

RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT AS-DRILLED PLAT

¹ API Number 30-015-43717	² Pool Code 96217	³ Pool Name WILLOW LAKE; BONE SPRING, SE
⁴ Property Code 314121	⁵ Property Name CORRAL CANYON FEDERAL COM	
⁷ OGRID No. 005380	⁸ Operator Name XTO ENERGY, INC.	⁶ Well Number 18H ⁹ Elevation 2,948'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	9	25 S	29 E		175	NORTH	2,030	WEST	EDDY

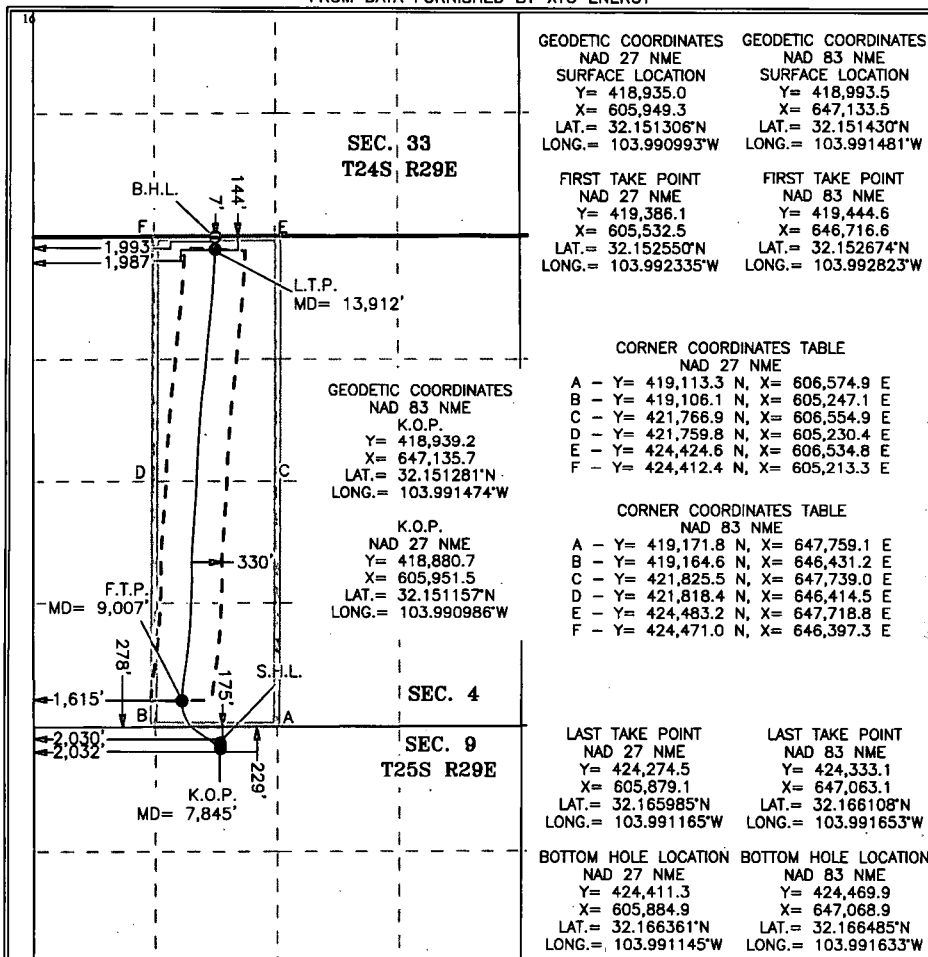
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	4	25 S	29 E		7	NORTH	1,993	WEST	EDDY

¹² Dedicated Acres 159.85	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NOTE: AS-DRILLED BOTTOM HOLE PLOTTED
FROM DATA FURNISHED BY XTO ENERGY

¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Cheryl Rowell 12/19/19
Signature Date

Cheryl Rowell

Printed Name

cheryl_rowell@xtoenergy.com

E-mail Address

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

12-19-2019

Date of Survey

Signature and Seal of
Professional Surveyor:

MARK DILLON HARP 23786
Certificate Number



JC

2017101682

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Intent ☐ As Drilled ☒

DEC 26 2019

API #
30-015-43717

DISTRICT 7 - ARTESIA O.C.D.

