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Directional Survey



NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 21 2018

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XTO ENERGY, INC.

Eddy County, NM
Sec 31, T26S, R30E
Ross Draw 3031 Fed #6H

30. 015-45121

Wellbore #1

Design: Wellbore #1

QES Survey Report

19 December, 2018





Survey Report



Company: XTO ENERGY, INC.
 Project: Eddy County, NM
 Site: Sec 31, T26S, R30E
 Well: Ross Draw 3031 Fed #6H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Ross Draw 3031 Fed #6H
 TVD Reference: RKB @ 2939.5usft (Akita #22)
 MD Reference: RKB @ 2939.5usft (Akita #22)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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 31, T26S, R30E				
Site Position:		Northing:	364,129.80 usft	Latitude:	32° 0' 1.646 N
From:	Map	Easting:	625,809.10 usft	Longitude:	103° 55' 38.964 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	Ross Draw 3031 Fed #6H					
Well Position	+N/-S	0.0 usft	Northing:	364,148.70 usft	Latitude:	32° 0' 1.662 N
	+E/-W	0.0 usft	Easting:	630,334.90 usft	Longitude:	103° 54' 46.406 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,918.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/17/2018	6.96	59.79	47,643.86747270

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	358.22	

Survey Program	Date	10/21/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
251.0	9,704.0	Bloodhound MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	
9,789.0	22,980.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
251.0	0.50	120.48	251.0	-0.6	0.9	-0.6	0.20	0.20	0.00
347.0	0.20	94.08	347.0	-0.8	1.5	-0.8	0.35	-0.31	-27.50
440.0	2.80	332.58	440.0	1.2	0.6	1.2	3.13	2.80	-130.65
534.0	2.50	340.18	533.9	5.2	-1.2	5.2	0.49	-0.32	8.09
628.0	2.50	349.38	627.8	9.1	-2.2	9.2	0.43	0.00	9.79
687.0	2.10	349.88	686.7	11.5	-2.7	11.5	0.68	-0.68	0.85
739.0	2.30	347.78	738.7	13.4	-3.1	13.5	0.41	0.38	-4.04
833.0	1.90	352.48	832.6	16.8	-3.7	16.9	0.46	-0.43	5.00
926.0	1.30	355.88	925.6	19.4	-3.9	19.5	0.65	-0.65	3.66



