Federal 18 #1T Remediation System
2012 3rd Quarter Report

Submitted By:
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November 2012

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Introduction

The purpose of this report is to summarize the current on-site activities involving venting gas and producing water from a former coal bed methane gas well at the Federal 18 #1T. The casing of this well has been modified to vent gas and purge water from the Ojo Alamo Formation. The setup and initial installation of this system is detailed in a report submitted to Brandon Powell, New Mexico Oil Conservation Division (OCD), in November, 2010. This quarterly report details operations from July 1, 2012, through September 30, 2012.

History

The vacuum system at the Federal 18 #1T is being operated as part of an on going effort between the OCD and XTO Energy, Inc. (XTO) to vent gas from the Nacimiento formation just above the Ojo Alamo Formation. Gas was recently found in the Nacimiento formation which could have come from several contributing sources. The Federal 1 #18 (30-045-09466), located in Section 10 of Township 30N, Range 13W and approximately 2,600' to the south-west of water well SJ-01737, was plugged in 1988 by Southern Union Oil Company. This well only had an initial surface casing of 200' when it was drilled in 1959. Section 18 also has one (1) additional well plugged by XTO Energy, Inc. in 2010. Section 19 of Township 30N, Range 12W has two (2) historically plugged wells. Approximately 4,400' to the south of water well SJ-01737, the Dansby #2 (30-045-09402) was plugged by Don Trader, Inc. in 1954 with a total depth of 1980' and a surface casing of only 100', and the second was a well plugged by Amoco Production in 1988. There are also three (3) additional wells plugged by Texacoma in 1997 in Section 19. There are additionally numerous oil and gas wells being operated by local exploration and production companies in the area. In Section 18, there are three (3) wells being operated by XTO Energy, Inc., and two (2) wells being operated by ConocoPhillips as Burlington Resources. In Section 19, there are nine (9) wells being operated by XTO Energy, Inc. In Section 7, there are seven (7) wells being operated by XTO Energy, Inc, and four (4) wells being operated by Robert L Bayless Producers, LLC. Furthermore, there is naturally occurring gas in the formation according to statements from local water well drillers, and a casing leak was discovered at the New Mexico Federal N #3E well site, (located in Unit D, Section 18, Township 30N, Range 12W, San Juan County, New Mexico). This leak was identified as a result of discovery of gas in a local water well (SJ 1737) in April, 2010. Bradenhead pressures were observed at several XTO wells in the area. The New Mexico Federal N #3E, the New Mexico Federal N #3F and the New Mexico Federal N #3 all had bradenhead pressure tests performed. The bradenhead pressure from the New Mexico Federal N #3E was 17 psi, indicating a leak in the casing. The casing leak was repaired, and the New Mexico Federal N #3E was put back into operation. In agreement with the OCD, a nearby gas well scheduled to be plugged, Federal 18 #1T, was modified to act as a venting well by setting a plug at approximately 513 feet. Perforations were made in the casing at 437 feet and 457 feet in order to assess the groundwater and vent gas from the Nacimiento.

On September 24, 2010, a swab rig was used to determine if the well would produce water using the perforations. The swab rig recovered approximately 2 barrels of water, indicating that the perforations would produce water. A sample collected during the swab returned results above

Water Quality Control Commission (WQCC) standards for benzene, total xylenes, and total chlorides; see attached ***Federal 18 #1T Water Results Table***. Due to the low pH and high chlorides, it was inferred that the acid used to dissolve cement during perforation activities may have infiltrated the aquifer, causing the increased levels shown in the sampling results. XTO recommended pumping the aquifer until sampling results were below the WQCC standards for BTEX and chlorides.

A pump was installed in the Federal 18 #1T on November 9, 2010 at approximately 485 feet. During the pump installation, the water level was checked using a Keck ET Long water level indicator. The static water level was found to be approximately 402.20 feet. The pump was initially set to operate four (4) times a day for 15 minutes, purging approximately 260 gallons per day. During swab and pump installation activities, no gas was found flowing from the well.

On November 11, 2010, a small vacuum pump was installed at the Federal 18 #1T to determine if gas could be vented. The discharge from the vacuum was checked using a MSA 4-Gas Monitor, which confirmed that methane was being vented from the vacuum pump discharge. The vacuum pump operates at a discharge rate of three (3) standard cubic feet per minute (scfm), which is equivalent to approximately six (6) actual cubic feet per minute (acfm) based on elevation. This volume was calculated using the conversion factors provided by the vacuum pump manufacturer, Becker. The vacuum pump holds a vacuum of approximately -12 inches of mercury on the casing of the Federal 18 #1T during operation. Both the vacuum pump and the water pump were powered by a portable generator placed on-site.

The water pump was plumbed into the existing water lines on site, so that all water would pump into the 210 barrel water tank left on-site from production activities. Water piping above ground was wrapped with heat trace and insulation to prevent freezing.

The system was electrified on February 3, 2011 to prevent down time due to generator maintenance issues.

