

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

LaPlata County (NAD83)

Penrose 02-08H

Penrose 02-08H

Penrose 02-08H -- Lower Lat

Plan: Lower 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 -- Lower Lat		
Design:	Lower 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 -- Lower Lat				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.99	63.80	51,105

Design	Lower Lat -- Design #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	2,603.40
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	356.42

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
2,603.40	35.63	334.23	2,552.22	185.28	-89.43	0.00	0.00	0.00	0.00	
2,608.40	36.24	334.71	2,556.26	187.93	-90.70	13.33	12.10	9.53	25.00	
2,613.40	36.24	334.71	2,560.30	190.60	-91.96	0.00	0.00	0.00	0.00	
2,994.79	89.94	358.54	2,728.53	510.15	-149.86	15.00	14.08	6.25	28.73	
6,170.54	89.94	358.54	2,732.00	3,684.87	-230.60	0.00	0.00	0.00	0.00	Penrose 2-8H- Lower

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Wellbore:	Penrose 02-08H -- Lower Lat		
Design:	Lower 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	0.15	8.00	8.00	0.00
2,100.00	5.20	334.23	2,099.91	2.65	-1.28	2.73	8.00	8.00	0.00
2,150.00	9.20	334.23	2,149.51	8.29	-4.00	8.53	8.00	8.00	0.00
2,200.00	13.20	334.23	2,198.54	17.04	-8.22	17.52	8.00	8.00	0.00
2,250.00	17.20	334.23	2,246.79	28.84	-13.92	29.65	8.00	8.00	0.00
2,300.00	21.20	334.23	2,294.00	43.64	-21.07	44.87	8.00	8.00	0.00
2,350.00	25.20	334.23	2,339.94	61.38	-29.63	63.11	8.00	8.00	0.00
2,400.00	29.20	334.23	2,384.41	81.96	-39.56	84.27	8.00	8.00	0.00
2,450.00	33.20	334.23	2,427.17	105.28	-50.82	108.24	8.00	8.00	0.00
2,480.40	35.63	334.23	2,452.25	120.75	-58.29	124.15	8.00	8.00	0.00
2,500.00	35.63	334.23	2,468.17	131.03	-63.25	134.73	0.00	0.00	0.00
2,600.00	35.63	334.23	2,549.45	183.49	-88.57	188.67	0.00	0.00	0.00
2,603.40	35.63	334.23	2,552.22	185.28	-89.43	190.50	0.00	0.00	0.00
2,608.40	36.24	334.71	2,556.26	187.93	-90.70	193.22	13.33	12.10	9.53
2,613.40	36.24	334.71	2,560.30	190.60	-91.96	195.97	0.00	0.00	0.00
2,625.00	37.77	336.08	2,569.56	196.95	-94.87	202.49	15.00	13.22	11.77
2,650.00	41.12	338.72	2,588.87	211.61	-100.96	217.50	15.00	13.41	10.58
2,675.00	44.53	341.03	2,607.20	227.57	-106.79	233.79	15.00	13.62	9.24
2,700.00	47.98	343.07	2,624.49	244.75	-112.35	251.28	15.00	13.79	8.18
2,725.00	51.46	344.91	2,640.65	263.07	-117.60	269.91	15.00	13.92	7.33
2,750.00	54.96	346.57	2,655.62	282.48	-122.52	289.58	15.00	14.02	6.65
2,775.00	58.49	348.09	2,669.33	302.87	-127.10	310.21	15.00	14.11	6.10
2,800.00	62.03	349.51	2,681.73	324.16	-131.31	331.72	15.00	14.17	5.66
2,825.00	65.59	350.83	2,692.77	346.26	-135.14	354.02	15.00	14.23	5.30
2,850.00	69.16	352.08	2,702.38	369.07	-138.56	377.01	15.00	14.27	5.00
2,875.00	72.73	353.28	2,710.54	392.51	-141.57	400.58	15.00	14.31	4.77
2,900.00	76.32	354.42	2,717.21	416.46	-144.15	424.65	15.00	14.33	4.59
2,925.00	79.91	355.54	2,722.36	440.82	-146.29	449.10	15.00	14.35	4.45
2,950.00	83.50	356.63	2,725.97	465.50	-147.97	473.83	15.00	14.37	4.35
2,975.00	87.09	357.70	2,728.02	490.38	-149.21	498.74	15.00	14.38	4.29
2,994.79	89.94	358.54	2,728.53	510.15	-149.86	518.51	15.00	14.38	4.27
3,000.00	89.94	358.54	2,728.54	515.36	-149.99	523.72	0.00	0.00	0.00