Operator Name:
XTO ENERGY INC.Property Name:
CORRAL CANYON FEDERALWell Number
18H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
C	9	25S	29E		229	FNL	2032	FWL	EDDY
Latitude					Longitude				NAD
32.151281					103.991474				83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
N	4	25S	29E		1984	FSL	388	FWL	EDDY
Latitude					Longitude				NAD
32.152674					103.992823				83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
3	4	25S	29E		144	FNL	1987	FWL	EDDY
Latitude					Longitude				NAD
32.166108					103.991653				83

Is this well the defining well for the Horizontal Spacing Unit?

☒ YES

Is this well an infill well?

☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

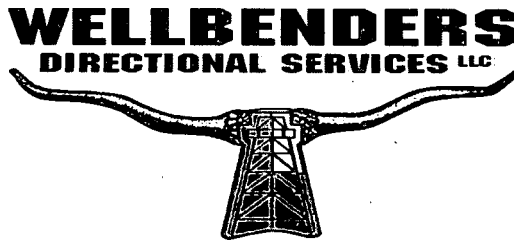
API #

Operator Name:

Property Name:

Well Number

KZ 06/29/2018



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DEC 26 2019

DISTRICT 7 - ARTESIA O.C.D.

State of New Mexico
County of Eddy

I, Jeremy Esqueda, certify that: I am employed by WellBenders Directional Services LLC; that I did on the day(s) of November 29, 2018 through December 7, 2019 conduct or supervise the taking of MWD Directional Survey from a depth of 0 feet to a depth of 7,785 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by WellBenders Directional Services LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of XTO Energy Inc. for the State of New Mexico; Well: Corral Canyon Fed 18H in Eddy County; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by WellBenders Directional Services LLC.

Jeremy Esqueda
(Sign Name)

Jeremy Esqueda
MWD Manager
Digitally Signed By Jeremy Esqueda



Survey Report

DEC 26 2019

DISTRICT/ARTESIA O.C.D.



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Corral Canyon Federal #18H
Project:	Eddy County, NM	TVD Reference:	RKB @ 2975.0usft (Frontier #27)
Site:	Sec 9, T25S, R29E	MD Reference:	RKB @ 2975.0usft (Frontier #27)
Well:	Corral Canyon Federal #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 9, T25S, R29E		
Site Position:	Map	Northing:	418,934.60 usft
From:		Easting:	605,899.30 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 9' 4.699 N
		Longitude:	103° 59' 28.157 W
		Grid Convergence:	0.18 °

Well	Corral Canyon Federal #18H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 9' 4.702 N
		Longitude:	103° 59' 27.575 W
		Ground Level:	2,948.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/7/2018	6.98
			Dip Angle
			(°)
			59.91
			Field Strength
			(nT)
			47,702.62247874

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.18

Survey Program	Date 12/16/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
174.0	7,785.0	WellBenders MWD (Wellbore #1)	MWD
7,835.0	14,049.0	QES MWD Survey (Wellbore #1)	MWD
			Description
			OWSG MWD - Standard
			OWSG MWD - Standard

Survey			
Measured	Inclination	Azimuth	Vertical
Depth	(°)	(°)	Depth
(usft)			(usft)
			+N/-S
			(usft)
			+E/-W
			(usft)
			Vertical
			Section
			(usft)
			Dogleg
			Rate
			(°/100usft)
			Build
			Rate
			(°/100usft)
			Turn
			Rate
			(°/100usft)
0.0	0.00	0.00	0.0
174.0	0.20	45.90	174.0
267.0	0.80	45.90	267.0
353.0	0.80	35.20	353.0
418.0	0.90	19.20	418.0
474.0	1.00	14.00	474.0
534.0	1.20	27.40	534.0
633.0	1.20	358.60	632.9
729.0	1.30	357.60	728.9
824.0	1.50	347.90	823.9
			10.8
			2.8
			10.8
			0.33
			0.21
			-10.21



