

STRYKER
DIRECTIONAL

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JAN 29 2020

EMNRD-OCD ARTESIA

March 13, 2019

New Mexico Energy, Minerals and Natural Resources Department
Attn: Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Attn: Joe Stanley

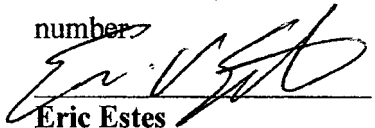
Re: XTO Energy Inc,
Muy Wayno 18 Federal #161H
Purple Sage; Wolfcamp
Eddy County, New Mexico
API# 30-015-44844

Enclosed please find the original and one (1) copy of the survey performed on the reference well by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C. Other information required by your office is as follows:

<u>Name & Title</u>	<u>Drainhole No.</u>	<u>Survey Depths</u>	<u>Dates Performed</u>	<u>Type Survey</u>
Ryan Steglich	Original Hole	945ft. to 19,354ft.	12-30-18 to 02-06-19	MWD Survey

A certified plat on which the bottom-hole location is oriented to both surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone

number


Eric Estes

Enclosures

CC:

XTO Energy Inc.
Attn: Joe Stanley
6401 Holiday Hill Rd. #5
Midland, Texas 79707

NMEMaNRD\XTO Energy Inc\Muy Wayno 18 Federal #161HM181161

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

P.O. Box 1250

Montgomery, TX 77356

Office (936) 582-7296 * Fax (936)-588-4163



March 13, 2019

Survey Certification Report

STATE OF TEXAS

COUNTY OF Montgomery

I, Eric Estes, certify that I am employed by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C., and that I did on the day(s) of December 31, 2018, through February 2, 2018 conduct or supervise the taking of a SEDS Original Hole MWD Survey from a depth of 945feet to a depth of 19,354feet; that I am authorized and qualified to make this report; that this survey was conducted at the request of XTO Energy Inc., for the Muy Wayno 18 Federal #161H, well API # 30-015-44844 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles as set forth by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

A handwritten signature in black ink, appearing to read "Eric Estes", is written over a horizontal line.

Eric Estes

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OCD Permitting

Home Wells Well Details

30-015-44844 MUY WAYNO 18 FEDERAL #161H [321151]**General Well Information**

Operator:	[5380] XTO ENERGY, INC	Direction:	Horizontal
Status:	New	Multi-Lateral:	No
Well Type:	Oil	Mineral Owner:	Federal
Work Type:	New	Surface Owner:	Federal
Surface Location:	L-18-25S-30E Lot: 3 2310 FSL 350 FWL		
Lat/Long:	32.129172,-103.928272 NAD83		
GL Elevation:	3161	Sing/Mult Compl:	Single
KB Elevation:		Potash Waiver:	False
DF Elevation:			

Quick Links

- [General Well Information](#)
- [History](#)
- [Comments](#)
- [Operator](#)
- [Pits](#)
- [Casing](#)
- [Well Completions](#)
- [Financial Assurance](#)
- [Compliance](#)
- [Complaints, Incidents and Spills](#)
- [Orders](#)
- [Production](#)
- [Transporters](#)
- [Points of Disposition](#)

Associated Images

- [Well Files](#)
- [Well Logs](#)
- [Administrative Orders](#)

New Searches

- [New Well Search](#)

Proposed Formation and/or Notes**Depths**

Proposed:	19410	Total Vertical Depth:	0
Measured Vertical Depth:	0	Plugback Measured:	0

Formation Tops

Formation	Top	Producing	Method Obtained
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Event Dates

Initial APD Approval:	03/01/2018	Current APD Expiration:	03/01/2020
Most Recent APD Approval:	03/30/2018		
APD Cancellation:			
APD Extension Approval:			
Spud:		Gas Capture Plan Received:	03/28/2018
Approved Temporary		TA Expiration:	
Abandonment:			
Shut In:		PNR Expiration:	
Plug and Abandoned Intent		Last MIT/BHT:	
Received:			
Well Plugged:			
Site Release:			
Last Inspection:			

History

Effective Date	Property	Well Number	Operator	C-101 Work Type	Well Type	Well Status	Apd Cancelled	Plug Date
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Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Muy Wayno 18 Federal 161H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Site:	Muy Wayno 18 Federal	MD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Well:	Muy Wayno 18 Federal 161H	North Reference:	Grid
Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (AsDrilled)	Database:	STRYKER_EDM

Project:	Eddy County, NM (NAD27) NMEZ Grid		
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:	Muy Wayno 18 Federal		
Site Position:		Northing:	410,906.20 usft
From:	Map	Easting:	625,601.10 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32.12904748
		Longitude:	-103.92759374
		Grid Convergence:	0.22 °

