (gal)	Sample Time	Comments
MW-1	30.98	38.00	3.37	3.50	1430	BH grayish clear

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols

Comments

Signature: [signature]

Date: 10/17/13

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental,
2243 Main Avenue,
Durango, Colorado
T 970.385.1096 / F

Water Level Data Collection Form

Project Name: Federal GC #1
Project Number: 01291009
Date: 6/17/13
Employee Name: [illegible]

Well ID	Depth to Product (ft)	Depth to Water (ft)	Dissolved Oxygen (mg/L)	Comments
MW-1	NA	30.98	NM	–
MW-2R	NA	32.68	NM	–
MW-3R	NA	34.98	NM	–

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F
970.385.1873

Water Sample Collection Form

Project Name XTO Groundwater Monitoring
Project Number 12911007

Site Name Federal Gas Com H# 1
Sampler Morgan Wagoner
Sample Date 9-11-13
Matrix Groundwater
Analyses 8021 BTEX
Laboratory ESC
Turn Around Time Standard
Shipping FedEx
Trip Blank No
Method of Purging Dedicated bailer
Method of Sampling Purge 3 volumes or bail dry

Sample ID	Depth to Water (ft)	Total Depth (ft)	Vol to Purge (gal)*	Actual Vol Purged (gal)	Sample Time	Comments
MW-1	31.05	38.00	3.4	3.5	1505	

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols

Comments

Signature: Morgan Wagoner Date: 9-11-13

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental,
2243 Main Avenue,
Durango, Colorado
T 970.385.1096 / F

Water Level Data Collection Form

Project Name: Federal Gas Com A #1
Project Number: 1291007
Date: 9-11-13
Employee Name: Morgan Wagoner

Well ID	Depth to Product (ft)	Depth to Water (ft)	Dissolved Oxygen (mg/L)	Comments
MW-3R	ND	35.05		
MW-2R	ND	32.76		
MW-1	ND	31.05	3.2	sampled at 1505

Water Sample Collection Form

Sample Location: Federal gas Com H#3
Sample Date: 12/16/13
Sample Time: 1606
Sample ID: MW-1
Analyses: BTEX 8021
Matrix: GW
Turn Around Time: Standard
Trip Blank: NO
Depth to Water: 30.14
Time: 1535

Client: XTO
Project Name: GroundWater Sampling
Project #: 012911009
Sampler: DW
Laboratory: ESC
Shipping Method: Fed Ex
Other QA/QC: Standard
TD of Well: 38.08
Depth to Product: N/A

Vol. of H2O to purge: 38.08 - 30.14 = 7.94 x 0.1631 = 1.295014 x 3 = 3.885
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*

Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed (gal.)	Total Vol H2O removed (gal.)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments	PP
1535	0.25	0.25	6.32	59.4	5.99	strong HCodor, gray Black cloudy	2.99
	0.25	0.50	6.34	59.4	5.95	No change	2.97
	0.25	0.75	6.27	59.5	5.91	"	2.95
	0.25	1.00	6.25	59.4	5.96	"	2.98
	0.50	1.50	6.36	59.5	5.95	"	2.96
	0.50	2.00	6.44	59.5	5.93	strong HCodor gray cloudy	2.97
	0.50	2.50	6.38	59.4	5.86	No change	2.94
	0.50	3.00	6.41	59.2	5.81	strong HCodor, gray, cloudy, sheen	2.91
	0.25	3.25	6.43	59.2	5.73	HCodor, gray cloudy, sheen, solvent	2.86
	0.25	3.50	6.38	58.6	5.75	no change	2.88
	0.25	3.75					

Comments: Dump water @ site

Describe Deviations from SOP: N/D

Signature: [signature]
Date: 12/16/13

XTO

Federal GAS COM H#3 12/16/13

onsite @ 1450

DTW MW-1) 30.14 TD) 38.08

DO) 2.07 mg/L 20.3%

DTW MW2R) 31.90

DTW MW3R) 34.28

API # 30-045-31769

OFFsite @ 1610

DN onSite

Invoice:
Customer :
Phone : (615)759-5858
SAT Del : N

Date : 18Dec12
Weight : 10 LBS
COD :
DV :

0.00
0.00

Shipping : 0.00
Special : 0.00
Handling : 0.00
Total : 0.00

Svc: STANDARD OVERNIGHT
TRCK: 5435 5811 4370

4 sets of samples droped off @ FedEx @ 1630