# Federal 18 #1T Remediation System
# 2016 2nd Quarter Report

**Submitted By:**
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**Submitted to:**
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**June 2016**

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## Smith, Cory, EMNRD

**From:** Smith, Cory, EMNRD
**Sent:** Monday, August 15, 2016 10:53 AM
**To:** Hixon, Logan (Logan_Hixon@xtoenergy.com)
**Cc:** Powell, Brandon, EMNRD; Fields, Vanessa, EMNRD; McDaniel, James (James_McDaniel@xtoenergy.com)
**Subject:** 2016 2nd Quarter Report Federal 18 #1T API# 30-045-33864 3RP-1034

Mr. Hixon,

OCD has received the 2016 2nd Quarter Report for the Federal 18 #1T. Upon reviewing the gas analysis that was collected on May 6, 2016 from well SJ 1737, the OCD is approving a modified gas sampling schedule for well SJ 1737. XTO will collect one gas analysis per calendar year with no less than 6 months between samples. All other aspects of the sampling and monitoring are to remain unchanged.

If you have any questions please give me a call.

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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 for the quarter.

**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 initially held 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 2016, the system ran continuously with no down time. As of June 27, 2016, approximately 17,375.2 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 713,880 gallons of water have been removed from the Federal 18 #1T as of June 27, 2016. The attached ***Federal 18 #1T Water Results Table*** shows that that benzene concentrations have remained relatively constant in the quarter with one (1) sampling event (June 14, 2016) returning results above the WQCC standard at 78 ppb. Chloride levels have remained constant through the quarter, remaining steady at 13.7 ppm. pH values remained constant in the quarter, returning results of 6.89. TDS continues to be above WQCC standards at 2600 ppm, but background levels (1,400 ppm) in water well SJ 1737 are historically above WQCC standards as well.

A gas sample was collect at the Federal 18-1T well on June 14, 2016. The sample results from this event are attached ***2016-6-14 P606045GA***

The pressure at well SJ 1737 was checked over the course of the 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 quarter. The casing pressure in the water well SJ 1737 has shown an overall decrease from 9 oz in January of 2011 to 1 oz. in June 22, 2016. An overall decreasing trend has existed in the water well casing since 2011.

A gas sample was collected at SJ 1737 on May 6, 2016. The sample results from this event are attached ***2016-5-23 P605025GA.***

**Recommendations**

Groundwater samples will continue to be collected quarterly to monitor the benzene concentration in this well. Chlorides, pH, TDS and EC remained constant over the 2nd quarter, and are very close to the background levels obtained in water well 1737. XTO proposes the continued operation of the vacuum pump and water pump at the Federal 18 #1T, 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.

XTO proposes to discontinue gas analysis in water well 1737 due to the minimal pressure that appears on the casing. XTO will continue to monitor the pressure on the casing at water well 1737.

Logan Hixon
EHS Coordinator
XTO Energy, Inc.
Western Division

| | A | B |
|---|---|---|
| 1 | **Well SJ 1737 Casing Pressures** | |
| 2 | **Date** | **Casing Pressure (oz)** |
| 3 | 1/7/2011 | 9 |
| 4 | 1/18/2011 | 9 |
| 5 | 1/25/2011 | 8 |
| 6 | 2/4/2011 | 9 |
| 7 | 3/2/2011 | 6 |
| 8 | 3/15/2011 | 7.5 |
| 9 | 3/28/2011 | 9 |
| 10 | 4/11/2011 | 5 |
| 11 | 4/19/2011 | 9 |
| 12 | 5/16/2011 | 7 |
| 13 | 5/23/2011 | 8.5 |
| 14 | 6/7/2011 | 7 |
| 15 | 6/28/2011 | 6 |
| 16 | 7/22/2011 | 7 |
| 17 | 8/19/2011 | 6 |
| 18 | 9/16/2011 | 6 |
| 19 | 9/30/2011 | 4.5 |
| 20 | 10/14/2011 | 5.5 |
| 21 | 11/1/2011 | 6.5 |
| 22 | 11/18/2011 | 6.5 |
| 23 | 12/9/2011 | 4.5 |
| 24 | 1/20/2012 | 7 |
| 25 | 1/27/2012 | 7 |
| 26 | 2/10/2012 | 5 |
| 27 | 2/17/2012 | 6 |
| 28 | 3/5/2012 | 4 |
| 29 | 4/16/2012 | 7 |
| 30 | 4/24/2012 | 4 |
| 31 | 5/4/2012 | 6 |
| 32 | 5/21/2012 | 4 |
| 33 | 6/1/2012 | 5 |
| 34 | 6/15/2012 | 4 |
| 35 | 6/29/2012 | 2 |
| 36 | 7/19/2012 | 3 |
| 37 | 8/3/2012 | 5 |
| 38 | 8/17/2012 | 4.5 |
| 39 | 12/31/2012 | 3.5 |
| 40 | 2/22/2013 | 3 |
| 41 | 3/22/2013 | 3 |
| 42 | 3/29/2013 | 5 |
| 43 | 4/5/2013 | 2 |
| 44 | 7/6/2013 | 0.5 |
| 45 | 8/9/2013 | 0.5 |
| 46 | 8/19/2013 | 0.5 |
| 47 | 9/13/2013 | 0.5 |
| 48 | 9/27/2013 | 0.5 |
| 49 | 10/11/2013 | 0.5 |
| 50 | 10/25/2013 | 0.5 |
| 51 | 11/22/2013 | 1 |