3rd Quarter Activities

During the second quarter of 2012, the system ran continuously with no down time. As of September 28, 2012, approximately 5,657.6 thousand cubic feet (MCF) of gas has been vented from the Federal 18 #1T casing, with the system venting approximately 60.4 MCF per week during operation, while maintaining an average casing pressure of -10 inches of mercury on the Federal 18 #1T casing.

A total of 521,271 gallons of water have been removed from the Federal 18 #1T as of September 19, 2012. The water pump operated for 15 minutes every 60 minutes during the 3rd quarter, purging just over 1,030 gallons of water per day. The attached ***Federal 18 #1T Water Results Table*** shows that benzene concentrations remained steady in the third quarter, ranging from 6 ppb at the end of the first quarter to 6.2 ppb on September 27, 2012. Chloride levels have remained constant through the third quarter, dropping from 16 ppm in July, to 15 ppm on September 27, 2012. pH values remained constant in the third quarter, returning results of 7.1 in September of 2012. All BTEX constituents, as well as chlorides, remained below WQCC

standards. TDS continues to be above WQCC standards, but background levels (1400 ppm) in water well SJ 1737 are above WQCC standards as well.

Pressure at well SJ 1737 was checked periodically over the course of the third quarter. The pressure was checked by shutting in the casing for a minimum of one week prior to reading the pressure gauge. The pressure readings and average barometric pressures are outlined in the attached ***Well SJ 1731 Casing Pressures Table***. The pressure did not seem to show a correlation to the barometric pressure or temperature, and remained fairly constant over the course of the third quarter. The pressure gauge broke during the third quarter, and a new one was installed in early October. Due to the gauge failure, there were not a large amount of pressure readings collected during the third quarter. The problem has been fixed, and we will continue collecting pressure readings in the forth quarter. Since January of 2011, the casing pressure in the water well SJ 1737 has shown an overall decrease from 9 oz to 4.5 oz in August of 2012.

A gas sample was collected from the Federal 18 #1T casing on August 31, 2012, as well as from water well 1737. The gas sample results are presented as ***Gas Analysis Lab Report.*** Both lab results showed a high nitrogen percentage and a high methane percentage, as has been typical of the gas samples collected from these wells. The gas analysis results do not show correlation to the samples collected in January of 2012, due largely to the extremely high amounts of Nitrogen found in the samples in January.

Recommendations

The stable trends obtained for BTEX, chlorides and pH through the fourth quarter of 2011 and into the third quarter of 2012 seem to indicate that the majority of the acid lost into the groundwater aquifer has been recovered, as pH and chloride values are near background levels obtained from water well 1737. The groundwater has been below WQCC standards for all BTEX constituents, chlorides and pH since September 16, 2011. XTO recommends the continued operation of the water well pump, and continued quarterly sampling of the Federal 18 #1T through the fourth quarter of 2012. An additional gas sample will be collected in the forth quarter to compare to the results obtained during the third quarter.

James McDaniel, CHMM #15676
EH&S Supervisor
XTO Energy, Inc.
Western Division

Federal 18 #1T Water Results

Date	Lab	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)	Chlorides (ppm)	TDS (ppm)	EC (umhos/cm)	pH	Purge Water Volume
NA	NA	10	750	750	620	250	1000	NA	6 thru 9	NA
9/24/2010	ESC	**150**	BDL	76	**670**	NS	NS	NS	NS	NA
9/24/2010	ESC	**190**	170	24	210	**6800**	**13000**	18000	6.1	NA
9/24/2010	Etech	**143**	221	63.6	**950**	NS	NS	NS	NS	NA
9/24/2010	Etech	**320**	377	31.8	568	**7150**	**11100**	16000	**5.84**	NA
12/10/2011	Hall	NS	NS	NS	NS	**2800**	**7610**	8900	6.36	3032.5
1/5/2011	Hall	**67**	93	7.9	25	NS	NS	NS	NS	7,798
1/5/2011	ESC	**73**	99	10	39	**1600**	**4800**	6000	6.6	7,798
1/29/2011	ESC	**60**	93	10	33	**930**	NS	4900	6.4	10791.0
2/28/2011	ESC	**42**	60	6.1	20	**550**	**3400**	4000	6.7	14795.0
4/1/2011	ESC	**23**	27	1.8	6.8	**260**	**2700**	3100	6.8	31237.5
4/29/2011	ESC	**29**	28	2.4	7.3	140	**2600**	2900	6.9	50217.0
5/31/2011	ESC	**14**	19	1.4	4.9	89	**2500**	2800	6.7	76513.0
6/14/2011	ESC	**55**	81	2.8	15	73	**2500**	2700	6.7	88120.0
6/30/2011	ESC	**52**	67	2.6	12	61	**2500**	2700	6.9	101208.5
8/15/2011	ESC	**21**	25	1.2	5.8	44	**2500**	2600	6.8	140267.0
9/2/2011	ESC	**10**	12	0.64	3.2	41	**2500**	2600	7.2	155801.0
9/16/2011	ESC	9.6	11	0.64	3	38	**2400**	2500	7.2	168040.0
9/30/2011	ESC	7.2	8.7	0.64	2.5	35	**2500**	2600	7	180392.5
10/28/2011	ESC	5.1	BDL	1.8	2.7	31	**2300**	2600	6.9	205,220
11/30/2011	ESC	4	BDL	3.9	2	27	**2500**	2600	7.1	233,487.5
12/30/2011	ESC	3.4	BDL	BDL	2.9	27	**2500**	2500	7.5	261,390.5
4/3/2012	ESC	6	BDL	BDL	1.6	NS	NS	NS	NS	351,300
4/9/2012	ESC	NS	NS	NS	NS	19	**2400**	2400	7.4	NA
7/3/2012	ESC	5.3	BDL	BDL	BDL	16	**2300**	2400	7.4	NA
7/6/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	441,053
9/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	521,271
9/27/2012	ESC	6.2	BDL	BDL	BDL	15	2300	2500	7.1	NA
11/5/2011	ESC	ND	5.2	ND	ND	15	**1400**	2600	7.2	NA

