

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 122H - Slot REMUDA NORTH 30 STATE_122H_SHL
Project:	Eddy County, NM (NAD27) NMEZ US	TVD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	Grid
Wellbore:	North 30 122H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 122H (AsDrilled)	Database:	TP_EDM

Project:	Eddy County, NM (NAD27) NMEZ US		
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	Remuda North_South 31 State Pad, centered on 123H			
Site Position:		Northing:	458,327.40 usft	Latitude: 32.2593878
From:	Map	Easting:	627,293.40 usft	Longitude: -103.9215405
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: 0.22 °

Well:	Remuda North 30 State 122H - Slot REMUDA NORTH 30 STATE_122H_SHL			
Well Position	+N/-S	0.00 usft	Northing:	463,892.70 usft
	+E/-W	0.00 usft	Easting:	625,552.90 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,090.00 usft

Wellbore:	North 30 122H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/21/18	7.01	60.04	47,829

Design:	North 30 122H (AsDrilled)			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.00

Survey Program	Date 12/01/18				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
117.00	18,526.00	Survey #1 (North 30 122H)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction	
18,576.00	18,576.00	Survey #2 (North 30 122H)	Projection	Projection	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REMUDA NORTH 30 STATE_122H_SHL									
117.00	0.80	298.00	117.00	0.38	-0.72	0.38	0.68	0.68	0.00
210.00	1.20	303.00	209.98	1.22	-2.11	1.22	0.44	0.43	5.38
301.00	2.10	301.00	300.94	2.60	-4.34	2.60	0.99	0.99	-2.20
396.00	2.20	290.00	395.88	4.12	-7.54	4.12	0.45	0.11	-11.58
491.00	2.10	292.40	490.81	5.40	-10.87	5.40	0.14	-0.11	2.53
585.00	1.60	293.80	584.76	6.59	-13.66	6.59	0.53	-0.53	1.49
665.00	1.10	304.40	664.74	7.47	-15.32	7.47	0.70	-0.62	13.25

