

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

LaPlata County (NAD83)

Southern Ute 3-35H

Well #1

Lateral #3

Plan: Lateral #3 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 #3	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #3 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 #3		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	12/31/2009	10.11
			Dip Angle
			(°)
			63.78
			Field Strength
			(nT)
			51,078

Design	Lateral #3 Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			3,910.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			346.66

Survey Tool Program	Date	12/3/2015		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.00	3,910.00	Pilot Plan #1 (Pilot Hole)	MWD	MWD - Standard
3,910.00	7,793.96	Lateral #3 Design #1 (Lateral #3)	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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Well:	Well #1	North Reference:	True
Wellbore:	Lateral #3	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #3 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	3.35	3.00	3.00	0.00
2,200.00	7.06	301.00	2,199.41	7.45	-12.41	10.11	3.00	3.00	0.00
2,300.00	10.06	301.00	2,298.28	15.12	-25.16	20.51	3.00	3.00	0.00
2,400.00	13.06	301.00	2,396.24	25.43	-42.33	34.52	3.00	3.00	0.00
2,500.00	16.06	301.00	2,493.02	38.38	-63.88	52.08	3.00	3.00	0.00
2,600.00	19.06	301.00	2,588.35	53.91	-89.73	73.16	3.00	3.00	0.00
2,700.00	22.06	301.00	2,681.97	71.99	-119.83	97.70	3.00	3.00	0.00
2,800.00	25.06	301.00	2,773.63	92.57	-154.09	125.63	3.00	3.00	0.00
2,900.00	28.06	301.00	2,863.06	115.60	-192.41	156.88	3.00	3.00	0.00
3,000.00	31.06	301.00	2,950.04	141.00	-234.69	191.35	3.00	3.00	0.00
3,100.00	34.06	301.00	3,034.31	168.71	-280.82	228.96	3.00	3.00	0.00
3,200.00	37.06	301.00	3,115.66	198.65	-330.66	269.59	3.00	3.00	0.00
3,300.00	40.06	301.00	3,193.85	230.75	-384.08	313.15	3.00	3.00	0.00
3,400.00	43.06	301.00	3,268.67	264.91	-440.94	359.51	3.00	3.00	0.00
3,500.00	45.00	301.00	3,340.14	300.92	-500.88	408.38	1.94	1.94	0.00
3,600.00	45.00	301.00	3,410.85	337.33	-561.50	457.80	0.00	0.00	0.00
3,700.00	45.00	301.00	3,481.57	373.75	-622.11	507.22	0.00	0.00	0.00
3,800.00	45.00	301.00	3,552.28	410.16	-682.72	556.64	0.00	0.00	0.00
3,900.00	45.00	301.00	3,622.99	446.58	-743.33	606.06	0.00	0.00	0.00
3,910.00	45.00	301.00	3,630.06	450.22	-749.39	611.00	0.00	0.00	0.00
4,000.00	51.84	316.96	3,689.97	492.67	-801.07	664.23	15.25	7.60	17.73
4,100.00	61.47	331.16	3,745.06	560.29	-849.38	741.17	15.25	9.63	14.20
4,200.00	72.32	342.84	3,784.35	644.79	-884.83	831.57	15.25	10.85	11.68
4,300.00	83.78	353.15	3,805.08	740.22	-904.93	929.07	15.25	11.46	10.31
4,353.40	90.00	358.42	3,807.97	793.36	-908.84	981.67	15.25	11.65	9.87
4,400.00	90.00	358.42	3,807.97	839.94	-910.13	1,027.29	0.00	0.00	0.00
4,500.00	90.00	358.42	3,807.97	939.90	-912.89	1,125.19	0.00	0.00	0.00