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1,021.0	1.50	345.18	1,020.6	21.7	-4.3	21.8	0.35	0.21	-11.26
1,115.0	1.10	344.48	1,114.5	23.7	-4.9	23.9	0.43	-0.43	-0.74
1,210.0	1.00	327.08	1,209.5	25.3	-5.6	25.5	0.35	-0.11	-18.32
1,304.0	1.00	315.48	1,303.5	26.6	-6.6	26.8	0.22	0.00	-12.34
1,399.0	0.90	305.98	1,398.5	27.6	-7.8	27.8	0.20	-0.11	-10.00
1,495.0	0.90	306.08	1,494.5	28.5	-9.0	28.8	0.00	0.00	0.10
1,588.0	0.50	322.38	1,587.5	29.2	-9.8	29.5	0.48	-0.43	17.53
1,682.0	1.00	313.18	1,681.5	30.1	-10.7	30.4	0.55	0.53	-9.79
1,777.0	0.90	290.68	1,776.4	31.0	-12.0	31.3	0.40	-0.11	-23.68
1,871.0	0.90	304.48	1,870.4	31.6	-13.3	32.0	0.23	0.00	14.68
1,963.0	1.20	313.88	1,962.4	32.7	-14.6	33.2	0.37	0.33	10.22
2,057.0	1.80	306.28	2,056.4	34.3	-16.5	34.8	0.67	0.64	-8.09
2,150.0	1.70	281.58	2,149.3	35.4	-19.0	36.0	0.81	-0.11	-26.56
2,243.0	1.50	296.98	2,242.3	36.2	-21.5	36.9	0.51	-0.22	16.56
2,336.0	2.00	291.68	2,335.3	37.4	-24.0	38.1	0.56	0.54	-5.70
2,430.0	0.90	309.18	2,429.2	38.5	-26.1	39.3	1.25	-1.17	18.62
2,523.0	0.90	82.48	2,522.2	39.0	-26.0	39.8	1.78	0.00	143.33
2,617.0	1.00	84.68	2,616.2	39.2	-24.4	39.9	0.11	0.11	2.34
2,710.0	0.50	146.08	2,709.2	38.9	-23.4	39.6	0.94	-0.54	66.02
2,803.0	3.80	116.08	2,802.1	37.2	-20.4	37.9	3.63	3.55	-32.26
2,898.0	3.20	114.38	2,897.0	34.8	-15.2	35.2	0.64	-0.63	-1.79
2,992.0	2.70	112.58	2,990.8	32.8	-10.7	33.1	0.54	-0.53	-1.91
3,087.0	1.10	121.78	3,085.8	31.5	-7.9	31.7	1.71	-1.68	9.68
3,180.0	1.00	119.48	3,178.8	30.6	-6.4	30.8	0.12	-0.11	-2.47
3,274.0	1.20	116.68	3,272.7	29.8	-4.8	29.9	0.22	0.21	-2.98
3,369.0	1.20	116.48	3,367.7	28.9	-3.0	29.0	0.00	0.00	-0.21
3,464.0	1.50	104.48	3,462.7	28.1	-1.0	28.1	0.43	0.32	-12.63
3,559.0	1.40	99.38	3,557.7	27.6	1.4	27.6	0.17	-0.11	-5.37
3,654.0	1.40	114.58	3,652.6	27.0	3.6	26.8	0.39	0.00	16.00
3,749.0	1.50	114.58	3,747.6	26.0	5.8	25.8	0.11	0.11	0.00
3,843.0	1.10	114.08	3,841.6	25.1	7.7	24.8	0.43	-0.43	-0.53
3,938.0	1.50	113.38	3,936.6	24.2	9.7	23.9	0.42	0.42	-0.74
4,032.0	1.20	106.38	4,030.5	23.4	11.8	23.1	0.36	-0.32	-7.45
4,127.0	1.20	108.38	4,125.5	22.9	13.7	22.4	0.04	0.00	2.11
4,220.0	1.40	115.58	4,218.5	22.1	15.6	21.6	0.28	0.22	7.74
4,314.0	0.90	125.28	4,312.5	21.1	17.3	20.6	0.57	-0.53	10.32
4,409.0	0.90	131.48	4,407.5	20.2	18.4	19.6	0.10	0.00	6.53
4,503.0	1.10	119.28	4,501.4	19.3	19.8	18.7	0.31	0.21	-12.98
4,598.0	1.20	106.48	4,596.4	18.6	21.5	17.9	0.29	0.11	-13.47
4,694.0	0.70	115.88	4,692.4	18.0	23.0	17.3	0.54	-0.52	9.79
4,789.0	1.10	103.08	4,787.4	17.6	24.4	16.8	0.47	0.42	-13.47
4,884.0	1.10	100.68	4,882.4	17.2	26.2	16.4	0.05	0.00	-2.53
4,979.0	0.80	134.28	4,977.4	16.5	27.6	15.7	0.65	-0.32	35.37