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Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Wellbore:	North 30 122H	Survey Calculation Method:	Grid
Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
759.00	0.90	334.10	758.72	8.65	-16.38	8.65	0.58	-0.21	31.60
854.00	0.90	335.40	853.71	10.00	-17.02	10.00	0.02	0.00	1.37
948.00	0.90	81.90	947.71	10.77	-16.60	10.77	1.53	0.00	113.30
1,042.00	1.40	80.50	1,041.69	11.07	-14.73	11.07	0.53	0.53	-1.49
1,136.00	1.30	56.30	1,135.66	11.85	-12.71	11.85	0.61	-0.11	-25.74
1,230.00	1.40	32.10	1,229.64	13.41	-11.22	13.41	0.61	0.11	-25.74
1,324.00	1.50	18.80	1,323.61	15.55	-10.21	15.55	0.37	0.11	-14.15
1,418.00	1.40	13.20	1,417.58	17.83	-9.55	17.83	0.18	-0.11	-5.96
1,512.00	1.10	17.30	1,511.55	19.81	-9.02	19.81	0.33	-0.32	4.36
1,606.00	1.10	358.70	1,605.54	21.57	-8.77	21.57	0.38	0.00	-19.79
1,700.00	0.80	344.50	1,699.52	23.11	-8.97	23.11	0.40	-0.32	-15.11
1,795.00	1.30	334.10	1,794.51	24.72	-9.62	24.72	0.56	0.53	-10.95
1,889.00	1.90	359.90	1,888.47	27.24	-10.08	27.24	0.98	0.64	27.45
1,984.00	1.90	4.80	1,983.42	30.38	-9.96	30.38	0.17	0.00	5.16
2,077.00	1.70	356.60	2,076.37	33.29	-9.91	33.29	0.35	-0.22	-8.82
2,173.00	1.60	346.20	2,172.33	36.02	-10.31	36.02	0.33	-0.10	-10.83
2,268.00	1.60	16.80	2,267.30	38.57	-10.24	38.57	0.89	0.00	32.21
2,362.00	1.60	13.60	2,361.26	41.11	-9.56	41.11	0.10	0.00	-3.40
2,456.00	1.60	4.90	2,455.23	43.69	-9.14	43.69	0.26	0.00	-9.26
2,550.00	1.60	6.30	2,549.19	46.30	-8.88	46.30	0.04	0.00	1.49
2,644.00	1.30	28.40	2,643.16	48.54	-8.23	48.54	0.67	-0.32	23.51
2,738.00	1.10	73.00	2,737.14	49.74	-6.86	49.74	0.99	-0.21	47.45
2,833.00	1.20	79.80	2,832.12	50.19	-5.01	50.19	0.18	0.11	7.16
2,927.00	1.30	113.70	2,926.10	49.93	-3.06	49.93	0.78	0.11	36.06
3,022.00	1.70	129.50	3,021.07	48.60	-0.99	48.60	0.60	0.42	16.63
3,116.00	1.90	111.70	3,115.02	47.14	1.53	47.14	0.63	0.21	-18.94
3,210.00	1.60	102.50	3,208.98	46.28	4.26	46.28	0.44	-0.32	-9.79
3,305.00	1.70	106.40	3,303.94	45.60	6.91	45.60	0.16	0.11	4.11
3,400.00	1.70	74.80	3,398.90	45.57	9.62	45.57	0.97	0.00	-33.26
3,495.00	1.70	68.00	3,493.86	46.46	12.29	46.46	0.21	0.00	-7.16
3,589.00	1.80	76.80	3,587.81	47.32	15.02	47.32	0.30	0.11	9.36
3,684.00	1.80	71.10	3,682.77	48.15	17.88	48.15	0.19	0.00	-6.00
3,778.00	1.70	73.90	3,776.72	49.01	20.62	49.01	0.14	-0.11	2.98
3,872.00	1.60	64.20	3,870.69	49.97	23.14	49.97	0.32	-0.11	-10.32
3,965.00	1.40	74.80	3,963.65	50.83	25.41	50.83	0.37	-0.22	11.40
4,060.00	1.60	71.00	4,058.62	51.57	27.78	51.57	0.24	0.21	-4.00
4,154.00	1.40	34.40	4,152.59	52.94	29.67	52.94	1.02	-0.21	-38.94
4,249.00	1.60	21.40	4,247.56	55.14	30.81	55.14	0.41	0.21	-13.68
4,344.00	1.80	20.60	4,342.52	57.77	31.82	57.77	0.21	0.21	-0.84
4,438.00	1.60	22.00	4,436.48	60.37	32.83	60.37	0.22	-0.21	1.49
4,532.00	1.60	21.90	4,530.44	62.80	33.81	62.80	0.00	0.00	-0.11
4,626.00	1.70	14.80	4,624.40	65.37	34.66	65.37	0.24	0.11	-7.55

