

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

LaPlata County (NAD83)

Southern Ute 3-35H

Well #1

Lateral #2

Plan: Lateral #2 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 #2	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #2 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 #2		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	12/31/2009	10.11
			Dip Angle
			(°)
			63.78
			Field Strength
			(nT)
			51,078

Design	Lateral #2 Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			3,970.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			346.02

Survey Tool Program	Date	12/2/2015		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.00	3,970.00	Pilot Plan #1 (Pilot Hole)	MWD	MWD - Standard
3,970.00	7,819.11	Lateral #2 Design #1 (Lateral #2)	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 #2	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #2 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	3.38	3.00	3.00	0.00
2,200.00	7.06	301.00	2,199.41	7.45	-12.41	10.23	3.00	3.00	0.00
2,300.00	10.06	301.00	2,298.28	15.12	-25.16	20.75	3.00	3.00	0.00
2,400.00	13.06	301.00	2,396.24	25.43	-42.33	34.91	3.00	3.00	0.00
2,500.00	16.06	301.00	2,493.02	38.38	-63.88	52.67	3.00	3.00	0.00
2,600.00	19.06	301.00	2,588.35	53.91	-89.73	73.99	3.00	3.00	0.00
2,700.00	22.06	301.00	2,681.97	71.99	-119.83	98.81	3.00	3.00	0.00
2,800.00	25.06	301.00	2,773.63	92.57	-154.09	127.06	3.00	3.00	0.00
2,900.00	28.06	301.00	2,863.06	115.60	-192.41	158.65	3.00	3.00	0.00
3,000.00	31.06	301.00	2,950.04	141.00	-234.69	193.52	3.00	3.00	0.00
3,100.00	34.06	301.00	3,034.31	168.71	-280.82	231.55	3.00	3.00	0.00
3,200.00	37.06	301.00	3,115.66	198.65	-330.66	272.65	3.00	3.00	0.00
3,300.00	40.06	301.00	3,193.85	230.75	-384.08	316.70	3.00	3.00	0.00
3,400.00	43.06	301.00	3,268.67	264.91	-440.94	363.59	3.00	3.00	0.00
3,500.00	45.00	301.00	3,340.14	300.92	-500.88	413.01	1.94	1.94	0.00
3,600.00	45.00	301.00	3,410.85	337.33	-561.50	462.99	0.00	0.00	0.00
3,700.00	45.00	301.00	3,481.57	373.75	-622.11	512.97	0.00	0.00	0.00
3,800.00	45.00	301.00	3,552.28	410.16	-682.72	562.95	0.00	0.00	0.00
3,900.00	45.00	301.00	3,622.99	446.58	-743.33	612.93	0.00	0.00	0.00
3,970.00	45.00	301.00	3,672.48	472.07	-785.76	647.92	0.00	0.00	0.00
4,000.00	47.43	307.59	3,693.25	484.28	-803.62	664.08	17.80	8.11	21.96
4,100.00	57.74	325.95	3,754.25	542.24	-856.91	733.20	17.80	10.31	18.37
4,200.00	70.13	340.24	3,798.29	622.18	-896.80	820.40	17.80	12.39	14.29
4,300.00	83.48	352.36	3,821.14	716.42	-919.49	917.34	17.80	13.35	12.12
4,347.82	90.00	357.85	3,823.86	763.95	-923.55	964.44	17.80	13.63	11.48
4,400.00	90.00	357.85	3,823.87	816.09	-925.51	1,015.51	0.00	0.00	0.00
4,500.00	90.00	357.85	3,823.87	916.02	-929.26	1,113.39	0.00	0.00	0.00
