

30-015-44402

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 121H - Slot REMUDA NORTH 30 STATE_121H_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 121H	North Reference:	Grid
Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (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 121H - Slot REMUDA NORTH 30 STATE_121H_SHL					
Well Position	+N/-S	0.00 usft	Northing:	463,892.40 usft	Latitude:	32.2747043
	+E/-W	0.00 usft	Easting:	625,492.80 usft	Longitude:	-103.9272972
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,090.00 usft	

Wellbore	North 30 121H				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2015	2018/06/21	7.01	60.04	47,829

Design	North 30 121H (AsDrilled)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	358.06	

Survey Program	Date	2018/10/13		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
161.00	18,603.00	Survey #1 (North 30 121H)	MWD	MWD v3:standard declination
18,655.00	18,655.00	Survey #2 (North 30 121H)	Projection	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
REMUDA NORTH 30 STATE_121H_SHL									
0.05	0.00	13.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
REMUDA NORTH 30 STATE_111H_SHL									
161.00	0.90	13.00	160.99	1.23	0.28	1.22	0.56	0.56	0.00
191.00	1.00	311.00	190.99	1.63	0.14	1.63	3.27	0.33	-206.67
251.00	1.10	341.00	250.98	2.52	-0.44	2.53	0.92	0.17	50.00
301.00	0.10	268.00	300.98	2.97	-0.64	2.99	2.15	-2.00	-146.00
372.00	1.10	297.00	371.97	3.28	-1.31	3.32	1.43	1.41	40.84

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Well Remuda North 30 State 121H - Slot
REMUDA NORTH 30 STATE_121H_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 121H

North Reference:

Grid

Wellbore: North 30 121H

Survey Calculation Method:

Minimum Curvature

Design: North 30 121H (AsDrilled)

Database:

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)
414.00	1.10	256.00	413.97	3.37	-2.06	3.43	1.83	0.00	-97.62
493.00	0.90	286.40	492.95	3.36	-3.39	3.47	0.71	-0.25	38.48
588.00	0.90	290.30	587.94	3.83	-4.81	3.99	0.06	0.00	4.11
682.00	0.70	283.70	681.93	4.22	-6.06	4.42	0.23	-0.21	-7.02
776.00	1.00	286.30	775.92	4.59	-7.40	4.83	0.32	0.32	2.77
870.00	1.10	289.10	869.91	5.11	-9.04	5.41	0.12	0.11	2.98
951.00	1.10	290.10	950.89	5.63	-10.51	5.99	0.02	0.00	1.23
1,045.00	1.30	282.60	1,044.87	6.18	-12.40	6.59	0.27	0.21	-7.98