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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,721.00	1.60	12.30	4,719.36	68.02	35.30	68.02	0.13	-0.11	-2.63
4,815.00	1.60	8.30	4,813.32	70.61	35.77	70.61	0.12	0.00	-4.26
4,910.00	1.40	357.90	4,908.29	73.08	35.92	73.08	0.35	-0.21	-10.95
5,005.00	1.20	9.60	5,003.27	75.22	36.04	75.22	0.35	-0.21	12.32
5,099.00	1.30	14.50	5,097.24	77.22	36.47	77.22	0.16	0.11	5.21
5,194.00	1.10	2.50	5,192.22	79.18	36.78	79.18	0.34	-0.21	-12.63
5,289.00	1.20	8.00	5,287.20	81.07	36.96	81.07	0.16	0.11	5.79
5,384.00	1.00	7.20	5,382.19	82.88	37.20	82.88	0.21	-0.21	-0.84
5,479.00	1.00	8.80	5,477.17	84.52	37.43	84.52	0.03	0.00	1.68
5,572.00	1.10	359.30	5,570.16	86.22	37.54	86.22	0.22	0.11	-10.22
5,667.00	1.00	4.40	5,665.14	87.95	37.60	87.95	0.14	-0.11	5.37
5,761.00	1.00	22.10	5,759.13	89.53	37.97	89.53	0.33	0.00	18.83
5,855.00	1.00	25.50	5,853.11	91.03	38.63	91.03	0.06	0.00	3.62
5,949.00	1.00	18.70	5,947.10	92.55	39.25	92.55	0.13	0.00	-7.23
6,043.00	0.80	20.50	6,041.09	93.94	39.74	93.94	0.21	-0.21	1.91
6,137.00	0.50	8.40	6,135.08	94.96	40.03	94.96	0.35	-0.32	-12.87
6,231.00	0.50	50.80	6,229.08	95.63	40.41	95.63	0.38	0.00	45.11
6,326.00	0.40	72.20	6,324.07	95.99	41.04	95.99	0.20	-0.11	22.53
6,420.00	0.30	94.30	6,418.07	96.07	41.60	96.07	0.18	-0.11	23.51
6,515.00	0.40	109.30	6,513.07	95.94	42.16	95.94	0.14	0.11	15.79
6,610.00	0.30	142.40	6,608.07	95.64	42.63	95.64	0.23	-0.11	34.84
6,704.00	0.40	124.80	6,702.07	95.25	43.05	95.25	0.16	0.11	-18.72
6,799.00	0.30	109.20	6,797.07	94.98	43.55	94.98	0.14	-0.11	-16.42
6,893.00	0.20	120.20	6,891.06	94.82	43.93	94.82	0.12	-0.11	11.70
6,987.00	0.50	141.80	6,985.06	94.42	44.32	94.42	0.34	0.32	22.98
7,080.00	0.30	58.00	7,078.06	94.23	44.78	94.23	0.60	-0.22	-90.11
7,175.00	0.40	92.50	7,173.06	94.34	45.32	94.34	0.24	0.11	36.32
7,270.00	0.40	114.00	7,268.06	94.19	45.96	94.19	0.16	0.00	22.63
7,365.00	0.30	102.90	7,363.06	94.00	46.50	94.00	0.13	-0.11	-11.68
7,459.00	0.30	165.60	7,457.05	93.71	46.80	93.71	0.33	0.00	66.70
7,554.00	1.00	145.20	7,552.05	92.79	47.34	92.79	0.76	0.74	-21.47
7,648.00	1.60	138.40	7,646.02	91.13	48.68	91.13	0.66	0.64	-7.23
7,743.00	1.80	146.00	7,740.98	88.90	50.39	88.90	0.32	0.21	8.00
7,837.00	1.10	186.70	7,834.95	86.78	51.11	86.78	1.28	-0.74	43.30
7,931.00	0.80	197.70	7,928.94	85.26	50.81	85.26	0.37	-0.32	11.70
8,026.00	0.90	253.90	8,023.93	84.42	49.89	84.42	0.85	0.11	59.16
8,120.00	1.00	247.50	8,117.92	83.91	48.42	83.91	0.15	0.11	-6.81
8,214.00	1.00	229.60	8,211.90	83.06	47.04	83.06	0.33	0.00	-19.04
8,308.00	1.10	260.30	8,305.89	82.38	45.53	82.38	0.60	0.11	32.66
8,403.00	1.10	263.30	8,400.87	82.12	43.72	82.12	0.06	0.00	3.16
8,496.00	1.10	271.00	8,493.85	82.03	41.94	82.03	0.16	0.00	8.28
8,591.00	0.90	307.20	8,588.84	82.49	40.44	82.49	0.68	-0.21	38.11
8,686.00	1.10	318.60	8,683.83	83.63	39.24	83.63	0.30	0.21	12.00