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5,073.0	0.50	125.08	5,071.4	15.8	28.4	15.0	0.34	-0.32	-9.79
5,167.0	0.70	133.88	5,165.4	15.2	29.1	14.3	0.23	0.21	9.36
5,260.0	0.50	122.38	5,258.4	14.6	29.9	13.7	0.25	-0.22	-12.37
5,355.0	1.10	138.78	5,353.3	13.7	30.8	12.7	0.67	0.63	17.26
5,450.0	1.10	139.78	5,448.3	12.3	32.0	11.3	0.02	0.00	1.05
5,546.0	1.20	167.98	5,544.3	10.6	32.8	9.6	0.59	0.10	29.38
5,640.0	1.10	159.18	5,638.3	8.8	33.4	7.8	0.22	-0.11	-9.36
5,735.0	1.10	158.78	5,733.3	7.1	34.0	6.1	0.01	0.00	-0.42
5,830.0	1.30	87.68	5,828.3	6.3	35.4	5.2	1.48	0.21	-74.84
5,927.0	1.10	175.48	5,925.2	5.4	36.6	4.3	1.72	-0.21	90.52
6,021.0	1.50	169.58	6,019.2	3.3	36.9	2.2	0.45	0.43	-6.28
6,116.0	1.60	164.18	6,114.2	0.8	37.5	-0.3	0.19	0.11	-5.68
6,211.0	1.10	169.88	6,209.2	-1.4	38.0	-2.5	0.54	-0.53	6.00
6,304.0	1.50	184.58	6,302.1	-3.4	38.0	-4.6	0.56	0.43	15.81
6,398.0	1.20	175.68	6,396.1	-5.7	38.0	-6.8	0.39	-0.32	-9.47
6,492.0	1.70	173.68	6,490.1	-8.0	38.3	-9.2	0.53	0.53	-2.13
6,586.0	1.80	174.68	6,584.0	-10.9	38.5	-12.1	0.11	0.11	1.06
6,680.0	1.50	189.28	6,678.0	-13.6	38.5	-14.8	0.55	-0.32	15.53
6,774.0	1.70	198.88	6,772.0	-16.1	37.8	-17.3	0.36	0.21	10.21
6,868.0	1.90	188.38	6,865.9	-19.0	37.2	-20.1	0.41	0.21	-11.17
6,961.0	1.50	190.78	6,958.9	-21.7	36.7	-22.8	0.44	-0.43	2.58
7,054.0	0.80	203.08	7,051.8	-23.5	36.2	-24.6	0.79	-0.75	13.23
7,148.0	0.10	51.28	7,145.8	-24.0	36.0	-25.1	0.95	-0.74	-161.49
7,243.0	0.20	176.98	7,240.8	-24.1	36.1	-25.2	0.29	0.11	132.32
7,338.0	1.80	189.08	7,335.8	-25.8	35.9	-26.9	1.69	1.68	12.74
7,431.0	1.60	205.18	7,428.8	-28.4	35.1	-29.5	0.55	-0.22	17.31
7,526.0	2.20	243.18	7,523.7	-30.4	32.9	-31.4	1.43	0.63	40.00
7,619.0	1.10	264.08	7,616.7	-31.3	30.4	-32.2	1.33	-1.18	22.47
7,713.0	2.50	216.38	7,710.7	-33.1	28.3	-33.9	2.06	1.49	-50.74
7,808.0	1.50	242.58	7,805.6	-35.3	26.0	-36.1	1.40	-1.05	27.58
7,902.0	2.60	265.18	7,899.5	-36.0	22.8	-36.7	1.43	1.17	24.04
7,997.0	3.10	254.48	7,994.4	-36.9	18.1	-37.5	0.77	0.53	-11.26
8,092.0	3.10	251.98	8,089.3	-38.4	13.2	-38.8	0.14	0.00	-2.63
8,185.0	2.90	253.28	8,182.2	-39.8	8.6	-40.1	0.23	-0.22	1.40
8,278.0	2.90	253.28	8,275.0	-41.2	4.1	-41.3	0.00	0.00	0.00
8,372.0	1.50	257.68	8,369.0	-42.1	0.6	-42.1	1.50	-1.49	4.68
8,466.0	1.60	277.08	8,462.9	-42.2	-1.9	-42.2	0.57	0.11	20.64
8,557.0	1.60	254.08	8,553.9	-42.4	-4.4	-42.3	0.70	0.00	-25.27
8,650.0	2.00	143.98	8,646.9	-44.1	-4.7	-43.9	3.18	0.43	-118.39
8,744.0	4.50	142.88	8,740.7	-48.4	-1.5	-48.3	2.66	2.66	-1.17
8,837.0	4.70	148.88	8,833.4	-54.5	2.7	-54.6	0.56	0.22	6.45
8,931.0	2.80	152.48	8,927.2	-59.9	5.7	-60.0	2.04	-2.02	3.83
9,023.0	1.50	152.18	9,019.1	-62.9	7.3	-63.1	1.41	-1.41	-0.33