BDL = Below Detection Limits
NS = Not Sampled
Values in **BOLD** exceed WQCC Standards

Baseline Sample (Well SJ 1737)
WQCC Standards

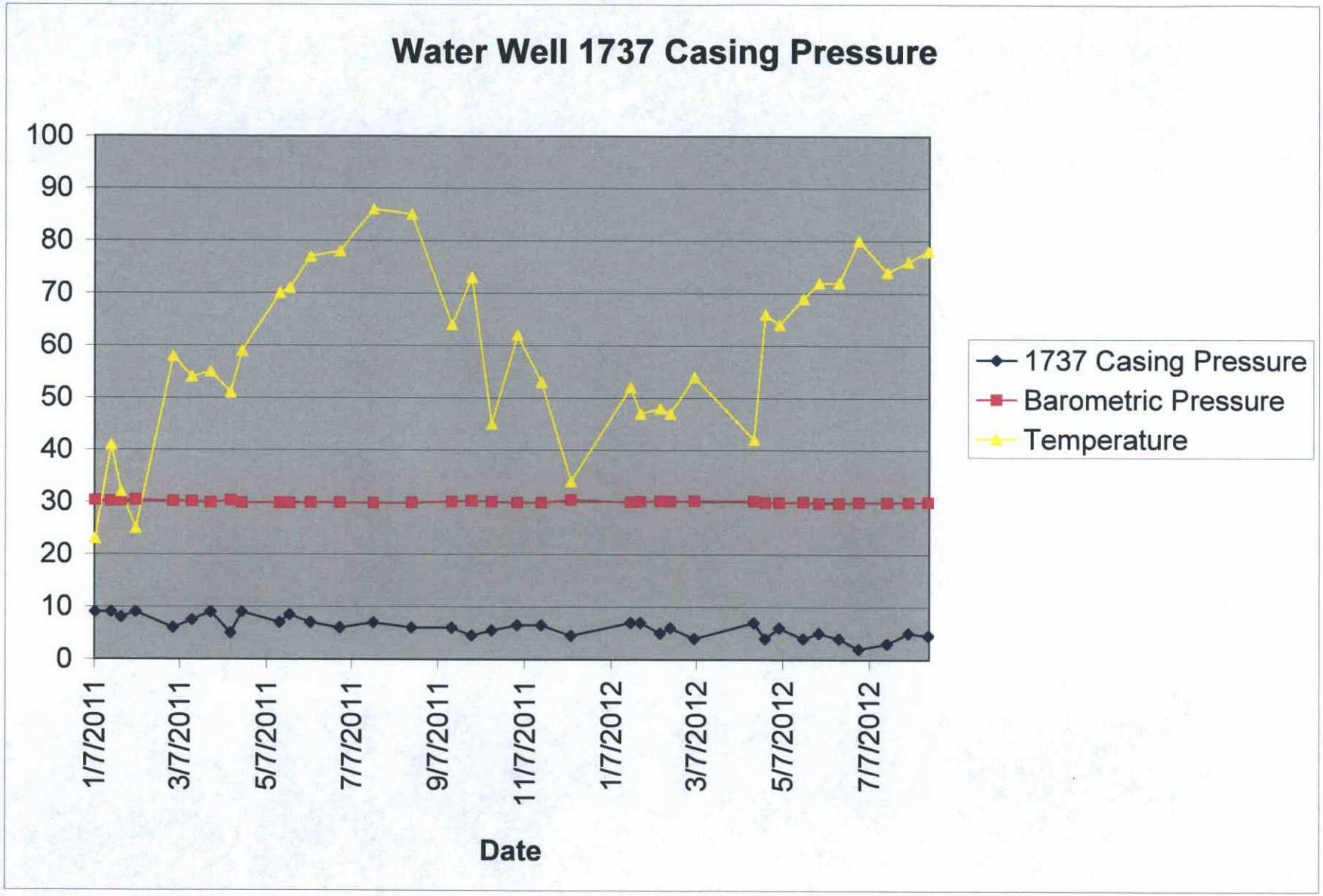
Well SJ 1737 Casing Pressures

Date	Casing Pressure (oz)	Barometric Pressure (Inches of Mercury)	Temperature (F)
1/7/2011	9	30.3	23
1/18/2011	9	30.14	41
1/25/2011	8	30.22	32
2/4/2011	9	30.35	25
3/2/2011	6	30.13	58
3/15/2011	7.5	30.12	54
3/28/2011	9	29.88	55
4/11/2011	5	30.3	51
4/19/2011	9	29.83	59
5/16/2011	7	29.82	70
5/23/2011	8.5	29.78	71
6/7/2011	7	29.87	77
6/28/2011	6	29.87	78
7/22/2011	7	29.85	86
8/19/2011	6	29.9	85
9/16/2011	6	30.04	64
9/30/2011	4.5	30.2	73
10/14/2011	5.5	30.03	45
11/1/2011	6.5	29.9	62
11/18/2011	6.5	29.86	53
12/9/2011	4.5	30.41	34
1/20/2012	7	29.99	52
1/27/2012	7	30.12	47
2/10/2012	5	30.2	48
2/17/2012	6	30.08	47
3/5/2012	4	30.22	54
4/16/2012	7	30.19	42
4/24/2012	4	29.91	66
5/4/2012	6	29.91	64
5/21/2012	4	30.02	69
6/1/2012	5	29.81	72
6/15/2012	4	29.81	72
6/29/2012	2	29.92	80
7/19/2012	3	29.91	74
8/3/2012	5	29.93	76
8/17/2012	4.5	29.96	78

Federal 18 #1T Gas Vented

Date	SCFM	ACFM	Gas Vented Total (MCF)
11/24/2010	5	10	14.4
12/2/2010	3	6	89.13
12/3/2010	3	6	97.73
12/7/2010	3	6	123.53
12/9/2010	5	10	152.33
12/10/2010	3	6	160.93
12/13/2010	3	6	178.13
12/16/2011	4	8	212.69
12/17/2011	3.5	7	222.77
12/20/2011	3	6	248.57
	Irratic readings due to freezing temperature and down time due to generator failures		
2/9/2011	NA	NA	540.6
2/17/2011	3	6	601
2/24/2011	3	6	661.4
3/3/2011	3	6	721.8
3/10/2011	3	6	782.2
3/17/2011	3	6	842.6
3/24/2011	3	6	903
3/31/2011	3	6	963.4
4/7/2011	3	6	1023.8