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Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Wellbore:	North 30 122H	Survey Calculation Method:	Grid
Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,782.00	1.80	316.00	8,779.80	85.41	37.58	85.41	0.73	0.73	-2.71
8,877.00	1.50	297.20	8,874.76	87.05	35.44	87.05	0.65	-0.32	-19.79
8,971.00	1.20	287.70	8,968.73	87.91	33.41	87.91	0.40	-0.32	-10.11
9,066.00	1.10	272.40	9,063.71	88.25	31.55	88.25	0.34	-0.11	-16.11
9,161.00	0.90	288.20	9,158.70	88.52	29.93	88.52	0.36	-0.21	16.63
9,255.00	1.00	269.80	9,252.68	88.75	28.41	88.75	0.34	0.11	-19.57
9,297.00	0.90	268.40	9,294.68	88.74	27.71	88.74	0.24	-0.24	-3.33
9,403.00	1.00	256.30	9,400.66	88.50	25.98	88.50	0.21	0.09	-11.42
9,466.00	1.10	243.10	9,463.65	88.09	24.91	88.09	0.41	0.16	-20.95
9,560.00	2.40	139.90	9,557.62	86.18	25.37	86.18	3.04	1.38	-109.79
9,654.00	3.00	120.00	9,651.52	83.44	28.77	83.44	1.17	0.64	-21.17
9,748.00	4.10	108.10	9,745.34	81.17	34.09	81.17	1.40	1.17	-12.66
9,844.00	5.60	104.30	9,840.99	78.95	41.90	78.95	1.60	1.56	-3.96
9,939.00	6.00	95.40	9,935.51	77.33	51.33	77.33	1.03	0.42	-9.37
10,025.00	5.70	94.70	10,021.06	76.56	60.06	76.56	0.36	-0.35	-0.81
10,048.00	7.10	84.30	10,043.92	76.61	62.61	76.61	7.88	6.09	-45.22
10,080.00	8.60	77.00	10,075.62	77.34	66.91	77.34	5.62	4.69	-22.81
10,112.00	9.50	74.60	10,107.22	78.58	71.79	78.58	3.05	2.81	-7.50
10,143.00	10.50	72.80	10,137.75	80.10	76.96	80.10	3.38	3.23	-5.81
10,212.00	13.90	65.70	10,205.18	85.37	90.52	85.37	5.38	4.93	-10.29
10,238.00	15.80	59.20	10,230.32	88.47	96.41	88.47	9.71	7.31	-25.00
10,285.00	20.40	46.90	10,274.99	97.35	107.90	97.35	12.67	9.79	-26.17
10,332.00	25.30	40.00	10,318.30	110.65	120.34	110.65	11.87	10.43	-14.68
10,363.00	28.00	35.80	10,346.01	121.63	128.86	121.63	10.62	8.71	-13.55
10,395.00	30.00	34.60	10,373.99	134.31	137.80	134.31	6.51	6.25	-3.75
10,426.00	32.60	35.00	10,400.48	147.53	146.99	147.53	8.41	8.39	1.29
10,458.00	33.90	34.80	10,427.24	161.92	157.03	161.92	4.08	4.06	-0.62
10,488.00	33.60	34.30	10,452.19	175.65	166.48	175.65	1.36	-1.00	-1.67
10,520.00	33.70	33.40	10,478.82	190.37	176.36	190.37	1.59	0.31	-2.81
10,551.00	34.40	32.50	10,504.51	204.94	185.79	204.94	2.78	2.26	-2.90
10,583.00	37.10	29.50	10,530.48	220.97	195.41	220.97	10.06	8.44	-9.37
10,614.00	40.10	26.50	10,554.70	238.04	204.47	238.04	11.40	9.68	-9.68
10,645.00	43.70	22.40	10,577.78	256.89	213.01	256.89	14.59	11.61	-13.23
10,676.00	47.50	18.10	10,599.47	277.66	220.64	277.66	15.76	12.26	-13.87
10,707.00	51.60	17.80	10,619.58	300.10	227.91	300.10	13.25	13.23	-0.97
10,738.00	56.70	18.80	10,637.73	323.95	235.80	323.95	16.66	16.45	3.23
10,770.00	62.70	18.30	10,653.87	350.13	244.59	350.13	18.80	18.75	-1.56
10,792.00	66.34	17.46	10,663.33	369.03	250.68	369.03	16.91	16.56	-3.80
Wellpath Crosses Section Line @ Heel									
10,802.00	68.00	17.10	10,667.21	377.83	253.42	377.83	16.91	16.57	-3.64
10,832.00	73.50	16.40	10,677.09	404.94	261.58	404.94	18.47	18.33	-2.33
10,864.00	78.80	16.60	10,684.75	434.72	270.40	434.72	16.57	16.56	0.62
10,896.00	80.80	16.90	10,690.42	464.88	279.47	464.88	6.32	6.25	0.94