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9,117.0	1.40	139.68	9,113.1	-64.9	8.6	-65.1	0.35	-0.11	-13.30	
9,211.0	2.90	161.48	9,207.0	-68.0	10.1	-68.3	1.79	1.60	23.19	
9,304.0	3.30	163.78	9,299.9	-72.8	11.6	-73.2	0.45	0.43	2.47	
9,397.0	2.80	165.68	9,392.8	-77.6	12.9	-78.0	0.55	-0.54	2.04	
9,491.0	2.50	168.28	9,486.7	-81.8	13.9	-82.2	0.34	-0.32	2.77	
9,585.0	1.50	174.68	9,580.6	-85.1	14.5	-85.5	1.09	-1.06	6.81	
9,680.0	1.40	185.58	9,675.6	-87.5	14.5	-87.9	0.31	-0.11	11.47	
MWD Tie-In @ 9704.0' MD / 9699.6' TVD										
9,704.0	1.10	183.18	9,699.6	-88.0	14.4	-88.4	1.27	-1.25	-10.00	
9,789.0	0.80	170.38	9,784.6	-89.4	14.5	-89.8	0.43	-0.35	-15.06	
9,820.0	0.90	196.08	9,815.6	-89.8	14.4	-90.2	1.26	0.32	82.90	
9,915.0	1.10	179.48	9,910.5	-91.5	14.2	-91.9	0.37	0.21	-17.47	
9,978.0	0.40	169.28	9,973.5	-92.3	14.3	-92.7	1.13	-1.11	-16.19	
10,009.0	2.10	330.88	10,004.5	-91.9	14.0	-92.3	8.01	5.48	521.29	
10,041.0	4.50	326.18	10,036.5	-90.3	13.0	-90.7	7.54	7.50	-14.69	
10,072.0	7.00	329.18	10,067.3	-87.7	11.4	-88.0	8.12	8.06	9.68	
10,103.0	9.10	328.58	10,098.0	-84.0	9.2	-84.2	6.78	6.77	-1.94	
10,134.0	12.20	327.58	10,128.5	-79.1	6.1	-79.3	10.02	10.00	-3.23	
10,165.0	15.60	324.68	10,158.6	-73.0	2.0	-73.0	11.19	10.97	-9.35	
10,196.0	16.90	325.98	10,188.3	-65.8	-3.0	-65.7	4.35	4.19	4.19	
10,227.0	18.90	321.78	10,217.8	-58.1	-8.6	-57.9	7.67	6.45	-13.55	
10,258.0	20.70	319.68	10,247.0	-50.0	-15.3	-49.5	6.24	5.81	-6.77	
10,289.0	23.20	319.08	10,275.7	-41.2	-22.8	-40.5	8.10	8.06	-1.94	
10,320.0	25.50	317.18	10,304.0	-31.7	-31.3	-30.7	7.84	7.42	-6.13	
10,352.0	28.10	315.78	10,332.5	-21.3	-41.3	-20.0	8.36	8.13	-4.38	
10,383.0	31.10	315.08	10,359.5	-10.4	-52.0	-8.7	9.74	9.68	-2.26	
10,414.0	34.00	317.78	10,385.6	1.7	-63.5	3.7	10.46	9.35	8.71	
10,446.0	36.20	317.18	10,411.8	15.3	-76.0	17.6	6.96	6.88	-1.88	
10,477.0	38.40	316.38	10,436.5	29.0	-88.8	31.7	7.27	7.10	-2.58	
10,508.0	39.80	318.08	10,460.5	43.3	-102.1	46.5	5.69	4.52	5.48	
10,539.0	41.80	318.18	10,484.0	58.4	-115.6	62.0	6.46	6.45	0.32	
10,570.0	45.40	319.18	10,506.4	74.5	-129.7	78.5	11.82	11.61	3.23	
10,601.0	50.60	319.68	10,527.2	92.0	-144.7	96.4	16.82	16.77	1.61	
10,632.0	55.50	320.78	10,545.8	111.0	-160.5	115.9	16.06	15.81	3.55	
10,663.0	59.70	322.08	10,562.4	131.5	-176.8	136.9	14.00	13.55	4.19	
10,695.0	64.70	324.08	10,577.3	154.1	-193.8	160.0	16.57	15.63	6.25	
10,726.0	69.50	325.48	10,589.4	177.4	-210.3	183.9	16.03	15.48	4.52	
10,754.0	73.80	326.68	10,598.2	199.5	-225.1	206.4	15.89	15.36	4.29	
10,790.0	79.20	327.68	10,606.6	228.9	-244.1	236.3	15.24	15.00	2.78	
10,852.0	88.40	330.98	10,613.3	281.8	-275.5	290.3	15.75	14.84	5.32	
10,883.0	89.50	334.18	10,613.9	309.3	-289.7	318.2	10.91	3.55	10.32	
10,914.0	90.30	337.18	10,613.9	337.6	-302.5	346.8	10.02	2.58	9.68	
10,945.0	90.90	340.68	10,613.6	366.5	-313.7	376.1	11.45	1.94	11.29	
10,978.0	91.60	343.08	10,612.9	397.8	-323.9	407.7	7.57	2.12	7.27	



