



RCVD APR 18 '13  
OIL CONS. DIV.  
DIST. 3

**Federal 18 #1T Remediation System  
2013 1st Quarter Report**

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

**Submitted to:  
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**April 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 January 1, 2013, through March 31, 2013.

## **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.

### **1st Quarter Activities**

During the first quarter of 2013, the system ran continuously with no down time. As of December 28, 2012, approximately 7,228 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.

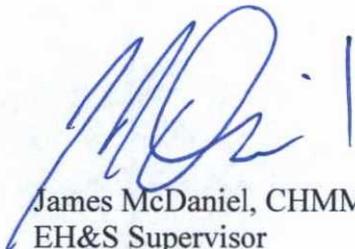
A total of 650,860 gallons of water have been removed from the Federal 18 #1T as of March 31<sup>st</sup>, 2013. The water pump operated for 15 minutes every 60 minutes during the 3rd quarter, purging just over 1,030 gallons of water per day, until December 20<sup>th</sup>, when the water pump was shut 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 first quarter, remaining steady at 15 ppm. pH values remained constant in the first quarter, returning results of 8 and 7.01 in the first quarter of 2013. 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.

Benzene levels during a January 23<sup>rd</sup> sampling event returned results of 160 ppb, well above the 10 ppb WQCC standard. This may have been attributed to hard freezing and an improper purge volume being collected before this sample was collected. On February 22, 2013, the water well was re-sampled. The well was purged for 24 hours prior to the sample collection, and the sample returned results of 7.1 ppb, below the 10 ppb WQCC standard.

Pressure at well SJ 1737 was checked over the course of the first 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. Since January of 2011, the casing pressure in the water well SJ 1737 has shown an overall decrease from 9 oz to 5 oz in March of 2013.

### **Recommendations**

The spike in benzene concentrations in the first quarter may have been attributed to a hard freeze in January, due to the water pump being shut off. The benzene readings returned to levels below the WQCC standards in February, when the pipes were not frozen, and a proper purge was allowed prior to sample collection. Samples will continue to be collected quarterly to monitor the benzene concentration in this well. Chlorides, pH, TDS and EC remained constant over the fourth quarter, and are very close to the background levels obtained in water well 1737. 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. Groundwater samples will continue to be collected on a quarterly basis.



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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	<b>150</b>	BDL	76	<b>670</b>	NS	NS	NS	NS	NA
9/24/2010	ESC	<b>190</b>	170	24	210	<b>6800</b>	<b>13000</b>	18000	6.1	NA
9/24/2010	Etech	<b>143</b>	221	63.6	<b>950</b>	NS	NS	NS	NS	NA
9/24/2010	Etech	<b>320</b>	377	31.8	568	<b>7150</b>	<b>11100</b>	16000	<b>5.84</b>	NA
12/10/2011	Hall	NS	NS	NS	NS	<b>2800</b>	<b>7610</b>	8900	6.36	3032.5
1/5/2011	Hall	<b>67</b>	93	7.9	25	NS	NS	NS	NS	7,798
1/5/2011	ESC	<b>73</b>	99	10	39	<b>1600</b>	<b>4800</b>	6000	6.6	7,798
1/29/2011	ESC	<b>60</b>	93	10	33	<b>930</b>	NS	4900	6.4	10791.0
2/28/2011	ESC	<b>42</b>	60	6.1	20	<b>550</b>	<b>3400</b>	4000	6.7	14795.0
4/1/2011	ESC	<b>23</b>	27	1.8	6.8	<b>260</b>	<b>2700</b>	3100	6.8	31237.5
4/29/2011	ESC	<b>29</b>	28	2.4	7.3	140	<b>2600</b>	2900	6.9	50217.0
5/31/2011	ESC	<b>14</b>	19	1.4	4.9	89	<b>2500</b>	2800	6.7	76513.0
6/14/2011	ESC	<b>55</b>	81	2.8	15	73	<b>2500</b>	2700	6.7	88120.0
6/30/2011	ESC	<b>52</b>	67	2.6	12	61	<b>2500</b>	2700	6.9	101208.5
8/15/2011	ESC	<b>21</b>	25	1.2	5.8	44	<b>2500</b>	2600	6.8	140267.0
9/2/2011	ESC	<b>10</b>	12	0.64	3.2	41	<b>2500</b>	2600	7.2	155801.0
9/16/2011	ESC	9.6	11	0.64	3	38	<b>2400</b>	2500	7.2	168040.0
9/30/2011	ESC	7.2	8.7	0.64	2.5	35	<b>2500</b>	2600	7	180392.5
10/28/2011	ESC	5.1	BDL	1.8	2.7	31	<b>2300</b>	2600	6.9	205,220
11/30/2011	ESC	4	BDL	3.9	2	27	<b>2500</b>	2600	7.1	233,487.5
12/30/2011	ESC	3.4	BDL	BDL	2.9	27	<b>2500</b>	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	<b>2400</b>	2400	7.4	NA
7/3/2012	ESC	5.3	BDL	BDL	BDL	16	<b>2300</b>	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	<b>13.9</b>	1.1	ND	3.3	15.5	2690	2440	7.05	604,689
1/23/2013	ESC	<b>160</b>	190	BDL	26	15	2400	2500	8	PUMP SHUT OFF
2/22/2013	ESC	7.1	77	BDL	1.8	15	2100	2500	7.1	605,860
11/5/2010	ESC	ND	5.2	ND	ND	15	<b>1400</b>	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

