



XTO ENERGY, INC.

Lea County, NM

Sec. 30, 20-S, 34-E

Severus 31-5 Federal Com #9H

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

12 October, 2019



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-191206	10/12/2019

Lease	Well Name	County & State
Sec 30, T20S, R34E	Severus 31 5 Federal COM #9H	Lea, New Mexico

API No.	Survey Depth Range	Survey Type
30-025-46190	140 feet to 18387 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Jeff Leschuck

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=QES DD,
email=kris.ray@qesinc.com, c=US
Date: 2019.10.15 09:46:16 -05'00'

Kristopher Ray
Regulatory Compliance Manager
Quintana Energy Services



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Lea 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. 30, 20-S, 34-E		
Site Position:		Northing:	559,845.40 usft
From:	Map	Easting:	726,703.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 32' 13.099 N
		Longitude:	103° 35' 51.746 W
		Grid Convergence:	0.40 °

Well	Severus 31-5 Federal Com #9H		
Well Position	+N/-S	0.0 usft	Northing: 559,846.50 usft
	+E/-W	0.0 usft	Easting: 726,704.20 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 32' 13.110 N
		Longitude:	103° 35' 51.742 W
		Ground Level:	3,699.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/22/2019	6.62	60.40	48,110.10000000

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	169.46

Survey Program	Date	10/12/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
140.0	18,387.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
140.0	0.60	130.70	140.0	-0.5	0.6	0.7	130.70
First MWD Survey @ 140.0' MD / 140.0' TVD							
230.0	1.30	130.00	230.0	-1.4	1.7	2.2	130.38
323.0	1.90	127.40	322.9	-3.1	3.7	4.8	129.34
446.0	2.50	108.40	445.9	-5.1	7.9	9.4	123.08
566.0	3.80	71.30	565.7	-4.7	14.1	14.9	108.35
627.0	4.20	70.10	626.5	-3.3	18.2	18.5	100.25
721.0	3.20	63.90	720.3	-1.0	23.8	23.8	92.31
812.0	3.90	65.50	811.2	1.4	28.8	28.9	87.14
902.0	4.00	67.50	901.0	3.9	34.5	34.8	83.54
991.0	3.30	67.10	989.8	6.1	39.8	40.2	81.28

Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	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 (°)	
1,080.0	3.30	64.80	1,078.6	8.2	44.4	45.2	79.56	
1,169.0	3.90	65.70	1,167.4	10.5	49.5	50.6	78.00	
1,258.0	3.20	66.20	1,256.3	12.8	54.5	56.0	76.82	
1,347.0	3.30	71.20	1,345.1	14.6	59.2	61.0	76.16	
1,435.0	2.90	74.00	1,433.0	16.0	63.8	65.8	75.89	
1,525.0	2.50	79.10	1,522.9	17.0	67.9	70.0	75.92	
1,599.0	2.40	74.10	1,596.8	17.8	71.0	73.2	75.95	
1,736.0	2.10	62.70	1,733.7	19.7	76.0	78.5	75.47	
1,825.0	4.00	59.70	1,822.6	22.0	80.1	83.1	74.64	
1,914.0	6.10	58.10	1,911.3	26.1	86.8	90.6	73.28	
2,003.0	8.00	59.90	1,999.6	31.7	96.2	101.2	71.77	
2,092.0	9.10	68.20	2,087.6	37.4	108.1	114.3	70.91	
2,181.0	9.50	78.20	2,175.4	41.5	121.8	128.7	71.18	
2,270.0	9.40	78.50	2,263.2	44.5	136.1	143.2	71.91	
2,360.0	9.40	78.20	2,352.0	47.4	150.5	157.8	72.51	
2,449.0	9.30	79.90	2,439.8	50.2	164.7	172.2	73.05	
2,538.0	9.10	80.10	2,527.7	52.7	178.7	186.3	73.58	
2,627.0	9.20	80.10	2,615.5	55.1	192.6	200.4	74.04	
2,716.0	9.50	79.60	2,703.4	57.6	206.9	214.7	74.43	
2,806.0	9.50	81.50	2,792.1	60.1	221.5	229.5	74.83	
2,895.0	9.50	81.70	2,879.9	62.2	236.1	244.1	75.23	
2,984.0	9.20	83.40	2,967.7	64.1	250.4	258.5	75.64	
3,073.0	9.10	83.10	3,055.6	65.8	264.4	272.5	76.04	
3,162.0	9.10	84.70	3,143.5	67.3	278.4	286.4	76.42	
3,193.0	9.10	84.30	3,174.1	67.7	283.3	291.3	76.56	
3,337.0	8.60	85.20	3,316.4	69.8	305.4	313.2	77.13	
3,426.0	9.10	75.50	3,404.3	72.1	318.8	326.9	77.26	
3,515.0	9.60	70.80	3,492.1	76.3	332.6	341.3	77.08	
3,604.0	9.60	72.40	3,579.9	81.0	346.7	356.1	76.86	
3,693.0	9.40	73.10	3,667.7	85.3	360.8	370.7	76.69	
3,782.0	9.40	72.90	3,755.5	89.6	374.7	385.2	76.55	
3,872.0	9.90	72.70	3,844.2	94.0	389.1	400.3	76.41	
3,961.0	10.00	72.60	3,931.9	98.6	403.7	415.6	76.27	
4,050.0	9.90	72.90	4,019.5	103.2	418.4	431.0	76.15	
4,139.0	9.90	72.90	4,107.2	107.7	433.1	446.2	76.04	
4,228.0	10.10	73.60	4,194.8	112.1	447.9	461.7	75.94	
4,317.0	10.40	74.80	4,282.4	116.4	463.1	477.5	75.89	
4,407.0	10.70	75.20	4,370.9	120.7	479.0	494.0	75.86	
4,496.0	10.20	74.80	4,458.4	124.9	494.6	510.1	75.83	
4,585.0	10.20	75.40	4,546.0	128.9	509.8	525.9	75.81	
4,674.0	8.80	69.00	4,633.8	133.4	523.8	540.5	75.72	
4,763.0	8.30	65.00	4,721.8	138.5	536.0	553.6	75.51	
4,852.0	8.40	65.70	4,809.9	143.9	547.7	566.3	75.28	
4,941.0	8.40	65.70	4,897.9	149.3	559.6	579.2	75.07	



