

Provide Signature Page for Directional Survey

Report

30-015-44306

Company:	XTO Ene	Coordinate Reference:	Well Remuda North 25 State 121H - Slot N-25_121H
Project:	Eddy County, NM (NAD27) NMEZ	TVD Reference:	3065+24 @ 3089.00usft (Hercules)
Site:	Remuda North 25 State Pad	MD Reference:	3065+24 @ 3089.00usft (Hercules)
Well:	Remuda North 25 State 121H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Lateral (AsDrilled)	Database:	TRUEPERF_EDM

NM OIL CONSERVATION
ARTESIA DISTRICT

Project	Eddy County, NM (NAD27) NMEZ		
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		

DEC 17 2018

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Site	Remuda North 25 State Pad, Centered on 904H		
Site Position:		Northing:	463,887.20 ft
From:	Map	Easting:	621,538.10 ft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 16' 29.021 N
		Longitude:	103° 56' 24.348 W
		Grid Convergence:	0.21 °

Well	Remuda North 25 State 121H - Slot N-25_121H		
Well Position	+N/-S	0.00 usft	Northing: 463,886.80 ft
	+E/-W	0.00 usft	Easting: 620,218.90 ft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 16' 29.064 N
		Longitude:	103° 56' 39.713 W
		Ground Level:	3,065.00 usft

Wellbore	Lateral		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	03/14/18	7.05
			Dip Angle (°) 60.04
			Field Strength (nT) 47,855

Design	Lateral (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)
	0.00	0.00	0.00
			Direction (°) 357.86

Survey Program	Date 07/15/18		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
202.00	18,459.00	Survey #1 (Lateral)	MWD
18,510.00	18,510.00	Survey #2 (Lateral)	Projection
			Description
			MWD v3:standard declination
			Projection

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-25_121H_SL - N-25_101H_SL									
202.00	0.80	274.00	201.99	0.10	-1.41	0.15	0.40	0.40	0.00
263.00	1.00	209.00	262.99	-0.34	-2.09	-0.26	1.61	0.33	-106.56
327.00	1.80	245.00	326.97	-1.25	-3.27	-1.13	1.80	1.25	56.25
421.00	1.70	249.90	420.93	-2.35	-5.92	-2.13	0.19	-0.11	5.21
500.00	0.60	209.50	499.91	-3.12	-7.22	-2.84	1.65	-1.39	-51.14
560.00	0.60	150.90	559.91	-3.66	-7.22	-3.39	0.98	0.00	-97.67
654.00	0.90	134.20	653.90	-4.61	-6.46	-4.36	0.39	0.32	-17.77

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Well:	Remuda North 25 State 121H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Lateral (AsDrilled)	Database:	TRUEPERF_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)
750.00	1.40	130.70	749.88	-5.90	-5.03	-5.71	0.53	0.52	-3.65
844.00	1.10	209.70	843.86	-7.43	-4.60	-7.26	1.71	-0.32	84.04
939.00	1.80	223.90	938.83	-9.30	-6.09	-9.07	0.82	0.74	14.95
1,033.00	1.10	197.80	1,032.80	-11.22	-7.39	-10.94	1.01	-0.74	-27.77
1,127.00	1.20	148.30	1,126.78	-12.92	-7.15	-12.64	1.03	0.11	-52.66
1,221.00	1.70	137.30	1,220.75	-14.78	-5.68	-14.56	0.61	0.53	-11.70
1,316.00	1.20	101.00	1,315.73	-16.01	-3.75	-15.86	1.07	-0.53	-38.21
1,410.00	0.40	85.80	1,409.72	-16.17	-2.46	-16.07	0.87	-0.85	-16.17
1,505.00	0.40	217.30	1,504.71	-16.41	-2.33	-16.31	0.77	0.00	138.42
1,599.00	0.40	246.10	1,598.71	-16.80	-2.83	-16.69	0.21	0.00	30.64
1,694.00	0.30	216.00	1,693.71	-17.14	-3.28	-17.01	0.22	-0.11	-31.68
1,788.00	0.30	152.00	1,787.71	-17.56	-3.31	-17.42	0.34	0.00	-68.08
1,883.00	0.50	178.30	1,882.71	-18.19	-3.18	-18.06	0.28	0.21	27.68
1,978.00	0.50	170.20	1,977.70	-19.01	-3.09	-18.88	0.07	0.00	-8.53
2,074.00	0.70	153.10	2,073.70	-19.95	-2.76	-19.83	0.28	0.21	-17.81
2,169.00	0.70	148.20	2,168.69	-20.96	-2.19	-20.86	0.06	0.00	-5.16
2,263.00	0.60	146.50	2,262.69	-21.86	-1.62	-21.78	0.11	-0.11	-1.81
2,358.00	0.80	107.90	2,357.68	-22.48	-0.71	-22.43	0.53	0.21	-40.63
2,453.00	0.30	212.40	2,452.68	-22.89	-0.21	-22.87	0.97	-0.53	110.00
2,548.00	1.10	157.00	2,547.67	-23.94	0.01	-23.92	1.01	0.84	-58.32
2,643.00	2.10	142.40	2,642.63	-26.16	1.43	-26.19	1.13	1.05	-15.37
2,738.00	2.10	177.30	2,737.57	-29.28	2.57	-29.35	1.33	0.00	36.74
2,832.00	2.20	201.10	2,831.51	-32.68	2.00	-32.73	0.95	0.11	25.32
2,928.00	1.80	228.30	2,927.45	-35.40	0.22	-35.38	1.06	-0.42	28.33
3,022.00	0.50	313.40	3,021.43	-36.10	-1.18	-36.03	1.94	-1.38	90.53
3,117.00	1.20	4.30	3,116.42	-34.82	-1.41	-34.75	1.02	0.74	53.58
3,210.00	0.40	283.00	3,209.41	-33.78	-1.65	-33.70	1.30	-0.86	-87.42
3,304.00	0.60	276.00	3,303.41	-33.66	-2.46	-33.54	0.22	0.21	-7.45
3,399.00	0.60	267.70	3,398.41	-33.62	-3.46	-33.47	0.09	0.00	-8.74
3,493.00	0.70	254.20	3,492.40	-33.80	-4.50	-33.61	0.19	0.11	-14.36
3,587.00	0.80	245.30	3,586.39	-34.23	-5.65	-34.00	0.16	0.11	-9.47
3,682.00	0.60	272.40	3,681.39	-34.49	-6.75	-34.21	0.40	-0.21	28.53
3,775.00	0.90	270.00	3,774.38	-34.47	-7.96	-34.14	0.32	0.32	-2.58
3,870.00	0.70	286.00	3,869.37	-34.31	-9.27	-33.94	0.31	-0.21	16.84
3,964.00	0.70	274.80	3,963.36	-34.10	-10.39	-33.69	0.15	0.00	-11.91
4,058.00	0.70	262.40	4,057.35	-34.13	-11.53	-33.67	0.16	0.00	-13.19
4,153.00	0.90	256.50	4,152.34	-34.38	-12.83	-33.88	0.23	0.21	-6.21
4,248.00	1.00	261.50	4,247.33	-34.68	-14.38	-34.11	0.14	0.11	5.26
4,343.00	1.00	262.40	4,342.32	-34.91	-16.02	-34.28	0.02	0.00	0.95
4,437.00	1.10	256.50	4,436.30	-35.23	-17.71	-34.54	0.16	0.11	-6.28
4,532.00	1.10	251.30	4,531.28	-35.73	-19.46	-34.98	0.11	0.00	-5.47
4,627.00	1.10	261.60	4,626.27	-36.16	-21.23	-35.34	0.21	0.00	10.84