Well: Muy Wayno 18 Federal 161H						
Well Position	+N/-S	0.00 usft	Northing:	410,905.90 usft	Latitude:	32.12904728
	+E/-W	0.00 usft	Easting:	625,541.00 usft	Longitude:	-103.92778789
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,161.00 usft

Wellbore	161H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/09/18	6.96	59.90	47,702.45773564

Design:	161H (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	359.71

Survey Program	Date	02/08/19		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
59.00	813.00	Survey #2 (161H)	Gyrodata New 2-16-16	Gyrodata Stationary Tool drop on BHA
945.00	19,354.00	Survey #1 (161H)	MWD	OWSG MWD - Standard
19,399.00	19,399.00	Survey #3 (161H)	Projection	Projection

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MUY WAYNO 18 FED 161H_SHL									
59.00	0.15	156.89	59.00	-0.07	0.03	-0.07	0.25	0.25	0.00
153.25	0.19	32.28	153.25	-0.05	0.16	-0.05	0.32	0.04	-132.21
247.50	0.34	130.21	247.50	-0.10	0.46	-0.10	0.44	0.16	103.90
341.75	0.87	154.72	341.74	-0.93	0.98	-0.93	0.61	0.56	26.01
436.00	1.99	158.75	435.96	-3.10	1.88	-3.11	1.19	1.19	4.28
530.25	2.77	157.13	530.13	-6.72	3.36	-6.74	0.83	0.83	-1.72
624.50	2.93	173.28	624.27	-11.21	4.52	-11.24	0.87	0.17	17.14

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Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (AsDrilled)	Database:	STRYKER_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)	
718.75	1.92	207.65	718.43	-15.01	4.07	-15.03	1.83	-1.07	36.47	
813.00	1.96	233.27	812.63	-17.37	2.05	-17.38	0.91	0.04	27.18	
945.00	1.80	241.70	944.56	-19.70	-1.59	-19.69	0.24	-0.12	6.39	
First Stryker Survey										
1,039.00	0.90	248.80	1,038.53	-20.67	-3.58	-20.65	0.97	-0.96	7.55	
1,133.00	0.50	252.30	1,132.53	-21.06	-4.65	-21.04	0.43	-0.43	3.72	
1,227.00	0.60	241.30	1,226.52	-21.42	-5.48	-21.39	0.15	0.11	-11.70	
1,321.00	0.70	220.60	1,320.52	-22.09	-6.28	-22.06	0.27	0.11	-22.02	
1,415.00	0.80	223.80	1,414.51	-23.00	-7.11	-22.97	0.12	0.11	3.40	
1,509.00	0.40	260.30	1,508.50	-23.53	-7.89	-23.49	0.57	-0.43	38.83	
1,603.00	0.50	318.80	1,602.50	-23.28	-8.48	-23.24	0.48	0.11	62.23	
