



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 #102H  
Purple Sage; Wolfcamp  
Eddy County, New Mexico  
API# 30-015-44838

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 &amp; Title</u>	<u>Drainhole No.</u>	<u>Survey Depths</u>	<u>Dates Performed</u>	<u>Type Survey</u>
Wilmar Reyes	Original Hole	281ft. to 18,390ft.	11-10-18 to 11-23-18	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 #102H\M181159

**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 November 10, 2018, through November 23, 2018 conduct or supervise the taking of a SEDS Original Hole MWD Survey from a depth of 281 feet to a depth of 18,390 feet; 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 #102H, well API # **30-015-44838** 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", written over a horizontal line.

**Eric Estes**

**STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.**

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# OCD Permitting

Home Wells Well Details

## 30-015-44838 MUY WAYNO 18 FEDERAL #102H [321151]

### General Well Information

Operator:	[5380] XTO ENERGY, INC		
Status:	New	Direction:	Horizontal
Well Type:	Gas	Multi-Lateral:	No
Work Type:	New	Mineral Owner:	Federal
		Surface Owner:	Federal
Surface Location:	L-18-25S-30E Lot: 3	2310 FSL	410 FWL
Lat/Long:	32.129172,-103.928078 NAD83		
GL Elevation:	3160		
KB Elevation:		Sing/Mult Compl:	Single
DF Elevation:		Potash Waiver:	False

### 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:	18380	Total Vertical Depth:	0
Measured Vertical Depth:	18435	Plugback Measured:	0

### Formation Tops

Formation	Top	Producing	Method Obtained
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### Event Dates

Initial APD Approval:	03/01/2018		
Most Recent APD Approval:	03/30/2018	Current APD Expiration:	03/01/2020
APD Cancellation:			
APD Extension Approval:			
Spud:	10/04/2018	Gas Capture Plan Received:	03/28/2018
Approved Temporary Abandonment:		TA Expiration:	
Shut in:			
Plug and Abandoned Intent Received:		PNR Expiration:	
Well Plugged:		Last MIT/BHT:	
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 Landscape

<b>Company:</b>	XTO Energy	<b>Local Co-ordinate Reference:</b>	Well Muy Wayno 18 Federal 102H - Slot 102H
<b>Project:</b>	Eddy County, NM (NAD27) NMEZ True	<b>TVD Reference:</b>	3160+32 @ 3192.00usft (Patterson793)
<b>Site:</b>	Muy Wayno 18 Federal 102H	<b>MD Reference:</b>	3160+32 @ 3192.00usft (Patterson793)
<b>Well:</b>	Muy Wayno 18 Federal 102H	<b>North Reference:</b>	True
<b>Wellbore:</b>	102H L1_ST	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	102H L1_ST (AsDrilled)	<b>Database:</b>	STRYKER_EDM

Survey Program		Date 11/23/18		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
281.00	4,980.00	Survey #1 (102H Pilot)	MWD	OWSG MWD - Standard
5,050.00	10,045.00	Survey #1 (102H L1_ST)	MWD	OWSG MWD - Standard
10,062.00	18,390.00	Survey #2 (102H L1_ST)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction
18,435.00	18,435.00	Survey #3 (102H L1_ST)	Projection	Projection

Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	410,906.20	625,601.10		
<b>Muy Wayno 18 Fed 102H SHL</b>												
281.00	0.60	246.22	280.99	-0.59	-1.35	1.47	246.22	0.21	410,905.60	625,599.76		
377.00	1.40	328.22	376.98	0.20	-2.42	2.43	274.74	1.50	410,906.39	625,598.68		
499.00	1.20	355.22	498.95	2.74	-3.32	4.30	309.58	0.52	410,908.93	625,597.77		
597.00	0.40	332.22	596.94	4.07	-3.56	5.40	318.79	0.86	410,910.25	625,597.52		
785.00	0.40	272.22	784.94	4.67	-4.52	6.50	315.93	0.21	410,910.85	625,596.56		
898.00	1.20	189.22	897.93	3.52	-5.11	6.20	304.58	1.08	410,909.70	625,595.98		
937.00	1.10	185.22	936.92	2.74	-5.21	5.88	297.79	0.33	410,908.92	625,595.88		
1,030.00	1.19	188.12	1,029.90	0.90	-5.42	5.50	279.41	0.12	410,907.08	625,595.67		
1,124.00	0.66	181.27	1,123.89	-0.61	-5.57	5.61	263.76	0.57	410,905.57	625,595.53		
1,219.00	1.01	183.38	1,218.88	-1.99	-5.63	5.98	250.53	0.37	410,904.19	625,595.47		
1,313.00	0.79	180.65	1,312.87	-3.47	-5.69	6.66	238.65	0.24	410,902.71	625,595.42		
1,406.00	1.01	181.09	1,405.86	-4.93	-5.71	7.54	229.22	0.24	410,901.25	625,595.41		
1,501.00	0.79	181.62	1,500.84	-6.42	-5.75	8.62	221.84	0.23	410,899.76	625,595.38		
1,595.00	0.70	198.85	1,594.84	-7.61	-5.95	9.66	218.02	0.26	410,898.57	625,595.18		
1,689.00	0.62	180.56	1,688.83	-8.66	-6.14	10.62	215.33	0.24	410,897.51	625,594.99		
1,784.00	0.48	134.77	1,783.83	-9.46	-5.86	11.13	211.80	0.47	410,896.72	625,595.27		
1,878.00	1.49	83.44	1,877.81	-9.59	-4.37	10.54	204.49	1.33	410,896.59	625,596.77		
1,972.00	2.29	81.42	1,971.76	-9.17	-1.30	9.27	188.06	0.85	410,897.02	625,599.84		

## Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

**Local Co-ordinate Reference:** Well Muy Wayno 18 Federal 102H - Slot 102H  
**TVD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**MD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)	
2,066.00	2.20	86.17	86.17	2,065.69	-8.77	2.36	9.08	164.96	0.22	410,897.44	625,603.49	
2,160.00	2.29	89.77	89.77	2,159.62	-8.65	6.04	10.54	145.08	0.18	410,897.58	625,607.17	
2,254.00	2.20	89.51	89.51	2,253.54	-8.62	9.72	12.99	131.58	0.10	410,897.61	625,610.85	
2,348.00	1.89	83.18	83.18	2,347.49	-8.42	13.06	15.54	122.81	0.41	410,897.83	625,614.19	
2,442.00	1.41	78.08	78.08	2,441.45	-8.00	15.73	17.65	116.95	0.53	410,898.26	625,616.86	
2,536.00	1.19	81.95	81.95	2,535.42	-7.62	17.83	19.39	113.15	0.25	410,898.64	625,618.96	
2,630.00	1.10	80.02	80.02	2,629.40	-7.33	19.69	21.01	110.42	0.10	410,898.94	625,620.81	
2,725.00	1.10	84.68	84.68	2,724.39	-7.09	21.49	22.63	108.25	0.09	410,899.19	625,622.62	
2,819.00	1.71	101.46	101.46	2,818.36	-7.28	23.76	24.86	107.04	0.78	410,899.01	625,624.89	
2,913.00	2.42	107.26	107.26	2,912.30	-8.15	27.03	28.24	106.78	0.79	410,898.15	625,628.16	
3,006.00	2.59	110.52	110.52	3,005.21	-9.47	30.88	32.30	107.05	0.24	410,896.85	625,632.01	
3,100.00	3.38	106.47	106.47	3,099.08	-11.00	35.52	37.19	107.20	0.87	410,895.34	625,636.67	
3,194.00	4.00	103.75	103.75	3,192.88	-12.56	41.37	43.23	106.89	0.69	410,893.79	625,642.51	
3,288.00	4.31	88.02	88.02	3,286.64	-13.22	48.08	49.87	105.37	1.25	410,893.16	625,649.23	
3,382.00	4.31	59.80	59.80	3,380.38	-11.32	54.66	55.82	101.70	2.23	410,895.09	625,655.81	
3,476.00	4.22	48.55	48.55	3,474.13	-7.25	60.31	60.74	96.86	0.89	410,899.17	625,661.44	
3,570.00	3.78	50.49	50.49	3,567.90	-2.99	65.29	65.36	92.62	0.49	410,903.45	625,666.40	
3,664.00	3.69	49.69	49.69	3,661.70	0.94	69.99	70.00	89.23	0.11	410,907.40	625,671.08	
3,758.00	3.52	50.05	50.05	3,755.51	4.75	74.51	74.66	86.36	0.18	410,911.23	625,675.59	
3,852.00	3.52	50.49	50.49	3,849.33	8.44	78.95	79.39	83.90	0.03	410,914.93	625,680.01	
3,946.00	3.52	52.68	52.68	3,943.16	12.02	83.47	84.33	81.80	0.14	410,918.54	625,684.52	
4,040.00	3.60	55.32	55.32	4,036.97	15.45	88.19	89.53	80.06	0.19	410,921.98	625,689.23	
4,135.00	3.52	52.68	52.68	4,131.79	18.92	92.96	94.86	78.50	0.19	410,925.47	625,693.99	
4,229.00	3.60	51.19	51.19	4,225.61	22.52	97.55	100.12	77.00	0.13	410,929.08	625,698.57	
4,323.00	3.52	51.89	51.89	4,319.43	26.15	102.12	105.42	75.64	0.10	410,932.73	625,703.12	
4,417.00	3.30	49.69	49.69	4,413.26	29.68	106.46	110.52	74.42	0.27	410,936.28	625,707.44	
4,511.00	3.21	46.97	46.97	4,507.11	33.22	110.44	115.33	73.26	0.19	410,939.84	625,711.42	

## Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

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**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)
4,604.00	3.69	52.77		4,599.94	36.81	114.73	120.49	72.21	0.64	410,943.44	625,715.69
4,698.00	4.00	56.46		4,693.73	40.45	119.87	126.51	71.35	0.42	410,947.10	625,720.82
4,791.00	4.00	54.62		4,786.50	44.12	125.22	132.77	70.59	0.14	410,950.80	625,726.15
4,886.00	4.00	56.11		4,881.27	47.89	130.67	139.17	69.87	0.11	410,954.58	625,731.59
4,980.00	4.22	61.65		4,975.03	51.36	136.44	145.78	69.37	0.48	410,958.07	625,737.34
5,050.00	8.47	31.83		5,044.60	56.97	141.42	152.47	68.06	7.49	410,963.70	625,742.31
5,144.00	12.11	26.05		5,137.08	71.71	149.41	165.73	64.36	4.02	410,978.48	625,750.24
5,238.00	14.56	22.61		5,228.54	91.48	158.28	182.82	59.97	2.74	410,998.28	625,759.04
5,332.00	14.14	21.06		5,319.61	113.11	166.95	201.66	55.88	0.61	411,019.93	625,767.62
5,426.00	13.28	29.82		5,410.94	133.19	176.45	221.07	52.95	2.39	411,040.05	625,777.04
5,521.00	13.03	31.44		5,503.44	151.79	187.46	241.21	51.00	0.47	411,058.70	625,787.99
5,615.00	12.62	32.64		5,595.10	169.48	198.52	261.03	49.51	0.52	411,076.43	625,798.99
5,709.00	12.02	32.62		5,686.93	186.37	209.34	280.28	48.32	0.64	411,093.36	625,809.74
5,803.00	12.17	24.34		5,778.85	203.65	218.70	298.83	47.04	1.85	411,110.67	625,819.03
5,897.00	11.41	31.20		5,870.87	220.63	227.60	316.98	45.89	1.69	411,127.68	625,827.87
5,992.00	11.00	43.88		5,964.08	235.20	238.75	335.15	45.43	2.62	411,142.30	625,838.97
6,086.00	8.93	52.21		6,056.66	246.14	250.74	351.36	45.53	2.68	411,153.28	625,850.91
6,181.00	7.84	58.67		6,150.64	254.02	262.10	365.00	45.90	1.51	411,161.21	625,862.24
6,275.00	6.97	59.61		6,243.86	260.24	272.50	376.80	46.32	0.93	411,167.47	625,872.61
6,369.00	4.77	55.80		6,337.36	265.33	280.65	386.21	46.61	2.38	411,172.58	625,880.75
6,463.00	4.00	63.13		6,431.09	269.00	286.81	393.22	46.83	1.01	411,176.28	625,886.89
6,557.00	3.99	65.00		6,524.86	271.87	292.69	399.48	47.11	0.14	411,179.17	625,892.77
6,651.00	3.91	64.09		6,618.63	274.65	298.54	405.66	47.39	0.11	411,181.97	625,898.60
6,745.00	3.97	64.09		6,712.41	277.47	304.35	411.85	47.64	0.06	411,184.82	625,904.40
6,839.00	2.63	65.67		6,806.25	279.78	309.24	417.03	47.86	1.43	411,187.15	625,909.29
6,933.00	1.41	57.37		6,900.19	281.30	312.18	420.22	47.98	1.33	411,188.67	625,912.22
7,027.00	1.03	54.67		6,994.17	282.41	313.85	422.20	48.02	0.41	411,189.79	625,913.88

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7,122.00	0.88	60.60		7,089.16	283.26	315.18	423.76	48.05	0.19	411,190.65	625,915.21
7,216.00	0.56	59.71		7,183.15	283.85	316.20	424.92	48.09	0.34	411,191.23	625,916.23
7,310.00	0.63	27.34		7,277.15	284.54	316.84	425.85	48.07	0.36	411,191.93	625,916.86
7,404.00	1.14	328.52		7,371.14	285.79	316.59	426.50	47.93	1.04	411,193.18	625,916.61
7,499.00	1.31	313.46		7,466.12	287.35	315.30	426.60	47.66	0.38	411,194.73	625,915.32
7,593.00	1.51	302.36		7,560.09	288.75	313.48	426.20	47.35	0.36	411,196.13	625,913.49
7,687.00	1.09	287.76		7,654.06	289.68	311.58	425.44	47.09	0.57	411,197.06	625,911.59
7,781.00	1.19	278.27		7,748.04	290.10	309.76	424.39	46.88	0.23	411,197.46	625,909.77
7,875.00	0.73	269.06		7,842.03	290.23	308.20	423.34	46.72	0.51	411,197.59	625,908.20
7,969.00	1.25	143.01		7,936.02	289.40	308.22	422.79	46.80	1.89	411,196.76	625,908.22
8,063.00	0.71	149.27		8,030.01	288.08	309.13	422.55	47.02	0.58	411,195.44	625,909.14
8,157.00	0.55	141.84		8,124.00	287.22	309.71	422.39	47.16	0.19	411,194.59	625,909.72
8,250.00	1.22	156.23		8,216.99	285.97	310.38	422.04	47.34	0.75	411,193.33	625,910.40
8,345.00	1.36	164.09		8,311.97	283.96	311.10	421.21	47.61	0.24	411,191.33	625,911.13
8,439.00	1.51	177.28		8,405.94	281.65	311.46	419.92	47.88	0.38	411,189.02	625,911.50
8,533.00	0.91	217.03		8,499.92	279.81	311.07	418.40	48.03	1.06	411,187.18	625,911.12
8,626.00	1.03	230.29		8,592.91	278.69	309.99	416.84	48.04	0.27	411,186.06	625,910.03
8,720.00	0.56	351.32		8,686.90	278.60	309.27	416.25	47.99	1.49	411,185.97	625,909.31
8,814.00	0.60	291.60		8,780.90	279.24	308.74	416.29	47.87	0.62	411,186.60	625,908.79
8,911.00	0.56	216.42		8,877.89	279.05	307.99	415.60	47.82	0.73	411,186.40	625,908.03
9,006.00	0.99	142.31		8,972.89	278.02	308.21	415.08	47.95	1.05	411,185.38	625,908.26
9,101.00	1.29	163.85		9,067.87	276.35	309.01	414.55	48.19	0.55	411,183.71	625,909.07
9,195.00	0.56	88.00		9,161.86	275.35	309.76	414.45	48.37	1.36	411,182.71	625,909.82
9,289.00	1.79	64.84		9,255.84	275.99	311.55	416.21	48.46	1.38	411,183.36	625,911.61
9,383.00	1.89	79.87		9,349.79	276.88	314.41	418.95	48.63	0.52	411,184.26	625,914.46
9,478.00	0.49	37.67		9,444.77	277.48	316.20	420.68	48.73	1.64	411,184.87	625,916.25
9,572.00	0.16	220.94		9,538.77	277.70	316.36	420.95	48.72	0.69	411,185.09	625,916.41