1,139.00	1.50	282.00	1,138.84	6.66	-14.64	7.16	0.21	0.21	-0.64
1,233.00	1.70	271.90	1,232.81	6.97	-17.24	7.55	0.37	0.21	-10.74
1,327.00	2.00	260.30	1,326.76	6.74	-20.25	7.42	0.51	0.32	-12.34
1,422.00	1.00	240.40	1,421.72	6.05	-22.60	6.81	1.17	-1.05	-20.95
1,515.00	0.90	225.80	1,514.71	5.14	-23.83	5.94	0.28	-0.11	-15.70
1,610.00	1.10	223.40	1,609.70	3.95	-24.99	4.80	0.22	0.21	-2.53
1,704.00	1.30	233.40	1,703.68	2.66	-26.47	3.56	0.31	0.21	10.64
1,799.00	1.40	250.80	1,798.65	1.64	-28.43	2.60	0.44	0.11	18.32
1,893.00	1.50	262.50	1,892.62	1.10	-30.74	2.14	0.33	0.11	12.45
1,987.00	1.70	255.90	1,986.58	0.60	-33.31	1.73	0.29	0.21	-7.02
2,081.00	1.90	250.90	2,080.54	-0.25	-36.13	0.97	0.27	0.21	-5.32
2,176.00	1.20	274.90	2,175.50	-0.68	-38.61	0.63	0.99	-0.74	25.26
2,271.00	1.10	278.60	2,270.48	-0.46	-40.50	0.91	0.13	-0.11	3.89
2,365.00	1.20	269.20	2,364.47	-0.34	-42.38	1.10	0.23	0.11	-10.00
2,459.00	1.20	271.90	2,458.44	-0.32	-44.35	1.18	0.06	0.00	2.87
2,554.00	1.10	259.70	2,553.43	-0.45	-46.24	1.12	0.28	-0.11	-12.84
2,648.00	1.10	213.10	2,647.41	-1.37	-47.62	0.25	0.93	0.00	-49.57
2,742.00	1.60	186.80	2,741.38	-3.42	-48.27	-1.79	0.83	0.53	-27.98
2,836.00	1.30	227.60	2,835.36	-5.45	-49.21	-3.78	1.12	-0.32	43.40
2,930.00	2.00	223.20	2,929.32	-7.36	-51.12	-5.63	0.76	0.74	-4.68
3,025.00	1.10	222.20	3,024.28	-9.25	-52.87	-7.45	0.95	-0.95	-1.05
3,120.00	0.60	251.60	3,119.27	-10.08	-53.95	-8.25	0.68	-0.53	30.95
3,214.00	0.70	246.70	3,213.27	-10.46	-54.95	-8.59	0.12	0.11	-5.21
3,308.00	0.70	231.90	3,307.26	-11.04	-55.93	-9.14	0.19	0.00	-15.74
3,403.00	0.80	242.20	3,402.25	-11.71	-56.97	-9.77	0.18	0.11	10.84
3,498.00	0.90	237.90	3,497.24	-12.41	-58.19	-10.44	0.12	0.11	-4.53
3,593.00	0.80	245.70	3,592.23	-13.08	-59.43	-11.06	0.16	-0.11	8.21
3,687.00	0.90	253.70	3,686.22	-13.56	-60.73	-11.50	0.16	0.11	8.51
3,781.00	0.90	246.20	3,780.21	-14.07	-62.12	-11.96	0.13	0.00	-7.98
3,875.00	1.00	245.10	3,874.19	-14.71	-63.54	-12.55	0.11	0.11	-1.17
3,969.00	1.00	232.10	3,968.18	-15.56	-64.93	-13.35	0.24	0.00	-13.83
4,063.00	0.90	236.60	4,062.17	-16.47	-66.19	-14.22	0.13	-0.11	4.79
4,158.00	0.70	216.90	4,157.16	-17.34	-67.16	-15.06	0.36	-0.21	-20.74
4,253.00	0.70	217.20	4,252.15	-18.27	-67.86	-15.96	0.00	0.00	0.32
4,348.00	0.80	221.00	4,347.14	-19.23	-68.65	-16.90	0.12	0.11	4.00