| | A | B |
|---|---|---|
| 1 | **Well SJ 1737 Casing Pressures** | |
| 52 | 12/13/2013 | 0.5 |
| 53 | 12/30/2013 | 0.5 |
| 54 | 1/17/2014 | 0.75 |
| 55 | 1/31/2014 | 3.5 |
| 56 | 3/28/2014 | 1.5 |
| 57 | 5/9/2014 | 2 |
| 58 | 5/23/2014 | 0.5 |
| 59 | 5/30/2014 | 0 |
| 60 | 7/3/2014 | 0.25 |
| 61 | 7/25/2014 | 1 |
| 62 | 8/29/2014 | 0.75 |
| 63 | 9/12/2014 | 0.5 |
| 64 | 10/3/2015 | 0 |
| 65 | 10/20/2014 | 0.75 |
| 66 | 11/12/2014 | 2.5 |
| 67 | 12/19/2014 | 0.5 |
| 68 | 12/31/2014 | 2 |
| 69 | 1/23/2015 | 0 |
| 70 | 2/13/2015 | 0 |
| 71 | 3/20/2015 | 0.75 |
| 72 | 4/3/2015 | 0.5 |
| 73 | 5/22/2015 | 2 |
| 74 | 6/5/2015 | 2 |
| 75 | 6/26/2015 | 2 |
| 76 | 7/10/2015 | 1 |
| 77 | 8/21/2015 | 2 |
| 78 | 9/11/2015 | 1.5 |
| 79 | 9/25/2015 | 0 |
| 80 | 10/19/2015 | 1.5 |
| 81 | 11/20/2015 | 1.5 |
| 82 | 12/10/2015 | 1 |
| 83 | 12/11/2015 | 3 |
| 84 | 1/21/2016 | 0 |
| 85 | 2/5/2016 | 0 |
| 86 | 2/12/2016 | 0 |
| 87 | 3/14/2016 | 2 |
| 88 | 3/28/2016 | 2.5 |
| 89 | 4/26/2016 | 3 |
| 90 | 5/9/2016 | 3 |
| 91 | 5/24/2016 | 2 |
| 92 | 6/6/2016 | 2.5 |
| 93 | 6/22/2016 | 1 |

# 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 |

# Federal 18 #1T Gas Vented

| Date | SCFM | ACFM | Gas Vented Total (MCF) |
|---|---|---|---|
| 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 |

# 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 |
| 7/5/2013 | 3 | 6 | 8073.6 |
| 7/12/2013 | 3 | 6 | 8134 |
| 7/19/2013 | 3 | 6 | 8194.4 |
| 7/26/2013 | 3 | 6 | 8254.8 |
| 8/2/2013 | 3 | 6 | 8315.2 |
| 8/9/2013 | 3 | 6 | 8375.6 |
| 8/16/2013 | 3 | 6 | 8436 |
| 8/23/2013 | 3 | 6 | 8496.4 |
| 8/30/2013 | 3 | 6 | 8556.8 |
| 9/6/2013 | 0 | 0 | 8556.8 |
| 9/13/2013 | 3 | 6 | 8617.2 |
| 9/20/2013 | 3 | 6 | 8677.6 |
| 9/27/2013 | 3 | 6 | 8738 |
| 10/4/2013 | 3 | 6 | 8798.4 |
| 10/11/2013 | 3 | 6 | 8858.8 |
| 10/18/2013 | 3 | 6 | 8919.2 |

# Federal 18 #1T Gas Vented

| Date | SCFM | ACFM | Gas Vented Total (MCF) |
|---|---|---|---|
| 10/25/2013 | 3 | 6 | 8979.6 |
| 11/1/2013 | 3 | 6 | 9040 |
| 11/8/2013 | 3 | 6 | 9100.4 |
| 11/15/2013 | 3 | 6 | 9160.8 |
| 11/22/2013 | 3 | 6 | 9221.2 |
| 11/29/2013 | 3 | 6 | 9281.6 |
| 12/6/2013 | 3 | 6 | 9342 |
| 12/13/2013 | 3 | 6 | 9402.4 |
| 12/20/2013 | 3 | 6 | 9462.8 |
| 12/27/2013 | 3 | 6 | 9523.2 |
| 1/3/2014 | 3 | 6 | 9583.6 |
| 1/10/2014 | 3 | 6 | 9644 |
| 1/17/2014 | 3 | 6 | 9704.4 |
| 1/24/2014 | 3 | 6 | 9764.8 |
| 1/31/2014 | 3 | 6 | 9825.2 |
| 2/7/2014 | 3 | 6 | 9885.6 |
| 2/14/2014 | 3 | 6 | 9946 |
| 2/21/2014 | 3 | 6 | 10006.4 |
| 2/28/2014 | 3 | 6 | 10066.8 |
| 3/7/2014 | 3 | 6 | 10127.2 |
| 3/14/2014 | 3 | 6 | 10187.6 |
| 3/21/2014 | 3 | 6 | 10248 |
| 3/28/2014 | 3 | 6 | 10308.4 |
| 4/4/2014 | 3 | 6 | 10368.8 |
| 4/11/2014 | 3 | 6 | 10429.2 |
| 4/18/2014 | 3 | 6 | 10489.6 |
| 4/25/2014 | 3 | 6 | 10550 |
| 5/2/2014 | 3 | 6 | 10610.4 |
| 5/9/2014 | 3 | 6 | 10670.8 |
| 5/16/2014 | 3 | 6 | 10731.2 |
| 5/23/2014 | 3 | 6 | 10791.6 |
| 5/30/2014 | 3 | 6 | 10852 |
| 6/6/2014 | 3 | 6 | 10912.4 |
| 6/13/2014 | 3 | 6 | 10972.8 |
| 6/20/2014 | 3 | 6 | 11033.2 |
| 6/27/2014 | 3 | 6 | 11093.6 |
| 7/4/2014 | 3 | 6 | 11154 |
| 7/11/2014 | 3 | 6 | 11214.4 |
| 7/18/2014 | 3 | 6 | 11274.8 |
| 7/25/2014 | 3 | 6 | 11335.2 |
| 8/1/2014 | 3 | 6 | 11395.6 |
| 8/8/2014 | 3 | 6 | 11456 |
| 8/15/2014 | 3 | 6 | 11516.4 |
| 8/22/2014 | 3 | 6 | 11576.8 |
| 8/29/2014 | 3 | 6 | 11637.2 |
| 9/5/2014 | 3 | 6 | 11697.6 |
| 9/12/2014 | 3 | 6 | 11758 |
| 9/19/2014 | 3 | 6 | 11818.4 |
| 9/26/2014 | 3 | 6 | 11878.8 |
| 10/3/2014 | 3 | 6 | 11939.2 |
| 10/10/2014 | 3 | 6 | 11999.6 |
| 10/17/2014 | 3 | 6 | 12060 |