QES
QES Survey Certification Report



Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	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 (°)	
5,031.0	8.30	66.20	4,987.0	154.6	571.5	592.1	74.87	
5,120.0	8.20	67.10	5,075.0	159.6	583.3	604.7	74.69	
5,209.0	8.10	67.30	5,163.1	164.5	594.9	617.2	74.54	
5,298.0	8.10	67.80	5,251.2	169.3	606.5	629.7	74.40	
5,387.0	8.00	67.60	5,339.4	174.1	618.0	642.0	74.27	
5,476.0	8.00	68.90	5,427.5	178.6	629.5	654.4	74.16	
5,565.0	8.10	69.00	5,515.6	183.1	641.1	666.8	74.06	
5,655.0	7.80	69.00	5,604.8	187.6	652.8	679.2	73.97	
5,689.0	7.60	69.00	5,638.5	189.2	657.0	683.7	73.93	
5,822.0	7.20	68.30	5,770.3	195.4	673.0	700.8	73.81	
5,911.0	10.40	69.90	5,858.3	200.3	685.7	714.3	73.72	
6,000.0	10.30	69.70	5,945.8	205.8	700.7	730.3	73.63	
6,089.0	10.20	69.40	6,033.4	211.3	715.5	746.1	73.55	
6,179.0	10.00	68.70	6,122.0	217.0	730.3	761.8	73.45	
6,268.0	9.80	68.50	6,209.7	222.5	744.5	777.1	73.36	
6,357.0	9.60	68.90	6,297.4	228.0	758.5	792.0	73.27	
6,446.0	9.60	70.30	6,385.2	233.2	772.4	806.8	73.20	
6,535.0	9.50	68.20	6,473.0	238.4	786.2	821.6	73.13	
6,624.0	9.20	68.30	6,560.8	243.8	799.6	836.0	73.05	
6,714.0	9.30	66.80	6,649.6	249.3	813.0	850.4	72.95	
6,803.0	8.50	65.70	6,737.5	254.8	825.6	864.1	72.85	
6,892.0	5.80	72.70	6,825.8	258.9	835.9	875.1	72.79	
6,981.0	7.60	75.70	6,914.2	261.7	845.9	885.5	72.81	
7,070.0	12.30	79.90	7,001.9	264.8	861.0	900.7	72.91	
7,159.0	12.10	79.40	7,088.8	268.2	879.5	919.4	73.04	
7,248.0	12.50	75.20	7,175.8	272.3	897.9	938.3	73.13	
7,338.0	11.80	75.00	7,263.8	277.2	916.2	957.3	73.17	
7,427.0	11.10	74.30	7,351.0	281.9	933.3	974.9	73.19	
7,516.0	10.30	74.50	7,438.5	286.3	949.2	991.4	73.21	
7,605.0	9.90	74.70	7,526.1	290.5	964.2	1,007.0	73.24	
7,694.0	9.10	74.70	7,613.9	294.3	978.4	1,021.7	73.26	
7,783.0	8.70	76.10	7,701.8	297.8	991.7	1,035.5	73.29	
7,872.0	8.40	76.60	7,789.8	300.9	1,004.6	1,048.7	73.32	
7,961.0	7.70	76.40	7,877.9	303.8	1,016.7	1,061.1	73.36	
8,050.0	7.50	74.80	7,966.1	306.8	1,028.1	1,072.9	73.39	
8,139.0	9.10	69.70	8,054.2	310.7	1,040.3	1,085.7	73.37	
8,228.0	9.00	69.60	8,142.1	315.6	1,053.4	1,099.7	73.32	
8,317.0	8.70	70.60	8,230.0	320.3	1,066.3	1,113.4	73.28	
8,406.0	8.60	71.00	8,318.0	324.7	1,079.0	1,126.7	73.25	
8,495.0	8.10	71.80	8,406.1	328.8	1,091.2	1,139.7	73.23	
8,584.0	7.70	70.60	8,494.2	332.7	1,102.8	1,151.9	73.21	
8,673.0	7.20	70.30	8,582.5	336.6	1,113.7	1,163.4	73.18	
8,761.0	8.00	71.50	8,669.7	340.4	1,124.7	1,175.0	73.16	
8,850.0	6.90	71.80	8,758.0	344.0	1,135.6	1,186.6	73.15	
8,939.0	8.80	67.50	8,846.1	348.3	1,147.0	1,198.7	73.11	

Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	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 (°)	
9,028.0	7.60	66.40	8,934.2	353.3	1,158.7	1,211.3	73.04	
9,117.0	7.30	76.30	9,022.5	357.0	1,169.6	1,222.8	73.03	
9,206.0	8.50	73.30	9,110.6	360.2	1,181.3	1,235.0	73.04	
9,295.0	7.60	76.60	9,198.7	363.4	1,193.4	1,247.5	73.06	
9,385.0	9.10	77.50	9,287.8	366.4	1,206.1	1,260.5	73.10	
9,474.0	7.80	79.60	9,375.8	369.0	1,218.9	1,273.5	73.16	
9,563.0	8.20	78.30	9,464.0	371.4	1,231.1	1,285.9	73.21	
9,668.0	7.50	80.10	9,568.0	374.1	1,245.2	1,300.1	73.28	
9,757.0	9.20	74.40	9,656.0	377.0	1,257.7	1,313.0	73.32	
9,846.0	8.50	72.70	9,744.0	380.8	1,270.9	1,326.7	73.32	
9,935.0	8.20	71.50	9,832.0	384.8	1,283.2	1,339.6	73.31	
10,024.0	7.60	80.90	9,920.2	387.7	1,295.0	1,351.8	73.33	
10,114.0	7.60	101.91	10,009.4	387.5	1,306.7	1,362.9	73.48	
10,158.0	8.94	111.54	10,052.9	385.6	1,312.7	1,368.2	73.63	
10,203.0	9.34	118.28	10,097.4	382.6	1,319.2	1,373.6	73.83	
10,247.0	13.62	133.80	10,140.5	377.3	1,326.1	1,378.7	74.12	
10,292.0	16.23	140.49	10,184.0	368.8	1,333.9	1,384.0	74.55	
10,337.0	22.07	150.06	10,226.5	356.6	1,342.1	1,388.7	75.12	
10,381.0	24.66	156.94	10,266.9	341.0	1,349.9	1,392.3	75.82	
10,426.0	26.67	166.31	10,307.5	322.5	1,355.9	1,393.8	76.62	
10,470.0	30.50	173.58	10,346.1	301.8	1,359.5	1,392.6	77.48	
10,515.0	36.70	175.09	10,383.6	277.1	1,362.0	1,389.8	78.50	
10,559.0	43.04	175.02	10,417.3	249.0	1,364.4	1,386.9	79.66	
10,604.0	48.03	175.29	10,448.8	217.0	1,367.1	1,384.2	80.98	
10,648.0	52.27	176.10	10,477.0	183.3	1,369.6	1,381.8	82.38	
10,693.0	59.30	175.91	10,502.3	146.2	1,372.2	1,380.0	83.92	
10,738.0	67.16	176.75	10,522.6	106.1	1,374.8	1,378.9	85.59	
10,782.0	72.32	176.66	10,537.8	64.9	1,377.1	1,378.7	87.30	
10,826.0	73.84	176.63	10,550.6	22.9	1,379.6	1,379.8	89.05	
10,871.0	73.50	176.03	10,563.2	-20.2	1,382.4	1,382.5	90.84	
10,915.0	76.05	175.24	10,574.8	-62.5	1,385.6	1,387.0	92.58	
10,960.0	80.22	175.05	10,584.0	-106.4	1,389.3	1,393.4	94.38	
11,005.0	82.00	175.24	10,591.0	-150.7	1,393.1	1,401.2	96.17	
11,049.0	85.75	174.96	10,595.7	-194.3	1,396.8	1,410.3	97.92	
11,094.0	86.55	174.74	10,598.7	-239.0	1,400.9	1,421.1	99.68	
11,183.0	88.38	177.16	10,602.7	-327.7	1,407.1	1,444.8	103.11	
11,272.0	89.08	177.42	10,604.6	-416.5	1,411.3	1,471.5	106.44	
11,361.0	88.74	177.58	10,606.3	-505.4	1,415.2	1,502.8	109.65	
11,450.0	88.57	178.21	10,608.4	-594.3	1,418.5	1,538.0	112.73	
11,539.0	89.83	179.11	10,609.6	-683.3	1,420.6	1,576.4	115.69	
11,627.0	89.36	179.49	10,610.3	-771.3	1,421.7	1,617.4	118.48	
11,716.0	88.85	179.67	10,611.7	-860.3	1,422.3	1,662.2	121.17	
11,805.0	90.64	179.84	10,612.1	-949.3	1,422.7	1,710.3	123.71	
11,894.0	90.22	179.96	10,611.4	-1,038.3	1,422.8	1,761.4	126.12	

Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	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 (°)	
11,983.0	89.47	180.18	10,611.6	-1,127.3	1,422.7	1,815.2	128.39	
12,072.0	90.95	178.93	10,611.3	-1,216.3	1,423.4	1,872.3	130.51	
12,161.0	90.64	178.46	10,610.1	-1,305.2	1,425.5	1,932.8	132.48	
12,250.0	89.94	178.49	10,609.6	-1,394.2	1,427.8	1,995.6	134.32	
12,339.0	91.85	177.98	10,608.2	-1,483.1	1,430.6	2,060.6	136.03	
12,428.0	91.76	177.63	10,605.4	-1,572.0	1,434.0	2,127.8	137.63	
12,517.0	91.43	177.56	10,602.9	-1,660.9	1,437.7	2,196.7	139.12	
12,606.0	90.95	177.08	10,601.1	-1,749.8	1,441.9	2,267.3	140.51	
12,695.0	90.50	176.89	10,600.0	-1,838.7	1,446.5	2,339.5	141.81	
12,784.0	89.91	179.44	10,599.7	-1,927.6	1,449.4	2,411.7	143.06	
12,873.0	89.41	179.93	10,600.2	-2,016.6	1,449.9	2,483.7	144.29	
12,962.0	89.36	179.76	10,601.1	-2,105.6	1,450.1	2,556.7	145.45	
13,051.0	89.11	180.15	10,602.3	-2,194.6	1,450.2	2,630.5	146.54	
13,141.0	88.74	179.77	10,604.0	-2,284.6	1,450.3	2,706.0	147.59	
13,230.0	88.71	179.30	10,606.0	-2,373.6	1,451.0	2,781.9	148.56	
13,318.0	88.83	179.22	10,607.9	-2,461.5	1,452.1	2,857.9	149.46	
13,407.0	90.09	179.29	10,608.7	-2,550.5	1,453.3	2,935.5	150.33	
13,497.0	90.70	179.29	10,608.1	-2,640.5	1,454.4	3,014.6	151.15	
13,586.0	87.84	179.68	10,609.2	-2,729.5	1,455.2	3,093.2	151.94	
13,675.0	87.43	179.54	10,612.9	-2,818.4	1,455.8	3,172.2	152.68	
13,764.0	88.04	179.05	10,616.4	-2,907.3	1,456.9	3,251.9	153.38	
13,853.0	87.71	178.49	10,619.7	-2,996.3	1,458.8	3,332.5	154.04	
13,942.0	88.91	179.79	10,622.4	-3,085.2	1,460.1	3,413.3	154.67	
14,031.0	88.69	180.49	10,624.2	-3,174.2	1,459.9	3,493.8	155.30	
14,120.0	88.60	180.85	10,626.3	-3,263.2	1,458.9	3,574.4	155.91	
14,209.0	88.54	180.99	10,628.5	-3,352.1	1,457.4	3,655.2	156.50	
14,298.0	90.36	179.74	10,629.4	-3,441.1	1,456.9	3,736.8	157.05	
14,387.0	90.36	179.20	10,628.8	-3,530.1	1,457.7	3,819.2	157.56	
14,476.0	90.22	178.63	10,628.4	-3,619.1	1,459.4	3,902.2	158.04	
14,565.0	90.36	178.47	10,627.9	-3,708.0	1,461.6	3,985.7	158.49	
14,654.0	91.17	178.43	10,626.7	-3,797.0	1,464.0	4,069.5	158.91	
14,743.0	90.34	179.01	10,625.6	-3,886.0	1,466.0	4,153.3	159.33	
14,832.0	89.13	178.33	10,626.0	-3,974.9	1,468.1	4,237.4	159.73	
14,921.0	88.60	178.11	10,627.7	-4,063.9	1,470.9	4,321.9	160.10	
15,010.0	87.87	178.63	10,630.5	-4,152.8	1,473.4	4,406.4	160.47	
15,099.0	88.77	180.24	10,633.1	-4,241.8	1,474.3	4,490.7	160.83	
15,188.0	87.85	179.98	10,635.7	-4,330.7	1,474.1	4,574.7	161.20	
15,277.0	90.50	182.02	10,637.0	-4,419.7	1,472.5	4,658.5	161.57	
15,366.0	91.56	182.20	10,635.4	-4,508.6	1,469.3	4,742.0	161.95	
15,456.0	90.11	180.42	10,634.1	-4,598.6	1,467.2	4,827.0	162.30	
15,544.0	88.18	179.64	10,635.4	-4,686.6	1,467.2	4,910.8	162.62	
15,634.0	87.31	179.58	10,638.9	-4,776.5	1,467.8	4,996.9	162.92	
15,723.0	87.71	179.94	10,642.8	-4,865.4	1,468.1	5,082.1	163.21	
15,811.0	89.66	180.02	10,644.8	-4,953.4	1,468.2	5,166.4	163.49	