# Federal 18 #1T Gas Vented

Date	SCFM	ACFM	Gas Vented Total (MCF)
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

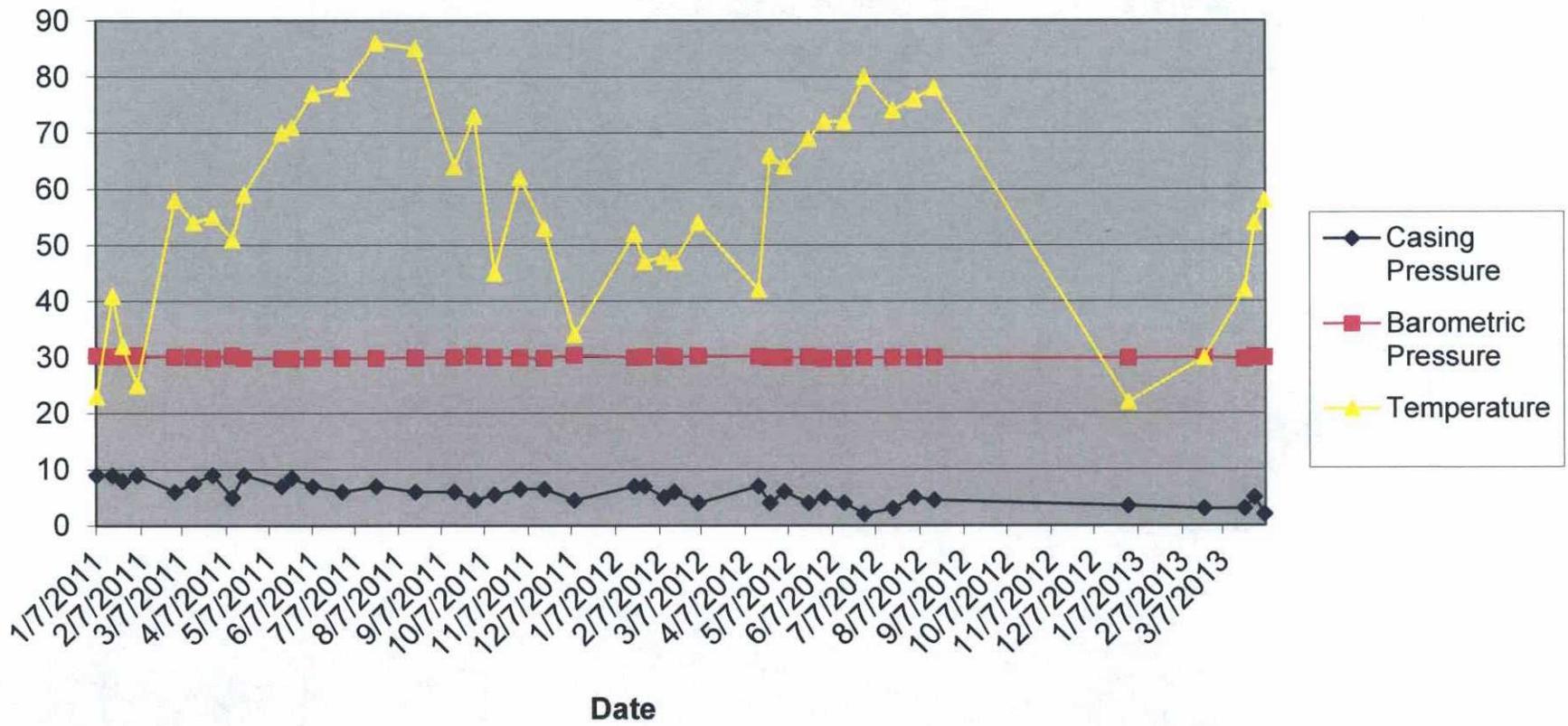
# Federal 18 #1T Gas Vented

Date	SCFM	ACFM	Gas Vented Total (MCF)
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
1/4/2013	3	6	6503.2
1/11/2013	3	6	6563.6
1/18/2013	3	6	6624
1/25/2013	3	6	6684.4
2/1/2013	3	6	6744.8
2/8/2013	3	6	6805.2
2/15/2013	3	6	6865.6
2/22/2013	3	6	6926
3/1/2013	3	6	6986.4
3/8/2013	3	6	7046.8
3/15/2013	3	6	7107.2
3/22/2013	3	6	7167.6
3/29/2013	3	6	7228

## 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
2/22/2013	3	29.99	30
3/22/2013	3	29.71	42
3/29/2013	5	30.09	54
4/5/2013	2	29.89	58

### Federal 18 #1T





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James McDaniel  
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### Report Summary

Thursday January 31, 2013

Report Number: L616981

Samples Received: 01/24/13

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 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.

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YOUR LAB OF CHOICE

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Est. 1970

REPORT OF ANALYSIS

January 31, 2013

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