Survey Report



Company: XTO ENERGY, INC.
 Project: Eddy County, NM
 Site: Sec 31, T28S, R30E
 Well: Ross Draw 3031 Fed #6H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Ross Draw 3031 Fed #6H
 TVD Reference: RKB @ 2939.5usft (Akita #22)
 MD Reference: RKB @ 2939.5usft (Akita #22)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)
11,073.0	92.70	350.88	10,609.3	490.3	-345.3	500.8	8.29	1.16	8.21
11,168.0	87.00	355.88	10,609.5	584.6	-356.2	595.4	7.98	-6.00	5.26
11,263.0	86.90	358.08	10,614.6	679.3	-361.2	690.2	2.31	-0.11	2.32
11,358.0	91.00	359.38	10,616.3	774.2	-363.4	785.2	4.53	4.32	1.37
11,452.0	93.50	359.48	10,612.7	868.1	-364.3	879.1	2.66	2.66	0.11
11,546.0	95.20	358.98	10,605.5	961.9	-365.6	972.8	1.88	1.81	-0.53
11,642.0	93.20	359.58	10,598.5	1,057.6	-366.8	1,068.5	2.17	-2.08	0.63
11,736.0	92.10	0.68	10,594.1	1,151.5	-366.6	1,162.3	1.65	-1.17	1.17
11,831.0	92.90	359.88	10,590.0	1,246.4	-366.1	1,257.2	1.19	0.84	-0.84
11,926.0	91.80	0.48	10,586.1	1,341.3	-365.8	1,352.0	1.32	-1.16	0.63
12,021.0	90.40	2.18	10,584.3	1,436.3	-363.6	1,446.9	2.32	-1.47	1.79
12,116.0	91.60	1.98	10,582.6	1,531.2	-360.2	1,541.6	1.28	1.26	-0.21
12,211.0	89.80	1.68	10,581.5	1,626.1	-357.1	1,636.4	1.92	-1.89	-0.32
12,306.0	89.30	0.78	10,582.2	1,721.1	-355.1	1,731.3	1.08	-0.53	-0.95
12,401.0	89.70	0.28	10,583.0	1,816.1	-354.2	1,826.2	0.67	0.42	-0.53
12,497.0	90.30	0.18	10,583.0	1,912.1	-353.8	1,922.2	0.63	0.63	-0.10
12,591.0	88.40	0.28	10,584.1	2,006.1	-353.5	2,016.1	2.02	-2.02	0.11
12,686.0	89.30	359.58	10,586.0	2,101.1	-353.6	2,111.0	1.20	0.95	-0.74
12,780.0	89.60	358.38	10,586.9	2,195.0	-355.3	2,205.0	1.32	0.32	-1.28
12,875.0	89.50	359.98	10,587.7	2,290.0	-356.6	2,300.0	1.69	-0.11	1.68
12,969.0	89.20	358.08	10,588.7	2,384.0	-358.2	2,394.0	2.05	-0.32	-2.02
13,064.0	89.70	358.08	10,589.6	2,478.9	-361.4	2,489.0	0.53	0.53	0.00
13,159.0	91.80	359.98	10,588.4	2,573.9	-363.0	2,584.0	2.98	2.21	2.00
13,255.0	90.00	0.58	10,586.9	2,669.9	-362.6	2,679.9	1.98	-1.88	0.63
13,350.0	90.70	358.78	10,586.3	2,764.9	-363.1	2,774.8	2.03	0.74	-1.89
13,444.0	91.00	358.38	10,584.9	2,858.8	-365.4	2,868.8	0.53	0.32	-0.43
13,538.0	89.50	356.88	10,584.5	2,952.8	-369.3	2,962.8	2.26	-1.60	-1.60
13,632.0	89.80	358.18	10,585.1	3,046.7	-373.4	3,056.8	1.42	0.32	1.38
13,725.0	91.10	358.68	10,584.3	3,139.6	-375.9	3,149.8	1.50	1.40	0.54
13,819.0	92.00	0.28	10,581.8	3,233.6	-376.8	3,243.7	1.95	0.96	1.70
13,912.0	92.80	359.58	10,577.9	3,326.5	-376.9	3,336.6	1.14	0.86	-0.75
14,006.0	91.80	0.78	10,574.1	3,420.4	-376.6	3,430.5	1.66	-1.06	1.28
14,100.0	89.50	0.78	10,573.1	3,514.4	-375.3	3,524.4	2.45	-2.45	0.00
14,194.0	91.80	1.68	10,572.0	3,608.4	-373.3	3,618.2	2.63	2.45	0.96
14,288.0	89.10	0.98	10,571.3	3,702.3	-371.2	3,712.1	2.97	-2.87	-0.74
14,381.0	90.00	0.98	10,572.0	3,795.3	-369.6	3,805.0	0.97	0.97	0.00
14,475.0	90.70	1.78	10,571.4	3,889.3	-367.3	3,898.8	1.13	0.74	0.85
14,569.0	91.50	2.78	10,569.6	3,983.2	-363.6	3,992.6	1.36	0.85	1.06
14,663.0	90.10	0.78	10,568.3	4,077.1	-360.7	4,086.4	2.60	-1.49	-2.13
14,757.0	89.90	359.58	10,568.3	4,171.1	-360.4	4,180.3	1.29	-0.21	-1.28
14,851.0	89.30	357.98	10,569.0	4,265.1	-362.4	4,274.3	1.82	-0.64	-1.70
14,944.0	89.50	356.58	10,569.9	4,358.0	-366.8	4,367.3	1.52	0.22	-1.51
15,039.0	90.20	357.18	10,570.2	4,452.8	-372.0	4,462.3	0.97	0.74	0.63