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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	1.20	252.10	4,720.25	-36.59	-23.06	-35.71	0.23	0.11	-10.11
4,815.00	1.20	252.10	4,814.23	-37.20	-24.93	-36.24	0.00	0.00	0.00
4,908.00	1.10	252.90	4,907.21	-37.76	-26.71	-36.73	0.11	-0.11	0.86
5,003.00	1.30	251.80	5,002.19	-38.36	-28.61	-37.27	0.21	0.21	-1.16
5,098.00	1.20	257.30	5,097.16	-38.92	-30.60	-37.75	0.16	-0.11	5.79
5,193.00	1.10	252.90	5,192.15	-39.41	-32.44	-38.17	0.14	-0.11	-4.63
5,288.00	1.10	250.00	5,287.13	-39.99	-34.17	-38.68	0.06	0.00	-3.05
5,382.00	1.50	246.20	5,381.10	-40.79	-36.14	-39.41	0.44	0.43	-4.04
5,476.00	1.90	248.10	5,475.06	-41.87	-38.72	-40.39	0.43	0.43	2.02
5,570.00	2.30	252.30	5,569.00	-43.02	-41.96	-41.43	0.46	0.43	4.47
5,666.00	2.50	257.00	5,664.91	-44.08	-45.83	-42.34	0.29	0.21	4.90
5,761.00	2.50	252.80	5,759.82	-45.16	-49.83	-43.27	0.19	0.00	-4.42
5,856.00	2.80	252.20	5,854.72	-46.48	-54.02	-44.43	0.32	0.32	-0.63
5,950.00	2.60	250.40	5,948.62	-47.90	-58.22	-45.69	0.23	-0.21	-1.91
6,045.00	2.70	251.80	6,043.52	-49.32	-62.37	-46.96	0.13	0.11	1.47
6,139.00	2.50	250.60	6,137.42	-50.69	-66.41	-48.18	0.22	-0.21	-1.28
6,232.00	2.30	253.60	6,230.34	-51.89	-70.11	-49.24	0.25	-0.22	3.23
6,326.00	2.40	256.00	6,324.26	-52.90	-73.83	-50.11	0.15	0.11	2.55
6,420.00	2.30	253.50	6,418.18	-53.91	-77.55	-50.98	0.15	-0.11	-2.66
6,514.00	2.20	246.80	6,512.11	-55.16	-81.02	-52.10	0.30	-0.11	-7.13
6,608.00	2.10	246.40	6,606.04	-56.56	-84.25	-53.37	0.11	-0.11	-0.43
6,702.00	2.00	244.90	6,699.98	-57.94	-87.32	-54.64	0.12	-0.11	-1.60
6,797.00	2.20	244.10	6,794.92	-59.44	-90.46	-56.03	0.21	0.21	-0.84
6,892.00	2.10	246.60	6,889.85	-60.93	-93.69	-57.39	0.14	-0.11	2.63
6,986.00	2.00	245.70	6,983.79	-62.29	-96.77	-58.63	0.11	-0.11	-0.96
7,080.00	2.10	243.40	7,077.73	-63.74	-99.80	-59.97	0.14	0.11	-2.45
7,175.00	2.20	245.70	7,172.66	-65.27	-103.02	-61.37	0.14	0.11	2.42
7,270.00	2.50	239.40	7,267.58	-67.07	-106.47	-63.05	0.42	0.32	-6.63
7,363.00	2.50	235.50	7,360.50	-69.25	-109.89	-65.10	0.18	0.00	-4.19
7,457.00	2.30	223.80	7,454.41	-71.78	-112.88	-67.51	0.56	-0.21	-12.45
7,550.00	2.50	212.10	7,547.33	-74.84	-115.25	-70.49	0.57	0.22	-12.58
7,644.00	2.20	178.60	7,641.26	-78.38	-116.30	-73.98	1.47	-0.32	-35.64
7,738.00	1.90	160.70	7,735.20	-81.66	-115.74	-77.28	0.75	-0.32	-19.04
7,831.00	1.50	151.90	7,828.16	-84.18	-114.65	-79.84	0.51	-0.43	-9.46
7,925.00	1.00	159.80	7,922.13	-86.04	-113.79	-81.73	0.56	-0.53	8.40
8,019.00	0.60	142.40	8,016.13	-87.20	-113.21	-82.91	0.49	-0.43	-18.51
8,112.00	0.30	201.30	8,109.12	-87.81	-113.00	-83.53	0.55	-0.32	63.33
8,207.00	0.40	215.10	8,204.12	-88.32	-113.28	-84.02	0.14	0.11	14.53
8,303.00	0.80	240.80	8,300.12	-88.92	-114.06	-84.60	0.49	0.42	26.77
8,397.00	0.60	261.30	8,394.11	-89.31	-115.12	-84.95	0.34	-0.21	21.81
8,491.00	0.80	268.50	8,488.10	-89.40	-116.26	-85.00	0.23	0.21	7.66
8,586.00	0.60	267.50	8,583.10	-89.44	-117.42	-84.99	0.21	-0.21	-1.05
8,681.00	0.80	262.60	8,678.09	-89.55	-118.57	-85.06	0.22	0.21	-5.16