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
920.0	1.70	343.80	919.9	13.4	2.1	13.4	0.24	0.21	-4.27
1,016.0	1.60	342.40	1,015.8	16.1	1.3	16.1	0.11	-0.10	-1.46
1,112.0	1.80	338.50	1,111.8	18.8	0.3	18.7	0.24	0.21	-4.06
1,207.0	0.90	358.70	1,206.7	20.9	-0.2	20.9	1.06	-0.95	21.26
1,302.0	0.20	0.70	1,301.7	21.8	-0.2	21.8	0.74	-0.74	2.11
1,397.0	0.10	277.40	1,396.7	22.0	-0.3	22.0	0.22	-0.11	-87.68
1,493.0	0.20	299.90	1,492.7	22.1	-0.5	22.1	0.12	0.10	23.44
1,589.0	0.40	305.00	1,588.7	22.3	-1.0	22.4	0.21	0.21	5.31
1,683.0	0.80	305.40	1,682.7	22.9	-1.8	22.9	0.43	0.43	0.43
1,779.0	0.90	305.00	1,778.7	23.7	-2.9	23.8	0.10	0.10	-0.42
1,873.0	1.10	297.00	1,872.7	24.6	-4.3	24.6	0.26	0.21	-8.51
1,968.0	0.50	245.00	1,967.7	24.8	-5.5	24.9	0.93	-0.63	-54.74
2,062.0	0.50	204.00	2,061.7	24.3	-6.1	24.3	0.37	0.00	-43.62
2,157.0	0.90	119.50	2,156.7	23.5	-5.6	23.6	1.04	0.42	-88.95
2,253.0	1.90	118.80	2,252.7	22.4	-3.5	22.4	1.04	1.04	-0.73
2,347.0	2.00	142.40	2,346.6	20.3	-1.2	20.3	0.85	0.11	25.11
2,443.0	2.60	134.70	2,442.5	17.5	1.4	17.4	0.70	0.63	-8.02
2,538.0	3.40	127.40	2,537.4	14.2	5.2	14.2	0.93	0.84	-7.68
2,633.0	3.40	141.80	2,632.2	10.3	9.1	10.2	0.90	0.00	15.16
2,729.0	3.90	141.30	2,728.0	5.5	13.0	5.3	0.52	0.52	-0.52
2,818.0	4.00	139.80	2,816.8	0.8	16.8	0.6	0.16	0.11	-1.69
2,949.0	3.50	138.50	2,947.5	-5.7	22.4	-6.0	0.39	-0.38	-0.99
3,045.0	2.40	148.60	3,043.4	-9.6	25.4	-10.0	1.26	-1.15	10.52
3,141.0	2.40	144.50	3,139.3	-12.9	27.6	-13.3	0.18	0.00	-4.27
3,236.0	1.50	162.10	3,234.3	-15.8	29.2	-16.2	1.13	-0.95	18.53
3,330.0	1.40	174.40	3,328.2	-18.1	29.7	-18.5	0.35	-0.11	13.09
3,426.0	1.40	178.30	3,424.2	-20.4	29.8	-20.8	0.10	0.00	4.06
3,520.0	1.00	179.40	3,518.2	-22.4	29.9	-22.8	0.43	-0.43	1.17
3,615.0	0.90	179.40	3,613.2	-23.9	29.9	-24.4	0.11	-0.11	0.00
3,710.0	1.00	182.30	3,708.2	-25.5	29.9	-25.9	0.12	0.11	3.05
3,805.0	0.80	175.40	3,803.2	-27.0	29.9	-27.4	0.24	-0.21	-7.26
3,901.0	0.80	188.00	3,899.2	-28.3	29.8	-28.8	0.18	0.00	13.13
3,997.0	0.70	170.40	3,995.1	-29.6	29.8	-30.0	0.26	-0.10	-18.33
4,090.0	0.60	160.00	4,088.1	-30.6	30.1	-31.0	0.17	-0.11	-11.18
4,185.0	0.90	193.20	4,183.1	-31.8	30.1	-32.2	0.54	0.32	34.95
4,280.0	0.80	188.30	4,278.1	-33.2	29.8	-33.6	0.13	-0.11	-5.16
4,375.0	0.60	106.00	4,373.1	-34.0	30.2	-34.4	0.98	-0.21	-86.63
4,468.0	0.50	171.00	4,466.1	-34.5	30.8	-34.9	0.64	-0.11	69.89
4,563.0	0.60	184.80	4,561.1	-35.4	30.8	-35.8	0.17	0.11	14.53
4,658.0	0.50	204.80	4,656.1	-36.3	30.6	-36.7	0.23	-0.11	21.05
4,753.0	0.50	197.80	4,751.1	-37.1	30.3	-37.5	0.06	0.00	-7.37
4,848.0	0.50	198.30	4,846.1	-37.8	30.0	-38.3	0.00	0.00	0.53
4,943.0	0.70	212.00	4,941.1	-38.7	29.6	-39.1	0.26	0.21	14.42



