Federal 18 #1T Remediation System
2012 4th Quarter Report

Submitted By:
James McDaniel
EH&S Supervisor
XTO Energy, Inc.
505-333-3701

Submitted to:
Brandon Powell
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico
505-334-6178 Ext 116

January 2013

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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 October 1, 2012, through December 31, 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.

4th Quarter Activities

During the fourth quarter of 2012, the system ran continuously with no down time. As of December 28, 2012, approximately 6,442.8 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 604,689 gallons of water have been removed from the Federal 18 #1T as of December 31, 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, until December 20th, when the water pump was shut off. The attached ***Federal 18 #1T Water Results Table*** shows that benzene concentrations rebounded in the fourth quarter, raising to 13.7 ppb, above the 10 ppb standard for the first time since September of 2011. Chloride levels have remained constant through the fourth quarter, remaining steady at 15.5 ppm. pH values remained constant in the fourth quarter, returning results of 7.05 in December of 2012. All BTEX constituents, except for benzene, 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 over the course of the fourth 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 new pressure gauge that was installed in the fourth quarter was not sensitive enough to read the minute pressure at well 1737. This was not discovered until close to the end of the fourth quarter, and a new pressure gauge was installed at the end of December, with a reading collected on December 31, 2012. The problem has been fixed, and we will continue collecting pressure readings through 2013. Since January of 2011, the casing pressure in the water well SJ 1737 has shown an overall decrease from 9 oz to 3.5 oz in December of 2012.

Two gas samples were collected from the Federal 18 #1T casing on December 20th and December 31st respectively. The gas sample results are presented as ***Gas Analysis Lab Report.*** The gas samples were collected after a discussion with Brandon Powell, NMOCD Aztec division, in order to commence the water purging from this site in order to vent gas. In order to collect a better gas sample from the vacuum pump exhaust at the Federal 18 #1T, a sampling port was installed on the exhaust of the vacuum pump in order to collect a gas sample of the exhaust under pressure. The first gas sample was collected on December 20th, 2012 while the water pump was operating to keep the water level down in the Federal 18 #1T casing. The second sample was collected on December 31st, after the water pump had been turned off since December 20th, 2012. The gas sample collected on December 20th, 2012, while the water pump was active, returned results of 1.2% Carbon Dioxide, 7.10% Nitrogen, 76.14% Methane 9.26% Ethane and 3.56% Propane. The sample collected on December 31st, 2012, after the pump had been shut off, returned results of 1.28% Carbon Dioxide, 1.76% Nitrogen, 80.48% Methane 9.80% Ethane and 3.76% Propane. The methane numbers showed improvement after the pump was turned off, and the nitrogen levels showed a decrease after the pump had been shut off.