Date Received : January 24, 2013  
 Description : Federal 18 1T  
 Sample ID : WATER SAMPLE  
 Collected By : Logan Hixon  
 Collection Date : 01/23/13 14:00

ESC Sample # : L616981-01

Site ID : FEDERAL 18 1T

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	01/24/13	1
pH	8.0		su	9040C	01/30/13	1
Specific Conductance	2500		umhos/cm	9050A	01/25/13	1
Dissolved Solids	2400	10.	mg/l	2540 C-2011	01/31/13	1
Benzene	0.16	0.0050	mg/l	8021B	01/25/13	10
Toluene	0.19	0.050	mg/l	8021B	01/25/13	10
Ethylbenzene	BDL	0.0050	mg/l	8021B	01/25/13	10
Total Xylene	0.026	0.015	mg/l	8021B	01/25/13	10
Surrogate Recovery(%) a,a,a-Trifluorotoluene (PID)	98.3		% Rec.	8021B	01/25/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 01/31/13 16:21 Printed: 01/31/13 16:21  
 L616981-01 (PH) - 8.0@20.1c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L616981-01	WG634427	SAMP	pH	R2522241	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 Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
01/31/13 at 16:21:25

TSR Signing Reports: 288  
R5 - Desired TAT

Domestic Water Well Sampling-see L609759 Lobato for tests

Sample: L616981-01 Account: XTORNM Received: 01/24/13 09:00 Due Date: 01/31/13 00:00 RPT Date: 01/31/13 16:21