Survey Report



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 Design: Wellbore #1

Local Co-ordinate Reference: Well Ross Draw 3031 Fed #6H
 TVD Reference: RKB @ 2939.5usft (Akita #22)
 MD Reference: RKB @ 2939.5usft (Akita #22)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)	
15,132.0	92.60	359.28	10,567.9	4,545.8	-374.8	4,555.2	3.43	2.58	2.26	
15,226.0	90.60	0.28	10,565.3	4,639.7	-375.2	4,649.1	2.38	-2.13	1.06	
15,320.0	89.30	359.98	10,565.4	4,733.7	-375.0	4,743.1	1.42	-1.38	-0.32	
15,414.0	89.70	359.38	10,566.2	4,827.7	-375.5	4,837.1	0.77	0.43	-0.64	
15,508.0	88.90	1.38	10,567.3	4,921.7	-374.9	4,931.0	2.29	-0.85	2.13	
15,602.0	88.90	1.18	10,569.1	5,015.6	-372.8	5,024.8	0.21	0.00	-0.21	
15,696.0	88.90	0.58	10,570.9	5,109.6	-371.4	5,118.7	0.64	0.00	-0.64	
15,790.0	89.20	359.28	10,572.5	5,203.6	-371.5	5,212.6	1.42	0.32	-1.38	
15,885.0	91.30	359.38	10,572.1	5,298.6	-372.6	5,307.6	2.21	2.21	0.11	
15,978.0	91.40	0.68	10,569.9	5,391.6	-372.6	5,400.5	1.40	0.11	1.40	
16,071.0	91.50	0.28	10,567.5	5,484.5	-371.8	5,493.4	0.44	0.11	-0.43	
16,166.0	91.60	359.58	10,565.0	5,579.5	-371.9	5,588.4	0.74	0.11	-0.74	
16,260.0	91.70	1.88	10,562.3	5,673.4	-370.7	5,682.2	2.45	0.11	2.45	
16,353.0	90.10	0.28	10,560.8	5,766.4	-369.0	5,775.1	2.43	-1.72	-1.72	
16,447.0	92.40	2.48	10,558.8	5,860.3	-366.7	5,868.9	3.39	2.45	2.34	
16,539.0	92.40	1.58	10,554.9	5,952.2	-363.5	5,960.6	0.98	0.00	-0.98	
16,632.0	89.10	3.68	10,553.7	6,045.1	-359.2	6,053.3	4.21	-3.55	2.26	
16,726.0	89.20	3.78	10,555.1	6,138.9	-353.1	6,146.9	0.15	0.11	0.11	
16,820.0	90.00	2.38	10,555.7	6,232.7	-348.0	6,240.5	1.72	0.85	-1.49	
16,914.0	87.80	2.98	10,557.5	6,326.6	-343.7	6,334.2	2.43	-2.34	0.64	
17,009.0	87.20	5.78	10,561.7	6,421.2	-336.4	6,428.6	3.01	-0.63	2.95	
17,102.0	87.20	5.58	10,566.2	6,513.7	-327.2	6,520.7	0.21	0.00	-0.22	
17,196.0	88.30	4.68	10,569.9	6,607.2	-318.8	6,613.9	1.51	1.17	-0.96	
17,290.0	92.40	5.08	10,569.3	6,700.9	-310.8	6,707.3	4.38	4.36	0.43	
17,384.0	91.10	1.38	10,566.5	6,794.6	-305.6	6,800.9	4.17	-1.38	-3.94	
17,478.0	91.10	359.28	10,564.7	6,888.6	-305.0	6,894.8	2.23	0.00	-2.23	
17,571.0	89.30	356.68	10,564.3	6,981.5	-308.3	6,987.8	3.40	-1.94	-2.80	
17,664.0	89.90	356.68	10,565.0	7,074.4	-313.7	7,080.7	0.65	0.65	0.00	
17,758.0	89.70	356.18	10,565.3	7,168.2	-319.5	7,174.7	0.57	-0.21	-0.53	
17,851.0	88.60	356.58	10,566.7	7,261.0	-325.4	7,267.6	1.28	-1.18	0.43	
17,944.0	90.20	356.28	10,567.7	7,353.8	-331.2	7,360.6	1.75	1.72	-0.32	
18,038.0	88.90	357.08	10,568.4	7,447.7	-336.7	7,454.5	1.62	-1.38	0.85	
18,132.0	88.70	356.58	10,570.4	7,541.5	-341.9	7,548.5	0.57	-0.21	-0.53	
18,226.0	90.00	356.48	10,571.5	7,635.3	-347.6	7,642.4	1.39	1.38	-0.11	
18,320.0	91.50	356.18	10,570.2	7,729.1	-353.6	7,736.4	1.63	1.60	-0.32	
18,414.0	90.60	357.28	10,568.5	7,822.9	-358.9	7,830.3	1.51	-0.96	1.17	
18,508.0	89.40	358.18	10,568.5	7,916.9	-362.7	7,924.3	1.60	-1.28	0.96	
18,603.0	89.30	357.68	10,569.6	8,011.8	-366.1	8,019.3	0.54	-0.11	-0.53	
18,696.0	89.80	356.38	10,570.3	8,104.7	-370.9	8,112.3	1.50	0.54	-1.40	
18,790.0	88.70	356.78	10,571.5	8,198.5	-376.5	8,206.2	1.25	-1.17	0.43	
18,884.0	89.60	356.88	10,572.9	8,292.3	-381.8	8,300.2	0.96	0.96	0.11	
18,978.0	88.10	358.08	10,574.8	8,386.2	-385.9	8,394.2	2.04	-1.60	1.28	
19,071.0	86.30	359.58	10,579.4	8,479.1	-387.8	8,487.0	2.52	-1.94	1.61	