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Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (AsDrilled)	Database:	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)
4,441.00	0.80	218.10	4,440.13	-20.23	-69.47	-17.87	0.04	0.00	-3.12
4,536.00	0.70	214.00	4,535.13	-21.24	-70.21	-18.85	0.12	-0.11	-4.32
4,630.00	0.60	214.70	4,629.12	-22.12	-70.81	-19.71	0.11	-0.11	0.74
4,724.00	0.40	226.30	4,723.12	-22.75	-71.33	-20.32	0.24	-0.21	12.34
4,818.00	0.70	232.90	4,817.11	-23.32	-72.02	-20.87	0.33	0.32	7.02
4,914.00	0.50	230.00	4,913.11	-23.95	-72.81	-21.47	0.21	-0.21	-3.02
5,008.00	0.60	235.10	5,007.10	-24.49	-73.53	-21.99	0.12	0.11	5.43
5,102.00	0.50	218.70	5,101.10	-25.09	-74.19	-22.57	0.20	-0.11	-17.45
5,198.00	0.60	217.70	5,197.09	-25.82	-74.76	-23.27	0.10	0.10	-1.04
5,293.00	0.50	198.40	5,292.09	-26.60	-75.19	-24.04	0.22	-0.11	-20.32
5,387.00	1.10	239.00	5,386.08	-27.46	-76.10	-24.87	0.84	0.64	43.19
5,482.00	1.60	250.40	5,481.05	-28.37	-78.13	-25.71	0.59	0.53	12.00
5,576.00	1.50	247.40	5,575.02	-29.28	-80.50	-26.54	0.14	-0.11	-3.19
5,670.00	1.50	249.80	5,668.99	-30.18	-82.79	-27.36	0.07	0.00	2.55
5,764.00	1.30	244.40	5,762.96	-31.07	-84.91	-28.18	0.25	-0.21	-5.74
5,858.00	1.20	243.50	5,856.94	-31.97	-86.75	-29.01	0.11	-0.11	-0.96
5,952.00	1.20	242.40	5,950.92	-32.86	-88.50	-29.85	0.02	0.00	-1.17
6,046.00	1.30	245.90	6,044.89	-33.75	-90.35	-30.68	0.13	0.11	3.72
6,140.00	1.20	246.00	6,138.87	-34.59	-92.22	-31.45	0.11	-0.11	0.11
6,235.00	1.30	248.80	6,233.85	-35.38	-94.13	-32.18	0.12	0.11	2.95
6,329.00	1.20	243.20	6,327.83	-36.21	-96.01	-32.94	0.17	-0.11	-5.96
6,424.00	1.10	237.90	6,422.81	-37.15	-97.67	-33.82	0.15	-0.11	-5.58
6,519.00	1.10	239.50	6,517.79	-38.09	-99.22	-34.71	0.03	0.00	1.68
6,614.00	1.40	239.60	6,612.77	-39.14	-101.01	-35.70	0.32	0.32	0.11
6,708.00	1.30	235.70	6,706.74	-40.33	-102.88	-36.82	0.14	-0.11	-4.15
6,802.00	1.50	224.30	6,800.71	-41.81	-104.62	-38.24	0.36	0.21	-12.13
6,896.00	1.50	233.80	6,894.68	-43.42	-106.47	-39.79	0.26	0.00	10.11
6,990.00	1.60	222.70	6,988.65	-45.11	-108.36	-41.41	0.34	0.11	-11.81
7,084.00	1.50	240.00	7,082.61	-46.69	-110.31	-42.92	0.51	-0.11	18.40
7,179.00	1.40	234.80	7,177.58	-47.98	-112.34	-44.15	0.17	-0.11	-5.47
7,274.00	1.60	236.20	7,272.55	-49.38	-114.39	-45.48	0.21	0.21	1.47
7,369.00	1.30	223.50	7,367.52	-50.90	-116.23	-46.94	0.46	-0.32	-13.37
7,463.00	1.40	217.50	7,461.49	-52.59	-117.66	-48.57	0.18	0.11	-6.38
7,557.00	1.30	221.60	7,555.47	-54.30	-119.07	-50.23	0.15	-0.11	4.36
7,654.00	1.70	183.00	7,652.44	-56.56	-119.88	-52.46	1.09	0.41	-39.79
7,748.00	2.00	168.40	7,746.39	-59.55	-119.62	-55.47	0.59	0.32	-15.53
7,842.00	1.50	161.60	7,840.34	-62.33	-118.90	-58.27	0.58	-0.53	-7.23
7,936.00	0.80	139.10	7,934.32	-63.99	-118.08	-59.96	0.87	-0.74	-23.94
8,030.00	0.70	132.90	8,028.32	-64.88	-117.23	-60.87	0.14	-0.11	-6.60
8,125.00	0.70	145.50	8,123.31	-65.75	-116.48	-61.77	0.16	0.00	13.26
8,219.00	0.60	185.60	8,217.30	-66.72	-116.20	-62.74	0.48	-0.11	42.66
8,313.00	0.90	215.00	8,311.30	-67.81	-116.67	-63.82	0.51	0.32	31.28