YOUR LAB OF CHOICE

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

Aztec, NM 87410

Quality Assurance Report  
Level II

L616981

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

January 31, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Chloride	< 1	mg/l			WG633806	01/24/13 09:39
Specific Conductance	3.41	umhos/cm			WG633837	01/25/13 16:00
Benzene	< .0005	mg/l			WG633840	01/25/13 13:38
Ethylbenzene	< .0005	mg/l			WG633840	01/25/13 13:38
Toluene	< .005	mg/l			WG633840	01/25/13 13:38
Total Xylene	< .0015	mg/l			WG633840	01/25/13 13:38
a,a,a-Trifluorotoluene (PID)		% Rec.	98.68	55-122	WG633840	01/25/13 13:38
Dissolved Solids	< 10	mg/l			WG633985	01/31/13 14:43

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Chloride	mg/l	3.90	3.90	0	20	L616962-06	WG633806
Specific Conductance	umhos/cm	480.	470.	1.06	20	L616520-01	WG633837
Specific Conductance	umhos/cm	900.	900.	0.111	20	L617032-01	WG633837
pH	su	8.00	8.00	0.125	1	L616890-01	WG634427
pH	su	8.00	8.10	1.12*	1	L617596-01	WG634427
Dissolved Solids	mg/l	1500	1570	3.90	5	L616932-06	WG633985

Analyte	Units	Laboratory Control		Sample Result	% Rec	Limit	Batch
		Known Val	Control				
Chloride	mg/l	40		39.8	99.5	90-110	WG633806
Specific Conductance	umhos/cm	878		885.	101.	85-115	WG633837
Benzene	mg/l	.05		0.0475	95.1	79-114	WG633840
Ethylbenzene	mg/l	.05		0.0490	98.0	80-116	WG633840
Toluene	mg/l	.05		0.0477	95.5	79-112	WG633840
Total Xylene	mg/l	.15		0.155	104.	84-118	WG633840
a,a,a-Trifluorotoluene (PID)					98.25	55-122	WG633840
pH	su	5.7		5.72	100.	98.25-101.75	WG634427
Dissolved Solids	mg/l	8800		8620	98.0	85-115	WG633985

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref					
Chloride	mg/l	39.7	39.8	99.0	90-110	0.252	20	WG633806
Specific Conductance	umhos/	886.	885.	101.	85-115	0.113	20	WG633837

\* Performance of this Analyte is outside of established criteria.  
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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0482	0.0475	96.0	79-114	1.38	20	WG633840
Ethylbenzene	mg/l	0.0496	0.0490	99.0	80-116	1.16	20	WG633840
Toluene	mg/l	0.0482	0.0477	96.0	79-112	0.940	20	WG633840
Total Xylene	mg/l	0.157	0.155	104.	84-118	0.790	20	WG633840
a,a,a-Trifluorotoluene (PID)				98.28	55-122			WG633840
pH	su	5.72	5.72	100.	98.25-101.75	0	20	WG634427
Dissolved Solids	mg/l	8610	8620	98.0	85-115	0.116	5	WG633985

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Chloride	mg/l	53.0	2.60	50	101.	80-120	L616962-02	WG633806
Benzene	mg/l	0.0403	0	.05	80.5	35-147	L616943-06	WG633840
Ethylbenzene	mg/l	0.0537	0	.05	107.	39-141	L616943-06	WG633840
Toluene	mg/l	0.0480	0	.05	96.0	35-148	L616943-06	WG633840
Total Xylene	mg/l	0.169	0	.15	112.	33-151	L616943-06	WG633840
a,a,a-Trifluorotoluene (PID)					98.59	55-122		WG633840

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Chloride	mg/l	49.4	53.0	93.6	80-120	7.03	20	L616962-02	WG633806
Benzene	mg/l	0.0416	0.0403	83.2	35-147	3.32	20	L616943-06	WG633840
Ethylbenzene	mg/l	0.0535	0.0537	107.	39-141	0.390	20	L616943-06	WG633840
Toluene	mg/l	0.0486	0.0480	97.1	35-148	1.13	20	L616943-06	WG633840
Total Xylene	mg/l	0.166	0.169	111.	33-151	1.49	20	L616943-06	WG633840
a,a,a-Trifluorotoluene (PID)				97.69	55-122				WG633840