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Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Lateral (AsDrilled)	Database:	TRUEPERF_EDM

Survey									
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8,775.00	1.00	298.30	8,772.08	-89.24	-119.95	-84.70	0.62	0.21	37.98
8,869.00	0.50	29.90	8,866.07	-88.50	-120.46	-83.94	1.20	-0.53	97.45
8,963.00	1.50	59.70	8,960.06	-87.52	-119.20	-83.01	1.16	1.06	31.70
9,058.00	2.30	66.90	9,055.00	-86.15	-116.37	-81.74	0.88	0.84	7.58
9,153.00	2.10	75.10	9,149.93	-84.95	-112.94	-80.68	0.39	-0.21	8.63
9,233.00	2.00	78.30	9,229.88	-84.29	-110.15	-80.12	0.19	-0.12	4.00
9,379.00	1.40	38.30	9,375.82	-82.38	-106.55	-78.34	0.89	-0.41	-27.40
9,473.00	1.70	27.60	9,469.79	-80.24	-105.19	-76.26	0.44	0.32	-11.38
9,567.00	1.60	31.40	9,563.75	-77.88	-103.86	-73.95	0.16	-0.11	4.04
9,662.00	0.70	61.50	9,658.73	-76.48	-102.66	-72.59	1.11	-0.95	31.68
9,756.00	0.40	70.30	9,752.73	-76.09	-101.85	-72.23	0.33	-0.32	9.36
9,855.00	1.40	278.30	9,851.72	-75.80	-102.72	-71.91	1.78	1.01	-153.54
9,887.00	4.30	303.60	9,883.67	-75.08	-104.11	-71.14	9.66	9.06	79.06
9,918.00	7.10	314.50	9,914.52	-73.09	-106.44	-69.07	9.64	9.03	35.16
9,949.00	9.40	319.20	9,945.20	-69.83	-109.46	-65.70	7.73	7.42	15.16
9,981.00	11.10	314.90	9,976.69	-65.68	-113.35	-61.40	5.82	5.31	-13.44
10,012.00	13.10	311.60	10,007.00	-61.24	-118.09	-56.79	6.82	6.45	-10.65
10,044.00	15.40	315.00	10,038.01	-55.83	-123.81	-51.17	7.65	7.19	10.62
10,076.00	18.10	317.10	10,068.65	-49.18	-130.20	-44.28	8.65	8.44	6.56
10,107.00	20.40	320.20	10,097.91	-41.50	-136.94	-36.36	8.12	7.42	10.00
10,140.00	22.40	323.70	10,128.64	-32.01	-144.34	-26.60	7.19	6.06	10.61
10,171.00	24.50	327.50	10,157.08	-21.83	-151.30	-16.17	8.34	6.77	12.26
10,203.00	25.60	332.00	10,186.07	-10.13	-158.11	-4.22	6.87	3.44	14.06
10,234.00	27.60	340.00	10,213.80	2.54	-163.71	8.65	13.22	6.45	25.81
10,265.00	30.10	348.80	10,240.96	16.92	-167.68	23.17	15.88	8.06	28.39
10,296.00	32.80	356.20	10,267.41	32.93	-169.75	39.25	15.18	8.71	23.87
10,328.00	35.20	4.90	10,293.96	50.78	-169.53	57.08	16.94	7.50	27.19
10,359.00	38.80	4.80	10,318.71	69.37	-167.96	75.59	11.61	11.61	-0.32
10,391.00	41.80	359.00	10,343.12	90.04	-167.30	96.22	15.00	9.37	-18.12
10,422.00	45.40	352.80	10,365.58	111.33	-168.87	117.56	18.02	11.61	-20.00
10,453.00	50.00	349.50	10,386.44	133.97	-172.42	140.32	16.79	14.84	-10.65
10,484.00	55.40	349.60	10,405.22	158.21	-176.89	164.71	17.42	17.42	0.32
10,516.00	60.40	350.00	10,422.22	184.88	-181.68	191.54	15.66	15.62	1.25
10,547.00	63.10	351.40	10,436.89	211.83	-186.09	218.63	9.57	8.71	4.52
10,579.00	65.40	353.00	10,450.79	240.38	-190.00	247.31	8.48	7.19	5.00
10,611.00	67.80	354.90	10,463.50	269.58	-193.09	276.61	9.27	7.50	5.94
10,642.00	69.40	356.10	10,474.81	298.36	-195.35	305.44	6.29	5.16	3.87
10,673.00	71.20	356.70	10,485.26	327.48	-197.18	334.62	6.09	5.81	1.94
10,704.00	71.90	357.20	10,495.07	356.85	-198.75	364.02	2.73	2.26	1.61
10,722.00	72.12	357.14	10,500.63	373.95	-199.59	381.14	1.28	1.25	-0.31
Wellpath Crosses Lease Line @ Heel									
10,736.00	72.30	357.10	10,504.91	387.26	-200.26	394.47	1.28	1.25	-0.31
10,768.00	73.10	357.40	10,514.42	417.78	-201.73	425.02	2.66	2.50	0.94

