Federal 18 #1T Remediation System
2013 2nd Quarter Report

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

Submitted to:
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July 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 April 1, 2013, through June 30, 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.

2nd Quarter Activities

During the 2nd quarter of 2013, the system ran continuously with no down time. As of June 28, 2013, approximately 8,013 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 612,601 gallons of water have been removed from the Federal 18 #1T as of June 30th, 2013. The attached ***Federal 18 #1T Water Results Table*** shows that benzene concentrations remained below the WQCC standards in the 2nd quarter at 9 ppb. Chloride levels have remained constant through the 2nd quarter, remaining steady at 15 ppm. pH values remained constant in the 2nd quarter, returning results of 7.5 in the 2nd quarter of 2013. All BTEX constituents, as well as chlorides, remained below WQCC standards. TDS continues to be above WQCC standards at 2,400 ppm, but background levels (1400 ppm) in water well SJ 1737 are historically above WQCC standards.

The pressure at well SJ 1737 was checked over the course of the second 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 second quarter. Since January of 2011, the casing pressure in the water well SJ 1737 has shown an overall decrease from 9 oz to 2 oz in April of 2013.

Recommendations

Samples will continue to be collected quarterly to monitor the benzene concentration in this well. Chlorides, pH, TDS and EC remained constant over the second 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 until benzene levels remain below the WQCC standards for four (4) consecutive quarters. An alternative sampling schedule may be recommended at that time.

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
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
1/23/2013	ESC	**160**	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
5/2/2013	ESC	9	6.9	BDL	BDL	15	**2400**	2600	7.5	612,601
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)

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

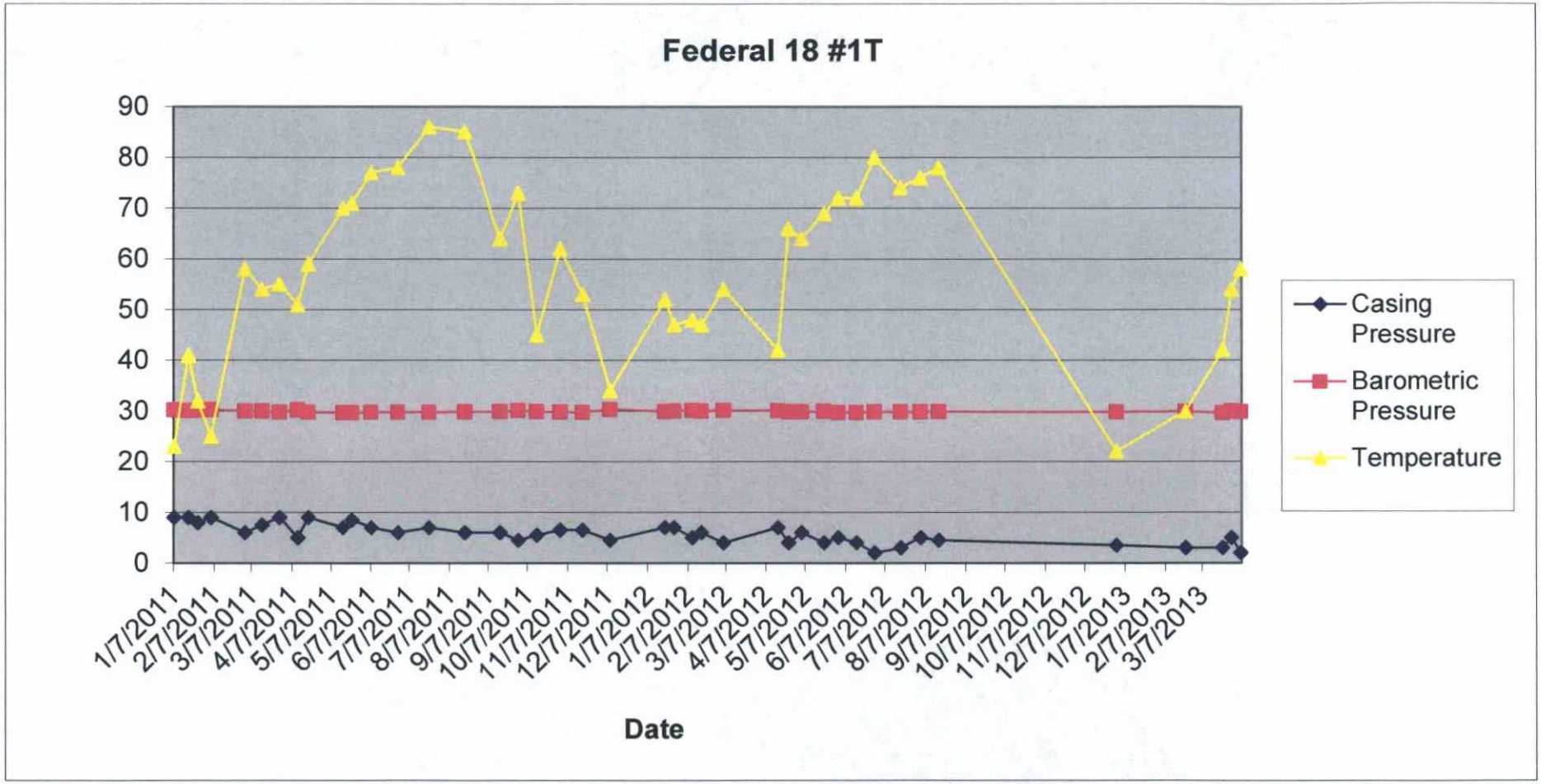
Date	SCFM	ACFM	Gas Vented Total (MCF)
11/4/2011	3	6	2818.8
11/11/2011	3	6	2879.2
11/18/2011	3	6	2939.6
11/25/2011	3	6	3000
12/2/2011	3	6	3060.4
12/9/2011	3	6	3120.8
12/16/2011	3	6	3181.2
12/23/2011	3	6	3241.6
12/30/2011	3	6	3302
1/6/2012	3	6	3362.4
1/13/2012	3	6	3422.8
1/20/2012	3	6	3483.2
1/27/2012	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
4/5/2013	3	6	7288.4
4/12/2013	3	6	7348.8
4/19/2013	3	6	7409.2
4/26/2013	3	6	7469.6
5/3/2013	3	6	7530
5/10/2013	3	6	7590.4
5/17/2013	3	6	7650.8
5/24/2013	3	6	7711.2
5/31/2013	3	6	7771.6
6/7/2013	3	6	7832
6/14/2013	3	6	7892.4
6/21/2013	3	6	7952.8
6/28/2013	3	6	8013.2

