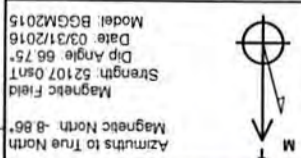


8/05/2018



Company: XTO Energy
 Site: Rockwell
 Well: 8H

Project: Marion County, West Virginia (NAD 27)
 Rig: Nomic 78



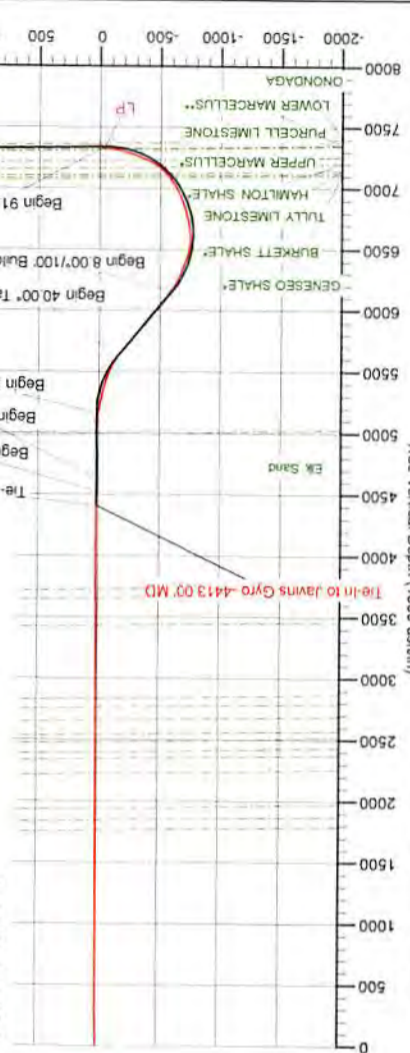
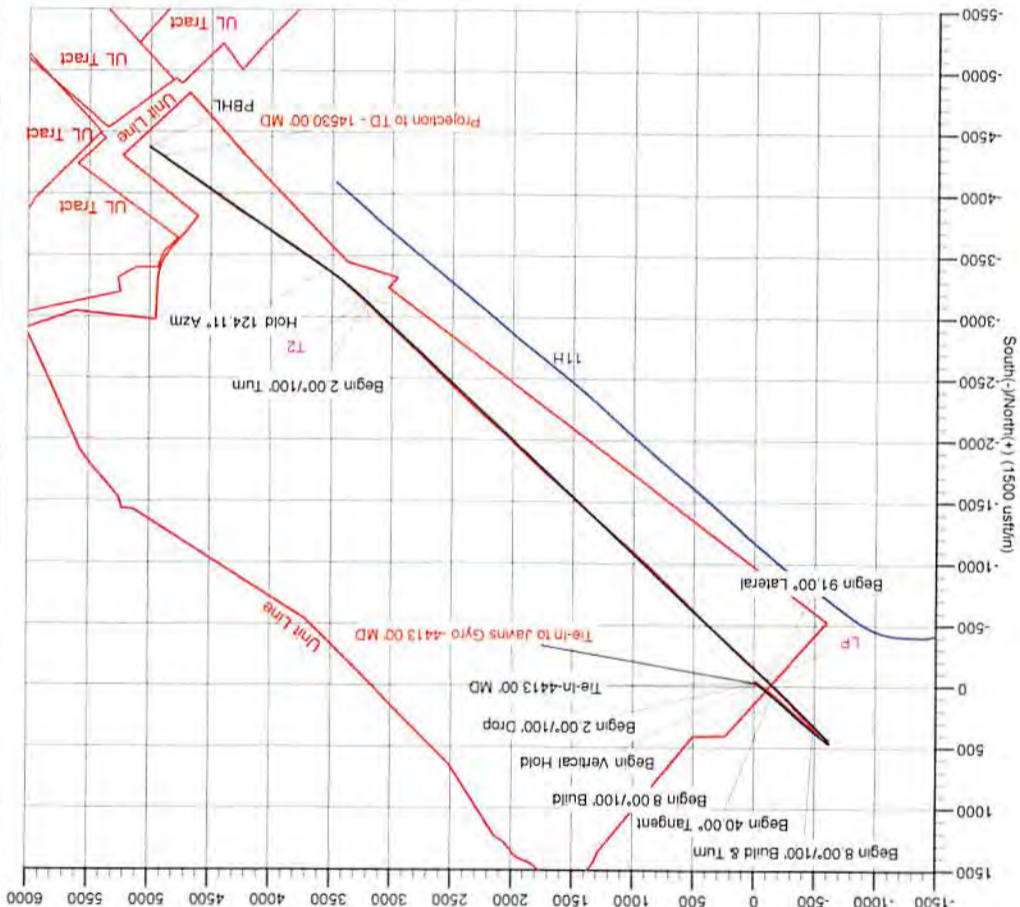
Magetic Field Strength: 52107.05nT
 Dip Angle: 66.75°
 Date: 03/31/2016
 Model: BGM2015

US State Plane 1927 (Exact solution)
 West Virginia North 4701

Created By: CJH
 Date: 14:40 April 14 2016
 Plan Design #3

MD	Inc	Azi	TVD	+N/S	+E/W	VSet	Departure	Annotation
4413.00	1.97	232.40	4412.66	-31.86	-5.40	0.00	16.91	Tie-in-4413.00' MD
4526.00	1.97	232.40	4525.59	-34.23	-8.48	3.88	16.15	Begin 2.00'/100' Drop
4624.50	0.00	0.00	4624.07	-35.26	-9.82	5.58	15.82	Begin Vertical Hold
5164.70	0.00	0.00	5164.27	-35.26	-9.82	5.58	15.82	Begin 8.00'/100' Build
5664.74	40.00	310.18	5624.66	72.86	-137.86	173.16	-151.73	Begin 40.00' Tangent
6370.04	40.00	310.18	6164.93	365.36	-484.27	626.55	-605.05	Begin 8.00'/100' Build & Turn
8006.88	91.00	132.82	7340.00	-50.42	-104.09	1527.39	-45.16	Begin 91.00' Lateral
12520.64	91.00	132.82	7261.50	-3118.06	-3206.12	4466.05	6040.47	Begin 2.00'/100' Turn
12956.13	91.00	124.11	7253.92	-3388.65	3546.71	4900.56	6475.88	Hold 124.11' Azm
14713.21	91.00	124.11	7223.40	-4373.87	5001.27	6644.05	8232.70	PBHL

ANNOTATIONS



Vertical Section at 131.17° (1500 usft/m)
 The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



XTO Energy

**Marion County, West Virginia (NAD 27)
Rockwell
8H**

Wellbore #1

Survey: Javins Gyro

Standard Survey Report

14 April, 2016



01/05/2018



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Project	Marion County, West Virginia (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Well	8H					
Well Position	+N/-S	0.00 usft	Northing:	349,206.72 usft	Latitude:	39° 27' 20.027 N
	+E/-W	0.00 usft	Easting:	1,756,252.99 usft	Longitude:	80° 21' 47.666 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,246.00 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	03/31/16	-8.86	66.75	52,107

Design	Surveys				
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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	131.17

Survey Program	Date 04/14/16				
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From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
13.00	4,413.00	Javins Gyro (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
4,498.00	14,530.00	Cathedral MWD (Wellbore #1)	MWD	OWSG MWD - Standard

Survey										
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	
Added to adjust for KB-13.00'MD										
113.00	1.01	157.30	112.99	-0.81	0.34	0.79	1.01	1.01	0.00	
213.00	1.48	186.70	212.97	-2.91	0.53	2.31	0.78	0.47	29.40	
313.00	1.59	217.40	312.94	-5.29	-0.46	3.14	0.82	0.11	30.70	
413.00	0.63	252.80	412.92	-6.56	-1.83	2.94	1.14	-0.96	35.40	
513.00	0.45	313.70	512.91	-6.45	-2.64	2.26	0.57	-0.18	60.90	
613.00	0.16	306.70	612.91	-6.09	-3.04	1.73	0.29	-0.29	-7.00	
713.00	0.27	184.10	712.91	-6.25	-3.17	1.73	0.38	0.11	-122.60	
813.00	0.49	200.30	812.91	-6.88	-3.33	2.02	0.24	0.22	16.20	
913.00	0.61	217.20	912.91	-7.71	-3.80	2.21	0.20	0.12	16.90	
1,013.00	0.21	157.50	1,012.90	-8.30	-4.05	2.41	0.54	-0.40	-59.70	
1,113.00	0.36	123.90	1,112.90	-8.65	-3.72	2.89	0.22	0.15	-33.60	
1,213.00	0.41	113.60	1,212.90	-8.96	-3.13	3.54	0.09	0.05	-10.30	



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,313.00	0.41	109.80	1,312.90	-9.23	-2.47	4.22	0.03	0.00	-3.80
1,413.00	0.43	96.10	1,412.90	-9.39	-1.76	4.86	0.10	0.02	-13.70
1,513.00	0.49	106.50	1,512.89	-9.55	-0.98	5.55	0.10	0.06	10.40
1,613.00	0.42	110.60	1,612.89	-9.80	-0.22	6.28	0.08	-0.07	4.10
1,713.00	0.38	99.10	1,712.89	-9.98	0.45	6.91	0.09	-0.04	-11.50
1,813.00	0.36	64.90	1,812.88	-9.90	1.06	7.32	0.22	-0.02	-34.20
1,913.00	0.34	271.70	1,912.88	-9.76	1.05	7.21	0.68	-0.02	-153.20
2,013.00	0.45	97.40	2,012.88	-9.80	1.14	7.31	0.79	0.11	-174.30
2,113.00	0.34	246.30	2,112.88	-9.97	1.26	7.51	0.76	-0.11	148.90
2,213.00	0.42	239.60	2,212.88	-10.28	0.67	7.27	0.09	0.08	-6.70
2,313.00	0.48	181.20	2,312.88	-10.88	0.35	7.42	0.44	0.06	-58.40
2,413.00	0.68	197.10	2,412.87	-11.87	0.16	7.93	0.25	0.20	15.90
2,513.00	0.37	86.40	2,512.87	-12.41	0.31	8.40	0.88	-0.31	-110.70
2,613.00	0.11	335.20	2,612.87	-12.31	0.59	8.55	0.42	-0.26	-111.20
2,713.00	0.54	219.30	2,712.87	-12.58	0.25	8.47	0.60	0.43	-115.90
2,813.00	0.56	130.00	2,812.86	-13.26	0.33	8.98	0.77	0.02	-89.30
2,913.00	0.59	240.10	2,912.86	-13.83	0.26	9.30	0.94	0.03	110.10
3,013.00	0.69	167.60	3,012.86	-14.68	-0.06	9.62	0.76	0.10	-72.50
3,113.00	0.18	92.30	3,112.85	-15.27	0.23	10.22	0.67	-0.51	-75.30
3,213.00	0.55	73.20	3,212.85	-15.14	0.84	10.60	0.38	0.37	-19.10
3,313.00	0.76	195.90	3,312.85	-15.64	1.12	11.14	1.15	0.21	122.70
3,413.00	0.68	188.20	3,412.84	-16.86	0.85	11.74	0.13	-0.08	-7.70
3,513.00	0.97	166.80	3,512.83	-18.28	0.96	12.76	0.42	0.29	-21.40
3,613.00	0.96	188.90	3,612.82	-19.93	1.03	13.89	0.37	-0.01	22.10
3,713.00	1.05	147.30	3,712.80	-21.53	1.39	15.22	0.72	0.09	-41.60
3,813.00	1.27	202.50	3,812.78	-23.32	1.46	16.45	1.09	0.22	55.20
3,913.00	0.38	197.50	3,912.77	-24.66	0.94	16.94	0.89	-0.89	-5.00
4,013.00	0.77	184.50	4,012.77	-25.65	0.79	17.48	0.41	0.39	-13.00
4,113.00	1.10	203.60	4,112.75	-27.20	0.35	18.17	0.45	0.33	19.10
4,213.00	1.25	246.80	4,212.74	-28.51	-1.04	17.98	0.88	0.15	43.20
4,313.00	1.57	226.80	4,312.71	-29.87	-3.04	17.38	0.58	0.32	-20.00
4,413.00	1.97	232.40	4,412.66	-31.86	-5.40	16.91	0.44	0.40	5.60

Final Javins Gyro - 4413.00' MD

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13.00	13.00	0.00	0.00	Added to adjust for KB-13.00'MD
4,413.00	4,412.66	-31.86	-5.40	Final Javins Gyro - 4413.00' MD



XTO Energy

**Marion County, West Virginia (NAD 27)
Rockwell
8H**

Wellbore #1

Survey: Cathedral MWD

Standard Survey Report

14 April, 2016



01/05/2018



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Project	Marion County, West Virginia (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Well	8H					
Well Position	+N/-S	0.00 usft	Northing:	349,206.72 usft	Latitude:	39° 27' 20.027 N
	+E/-W	0.00 usft	Easting:	1,756,252.99 usft	Longitude:	80° 21' 47.666 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,246.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	03/31/16	-8.86	66.75	52,107

Design	Surveys				
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	131.17	

Survey Program	Date 04/14/16			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
13.00	4,413.00	Javins Gyro (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
4,498.00	14,530.00	Cathedral MWD (Wellbore #1)	MWD	OWSG MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,413.00	1.97	232.40	4,412.66	-31.86	-5.40	16.91	0.00	0.00	0.00	
Tie-In to Javins Gyro -4413.00' MD										
4,498.00	1.93	241.72	4,497.61	-33.43	-7.82	16.12	0.38	-0.05	10.96	
4,594.00	1.67	248.66	4,593.56	-34.70	-10.54	14.91	0.35	-0.27	7.23	
4,689.00	1.27	251.12	4,688.53	-35.55	-12.83	13.74	0.43	-0.42	2.59	
4,785.00	1.01	234.07	4,784.51	-36.39	-14.52	13.02	0.44	-0.27	-17.76	
4,881.00	0.75	243.30	4,880.50	-37.17	-15.77	12.60	0.31	-0.27	9.61	
4,975.00	0.97	230.55	4,974.49	-37.95	-16.93	12.24	0.31	0.23	-13.56	
5,071.00	0.62	254.20	5,070.48	-38.61	-18.06	11.82	0.49	-0.36	24.64	
5,166.00	8.75	305.17	5,165.09	-34.58	-24.47	4.34	8.81	8.56	53.65	
5,262.00	13.49	311.94	5,259.27	-22.88	-38.78	-14.13	5.11	4.94	7.05	
5,357.00	14.24	308.43	5,351.50	-8.21	-56.17	-36.88	1.19	0.79	-3.69	
5,452.00	18.28	303.59	5,442.69	7.30	-77.75	-63.33	4.48	4.25	-5.09	
5,547.00	24.26	305.79	5,531.18	26.97	-106.02	-97.56	6.35	6.29	2.32	
5,643.00	35.42	307.81	5,614.32	55.65	-144.11	-145.12	11.67	11.63	2.10	



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,738.00	41.22	310.36	5,688.83	92.83	-189.76	-203.95	6.33	6.11	2.68
5,833.00	40.91	313.70	5,760.46	134.60	-236.10	-266.33	2.33	-0.33	3.52
5,929.00	37.05	309.13	5,835.09	174.59	-281.29	-326.67	5.01	-4.02	-4.76
6,024.00	37.79	311.68	5,910.54	212.01	-325.23	-384.39	1.81	0.78	2.68
6,120.00	41.48	311.50	5,984.46	252.65	-371.02	-445.61	3.85	3.84	-0.19
6,214.00	40.83	310.45	6,055.24	293.22	-417.73	-507.47	1.01	-0.69	-1.12
6,309.00	37.53	307.99	6,128.87	331.19	-464.18	-567.44	3.84	-3.47	-2.59
6,404.00	29.75	306.23	6,207.90	362.98	-506.06	-619.89	8.25	-8.19	-1.85
6,499.00	26.15	303.24	6,291.81	388.39	-542.60	-664.12	4.07	-3.79	-3.15
6,595.00	21.97	298.49	6,379.46	408.57	-576.09	-702.62	4.80	-4.35	-4.95
6,690.00	15.51	295.77	6,469.38	422.58	-603.18	-732.23	6.86	-6.80	-2.86
6,785.00	4.22	315.28	6,562.84	430.62	-617.13	-748.02	12.23	-11.88	20.54
6,880.00	6.55	108.30	6,657.67	431.40	-614.43	-746.51	11.04	2.45	161.07
6,975.00	14.15	115.33	6,751.06	424.72	-598.77	-730.32	8.10	8.00	7.40
7,071.00	18.06	133.87	6,843.33	409.37	-577.41	-704.14	6.68	4.07	19.31
7,167.00	25.44	133.52	6,932.44	384.83	-551.70	-668.63	7.69	7.69	-0.36
7,261.00	30.06	131.59	7,015.60	355.28	-519.43	-624.89	5.01	4.91	-2.05
7,357.00	37.49	131.24	7,095.35	320.01	-479.43	-571.56	7.74	7.74	-0.36
7,452.00	51.02	135.46	7,163.25	274.41	-431.56	-505.50	14.57	14.24	4.44
7,548.00	62.75	133.00	7,215.61	218.51	-373.97	-425.35	12.40	12.22	-2.56
7,643.00	69.79	134.23	7,253.81	158.54	-311.06	-338.52	7.50	7.41	1.29
7,738.00	71.06	134.14	7,285.64	96.16	-246.88	-249.14	1.34	1.34	-0.09
7,833.00	79.15	136.07	7,310.04	31.16	-182.16	-157.63	8.74	8.52	2.03
7,928.00	80.77	134.67	7,326.61	-35.41	-116.44	-64.34	2.24	1.71	-1.47
8,023.00	87.58	132.12	7,336.24	-100.28	-47.80	30.03	7.65	7.17	-2.68
8,118.00	90.40	129.22	7,337.92	-162.17	24.23	124.99	4.26	2.97	-3.05
8,214.00	92.24	133.35	7,335.71	-225.48	96.33	220.94	4.71	1.92	4.30
8,309.00	90.18	134.05	7,333.70	-291.10	164.99	315.82	2.29	-2.17	0.74
8,404.00	89.74	133.52	7,333.77	-356.83	233.57	410.72	0.73	-0.46	-0.56
8,500.00	90.84	135.28	7,333.28	-423.99	302.16	506.57	2.16	1.15	1.83
8,595.00	90.18	135.19	7,332.43	-491.44	369.05	601.32	0.70	-0.69	-0.09
8,690.00	92.46	133.52	7,330.25	-557.83	436.96	696.14	2.97	2.40	-1.76
8,786.00	91.89	133.87	7,326.60	-624.10	506.32	791.98	0.70	-0.59	0.36
8,881.00	91.06	134.31	7,324.16	-690.18	574.53	886.82	0.99	-0.87	0.46
8,976.00	91.27	134.40	7,322.23	-756.58	642.44	981.66	0.24	0.22	0.09
9,072.00	91.32	133.96	7,320.06	-823.47	711.27	1,077.50	0.46	0.05	-0.46
9,167.00	91.32	134.31	7,317.87	-889.60	779.43	1,172.35	0.37	0.00	0.37
9,262.00	90.97	133.96	7,315.97	-955.74	847.60	1,267.20	0.52	-0.37	-0.37
9,357.00	89.12	130.97	7,315.90	-1,019.87	917.67	1,362.16	3.70	-1.95	-3.15
9,453.00	88.64	130.89	7,317.77	-1,082.75	990.18	1,458.14	0.51	-0.50	-0.08
9,548.00	89.43	130.27	7,319.37	-1,144.54	1,062.33	1,553.12	1.06	0.83	-0.65
9,644.00	89.39	131.06	7,320.36	-1,207.09	1,135.14	1,649.11	0.82	-0.04	0.82
9,739.00	88.77	131.41	7,321.89	-1,269.70	1,206.57	1,744.10	0.75	-0.65	0.37



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,834.00	90.22	131.50	7,322.72	-1,332.59	1,277.77	1,839.09	1.53	1.53	0.09
9,930.00	90.40	131.85	7,322.20	-1,396.42	1,349.47	1,935.09	0.41	0.19	0.36
10,025.00	90.00	131.41	7,321.87	-1,459.53	1,420.48	2,030.08	0.63	-0.42	-0.46
10,123.00	88.73	131.06	7,322.96	-1,524.12	1,494.17	2,128.07	1.34	-1.30	-0.36
10,218.00	88.95	131.41	7,324.88	-1,586.73	1,565.60	2,223.05	0.44	0.23	0.37
10,313.00	89.96	131.50	7,325.78	-1,649.62	1,636.79	2,318.05	1.07	1.06	0.09
10,409.00	90.48	131.59	7,325.42	-1,713.29	1,708.64	2,414.04	0.55	0.54	0.09
10,504.00	88.86	133.35	7,325.96	-1,777.42	1,778.71	2,509.01	2.52	-1.71	1.85
10,600.00	88.90	133.17	7,327.84	-1,843.20	1,848.61	2,604.93	0.19	0.04	-0.19
10,694.00	89.30	132.82	7,329.32	-1,907.30	1,917.35	2,698.87	0.57	0.43	-0.37
10,788.00	89.21	133.52	7,330.54	-1,971.60	1,985.90	2,792.80	0.75	-0.10	0.74
10,883.00	89.30	132.64	7,331.77	-2,036.48	2,055.28	2,887.74	0.93	0.09	-0.93
10,979.00	87.67	130.54	7,334.31	-2,100.18	2,127.05	2,983.70	2.77	-1.70	-2.19
11,074.00	86.53	131.06	7,339.12	-2,162.17	2,198.87	3,078.57	1.32	-1.20	0.55
11,169.00	87.41	132.82	7,344.14	-2,225.57	2,269.44	3,173.43	2.07	0.93	1.85
11,265.00	88.02	133.00	7,347.97	-2,290.88	2,339.69	3,269.30	0.66	0.64	0.19
11,360.00	87.45	131.77	7,351.72	-2,354.87	2,409.81	3,364.21	1.43	-0.60	-1.29
11,455.00	89.21	134.84	7,354.49	-2,419.99	2,478.90	3,459.09	3.72	1.85	3.23
11,550.00	88.77	133.79	7,356.17	-2,486.35	2,546.86	3,553.93	1.20	-0.46	-1.11
11,646.00	87.10	132.12	7,359.63	-2,551.72	2,617.07	3,649.81	2.46	-1.74	-1.74
11,741.00	88.68	133.87	7,363.12	-2,616.46	2,686.50	3,744.69	2.48	1.66	1.84
11,837.00	89.12	133.26	7,364.97	-2,682.60	2,756.05	3,840.59	0.78	0.46	-0.64
11,932.00	89.69	133.17	7,365.95	-2,747.65	2,825.28	3,935.52	0.61	0.60	-0.09
12,027.00	90.35	132.91	7,365.92	-2,812.49	2,894.71	4,030.47	0.75	0.69	-0.27
12,123.00	90.35	132.64	7,365.33	-2,877.68	2,965.18	4,126.43	0.28	0.00	-0.28
12,217.00	89.56	132.56	7,365.41	-2,941.31	3,034.37	4,220.40	0.84	-0.84	-0.09
12,312.00	88.46	133.61	7,367.05	-3,006.19	3,103.74	4,315.33	1.60	-1.16	1.11
12,407.00	88.59	133.44	7,369.49	-3,071.59	3,172.60	4,410.22	0.23	0.14	-0.18
12,503.00	88.29	133.44	7,372.11	-3,137.58	3,242.28	4,506.11	0.31	-0.31	0.00
12,597.00	88.59	131.77	7,374.67	-3,201.18	3,311.44	4,600.04	1.80	0.32	-1.78
12,693.00	87.63	130.18	7,377.83	-3,264.10	3,383.88	4,695.98	1.93	-1.00	-1.66
12,788.00	86.44	128.43	7,382.75	-3,324.19	3,457.28	4,790.80	2.23	-1.25	-1.84
12,884.00	85.39	126.67	7,389.59	-3,382.55	3,533.19	4,886.36	2.13	-1.09	-1.83
12,979.00	85.91	123.94	7,396.79	-3,437.29	3,610.49	4,980.58	2.92	0.55	-2.87
13,074.00	87.58	124.65	7,402.19	-3,490.73	3,688.85	5,074.74	1.91	1.76	0.75
13,169.00	88.29	125.09	7,405.61	-3,545.00	3,766.74	5,169.11	0.88	0.75	0.46
13,265.00	87.32	123.33	7,409.29	-3,598.94	3,846.07	5,264.33	2.09	-1.01	-1.83
13,361.00	88.51	124.03	7,412.78	-3,652.14	3,925.90	5,359.44	1.44	1.24	0.73
13,456.00	87.06	121.75	7,416.45	-3,703.68	4,005.60	5,453.37	2.84	-1.53	-2.40
13,551.00	89.47	121.83	7,419.33	-3,753.70	4,086.31	5,547.05	2.54	2.54	0.08
13,647.00	89.34	122.01	7,420.33	-3,804.46	4,167.79	5,641.80	0.23	-0.14	0.19
13,742.00	88.81	121.83	7,421.86	-3,854.68	4,248.41	5,735.55	0.59	-0.56	-0.19
13,837.00	88.24	125.00	7,424.30	-3,906.97	4,327.67	5,829.64	3.39	-0.60	3.34



MS Energy Services
Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well 8H
Project:	Marion County, West Virginia (NAD 27)	TVD Reference:	Rig @ 1272.00usft (Nomac 78)
Site:	Rockwell	MD Reference:	Rig @ 1272.00usft (Nomac 78)
Well:	8H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Conroe DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,932.00	88.07	124.03	7,427.36	-3,960.77	4,405.91	5,923.95	1.04	-0.18	-1.02
14,027.00	90.35	125.44	7,428.67	-4,014.89	4,483.96	6,018.33	2.82	2.40	1.48
14,123.00	89.82	125.44	7,428.53	-4,070.56	4,562.18	6,113.85	0.55	-0.55	0.00
14,218.00	88.15	124.29	7,430.21	-4,124.85	4,640.11	6,208.26	2.13	-1.76	-1.21
14,313.00	87.94	124.38	7,433.45	-4,178.40	4,718.51	6,302.53	0.24	-0.22	0.09
14,408.00	90.75	124.82	7,434.54	-4,232.34	4,796.69	6,396.89	2.99	2.96	0.46
14,472.00	91.45	125.26	7,433.31	-4,269.08	4,849.08	6,460.51	1.29	1.09	0.69
14,530.00	91.45	125.26	7,431.84	-4,302.55	4,896.43	6,518.18	0.00	0.00	0.00

Projection to TD - 14530.00' MD

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,413.00	4,412.66	-31.86	-5.40	Tie-In to Javins Gyro -4413.00' MD
14,530.00	7,431.84	-4,302.55	4,896.43	Projection to TD - 14530.00' MD