1,697.00	0.70	263.50	1,696.50	-23.03	-9.32	-22.99	0.62	0.21	-58.83	
1,792.00	1.00	259.80	1,791.49	-23.25	-10.71	-23.19	0.32	0.32	-3.89	
1,886.00	0.80	268.30	1,885.48	-23.41	-12.18	-23.35	0.26	-0.21	9.04	
1,980.00	0.90	274.50	1,979.46	-23.37	-13.57	-23.31	0.14	0.11	6.60	
2,074.00	0.40	324.50	2,073.46	-23.05	-14.50	-22.98	0.76	-0.53	53.19	
2,169.00	1.00	39.50	2,168.45	-22.14	-14.16	-22.07	1.03	0.63	78.95	
2,263.00	1.00	29.90	2,262.44	-20.79	-13.23	-20.73	0.18	0.00	-10.21	
2,357.00	0.90	28.30	2,356.43	-19.43	-12.47	-19.37	0.11	-0.11	-1.70	
2,452.00	0.90	26.90	2,451.41	-18.11	-11.78	-18.05	0.02	0.00	-1.47	
2,546.00	0.70	27.20	2,545.40	-16.94	-11.18	-16.89	0.21	-0.21	0.32	
2,640.00	0.60	22.90	2,639.40	-15.98	-10.73	-15.92	0.12	-0.11	-4.57	
2,734.00	0.70	50.20	2,733.39	-15.16	-10.10	-15.11	0.34	0.11	29.04	
2,829.00	1.00	91.50	2,828.38	-14.81	-8.82	-14.76	0.70	0.32	43.47	
2,924.00	1.50	108.80	2,923.36	-15.23	-8.82	-15.20	0.65	0.53	18.21	
3,018.00	1.30	110.00	3,017.33	-15.99	-4.65	-15.97	0.22	-0.21	1.28	
3,112.00	1.60	123.00	3,111.30	-17.07	-2.55	-17.06	0.47	0.32	13.83	
3,206.00	1.40	117.40	3,205.27	-18.31	-0.43	-18.31	0.26	-0.21	-5.96	
3,294.00	1.00	113.60	3,293.25	-19.12	1.23	-19.12	0.46	-0.45	-4.32	
3,430.00	1.00	114.90	3,429.23	-20.09	3.39	-20.11	0.02	0.00	0.96	
3,523.00	1.90	266.50	3,522.22	-20.53	2.59	-20.54	3.03	0.97	163.01	
3,617.00	3.70	275.10	3,616.10	-20.35	-1.99	-20.34	1.96	1.91	9.15	
3,711.00	3.80	274.70	3,709.90	-19.83	-8.11	-19.79	0.11	0.11	-0.43	
3,805.00	3.80	269.60	3,803.69	-19.59	-14.33	-19.52	0.36	0.00	-5.43	
3,899.00	3.80	272.40	3,897.49	-19.49	-20.56	-19.38	0.20	0.00	2.98	
3,994.00	3.80	273.20	3,992.28	-19.18	-26.85	-19.04	0.06	0.00	0.84	
4,088.00	3.80	273.60	4,086.07	-18.81	-33.06	-18.64	0.03	0.00	0.43	
4,183.00	3.60	272.40	4,180.87	-18.49	-39.19	-18.29	0.23	-0.21	-1.26	
4,277.00	3.50	271.20	4,274.69	-18.30	-45.00	-18.08	0.13	-0.11	-1.28	
4,371.00	3.30	276.00	4,368.53	-17.96	-50.56	-17.71	0.37	-0.21	5.11	
4,466.00	3.10	275.20	4,463.38	-17.44	-55.84	-17.16	0.22	-0.21	-0.84	
4,561.00	3.20	275.60	4,558.24	-16.95	-61.04	-16.64	0.11	0.11	0.42	
4,655.00	3.10	278.20	4,652.09	-16.33	-66.16	-16.00	0.19	-0.11	2.77	