# Federal 18 #1T Gas Vented

| Date | SCFM | ACFM | Gas Vented Total (MCF) |
|---|---|---|---|
| 10/24/2014 | 3 | 6 | 12120.4 |
| 10/31/2014 | 3 | 6 | 12180.8 |
| 11/7/2014 | 3 | 6 | 12241.2 |
| 11/14/2014 | 3 | 6 | 12301.6 |
| 11/21/2014 | 3 | 6 | 12362 |
| 11/28/2014 | 3 | 6 | 12422.4 |
| 12/5/2014 | 3 | 6 | 12482.8 |
| 12/12/2014 | 3 | 6 | 12543.2 |
| 12/19/2014 | 3 | 6 | 12603.6 |
| 12/26/2014 | 3 | 6 | 12603.6 |
| 1/2/2015 | 3 | 6 | 12664 |
| 1/9/2015 | 3 | 6 | 12724.4 |
| 1/16/2015 | 3 | 6 | 12784.8 |
| 1/23/2015 | 3 | 6 | 12845.2 |
| 1/30/2015 | 3 | 6 | 12905.6 |
| 2/6/2015 | 3 | 6 | 12966 |
| 2/13/2015 | 3 | 6 | 13026.4 |
| 2/20/2015 | 3 | 6 | 13086.8 |
| 2/27/2015 | 3 | 6 | 13147.2 |
| 3/6/2015 | 3 | 6 | 13207.6 |
| 3/13/2015 | 3 | 6 | 13268 |
| 3/20/2015 | 3 | 6 | 13328.4 |
| 3/27/2015 | 3 | 6 | 13388.8 |
| 4/3/2015 | 3 | 6 | 13449.2 |
| 4/10/2015 | 3 | 6 | 13509.6 |
| 4/17/2015 | 3 | 6 | 13570 |
| 4/24/2015 | 3 | 6 | 13630.4 |
| 5/1/2015 | 3 | 6 | 13690.8 |
| 5/8/2015 | 3 | 6 | 13751.2 |
| 5/15/2015 | 3 | 6 | 13811.6 |
| 5/22/2015 | 3 | 6 | 13872 |
| 5/29/2015 | 3 | 6 | 13932.4 |
| 6/5/2015 | 3 | 6 | 13992.8 |
| 6/12/2015 | 3 | 6 | 14053.2 |
| 6/19/2015 | 3 | 6 | 14113.6 |
| 6/26/2015 | 3 | 6 | 14174 |
| 7/3/2015 | 3 | 6 | 14234.4 |
| 7/10/2015 | 3 | 6 | 14294.8 |
| 7/17/2015 | 3 | 6 | 14355.2 |
| 7/24/2015 | 3 | 6 | 14415.6 |
| 7/31/2015 | 3 | 6 | 14476 |
| 8/7/2015 | 3 | 6 | 14536.4 |
| 8/14/2015 | 3 | 6 | 14596.8 |
| 8/21/2015 | 3 | 6 | 14657.2 |
| 8/28/2015 | 3 | 6 | 14717.6 |
| 9/4/2015 | 3 | 6 | 14778 |
| 9/11/2015 | 3 | 6 | 14838.4 |
| 9/18/2015 | 3 | 6 | 14898.8 |
| 9/25/2015 | 3 | 6 | 14959.2 |
| 10/2/2015 | 3 | 6 | 15019.6 |
| 10/9/2015 | 3 | 6 | 15080 |
| 10/16/2015 | 3 | 6 | 15140.4 |

# Federal 18 #1T Gas Vented

| Date | SCFM | ACFM | Gas Vented Total (MCF) |
|---|---|---|---|
| 10/23/2015 | 3 | 6 | 15200.8 |
| 10/30/2015 | 3 | 6 | 15261.2 |
| 11/6/2015 | 3 | 6 | 15321.6 |
| 11/13/2015 | 3 | 6 | 15382 |
| 11/20/2015 | 3 | 6 | 15442.4 |
| 11/27/2015 | 3 | 6 | 15502.8 |
| 12/4/2015 | 3 | 6 | 15563.2 |
| 12/11/2015 | 3 | 6 | 15623.6 |
| 12/18/2015 | 3 | 6 | 15684 |
| 12/25/2015 | 3 | 6 | 15744.4 |
| 1/1/2016 | 3 | 6 | 15804.8 |
| 1/8/2016 | 3 | 6 | 15865.2 |
| 1/15/2016 | 3 | 6 | 15925.6 |
| 1/22/2016 | 3 | 6 | 15986 |
| 1/29/2016 | 3 | 6 | 16046.4 |
| 2/5/2016 | 3 | 6 | 16106.8 |
| 2/12/2016 | 3 | 6 | 16167.2 |
| 2/19/2016 | 3 | 6 | 16227.6 |
| 2/26/2016 | 3 | 6 | 16288 |
| 3/4/2016 | 3 | 6 | 16348.4 |
| 3/11/2016 | 3 | 6 | 16408.8 |
| 3/18/2016 | 3 | 6 | 16469.2 |
| 3/25/2016 | 3 | 6 | 16529.6 |
| 4/1/2016 | 3 | 6 | 16590 |
| 4/8/2016 | 3 | 6 | 16650.4 |
| 4/15/2016 | 3 | 6 | 16710.8 |
| 4/22/2016 | 3 | 6 | 16771.2 |
| 4/29/2016 | 3 | 6 | 16831.6 |
| 5/6/2016 | 3 | 6 | 16892 |
| 5/13/2016 | 3 | 6 | 16952.4 |
| 5/20/2016 | 3 | 6 | 17012.8 |
| 5/27/2016 | 3 | 6 | 17073.2 |
| 6/3/2016 | 3 | 6 | 17133.6 |
| 6/10/2016 | 3 | 6 | 17194 |
| 6/17/2016 | 3 | 6 | 17254.4 |
| 6/24/2016 | 3 | 6 | 17314.8 |
| 7/1/2016 | 3 | 6 | 17375.2 |