Survey Report

Company: XTO Energy

Local Co-ordinate Reference:

Well Remuda North 25 State 121H - Slot
N-25_121H

Project: Eddy County, NM (NAD27) NMEZ

TVD Reference:

3065+24 @ 3089.00usft (Hercules)

Site: Remuda North 25 State Pad

MD Reference:

3065+24 @ 3089.00usft (Hercules)

Well: Remuda North 25 State 121H

North Reference:

Grid

Wellbore: Lateral

Survey Calculation Method:

Minimum Curvature

Design: Lateral (AsDrilled)

Database:

TRUEPERF_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)
10,799.00	73.70	358.00	10,523.28	447.46	-202.92	454.73	2.68	1.94	1.94
10,830.00	74.80	358.30	10,531.69	477.28	-203.88	484.56	3.67	3.55	0.97
10,862.00	76.60	358.30	10,539.60	508.28	-204.80	515.57	5.62	5.62	0.00
10,893.00	78.90	358.50	10,546.17	538.56	-205.65	545.86	7.45	7.42	0.65
10,915.10	81.11	358.86	10,550.01	560.31	-206.15	567.62	10.13	10.00	1.62
N-25_121H_LP p3									
10,924.00	82.00	359.00	10,551.32	569.12	-206.31	576.42	10.13	10.00	1.60
10,944.53	83.09	358.87	10,553.98	589.46	-206.69	596.77	5.35	5.31	-0.63
N-25_121H_LP p2									
10,956.00	83.70	358.80	10,555.30	600.86	-206.92	608.17	5.35	5.31	-0.62
10,958.05	83.75	358.76	10,555.52	602.90	-206.97	610.21	2.97	2.26	-1.94
N-25_121H_LP									
10,987.00	84.40	358.20	10,558.51	631.68	-207.73	639.00	2.97	2.26	-1.94
11,008.05	85.32	357.74	10,560.40	652.64	-208.47	659.97	4.89	4.37	-2.19
N-25_902H_FTP									
11,019.00	85.80	357.50	10,561.25	663.54	-208.93	670.88	4.89	4.38	-2.18
11,028.93	86.38	357.31	10,561.92	673.44	-209.38	680.79	6.12	5.81	-1.94
N-25_122H_FTP									
11,050.00	87.60	356.90	10,563.03	694.45	-210.44	701.83	6.12	5.81	-1.93
11,052.87	87.72	356.94	10,563.15	697.31	-210.59	704.69	4.25	4.06	1.25
N-25_101H_FTP									
11,060.00	88.01	357.03	10,563.41	704.43	-210.97	711.82	4.25	4.06	1.25
Wellpath Crosses FTP (330°FSL,390°FWL)									
11,061.05	88.05	357.04	10,563.45	705.47	-211.02	712.86	4.25	4.06	1.25
N-25_121H_FTP									
11,082.00	88.90	357.30	10,564.01	726.39	-212.06	733.81	4.25	4.06	1.25
11,178.00	90.80	359.00	10,564.26	822.34	-215.16	829.80	2.66	1.98	1.77
11,272.00	91.50	358.30	10,562.37	916.29	-217.37	923.77	1.05	0.74	-0.74
11,366.00	89.80	359.40	10,561.31	1,010.26	-219.26	1,017.74	2.15	-1.81	1.17
11,461.00	91.80	359.40	10,559.98	1,105.24	-220.25	1,112.69	2.11	2.11	0.00
11,554.00	89.70	359.00	10,558.76	1,198.22	-221.55	1,205.66	2.30	-2.26	-0.43
11,649.00	89.10	359.40	10,559.76	1,293.20	-222.88	1,300.62	0.76	-0.63	0.42
11,743.00	90.60	359.40	10,560.00	1,387.20	-223.86	1,394.59	1.60	1.60	0.00
11,837.00	88.80	358.50	10,560.50	1,481.17	-225.58	1,488.56	2.14	-1.91	-0.96
11,932.00	89.60	358.10	10,561.82	1,576.12	-228.40	1,583.55	0.94	0.84	-0.42
12,025.00	88.00	358.60	10,563.77	1,669.06	-231.08	1,676.52	1.80	-1.72	0.54
12,120.00	87.50	0.30	10,567.50	1,763.98	-231.99	1,771.41	1.86	-0.53	1.79
12,213.00	87.80	0.30	10,571.31	1,856.90	-231.50	1,864.25	0.32	0.32	0.00
12,307.00	87.30	359.00	10,575.33	1,950.81	-232.08	1,958.11	1.48	-0.53	-1.38
12,402.00	89.10	359.50	10,578.32	2,045.75	-233.32	2,053.03	1.97	1.89	0.53
12,496.00	92.00	359.50	10,577.41	2,139.73	-234.14	2,146.98	3.09	3.09	0.00
12,589.00	92.80	359.10	10,573.52	2,232.64	-235.27	2,239.87	0.96	0.86	-0.43
12,683.00	90.20	0.10	10,571.06	2,326.60	-235.93	2,333.79	2.96	-2.77	1.06