Survey Report

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Design:	161H (AsDrilled)	Database:	STRYKER_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)
4,749.00	1.60	295.90	4,746.01	-15.39	-69.86	-15.05	1.75	-1.60	18.83
4,843.00	1.20	310.20	4,839.98	-14.19	-71.79	-13.83	0.56	-0.43	15.21
4,937.00	1.20	305.00	4,933.96	-12.99	-73.35	-12.62	0.12	0.00	-5.53
5,031.00	1.30	309.30	5,027.94	-11.75	-74.98	-11.37	0.15	0.11	4.57
5,126.00	1.20	299.90	5,122.92	-10.57	-76.68	-10.19	0.24	-0.11	-9.89
5,219.00	1.50	3.30	5,215.90	-8.87	-77.45	-8.48	1.55	0.32	68.17
5,314.00	1.50	1.70	5,310.87	-6.38	-77.34	-6.00	0.04	0.00	-1.68
5,408.00	1.50	7.70	5,404.83	-3.93	-77.14	-3.55	0.17	0.00	6.38
5,503.00	1.20	13.80	5,499.81	-1.74	-76.74	-1.35	0.35	-0.32	6.42
5,597.00	1.20	21.70	5,593.79	0.13	-76.14	0.51	0.18	0.00	8.40
5,691.00	0.80	26.30	5,687.77	1.64	-75.49	2.01	0.43	-0.43	4.89
5,785.00	0.60	41.60	5,781.76	2.59	-74.87	2.97	0.29	-0.21	16.28
5,879.00	0.60	51.10	5,875.76	3.27	-74.16	3.64	0.11	0.00	10.11
5,974.00	0.70	54.60	5,970.75	3.92	-73.30	4.29	0.11	0.11	3.68
6,068.00	0.90	62.60	6,064.74	4.59	-72.17	4.95	0.24	0.21	8.51
6,162.00	1.10	66.50	6,158.73	5.29	-70.69	5.64	0.22	0.21	4.15
6,256.00	1.10	74.70	6,252.71	5.89	-68.99	6.23	0.17	0.00	8.72
6,350.00	1.10	77.40	6,346.70	6.32	-67.24	6.66	0.06	0.00	2.87
6,445.00	1.20	85.80	6,441.68	6.60	-65.36	6.92	0.21	0.11	8.84
6,539.00	1.50	89.30	6,535.65	6.68	-63.15	7.00	0.33	0.32	3.72
6,633.00	1.20	179.00	6,629.63	5.71	-61.90	6.02	2.04	-0.32	95.43
6,727.00	1.50	174.40	6,723.61	3.51	-61.76	3.81	0.34	0.32	-4.89
6,821.00	1.60	185.30	6,817.57	0.97	-61.77	1.28	0.33	0.11	11.60
6,915.00	1.50	183.80	6,911.54	-1.56	-61.97	-1.25	0.11	-0.11	-1.60
7,009.00	1.70	181.90	7,005.50	-4.18	-62.10	-3.87	0.22	0.21	-2.02
7,103.00	1.30	232.70	7,099.47	-6.22	-62.99	-5.91	1.42	-0.43	54.04
7,198.00	1.20	252.10	7,194.45	-7.18	-64.79	-6.86	0.46	-0.11	20.42
7,292.00	1.50	253.80	7,288.42	-7.83	-66.91	-7.49	0.32	0.32	1.81
7,387.00	2.10	260.80	7,383.38	-8.45	-69.83	-8.10	0.67	0.63	7.37
7,481.00	1.20	346.60	7,477.35	-7.77	-71.75	-7.41	2.49	-0.96	91.28
7,575.00	1.60	350.20	7,571.32	-5.52	-72.21	-5.16	0.44	0.43	3.83
7,669.00	1.70	344.10	7,665.28	-2.88	-72.81	-2.52	0.21	0.11	-6.49
7,764.00	1.60	325.70	7,760.24	-0.43	-73.94	-0.06	0.56	-0.11	-19.37
7,858.00	1.80	307.30	7,854.20	1.55	-75.86	1.92	0.62	0.21	-19.57
7,953.00	1.10	331.80	7,949.17	3.25	-77.48	3.64	0.97	-0.74	25.79
8,047.00	1.10	287.20	8,043.16	4.32	-78.76	4.71	0.89	0.00	-47.45
8,141.00	1.00	36.00	8,137.15	5.25	-79.14	5.64	1.82	-0.11	115.74
8,235.00	1.20	20.70	8,231.13	6.83	-78.31	7.22	0.38	0.21	-16.28
8,330.00	0.80	31.00	8,326.12	8.33	-77.62	8.72	0.46	-0.42	10.84
8,425.00	0.90	56.50	8,421.11	9.31	-76.66	9.69	0.41	0.11	26.84
8,518.00	0.70	60.50	8,514.10	9.99	-75.55	10.37	0.22	-0.22	4.30
8,612.00	0.30	98.80	8,608.09	10.24	-74.81	10.61	0.53	-0.43	40.74
8,707.00	0.70	157.40	8,703.09	9.66	-74.34	10.03	0.63	0.42	61.68
8,802.00	0.70	112.00	8,798.08	8.91	-73.58	9.28	0.57	0.00	-47.79