4/14/2011	3	6	1084.2
4/21/2011	3	6	1144.6
4/28/2011	3	6	1205
5/5/2011	3	6	1265.4
5/12/2011	3	6	1325.8
5/19/2011	3	6	1386.2
5/26/2011	3	6	1446.6
6/2/2011	3	6	1507
6/9/2011	3	6	1567.4
6/16/2011	3	6	1627.8
6/23/2011	3	6	1688.2
6/30/2011	3	6	1748.6
7/7/2011	3	6	1792
7/14/2011	3	6	1852.4
7/21/2011	3	6	1912.8
7/28/2011	3	6	1973.2
8/5/2011	3	6	2033.6
8/12/2011	3	6	2094
8/19/2011	3	6	2154.4
8/26/2011	3	6	2214.8
9/2/2011	3	6	2275.2
9/9/2011	3	6	2335.6
9/16/2011	3	6	2396
9/23/2011	3	6	2456.4
9/30/2011	3	6	2516.8
10/7/2011	3	6	2577.2
10/14/2011	3	6	2637.6
10/21/2011	3	6	2698
10/28/2011	3	6	2758.4
11/4/2011	3	6	2818.8

11/11/2011	3	6	2879.2
11/18/2011	3	6	2939.6
11/25/2011	3	6	3000
12/2/2011	3	6	3060.4
12/9/2011	3	6	3120.8
12/16/2011	3	6	3181.2
12/23/2011	3	6	3241.6
12/30/2011	3	6	3302
1/6/2012	3	6	3362.4
1/13/2012	3	6	3422.8
1/20/2012	3	6	3483.2
1/27/2012	3	6	3543.6
2/3/2012	3	6	3604
2/10/2012	3	6	3664.4
2/17/2012	3	6	3724.8
2/24/2012	3	6	3785.2
3/2/2012	3	6	3845.6
3/9/2012	3	6	3906
3/16/2012	3	6	3966.4
3/23/2012	3	6	4026.8
3/30/2012	3	6	4087.2
4/6/2012	3	6	4147.6
4/13/2012	3	6	4208
4/20/2012	3	6	4268.4
4/27/2012	3	6	4328.8
5/4/2012	3	6	4389.2
5/11/2012	3	6	4449.6
5/18/2012	3	6	4510
5/25/2012	3	6	4570.4
6/1/2012	3	6	4630.8
6/8/2012	3	6	4691.2
6/15/2012	3	6	4751.6
6/22/2012	3	6	4812
6/29/2012	3	6	4872.4
7/6/2012	3	6	4932.8
7/13/2012	3	6	4993.2
7/20/2012	3	6	5053.6
7/27/2012	3	6	5114
8/3/2012	3	6	5174.4
8/10/2012	3	6	5234.8
8/17/2012	3	6	5295.2
8/24/2012	3	6	5355.6
8/31/2012	3	6	5416
9/7/2012	3	6	5476.4
9/14/2012	3	6	5536.8
9/21/2012	3	6	5597.2
9/28/2012	3	6	5657.6