Survey Report

Company: XTO Energy

Local Co-ordinate Reference:

Well Remuda North 25 State 121H - Slot
N-25_121H

Project: Eddy County, NM (NAD27) NMEZ

TVD Reference:

3065+24 @ 3089.00usft (Hercules)

Site: Remuda North 25 State Pad

MD Reference:

3065+24 @ 3089.00usft (Hercules)

Well: Remuda North 25 State 121H

North Reference:

Grid

Wellbore: Lateral

Survey Calculation Method:

Minimum Curvature

Design: Lateral (AsDrilled)

Database:

TRUEPERF_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)
12,779.00	91.20	359.20	10,569.89	2,422.59	-236.52	2,429.73	1.40	1.04	-0.94
12,873.00	88.70	1.50	10,569.97	2,516.57	-235.94	2,523.63	3.61	-2.66	2.45
12,968.00	88.70	1.40	10,572.12	2,611.52	-233.54	2,618.42	0.11	0.00	-0.11
13,063.00	89.00	0.60	10,574.03	2,706.48	-231.88	2,713.25	0.90	0.32	-0.84
13,157.00	90.80	0.30	10,574.19	2,800.47	-231.14	2,807.15	1.94	1.91	-0.32
13,251.00	90.60	0.30	10,573.05	2,894.47	-230.65	2,901.06	0.21	-0.21	0.00
13,346.00	90.80	358.80	10,571.88	2,989.45	-231.40	2,996.01	1.59	0.21	-1.58
13,473.00	90.70	358.10	10,570.22	3,116.40	-234.83	3,122.99	0.56	-0.08	-0.55
13,568.00	89.10	358.00	10,570.39	3,211.34	-238.06	3,217.99	1.69	-1.68	-0.11
13,662.00	87.50	359.30	10,573.18	3,305.26	-240.28	3,311.93	2.19	-1.70	1.38
13,757.00	89.50	0.00	10,575.66	3,400.22	-240.86	3,406.85	2.23	2.11	0.74
13,853.00	89.90	359.50	10,576.17	3,496.22	-241.28	3,502.79	0.67	0.42	-0.52
13,947.00	92.60	0.30	10,574.12	3,590.19	-241.44	3,596.70	3.00	2.87	0.85
14,042.00	91.70	359.60	10,570.55	3,685.12	-241.52	3,691.57	1.20	-0.95	-0.74
14,137.00	90.00	358.70	10,569.14	3,780.10	-242.93	3,786.53	2.02	-1.79	-0.95
14,230.00	88.20	359.40	10,570.60	3,873.07	-244.48	3,879.50	2.08	-1.94	0.75
14,325.00	89.30	359.30	10,572.68	3,968.04	-245.55	3,974.44	1.16	1.16	-0.11
14,419.00	91.60	0.90	10,571.94	4,062.03	-245.39	4,068.36	2.98	2.45	1.70
14,515.00	89.50	359.50	10,571.02	4,158.01	-245.05	4,164.26	2.63	-2.19	-1.46
14,610.00	89.80	0.00	10,571.60	4,253.01	-245.47	4,259.21	0.61	0.32	0.53
14,704.00	91.80	359.20	10,570.28	4,346.99	-246.12	4,353.15	2.29	2.13	-0.85
14,798.00	92.80	1.10	10,566.51	4,440.91	-245.88	4,446.99	2.28	1.06	2.02
14,891.00	92.50	359.50	10,562.21	4,533.81	-245.39	4,539.81	1.75	-0.32	-1.72
14,985.00	90.80	358.80	10,559.50	4,627.75	-246.79	4,633.74	1.96	-1.81	-0.74
15,078.00	88.60	359.80	10,559.99	4,720.74	-247.92	4,726.70	2.60	-2.37	1.08
15,172.00	88.20	1.10	10,562.62	4,814.70	-247.19	4,820.57	1.45	-0.43	1.38
15,267.00	87.70	1.50	10,566.01	4,909.61	-245.03	4,915.34	0.67	-0.53	0.42
15,361.00	87.50	0.30	10,569.95	5,003.52	-243.56	5,009.12	1.29	-0.21	-1.28
15,455.00	88.60	359.20	10,573.15	5,097.46	-243.97	5,103.01	1.65	1.17	-1.17
15,548.00	90.30	358.20	10,574.04	5,190.42	-246.08	5,195.99	2.12	1.83	-1.08
15,643.00	91.80	358.00	10,572.30	5,285.35	-249.23	5,290.97	1.59	1.58	-0.21
15,738.00	92.80	357.60	10,568.49	5,380.21	-252.87	5,385.90	1.13	1.05	-0.42
15,833.00	91.60	0.60	10,564.84	5,475.11	-254.36	5,480.79	3.40	-1.26	3.16
15,929.00	92.20	1.20	10,561.66	5,571.05	-252.85	5,576.60	0.88	0.62	0.62
16,024.00	88.50	0.40	10,561.08	5,666.02	-251.53	5,671.46	3.98	-3.89	-0.84
16,118.00	90.10	0.00	10,562.23	5,760.01	-251.20	5,765.37	1.75	1.70	-0.43
16,213.00	89.70	359.40	10,562.39	5,855.00	-251.70	5,860.32	0.76	-0.42	-0.63
16,307.00	88.50	358.80	10,563.87	5,948.98	-253.17	5,954.28	1.43	-1.28	-0.64
16,401.00	89.90	359.50	10,565.18	6,042.96	-254.57	6,048.25	1.67	1.49	0.74
16,496.00	90.30	359.50	10,565.02	6,137.95	-255.39	6,143.21	0.42	0.42	0.00
16,590.00	91.40	358.90	10,563.62	6,231.93	-256.71	6,237.17	1.33	1.17	-0.64
16,684.00	89.10	357.60	10,563.21	6,325.88	-259.58	6,331.16	2.81	-2.45	-1.38
16,778.00	90.30	358.90	10,563.70	6,419.83	-262.45	6,425.15	1.88	1.28	1.38