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8,896.00	1.40	133.80	8,892.07	7.90	-72.22	8.26	0.84	0.74	23.19
8,990.00	1.40	137.40	8,986.04	6.26	-70.61	6.61	0.09	0.00	3.83
9,084.00	2.00	146.30	9,080.00	4.05	-68.93	4.39	0.70	0.64	9.47
9,179.00	1.20	168.80	9,174.96	1.70	-67.81	2.03	1.06	-0.84	23.68
9,273.00	1.50	179.30	9,268.93	-0.50	-67.61	-0.16	0.41	0.32	11.17
9,367.00	1.70	177.00	9,362.90	-3.12	-67.52	-2.79	0.22	0.21	-2.45
9,461.00	1.80	160.20	9,456.85	-5.90	-66.95	-5.57	0.55	0.11	-17.87
9,556.00	2.10	139.60	9,551.80	-8.63	-65.31	-8.31	0.80	0.32	-21.68
9,650.00	0.20	106.00	9,645.78	-9.99	-64.04	-9.67	2.06	-2.02	-35.74
9,745.00	0.30	356.50	9,740.78	-9.79	-63.89	-9.47	0.43	0.11	-115.26
9,839.00	0.30	329.80	9,834.78	-9.33	-64.03	-9.01	0.15	0.00	-28.40
9,934.00	0.50	303.70	9,929.77	-8.88	-64.50	-8.56	0.28	0.21	-27.47
10,033.00	0.40	343.50	10,028.77	-8.31	-64.96	-7.99	0.32	-0.10	40.20
10,128.00	0.10	359.80	10,123.77	-7.91	-65.05	-7.59	0.32	-0.32	17.16
10,222.00	0.20	121.30	10,217.77	-7.92	-64.91	-7.59	0.28	0.11	129.26
10,316.00	0.30	87.40	10,311.77	-7.99	-64.53	-7.67	0.19	0.11	-36.06
10,410.00	0.30	132.60	10,405.77	-8.15	-64.10	-7.83	0.25	0.00	48.09
10,504.00	0.60	151.90	10,499.76	-8.75	-63.69	-8.43	0.35	0.32	20.53
10,598.00	0.70	144.40	10,593.76	-9.65	-63.12	-9.33	0.14	0.11	-7.98
10,692.00	0.40	126.40	10,687.75	-10.31	-62.52	-10.00	0.36	-0.32	-19.15
10,787.00	0.20	314.00	10,782.75	-10.39	-62.38	-10.08	0.63	-0.21	-181.47
10,881.00	0.70	271.30	10,876.75	-10.26	-63.07	-9.95	0.61	0.53	-45.43
10,913.00	1.80	325.30	10,908.74	-9.85	-63.55	-9.53	4.69	3.44	168.75
10,945.00	4.60	337.80	10,940.69	-8.24	-64.32	-7.92	8.97	8.75	39.06
10,968.11	6.46	342.47	10,963.70	-6.15	-65.06	-5.82	8.27	8.04	20.19
MUY WAYNO 18 FED 161H_KOP									
10,976.00	7.10	343.50	10,971.53	-5.26	-65.34	-4.93	8.27	8.12	13.09
11,007.00	11.00	351.00	11,002.14	-0.50	-66.34	-0.16	13.12	12.58	24.19
11,038.00	13.90	351.50	11,032.40	6.11	-67.36	6.45	9.36	9.35	1.61
11,069.00	16.70	348.80	11,062.30	14.16	-68.77	14.51	9.32	9.03	-8.71
11,101.00	18.30	347.50	11,092.82	23.58	-70.75	23.93	5.15	5.00	-4.06
11,132.00	20.00	347.90	11,122.10	33.51	-72.92	33.88	5.50	5.48	1.29
11,164.00	21.60	349.60	11,152.02	44.66	-75.13	45.03	5.34	5.00	5.31
11,195.00	24.70	359.80	11,180.53	56.76	-76.18	57.14	16.32	10.00	32.90
11,226.00	29.10	4.40	11,208.17	70.76	-75.62	71.13	15.69	14.19	14.84
11,258.00	34.40	4.20	11,235.37	87.54	-74.36	87.91	16.57	16.56	-0.62
11,289.00	39.20	2.40	11,260.19	106.08	-73.31	106.44	15.87	15.48	-5.81
11,321.00	40.60	2.40	11,284.74	126.58	-72.45	126.94	4.37	4.37	0.00
11,352.00	41.80	1.70	11,308.06	146.99	-71.72	147.35	4.15	3.87	-2.26
11,384.00	45.50	0.90	11,331.21	169.07	-71.23	169.42	11.69	11.56	-2.50
11,416.00	49.20	0.20	11,352.89	192.60	-71.01	192.95	11.67	11.56	-2.19
11,447.00	51.80	0.20	11,372.61	216.52	-70.92	216.87	8.39	8.39	0.00
11,479.00	54.20	0.50	11,391.86	242.07	-70.77	242.42	7.54	7.50	0.94