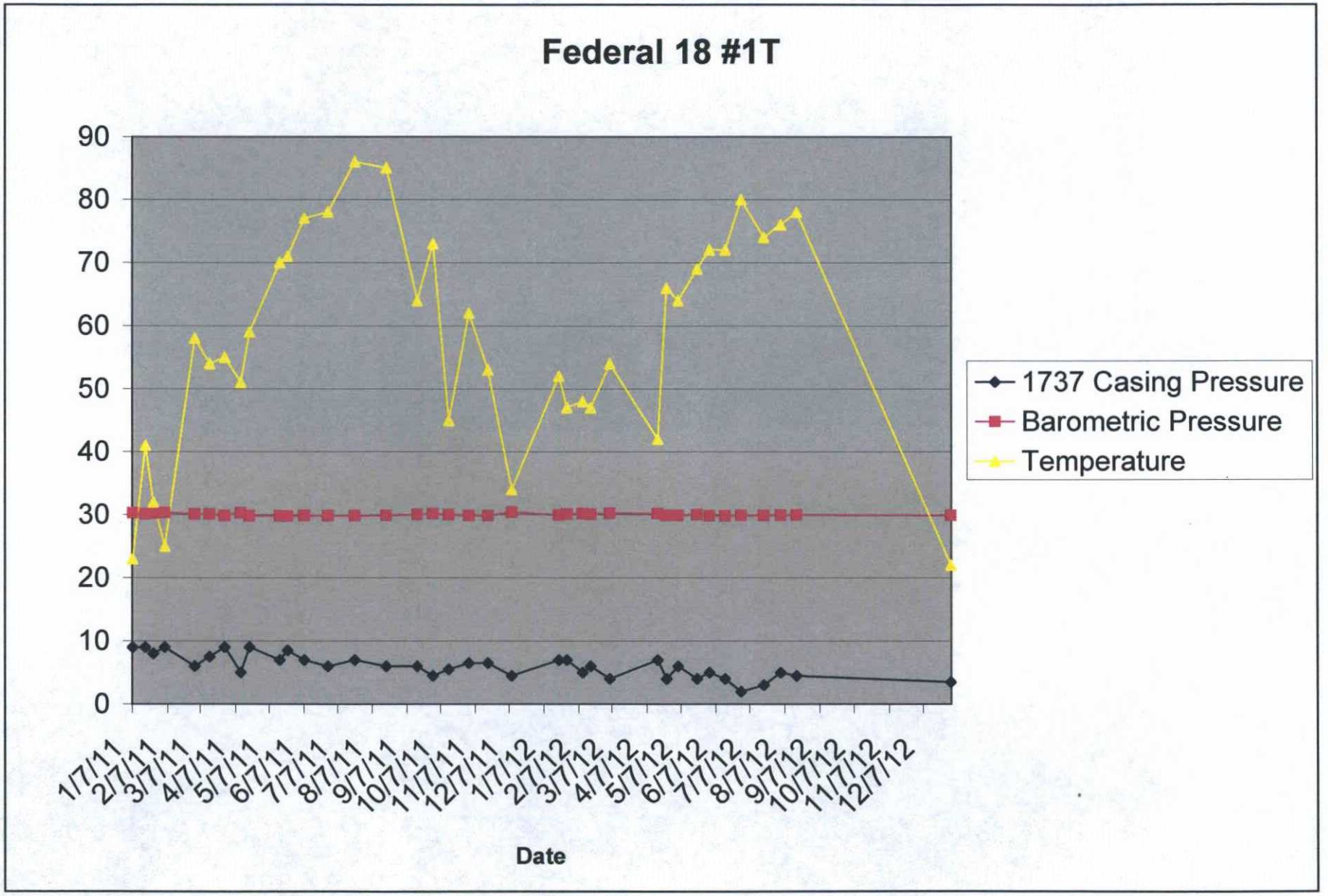
Recommendations

The upward trend in benzene during the fourth quarter may indicate that the groundwater may have some residual impacts remaining. The water sample collected on December 31, 2012 was analyzed by Envirotech Laboratories instead of Environmental Science Corporation, which has been used the majority of the project. I will collect an additional sample in January to have analyzed at ESC for verification purposes. Chlorides, pH, TDS and EC remained constant over the fourth quarter, and are very close to the background levels obtained in water well 1737. Until this quarter, the groundwater had been below WQCC standards for all BTEX constituents since September of 2011. Based on the different laboratory reporting the results above the WQCC standards, an additional sample will be collected in January for verification, and based on the gas analysis collected before and after the water pump had been shut off, XTO proposes the continued operation of the vacuum pump at the Federal 18 #1T, but without the operation of the water pump, except to collect groundwater samples. Once the January water sample results are in, a better path forward can be discussed at that time.

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

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
12/31/2012	3.5	29.92	22


Federal 18 #1T
90
80
70
60
50
40
30
20
10
0
1/7/11
2/7/11
3/7/11
4/7/11
5/7/11
6/7/11
7/7/11
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9/7/11
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10/7/12
11/7/12
12/7/12
Date
1737 Casing Pressure
Barometric Pressure
Temperature

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
12/14/2012	NA	NS	NS	NS	NS	NS	NS	NS	NS	598,540
12/31/2012	Etech	**13.9**	1.1	ND	3.3	15.5	2690	2440	7.05	604,689
11/5/2010	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