Survey Report



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Corral Canyon Federal #18H
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Site:	Sec 9, T25S, R29E	MD Reference:	RKB @ 2975.0usft (Frontier #27)
Well:	Corral Canyon Federal #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,038.0	0.80	208.80	5,036.1	-39.8	28.9	-40.2	0.11	0.11	-3.37	
5,133.0	0.80	214.60	5,131.1	-40.9	28.2	-41.3	0.09	0.00	6.11	
5,229.0	1.10	223.20	5,227.1	-42.2	27.2	-42.5	0.35	0.31	8.96	
5,324.0	1.30	228.70	5,322.0	-43.5	25.8	-43.9	0.24	0.21	5.79	
5,419.0	1.50	228.00	5,417.0	-45.1	24.1	-45.4	0.21	0.21	-0.74	
5,515.0	1.30	224.00	5,513.0	-46.7	22.4	-47.0	0.23	-0.21	-4.17	
5,610.0	1.10	225.90	5,608.0	-48.1	21.0	-48.4	0.21	-0.21	2.00	
5,706.0	1.00	215.20	5,703.9	-49.4	19.8	-49.7	0.23	-0.10	-11.15	
5,801.0	1.20	213.40	5,798.9	-50.9	18.8	-51.2	0.21	0.21	-1.89	
5,895.0	1.30	221.40	5,892.9	-52.6	17.6	-52.8	0.21	0.11	8.51	
5,991.0	1.40	209.20	5,988.9	-54.4	16.3	-54.6	0.32	0.10	-12.71	
6,087.0	1.30	203.80	6,084.9	-56.4	15.2	-56.6	0.17	-0.10	-5.63	
6,181.0	1.10	204.10	6,178.8	-58.2	14.5	-58.4	0.21	-0.21	0.32	
6,276.0	1.10	193.50	6,273.8	-59.9	13.9	-60.1	0.21	0.00	-11.16	
6,370.0	1.10	192.90	6,367.8	-61.7	13.5	-61.9	0.01	0.00	-0.64	
6,466.0	1.10	187.00	6,463.8	-63.5	13.1	-63.7	0.12	0.00	-6.15	
6,561.0	0.60	181.20	6,558.8	-64.9	13.0	-65.1	0.53	-0.53	-6.11	
6,656.0	0.50	192.10	6,653.8	-65.8	12.9	-66.0	0.15	-0.11	11.47	
6,751.0	0.50	223.00	6,748.8	-66.5	12.5	-66.7	0.28	0.00	32.53	
6,846.0	1.30	266.50	6,843.7	-66.9	11.2	-67.0	1.05	0.84	45.79	
6,941.0	1.90	273.40	6,938.7	-66.9	8.5	-67.0	0.66	0.63	7.26	
7,037.0	2.20	289.00	7,034.6	-66.2	5.2	-66.2	0.66	0.31	16.25	
7,133.0	2.10	326.50	7,130.6	-64.1	2.5	-64.1	1.44	-0.10	39.06	
7,229.0	1.80	334.40	7,226.5	-61.3	0.9	-61.3	0.42	-0.31	8.23	
7,324.0	0.90	335.20	7,321.5	-59.3	-0.1	-59.2	0.95	-0.95	0.84	
7,420.0	0.30	313.00	7,417.5	-58.4	-0.6	-58.4	0.66	-0.63	-23.13	
7,515.0	0.50	46.60	7,512.5	-57.9	-0.5	-57.9	0.63	0.21	98.53	
7,610.0	1.30	54.30	7,607.5	-57.0	0.7	-57.0	0.85	0.84	8.11	
7,703.0	0.70	59.30	7,700.5	-56.1	2.1	-56.1	0.65	-0.65	5.38	
MWD Tie In @ 7785.0' MD / 7782.5' TVD										
7,785.0	0.90	18.70	7,782.5	-55.3	2.7	-55.3	0.71	0.24	-49.51	
7,835.0	1.10	326.90	7,832.5	-54.5	2.6	-54.5	1.78	0.40	-103.60	
7,882.0	3.40	303.20	7,879.4	-53.3	1.1	-53.4	5.18	4.89	-50.43	
7,930.0	5.90	301.60	7,927.3	-51.3	-2.1	-51.2	5.21	5.21	-3.33	
7,977.0	8.40	304.90	7,973.9	-48.0	-7.0	-47.9	5.39	5.32	7.02	
8,025.0	10.30	310.00	8,021.2	-43.3	-13.2	-43.1	4.31	3.96	10.63	
8,072.0	10.60	318.50	8,067.5	-37.3	-19.3	-37.1	3.34	0.64	18.09	
8,120.0	11.00	317.20	8,114.6	-30.7	-25.3	-30.3	0.98	0.83	-2.71	
8,168.0	13.10	310.60	8,161.6	-23.8	-32.5	-23.3	5.23	4.38	-13.75	
8,216.0	20.00	304.40	8,207.5	-15.6	-43.5	-15.0	14.82	14.38	-12.92	
8,263.0	27.70	303.00	8,250.5	-5.1	-59.3	-4.2	16.43	16.38	-2.98	
8,312.0	34.50	303.90	8,292.4	8.9	-80.4	10.0	13.91	13.88	1.84	
8,359.0	39.60	306.20	8,329.9	25.2	-103.5	26.6	11.24	10.85	4.89	