# 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 |
| 8/19/2013 | ESC | **20** | 11 | BDL | 2.3 | 16 | **2200** | 2600 | 7.2 | NA |
| 9/23/2013 | ESC | **13** | 11 | BDL | 2.2 | 16 | **2300** | 2500 | 7.1 | 621,744 |
| 11/25/2013 | ESC | 4.6 | 5.2 | BDL | BDL | 15 | **2200** | 2700 | 7.7 | 631,430 |
| 2/4/2014 | ESC | | | | | | | | | 636,120 |
| 10/1/2015 | ESC | **54.2** | 57 | 1.37 | 9.77 | 21.3 | **2260** | 2640 | 6.98 | 639,410 |
| 10/20/2015 | ESC | **42.3** | 39.9 | 0.964 | 7.06 | 18.1 | **2330** | 1460 | 7.09 | 642,650 |
| 3/28/2016 | ESC | **38** | 34.1 | 0.835 | 4.82 | 21.6 | **2230** | 2570 | 6.86 | 650,850 |
| 6/14/2016 | ESC | **78.3** | 58.4 | 1.16 | 7.22 | 13.7 | **2890** | 2600 | 6.89 | 704,371 |
| 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

ESC LAB SCIENCES
YOUR LAB OF CHOICE

# ANALYTICAL REPORT

June 23, 2016

myESC
REAL TIME DATA ACCESS

## XTO Energy - San Juan Division

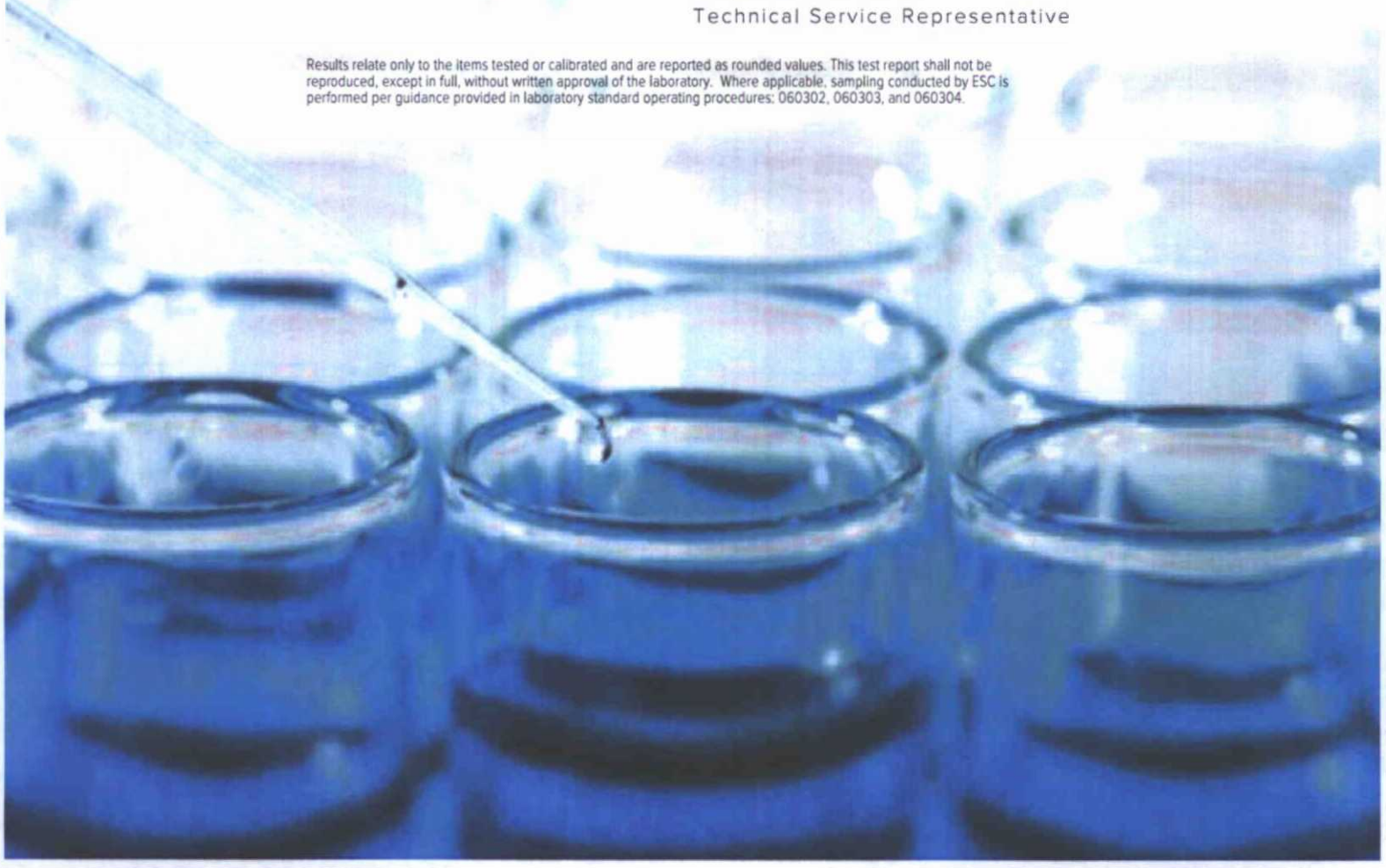
| | |
|---|---|
| Sample Delivery Group: | L842217 |
| Samples Received: | 06/17/2016 |
| Project Number: | |
| Description: | Federal 18-1T |

Report To: Logan Hixon
382 County Road 3100
Aztec, NM 87410

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Technical Service Representative





# TABLE OF CONTENTS

## FARLH 61416 1300 L842217-01 GW

Collected by: Logan H
Collected date/time: 06/14/16 13:00
Received date/time: 06/17/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Gravimetric Analysis by Method 2540 C-2011 | WG881467 | 1 | 06/19/16 15:41 | 06/19/16 16:10 | JM |
| Volatile Organic Compounds (GC) by Method 8021B | WG881445 | 1 | 06/18/16 23:15 | 06/18/16 23:15 | BMB |
| Wet Chemistry by Method 9040C | WG881345 | 1 | 06/18/16 10:05 | 06/18/16 10:05 | KK |
| Wet Chemistry by Method 9050A | WG881370 | 1 | 06/20/16 13:10 | 06/20/16 13:10 | AMC |
| Wet Chemistry by Method 9056A | WG881552 | 1 | 06/23/16 00:14 | 06/23/16 00:14 | SAM |