4,600.00	90.00	358.42	3,807.98	1,039.86	-915.65	1,223.09	0.00	0.00	0.00
4,700.00	90.00	358.42	3,807.98	1,139.82	-918.41	1,320.99	0.00	0.00	0.00
4,800.00	90.00	358.42	3,807.98	1,239.79	-921.17	1,418.89	0.00	0.00	0.00
4,900.00	90.00	358.42	3,807.98	1,339.75	-923.93	1,516.79	0.00	0.00	0.00
5,000.00	90.00	358.42	3,807.98	1,439.71	-926.69	1,614.69	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	358.42	3,807.98	1,539.67	-929.45	1,712.60	0.00	0.00	0.00
5,200.00	90.00	358.42	3,807.98	1,639.63	-932.21	1,810.50	0.00	0.00	0.00
5,300.00	90.00	358.42	3,807.98	1,739.60	-934.97	1,908.40	0.00	0.00	0.00
5,400.00	90.00	358.42	3,807.98	1,839.56	-937.73	2,006.30	0.00	0.00	0.00
5,500.00	90.00	358.42	3,807.98	1,939.52	-940.49	2,104.20	0.00	0.00	0.00
5,600.00	90.00	358.42	3,807.98	2,039.48	-943.25	2,202.10	0.00	0.00	0.00
5,700.00	90.00	358.42	3,807.98	2,139.44	-946.01	2,300.00	0.00	0.00	0.00
5,800.00	90.00	358.42	3,807.98	2,239.40	-948.77	2,397.90	0.00	0.00	0.00
5,900.00	90.00	358.42	3,807.99	2,339.37	-951.53	2,495.80	0.00	0.00	0.00
6,000.00	90.00	358.42	3,807.99	2,439.33	-954.29	2,593.70	0.00	0.00	0.00
6,100.00	90.00	358.42	3,807.99	2,539.29	-957.05	2,691.60	0.00	0.00	0.00
6,200.00	90.00	358.42	3,807.99	2,639.25	-959.81	2,789.51	0.00	0.00	0.00
6,300.00	90.00	358.42	3,807.99	2,739.21	-962.57	2,887.41	0.00	0.00	0.00
6,400.00	90.00	358.42	3,807.99	2,839.18	-965.33	2,985.31	0.00	0.00	0.00
6,500.00	90.00	358.42	3,807.99	2,939.14	-968.09	3,083.21	0.00	0.00	0.00
6,600.00	90.00	358.42	3,807.99	3,039.10	-970.85	3,181.11	0.00	0.00	0.00
6,700.00	90.00	358.42	3,807.99	3,139.06	-973.61	3,279.01	0.00	0.00	0.00
6,800.00	90.00	358.42	3,807.99	3,239.02	-976.37	3,376.91	0.00	0.00	0.00
6,900.00	90.00	358.42	3,807.99	3,338.99	-979.13	3,474.81	0.00	0.00	0.00
7,000.00	90.00	358.42	3,807.99	3,438.95	-981.89	3,572.71	0.00	0.00	0.00
7,100.00	90.00	358.42	3,807.99	3,538.91	-984.65	3,670.61	0.00	0.00	0.00
7,200.00	90.00	358.42	3,808.00	3,638.87	-987.41	3,768.51	0.00	0.00	0.00
7,300.00	90.00	358.42	3,808.00	3,738.83	-990.17	3,866.42	0.00	0.00	0.00
7,400.00	90.00	358.42	3,808.00	3,838.80	-992.93	3,964.32	0.00	0.00	0.00
7,500.00	90.00	358.42	3,808.00	3,938.76	-995.69	4,062.22	0.00	0.00	0.00
7,600.00	90.00	358.42	3,808.00	4,038.72	-998.45	4,160.12	0.00	0.00	0.00
7,700.00	90.00	358.42	3,808.00	4,138.68	-1,001.21	4,258.02	0.00	0.00	0.00
7,793.96	90.00	358.42	3,808.00	4,232.60	-1,003.80	4,350.00	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
KOP #3 from Plat	0.00	0.00	0.00	460.25	-732.79	1,149,674.85	2,331,301.50	37° 3' 18.698348 N	107° 47' 29.799600 W
- hit/miss target									
- Shape									
- plan misses target center by 865.34ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Upper Lateral BHL	0.00	0.00	3,808.00	4,232.60	-1,003.80	1,153,452.70	2,331,123.01	37° 3' 55.995231 N	107° 47' 33.144427 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____