Quintana Energy Services

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678



Survey Certification Sheet

Company	Job Number	Date
XTO Energy, Inc.	WT-181446	12/17/2018

Lease	Well Name	County & State
SEC 9, T-25S, R29E	Corral Canyon Federal #18H	Eddy County, NM

API No.	Survey Depth Range	Survey Type
30-015-43717	7785 feet to 14049 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Bill Kitchens

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

**Kristopher
Ray**

Digitally signed by Kristopher Ray
DN: cn=Kristopher Ray, o=Regulatory
Compliance Manager, ou=QED DD,
email=kris.ray@qesinc.com, c=US
Date: 2019.12.19 11:32:06 -06'00'

Christopher Hughes
MWD Compliance Manager
Quintana Energy Services



XTO ENERGY, INC.

Eddy County, NM

Sec 9, T25S, R29E

Corral Canyon Federal #18H

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

16 December, 2018





QES Survey Certification Report



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Corral Canyon Federal #18H
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Well:	Corral Canyon Federal #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 9, T25S, R29E		
Site Position:		Northing:	418,934.60 usft
From:	Map	Easting:	605,899.30 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Grid Convergence:	0.18 °

Well	Corral Canyon Federal #18H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
			Ground Level:

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/7/2018.	6.98
			Dip Angle
			(°)
			Field Strength
			(nT)
			47,702.62247874

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.18

Survey Program	Date 12/16/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
174.0	7,785.0	WellBenders MWD (Wellbore #1)	MWD
7,835.0	14,049.0	QES MWD Survey (Wellbore #1)	MWD
			Description
			OWSG MWD - Standard
			OWSG MWD - Standard

Survey			
MD	Inc	Azi (azimuth)	TVD
(usft)	(°)	(°)	(usft)
7,785.0	0.90	18.70	7,782.5
			N/S
			(usft)
			E/W
			(usft)
			Closure Distance
			(usft)
			Closure Azimuth
			(°)
			177.21
MWD Tie In @ 7785.0' MD / 7782.5' TVD			
7,835.0	1.10	326.90	7,832.5
7,882.0	3.40	303.20	7,879.4
7,930.0	5.90	301.60	7,927.3
7,977.0	8.40	304.90	7,973.9
8,025.0	10.30	310.00	8,021.2
8,072.0	10.60	318.50	8,067.5
8,120.0	11.00	317.20	8,114.6
8,168.0	13.10	310.60	8,161.6
8,216.0	20.00	304.40	8,207.5
			-55.3
			2.7
			55.3
			177.31
			178.77
			182.40
			188.32
			196.94
			207.30
			219.52
			233.86
			250.28