## Survey Report Landscape

<b>Company:</b>	XTO Energy	<b>Local Co-ordinate Reference:</b>	Well Muy Wayno 18 Federal 102H - Slot 102H
<b>Project:</b>	Eddy County, NM (NAD27) NMEZ True	<b>TVD Reference:</b>	3160+32 @ 3192.00usft (Patterson793)
<b>Site:</b>	Muy Wayno 18 Federal 102H	<b>MD Reference:</b>	3160+32 @ 3192.00usft (Patterson793)
<b>Well:</b>	Muy Wayno 18 Federal 102H	<b>North Reference:</b>	True
<b>Wellbore:</b>	102H L1_ST	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	102H L1_ST (AsDrilled)	<b>Database:</b>	STRYKER_EDM

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)	
9,666.00	0.47	193.89	9,632.76	277.23	316.18	420.50	48.76	0.36	411,184.61	625,916.23	
9,759.00	0.55	198.79	9,725.76	276.43	315.94	419.80	48.82	0.10	411,183.82	625,916.00	
9,852.00	0.63	227.42	9,818.76	275.66	315.42	418.91	48.85	0.32	411,183.05	625,915.48	
9,947.00	0.69	233.48	9,913.75	274.97	314.58	417.81	48.84	0.10	411,182.35	625,914.64	
10,008.00	0.48	235.84	9,974.75	274.61	314.07	417.19	48.84	0.35	411,181.99	625,914.14	
10,045.00	0.40	238.60	10,011.75	274.45	313.83	416.91	48.83	0.22	411,181.83	625,913.90	
10,062.00	0.40	269.00	10,028.75	274.42	313.72	416.81	48.82	1.23	411,181.80	625,913.79	
10,093.00	1.70	322.80	10,059.74	274.79	313.34	416.76	48.75	4.84	411,182.16	625,913.40	
10,124.00	2.90	329.30	10,090.71	275.83	312.66	416.94	48.58	3.96	411,183.20	625,912.72	
10,155.00	5.60	342.60	10,121.63	277.94	311.81	417.70	48.29	9.21	411,185.32	625,911.86	
10,187.00	9.10	353.20	10,153.36	281.95	311.04	419.81	47.81	11.68	411,189.32	625,911.08	
10,218.00	11.30	357.20	10,183.87	287.42	310.60	423.18	47.22	7.45	411,194.79	625,910.62	
10,249.00	12.80	357.60	10,214.18	293.88	310.31	427.39	46.56	4.85	411,201.25	625,910.30	
10,280.00	14.70	356.00	10,244.30	301.24	309.89	432.18	45.81	6.25	411,208.60	625,909.85	
10,312.00	17.20	356.60	10,275.06	310.01	309.33	437.94	44.94	7.83	411,217.38	625,909.26	
10,343.00	18.20	355.40	10,304.59	319.41	308.67	444.18	44.02	3.43	411,226.77	625,908.56	
10,380.00	20.20	353.40	10,339.53	331.52	307.47	452.15	42.84	5.69	411,238.88	625,907.32	
10,412.00	23.60	352.40	10,369.22	343.36	305.99	459.92	41.71	10.69	411,250.71	625,905.79	
10,427.00	26.31	353.63	10,382.82	349.64	305.22	464.12	41.12	18.36	411,256.99	625,905.00	
<b>Wellpath Crosses Unit Line @ Heel</b>											
10,443.00	29.20	354.70	10,396.98	357.05	304.47	469.24	40.45	18.36	411,264.40	625,904.22	
10,475.00	36.20	358.70	10,423.89	374.30	303.53	481.90	39.04	22.88	411,281.64	625,903.22	
10,506.00	39.70	357.70	10,448.33	393.35	302.92	496.47	37.60	11.46	411,300.69	625,902.54	
10,538.00	44.00	357.60	10,472.16	414.67	302.05	513.02	36.07	13.44	411,322.01	625,901.58	
10,549.00	46.00	357.80	10,479.94	422.45	301.74	519.14	35.54	18.23	411,329.78	625,901.24	
10,570.00	49.20	359.00	10,494.10	437.94	301.31	531.58	34.53	15.81	411,345.28	625,900.76	
10,601.00	54.00	1.80	10,513.35	462.23	301.50	551.86	33.12	17.02	411,369.56	625,900.85	



## Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

**Local Co-ordinate Reference:** Well Muy Wayno 18 Federal 102H - Slot 102H  
**TVD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**MD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)		
10,632.00	58.40	3.50	10,530.59	487.95	302.70	574.21	31.81	14.91	411,395.29	625,901.96		
10,664.00	60.00	4.10	10,546.98	515.38	304.52	598.62	30.58	5.25	411,422.72	625,903.68		
10,695.00	62.40	4.10	10,561.91	542.47	306.46	623.05	29.46	7.74	411,449.82	625,905.52		
10,726.00	64.00	4.50	10,575.89	570.06	308.54	648.20	28.42	5.29	411,477.42	625,907.49		
10,758.00	68.40	3.10	10,588.80	599.27	310.47	674.92	27.39	14.32	411,506.63	625,909.31		
10,789.00	72.00	2.40	10,599.30	628.40	311.87	701.53	26.39	11.81	411,535.77	625,910.60		
10,820.00	75.30	2.60	10,608.03	658.11	313.17	728.82	25.45	10.66	411,565.49	625,911.78		
10,851.00	79.10	1.20	10,614.89	688.32	314.16	756.62	24.53	13.02	411,595.70	625,912.67		
10,863.00	79.91	0.66	10,617.08	700.12	314.36	767.45	24.18	8.10	411,607.49	625,912.82		
<b>Wellpath Crosses HL @ Heel</b>												
10,864.96	80.05	0.57	10,617.42	702.05	314.38	769.22	24.12	8.10	411,609.43	625,912.83		
<b>Muy Wayno 18 Fed 102H FTP</b>												
10,882.00	81.20	359.80	10,620.20	718.86	314.43	784.62	23.62	8.10	411,626.24	625,912.82		
10,913.00	83.70	358.50	10,624.27	749.58	313.97	812.68	22.73	9.07	411,656.96	625,912.25		
10,945.00	87.10	357.80	10,626.83	781.46	312.94	841.79	21.82	10.85	411,688.83	625,911.10		
10,976.00	90.80	358.10	10,627.40	812.43	311.83	870.22	21.00	11.97	411,719.80	625,909.87		
11,071.00	88.80	358.30	10,627.73	907.37	308.85	958.50	18.80	2.12	411,814.73	625,906.53		
11,165.00	85.30	356.20	10,632.57	1,001.12	304.35	1,046.36	16.91	4.34	411,908.46	625,901.68		
11,260.00	88.30	357.70	10,637.87	1,095.83	299.31	1,135.97	15.28	3.53	412,003.15	625,896.28		
11,353.00	90.90	358.50	10,638.52	1,188.76	296.22	1,225.12	13.99	2.93	412,096.07	625,892.84		
11,448.00	91.50	359.80	10,636.53	1,283.73	294.81	1,317.15	12.93	1.51	412,191.03	625,891.08		
11,542.00	91.80	359.70	10,633.83	1,377.69	294.40	1,408.80	12.06	0.34	412,284.99	625,890.31		
11,637.00	91.70	359.50	10,630.93	1,472.64	293.74	1,501.65	11.28	0.24	412,379.94	625,889.29		
11,731.00	90.40	0.20	10,629.20	1,566.62	293.50	1,593.88	10.61	1.57	412,473.92	625,888.69		
11,825.00	91.70	0.10	10,627.48	1,660.61	293.74	1,686.39	10.03	1.39	412,567.90	625,888.58		
11,919.00	91.30	358.20	10,625.02	1,754.56	292.35	1,778.75	9.46	2.06	412,661.85	625,886.84		
12,013.00	92.80	2.60	10,621.66	1,848.47	293.00	1,871.55	9.01	4.94	412,755.76	625,887.14		

## Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

**Local Co-ordinate Reference:** Well Muy Wayno 18 Federal 102H - Slot 102H  
**TVD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**MD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)	
12,107.00	88.70	2.10	10,620.43	1,942.36	296.85	1,964.92	8.69	4.39	412,849.67	625,890.64	
12,201.00	90.40	3.20	10,621.16	2,036.26	301.20	2,058.41	8.41	2.15	412,943.58	625,894.63	
12,295.00	90.20	1.10	10,620.67	2,130.18	304.73	2,151.87	8.14	2.24	413,037.52	625,897.80	
12,389.00	90.50	1.00	10,620.10	2,224.17	306.45	2,245.18	7.84	0.34	413,131.50	625,899.17	
12,483.00	89.50	2.00	10,620.10	2,318.13	308.91	2,338.62	7.59	1.50	413,225.48	625,901.28	
12,577.00	89.80	1.00	10,620.67	2,412.10	311.37	2,432.11	7.36	1.11	413,319.45	625,903.38	
12,671.00	90.20	2.70	10,620.67	2,506.04	314.40	2,525.69	7.15	1.86	413,413.41	625,906.06	
12,765.00	91.20	2.40	10,619.52	2,599.94	318.59	2,619.39	6.99	1.11	413,507.32	625,909.89	
12,859.00	89.50	1.30	10,618.95	2,693.89	321.62	2,713.02	6.81	2.15	413,601.28	625,912.57	
12,953.00	87.80	359.70	10,621.16	2,787.85	322.44	2,806.43	6.60	2.48	413,695.24	625,913.04	
13,049.00	87.70	359.70	10,624.93	2,883.77	321.94	2,901.69	6.37	0.10	413,791.17	625,912.17	
13,143.00	86.80	358.40	10,629.44	2,977.65	320.38	2,994.84	6.14	1.68	413,885.04	625,910.26	
13,236.00	87.00	357.70	10,634.47	3,070.46	317.22	3,086.80	5.90	0.78	413,977.83	625,906.76	
13,330.00	91.80	359.20	10,635.46	3,164.39	314.68	3,180.00	5.68	5.35	414,071.75	625,903.86	
13,423.00	91.20	359.60	10,633.02	3,257.35	313.71	3,272.42	5.50	0.78	414,164.71	625,902.54	
13,517.00	91.30	359.80	10,630.97	3,351.33	313.22	3,365.93	5.34	0.24	414,258.68	625,901.69	
13,611.00	91.10	0.40	10,629.00	3,445.31	313.38	3,459.53	5.20	0.67	414,352.66	625,901.50	
13,705.00	91.20	1.10	10,627.12	3,539.28	314.61	3,553.24	5.08	0.75	414,446.64	625,902.38	
13,800.00	91.20	1.20	10,625.13	3,634.24	316.52	3,648.00	4.98	0.11	414,541.61	625,903.93	
13,916.00	90.40	1.10	10,623.51	3,750.20	318.84	3,763.73	4.86	0.70	414,657.58	625,905.82	
14,011.00	89.80	0.50	10,623.34	3,845.19	320.17	3,858.50	4.76	0.89	414,752.57	625,906.79	
14,105.00	90.00	359.80	10,623.51	3,939.19	320.42	3,952.20	4.65	0.77	414,846.57	625,906.68	
14,198.00	91.80	3.00	10,622.04	4,032.14	322.69	4,045.03	4.58	3.95	414,939.52	625,908.60	
14,292.00	90.00	0.70	10,620.57	4,126.07	325.72	4,138.90	4.51	3.11	415,033.46	625,911.28	
14,387.00	89.70	1.90	10,620.82	4,221.04	327.88	4,233.76	4.44	1.30	415,128.45	625,913.08	
14,480.00	88.70	358.70	10,622.12	4,314.02	328.36	4,326.50	4.35	3.60	415,221.42	625,913.21	
14,574.00	89.00	358.10	10,624.00	4,407.96	325.74	4,419.98	4.23	0.71	415,315.36	625,910.23	

## Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

**Local Co-ordinate Reference:** Well Muy Wayno 18 Federal 102H - Slot 102H  
**TVD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**MD Reference:** 3160+32 @ 3192.00usft (Patterson793)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)		
14,669.00	89.90	358.50	10,624.91	4,502.91	322.92	4,514.48	4.10	1.04	415,410.30	625,907.06		
14,763.00	87.90	357.90	10,626.72	4,596.84	319.97	4,607.97	3.98	2.22	415,504.22	625,903.75		
14,857.00	88.90	358.30	10,629.34	4,690.75	316.85	4,701.44	3.86	1.15	415,598.11	625,900.28		
14,952.00	92.10	359.70	10,628.51	4,785.72	315.20	4,796.09	3.77	3.68	415,693.08	625,898.27		
15,045.00	92.10	0.20	10,625.11	4,878.66	315.12	4,888.83	3.70	0.54	415,786.01	625,897.84		
15,139.00	90.60	358.30	10,622.89	4,972.62	313.88	4,982.51	3.61	2.57	415,879.96	625,896.25		
15,233.00	90.20	358.30	10,622.23	5,066.57	311.10	5,076.12	3.51	0.43	415,973.91	625,893.11		
15,327.00	88.70	357.00	10,623.14	5,160.49	307.24	5,169.62	3.41	2.11	416,067.81	625,888.90		
15,421.00	90.90	357.90	10,623.47	5,254.39	303.06	5,263.12	3.30	2.53	416,161.69	625,884.37		
15,515.00	90.50	357.00	10,622.32	5,348.28	298.88	5,356.63	3.20	1.05	416,255.57	625,879.83		
15,609.00	89.70	359.30	10,622.15	5,442.23	295.84	5,450.26	3.11	2.59	416,349.50	625,876.44		
15,703.00	90.60	359.00	10,621.91	5,536.22	294.45	5,544.04	3.04	1.01	416,443.49	625,874.70		
15,797.00	88.90	0.40	10,622.32	5,630.21	293.96	5,637.88	2.99	2.34	416,537.48	625,873.85		
15,891.00	87.70	359.00	10,625.11	5,724.16	293.47	5,731.68	2.93	1.96	416,631.43	625,873.00		
15,986.00	87.70	358.00	10,628.92	5,819.05	290.98	5,826.32	2.86	1.05	416,726.31	625,870.16		
16,080.00	89.80	358.90	10,630.97	5,912.99	288.44	5,920.02	2.79	2.43	416,820.23	625,867.27		
16,174.00	91.30	0.30	10,630.07	6,006.98	287.78	6,013.87	2.74	2.18	416,914.22	625,866.26		
16,268.00	91.60	0.50	10,627.69	6,100.94	288.44	6,107.76	2.71	0.38	417,008.19	625,866.56		
16,363.00	91.30	359.80	10,625.28	6,195.91	288.69	6,202.63	2.67	0.80	417,103.16	625,866.45		
16,457.00	90.40	359.80	10,623.89	6,289.90	288.36	6,296.51	2.62	0.96	417,197.14	625,865.77		
16,551.00	90.90	0.50	10,622.82	6,383.89	288.61	6,390.41	2.59	0.92	417,291.14	625,865.66		
16,645.00	91.60	0.70	10,620.77	6,477.87	289.59	6,484.34	2.56	0.77	417,385.11	625,866.29		
16,739.00	89.50	1.20	10,619.87	6,571.84	291.15	6,578.29	2.54	2.30	417,479.09	625,867.49		
16,833.00	89.10	1.10	10,621.02	6,665.82	293.03	6,672.25	2.52	0.44	417,573.07	625,869.03		
16,927.00	88.80	1.10	10,622.74	6,759.78	294.84	6,766.21	2.50	0.32	417,667.05	625,870.48		
17,021.00	89.30	0.20	10,624.30	6,853.76	295.91	6,860.15	2.47	1.10	417,761.03	625,871.19		
17,115.00	89.00	0.00	10,625.69	6,947.75	296.07	6,954.06	2.44	0.38	417,855.02	625,871.00		