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
10/5/2012	3	6	5718
10/12/2012	3	6	5778.4
10/19/2012	3	6	5838.8
10/26/2012	3	6	5899.2
11/2/2012	3	6	5959.6
11/9/2012	3	6	6020
11/16/2012	3	6	6080.4
11/23/2012	3	6	6140.8

11/30/2012	3	6	6201.2
12/7/2012	3	6	6261.6
12/14/2012	3	6	6322
12/21/2012	3	6	6382.4
12/28/2012	3	6	6442.8

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Analytical Laboratory

Report Summary

Client: XTO

Chain of Custody Number: 15035

Samples Received: 12-20-12

Job Number: 98031-0528

Sample Number(s): 64026

Project Name/Location: Federal 18 #1T

Entire Report Reviewed By: _____ Date: 12/21/12

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.

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

GAS ANALYSIS

Client:	XTO	Project Name:	Federal 18 #1T
Sample ID.:	Federal 18 #1T	Project Number:	98031-0528
Laboratory Number:	64026	Date Reported:	12/21/12
Chain of Custody No.:	15035	Date Sampled:	12/20/12
Sample Matrix:	Gas	Date Received:	12/20/12
Cylinder Number:	19	Date Analyzed:	12/21/12

Parameter	Concentration	Mol %
Carbon Dioxide	1.2899	%
Nitrogen	7.1027	%
Methane	76.1402	%
Ethane	9.2655	%
Propane	3.5637	%
Iso-Butane	0.5292	%
N-Butane	1.1236	%
Iso-Pentane	0.3283	%
N-Pentane	0.2630	%
Hexanes +	0.3939	%
Oxygen	0.0000	%
Total	100.0000	%

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

Comments: **C1-C5 Gas analysis for Federal 18 #1T**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

Location of Sample: Federal 18 #1T			Meter Code & CK Digit: 64026
Continous Sampler Beginning Date: 12/20/12		Ending Date or Date Pulled: 12/20/12	Line PSIG: —
Run Number: —	Operator Code: XTO		Flow Temp
Cylinder Number: 19	Type Sample: Gas	Analysis Requested: Standard	RUSH: P12071-01
Remarks			
Sample Taken By: J McDaniel		Phone Number: 419-0915	

15035

CHAIN OF CUSTODY RECORD

Client:	Project Name / Location:
XTO	Federal 18 #1T
Email results to:	Sampler Name:
James_McDaniel@xtoenergy.com	JMcDaniel
Client Phone No.:	Client No.:
787-0519	98031-0528

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative None	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	Standard Gas			Sample Cool	Sample Intact
Federal 18#1T	12/20/12	1230	P212071-01 64026	1-Cylinder			X											X			—	✓

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	12/20/12	1500		12/20/12	1500
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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Report Summary

Client: XTO

Chain of Custody Number: 15037

Samples Received: 01-02-13

Job Number: 98031-0528

Sample Number(s): 64030-64031

Project Name/Location: Federal 18 #1T

Entire Report Reviewed By: _____ Date: 1/10/13

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envirotech-inc.com
laboratory@envirotech-inc.com

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	XTO	Project #:	98031-0528
Sample ID:	Water Sample	Date Reported:	01-09-13
Chain of Custody:	15037	Date Sampled:	12-31-12
Laboratory Number:	64030	Date Received:	01-02-13
Sample Matrix:	Aqueous	Date Analyzed:	01-09-13
Preservative:	HCl	Analysis Requested:	BTEX
Condition:	Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**13.9**	**1**	**1.0**
Toluene	**1.1**	**1**	**1.0**
Ethylbenzene	**ND**	**1**	**1.0**
p,m-Xylene	**3.3**	**1**	**1.0**
o-Xylene	**ND**	**1**	**1.0**
Total BTEX	**18.3**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	**91.4 %**
	1,4-difluorobenzene	**90.2 %**
	4-bromochlorobenzene	**85.6 %**