Batch number /Run number / Sample number cross reference

WG633806: R2517982: L616981-01  
 WG633837: R2518478: L616981-01  
 WG633840: R2519323: L616981-01  
 WG634427: R2522241: L616981-01  
 WG633985: R2524381: L616981-01

\* \* Calculations are performed prior to rounding of reported values.  
 \* Performance of this Analyte is outside of established criteria.  
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

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

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

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





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Logan Hixon  
XTO Energy - San Juan Division  
382 County Road 3100  
Aztec, NM 87410

### Report Summary

Friday March 01, 2013

Report Number: L621773

Samples Received: 02/23/13

Client Project:

Description: Federal 18 IT

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

Entire Report Reviewed By:

Daphne Richards , ESC Representative

#### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 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.

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REPORT OF ANALYSIS

March 01, 2013

Logan Hixon  
 XTO Energy - San Juan Division  
 382 County Road 3100  
 Aztec, NM 87410

Date Received : February 23, 2013  
 Description : Federal 18 IT  
 Sample ID : WATER SAMPLE  
 Collected By : Logan Hixon  
 Collection Date : 02/22/13 12:00

ESC Sample # : L621773-01

Site ID : FEDERAL 18 IT

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	02/25/13	1
pH	7.1		su	9040C	02/27/13	1
Specific Conductance	2500		umhos/cm	9050A	02/27/13	1
Dissolved Solids	2100	10.	mg/l	2540 C-2011	03/01/13	1
Benzene	0.0071	0.00050	mg/l	8021B	02/23/13	1
Toluene	0.0077	0.0050	mg/l	8021B	02/23/13	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	02/23/13	1
Total Xylene	0.0018	0.0015	mg/l	8021B	02/23/13	1
Surrogate Recovery(%) a, a, a-Trifluorotoluene (PID)	108.		% Rec.	8021B	02/23/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 03/01/13 13:01 Printed: 03/01/13 14:03  
 L621773-01 (PH) - 7.1@17.5c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L621773-01	WG638588	SAMP	pH	R2559980	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 Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Quality Assurance Report  
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March 01, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG638242	02/23/13 22:13
Ethylbenzene	< .0005	mg/l			WG638242	02/23/13 22:13
Toluene	< .005	mg/l			WG638242	02/23/13 22:13
Total Xylene	< .0015	mg/l			WG638242	02/23/13 22:13
a,a,a-Trifluorotoluene (PID)		% Rec.	107.7	55-122	WG638242	02/23/13 22:13
Chloride	< 1	mg/l			WG638335	02/25/13 13:56
Specific Conductance	1.05	umhos/cm			WG638581	02/27/13 14:18
Dissolved Solids	< 10	mg/l			WG638409	03/01/13 12:50

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Chloride	mg/l	15.0	15.0	0	20	L621773-01	WG638335
pH	su	6.70	6.70	0	1	L621770-02	WG638588
Specific Conductance	umhos/cm	2600	2500	1.98	20	L621773-01	WG638581
Specific Conductance	umhos/cm	520.	530.	1.33	20	L621930-01	WG638581
Dissolved Solids	mg/l	210.	217.	1.39	5	L621826-01	WG638409

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0519	104.	79-114	WG638242
Ethylbenzene	mg/l	.05	0.0526	105.	80-116	WG638242
Toluene	mg/l	.05	0.0524	105.	79-112	WG638242
Total Xylene	mg/l	.15	0.156	104.	84-118	WG638242
a,a,a-Trifluorotoluene (PID)				107.0	55-122	WG638242
Chloride	mg/l	40	39.9	99.8	90-110	WG638335
pH	su	5.7	5.72	100.	98.25-101.75	WG638588
Specific Conductance	umhos/cm	878	888.	101.	85-115	WG638581
Dissolved Solids	mg/l	8800	8490	96.5	85-115	WG638409