Survey Report Landscape

**Company:** XTO Energy  
**Project:** Eddy County, NM (NAD27) NMEZ True  
**Site:** Muy Wayno 18 Federal 102H  
**Well:** Muy Wayno 18 Federal 102H  
**Wellbore:** 102H L1\_ST  
**Design:** 102H L1\_ST (AsDrilled)

**Local Co-ordinate Reference:** Well Muy Wayno 18 Federal 102H - Slot 102H  
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**Survey Calculation Method:** Minimum Curvature  
**Database:** STRYKER\_EDM

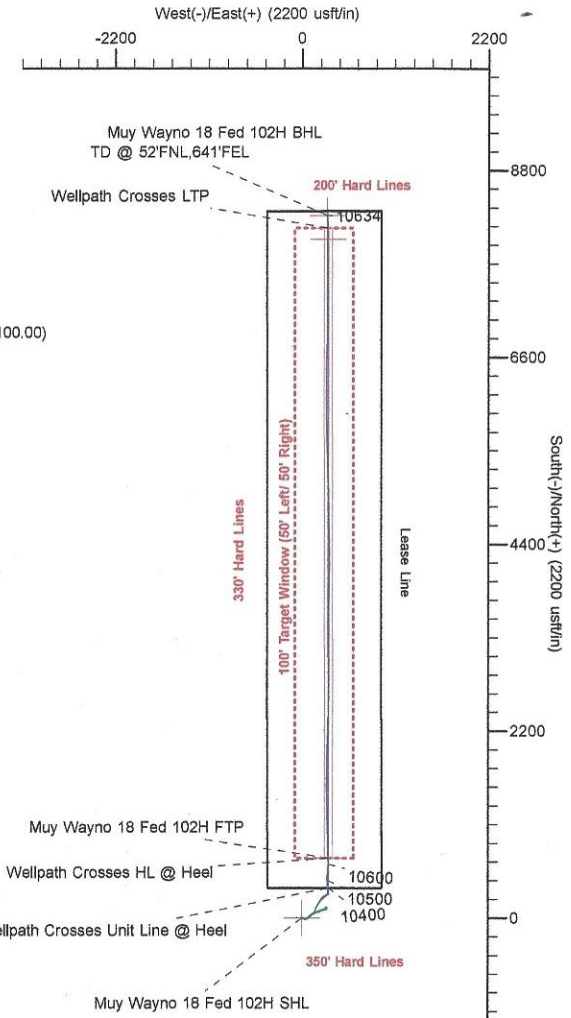
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100ft)	Northing (usft)	Easting (usft)
17,209.00	88.80	0.40	10,627.50	7,041.73	296.40	7,047.97	2.41	0.48	417,949.00	625,870.97
17,303.00	88.50	359.50	10,629.71	7,135.71	296.32	7,141.86	2.38	1.01	418,042.97	625,870.54
17,397.00	91.70	359.50	10,629.55	7,229.69	295.50	7,235.73	2.34	3.40	418,136.95	625,869.36
17,491.00	91.40	359.40	10,627.01	7,323.65	294.59	7,329.58	2.30	0.34	418,230.91	625,868.11
17,585.00	91.30	359.60	10,624.79	7,417.62	293.77	7,423.44	2.27	0.24	418,324.88	625,866.93
17,679.00	92.50	0.90	10,621.68	7,511.57	294.18	7,517.32	2.24	1.88	418,418.82	625,866.99
17,773.00	90.40	0.30	10,619.30	7,605.53	295.17	7,611.25	2.22	2.32	418,512.78	625,867.62
17,867.00	89.60	359.80	10,619.30	7,699.52	295.25	7,705.18	2.20	1.00	418,606.78	625,867.35
17,962.00	90.60	0.50	10,619.13	7,794.52	295.50	7,800.12	2.17	1.28	418,701.78	625,867.24
18,056.00	89.30	359.80	10,619.21	7,888.52	295.74	7,894.06	2.15	1.57	418,795.78	625,867.13
18,150.00	88.40	0.20	10,621.10	7,982.50	295.74	7,987.98	2.12	1.05	418,889.76	625,866.78
18,157.49	88.32	0.17	10,621.31	7,989.99	295.77	7,995.46	2.12	1.15	418,897.24	625,866.77
<b>Muy Wayno 18 Fed 102H LTP</b>										
18,244.00	87.40	359.80	10,624.54	8,076.43	295.74	8,081.85	2.10	1.15	418,983.69	625,866.42
18,287.00	87.90	0.03	10,626.31	8,119.40	295.68	8,124.78	2.09	1.27	419,026.65	625,866.19
<b>Wellpath Crosses LTP</b>										
18,287.42	87.90	0.03	10,626.32	8,119.82	295.68	8,125.20	2.09	1.27	419,027.07	625,866.19
<b>Muy Wayno 18 Fed 102H PBHL p2</b>										
18,339.00	88.50	0.30	10,627.94	8,171.37	295.83	8,176.73	2.07	1.27	419,078.63	625,866.15
18,390.00	85.80	359.20	10,630.48	8,222.30	295.60	8,227.61	2.06	5.72	419,129.56	625,865.73
18,435.00	85.80	359.20	10,633.77	8,267.18	294.98	8,272.44	2.04	0.00	419,174.43	625,864.94
TD @ 52'FNL,641'FEL										

# XTO Energy

Project: Eddy County, NM (NAD27) NMEZ True  
 Site: Muy Wayno 18 Federal 102H  
 Well: Muy Wayno 18 Federal 102H  
 Wellbore: 102H L1\_ST  
 Design: 102H L1\_ST (AsDrilled)

3160+32 @ 3192.00usft (Patterson793)  
 NAD 1927 (NADCON CONUS)



### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Muy Wayno 18 Fed 102H SHL	0.00	0.00	0.00	410906.20	625601.10	Point
Muy Wayno 18 Fed 102H BHL	10629.00	8267.13	294.99	419174.38	625864.95	Point
Muy Wayno 18 Fed 102H FTP	10629.00	700.12	315.44	411607.50	625913.90	Point
Muy Wayno 18 Fed 102H LTP	10629.00	7989.70	306.00	418897.00	625877.00	Point
Muy Wayno 18 Fed 102H PBHL p2	10629.00	8119.71	305.78	419027.00	625876.30	Rectangle (Sides: L7412.00 W100.00)

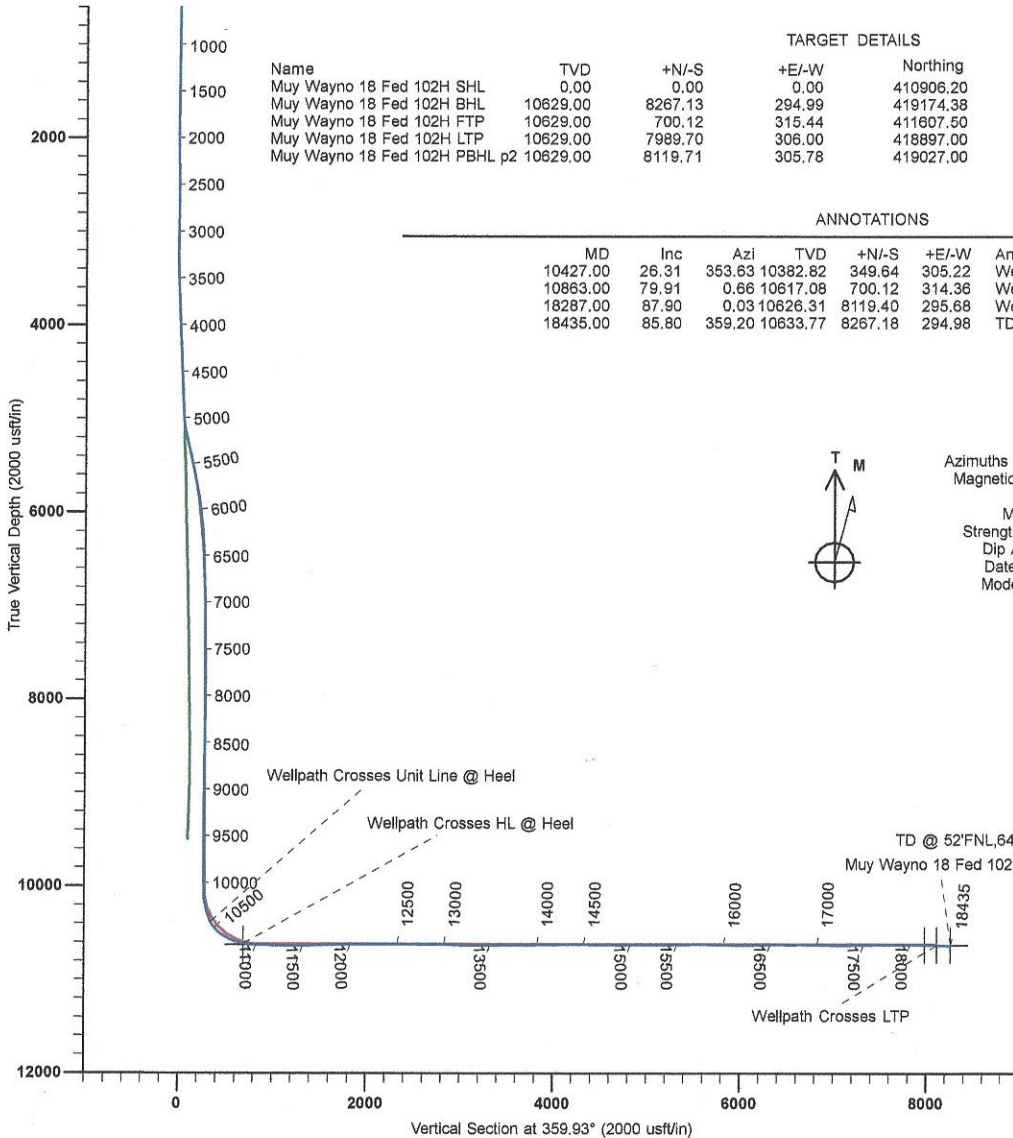
### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Annotation
10427.00	26.31	353.63	10382.82	349.64	305.22	Wellpath Crosses Unit Line @ Heel
10863.00	79.91	0.66	10617.08	700.12	314.36	Wellpath Crosses HL @ Heel
18287.00	87.90	0.03	10626.31	8119.40	295.68	Wellpath Crosses LTP
18435.00	85.80	359.20	10633.77	8267.18	294.98	TD @ 52°FNL,641°FEL



Azimuths to True North  
 Magnetic North: 6.96°

Magnetic Field  
 Strength: 47702.5nT  
 Dip Angle: 59.90°  
 Date: 11/09/2018  
 Model: IGRF2015



To convert a Magnetic Direction to a True Direction, Add 6.96° East  
 To convert a Magnetic Direction to a Grid Direction, Add 6.75°  
 Magnetic North is 6.96° East of True North (Magnetic Declination)  
 Magnetic North is 6.75° East of Grid North (Magnetic Convergence)