QES Survey Certification Report



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Corral Canyon Federal #18H
Project:	Eddy County, NM	TVD Reference:	RKB @ 2975.0usft (Frontier #27)
Site:	Sec 9, T25S, R29E	MD Reference:	RKB @ 2975.0usft (Frontier #27)
Well:	Corral Canyon Federal #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
8,263.0	27.70	303.00	8,250.5	-5.1	-59.3	59.5	265.11
8,312.0	34.50	303.90	8,292.4	8.9	-80.4	80.9	276.31
8,359.0	39.60	306.20	8,329.9	25.2	-103.5	106.5	283.66
8,408.0	44.50	304.90	8,366.3	44.2	-130.2	137.5	288.76
8,455.0	49.90	303.20	8,398.2	63.5	-158.8	171.0	291.80
8,502.0	53.90	302.30	8,427.2	83.5	-189.9	207.5	293.74
8,549.0	57.70	302.30	8,453.6	104.3	-222.8	246.0	295.08
8,597.0	60.90	304.00	8,478.1	126.8	-257.3	286.9	296.24
8,644.0	59.00	310.70	8,501.7	151.5	-289.6	326.9	297.61
8,692.0	59.10	318.50	8,526.4	180.4	-318.9	366.4	299.49
8,739.0	63.00	325.30	8,549.2	212.7	-344.2	404.6	301.72
8,787.0	66.00	330.80	8,569.9	249.5	-367.1	443.8	304.20
8,834.0	67.40	338.00	8,588.5	288.4	-385.7	481.6	306.78
8,882.0	70.50	343.40	8,605.7	330.6	-400.5	519.3	309.54
8,929.0	76.10	350.10	8,619.2	374.4	-410.8	555.8	312.35
8,977.0	82.70	356.40	8,628.1	421.2	-416.3	592.2	315.34
9,024.0	89.00	1.20	8,631.5	468.0	-417.3	627.0	318.28
9,072.0	90.10	3.60	8,631.8	516.0	-415.3	662.3	321.17
9,167.0	90.00	5.90	8,631.8	610.7	-407.4	734.1	326.29
9,261.0	89.70	9.30	8,632.0	703.8	-395.0	807.1	330.70
9,357.0	91.20	8.20	8,631.3	798.7	-380.4	884.6	334.54
9,451.0	93.30	7.70	8,627.6	891.7	-367.4	964.4	337.61
9,546.0	92.40	5.90	8,622.8	985.9	-356.1	1,048.3	340.14
9,641.0	90.40	5.40	8,620.5	1,080.4	-346.8	1,134.7	342.21
9,735.0	91.50	4.50	8,619.0	1,174.1	-338.7	1,221.9	343.91
9,829.0	90.90	3.50	8,617.0	1,267.8	-332.1	1,310.6	345.32
9,933.0	88.10	2.20	8,617.9	1,371.7	-326.9	1,410.1	346.59
10,027.0	88.70	2.10	8,620.5	1,465.6	-323.4	1,500.8	347.56
10,122.0	90.90	2.60	8,620.9	1,560.5	-319.5	1,592.9	348.43
10,217.0	91.10	1.70	8,619.2	1,655.4	-316.0	1,685.3	349.19
10,312.0	88.00	359.20	8,619.9	1,750.4	-315.2	1,778.5	349.79
10,408.0	88.90	358.90	8,622.5	1,846.3	-316.8	1,873.3	350.26
10,502.0	89.80	0.50	8,623.6	1,940.3	-317.3	1,966.1	350.71
10,597.0	91.10	2.40	8,622.9	2,035.3	-314.9	2,059.5	351.21
10,689.0	90.00	4.20	8,622.0	2,127.1	-309.6	2,149.5	351.72
10,784.0	91.80	4.90	8,620.5	2,221.8	-302.1	2,242.2	352.26
10,878.0	90.00	3.10	8,619.0	2,315.6	-295.5	2,334.3	352.73
10,973.0	89.70	4.30	8,619.3	2,410.4	-289.4	2,427.7	353.15
11,066.0	91.20	4.70	8,618.5	2,503.1	-282.1	2,518.9	353.57
11,162.0	90.40	3.80	8,617.2	2,598.8	-275.0	2,613.3	353.96
11,257.0	90.10	3.10	8,616.8	2,693.6	-269.2	2,707.0	354.29
11,352.0	90.70	2.90	8,616.1	2,788.5	-264.3	2,801.0	354.59
11,447.0	89.90	1.90	8,615.6	2,883.4	-260.3	2,895.1	354.84
11,543.0	88.80	0.50	8,616.7	2,979.4	-258.3	2,990.5	355.05