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Site:	Remuda North_South 31 State Pad	MD Reference:	3090+24 @ 3114.00usft (Orion Hercules)
Well:	Remuda North 30 State 121H	North Reference:	Grid
Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (AsDrilled)	Database:	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)
8,408.00	1.00	237.40	8,406.28	-68.87	-117.80	-64.84	0.40	0.11	23.58
8,501.00	1.50	224.30	8,499.26	-70.18	-119.33	-66.10	0.62	0.54	-14.09
8,592.93	1.40	222.00	8,591.16	-71.87	-120.93	-67.74	0.13	-0.11	-2.50
8,691.00	1.30	201.50	8,689.21	-73.80	-122.14	-69.62	0.50	-0.10	-20.90
8,786.00	1.90	170.60	8,784.17	-76.35	-122.27	-72.17	1.08	0.63	-32.53
8,881.00	2.70	147.70	8,879.09	-79.80	-120.82	-75.66	1.27	0.84	-24.11
8,976.00	2.60	142.70	8,973.99	-83.40	-118.32	-79.35	0.27	-0.11	-5.26
9,071.00	2.40	144.40	9,068.90	-86.74	-115.86	-82.76	0.22	-0.21	1.79
9,166.00	1.90	147.30	9,163.84	-89.68	-113.85	-85.77	0.54	-0.53	3.05
9,260.00	1.80	150.70	9,257.79	-92.28	-112.28	-88.42	0.16	-0.11	3.62
9,284.00	1.90	156.40	9,281.77	-92.97	-111.94	-89.13	0.87	0.42	23.75
9,368.00	2.70	173.30	9,365.71	-96.21	-111.15	-92.39	1.24	0.95	20.12
9,462.00	3.00	207.90	9,459.60	-100.58	-112.04	-96.73	1.83	0.32	36.81
9,556.00	2.60	252.70	9,553.50	-103.39	-115.23	-99.43	2.30	-0.43	47.66
9,651.00	3.40	279.70	9,648.37	-103.56	-120.06	-99.44	1.69	0.84	28.42
9,745.00	4.20	280.90	9,742.16	-102.44	-126.19	-98.11	0.86	0.85	1.28
9,840.00	4.00	289.70	9,836.92	-100.66	-132.73	-96.11	0.69	-0.21	9.26
9,936.00	4.10	291.10	9,932.68	-98.30	-139.08	-93.53	0.15	0.10	1.46
10,046.00	5.90	292.20	10,042.26	-94.75	-147.99	-89.68	1.64	1.64	1.00
10,078.00	9.60	302.50	10,073.96	-92.69	-151.76	-87.50	12.31	11.56	32.19
10,109.00	12.70	309.10	10,104.37	-89.15	-156.59	-83.80	10.80	10.00	21.29
10,140.00	15.20	310.00	10,134.46	-84.39	-162.35	-78.85	8.09	8.06	2.90
10,172.00	18.40	308.40	10,165.09	-78.56	-169.52	-72.77	10.10	10.00	-5.00
10,204.00	19.80	309.30	10,195.32	-71.99	-177.67	-65.93	4.47	4.37	2.81
10,235.00	19.60	307.60	10,224.51	-65.49	-185.85	-59.16	1.96	-0.65	-5.48
10,266.00	21.50	312.30	10,253.54	-58.49	-194.18	-51.88	8.11	6.13	15.16
10,297.00	25.00	316.50	10,282.02	-49.91	-202.89	-43.02	12.49	11.29	13.55
10,329.00	28.90	319.20	10,310.54	-39.15	-212.60	-31.93	12.77	12.19	8.44
10,360.00	32.50	323.00	10,337.19	-26.82	-222.51	-19.27	13.19	11.61	12.26
10,392.00	35.60	328.10	10,363.71	-12.04	-232.61	-4.16	13.16	9.69	15.94
10,423.00	38.10	333.60	10,388.52	4.19	-241.64	12.37	13.34	8.06	17.74
10,454.00	40.70	338.90	10,412.48	22.20	-249.53	30.63	13.71	8.39	17.10
10,485.00	43.00	343.80	10,435.57	41.78	-256.12	50.43	12.89	7.42	15.81
10,516.00	45.90	346.80	10,457.70	62.78	-261.62	71.60	11.55	9.35	9.68
10,548.00	47.90	349.30	10,479.57	85.64	-266.44	94.61	8.46	6.25	7.81
10,579.00	49.20	352.60	10,500.09	108.58	-270.09	117.66	9.01	4.19	10.65
10,610.00	48.90	356.60	10,520.42	131.88	-272.30	141.02	9.79	-0.97	12.90
10,641.00	50.30	1.10	10,540.51	155.47	-272.76	164.61	11.94	4.52	14.52
10,673.00	53.60	3.30	10,560.24	180.64	-271.78	189.74	11.65	10.31	6.87
10,704.00	58.60	4.30	10,577.52	206.31	-270.07	215.33	16.35	16.13	3.23
10,735.00	63.70	4.20	10,592.47	233.38	-268.06	242.32	16.45	16.45	-0.32
10,767.00	67.00	3.20	10,605.82	262.40	-266.19	271.26	10.70	10.31	-3.12
10,798.00	68.70	3.10	10,617.51	291.06	-264.61	299.85	5.49	5.48	-0.32