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
90
80
70
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50
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Date
Casing Pressure
Barometric Pressure
Temperature

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

Report Summary

Thursday May 09, 2013

Report Number: L633826
Samples Received: 05/03/13
Client Project:

Description:

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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Est. 1970

REPORT OF ANALYSIS

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

May 09, 2013

ESC Sample # : L633826-01

Date Received : May 03, 2013
Description :

Site ID :

Sample ID : FARLH-050213-10:30

Project # :

Collected By : Logan Hixon
Collection Date : 05/02/13 10:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	05/09/13	1
pH	7.5		su	9040C	05/07/13	1
Specific Conductance	2600		umhos/cm	9050A	05/04/13	1
Dissolved Solids	2400	10.	mg/l	2540 C-2011	05/08/13	1
Benzene	0.0090	0.00050	mg/l	8021B	05/04/13	1
Toluene	0.0069	0.0050	mg/l	8021B	05/04/13	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	05/04/13	1
Total Xylene	BDL	0.0015	mg/l	8021B	05/04/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	05/04/13	1

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

.
Reported: 05/09/13 14:47 Printed: 05/09/13 15:29
L633826-01 (PH) - 7.5@21.5c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L633826-01	WG659753	SAMP	pH	R2656700	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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Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
Logan Hixon
382 County Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L633826

May 09, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG659602	05/03/13 18:26
Ethylbenzene	< .0005	mg/l			WG659602	05/03/13 18:26
Toluene	< .005	mg/l			WG659602	05/03/13 18:26
Total Xylene	< .0015	mg/l			WG659602	05/03/13 18:26
a,a,a-Trifluorotoluene(PID)		% Rec.	100.3	55-122	WG659602	05/03/13 18:26
Specific Conductance	2.95	umhos/cm			WG659591	05/04/13 15:23
Dissolved Solids	< 10	mg/l			WG659961	05/08/13 16:15
Chloride	< 1	mg/l			WG660319	05/08/13 21:13

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Specific Conductance	umhos/cm	1100	1100	3.57	20	L633267-03	WG659591
Specific Conductance	umhos/cm	2600	2600	0	20	L633826-01	WG659591
pH	su	7.00	7.00	0.717	1	L633160-01	WG659753
pH	su	4.90	4.90	0	1	L634089-07	WG659753
Dissolved Solids	mg/l	3100	3060	1.94	5	L633746-01	WG659961
Chloride	mg/l	150.	150.	0	20	L633972-01	WG660319