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

## Sample Handling and Receiving

**The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.**

| ESC Sample ID | Project Sample ID | Method |
|---|---|---|
| L842217-01 | FARLH 61416 1300 | 9040C |

## Gravimetric Analysis by Method 2540 C-2011

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Dissolved Solids | 2890 | | 10.0 | 1 | 06/19/2016 16:10 | WG881467 |

## Wet Chemistry by Method 9040C

| Analyte | Result su | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 6.89 | | 1 | 06/18/2016 10:05 | WG881345 |

Sample Narrative:

9040C L842217-01 WG881345: 6.89 at 12.4c

## Wet Chemistry by Method 9050A

| Analyte | Result umhos/cm | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Specific Conductance | 2600 | | 1 | 06/20/2016 13:10 | WG881370 |

## Wet Chemistry by Method 9056A

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Chloride | 13.7 | | 1.00 | 1 | 06/23/2016 00:14 | WG881552 |

## Volatile Organic Compounds (GC) by Method 8021B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Benzene | 0.0783 | | 0.000500 | 1 | 06/18/2016 23:15 | WG881445 |
| Toluene | 0.0584 | | 0.00500 | 1 | 06/18/2016 23:15 | WG881445 |
| Ethylbenzene | 0.00116 | | 0.000500 | 1 | 06/18/2016 23:15 | WG881445 |
| Total Xylene | 0.00722 | | 0.00150 | 1 | 06/18/2016 23:15 | WG881445 |
| *(S) α,α,α-Trifluorotoluene(PID)* | *106* | | *55.0-122* | | *06/18/2016 23:15* | WG881445 |

Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

## Method Blank (MB)

(MB) R3144935-1 06/19/16 16:10

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Dissolved Solids | U | | 2.82 | 10.0 |

## L842217-01 Original Sample (OS) • Duplicate (DUP)

(OS) L842217-01 06/19/16 16:10 • (DUP) R3144935-4 06/19/16 16:10

| Analyte | Original Result mg/l | DUP Result mg/l | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Dissolved Solids | 2890 | 2880 | 1 | 0.173 | | 5 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3144935-2 06/19/16 16:10 • (LCSD) R3144935-3 06/19/16 16:10

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved Solids | 8800 | 8450 | 8670 | 96.0 | 98.5 | 85.0-115 | | | 2.57 | 5 |

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

## L841274-03 Original Sample (OS) • Duplicate (DUP)

(OS) L841274-03 06/18/16 10:05 • (DUP) WG881345-3 06/18/16 10:05

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | su | su | | % | | % |
| pH | 6.74 | 6.72 | 1 | 0.297 | | 1 |

## L842296-01 Original Sample (OS) • Duplicate (DUP)

(OS) L842296-01 06/18/16 10:05 • (DUP) WG881345-4 06/18/16 10:05

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | su | su | | % | | % |
| pH | 6.68 | 6.69 | 1 | 0.150 | | 1 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG881345-1 06/18/16 10:05 • (LCSD) WG881345-2 06/18/16 10:05

| Analyte | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD | RPD Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| | su | su | su | % | % | % | | | % | % |
| pH | 6.12 | 6.02 | 6.02 | 98.4 | 98.4 | 98.4-102 | | | 0.000 | 1 |

## Method Blank (MB)

(MB) WG881370-4 06/20/16 13:10

| Analyte | MB Result umhos/cm | MB Qualifier | MB MDL umhos/cm | MB RDL umhos/cm |
|---|---|---|---|---|
| Specific Conductance | 1.90 | | | |

## L842020-01 Original Sample (OS) • Duplicate (DUP)

(OS) L842020-01 06/20/16 13:10 • (DUP) WG881370-1 06/20/16 13:10

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 1130 | 1120 | 1 | 0.532 | | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG881370-2 06/20/16 13:10 • (LCSD) WG881370-3 06/20/16 13:10

| Analyte | Spike Amount umhos/cm | LCS Result umhos/cm | LCSD Result umhos/cm | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 653 | 673 | 672 | 103 | 103 | 90.0-110 | | | 0.149 | 20 |

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

## Method Blank (MB)

(MB) R3145279-1 06/22/16 17:31

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Chloride | U | | 0.0519 | 1.00 |

## L842217-01 Original Sample (OS) • Duplicate (DUP)

(OS) L842217-01 06/23/16 00:14 • (DUP) R3145279-5 06/23/16 00:29

| Analyte | Original Result mg/l | DUP Result mg/l | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Chloride | 13.7 | 14.3 | 1 | 4 | | 15 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3145279-2 06/22/16 17:46 • (LCSD) R3145279-3 06/22/16 18:01

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 40.0 | 38.9 | 39.0 | 97 | 98 | 80-120 | | | 0 | 15 |

## L842142-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L842142-01 06/22/16 19:46 • (MS) R3145279-4 06/22/16 20:30

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MS Rec. % | Dilution | Rec. Limits % | MS Qualifier |
|---|---|---|---|---|---|---|---|
| Chloride | 50.0 | 30.6 | 76.4 | 92 | 1 | 80-120 | |

## Method Blank (MB)

(MB) R3144668-5 06/18/16 14:01

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Benzene | U | | 0.000190 | 0.000500 |
| Toluene | 0.000412 | J | 0.000180 | 0.00500 |
| Ethylbenzene | U | | 0.000160 | 0.000500 |
| Total Xylene | U | | 0.000510 | 0.00150 |
| *(S) a,a,a-Trifluorotoluene(PID)* | *107* | | | *55.0-122* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3144668-1 06/18/16 12:02 • (LCSD) R3144668-2 06/18/16 12:26

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0500 | 0.0462 | 0.0478 | 92.4 | 95.5 | 70.0-130 | | | 3.34 | 20 |
| Toluene | 0.0500 | 0.0461 | 0.0466 | 92.2 | 93.2 | 70.0-130 | | | 1.16 | 20 |
| Ethylbenzene | 0.0500 | 0.0473 | 0.0483 | 94.6 | 96.6 | 70.0-130 | | | 2.09 | 20 |
| Total Xylene | 0.150 | 0.145 | 0.148 | 96.7 | 98.7 | 70.0-130 | | | 2.00 | 20 |
| *(S) a,a,a-Trifluorotoluene(PID)* | | | | *106* | *105* | *55.0-122* | | | | |