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 121H - Slot REMUDA NORTH 30 STATE_121H_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 121H	North Reference:	Grid
Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (AsDrilled)	Database:	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)
10,830.00	70.60	2.90	10,628.63	321.02	-263.04	329.74	5.97	5.94	-0.62
10,862.00	72.30	2.40	10,638.81	351.33	-261.64	359.98	5.52	5.31	-1.56
10,878.00	73.38	2.61	10,643.53	366.60	-260.97	375.22	6.89	6.77	1.30
Wellpath Crosses Unit Line @ Heel									
10,893.00	74.40	2.80	10,647.69	381.00	-260.29	389.59	6.89	6.77	1.28
10,925.00	75.60	6.00	10,655.98	411.81	-257.92	420.30	10.36	3.75	10.00
10,956.00	76.50	8.50	10,663.45	441.65	-254.12	450.00	8.35	2.90	8.06
10,988.00	78.20	9.20	10,670.46	472.50	-249.31	480.67	5.73	5.31	2.19
11,020.00	79.20	10.40	10,676.73	503.42	-243.97	511.39	4.83	3.12	3.75
11,031.49	80.02	10.85	10,678.80	514.53	-241.89	522.42	8.06	7.09	3.89
REMUDA NORTH 30 STATE_112H_LP (0'FNL,184'FEL)									
11,051.00	81.40	11.60	10,681.95	533.41	-238.14	541.17	8.06	7.10	3.86
11,082.00	84.00	11.20	10,685.89	563.55	-232.06	571.09	8.48	8.39	-1.29
11,092.66	85.10	10.90	10,686.91	573.97	-230.03	581.43	10.69	10.31	-2.82
REMUDA NORTH 30 STATE_121H_LP p3 (207'FSL,330'FWL)									
11,114.00	87.30	10.30	10,688.32	594.90	-226.11	602.21	10.69	10.31	-2.81
11,121.24	87.85	10.10	10,688.63	602.02	-224.83	609.28	8.08	7.62	-2.70
REMUDA NORTH 30 STATE_121H_LP p2 (235'FSL,330'FWL)									
11,126.63	88.26	9.96	10,688.81	607.32	-223.89	614.55	8.08	7.62	-2.70
REMUDA NORTH 30 STATE_122H_LP (349'FSL,345'FEL)									
11,129.91	88.51	9.87	10,688.90	610.55	-223.33	617.76	8.08	7.62	-2.70
REMUDA NORTH 30 STATE_111H_LP (104FNL,109'FWL)									
11,132.42	88.70	9.80	10,688.96	613.02	-222.90	620.21	8.08	7.62	-2.70
REMUDA NORTH 30 STATE_121H_LP (84'FNL,330'FWL)									
11,177.00	92.10	8.60	10,688.65	657.02	-215.77	663.95	8.08	7.62	-2.70
11,217.00	92.83	6.11	10,686.93	696.65	-210.66	703.38	6.49	1.84	-6.23
Wellpath Crosses 330'FSL @ Heel									
11,237.11	93.20	4.85	10,685.87	716.64	-208.74	723.30	6.49	1.83	-6.24
REMUDA NORTH 30 STATE_121H_FTP (353'FSL,330'FWL)									
11,255.12	93.53	3.73	10,684.81	734.57	-207.40	741.17	6.49	1.82	-6.24
REMUDA NORTH 30 STATE_111H_FTP (330'FSL,440'FWL)									
11,270.00	93.80	2.80	10,683.86	749.39	-206.55	755.96	6.49	1.81	-6.25
REMUDA NORTH 30 STATE_122H_FTP (349'FSL,345'FEL)									
11,274.90	93.53	2.70	10,683.55	754.28	-206.32	760.83	5.83	-5.47	-2.01
REMUDA NORTH 30 STATE_112H_FTP (380'FSL,38'FEL)									
11,365.00	88.60	0.90	10,681.87	844.29	-203.49	850.69	5.83	-5.47	-2.00
11,460.00	88.80	359.60	10,684.03	939.26	-203.07	945.60	1.38	0.21	-1.37
11,556.00	90.10	359.50	10,684.95	1,035.25	-203.83	1,041.56	1.36	1.35	-0.10
11,650.00	89.40	358.50	10,685.36	1,129.23	-205.47	1,135.54	1.30	-0.74	-1.06
11,744.00	90.00	358.10	10,685.85	1,223.19	-208.26	1,229.54	0.77	0.64	-0.43
11,839.00	88.80	356.80	10,686.84	1,318.09	-212.48	1,324.52	1.86	-1.26	-1.37
11,933.00	89.00	358.80	10,688.65	1,412.00	-216.09	1,418.50	2.14	0.21	2.13
12,026.00	91.20	0.10	10,688.49	1,504.98	-216.98	1,511.47	2.75	2.37	1.40
12,120.00	91.40	359.60	10,686.35	1,598.96	-217.23	1,605.40	0.57	0.21	-0.53