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Muy Wayno 18 Federal 161H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Site:	Muy Wayno 18 Federal	MD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Well:	Muy Wayno 18 Federal 161H	North Reference:	Grid
Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (AsDrilled)	Database:	STRYKER_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)	
11,510.00	57.00	0.80	11,409.38	267.65	-70.47	267.99	9.07	9.03	0.97	
11,542.00	59.60	0.50	11,426.19	294.87	-70.17	295.21	8.16	8.12	-0.94	
11,573.00	61.30	0.40	11,441.48	321.83	-69.96	322.18	5.49	5.48	-0.32	
11,604.00	62.70	0.90	11,456.03	349.20	-69.64	349.54	4.74	4.52	1.61	
Wellpath Crosses Unit Line @ Heel										
11,636.00	65.70	1.70	11,469.96	378.00	-68.99	378.34	9.64	9.37	2.50	
11,667.00	68.50	1.80	11,482.02	406.54	-68.12	406.88	9.04	9.03	0.32	
11,698.00	72.90	0.90	11,492.26	435.78	-67.43	436.11	14.46	14.19	-2.90	
11,717.00	76.40	0.60	11,497.29	454.10	-67.19	454.43	18.48	18.42	-1.58	
11,748.00	81.10	0.00	11,503.34	484.50	-67.03	484.82	15.28	15.16	-1.94	
11,779.00	83.30	0.50	11,507.54	515.21	-66.90	515.53	7.27	7.10	1.61	
11,810.00	85.60	1.30	11,510.54	546.06	-66.41	546.38	7.85	7.42	2.58	
11,841.00	87.20	2.40	11,512.49	576.98	-65.41	577.30	6.26	5.16	3.55	
11,878.85	88.12	2.96	11,514.04	614.76	-63.65	615.07	2.83	2.42	1.47	
MUY WAYNO 18 FED 161H_LP p4										
11,936.00	89.50	3.80	11,515.22	671.79	-60.28	672.08	2.83	2.42	1.47	
11,965.00	89.31	3.80	11,515.52	700.72	-58.36	701.01	0.64	-0.64	0.00	
Wellpath Crosses FTP										
11,966.73	89.30	3.80	11,515.54	702.45	-58.24	702.73	0.64	-0.64	0.00	
MUY WAYNO 18 FED 161H_FTP										
12,030.00	88.90	3.80	11,516.54	765.57	-54.05	765.83	0.64	-0.64	0.00	
12,124.00	88.20	1.00	11,518.92	859.45	-50.11	859.69	3.07	-0.74	-2.98	
12,218.00	88.80	1.70	11,521.38	953.39	-47.90	953.62	0.98	0.64	0.74	
12,312.00	88.30	1.20	11,523.75	1,047.33	-45.52	1,047.55	0.75	-0.53	-0.53	
12,406.00	91.00	3.80	11,524.33	1,141.22	-41.42	1,141.42	3.99	2.87	2.77	
12,500.00	93.10	5.30	11,520.97	1,234.86	-33.97	1,235.01	2.74	2.23	1.60	
12,595.00	90.70	5.30	11,517.82	1,329.39	-25.20	1,329.50	2.53	-2.53	0.00	
12,690.00	89.80	3.70	11,517.40	1,424.10	-17.75	1,424.17	1.93	-0.95	-1.68	
12,783.00	90.20	1.20	11,517.40	1,517.00	-13.77	1,517.05	2.72	0.43	-2.69	
12,877.00	88.40	359.90	11,518.55	1,610.99	-12.87	1,611.03	2.36	-1.91	-1.38	
12,971.00	89.00	0.70	11,520.68	1,704.96	-12.38	1,705.00	1.06	0.64	0.85	
13,065.00	88.00	1.20	11,523.14	1,798.91	-10.82	1,798.94	1.19	-1.06	0.53	
13,158.00	93.50	2.80	11,521.93	1,891.81	-7.58	1,891.82	6.16	5.91	1.72	
13,252.00	92.50	1.80	11,517.01	1,985.60	-3.81	1,985.60	1.50	-1.06	-1.06	
13,347.00	86.90	357.00	11,517.50	2,080.53	-4.80	2,080.53	7.76	-5.89	-5.05	
13,441.00	89.50	0.20	11,520.46	2,174.44	-7.10	2,174.44	4.38	2.77	3.40	
13,535.00	92.70	0.00	11,518.65	2,268.41	-6.93	2,268.41	3.41	3.40	-0.21	
13,629.00	89.80	357.60	11,516.60	2,362.35	-8.90	2,362.36	4.00	-3.09	-2.55	
13,723.00	92.50	358.40	11,514.72	2,456.26	-12.18	2,456.29	3.00	2.87	0.85	
13,818.00	89.80	358.90	11,512.81	2,551.21	-14.42	2,551.25	2.89	-2.84	0.53	
13,912.00	92.00	0.10	11,511.33	2,645.18	-15.24	2,645.23	2.67	2.34	1.28	
14,006.00	91.80	358.50	11,508.22	2,739.12	-16.39	2,739.17	1.71	-0.21	-1.70	
14,101.00	89.20	357.20	11,507.39	2,834.04	-19.95	2,834.11	3.06	-2.74	-1.37	
14,194.00	86.30	356.30	11,511.04	2,926.81	-25.22	2,926.90	3.26	-3.12	-0.97	