Water Well 1737 Casing Pressure
100
90
80
70
60
50
40
30
20
10
0
1/7/2011
3/7/2011
5/7/2011
7/7/2011
9/7/2011
11/7/2011
1/7/2012
3/7/2012
5/7/2012
7/7/2012
Date
1737 Casing Pressure
Barometric Pressure
Temperature

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Report Summary

Client: XTO

Chain of Custody Number: 14390

Samples Received: 08-31-12

Job Number: 98031-0528

Sample Number(s): 63128-63131

Project Name/Location: Federal 18 #1T

Entire Report Reviewed By: _____ Date: 9/10/12

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.

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name: Federal 18 #1T	
Sample ID.:	Federal 18 #1T Casing Opened	Project #:	98031-0528
Laboratory Number:	63129	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	19	Date Analyzed:	09/07/12

Compound	Mol %	Compound	Mol %
		n-Hexane	0.0672
Carbon Dioxide	1.3790	Cyclohexane	0.0072
Nitrogen	27.9442	other C6s	0.1684
Methane	56.6407	Heptanes	0.0141
Ethane	8.4039	2,2,4-trimethylpentane	0.0001
Propane	3.1957	Methylcyclohexane	0.0002
Iso-Butane	0.4860	Benzene	0.0250
N-Butane	0.8406	Toluene	0.0134
Iso-Pentane	0.3160	Ethylbenzene	0.0003
N-Pentane	0.2320	p,m-Xylene	0.0007
Cyclopentane	0.0030	o-Xylene	0.0000
		Octanes +	0.0038

Relative Density	0.6620	Sample Temperature	Not Given °F
Compressibility Factor (Z)	0.9986	Sample Pressure	Not Given psig
Dry Heating Value	882 (BTU/CF)		

Parameter	Mol %	Weight %	Liq. Vol. %
Carbon Dioxide	1.379	3.2410	1.7069
Nitrogen	27.9442	41.8048	22.2982
Methane	56.6407	47.6765	69.0995
Ethane	8.4039	3.6590	4.4200
Propane	3.1957	0.8707	0.7389
Iso-Butane	0.486	0.0285	0.0218
N-Butane	0.8406	0.0845	0.0622
Iso-Pentane	0.316	0.0109	0.0075
N-Pentane	0.232	0.0056	0.0039
other C6s	0.1684	0.7750	0.5023
Heptanes	0.0141	0.0755	0.0472
Octanes +	0.0038	0.0232	0.0141
2,3-dimethylbutane	0.0478	0.2200	0.1420
3-methylpentane	0.0213	0.0980	0.0630

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name:	GRI-GLY Calc Dehy Sampling
Sample ID.:	Federal 18 #1T Casing Opened	Project #:	98031-0528
Laboratory Number:	63129	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	19	Date Analyzed:	09/07/12

Parameter	Mol %	Weight %	Liq. Vol. %
2,2-dimethylbutane	0.0348	0.1602	0.1054
2-methylpentane	0.0645	0.2968	0.1940
Cyclopentane	0.0030	0.0112	0.0064
n-hexane	0.0672	0.3093	0.2004
Methylcyclopentane	0.0504	0.2265	0.1293
Benzene	0.0250	0.1043	0.0507
Cyclohexane	0.0072	0.0324	0.0178
1,1-dimethylcyclopentane	0.0000	0.0000	0.0000
3-methylehexane	0.0121	0.0647	0.0403
trans-1,3-dimethylcyclopentane	0.0002	0.0010	0.0006
cis-1,3-dimethylcyclopentane	0.0001	0.0005	0.0003
3-ethylpentane	0.0012	0.0064	0.0039
trans-1,2-dimethylcyclopentane	0.0002	0.0010	0.0006
n-heptane	0.0257	0.1375	0.0860
2,2,4-trimethylpentane	0.0001	0.0006	0.0004
cis-1,2-dimethylcyclopentane	0.0001	0.0005	0.0003
Methylcyclohexane	0.0002	0.0010	0.0006
Ethylcyclopentane	0.0001	0.0005	0.0003
Toluene	0.0134	0.0659	0.0325
2,5-dimethylhexane	0.0000	0.0000	0.0000
2,4-dimethylhexane	0.0000	0.0000	0.0000
1-cis-2-trans-4-trimethylcyclopentane	0.0000	0.0000	0.0000
3,3-dimethylhexane	0.0000	0.0000	0.0000
1-trans-2-cis-3-trimethylcyclopentane	0.0001	0.0006	0.0003
3-methylheptane	0.0004	0.0024	0.0015
n-octane	0.0026	0.0159	0.0097
Ethylbenzene	0.0003	0.0017	0.0008
p,m-xylene	0.0007	0.0040	0.0020
o-xylene	0.0000	0.0000	0.0000
n-nonane	0.0002	0.0014	0.0008
Isopropylbenzene	0.0001	0.0006	0.0003
1,3,5-trimethylbenzene	0.0000	0.0000	0.0000
1,2,4-trimethylbenzene	0.0000	0.0000	0.0000
n-propylbenzene	0.0001	0.0006	0.0003