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 25 State 121H - Slot N-25_121H
Project:	Eddy County, NM (NAD27) NMEZ	TVD Reference:	3065+24 @ 3089.00usft (Hercules)
Site:	Remuda North 25 State Pad	MD Reference:	3065+24 @ 3089.00usft (Hercules)
Well:	Remuda North 25 State 121H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Lateral (AsDrilled)	Database:	TRUEPERF_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)
16,872.00	90.30	1.00	10,563.21	6,513.82	-262.53	6,519.08	2.23	0.00	2.23
16,966.00	90.60	0.70	10,562.47	6,607.81	-261.14	6,612.95	0.45	0.32	-0.32
17,060.00	94.00	1.40	10,558.70	6,701.70	-259.42	6,706.72	3.69	3.62	0.74
17,155.00	92.80	1.10	10,553.07	6,796.51	-257.35	6,801.38	1.30	-1.26	-0.32
17,249.00	92.70	0.20	10,548.56	6,890.40	-256.28	6,895.16	0.96	-0.11	-0.96
17,342.00	89.80	358.90	10,546.53	6,983.36	-257.01	6,988.09	3.42	-3.12	-1.40
17,437.00	89.60	358.20	10,547.03	7,078.33	-259.42	7,083.08	0.77	-0.21	-0.74
17,531.00	90.80	358.00	10,546.70	7,172.27	-262.53	7,177.07	1.29	1.28	-0.21
17,625.00	89.80	358.00	10,546.20	7,266.21	-265.81	7,271.07	1.06	-1.06	0.00
17,719.00	91.00	358.00	10,545.55	7,360.15	-269.09	7,365.07	1.28	1.28	0.00
17,814.00	89.40	359.00	10,545.22	7,455.11	-271.58	7,460.06	1.99	-1.68	1.05
17,908.00	91.00	357.90	10,544.89	7,549.08	-274.12	7,554.05	2.07	1.70	-1.17
18,003.00	90.60	358.50	10,543.56	7,644.02	-277.11	7,649.03	0.76	-0.42	0.63
18,098.00	88.30	359.70	10,544.47	7,738.99	-278.60	7,744.00	2.73	-2.42	1.26
18,192.00	89.30	358.80	10,546.44	7,832.96	-279.83	7,837.95	1.43	1.06	-0.96
18,287.00	90.60	357.20	10,546.53	7,927.90	-283.14	7,932.94	2.17	1.37	-1.68
18,351.13	90.19	358.03	10,546.09	7,991.98	-285.81	7,997.07	1.44	-0.65	1.29
N-25_902H_LTP									
18,354.89	90.16	358.08	10,546.07	7,995.73	-285.94	8,000.83	1.44	-0.65	1.29
N-25_122H_LTP									
18,375.00	90.03	358.34	10,546.04	8,015.83	-286.57	8,020.94	1.44	-0.65	1.29
Wellpath Crosses LTP (330'FNL,350'FWL)									
18,375.65	90.03	358.34	10,546.04	8,016.48	-286.59	8,021.59	1.44	-0.65	1.29
N-25_121H_LTP									
18,376.74	90.02	358.36	10,546.04	8,017.57	-286.62	8,022.68	1.44	-0.65	1.29
N-25_101H_LTP									
18,380.00	90.00	358.40	10,546.04	8,020.83	-286.71	8,025.94	1.44	-0.65	1.29
18,459.00	89.20	358.10	10,546.59	8,099.79	-289.13	8,104.94	1.08	-1.01	-0.38
18,478.58	89.20	358.10	10,546.86	8,119.35	-289.78	8,124.51	0.00	0.00	0.00
N-25_902H_PBHL									
18,482.89	89.20	358.10	10,546.92	8,123.66	-289.92	8,128.82	0.00	0.00	0.00
N-25_122H_PBHL									
18,505.78	89.20	358.10	10,547.24	8,146.54	-290.68	8,151.71	0.00	0.00	0.00
N-25_121H_PBHL p3 - N-25_121H_PBHL									
18,510.00	89.20	358.10	10,547.30	8,150.76	-290.82	8,155.93	0.00	0.00	0.00
TD @ 194'FNL,347'FWL - N-25_121H_BHL									