4,600.00	90.00	357.85	3,823.87	1,015.95	-933.01	1,211.26	0.00	0.00	0.00
4,700.00	90.00	357.85	3,823.88	1,115.88	-936.76	1,309.14	0.00	0.00	0.00
4,800.00	90.00	357.85	3,823.88	1,215.81	-940.51	1,407.01	0.00	0.00	0.00
4,900.00	90.00	357.85	3,823.89	1,315.74	-944.27	1,504.89	0.00	0.00	0.00
5,000.00	90.00	357.85	3,823.89	1,415.67	-948.02	1,602.77	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	357.85	3,823.89	1,515.60	-951.77	1,700.64	0.00	0.00	0.00
5,200.00	90.00	357.85	3,823.90	1,615.53	-955.52	1,798.52	0.00	0.00	0.00
5,300.00	90.00	357.85	3,823.90	1,715.46	-959.28	1,896.39	0.00	0.00	0.00
5,400.00	90.00	357.85	3,823.91	1,815.39	-963.03	1,994.27	0.00	0.00	0.00
5,500.00	90.00	357.85	3,823.91	1,915.32	-966.78	2,092.15	0.00	0.00	0.00
5,600.00	90.00	357.85	3,823.91	2,015.25	-970.53	2,190.02	0.00	0.00	0.00
5,700.00	90.00	357.85	3,823.92	2,115.18	-974.29	2,287.90	0.00	0.00	0.00
5,800.00	90.00	357.85	3,823.92	2,215.11	-978.04	2,385.78	0.00	0.00	0.00
5,900.00	90.00	357.85	3,823.92	2,315.04	-981.79	2,483.65	0.00	0.00	0.00
6,000.00	90.00	357.85	3,823.93	2,414.97	-985.54	2,581.53	0.00	0.00	0.00
6,100.00	90.00	357.85	3,823.93	2,514.90	-989.29	2,679.40	0.00	0.00	0.00
6,200.00	90.00	357.85	3,823.94	2,614.83	-993.05	2,777.28	0.00	0.00	0.00
6,300.00	90.00	357.85	3,823.94	2,714.76	-996.80	2,875.16	0.00	0.00	0.00
6,400.00	90.00	357.85	3,823.94	2,814.69	-1,000.55	2,973.03	0.00	0.00	0.00
6,500.00	90.00	357.85	3,823.95	2,914.61	-1,004.30	3,070.91	0.00	0.00	0.00
6,600.00	90.00	357.85	3,823.95	3,014.54	-1,008.06	3,168.78	0.00	0.00	0.00
6,700.00	90.00	357.85	3,823.96	3,114.47	-1,011.81	3,266.66	0.00	0.00	0.00
6,800.00	90.00	357.85	3,823.96	3,214.40	-1,015.56	3,364.54	0.00	0.00	0.00
6,900.00	90.00	357.85	3,823.96	3,314.33	-1,019.31	3,462.41	0.00	0.00	0.00
7,000.00	90.00	357.85	3,823.97	3,414.26	-1,023.06	3,560.29	0.00	0.00	0.00
7,100.00	90.00	357.85	3,823.97	3,514.19	-1,026.82	3,658.16	0.00	0.00	0.00
7,200.00	90.00	357.85	3,823.98	3,614.12	-1,030.57	3,756.04	0.00	0.00	0.00
7,300.00	90.00	357.85	3,823.98	3,714.05	-1,034.32	3,853.92	0.00	0.00	0.00
7,400.00	90.00	357.85	3,823.98	3,813.98	-1,038.07	3,951.79	0.00	0.00	0.00
7,500.00	90.00	357.85	3,823.99	3,913.91	-1,041.83	4,049.67	0.00	0.00	0.00
7,600.00	90.00	357.85	3,823.99	4,013.84	-1,045.58	4,147.54	0.00	0.00	0.00
7,700.00	90.00	357.85	3,824.00	4,113.77	-1,049.33	4,245.42	0.00	0.00	0.00
7,800.00	90.00	357.85	3,824.00	4,213.70	-1,053.08	4,343.30	0.00	0.00	0.00
7,819.11	90.00	357.85	3,824.00	4,232.80	-1,053.80	4,362.01	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									
Middle Lateral BHL	0.00	0.00	3,824.00	4,232.80	-1,053.80	1,153,454.12	2,331,073.03	37° 3' 55.997190 N	107° 47' 33.761304 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____