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name:	GRI-GLY Calc Dehy Sampling
Sample ID.:	Federal 18 #1T Casing Opened	Project #:	98031-0528
Laboratory Number:	63129	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	19	Date Analyzed:	09/07/12

Parameter	Mol %	Weight %	Liq. Vol. %
t-butylbenzene	0.0000	0.0000	0.0000
Isobutylbenzene	0.0002	0.0014	0.0007
n-butylbenzene	0.0001	0.0007	0.0004
Hexanes +	0.3794	1.7680	1.0916
Total	**100.0000**	**100.0000**	**100.0000**

References: Gas Processors Association Standard 2286-95, ASTM Method D1945-03

Comments: **Extended Analysis for Federal 18 #1T**
GLYCALC Compounds in BOLD FONT

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name: Federal 18 #1T	
Sample ID.:	Federal 18 #1T Well 1737 @10:05	Project #:	98031-0528
Laboratory Number:	63131	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	40	Date Analyzed:	09/07/12

Compound	Mol %	Compound	Mol %
		n-Hexane	0.0016
Carbon Dioxide	2.4671	Cyclohexane	0.0001
Nitrogen	41.4256	other C6s	0.0084
Methane	45.7559	Heptanes	0.0000
Ethane	6.5789	2,2,4-trimethylpentane	0.0000
Propane	2.9487	Methylcyclohexane	0.0000
Iso-Butane	0.3297	Benzene	0.0001
N-Butane	0.3611	Toluene	0.0001
Iso-Pentane	0.0871	Ethylbenzene	0.0000
N-Pentane	0.0248	p,m-Xylene	0.0000
Cyclopentane	0.0013	o-Xylene	0.0000
		Octanes +	0.0005

Relative Density	0.6368	Sample Temperature	Not Given °F
Compressibility Factor (Z)	0.9986	Sample Pressure	Not Given psig
Dry Heating Value	680 (BTU/CF)		

Parameter	Mol %	Weight %	Liq. Vol. %
Carbon Dioxide	2.4671	5.2351	3.1614
Nitrogen	41.4256	55.9534	34.2204
Methane	45.7559	35.3587	58.2208
Ethane	6.5789	2.5862	3.5821
Propane	2.9487	0.7254	0.7058
Iso-Butane	0.3297	0.0175	0.0153
N-Butane	0.3611	0.0328	0.0277
Iso-Pentane	0.0871	0.0027	0.0021
N-Pentane	0.0248	0.0005	0.0004
other C6s	0.0084	0.0349	0.0259
Heptanes	0.0000	0.0000	0.0000
Octanes +	0.0005	0.0028	0.0019
2,3-dimethylbutane	0.0012	0.0050	0.0037
3-methylpentane	0.0018	0.0075	0.0055

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name:	GRI-GLY Calc Dehy Sampling
Sample ID.:	Federal 18 #1T Well 1737 @10:05	Project #:	98031-0528
Laboratory Number:	63131	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	40	Date Analyzed:	09/07/12

Parameter	Mol %	Weight %	Liq. Vol. %
2,2-dimethylbutane	0.0012	0.0050	0.0038
2-methylpentane	0.0042	0.0175	0.0131
Cyclopentane	0.0013	0.0044	0.0029
n-hexane	0.0016	0.0066	0.0049
Methylcyclopentane	0.0005	0.0020	0.0013
Benzene	0.0001	0.0004	0.0002
Cyclohexane	0.0001	0.0004	0.0003
1,1-dimethylcyclopentane	0.0000	0.0000	0.0000
3-methylehexane	0.0000	0.0000	0.0000
trans-1,3-dimethylcyclopentane	0.0000	0.0000	0.0000
cis-1,3-dimethylcyclopentane	0.0000	0.0000	0.0000
3-ethylpentane	0.0000	0.0000	0.0000
trans-1,2-dimethylcyclopentane	0.0000	0.0000	0.0000
n-heptane	0.0001	0.0005	0.0003
2,2,4-trimethylpentane	0.0000	0.0000	0.0000
cis-1,2-dimethylcyclopentane	0.0000	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000	0.0000
Ethylcyclopentane	0.0000	0.0000	0.0000
Toluene	0.0001	0.0004	0.0003
2,5-dimethylhexane	0.0000	0.0000	0.0000
2,4-dimethylhexane	0.0000	0.0000	0.0000
1-cis-2-trans-4-trimethylcyclopentane	0.0000	0.0000	0.0000
3,3-dimethylhexane	0.0000	0.0000	0.0000
1-trans-2-cis-3-trimethylcyclopentane	0.0000	0.0000	0.0000
3-methylheptane	0.0000	0.0000	0.0000
n-octane	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
p,m-xylene	0.0000	0.0000	0.0000
o-xylene	0.0000	0.0000	0.0000
n-nonane	0.0000	0.0000	0.0000
Isopropylbenzene	0.0001	0.0006	0.0003
1,3,5-trimethylbenzene	0.0000	0.0000	0.0000
1,2,4-trimethylbenzene	0.0000	0.0000	0.0000
n-propylbenzene	0.0001	0.0006	0.0003