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 25 State 121H - Slot N-25_121H
Project:	Eddy County, NM (NAD27) NMEZ	TVD Reference:	3065+24 @ 3089.00usft (Hercules)
Site:	Remuda North 25 State Pad	MD Reference:	3065+24 @ 3089.00usft (Hercules)
Well:	Remuda North 25 State 121H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Lateral (AsDrilled)	Database:	TRUEPERF_EDM

Design Targets

Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(ft)	(ft)			
N-25_121H_SL	0.00	0.00	0.00	0.00	0.00	463,886.80	620,218.90	32° 16' 29.064 N	103° 56' 39.713 W	
- actual wellpath hits target center										
- Point										
N-25_121H_BHL	0.00	0.00	10,547.30	8,150.76	-290.82	472,037.58	619,928.08	32° 17' 49.735 N	103° 56' 42.757 W	
- actual wellpath misses target center by 0.01usft at 18510.00usft MD (10547.30 TVD, 8150.76 N, -290.82 E)										
- Point										
N-25_121H_LTP	0.00	0.00	10,553.00	8,015.98	-303.80	471,902.80	619,915.10	32° 17' 48.402 N	103° 56' 42.914 W	
- actual wellpath misses target center by 18.57usft at 18375.65usft MD (10546.04 TVD, 8016.48 N, -286.59 E)										
- Point										
N-25_121H_PBHL p3	0.00	0.00	10,553.00	8,145.98	-305.00	472,032.80	619,913.90	32° 17' 49.688 N	103° 56' 42.923 W	
- actual wellpath misses target center by 15.45usft at 18505.78usft MD (10547.24 TVD, 8146.54 N, -290.68 E)										
- Rectangle (sides W50.00 H7,442.00 D0.00)										
N-25_121H_FTP	0.00	0.00	10,567.00	703.20	-255.00	464,590.00	619,963.90	32° 16' 36.032 N	103° 56' 42.654 W	
- actual wellpath misses target center by 44.18usft at 11061.05usft MD (10563.45 TVD, 705.47 N, -211.02 E)										
- Point										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,722.00	10,500.63	373.95	-199.59	Wellpath Crosses Lease Line @ Heel
11,060.00	10,563.41	704.43	-210.97	Wellpath Crosses FTP (330'FSL,390'FWL)
18,375.00	10,546.04	8,015.83	-286.57	Wellpath Crosses LTP (330'FNL,350'FWL)
18,510.00	10,547.30	8,150.76	-290.82	TD @ 194'FNL,347'FWL

Checked By: _____	Approved By: _____	Date: _____
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XTO Energy

Project: Eddy County, NM (NAD27) NMEZ
 Site: Remuda North 25 State Pad
 Well: Remuda North 25 State 121H
 Wellbore: Lateral
 Design: Lateral (AsDrilled)

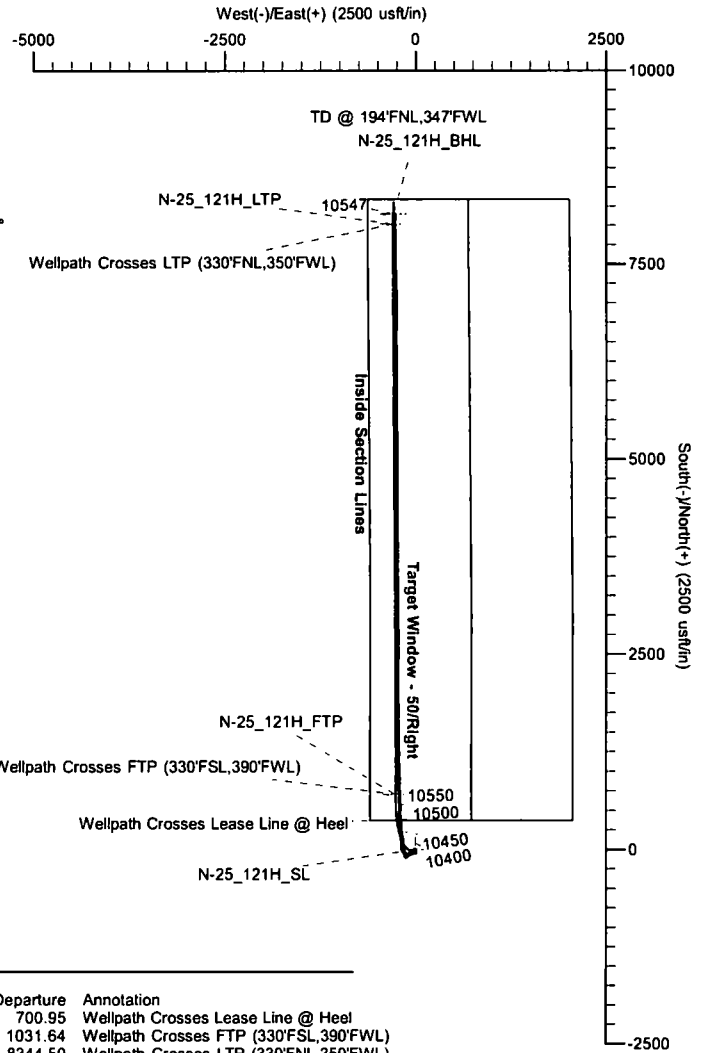
3065+24 @ 3089.00usft (Hercules)
 NAD 1927 (NADCON CONUS)