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Muy Wayno 18 Federal 161H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Site:	Muy Wayno 18 Federal	MD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Well:	Muy Wayno 18 Federal 161H	North Reference:	Grid
Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (As Drilled)	Database:	STRYKER_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)
14,288.00	85.60	356.40	11,517.68	3,020.38	-31.19	3,020.50	0.75	-0.74	0.11
14,382.00	89.60	355.00	11,521.61	3,114.02	-38.23	3,114.17	4.51	4.26	-1.49
14,477.00	91.70	355.30	11,520.54	3,208.66	-46.26	3,208.85	2.23	2.21	0.32
14,571.00	91.30	355.10	11,518.07	3,302.30	-54.12	3,302.53	0.48	-0.43	-0.21
14,664.00	89.90	358.90	11,517.10	3,395.15	-58.99	3,395.40	4.35	-1.51	4.09
14,759.00	92.20	359.90	11,515.36	3,490.12	-59.98	3,490.38	2.64	2.42	1.05
14,853.00	89.40	359.40	11,514.05	3,584.10	-60.56	3,584.36	3.03	-2.98	-0.53
14,947.00	92.00	4.60	11,512.90	3,678.00	-57.28	3,678.24	6.18	2.77	5.53
15,042.00	85.10	3.80	11,515.30	3,772.65	-50.33	3,772.86	7.31	-7.26	-0.84
15,137.00	85.20	3.40	11,523.33	3,867.13	-44.39	3,867.30	0.43	0.11	-0.42
15,231.00	88.00	0.30	11,528.91	3,960.89	-41.36	3,961.05	4.44	2.98	-3.30
15,325.00	90.50	359.50	11,530.14	4,054.87	-41.52	4,055.03	2.79	2.66	-0.85
15,419.00	90.90	358.30	11,528.99	4,148.85	-43.33	4,149.01	1.35	0.43	-1.28
15,514.00	91.60	358.80	11,526.92	4,243.79	-45.73	4,243.97	0.91	0.74	0.53
15,608.00	91.60	358.10	11,524.29	4,337.72	-48.27	4,337.91	0.74	0.00	-0.74
15,702.00	91.40	358.10	11,521.83	4,431.64	-51.39	4,431.84	0.21	-0.21	0.00
15,796.00	89.80	357.80	11,520.85	4,525.57	-54.75	4,525.79	1.73	-1.70	-0.32
15,890.00	88.50	359.10	11,522.24	4,619.52	-57.29	4,619.75	1.96	-1.38	1.38
15,985.00	89.30	2.10	11,524.07	4,714.49	-56.30	4,714.71	3.27	0.84	3.16
16,079.00	89.30	1.80	11,525.22	4,808.43	-53.10	4,808.63	0.32	0.00	-0.32
16,173.00	90.90	2.20	11,525.05	4,902.36	-49.82	4,902.55	1.75	1.70	0.43
16,268.00	92.40	2.30	11,522.32	4,997.25	-46.09	4,997.42	1.58	1.58	0.11
16,360.00	92.50	1.80	11,518.38	5,089.11	-42.80	5,089.26	0.55	0.11	-0.54
16,454.00	91.20	2.40	11,515.35	5,182.99	-39.36	5,183.12	1.52	-1.38	0.64
16,548.00	89.10	0.60	11,515.10	5,276.95	-36.90	5,277.07	2.94	-2.23	-1.91
16,642.00	88.10	358.30	11,517.40	5,370.91	-37.80	5,371.03	2.67	-1.06	-2.45
16,736.00	87.30	358.10	11,521.17	5,464.79	-40.75	5,464.92	0.88	-0.85	-0.21
16,830.00	90.10	358.90	11,523.30	5,558.72	-43.21	5,558.87	3.10	2.98	0.85
16,924.00	89.30	357.10	11,523.80	5,652.66	-46.49	5,652.82	2.10	-0.85	-1.91
17,018.00	89.00	357.10	11,525.19	5,746.53	-51.25	5,746.71	0.32	-0.32	0.00
17,113.00	91.80	0.70	11,524.53	5,841.48	-53.07	5,841.67	4.80	2.95	3.79
17,207.00	91.10	0.60	11,522.15	5,935.45	-52.01	5,935.63	0.75	-0.74	-0.11
17,301.00	88.70	359.10	11,522.31	6,029.43	-52.25	6,029.62	3.01	-2.55	-1.60
17,395.00	91.20	359.90	11,522.40	6,123.42	-53.07	6,123.61	2.79	2.66	0.85
17,489.00	91.20	359.30	11,520.43	6,217.40	-53.73	6,217.59	0.64	0.00	-0.64
17,582.00	91.50	359.10	11,518.24	6,310.36	-55.03	6,310.56	0.39	0.32	-0.22
17,676.00	91.60	358.80	11,515.69	6,404.31	-56.75	6,404.52	0.34	0.11	-0.32
17,770.00	90.70	358.50	11,513.81	6,498.27	-58.96	6,498.48	1.01	-0.96	-0.32
17,865.00	90.50	359.60	11,512.81	6,593.25	-60.54	6,593.47	1.18	-0.21	1.16
17,958.00	89.90	0.20	11,512.49	6,686.25	-60.70	6,686.47	0.91	-0.65	0.65
18,052.00	89.20	358.40	11,513.23	6,780.23	-61.85	6,780.46	2.05	-0.74	-1.91
18,146.00	90.40	359.00	11,513.55	6,874.21	-63.98	6,874.44	1.43	1.28	0.64
18,239.00	90.10	359.90	11,513.15	6,967.20	-64.87	6,967.44	1.02	-0.32	0.97
18,331.00	90.40	359.80	11,512.75	7,059.20	-65.11	7,059.44	0.34	0.33	-0.11

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well MUY Wayno 18 Federal 161H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Site:	Muy Wayno 18 Federal	MD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Well:	Muy Wayno 18 Federal 161H	North Reference:	Grid
Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (AsDrilled)	Database:	STRYKER 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)
18,424.00	89.50	359.60	11,512.83	7,152.20	-65.60	7,152.43	0.99	-0.97	-0.22
18,517.00	89.50	0.50	11,513.64	7,245.19	-65.52	7,245.43	0.97	0.00	0.97
18,614.00	89.80	0.30	11,514.23	7,342.19	-64.84	7,342.42	0.37	0.31	-0.21
18,709.00	90.00	0.20	11,514.40	7,437.19	-64.43	7,437.41	0.24	0.21	-0.11
18,803.00	91.00	0.40	11,513.58	7,531.18	-63.94	7,531.41	1.08	1.06	0.21
18,896.00	90.50	1.70	11,512.36	7,624.15	-62.23	7,624.37	1.50	-0.54	1.40
18,990.00	91.40	2.80	11,510.80	7,718.07	-58.54	7,718.26	1.51	0.96	1.17
19,084.00	90.50	3.10	11,509.24	7,811.93	-53.70	7,812.10	1.01	-0.96	0.32
19,177.00	91.20	2.80	11,507.86	7,904.79	-48.92	7,904.94	0.82	0.75	-0.32
19,260.67	90.84	1.64	11,506.37	7,988.38	-45.68	7,988.51	1.45	-0.43	-1.38
MUY WAYNO 18 FED 161H_LTP									
19,261.00	90.84	1.64	11,506.37	7,988.72	-45.67	7,988.84	1.45	-0.43	-1.38
Wellpath Crosses LTP									
19,271.00	90.80	1.50	11,506.22	7,998.71	-45.39	7,998.84	1.45	-0.43	-1.38
19,354.00	92.80	1.90	11,503.62	8,081.63	-42.93	8,081.74	2.46	2.41	0.48
19,390.07	92.80	1.90	11,501.85	8,117.63	-41.74	8,117.74	0.00	0.00	0.00
MUY WAYNO 18 FED 161H_PBHL p4									
19,399.00	92.80	1.90	11,501.42	8,126.55	-41.44	8,126.66	0.00	0.00	0.00
TD @ 192'FNL,350'FWL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MUY WAYNO 18 FED 1i - hit/miss target - Shape	0.00	0.00	0.00	0.00	0.00	410,905.90	625,541.00	32.12904728	-103.92778789
- actual wellpath hits target center - Point									
MUY WAYNO 18 FED 1i - actual wellpath hits target center - Point	0.00	0.00	11,501.42	8,126.55	-41.44	419,032.45	625,499.56	32.15138729	-103.92782291
MUY WAYNO 18 FED 1i - actual wellpath misses target center by 34.65usft at 11966.71usft MD (11515.54 TVD, 702.43 N, -58.24 E) - Point	0.00	0.00	11,521.00	700.10	-24.10	411,606.00	625,516.90	32.13097208	-103.92785723
MUY WAYNO 18 FED 1i - actual wellpath misses target center by 26.99usft at 19390.07usft MD (11501.85 TVD, 8117.63 N, -41.74 E) - Rectangle (sides W100.00 H7,342.00 D0.00)	0.00	0.00	11,521.00	8,119.20	-60.70	419,025.10	625,480.30	32.15136729	-103.92788523
MUY WAYNO 18 FED 1i - actual wellpath misses target center by 20.49usft at 19260.86usft MD (11506.37 TVD, 7988.57 N, -45.67 E) - Point	0.00	0.00	11,521.00	7,989.20	-60.00	418,895.10	625,481.00	32.15100991	-103.92788455

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Muy Wayno 18 Federal 161H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Site:	Muy Wayno 18 Federal	MD Reference:	3161+32 @ 3193.00usft (Patterson 793)
Well:	Muy Wayno 18 Federal 161H	North Reference:	Grid
Wellbore:	161H	Survey Calculation Method:	Minimum Curvature
Design:	161H (AsDrilled)	Database:	STRYKER_EDM

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
945.00	944.56	-19.70	-1.59	First Stryker Survey
11,604.00	11,456.03	349.20	-69.64	Wellpath Crosses Unit Line @ Heel
11,965.00	11,515.52	700.72	-58.36	Wellpath Crosses FTP
19,261.00	11,506.37	7,988.72	-45.67	Wellpath Crosses LTP
19,399.00	11,501.42	8,126.55	-41.44	TD @ 192'FNL,350'FWL

Checked By: _____ Approved By: _____ Date: _____