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Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
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Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Survey:									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,927.00	81.80	16.60	10,695.11	494.22	288.31	494.22	3.36	3.23	-0.97
10,959.00	85.10	15.90	10,698.76	524.74	297.20	524.74	10.54	10.31	-2.19
10,990.00	90.10	14.60	10,700.05	554.61	305.34	554.61	16.66	16.13	-4.19
11,022.00	93.40	13.50	10,699.08	585.63	313.11	585.63	10.87	10.31	-3.44
11,065.10	93.40	13.84	10,696.52	627.44	323.28	627.44	0.79	0.00	0.79
REMUDA NORTH 30 STATE_122H_LPp3 (258°FSL,408°FEL)									
11,085.00	93.40	14.00	10,695.34	646.72	328.05	646.72	0.79	0.00	0.79
11,139.00	93.23	12.74	10,692.22	699.17	340.52	699.17	2.36	-0.32	-2.34
Wellpath Crosses HL @ Heel									
11,160.00	93.16	12.24	10,691.05	719.64	345.05	719.64	2.36	-0.32	-2.34
Wellpath Crosses FTP									
11,164.82	93.15	12.13	10,690.78	724.34	346.07	724.34	2.36	-0.32	-2.34
REMUDA NORTH 30 STATE_122H_FTP (349°FSL,345°FEL)									
11,179.00	93.10	11.80	10,690.01	738.19	349.00	738.19	2.36	-0.32	-2.34
11,273.00	88.80	8.30	10,688.45	830.70	365.40	830.70	5.90	-4.57	-3.72
11,367.00	90.70	4.00	10,688.86	924.13	375.47	924.13	5.00	2.02	-4.57
11,462.00	91.30	1.40	10,687.21	1,019.00	379.94	1,019.00	2.81	0.63	-2.74
11,558.00	90.50	358.10	10,685.70	1,114.98	379.52	1,114.98	3.54	-0.83	-3.44
11,652.00	89.80	357.00	10,685.45	1,208.89	375.50	1,208.89	1.39	-0.74	-1.17
11,747.00	91.90	355.90	10,684.04	1,303.69	369.62	1,303.69	2.50	2.21	-1.16
11,841.00	89.40	357.10	10,682.98	1,397.50	363.88	1,397.50	2.95	-2.66	1.28
11,935.00	90.50	359.10	10,683.06	1,491.44	360.77	1,491.44	2.43	1.17	2.13
12,029.00	90.60	359.60	10,682.15	1,585.43	359.70	1,585.43	0.54	0.11	0.53
12,123.00	88.50	359.10	10,682.89	1,679.42	358.64	1,679.42	2.30	-2.23	-0.53
12,216.00	89.40	359.00	10,684.60	1,772.39	357.09	1,772.39	0.97	0.97	-0.11
12,311.00	90.70	357.80	10,684.51	1,867.35	354.44	1,867.35	1.86	1.37	-1.26
12,406.00	89.80	357.40	10,684.10	1,962.26	350.46	1,962.26	1.04	-0.95	-0.42
12,500.00	92.00	356.60	10,682.62	2,056.11	345.54	2,056.11	2.49	2.34	-0.85
12,594.00	90.30	357.80	10,680.74	2,149.98	340.95	2,149.98	2.21	-1.81	1.28
12,688.00	89.30	356.90	10,681.06	2,243.87	336.61	2,243.87	1.43	-1.06	-0.96
12,783.00	90.00	354.90	10,681.65	2,338.62	329.82	2,338.62	2.23	0.74	-2.11
12,877.00	93.30	357.30	10,678.94	2,432.35	323.43	2,432.35	4.34	3.51	2.55
12,972.00	93.80	358.90	10,673.06	2,527.11	320.28	2,527.11	1.76	0.53	1.68
13,065.00	91.70	0.00	10,668.59	2,619.99	319.39	2,619.99	2.55	-2.26	1.18
13,159.00	88.60	1.50	10,668.35	2,713.97	320.62	2,713.97	3.66	-3.30	1.60
13,254.00	90.50	2.00	10,669.09	2,808.92	323.52	2,808.92	2.07	2.00	0.53
13,347.00	88.80	2.00	10,669.66	2,901.86	326.77	2,901.86	1.83	-1.83	0.00
13,442.00	85.90	2.30	10,674.05	2,996.68	330.33	2,996.68	3.07	-3.05	0.32
13,538.00	89.10	2.70	10,678.24	3,092.48	334.51	3,092.48	3.36	3.33	0.42
13,633.00	88.90	2.70	10,679.90	3,187.36	338.98	3,187.36	0.21	-0.21	0.00
13,727.00	87.90	3.40	10,682.52	3,281.19	343.98	3,281.19	1.30	-1.06	0.74
13,823.00	88.00	1.80	10,685.96	3,377.03	348.34	3,377.03	1.67	0.10	-1.67
13,917.00	89.90	1.60	10,687.68	3,470.97	351.12	3,470.97	2.03	2.02	-0.21