Survey Report



Company: XTO ENERGY, INC.
 Project: Eddy County, NM
 Site: Sec 31, T26S, R30E
 Well: Ross Draw 3031 Fed #6H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Ross Draw 3031 Fed #6H
 TVD Reference: RKB @ 2939.5usft (Akita #22)
 MD Reference: RKB @ 2939.5usft (Akita #22)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)
19,165.0	86.20	359.98	10,585.5	8,572.9	-388.2	8,580.8	0.44	-0.11	0.43
19,259.0	87.60	1.98	10,590.6	8,666.7	-386.6	8,674.5	2.59	1.49	2.13
19,352.0	89.50	2.38	10,592.9	8,759.6	-383.0	8,767.3	2.09	2.04	0.43
19,445.0	88.50	0.78	10,594.6	8,852.6	-380.5	8,860.1	2.03	-1.08	-1.72
19,540.0	88.20	1.08	10,597.3	8,947.5	-378.9	8,955.0	0.45	-0.32	0.32
19,633.0	89.70	1.18	10,599.0	9,040.5	-377.1	9,047.8	1.62	1.61	0.11
19,727.0	90.30	1.48	10,599.0	9,134.4	-374.9	9,141.7	0.71	0.64	0.32
19,821.0	90.70	1.78	10,598.2	9,228.4	-372.2	9,235.5	0.53	0.43	0.32
19,917.0	90.10	1.68	10,597.5	9,324.4	-369.4	9,331.3	0.63	-0.63	-0.10
20,010.0	89.90	0.28	10,597.5	9,417.3	-367.8	9,424.2	1.52	-0.22	-1.51
20,105.0	88.80	0.98	10,598.6	9,512.3	-366.7	9,519.1	1.37	-1.16	0.74
20,198.0	88.70	0.98	10,600.6	9,605.3	-365.1	9,612.0	0.11	-0.11	0.00
20,292.0	90.50	1.38	10,601.3	9,699.3	-363.2	9,705.9	1.96	1.91	0.43
20,386.0	89.80	0.48	10,601.0	9,793.2	-361.7	9,799.8	1.21	-0.74	-0.96
20,480.0	88.70	358.78	10,602.3	9,887.2	-362.3	9,893.7	2.15	-1.17	-1.81
20,575.0	90.50	359.28	10,602.9	9,982.2	-363.9	9,988.7	1.97	1.89	0.53
20,669.0	91.50	359.78	10,601.3	10,076.2	-364.7	10,082.7	1.19	1.06	0.53
20,764.0	90.80	358.48	10,599.4	10,171.2	-366.1	10,177.6	1.55	-0.74	-1.37
20,858.0	91.20	357.68	10,597.7	10,265.1	-369.3	10,271.6	0.95	0.43	-0.85
20,954.0	90.00	358.08	10,596.7	10,361.0	-372.8	10,367.6	1.32	-1.25	0.42
21,049.0	90.20	358.28	10,596.6	10,456.0	-375.9	10,462.6	0.30	0.21	0.21
21,143.0	86.60	356.38	10,599.2	10,549.8	-380.2	10,556.5	4.33	-3.83	-2.02
21,238.0	89.00	358.98	10,602.8	10,644.7	-384.1	10,651.4	3.72	2.53	2.74
21,333.0	88.10	358.28	10,605.2	10,739.6	-386.4	10,746.4	1.20	-0.95	-0.74
21,427.0	89.80	1.48	10,607.0	10,833.6	-386.6	10,840.3	3.85	1.81	3.40