## L841266-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841266-04 06/18/16 16:16 • (MS) R3144668-6 06/18/16 20:14 • (MSD) R3144668-7 06/18/16 20:37

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0500 | 0.000522 | 0.0501 | 0.0481 | 99.1 | 95.1 | 1 | 57.2-131 | | | 4.09 | 20 |
| Toluene | 0.0500 | ND | 0.0487 | 0.0469 | 96.4 | 92.7 | 1 | 63.7-134 | | | 3.80 | 20 |
| Ethylbenzene | 0.0500 | ND | 0.0496 | 0.0479 | 99.3 | 95.8 | 1 | 67.5-135 | | | 3.54 | 20 |
| Total Xylene | 0.150 | ND | 0.152 | 0.147 | 102 | 98.2 | 1 | 65.9-138 | | | 3.41 | 20 |
| *(S) a,a,a-Trifluorotoluene(PID)* | | | | | *106* | *106* | | *55.0-122* | | | | |

Cp Tc Ss Cn Sr Qc Gl Al Sc

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |

| Qualifier | Description |
|---|---|
| J | The identification of the analyte is acceptable; the reported value is an estimate. |

# ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.



## State Accreditations

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Conneticut | PH-0197 | North Carolina [1] | DW21704 |
| Florida | E87487 | North Carolina [2] | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia [1] | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky [1] | 90010 | South Dakota | n/a |
| Kentucky [2] | 16 | Tennessee [1,4] | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

## Third Party & Federal Accreditations

| | | | |
|---|---|---|---|
| A2LA – ISO 17025 | 1461.01 | AIHA | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

XTO ENERGY
Western Division

| | | |
|---|---|---|
| Quote Number | Page 1 of 1 | |
| XTO Contact: Logan H | XTO Contact Phone #: 505 386-8018 | |
| Email Results to: Logan H, James mcdaniel | | |
| Well Site/Location: Federal 18-1T | API Number | Saturday Delivery (Y / (N)) |
| Collected By: Logan H | Samples on Ice ((Y) / N) | Turnaround: (X) Standard; ___ Next Day; ___ Two Day; ___ Three Day; ___ Same Day; Date Needed ___ |
| Company: XTO | Test Reason: GW | |
| Signature: Jay K | Gray Areas for Lab Use Only! | |

Analysis/Container: BTEX (8021) | DRO | GRO | TDS | Chlorides

Lab Information

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

E185

| Sample ID | Sample Name | Media | Date | Time | Preservative | No. of Conts. | Sample Number |
|---|---|---|---|---|---|---|---|
| FARLH 61416 1300 | GW | GW | 6-14 | 1300 | Cool | 3-500 mL 2-VOL | L84629-01 |

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

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: (Signature) Jay K | Date: 6-15-16 | Time: 700 | Received By: (Signature) | Number of Bottles 5 | Sample Condition |
| Relinquished By: (Signature) | Date: | Time: | | Temperature: 3.2 | Other Information |
| Relinquished By: (Signature) 6127 6624 3924 | Date: Fedex | Time: | Received for Lab by: (Signature) | Date: 6/17/16 Time: 900 | |

Comments: GOOD

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

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Analytical Laboratory

# Analytical Report

**Report Summary**

Client: XTO Energy Inc.

Chain Of Custody Number:

Samples Received: 5/6/2016 11:55:00AM

Job Number: 98031-0528

Work Order: P605025

Project Name/Location: 1737

Report Reviewed By: Walter Hinchman Date: 5/23/16

Walter Hinchman, Laboratory Director

TC Date: 5/23/16

Tim Cain, Quality Assurance Officer



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laboratory@envirotech-inc.com

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| | | | |
|---|---|---|---|
| XTO Energy Inc. | Project Name: | 1737 | |
| 382 CR 3100 | Project Number: | 98031-0528 | **Reported:** |
| Aztec NM, 87410 | Project Manager: | Logan Hixon | 23-May-16 14:13 |

## Analyical Report for Samples

| Client Sample ID | Lab Sample ID | Matrix | Sampled | Received | Container |
|---|---|---|---|---|---|
| FarLH-S616 - 11:00 (Tag # 263) | P605025-01A | Gas | 05/06/16 | 05/06/16 | Gas Cylinder, 300 cc |

Client: XTO Energy
Project: 1737
Sampler: Logan Hixon
Phone: 505 386 8018
Email(s): Logan_James
Project Manager:

RUSH? ☐ 1d ☐ 3d

Lab Use Only
Lab WO# P605025
Job Number 98031-0528

Page 1 of 1

| Sample ID | Sample Date | Sample Time | Matrix | Containers QTY - Vol/TYPE/Preservative | GRO/DRO by 8015 | BTEX by 8021 | TPH by 418.1 | Chloride by 300.0 | TCLP Metals | CO Table 910-1 | TDS | Ext gas analysis | Lab Number | Correct Cont/Prsrv (s) Y/N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FarLH - 5616 - 11:00 (lab # 263) | 5/16/16 | 1100 | G | 1- Gas | | | | | | | | X | 1 | Y |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |

| Relinquished by: (Signature) | Date | Time | Received by: (Signature) | Date | Time |
|---|---|---|---|---|---|
| [signature] | 5/16/16 | 11:55 | [signature] | 5/16/16 | 1155 |
| Relinquished by: (Signature) | Date | Time | Received by: (Signature) | Date | Time |

Lab Use Only
**Received on Ice Y / N
T1____ T2____ T3____
AVG Temp °C ____

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other ____
Container Type: g - glass, p - poly/plastic, ag - amber glass
**Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

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

Chain of Custody

Notes/Billing info:

Page 3 of 7

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# Analysis Certificate

Analysis Requested: **GPA 2286_14**

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | FarLH | Compensations: | Air Free |
| Meter ID: | FarLH | Date Reported: | 5/23/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 5/6/16 |
| Analyzed by: | Rene Garcia Reyes | Date Received: | 5/6/16 |
| Sample Pressure: | N/R | Date Analyzed: | 5/19/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

| Components | Mol % | Wt % | GPM Total | (gal/ideal MCF) |
|---|---|---|---|---|
| Nitrogen | 39.2986 | 47.9443 | | |
| Carbon Dioxide | 2.7291 | 5.2307 | | |
| Methane | 50.8731 | 35.5431 | | |
| Ethane | 4.7710 | 6.2477 | GPM C2+ | 1.983 |
| Propane | 1.6235 | 3.1178 | GPM C3+ | 0.7 |
| Iso-Butane | 0.2567 | 0.6498 | | |
| N-Butane | 0.2535 | 0.6417 | | |
| Iso-Pentane | 0.0983 | 0.3089 | GPM iC5+ | 0.077 |
| N-Pentane | 0.0765 | 0.2404 | | |
| iso-Hexanes | 0.0145 | 0.0537 | | |
| Benzene | ND | ND | | |
| n-Hexane | 0.0029 | 0.0109 | | |
| iso-Heptanes | 0.0018 | 0.0081 | | |
| Toluene | ND | ND | | |
| n-Heptane | 0.0001 | 0.0006 | | |
| iso-Octanes | 0.0001 | 0.0005 | | |
| n-Octane | ND | ND | | |
| EthylBenzene | ND | ND | | |
| Xylenes | ND | ND | | |
| iso-Nonanes | 0.0002 | 0.0014 | | |
| n-Nonane | ND | ND | | |
| iso-Decane | 0.0001 | 0.0004 | | |
| n-Decane | ND | ND | | |
| Totals | 100.0000 | 100.0000 | | |

## GPA Standard 2172-09 Calculations

| | | | | |
|---|---|---|---|---|
| Compressibility Factor: | 0.999 | | Base Pressure: | 14.696 psi |
| Real Gas Relative Density: | 0.794 | | Base Temperature: | 60 F |
| Dry Molecular Weight: | 22.962 | g/mol | C6+ Dry Molecular Weight | 88.593 g/mol |
| Real Gas Dry BTU per ft3: | 664.727 | BTU/ft3 | | |

# Analysis Certificate

Analysis Requested: **GPA 2286_14**

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | FarLH | Compensations: | Air Free |
| Meter ID: | FarLH | Date Reported: | 5/23/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 5/6/16 |
| Analyzed by: | Rene Garcia Reyes | Date Received: | 5/6/16 |
| Sample Pressure: | N/R | Date Analyzed: | 5/19/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

**ND = Parameter not detected at the stated detection limit.** **N/R = Parameter not recorded**

Analyst
Rene Garcia Reyes
Printed

Review
Irene Yazzie
Printed

**Comments: Sample was received with very low pressure. Almost half the content of the cylinder was nitrogen.**

**Note: The above analyses are performed in compliance with GPA 2286_14 quality assurance procedures.**

References: GPA 2286_14, TP-17, GPA Standard 2145-09 and GPA Standard 2172-09

# Analysis Certificate

Analysis Requested: GPA 2286_14

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | FarLH | Compensations: | O2 & N2 Free |
| Meter ID: | FarLH | Date Reported: | 5/23/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 5/6/16 |
| Analyzed by: | Rene Garcia Reyes | Date Received: | 5/6/16 |
| Sample Pressure: | N/R | Date Analyzed: | 5/19/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

| Components | Mol % | Wt % | GPM Total | (gal/ideal MCF) |
|---|---|---|---|---|
| Nitrogen | ND | ND | | |
| Carbon Dioxide | 4.4960 | 10.0484 | | |
| Methane | 83.8086 | 68.2795 | | |
| Ethane | 7.8599 | 12.0022 | GPM C2+ | 3.267 |
| Propane | 2.6746 | 5.9893 | GPM C3+ | 1.152 |
| Iso-Butane | 0.4230 | 1.2485 | | |
| N-Butane | 0.4176 | 1.2326 | | |
| Iso-Pentane | 0.1619 | 0.5932 | GPM iC5+ | 0.126 |
| N-Pentane | 0.1260 | 0.4617 | | |
| iso-Hexanes | 0.0237 | 0.1029 | | |
| Benzene | ND | ND | | |
| n-Hexane | 0.0048 | 0.0208 | | |
| iso-Heptanes | 0.0030 | 0.0155 | | |
| Toluene | ND | ND | | |
| n-Heptane | 0.0002 | 0.0012 | | |
| iso-Octanes | 0.0002 | 0.0009 | | |
| n-Octane | ND | ND | | |
| EthylBenzene | ND | ND | | |
| Xylenes | ND | ND | | |
| iso-Nonanes | 0.0004 | 0.0026 | | |
| n-Nonane | ND | ND | | |
| iso-Decane | 0.0001 | 0.0007 | | |
| n-Decane | ND | ND | | |
| Totals | 100.0000 | 100.0000 | | |

## GPA Standard 2172-09 Calculations

| | | | | |
|---|---|---|---|---|
| Compressibility Factor: | 0.997 | | Base Pressure: | 14.696 psi |
| Real Gas Relative Density: | 0.682 | | Base Temperature: | 60 F |
| Dry Molecular Weight: | 19.691 | g/mol | C6+ Dry Molecular Weight | 88.593 g/mol |
| Real Gas Dry BTU per ft3: | 1096.613 | BTU/ft3 | | |

# Analysis Certificate

Analysis Requested: **GPA 2286_14**

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | FarLH | Compensations: | O2 & N2 Free |
| Meter ID: | FarLH | Date Reported: | 5/23/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 5/6/16 |
| Analyzed by: | Rene Garcia Reyes | Date Received: | 5/6/16 |
| Sample Pressure: | N/R | Date Analyzed: | 5/19/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

**ND = Parameter not detected at the stated detection limit.** **N/R = Parameter not recorded**

Analyst
Rene Garcia Reyes
Printed

Review
Irene Yazzie
Printed

**Comments: Sample was received with very low pressure. Almost half the content of the cylinder was nitrogen.**

**Note: The above analyses are performed in compliance with GPA 2286_14 quality assurance procedures.**

References: GPA 2286_14, TP-17, GPA Standard 2145-09 and GPA Standard 2172-09

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Analytical Laboratory

# Analytical Report

**Report Summary**

Client: XTO Energy Inc.