Survey Report

Company: XTO Energy

Local Co-ordinate Reference:

Well Remuda North 30 State 121H - Slot
REMUDA NORTH 30 STATE_121H_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 121H

North Reference:

Grid

Wellbore: North 30 121H

Survey Calculation Method:

Minimum Curvature

Design: North 30 121H (AsDrilled)

Database:

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)
12,214.00	91.00	358.30	10,684.39	1,692.92	-218.95	1,699.36	1.45	-0.43	-1.38
12,308.00	92.40	357.30	10,681.60	1,786.81	-222.56	1,793.32	1.83	1.49	-1.06
12,403.00	90.90	358.80	10,678.86	1,881.71	-225.79	1,888.27	2.23	-1.58	1.58
12,498.00	89.20	359.20	10,678.78	1,976.69	-227.45	1,983.25	1.84	-1.79	0.42
12,591.00	90.90	358.80	10,678.70	2,069.67	-229.07	2,076.24	1.88	1.83	-0.43
12,686.00	91.20	358.30	10,676.96	2,164.62	-231.47	2,171.22	0.61	0.32	-0.53
12,781.00	92.80	357.50	10,673.64	2,259.50	-234.95	2,266.16	1.88	1.68	-0.84
12,874.00	91.00	358.50	10,670.56	2,352.39	-238.19	2,359.10	2.21	-1.94	1.08
12,969.00	91.40	358.70	10,668.57	2,447.34	-240.51	2,454.08	0.47	0.42	0.21
13,063.00	89.30	0.40	10,667.99	2,541.32	-241.25	2,548.03	2.87	-2.23	1.81
13,157.00	89.60	359.90	10,668.90	2,635.32	-241.01	2,641.97	0.62	0.32	-0.53
13,251.00	87.30	1.20	10,671.44	2,729.27	-240.10	2,735.83	2.81	-2.45	1.38
13,345.00	87.60	1.20	10,675.62	2,823.16	-238.14	2,829.60	0.32	0.32	0.00
13,441.00	87.70	0.10	10,679.56	2,919.07	-237.05	2,925.42	1.15	0.10	-1.15
13,536.00	88.10	359.10	10,683.04	3,014.00	-237.71	3,020.32	1.13	0.42	-1.05
13,631.00	89.40	358.90	10,685.11	3,108.96	-239.37	3,115.28	1.38	1.37	-0.21
13,725.00	90.00	357.80	10,685.60	3,202.92	-242.08	3,209.28	1.33	0.64	-1.17
13,820.00	91.60	357.80	10,684.28	3,297.84	-245.72	3,304.27	1.68	1.68	0.00
13,914.00	88.60	358.60	10,684.11	3,391.78	-248.68	3,398.25	3.30	-3.19	0.85
14,008.00	87.40	0.60	10,687.39	3,485.71	-249.33	3,492.16	2.48	-1.28	2.13
14,104.00	87.50	359.70	10,691.67	3,581.62	-249.08	3,588.00	0.94	0.10	-0.94
14,197.00	88.60	1.70	10,694.83	3,674.55	-247.95	3,680.84	2.45	1.18	2.15
14,292.00	90.60	2.30	10,695.49	3,769.48	-244.63	3,775.61	2.20	2.11	0.63
14,386.00	89.60	1.30	10,695.33	3,863.44	-241.68	3,869.40	1.50	-1.06	-1.06
14,480.00	91.40	2.30	10,694.51	3,957.38	-238.73	3,963.19	2.19	1.91	1.06
14,574.00	92.60	2.40	10,691.23	4,051.24	-234.87	4,056.87	1.28	1.28	0.11
14,670.00	93.30	1.20	10,686.29	4,147.07	-231.86	4,152.54	1.45	0.73	-1.25
14,764.00	94.10	0.30	10,680.22	4,240.86	-230.63	4,246.24	1.28	0.85	-0.96
14,858.00	92.20	359.80	10,675.06	4,334.71	-230.55	4,340.03	2.09	-2.02	-0.53
14,953.00	85.90	356.10	10,676.63	4,429.58	-233.94	4,434.96	7.69	-6.63	-3.89
15,048.00	86.70	356.20	10,682.76	4,524.16	-240.31	4,529.70	0.85	0.84	0.11
15,165.00	88.70	356.70	10,687.46	4,640.84	-247.55	4,646.56	1.76	1.71	0.43
15,258.00	91.40	359.30	10,687.38	4,733.76	-250.79	4,739.54	4.03	2.90	2.80
15,352.00	92.10	359.50	10,684.51	4,827.71	-251.78	4,833.47	0.77	0.74	0.21
15,447.00	92.20	359.40	10,680.94	4,922.64	-252.69	4,928.38	0.15	0.11	-0.11
15,540.00	92.00	359.20	10,677.53	5,015.57	-253.82	5,021.29	0.30	-0.22	-0.22
15,633.00	92.30	359.10	10,674.04	5,108.50	-255.20	5,114.21	0.34	0.32	-0.11
15,728.00	92.80	358.70	10,669.82	5,203.39	-257.02	5,209.10	0.67	0.53	-0.42
15,822.00	91.10	359.90	10,666.62	5,297.32	-258.17	5,303.02	2.21	-1.81	1.28
15,918.00	91.20	359.40	10,664.69	5,393.30	-258.76	5,398.97	0.53	0.10	-0.52
16,012.00	88.90	359.90	10,664.61	5,487.29	-259.33	5,492.92	2.50	-2.45	0.53
16,106.00	88.90	359.10	10,666.42	5,581.27	-260.15	5,586.88	0.85	0.00	-0.85
16,199.00	89.30	358.90	10,667.88	5,674.24	-261.77	5,679.85	0.48	0.43	-0.22