21,523.0	91.60	1.78	10,605.8	10,929.5	-383.8	10,936.2	1.90	1.88	0.31
21,617.0	90.00	359.98	10,604.5	11,023.5	-382.4	11,030.0	2.56	-1.70	-1.91
21,711.0	89.50	358.68	10,604.9	11,117.5	-383.5	11,124.0	1.48	-0.53	-1.38
21,805.0	90.20	358.78	10,605.1	11,211.4	-385.6	11,218.0	0.75	0.74	0.11
21,900.0	92.40	359.18	10,603.0	11,306.4	-387.3	11,313.0	2.35	2.32	0.42
21,995.0	90.10	359.58	10,600.9	11,401.4	-388.3	11,407.9	2.46	-2.42	0.42
22,089.0	87.90	359.28	10,602.6	11,495.3	-389.3	11,501.9	2.36	-2.34	-0.32
22,184.0	86.30	358.38	10,607.4	11,590.2	-391.2	11,596.8	1.93	-1.68	-0.95
22,279.0	87.50	358.48	10,612.5	11,685.0	-393.8	11,691.6	1.27	1.26	0.11
22,374.0	88.40	359.08	10,615.9	11,779.9	-395.8	11,786.6	1.14	0.95	0.63
22,468.0	88.60	0.28	10,618.4	11,873.9	-396.4	11,880.5	1.29	0.21	1.28
22,564.0	89.30	3.18	10,620.1	11,969.8	-393.5	11,976.3	3.11	0.73	3.02
22,659.0	91.10	3.68	10,619.8	12,064.7	-387.8	12,070.9	1.97	1.89	0.53
22,755.0	90.00	4.38	10,618.9	12,160.4	-381.1	12,166.4	1.36	-1.15	0.73
22,850.0	90.10	4.08	10,618.8	12,255.2	-374.0	12,260.9	0.33	0.11	-0.32
Crossed 330' HL@ 22854.3' MD / 10618.8' TVD									
22,854.3	90.09	4.11	10,618.8	12,259.4	-373.7	12,265.1	0.83	-0.14	0.82
22,923.0	90.00	4.68	10,618.7	12,327.9	-368.5	12,333.4	0.83	-0.14	0.82
TD @ 22980.0' MD / 10618.8' TVD									



Survey Report



Company: XTO ENERGY, INC.
 Project: Eddy County, NM
 Site: Sec 31, T28S, R30E
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 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Ross Draw 3031 Fed #6H
 TVD Reference: RKB @ 2939.5usft (Akita #22)
 MD Reference: RKB @ 2939.5usft (Akita #22)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

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)
22,980.0	90.00	4.68	10,618.7	12,384.8	-363.8	12,390.1	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,704.0	9,699.6	-88.0	14.4	MWD Tie-in @ 9704.0' MD / 9699.6' TVD
22,854.3	10,618.8	12,259.4	-373.7	Crossed 330' HL@ 22854.3' MD / 10618.8' TVD
22,980.0	10,618.7	12,384.8	-363.8	TD @ 22980.0' MD / 10618.8' TVD

Checked By: _____ Approved By: _____ Date: _____