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EXTENDED GAS ANALYSIS

Client:	XTO	Project Name: GRI-GLY Calc Dehy Sampling	
Sample ID.:	Federal 18 #1T Well 1737 @10:05	Project #:	98031-0528
Laboratory Number:	63131	Date Reported:	09/10/12
Chain of Custody No.:	14390	Date Sampled:	08/31/12
Sample Matrix:	Gas	Date Received:	08/31/12
Cylinder Number:	40	Date Analyzed:	09/07/12

Parameter	Mol %	Weight %	Liq. Vol. %
t-butylbenzene	0.0000	0.0000	0.0000
Isobutylbenzene	0.0002	0.0013	0.0007
n-butylbenzene	0.0001	0.0006	0.0004
Hexanes +	0.0127	0.0528	0.0380
Total	**100.0000**	**100.0000**	**100.0000**

References: Gas Processors Association Standard 2286-95, ASTM Method D1945-03

Comments: **Extended Analysis for Federal 18 #1T**
GLYCALC Compounds in BOLD FONT

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14390

CHAIN OF CUSTODY RECORD

Client: XTO	Project Name / Location: Federal 18 #1T
Email results to: James_McDaniel@xtoenergy.com	Sampler Name: James McDaniel
Client Phone No.:	Client No.: 98031-0528

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE	Ext. Gas		Sample Cool	Sample Intact
Federal 18 #1T- Casing closed	8/31/12		03128	1-Bomb														X			✓
Federal 18 #1T- Casing opened	8/31/12		03129	1-Bomb														X			✓
Federal 18 #1T- Well 1737 @ 10:06	8/31/12		03130	1-Bomb														X			✓
Federal 18 #1T- Well 1737 @ 10:05	8/31/12		03131	1-Bomb														X			✓

Brief analysis only due to high Nitrogen value Per James, 9/18/12 TC

ANALYSIS / PARAMETERS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	8/31/12	11:00		8/31/12	1110
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix: Soil ☐ Solid ☐ Sludge ☐ Aqueous ☐ Other ☑ Gas

☐ Sample(s) dropped off after hours to secure drop off area.

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

Report Summary

Tuesday October 09, 2012

Report Number: L597941
Samples Received: 09/28/12
Client Project:

Description: Federal 18 1T

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.

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REPORT OF ANALYSIS

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

October 09, 2012

ESC Sample # : L597941-01

Site ID : FEDERAL 18 1T

Project # :

Date Received : September 28, 2012
Description : Federal 18 1T

Sample ID : WATER SAMPLE

Collected By : James McDaniel
Collection Date : 09/27/12 14:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	10/05/12	1
pH	7.1		su	9040C	10/02/12	1
Specific Conductance	2500		umhos/cm	9050A	10/05/12	1
Dissolved Solids	2300	10.	mg/l	2540C	10/05/12	1
Benzene	0.0062	0.00050	mg/l	8021B	10/02/12	1
Toluene	BDL	0.0050	mg/l	8021B	10/02/12	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/02/12	1
Total Xylene	BDL	0.0015	mg/l	8021B	10/02/12	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	10/02/12	1

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

.
Reported: 10/09/12 13:47 Printed: 10/09/12 13:57
L597941-01 (PH) - 7.1@17.6c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L597941-01	WG615711	SAMP	pH	R2374513	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

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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Quality Assurance Report
Level II

L597941

October 09, 2012

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG615298	10/02/12 00:21
Ethylbenzene	< .0005	mg/l			WG615298	10/02/12 00:21
Toluene	< .005	mg/l			WG615298	10/02/12 00:21
Total Xylene	< .0015	mg/l			WG615298	10/02/12 00:21
a,a,a-Trifluorotoluene(PID)		% Rec.	102.9	55-122	WG615298	10/02/12 00:21
Specific Conductance	0.960	umhos/cm			WG616083	10/05/12 14:24
Dissolved Solids	< 10	mg/l			WG615916	10/05/12 19:28
Chloride	< 1	mg/l			WG616385	10/05/12 06:09