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 122H - Slot
Project:	Eddy County, NM (NAD27) NMEZ US	TVD Reference:	REMUDA NORTH 30 STATE_122H_SHL
Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Wellbore:	North 30 122H	Survey Calculation Method:	Grid
Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
14,010.00	91.20	0.90	10,686.79	3,563.94	353.15	3,563.94	1.59	1.40	-0.75
14,141.00	90.80	0.70	10,684.50	3,694.90	354.98	3,694.90	0.34	-0.31	-0.15
14,234.00	89.70	0.40	10,684.10	3,787.90	355.87	3,787.90	1.23	-1.18	-0.32
14,329.00	90.90	0.40	10,683.60	3,882.89	356.54	3,882.89	1.26	1.26	0.00
14,423.00	90.50	1.60	10,682.45	3,976.87	358.18	3,976.87	1.35	-0.43	1.28
14,517.00	89.30	2.10	10,682.61	4,070.82	361.21	4,070.82	1.38	-1.28	0.53
14,611.00	90.60	2.00	10,682.70	4,164.75	364.57	4,164.75	1.39	1.38	-0.11
14,707.00	90.90	1.40	10,681.44	4,260.70	367.42	4,260.70	0.70	0.31	-0.62
14,801.00	90.60	1.30	10,680.21	4,354.67	369.64	4,354.67	0.34	-0.32	-0.11
14,895.00	91.80	0.40	10,678.24	4,448.64	371.03	4,448.64	1.60	1.28	-0.96
14,990.00	91.30	0.00	10,675.67	4,543.60	371.36	4,543.60	0.67	-0.53	-0.42
15,085.00	91.60	359.10	10,673.27	4,638.57	370.62	4,638.57	1.00	0.32	-0.95
15,178.00	89.80	357.50	10,672.13	4,731.51	367.86	4,731.51	2.59	-1.94	-1.72
15,271.00	90.20	358.30	10,672.13	4,824.45	364.45	4,824.45	0.96	0.43	0.86
15,365.00	89.60	357.80	10,672.29	4,918.39	361.25	4,918.39	0.83	-0.64	-0.53
15,460.00	91.70	357.80	10,671.22	5,013.31	357.60	5,013.31	2.21	2.21	0.00
15,553.00	89.80	357.80	10,670.00	5,106.23	354.04	5,106.23	2.04	-2.04	0.00
15,647.00	89.20	358.50	10,670.82	5,200.18	351.00	5,200.18	0.98	-0.64	0.74
15,741.00	88.50	358.50	10,672.71	5,294.12	348.54	5,294.12	0.74	-0.74	0.00
15,836.00	88.90	357.90	10,674.86	5,389.05	345.56	5,389.05	0.76	0.42	-0.63
15,931.00	90.20	357.30	10,675.61	5,483.96	341.58	5,483.96	1.51	1.37	-0.63
16,026.00	90.20	358.80	10,675.28	5,578.91	338.35	5,578.91	1.58	0.00	1.58
16,119.00	91.30	358.50	10,674.06	5,671.87	336.16	5,671.87	1.23	1.18	-0.32
16,213.00	91.10	359.00	10,672.09	5,765.83	334.11	5,765.83	0.57	-0.21	0.53
16,307.00	89.80	359.80	10,671.35	5,859.82	333.12	5,859.82	1.62	-1.38	0.85
16,401.00	90.90	359.80	10,670.78	5,953.81	332.79	5,953.81	1.17	1.17	0.00
16,496.00	89.70	359.30	10,670.28	6,048.81	332.05	6,048.81	1.37	-1.26	-0.53
16,591.00	90.30	358.10	10,670.28	6,143.78	329.89	6,143.78	1.41	0.63	-1.26
16,685.00	91.70	357.80	10,668.64	6,237.70	326.53	6,237.70	1.52	1.49	-0.32
16,781.00	90.60	358.50	10,666.71	6,333.63	323.43	6,333.63	1.36	-1.15	0.73
16,875.00	90.60	358.50	10,665.73	6,427.59	320.97	6,427.59	0.00	0.00	0.00
16,969.00	90.30	359.90	10,664.99	6,521.58	319.66	6,521.58	1.52	-0.32	1.49
17,063.00	91.10	0.50	10,663.84	6,615.57	319.99	6,615.57	1.06	0.85	0.64
17,156.00	88.50	359.90	10,664.17	6,708.56	320.31	6,708.56	2.87	-2.80	-0.65
17,251.00	89.40	359.90	10,665.91	6,803.54	320.15	6,803.54	0.95	0.95	0.00
17,345.00	90.80	0.00	10,665.74	6,897.54	320.06	6,897.54	1.49	1.49	0.11
17,440.00	91.00	358.90	10,664.25	6,992.52	319.15	6,992.52	1.18	0.21	-1.16
17,536.00	88.50	357.70	10,664.67	7,088.47	316.30	7,088.47	2.89	-2.60	-1.25
17,630.00	90.30	357.10	10,665.65	7,182.36	312.04	7,182.36	2.02	1.91	-0.64
17,724.00	88.00	357.80	10,667.05	7,276.25	307.86	7,276.25	2.56	-2.45	0.74
17,819.00	89.30	357.00	10,669.29	7,371.13	303.55	7,371.13	1.61	1.37	-0.84
17,913.00	88.80	358.00	10,670.85	7,465.02	299.45	7,465.02	1.19	-0.53	1.06

