

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

LaPlata County (NAD83)

Penrose 02-08H

Penrose 02-08H

Penrose 02-08H -- Upper Lat

Plan: Upper Lat -- Design #4

Standard Planning Report

30 January, 2015

XTO Energy, Inc.

Planning Report

Database:	LMRKPROD	Local Co-ordinate Reference:	Site Penrose 02-08H
Company:	XTO Energy - Western Div. (NM, CO, UT)	TVD Reference:	WELL @ 6401.00ft (Original Well Elev)
Project:	LaPlata County (NAD83)	MD Reference:	WELL @ 6401.00ft (Original Well Elev)
Site:	Penrose 02-08H	North Reference:	True
Well:	Penrose 02-08H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Penrose 02-08H -- Upper Lat		
Design:	Upper Lat -- Design #4		

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		Penrose 02-08H			
Site Position:		Northing:	1,137,608.03 usft	Latitude:	37° 1' 36.840000 N
From:	Lat/Long	Easting:	2,407,450.36 usft	Longitude:	107° 31' 47.424000 W
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	-1.25 °

Well	Penrose 02-08H					
Well Position	+N/-S	0.00 ft	Northing:	1,137,608.03 usft	Latitude:	37° 1' 36.839948 N
	+E/-W	0.00 ft	Easting:	2,407,450.36 usft	Longitude:	107° 31' 47.424000 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	6,389.00 ft	Ground Level:	6,389.00 ft

Wellbore	Penrose 02-08H -- Upper Lat				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.99	63.80	51,105

Design	Upper Lat -- Design #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	2,545.40
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	357.05

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
2,545.40	35.63	334.23	2,505.07	154.85	-74.75	0.00	0.00	0.00	0.00	
2,560.40	37.18	336.36	2,517.15	162.94	-78.46	13.33	10.34	14.18	40.00	
2,593.40	37.18	336.36	2,543.44	181.21	-86.46	0.00	0.00	0.00	0.00	
2,967.28	89.96	359.09	2,705.68	497.27	-139.00	15.00	14.12	6.08	27.75	
6,155.29	89.96	359.09	2,708.00	3,684.87	-189.74	0.00	0.00	0.00	0.00	Upper Lat -- BHL

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Wellbore:	Penrose 02-08H -- Upper Lat		
Design:	Upper Lat -- Design #4		

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)
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
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	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,035.02	0.00	0.00	2,035.02	0.00	0.00	0.00	0.00	0.00	0.00
2,050.00	1.20	334.23	2,050.00	0.14	-0.07	0.14	8.00	8.00	0.00
2,100.00	5.20	334.23	2,099.91	2.65	-1.28	2.72	8.00	8.00	0.00
2,150.00	9.20	334.23	2,149.51	8.29	-4.00	8.49	8.00	8.00	0.00
2,200.00	13.20	334.23	2,198.54	17.04	-8.22	17.44	8.00	8.00	0.00
2,250.00	17.20	334.23	2,246.79	28.84	-13.92	29.52	8.00	8.00	0.00
2,300.00	21.20	334.23	2,294.00	43.64	-21.07	44.67	8.00	8.00	0.00
2,350.00	25.20	334.23	2,339.94	61.38	-29.63	62.82	8.00	8.00	0.00
2,400.00	29.20	334.23	2,384.41	81.96	-39.56	83.88	8.00	8.00	0.00
2,450.00	33.20	334.23	2,427.17	105.28	-50.82	107.75	8.00	8.00	0.00
2,480.40	35.63	334.23	2,452.25	120.75	-58.29	123.59	8.00	8.00	0.00
2,500.00	35.63	334.23	2,468.17	131.03	-63.25	134.11	0.00	0.00	0.00
2,545.40	35.63	334.23	2,505.07	154.85	-74.75	158.49	0.00	0.00	0.00
2,550.00	36.10	334.90	2,508.80	157.28	-75.90	160.98	13.33	10.25	14.54
2,560.40	37.18	336.36	2,517.15	162.94	-78.46	166.76	13.33	10.38	14.02
2,593.40	37.18	336.36	2,543.44	181.21	-86.46	185.41	0.00	0.00	0.00
2,600.00	38.06	337.11	2,548.67	184.91	-88.05	189.19	15.00	13.31	11.33
2,625.00	41.43	339.69	2,567.89	199.77	-93.92	204.33	15.00	13.47	10.34
2,650.00	44.84	341.95	2,586.13	215.91	-99.52	220.75	15.00	13.67	9.04
2,675.00	48.30	343.96	2,603.31	233.27	-104.84	238.35	15.00	13.83	8.01
2,700.00	51.79	345.75	2,619.37	251.77	-109.83	257.08	15.00	13.95	7.19
2,725.00	55.30	347.39	2,634.22	271.32	-114.50	276.85	15.00	14.05	6.53
2,750.00	58.83	348.89	2,647.81	291.85	-118.80	297.58	15.00	14.13	6.00
2,775.00	62.38	350.28	2,660.08	313.27	-122.74	319.17	15.00	14.20	5.56
2,800.00	65.95	351.58	2,670.97	335.49	-126.28	341.54	15.00	14.25	5.21
2,825.00	69.52	352.81	2,680.44	358.41	-129.42	364.59	15.00	14.29	4.93
2,850.00	73.10	353.99	2,688.45	381.93	-132.14	388.22	15.00	14.32	4.71
2,875.00	76.69	355.12	2,694.97	405.95	-134.43	412.33	15.00	14.35	4.53
2,900.00	80.28	356.22	2,699.96	430.37	-136.27	436.81	15.00	14.37	4.40
2,925.00	83.87	357.30	2,703.41	455.09	-137.67	461.57	15.00	14.38	4.30
2,950.00	87.47	358.36	2,705.29	480.00	-138.62	486.49	15.00	14.39	4.25
2,967.28	89.96	359.09	2,705.68	497.27	-139.00	503.76	15.00	14.39	4.22
3,000.00	89.96	359.09	2,705.71	529.98	-139.52	536.45	0.00	0.00	0.00