Chain Of Custody Number:

Samples Received: 6/14/2016 1:45:00PM

Job Number: 98031-0528

Work Order: P606045

Project Name/Location: Federal 18 #1T

Report Reviewed By: Walter Hinchman Date: 6/28/16

Walter Hinchman, Laboratory Director

Tim Cain TC Date: 6/28/16

Tim Cain, Quality Assurance Officer

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.

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Analytical Laboratory

| | | | |
|---|---|---|---|
| XTO Energy Inc. | Project Name: | Federal 18 #1T | |
| 382 CR 3100 | Project Number: | 98031-0528 | **Reported:** |
| Aztec NM, 87410 | Project Manager: | James McDaniel | 28-Jun-16 15:19 |

## Analyical Report for Samples

| Client Sample ID | Lab Sample ID | Matrix | Sampled | Received | Container |
|---|---|---|---|---|---|
| FARLH-61416-1315 | P606045-01A | Gas | 06/14/16 | 06/14/16 | Gas Cylinder, 300 cc |



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

Client: XTO Energy
Project: Federal 18-1T
Sampler: Logan H
Phone: 505 386-8018
Email(s): Logan_Hixon@XTOenergy.com
Project Manager:

RUSH? 1d 3d

Lab Use Only
Lab WO# P606045
Job Number 98031-0528

Page 1 of 1

| Sample ID | Sample Date | Sample Time | Matrix | Containers QTY - Vol/TYPE/Preservative | GRO/DRO by 8015 | BTEX by 8021 | TPH by 418.1 | Chloride by 300.0 | TCLP Metals | CO Table 910-1 | TDS | Ext Gas analysis | Lab Number | Correct Cont/Prsrv (s) Y/N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FARLH - 61416 - 1315 | 6-14 | 1315 | gas | 1- bottle | | | | | | | | X | 1 | ✓ |

Analysis and Method

lab Only

Requires cool w/ ice

| Relinquished by: (Signature) | Date | Time | Received by: (Signature) | Date | Time |
|---|---|---|---|---|---|
| [signature] | 6-14 | 1342 | [signature] | 6-14 | 13:46 |
| Relinquished by: (Signature) | Date | Time | Received by: (Signature) | Date | Time |

Lab Use Only
**Received on Ice Y / N
T1_____ T2_____ T3_____
AVG Temp °C_____

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____
Container Type: g - glass, p - poly/plastic, ag - amber glass

**Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

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

Chain of Custody

Notes/Billing info:

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# Analysis Certificate

Analysis Requested: **GPA 2286_14**

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | Federal 18-1T | Compensations: | Air Free |
| Meter ID: | FarLH | Date Reported: | 6/28/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 6/14/16 |
| Analyzed by: | Administrator | Date Received: | 6/14/16 |
| Sample Pressure: | 9 psig | Date Analyzed: | 6/28/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

| Components | Mol % | Wt % | GPM Total | (gal/ideal MCF) |
|---|---|---|---|---|
| Nitrogen | 2.0547 | 2.8347 | | |
| Carbon Dioxide | 1.5742 | 3.4119 | | |
| Methane | 81.1227 | 64.0924 | | |
| Ethane | 9.0217 | 13.3597 | GPM C2+ | 4.387 |
| Propane | 3.6418 | 7.9086 | GPM C3+ | 1.961 |
| Iso-Butane | 0.5828 | 1.6682 | | |
| N-Butane | 0.9614 | 2.7519 | | |
| Iso-Pentane | 0.4433 | 1.5751 | GPM iC5+ | 0.434 |
| N-Pentane | 0.2887 | 1.0258 | | |
| iso-Hexanes | 0.1518 | 0.6445 | | |
| Benzene | 0.0150 | 0.0578 | | |
| n-Hexane | 0.0490 | 0.2079 | | |
| iso-Heptanes | 0.0613 | 0.3026 | | |
| Toluene | 0.0091 | 0.0415 | | |
| n-Heptane | 0.0137 | 0.0676 | | |
| iso-Octanes | 0.0041 | 0.023 | | |
| n-Octane | 0.0014 | 0.0078 | | |
| EthylBenzene | 0.0001 | 0.0007 | | |
| Xylenes | 0.0010 | 0.005 | | |
| iso-Nonanes | 0.0017 | 0.0105 | | |
| n-Nonane | 0.0003 | 0.0018 | | |
| iso-Decane | 0.0001 | 0.0004 | | |
| n-Decane | 0.0001 | 0.0006 | | |
| Totals | 100.0000 | 100.0000 | | |

## GPA Standard 2172-09 Calculations

| | | | | |
|---|---|---|---|---|
| Compressibility Factor: | 0.997 | | Base Pressure: | 14.696 psi |
| Real Gas Relative Density: | 0.703 | | Base Temperature: | 60 F |
| Dry Molecular Weight: | 20.305 | g/mol | C6+ Dry Molecular Weight | 90.231 g/mol |
| Real Gas Dry BTU per ft3: | 1169.84 | BTU/ft3 | | |

# Analysis Certificate

Analysis Requested: GPA 2286_14

| | | | |
|---|---|---|---|
| Client: | XTO | Project #: | 98031-0528 |
| Site Name: | Federal 18-1T | Compensations: | Air Free |
| Meter ID: | FarLH | Date Reported: | 6/28/2016 |
| Sampled by: | Logan Hixon | Date Sampled: | 6/14/16 |
| Analyzed by: | Administrator | Date Received: | 6/14/16 |
| Sample Pressure: | 9 psig | Date Analyzed: | 6/28/16 |
| Sample Temperature: | N/R | Analysis Time: | Std |

**ND = Parameter not detected at the stated detection limit.** **N/R = Parameter not recorded**

Analyst
Rene Garcia Reyes
Printed

Review
Irene Yazzie
Printed

**Comments:** No comments

**Note: The above analyses are performed in compliance with GPA 2286_14 quality assurance procedures.**

References: GPA 2286_14, TP-17, GPA Standard 2145-09 and GPA Standard 2172-09