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0434	86.8	79-114	WG659602
Ethylbenzene	mg/l	.05	0.0454	90.8	80-116	WG659602
Toluene	mg/l	.05	0.0443	88.6	79-112	WG659602
Total Xylene	mg/l	.15	0.140	93.2	84-118	WG659602
a,a,a-Trifluorotoluene(PID)				99.95	55-122	WG659602
Specific Conductance	umhos/cm	878	896.	102.	85-115	WG659591
pH	su	5.79	5.79	100.	98.3-101.7	WG659753
Dissolved Solids	mg/l	8800	8690	98.8	85-115	WG659961
Chloride	mg/l	40	40.5	101.	90-110	WG660319

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0464	0.0434	93.0	79-114	6.66	20	WG659602
Ethylbenzene	mg/l	0.0486	0.0454	97.0	80-116	6.83	20	WG659602
Toluene	mg/l	0.0476	0.0443	95.0	79-112	7.26	20	WG659602
Total Xylene	mg/l	0.150	0.140	100.	84-118	7.08	20	WG659602

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

ESC LAB SCIENCES
YOUR LAB OF CHOICE

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Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
a,a,a-Trifluorotoluene(PID)				99.92	55-122			
Specific Conductance	umhos/	897.	896.	102.	85-115	0.112	20	WG659591
pH	su	5.82	5.79	100.	98.3-101.7	0.517	20	WG659753
Dissolved Solids	mg/l	8770	8690	100.	85-115	0.916	5	WG659961
Chloride	mg/l	40.5	40.5	101.	90-110	0	20	WG660319

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0498	0	.05	99.7	35-147	L633618-10	WG659602
Ethylbenzene	mg/l	0.0521	0	.05	104.	39-141	L633618-10	WG659602
Toluene	mg/l	0.0537	0.00337	.05	101.	35-148	L633618-10	WG659602
Total Xylene	mg/l	0.160	0.000461	.15	106.	33-151	L633618-10	WG659602
a,a,a-Trifluorotoluene(PID)					100.5	55-122		WG659602

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0488	0.0498	97.5	35-147	2.19	20	L633618-10	WG659602
Ethylbenzene	mg/l	0.0511	0.0521	102.	39-141	2.00	20	L633618-10	WG659602
Toluene	mg/l	0.0523	0.0537	97.9	35-148	2.65	20	L633618-10	WG659602
Total Xylene	mg/l	0.156	0.160	104.	33-151	2.17	20	L633618-10	WG659602
a,a,a-Trifluorotoluene(PID)				102.6	55-122				WG659602

Batch number /Run number / Sample number cross reference

WG659602: R2652820: L633826-01
WG659591: R2653243: L633826-01
WG659753: R2656700: L633826-01
WG659961: R2659461: L633826-01
WG660319: R2661160: L633826-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

ESC
L·A·B S·C·I·E·N·C·E·S
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Quality Assurance Report
Level II

L633826

May 09, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

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

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

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

B160

XTO ENERGY
Western Division

Quote Number: XTOFNMOS1612B	Page 1 of 1	
XTO Contact: Logan Hixon	XTO Contact Phone #: (505) 386-8018	
Email Results to: Logan_Hixon@xtoenergy.com		
Well Site/Location: Federal 18 #21	API Number: 30-045-33864	Test Reason: quarterly
Collected By: Logan Hixon	Samples on Ice: (Y) N	Turnaround: X Standard; ___ Next Day; ___ Two Day; ___ Three Day; ___ Std. 5 Bus. Days (by contract); Date Needed ___
Company: XTO	QA/QC Requested	
Signature: Logan H	Gray Areas for Lab Use Only!	

Sample ID	Sample Name	Media	Date	Time	Preservative	No. of Conts.	Analysis: BTEX (8021) 1-2-40mL/HCl cool	Analysis: EC, pH, TDS, chlorides (1-500mL) cool	Sample Number
FarLH-050213-1030	quarterly GW	GW	5-2-13	10:30	Cool/HCl	3	X	X	L633826-01

Lab Information

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

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

	Date:	Time:		Number of Bottles	Sample Condition
Relinquished By: (Signature) Logan H	5-2-13	13:00	Received By: (Signature)		
Relinquished By: (Signature)	Date:	Time:	Received By: (Signature)	Temperature: 31	Other Information
Relinquished By: (Signature)	Date:	Time:	Received for Lab by: (Signature) Corey Wcarver	Date: 5-3-13 Time: 0730	

Comments: 5040 0636 7430 3 containers JF OK

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