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Wellbore:	Penrose 02-08H -- Upper Lat		
Design:	Upper Lat -- Design #4		

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)	
3,100.00	89.96	359.09	2,705.78	629.97	-141.11	636.39	0.00	0.00	0.00	
3,200.00	89.96	359.09	2,705.85	729.96	-142.70	736.33	0.00	0.00	0.00	
3,300.00	89.96	359.09	2,705.92	829.94	-144.30	836.27	0.00	0.00	0.00	
3,400.00	89.96	359.09	2,706.00	929.93	-145.89	936.20	0.00	0.00	0.00	
3,500.00	89.96	359.09	2,706.07	1,029.92	-147.48	1,036.14	0.00	0.00	0.00	
3,600.00	89.96	359.09	2,706.14	1,129.91	-149.07	1,136.08	0.00	0.00	0.00	
3,700.00	89.96	359.09	2,706.21	1,229.89	-150.66	1,236.01	0.00	0.00	0.00	
3,800.00	89.96	359.09	2,706.29	1,329.88	-152.25	1,335.95	0.00	0.00	0.00	
3,900.00	89.96	359.09	2,706.36	1,429.87	-153.84	1,435.89	0.00	0.00	0.00	
4,000.00	89.96	359.09	2,706.43	1,529.85	-155.44	1,535.82	0.00	0.00	0.00	
4,100.00	89.96	359.09	2,706.51	1,629.84	-157.03	1,635.76	0.00	0.00	0.00	
4,200.00	89.96	359.09	2,706.58	1,729.83	-158.62	1,735.70	0.00	0.00	0.00	
4,300.00	89.96	359.09	2,706.65	1,829.82	-160.21	1,835.63	0.00	0.00	0.00	
4,400.00	89.96	359.09	2,706.72	1,929.80	-161.80	1,935.57	0.00	0.00	0.00	
4,500.00	89.96	359.09	2,706.80	2,029.79	-163.39	2,035.51	0.00	0.00	0.00	
4,600.00	89.96	359.09	2,706.87	2,129.78	-164.99	2,135.44	0.00	0.00	0.00	
4,700.00	89.96	359.09	2,706.94	2,229.77	-166.58	2,235.38	0.00	0.00	0.00	
4,800.00	89.96	359.09	2,707.01	2,329.75	-168.17	2,335.32	0.00	0.00	0.00	
4,900.00	89.96	359.09	2,707.09	2,429.74	-169.76	2,435.26	0.00	0.00	0.00	
5,000.00	89.96	359.09	2,707.16	2,529.73	-171.35	2,535.19	0.00	0.00	0.00	
5,100.00	89.96	359.09	2,707.23	2,629.71	-172.94	2,635.13	0.00	0.00	0.00	
5,200.00	89.96	359.09	2,707.31	2,729.70	-174.53	2,735.07	0.00	0.00	0.00	
5,300.00	89.96	359.09	2,707.38	2,829.69	-176.13	2,835.00	0.00	0.00	0.00	
5,400.00	89.96	359.09	2,707.45	2,929.68	-177.72	2,934.94	0.00	0.00	0.00	
5,500.00	89.96	359.09	2,707.52	3,029.66	-179.31	3,034.88	0.00	0.00	0.00	
5,600.00	89.96	359.09	2,707.60	3,129.65	-180.90	3,134.81	0.00	0.00	0.00	
5,700.00	89.96	359.09	2,707.67	3,229.64	-182.49	3,234.75	0.00	0.00	0.00	
5,800.00	89.96	359.09	2,707.74	3,329.63	-184.08	3,334.69	0.00	0.00	0.00	
5,900.00	89.96	359.09	2,707.81	3,429.61	-185.67	3,434.62	0.00	0.00	0.00	
6,000.00	89.96	359.09	2,707.89	3,529.60	-187.27	3,534.56	0.00	0.00	0.00	
6,100.00	89.96	359.09	2,707.96	3,629.59	-188.86	3,634.50	0.00	0.00	0.00	
6,155.00	89.96	359.09	2,708.00	3,684.58	-189.73	3,689.46	0.00	0.00	0.00	
4 1/2"										
6,155.29	89.96	359.09	2,708.00	3,684.87	-189.74	3,689.75	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	
Upper Lat -- BHL	0.00	0.00	2,708.00	3,684.87	-189.74	1,141,296.15	2,407,340.74	37° 2' 13.271948 N	107° 31' 49.764000 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,155.00	2,708.00	4 1/2"	4-1/2	6	

XTO Energy, Inc.

Planning Report

Database:	LMRKPROD	Local Co-ordinate Reference:	Site Penrose 02-08H
Company:	XTO Energy - Western Div. (NM, CO, UT)	TVD Reference:	WELL @ 6401.00ft (Original Well Elev)
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