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 122H - Slot
Project:	Eddy County, NM (NAD27) NMEZ US	TVD Reference:	REMUDA NORTH 30 STATE_122H_SHL
Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Wellbore:	North 30 122H	Survey Calculation Method:	Grid
Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18,007.00	88.40	358.90	10,673.14	7,558.96	296.91	7,558.96	1.05	-0.43	0.96
18,103.00	88.80	357.80	10,675.49	7,654.89	294.15	7,654.89	1.22	0.42	-1.15
18,197.00	88.80	0.10	10,677.46	7,748.85	292.42	7,748.85	2.45	0.00	2.45
18,291.00	89.80	359.40	10,678.61	7,842.84	292.01	7,842.84	1.30	1.06	-0.74
18,385.00	91.40	358.50	10,677.62	7,936.81	290.29	7,936.81	1.95	1.70	-0.96
18,452.74	92.20	358.28	10,675.49	8,004.50	288.39	8,004.50	1.23	1.18	-0.32
REMUDA NORTH 30 STATE_122H_LTP (330°FNL,345°FEL)									
18,453.00	92.20	358.28	10,675.48	8,004.75	288.38	8,004.75	1.23	1.18	-0.32
Wellpath Crosses LTP									
18,478.00	92.50	358.20	10,674.46	8,029.72	287.62	8,029.72	1.23	1.18	-0.32
18,526.00	93.50	357.80	10,671.94	8,077.62	285.94	8,077.62	2.24	2.08	-0.83
18,576.00	93.50	357.80	10,668.89	8,127.49	284.03	8,127.49	0.00	0.00	0.00
REMUDA N 30 STATE_122H_PBHLp2 (200°FNL,345°FEL)									