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: **Federal 18 #1T**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	0109BCAL QA/QC	Date Reported:	01-09-13
Laboratory Number:	64063	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-09-13
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	9.212E-06	9.212E-06	0.00%	ND	1
Toluene	9.124E-06	9.124E-06	0.00%	ND	1
Ethylbenzene	1.170E-05	1.170E-05	0.00%	ND	1
p,m-Xylene	1.008E-05	1.008E-05	0.00%	ND	1
o-Xylene	1.232E-05	1.232E-05	0.00%	ND	1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	ND	ND	0.0%	0 - 30%
Toluene	1.8	1.8	0.0%	0 - 30%
Ethylbenzene	ND	ND	0.0%	0 - 30%
p,m-Xylene	1.6	1.5	6.1%	0 - 30%
o-Xylene	1.2	1.2	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	ND	50.0	49.7	99.4%	39 - 150
Toluene	1.8	50.0	50.1	96.6%	46 - 148
Ethylbenzene	ND	50.0	49.6	99.3%	32 - 160
p,m-Xylene	1.6	100	96.0	94.5%	46 - 148
o-Xylene	1.2	50.0	47.2	92.4%	46 - 148

ND - Parameter not detected at the stated detection limit.

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 64030 and 64063.**

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envirotech-inc.com
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EC, pH, Chloride Analysis

Client:	XTO	Project #:	98031-0528
Sample ID:	Water Sample	Date Reported:	01-03-13
Laboratory Number:	64030	Date Sampled:	12-31-12
Chain of Custody:	15037	Date Received:	01-02-13
Sample Matrix:	Aqueous	Date Extracted:	01-03-13
Preservative:	Cool	Date Analyzed:	01-03-13
Condition:	Intact		

Parameter	Analytical Result	Units
pH	**7.05**	su
Conductivity @ 25° C	**2,690**	umhos/cm
Chloride	**15.5**	mg/Kg

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.

Comments: **Federal 18 #1T**

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Water Analysis

Client:	XTO	Project #:	98031-0528
Sample ID:	Water Sample	Date Reported:	01-08-13
Laboratory Number:	64030	Date Sampled:	12-31-12
Sample Matrix:	Aqueous	Date Received:	01-02-13
Preservative:	Cool	Date Analyzed:	01-04-13
Condition:	Intact	Chain of Custody:	15037

Parameter	Analytical Result	Units
Total Dissolved Solids @ 180C	**2,440**	mg/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Federal 18 #1T**

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GAS ANALYSIS

Client:	XTO	Project Name:	Federal 18 #1T
Sample ID.:	Gas Sample	Project Number:	98031-0528
Laboratory Number:	64031	Date Reported:	01/07/13
Chain of Custody No.:	15037	Date Sampled:	12/31/12
Sample Matrix:	Gas	Date Received:	01/02/13
Cylinder Number:	71	Date Analyzed:	01/07/13

Parameter	Concentration	Mol %
Carbon Dioxide	1.2951	%
Nitrogen	1.7649	%
Methane	80.4870	%
Ethane	9.8070	%
Propane	3.7669	%
Iso-Butane	0.5822	%
N-Butane	1.2381	%
Iso-Pentane	0.3855	%
N-Pentane	0.2930	%
Hexanes +	0.3803	%
Oxygen	0.0000	%
Total	100.0000	%

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

Comments: **C1-C5 Gas analysis for Federal 18 #1T**

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envirotech-inc.com
laboratory@envirotech-inc.com

15037

CHAIN OF CUSTODY RECORD

Client:	Project Name / Location:
XTO	Federal 18 #1T
Email results to: James_McDaniel@xtoenergy.com	Sampler Name: JMcDaniel
Client Phone No.: 787-0519	Client No.: 98031-0528

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative Cool	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	EC, pH, TDS	Standard Gas		Sample Cool	Sample Intact
Water Sample	12/31/12	1315	P301001-01 64030	3/2-40mL 1-500mL		X	X		X								X	X			X	X
Gas Sample	12/31/12	1300	P301001-02 64031	1-cylinder															X		X	X

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	12/31/12	1400	Lillian Joe	01/02/13	7:11am
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix

Soil ☐ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐ _____

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

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