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/l	0.0548	0.0519	110.	79-114	5.46	20	WG638242
Ethylbenzene	mg/l	0.0557	0.0526	111.	80-116	5.70	20	WG638242
Toluene	mg/l	0.0551	0.0524	110.	79-112	5.06	20	WG638242
Total Xylene	mg/l	0.164	0.156	109.	84-118	5.09	20	WG638242
a,a,a-Trifluorotoluene (PID)				106.4	55-122			WG638242

\* 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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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Chloride	mg/l	39.9	39.9	100.	90-110	0	20	WG638335
pH	su	5.74	5.72	101.	98.25-101.75	0.349	20	WG638588
Specific Conductance	umhos/	884.	888.	101.	85-115	0.451	20	WG638581
Dissolved Solids	mg/l	8530	8490	97.0	85-115	0.470	5	WG638409

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0526	0.0000817	.05	105.	35-147	L621782-02	WG638242
Ethylbenzene	mg/l	0.0544	0	.05	109.	39-141	L621782-02	WG638242
Toluene	mg/l	0.0535	0.000103	.05	107.	35-148	L621782-02	WG638242
Total Xylene	mg/l	0.161	0.000117	.15	107.	33-151	L621782-02	WG638242
a,a,a-Trifluorotoluene (PID)					107.0	55-122		WG638242

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0532	0.0526	106.	35-147	1.10	20	L621782-02	WG638242
Ethylbenzene	mg/l	0.0542	0.0544	108.	39-141	0.410	20	L621782-02	WG638242
Toluene	mg/l	0.0534	0.0535	106.	35-148	0.190	20	L621782-02	WG638242
Total Xylene	mg/l	0.160	0.161	106.	33-151	0.680	20	L621782-02	WG638242
a,a,a-Trifluorotoluene (PID)				106.3	55-122				WG638242

Batch number /Run number / Sample number cross reference

WG638242: R2557059: L621773-01  
 WG638335: R2557977: L621773-01  
 WG638588: R2559980: L621773-01  
 WG638581: R2560457: L621773-01  
 WG638409: R2564297: L621773-01

\* \* Calculations are performed prior to rounding of reported values.  
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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.

Company Name/Address: <b>XTO Energy - San Juan Division</b>  382 County Road 3100 Aztec, NM 87410		Billing Information:  XTO Energy Inc Accounts Payable PO Box 6501  Englewood, CO 80155		Analysis/Container/Preservative  XBT EX (8021) / 2-40ml / HLT+COOL X EC, pH, TDS, chlorides 0-500ml/cool			Chain of Custody Page ___ of ___		
Report to: Logan Hixon		Email to: Logan.Hixon@xtoenergy.com						 12065 Lebanon Road Mt. Juliet, TN 37122  Phone: (800) 767-5859 Phone: (615) 758-5858 Fax: (615) 758-5859  <b>H249</b>	
Project Description: Federal 18 #1 T		City/State Collected: NM							
Phone: (505) 333-3100	Client Project #:	ESC Key:							
FAX:									
Collected by: (print) Logan Hixon	Site/Facility ID#: Federal 18 #1 T	P.O.#:							
Collected by: (signature) <i>[Signature]</i>	<input checked="" type="checkbox"/> Rush? (Lab MUST Be Notified)	Date Results Needed:		No. of Cntrs		CoCode XTORNM (lab use only) Template/Prelogin Shipped Via:			
Immediately Packed on Ice N <input checked="" type="checkbox"/>	<input type="checkbox"/> Same Day..... 200% <input type="checkbox"/> Next Day..... 100% <input type="checkbox"/> Two Day..... 50% <input type="checkbox"/> Three Day..... 25%	Email? <input type="checkbox"/> No <input type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes							
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Remarks/Contaminant		Sample # (lab only)	
Water Sample	grab	GW		2-22-13	12:00	L621773		-01	

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

Remarks: 8700 4662 5310

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by: (Signature) <i>[Signature]</i>	Date: 2-22-13	Time: 13:00	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: JP (lab use only) OK
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received by: (Signature) <i>[Signature]</i>	Temp: 3.9	Bottles Received: 3
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 2-23-13	Time: 0920
				pH Checked: <i>[Signature]</i>	NCF: