

XTO Energy - Western Div. (NM, CO, UT)

LaPlata County (NAD83)

Southern Ute 3-35H

Well #1

Lateral #1

Plan: Lateral #1 Design #1

Standard Survey Report

03 December, 2015

XTO Energy, Inc.

Survey Report

Company:	XTO Energy - Western Div. (NM, CO, UT)	Local Co-ordinate Reference:	Site Southern Ute 3-35H
Project:	LaPlata County (NAD83)	TVD Reference:	WELL @ 7353.00ft (Original Well Elev)
Site:	Southern Ute 3-35H	MD Reference:	WELL @ 7353.00ft (Original Well Elev)
Well:	Well #1	North Reference:	True
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1 Design #1	Database:	LMRKPROD

Project	LaPlata County (NAD83), LaPlata County, Colorado, Directional Fruitland Coal Wells		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Southern Zone		

Site	Southern Ute 3-35H		
Site Position:		Northing:	1,149,196.78 usft
From:	Lat/Long	Easting:	2,332,022.80 usft
Position Uncertainty:	0.00 ft	Slot Radius:	0 "
		Latitude:	37° 3' 14.148000 N
		Longitude:	107° 47' 20.760000 W
		Grid Convergence:	-1.40 °

Well	Well #1		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	7,337.00 ft
		Latitude:	37° 3' 14.147948 N
		Longitude:	107° 47' 20.760000 W
		Ground Level:	7,337.00 ft

Wellbore	Lateral #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	12/31/2009	10.11
			Dip Angle
			(°)
			63.78
			Field Strength
			(nT)
			51,078

Design	Lateral #1 Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			4,030.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			345.39

Survey Tool Program	Date	12/2/2015		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.00	4,030.00	Pilot Plan #1 (Pilot Hole)	MWD	MWD - Standard
4,030.00	7,847.39	Lateral #1 Design #1 (Lateral #1)	MWD	MWD - Standard

Planned Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate	
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	

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Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1 Design #1	Database:	LMRKPROD

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	1.06	301.00	2,000.00	0.17	-0.28	0.23	1.06	1.06	0.00
2,100.00	4.06	301.00	2,099.89	2.47	-4.10	3.42	3.00	3.00	0.00
2,200.00	7.06	301.00	2,199.41	7.45	-12.41	10.34	3.00	3.00	0.00
2,300.00	10.06	301.00	2,298.28	15.12	-25.16	20.98	3.00	3.00	0.00
2,400.00	13.06	301.00	2,396.24	25.43	-42.33	35.29	3.00	3.00	0.00
2,500.00	16.06	301.00	2,493.02	38.38	-63.88	53.25	3.00	3.00	0.00
2,600.00	19.06	301.00	2,588.35	53.91	-89.73	74.81	3.00	3.00	0.00
2,700.00	22.06	301.00	2,681.97	71.99	-119.83	99.90	3.00	3.00	0.00
2,800.00	25.06	301.00	2,773.63	92.57	-154.09	128.46	3.00	3.00	0.00
2,900.00	28.06	301.00	2,863.06	115.60	-192.41	160.40	3.00	3.00	0.00
3,000.00	31.06	301.00	2,950.04	141.00	-234.69	195.65	3.00	3.00	0.00
3,100.00	34.06	301.00	3,034.31	168.71	-280.82	234.10	3.00	3.00	0.00
3,200.00	37.06	301.00	3,115.66	198.65	-330.66	275.66	3.00	3.00	0.00
3,300.00	40.06	301.00	3,193.85	230.75	-384.08	320.19	3.00	3.00	0.00
3,400.00	43.06	301.00	3,268.67	264.91	-440.94	367.59	3.00	3.00	0.00
3,500.00	45.00	301.00	3,340.14	300.92	-500.88	417.56	1.94	1.94	0.00
3,600.00	45.00	301.00	3,410.85	337.33	-561.50	468.09	0.00	0.00	0.00
3,700.00	45.00	301.00	3,481.57	373.75	-622.11	518.62	0.00	0.00	0.00
3,800.00	45.00	301.00	3,552.28	410.16	-682.72	569.16	0.00	0.00	0.00
3,900.00	45.00	301.00	3,622.99	446.58	-743.33	619.69	0.00	0.00	0.00
4,000.00	45.00	301.00	3,693.70	483.00	-803.95	670.22	0.00	0.00	0.00
4,030.00	45.00	301.00	3,714.91	493.92	-822.13	685.38	0.00	0.00	0.00
4,100.00	52.40	317.48	3,761.26	527.28	-862.30	727.79	20.55	10.57	23.54
4,200.00	65.97	335.56	3,812.68	598.82	-908.46	808.67	20.55	13.57	18.08
4,300.00	81.23	349.97	3,840.97	690.04	-936.26	903.95	20.55	15.26	14.41
4,355.72	90.00	357.35	3,845.23	745.17	-942.37	958.83	20.55	15.75	13.25
4,400.00	90.00	357.35	3,845.23	789.40	-944.42	1,002.15	0.00	0.00	0.00
4,500.00	90.00	357.35	3,845.22	889.29	-949.04	1,099.97	0.00	0.00	0.00
4,600.00	90.00	357.35	3,845.22	989.18	-953.66	1,197.80	0.00	0.00	0.00
4,700.00	90.00	357.35	3,845.21	1,089.07	-958.29	1,295.63	0.00	0.00	0.00
4,800.00	90.00	357.35	3,845.20	1,188.97	-962.91	1,393.46	0.00	0.00	0.00
4,900.00	90.00	357.35	3,845.20	1,288.86	-967.53	1,491.28	0.00	0.00	0.00
5,000.00	90.00	357.35	3,845.19	1,388.75	-972.16	1,589.11	0.00	0.00	0.00

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,100.00	90.00	357.35	3,845.18	1,488.65	-976.78	1,686.94	0.00	0.00	0.00
5,200.00	90.00	357.35	3,845.18	1,588.54	-981.40	1,784.77	0.00	0.00	0.00
5,300.00	90.00	357.35	3,845.17	1,688.43	-986.03	1,882.60	0.00	0.00	0.00
5,400.00	90.00	357.35	3,845.16	1,788.33	-990.65	1,980.42	0.00	0.00	0.00
5,500.00	90.00	357.35	3,845.16	1,888.22	-995.27	2,078.25	0.00	0.00	0.00
5,600.00	90.00	357.35	3,845.15	1,988.11	-999.90	2,176.08	0.00	0.00	0.00
5,700.00	90.00	357.35	3,845.14	2,088.01	-1,004.52	2,273.91	0.00	0.00	0.00
5,800.00	90.00	357.35	3,845.14	2,187.90	-1,009.14	2,371.73	0.00	0.00	0.00
5,900.00	90.00	357.35	3,845.13	2,287.79	-1,013.77	2,469.56	0.00	0.00	0.00
6,000.00	90.00	357.35	3,845.12	2,387.68	-1,018.39	2,567.39	0.00	0.00	0.00
6,100.00	90.00	357.35	3,845.12	2,487.58	-1,023.01	2,665.22	0.00	0.00	0.00
6,200.00	90.00	357.35	3,845.11	2,587.47	-1,027.64	2,763.04	0.00	0.00	0.00
6,300.00	90.00	357.35	3,845.10	2,687.36	-1,032.26	2,860.87	0.00	0.00	0.00
6,400.00	90.00	357.35	3,845.10	2,787.26	-1,036.88	2,958.70	0.00	0.00	0.00
6,500.00	90.00	357.35	3,845.09	2,887.15	-1,041.51	3,056.53	0.00	0.00	0.00
6,600.00	90.00	357.35	3,845.08	2,987.04	-1,046.13	3,154.35	0.00	0.00	0.00
6,700.00	90.00	357.35	3,845.08	3,086.94	-1,050.75	3,252.18	0.00	0.00	0.00
6,800.00	90.00	357.35	3,845.07	3,186.83	-1,055.38	3,350.01	0.00	0.00	0.00
6,900.00	90.00	357.35	3,845.06	3,286.72	-1,060.00	3,447.84	0.00	0.00	0.00
7,000.00	90.00	357.35	3,845.06	3,386.62	-1,064.62	3,545.66	0.00	0.00	0.00
7,100.00	90.00	357.35	3,845.05	3,486.51	-1,069.25	3,643.49	0.00	0.00	0.00
7,200.00	90.00	357.35	3,845.04	3,586.40	-1,073.87	3,741.32	0.00	0.00	0.00
7,300.00	90.00	357.35	3,845.04	3,686.29	-1,078.49	3,839.15	0.00	0.00	0.00
7,400.00	90.00	357.35	3,845.03	3,786.19	-1,083.12	3,936.97	0.00	0.00	0.00
7,500.00	90.00	357.35	3,845.02	3,886.08	-1,087.74	4,034.80	0.00	0.00	0.00
7,600.00	90.00	357.35	3,845.02	3,985.97	-1,092.36	4,132.63	0.00	0.00	0.00
7,700.00	90.00	357.35	3,845.01	4,085.87	-1,096.99	4,230.46	0.00	0.00	0.00
7,800.00	90.00	357.35	3,845.00	4,185.76	-1,101.61	4,328.28	0.00	0.00	0.00
7,847.39	90.00	357.35	3,845.00	4,233.10	-1,103.80	4,374.64	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lower KOP	0.00	0.00	0.00	479.55	-804.29	1,149,695.89	2,331,230.50	37° 3' 18.889148 N	107° 47' 30.681600 W
- plan misses target center by 936.41ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Lower Lateral BHL	0.00	0.00	3,845.00	4,233.10	-1,103.80	1,153,455.65	2,331,023.05	37° 3' 56.000136 N	107° 47' 34.378182 W
- plan hits target center									
- Point									

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Checked By: _____ Approved By: _____ Date: _____