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
pH	su	7.20	7.20	0.416	1	L597349-01	WG615711
pH	su	8.20	8.20	0.244	1	L598213-05	WG615711
Specific Conductance	umhos/cm	980.	970.	0.821	20	L597540-01	WG616083
Dissolved Solids	mg/l	2300	2330	0.905	5	L597941-01	WG615916
Chloride	mg/l	1.40	1.30	7.41	20	L598523-01	WG616385

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0414	82.8	79-114	WG615298
Ethylbenzene	mg/l	.05	0.0445	89.0	80-116	WG615298
Toluene	mg/l	.05	0.0437	87.4	79-112	WG615298
Total Xylene	mg/l	.15	0.132	88.3	84-118	WG615298
a,a,a-Trifluorotoluene(PID)				99.92	55-122	WG615298
pH	su	6.03	6.06	100.	98-101	WG615711
Specific Conductance	umhos/cm	1050	1040	99.0	85-115	WG616083
Dissolved Solids	mg/l	8800	8580	97.5	85-115	WG615916
Chloride	mg/l	40	40.1	100.	90-110	WG616385

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0411	0.0414	82.0	79-114	0.760	20	WG615298
Ethylbenzene	mg/l	0.0449	0.0445	90.0	80-116	0.760	20	WG615298
Toluene	mg/l	0.0439	0.0437	88.0	79-112	0.510	20	WG615298
Total Xylene	mg/l	0.133	0.132	88.0	84-118	0.0500	20	WG615298
a,a,a-Trifluorotoluene(PID)				102.3	55-122			WG615298

* 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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Quality Assurance Report
Level II

L597941

October 09, 2012

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
pH	su	6.06	6.06	100.	98-101	0	20	WG615711
Specific Conductance	umhos/	1050	1040	100.	85-115	0.957	20	WG616083
Dissolved Solids	mg/l	8660	8580	98.0	85-115	0.835	5	WG615916
Chloride	mg/l	40.1	40.1	100.	90-110	0	20	WG616385

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0471	0	.05	94.1	35-147	L598048-07	WG615298
Ethylbenzene	mg/l	0.0508	0	.05	102.	39-141	L598048-07	WG615298
Toluene	mg/l	0.0503	0	.05	100.	35-148	L598048-07	WG615298
Total Xylene	mg/l	0.151	0	.15	100.	33-151	L598048-07	WG615298
a,a,a-Trifluorotoluene(PID)					99.79	55-122		WG615298
Chloride	mg/l	51.1	0.610	50	101.	80-120	L597959-13	WG616385

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0452	0.0471	90.4	35-147	4.00	20	L598048-07	WG615298
Ethylbenzene	mg/l	0.0492	0.0508	98.3	39-141	3.25	20	L598048-07	WG615298
Toluene	mg/l	0.0488	0.0503	97.5	35-148	3.02	20	L598048-07	WG615298
Total Xylene	mg/l	0.146	0.151	97.2	33-151	3.22	20	L598048-07	WG615298
a,a,a-Trifluorotoluene(PID)				102.1	55-122				WG615298
Chloride	mg/l	49.7	51.1	98.2	80-120	2.78	20	L597959-13	WG616385

Batch number /Run number / Sample number cross reference

WG615298: R2373053: L597941-01
WG615711: R2374513: L597941-01
WG616083: R2377396: L597941-01
WG615916: R2378036: L597941-01
WG616385: R2380501: L597941-01

* * 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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James McDaniel
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L597941

October 09, 2012

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.

A225

Chain of Custody
Page ___ of ___

Company Name/Address:
XTO Energy - San Juan Division

382 County Road 3100
Aztec.NM 87410

Billing Information:
XTO Energy Inc
Accounts Payable
382 CR 3100

Aztec,NM 87410

Report to: James McDaniel

Email to: James_McDaniel@xtoenergy.com

Project Description: Federal 18 #1T

City/State Collected: Farmington, NM

Phone: (505) 333-~~3100~~ 3701

FAX:

Client Project #: —

ESC Key:

Collected by: (print) James McDaniel

Site/Facility ID#: Federal 18 #1T

P.O.#:

Collected by (signature):

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

No. of Cntrs: 3

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	BTEX (8021) 2-40mL HCL +Cool	EC, pH, TDS, chlorides 1-500mL Cool
Water Sample	Grab	GW	—	9/27/12	1420	X	X

CoCode: XTORNM (lab use only)

Template/Prelogin

Shipped Via:

Remarks/Contaminant	Sample # (lab only)
	L591941-01

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

pH _____ Temp _____

Remarks:

9/963 4552 9467

Flow _____ Other _____

Relinquished by: (Signature)	Date: 9/27/12	Time: 1515	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 4.8°C | Bottles Received: 3

Date: 9/23/12 | Time: 0900

Condition: (lab use only) SR

CoC Seals Intact: ✓ Y ___ N ___ NA

pH Checked: | NCF:

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Mt. Juliet, TN 37122
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