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Wellbore:	Penrose 02-08H -- Lower Lat		
Design:	Lower 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	89.94	358.54	2,728.65	615.33	-152.53	623.65	0.00	0.00	0.00
3,200.00	89.94	358.54	2,728.76	715.29	-155.07	723.58	0.00	0.00	0.00
3,300.00	89.94	358.54	2,728.87	815.26	-157.62	823.51	0.00	0.00	0.00
3,400.00	89.94	358.54	2,728.98	915.23	-160.16	923.44	0.00	0.00	0.00
3,500.00	89.94	358.54	2,729.09	1,015.20	-162.70	1,023.38	0.00	0.00	0.00
3,600.00	89.94	358.54	2,729.19	1,115.16	-165.24	1,123.31	0.00	0.00	0.00
3,700.00	89.94	358.54	2,729.30	1,215.13	-167.79	1,223.24	0.00	0.00	0.00
3,800.00	89.94	358.54	2,729.41	1,315.10	-170.33	1,323.17	0.00	0.00	0.00
3,900.00	89.94	358.54	2,729.52	1,415.07	-172.87	1,423.10	0.00	0.00	0.00
4,000.00	89.94	358.54	2,729.63	1,515.03	-175.41	1,523.03	0.00	0.00	0.00
4,100.00	89.94	358.54	2,729.74	1,615.00	-177.96	1,622.96	0.00	0.00	0.00
4,200.00	89.94	358.54	2,729.85	1,714.97	-180.50	1,722.89	0.00	0.00	0.00
4,300.00	89.94	358.54	2,729.96	1,814.94	-183.04	1,822.83	0.00	0.00	0.00
4,400.00	89.94	358.54	2,730.07	1,914.90	-185.59	1,922.76	0.00	0.00	0.00
4,500.00	89.94	358.54	2,730.18	2,014.87	-188.13	2,022.69	0.00	0.00	0.00
4,600.00	89.94	358.54	2,730.29	2,114.84	-190.67	2,122.62	0.00	0.00	0.00
4,700.00	89.94	358.54	2,730.40	2,214.81	-193.21	2,222.55	0.00	0.00	0.00
4,800.00	89.94	358.54	2,730.50	2,314.77	-195.76	2,322.48	0.00	0.00	0.00
4,900.00	89.94	358.54	2,730.61	2,414.74	-198.30	2,422.41	0.00	0.00	0.00
5,000.00	89.94	358.54	2,730.72	2,514.71	-200.84	2,522.34	0.00	0.00	0.00
5,100.00	89.94	358.54	2,730.83	2,614.68	-203.38	2,622.28	0.00	0.00	0.00
5,200.00	89.94	358.54	2,730.94	2,714.65	-205.93	2,722.21	0.00	0.00	0.00
5,300.00	89.94	358.54	2,731.05	2,814.61	-208.47	2,822.14	0.00	0.00	0.00
5,400.00	89.94	358.54	2,731.16	2,914.58	-211.01	2,922.07	0.00	0.00	0.00
5,500.00	89.94	358.54	2,731.27	3,014.55	-213.55	3,022.00	0.00	0.00	0.00
5,600.00	89.94	358.54	2,731.38	3,114.52	-216.10	3,121.93	0.00	0.00	0.00
5,700.00	89.94	358.54	2,731.49	3,214.48	-218.64	3,221.86	0.00	0.00	0.00
5,800.00	89.94	358.54	2,731.60	3,314.45	-221.18	3,321.79	0.00	0.00	0.00
5,900.00	89.94	358.54	2,731.70	3,414.42	-223.72	3,421.73	0.00	0.00	0.00
6,000.00	89.94	358.54	2,731.81	3,514.39	-226.27	3,521.66	0.00	0.00	0.00
6,100.00	89.94	358.54	2,731.92	3,614.35	-228.81	3,621.59	0.00	0.00	0.00
6,170.00	89.94	358.54	2,732.00	3,684.33	-230.59	3,691.54	0.00	0.00	0.00
4 1/2"									
6,170.54	89.94	358.54	2,732.00	3,684.87	-230.60	3,692.08	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
Penrose 2-8H- Lower Li	0.00	0.00	2,732.00	3,684.87	-230.60	1,141,297.04	2,407,299.88	37° 2' 13.271948 N	107° 31' 50.268000 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,170.00	2,732.00	4 1/2"	4-1/2	6

XTO Energy, Inc.

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