To convert a Magnetic Direction to a Grid Direction, Add 6.84°



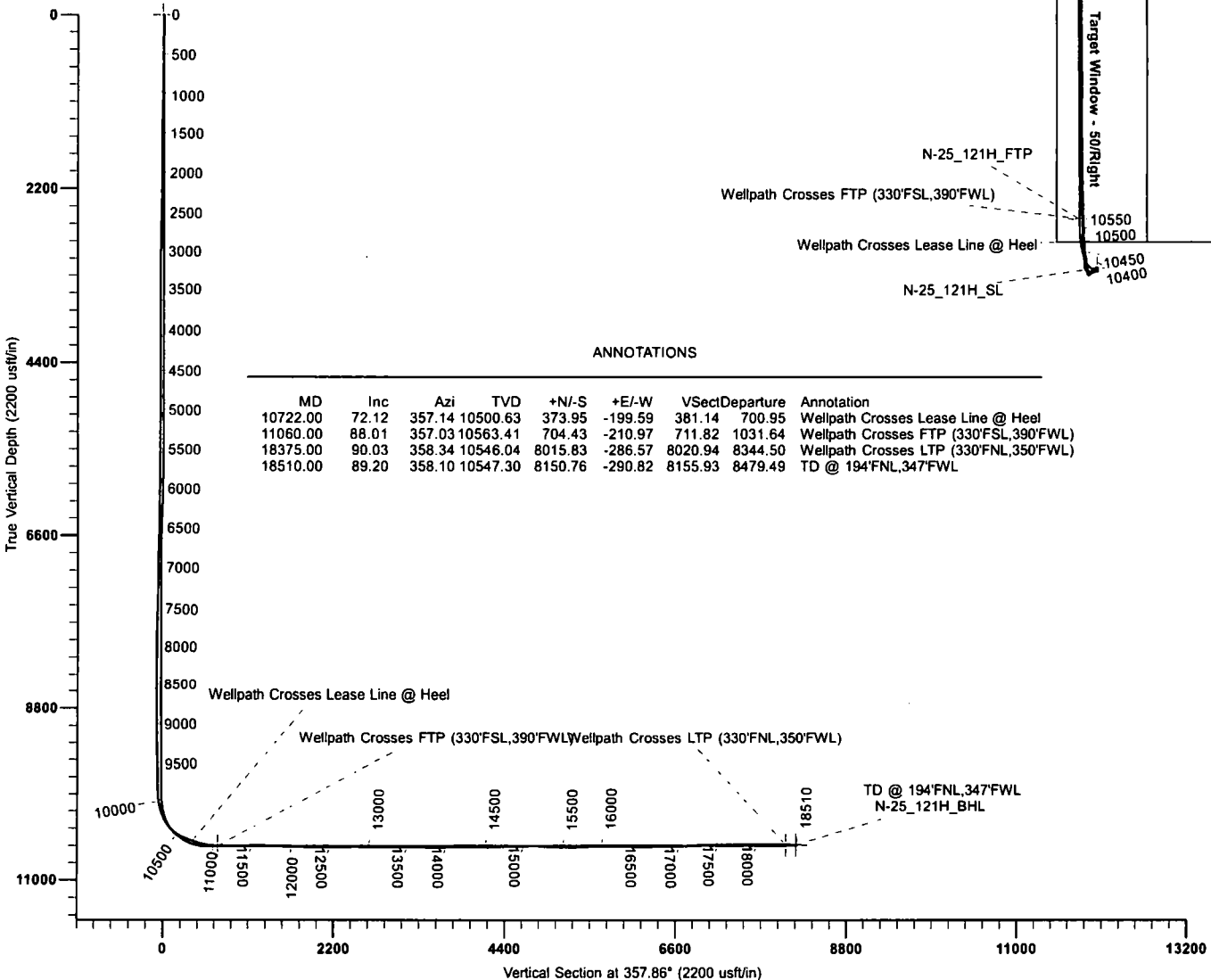
Azimuths to Grid North
 True North: -0.21°
 Magnetic North: 6.84°

Magnetic Field
 Strength: 47855.2snT
 Dip Angle: 60.04°
 Date: 03/14/2018
 Model: IGRF2015



ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
10722.00	72.12	357.14	10500.63	373.95	-199.59	381.14	700.95	Wellpath Crosses Lease Line @ Heel
11060.00	88.01	357.03	10563.41	704.43	-210.97	711.82	1031.64	Wellpath Crosses FTP (330°FSL, 390°FWL)
18375.00	90.03	358.34	10546.04	8015.83	-286.57	8020.94	8344.50	Wellpath Crosses LTP (330°FNL, 350°FWL)
18510.00	89.20	358.10	10547.30	8150.76	-290.82	8155.93	8479.49	TD @ 194°FNL, 347°FWL



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
N-25_121H_SL	0.00	0.00	0.00	463886.80	620218.90	Point
N-25_121H_BHL	10547.30	8150.76	-290.82	472037.58	619928.08	Point
N-25_121H_LTP	10553.00	8015.98	-303.80	471902.80	619915.10	Point
N-25_121H_PBHL p3	10553.00	8145.98	-305.00	472032.80	619913.90	Point
N-25_121H_FTP	10567.00	703.20	-255.00	464590.00	619963.90	Point
Rectangle (Sides: L7442.00 W50.00)						Point