Company:	XTO ENERGY, INC.	Local Co-ordinate Reference:	Well Severus 31-5 Federal Com #9H
Project:	Lea County, NM	TVD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Site:	Sec. 30, 20-S, 34-E	MD Reference:	RKB @ 3723.5usft (Ensign-T #225)
Well:	Severus 31-5 Federal Com #9H	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 (°)	
15,900.0	90.45	180.37	10,644.7	-5,042.4	1,467.9	5,251.7	163.77	
15,989.0	90.98	180.72	10,643.6	-5,131.4	1,467.0	5,337.0	164.05	
16,114.0	89.97	179.87	10,642.6	-5,256.4	1,466.4	5,457.1	164.41	
16,203.0	90.17	179.26	10,642.5	-5,345.3	1,467.1	5,543.0	164.65	
16,292.0	90.48	179.08	10,642.0	-5,434.3	1,468.4	5,629.2	164.88	
16,381.0	90.50	179.33	10,641.2	-5,523.3	1,469.6	5,715.5	165.10	
16,470.0	89.33	179.59	10,641.4	-5,612.3	1,470.4	5,801.7	165.32	
16,559.0	88.60	179.59	10,643.0	-5,701.3	1,471.1	5,888.0	165.53	
16,648.0	89.69	178.82	10,644.3	-5,790.3	1,472.3	5,974.5	165.73	
16,737.0	89.02	178.53	10,645.3	-5,879.3	1,474.4	6,061.3	165.92	
16,826.0	88.29	178.12	10,647.4	-5,968.2	1,477.0	6,148.2	166.10	
16,915.0	87.25	177.44	10,650.8	-6,057.1	1,480.4	6,235.3	166.27	
17,004.0	88.63	178.29	10,654.0	-6,145.9	1,483.7	6,322.5	166.43	
17,093.0	89.58	179.80	10,655.4	-6,234.9	1,485.2	6,409.4	166.60	
17,182.0	89.69	180.30	10,656.0	-6,323.9	1,485.1	6,495.9	166.78	
17,271.0	88.82	180.10	10,657.2	-6,412.9	1,484.8	6,582.5	166.96	
17,360.0	87.87	180.55	10,659.7	-6,501.9	1,484.3	6,669.1	167.14	
17,449.0	86.30	182.04	10,664.3	-6,590.7	1,482.3	6,755.3	167.32	
17,538.0	87.37	182.96	10,669.2	-6,679.5	1,478.4	6,841.1	167.52	
17,627.0	89.50	180.74	10,671.6	-6,768.4	1,475.5	6,927.4	167.70	
17,716.0	92.24	180.50	10,670.3	-6,857.4	1,474.6	7,014.1	167.86	
17,805.0	91.57	178.91	10,667.3	-6,946.3	1,475.0	7,101.2	168.01	
17,894.0	93.42	179.05	10,663.4	-7,035.2	1,476.6	7,188.5	168.15	
17,983.0	92.02	178.65	10,659.2	-7,124.1	1,478.4	7,275.9	168.28	
18,072.0	89.02	179.06	10,658.4	-7,213.1	1,480.2	7,363.4	168.40	
18,161.0	86.75	178.92	10,661.7	-7,302.0	1,481.8	7,450.8	168.53	
18,252.0	87.53	180.12	10,666.2	-7,392.9	1,482.5	7,540.0	168.66	
18,339.0	89.08	179.46	10,668.8	-7,479.8	1,482.8	7,625.4	168.79	
18,387.0	89.08	179.46	10,669.6	-7,527.8	1,483.3	7,672.6	168.85	
TD @ 18387.0' MD / 10669.6' TVD								

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
140.0	140.0	-0.5	0.6	First MWD Survey @ 140.0' MD / 140.0' TVD	
18,387.0	10,669.6	-7,527.8	1,483.3	TD @ 18387.0' MD / 10669.6' TVD	

Checked By: _____ Approved By: _____ Date: _____