QES Survey Certification Report



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Site:	Sec 9, T25S, R29E	MD Reference:	RKB @ 2975.0usft (Frontier #27)
Well:	Corral Canyon Federal #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature.
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
11,636.0	89.10	1.70	8,618.4	3,072.3	-256.5	3,083.0	355.23
11,731.0	90.10	4.90	8,619.1	3,167.2	-251.0	3,177.1	355.47
11,827.0	90.50	4.00	8,618.6	3,262.9	-243.6	3,271.9	355.73
11,921.0	90.30	2.20	8,617.9	3,356.7	-238.5	3,365.2	355.94
12,014.0	89.80	4.00	8,617.8	3,449.6	-233.5	3,457.5	356.13
12,111.0	88.30	4.70	8,619.4	3,546.3	-226.1	3,553.5	356.35
12,206.0	88.20	4.90	8,622.3	3,640.9	-218.2	3,647.4	356.57
12,302.0	88.60	5.60	8,625.0	3,736.5	-209.4	3,742.3	356.79
12,398.0	90.70	6.80	8,625.6	3,831.9	-199.0	3,837.1	357.03
12,493.0	91.50	6.40	8,623.8	3,926.2	-188.1	3,930.7	357.26
12,587.0	93.20	6.30	8,619.9	4,019.6	-177.7	4,023.5	357.47
12,682.0	93.60	5.00	8,614.3	4,114.0	-168.4	4,117.4	357.66
12,779.0	92.50	4.50	8,609.1	4,210.5	-160.4	4,213.5	357.82
12,874.0	90.00	4.70	8,607.1	4,305.1	-152.7	4,307.9	357.97
12,970.0	88.10	5.90	8,608.7	4,400.7	-143.9	4,403.1	358.13
13,065.0	89.50	5.70	8,610.6	4,495.2	-134.3	4,497.2	358.29
13,160.0	88.50	6.40	8,612.3	4,589.7	-124.3	4,591.3	358.45
13,256.0	89.80	5.70	8,613.7	4,685.1	-114.2	4,686.5	358.60
13,352.0	89.00	5.20	8,614.7	4,780.7	-105.0	4,781.8	358.74
13,448.0	90.70	4.00	8,615.0	4,876.4	-97.3	4,877.3	358.86
13,541.0	91.00	3.80	8,613.6	4,969.1	-91.0	4,970.0	358.95
13,636.0	88.70	3.60	8,613.8	5,063.9	-84.9	5,064.6	359.04
13,732.0	90.20	3.30	8,614.8	5,159.7	-79.1	5,160.4	359.12
13,828.0	92.10	2.60	8,612.8	5,255.6	-74.2	5,256.1	359.19
13,924.0	90.30	2.80	8,610.8	5,351.5	-69.6	5,351.9	359.25
13,999.0	91.40	2.20	8,609.7	5,426.4	-66.4	5,426.8	359.30
14,049.0	91.40	2.20	8,608.5	5,476.3	-64.5	5,476.7	359.33
TD @ 14049.0' MD / 8608.5' TVD							

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,785.0	7,782.5	-55.3	2.7	MWD Tie In @ 7785.0' MD / 7782.5' TVD
14,049.0	8,608.5	5,476.3	-64.5	TD @ 14049.0' MD / 8608.5' TVD

Checked By: _____ Approved By: _____ Date: _____