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 121H - Slot REMUDA NORTH 30 STATE_121H_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 121H	North Reference:	Grid
Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (AsDrilled)	Database:	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)
16,293.00	89.30	358.50	10,669.02	5,768.21	-263.91	5,773.84	0.43	0.00	-0.43
16,388.00	89.40	358.70	10,670.10	5,863.18	-266.23	5,868.83	0.24	-0.11	0.21
16,482.00	89.40	358.10	10,671.09	5,957.13	-268.85	5,962.82	0.64	0.00	-0.64
16,578.00	89.70	359.60	10,671.84	6,053.11	-270.78	6,058.81	1.59	0.31	1.56
16,672.00	90.30	359.80	10,671.84	6,147.11	-271.27	6,152.77	0.67	0.64	0.21
16,767.00	90.80	0.00	10,670.93	6,242.10	-271.44	6,247.71	0.57	0.53	0.21
16,862.00	90.90	359.70	10,669.52	6,337.09	-271.69	6,342.66	0.33	0.11	-0.32
16,955.00	90.00	359.70	10,668.79	6,430.09	-272.17	6,435.61	0.97	-0.97	0.00
17,049.00	89.80	358.90	10,668.95	6,524.08	-273.32	6,529.59	0.88	-0.21	-0.85
17,144.00	89.80	0.40	10,669.28	6,619.07	-273.90	6,624.55	1.58	0.00	1.58
17,239.00	89.70	0.30	10,669.70	6,714.07	-273.32	6,719.47	0.15	-0.11	-0.11
17,332.00	89.50	359.70	10,670.35	6,807.07	-273.32	6,812.42	0.68	-0.22	-0.65
17,428.00	88.90	358.90	10,671.69	6,903.05	-274.49	6,908.39	1.04	-0.62	-0.83
17,524.00	88.70	0.50	10,673.70	6,999.02	-275.00	7,004.32	1.68	-0.21	1.67
17,618.00	88.90	1.40	10,675.67	7,092.99	-273.44	7,098.18	0.98	0.21	0.96
17,712.00	90.80	2.80	10,675.91	7,186.92	-269.99	7,191.94	2.51	2.02	1.49
17,807.00	91.60	3.00	10,673.92	7,281.78	-265.19	7,286.58	0.87	0.84	0.21
17,901.00	92.00	3.20	10,670.97	7,375.59	-260.11	7,380.17	0.48	0.43	0.21
17,995.00	92.30	3.80	10,667.45	7,469.35	-254.37	7,473.68	0.71	0.32	0.64
18,090.00	90.50	2.60	10,665.12	7,564.17	-249.07	7,568.26	2.28	-1.89	-1.26
18,185.00	90.60	1.30	10,664.21	7,659.11	-245.84	7,663.04	1.37	0.11	-1.37
18,279.00	91.10	0.60	10,662.82	7,753.08	-244.28	7,756.91	0.92	0.53	-0.74
18,373.00	92.40	0.00	10,659.95	7,847.04	-243.79	7,850.79	1.52	1.38	-0.64
18,466.00	93.00	0.00	10,655.57	7,939.93	-243.79	7,943.63	0.65	0.65	0.00
18,528.87	93.49	0.35	10,652.01	8,002.70	-243.60	8,006.36	0.95	0.78	0.56
REMUDA NORTH 30 STATE_121H_LTP (330°FNL,330°FWL)									
18,529.74	93.50	0.35	10,651.96	8,003.57	-243.59	8,007.23	0.95	0.78	0.56
REMUDA NORTH 30 STATE_121H_LTP(330°FNL)									
18,530.00	93.50	0.36	10,651.94	8,003.83	-243.59	8,007.49	0.95	0.78	0.56
Wellpath Crosses 330°FNL @ Toe									
18,534.52	93.53	0.38	10,651.66	8,008.33	-243.56	8,011.99	0.95	0.78	0.56
REMUDA NORTH 30 STATE_122H_LTP(330°FNL)									
18,535.11	93.54	0.38	10,651.63	8,008.93	-243.56	8,012.59	0.95	0.78	0.56
REMUDA NORTH 30 STATE_122H_LTP (330°FNL,345°FEL)									
18,542.28	93.59	0.42	10,651.18	8,016.08	-243.51	8,019.73	0.95	0.78	0.56
REMUDA NORTH 30 STATE_111H_LTP (330°FNL,440°FWL)									
18,548.77	93.64	0.46	10,650.77	8,022.56	-243.46	8,026.21	0.95	0.78	0.56
REMUDA NORTH 30 STATE_112H_LTP(200°FNL)									
18,550.17	93.65	0.47	10,650.68	8,023.96	-243.45	8,027.60	0.95	0.78	0.56
REMUDA NORTH 30 STATE_112H_LTP (330°FNL38°FEL)									
18,556.06	93.70	0.50	10,650.30	8,029.84	-243.40	8,033.47	0.95	0.78	0.56
18,603.00	92.10	358.80	10,647.93	8,076.71	-243.68	8,080.33	4.97	-3.41	-3.62
18,647.91	92.10	358.80	10,646.28	8,121.58	-244.62	8,125.21	0.00	0.00	0.00
REMUDA NORTH 30 STATE_112H_PBHL(330°FNL)									