Design Targets										
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
REMUDA NORTH 30 S1	- actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	463,892.70	625,552.90	32.2747045	-103.9271027
REMUDA NORTH 30 S1	- actual wellpath misses target center by 128.50usft at 18576.00usft MD (10668.89 TVD, 8127.49 N, 284.03 E) - Rectangle (sides W65.00 H7,416.00 D0.00)	0.00	0.01	10,547.00	8,135.60	323.90	472,028.30	625,876.80	32.2970651	-103.9259548
REMUDA NORTH 30 S1	- actual wellpath hits target center - Point	0.00	0.00	10,668.89	8,127.49	284.03	472,020.19	625,836.93	32.2970432	-103.9260839
REMUDA NORTH 30 S1	- actual wellpath misses target center by 36.61usft at 18452.74usft MD (10675.49 TVD, 8004.50 N, 288.39 E) - Point	0.00	0.00	10,678.00	8,005.60	324.90	471,898.30	625,877.80	32.2967077	-103.9259531
REMUDA NORTH 30 S1	- actual wellpath misses target center by 1.49usft at 11065.10usft MD (10696.52 TVD, 627.44 N, 323.28 E) - Point	0.00	0.00	10,698.00	627.49	323.43	464,520.19	625,876.33	32.2764260	-103.9260486
REMUDA NORTH 30 S1	- actual wellpath misses target center by 27.50usft at 11164.82usft MD (10690.78 TVD, 724.34 N, 346.07 E) - Point	0.00	0.00	10,698.00	719.20	372.10	464,611.90	625,925.00	32.2766776	-103.9258900

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 122H - Slot
Project:	Eddy County, NM (NAD27) NMEZ US	TVD Reference:	REMUDA NORTH 30 STATE_122H_SHL
Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 122H	North Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Wellbore:	North 30 122H	Survey Calculation Method:	Grid
Design:	North 30 122H (AsDrilled)	Database:	Minimum Curvature
			TP_EDM

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,792.00	10,663.33	369.03	250.68	Wellpath Crosses Section Line @ Heel	
11,139.00	10,692.22	699.17	340.52	Wellpath Crosses HL @ Heel	
11,160.00	10,691.05	719.64	345.05	Wellpath Crosses FTP	
18,453.00	10,675.48	8,004.75	288.38	Wellpath Crosses LTP	

Checked By: _____	Approved By: _____	Date: _____
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