Survey Report

Company: XTO Energy	Local Co-ordinate Reference: Well Remuda North 30 State 121H - Slot REMUDA NORTH 30 STATE_121H_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 121H	North Reference: Grid
Wellbore: North 30 121H	Survey Calculation Method: Minimum Curvature
Design: North 30 121H (AsDrilled)	Database: 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)
18,649.78	92.10	358.80	10,646.21	8,123.45	-244.66	8,127.08	0.00	0.00	0.00
REMUDA NORTH 30 STATE_122H_PBHL(200'FNL)									
18,652.70	92.10	358.80	10,646.11	8,126.37	-244.72	8,129.99	0.00	0.00	0.00
REMUDA NORTH 30 STATE_122H_PBHL (200'FNL,345'FEL)									
18,652.71	92.10	358.80	10,646.11	8,126.38	-244.72	8,130.00	0.00	0.00	0.00
REMUDA NORTH 30 STATE_112H_PBHL (200'FNL38'FEL)									
18,655.00	92.10	358.80	10,646.02	8,128.67	-244.77	8,132.29	0.00	0.00	0.00
TD @ 206FNL,361FWL - REMUDA NORTH 30 STATE_121H_PBHL (200'FNL,330FWL) - REMUDA N 30 STATE_121H_PBHLp2 (200'FNL,330F)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
REMUDA NORTH 30 S1	0.00	0.00	0.00	0.00	0.00	463,892.40	625,492.80	32.2747043	-103.9272972
- actual wellpath hits target center									
- Point									
REMUDA NORTH 30 S1	0.00	0.00	10,533.00	8,134.50	-276.00	472,026.90	625,216.80	32.2970681	-103.9280907
- actual wellpath misses target center by 117.40usft at 18655.00usft MD (10646.02 TVD, 8128.67 N, -244.77 E)									
- Rectangle (sides W100.00 H7,417.00 D0.00)									
REMUDA NORTH 30 S1	0.00	0.00	10,646.00	8,128.67	-244.77	472,021.07	625,248.03	32.2970517	-103.9279897
- actual wellpath misses target center by 0.01usft at 18655.00usft MD (10646.02 TVD, 8128.67 N, -244.77 E)									
- Point									
REMUDA NORTH 30 S1	0.00	0.00	10,682.00	717.90	-227.80	464,610.30	625,265.00	32.2766801	-103.9280254
- actual wellpath misses target center by 19.49usft at 11236.75usft MD (10685.89 TVD, 716.28 N, -208.77 E)									
- Point									
REMUDA NORTH 30 S1	0.00	0.00	10,682.00	8,004.50	-275.00	471,896.90	625,217.80	32.2967107	-103.9280891
- actual wellpath misses target center by 43.46usft at 18528.87usft MD (10652.01 TVD, 8002.70 N, -243.60 E)									
- Point									
REMUDA NORTH 30 S1	0.00	0.00	10,682.00	573.92	-227.77	464,466.32	625,265.03	32.2762843	-103.9280271
- actual wellpath misses target center by 5.40usft at 11092.58usft MD (10686.90 TVD, 573.89 N, -230.05 E)									
- Point									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,878.00	10,643.53	366.60	-260.97	Wellpath Crosses Unit Line @ Heel
11,217.00	10,686.93	696.65	-210.66	Wellpath Crosses 330'FSL @ Heel
18,530.00	10,651.94	8,003.83	-243.59	Wellpath Crosses 330'FNL @ Toe
18,655.00	10,646.02	8,128.67	-244.77	TD @ 206FNL,361FWL

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Remuda North 30 State 121H - Slot REMUDA NORTH 30 STATE_121H_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 121H	North Reference:	Grid
Wellbore:	North 30 121H	Survey Calculation Method:	Minimum Curvature
Design:	North 30 121H (AsDrilled)	Database:	TP_EDM

Checked By: _____	Approved By: _____	Date: _____
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