

30-015-37375

OPERATOR Chesapeake Operating Inc
WELL/LEASE PLU Pierce Canyon 16 State # 1H
COUNTY Eddy

STATE OF NEW MEXICO
DEVIATION REPORT

394	0.64
644	0.30
1,024	0.30
1,209	1.00
1,459	1.00
1,753	0.25
2,032	0.60
2,472	0.75
3,044	0.75
3,298	2.60
3,551	3.00
3,678	3.25
3,800	2.25
4,092	1.75
4,345	1.25
4,641	1.00
4,894	1.00
5,614	0.75
5,865	0.50
6,417	1.50
6,671	1.00
7,137	1.25
7,390	2.00
7,686	1.75
7,898	2.25
8,152	1.75
8,406	1.00
8,702	0.25
9,169	1.25
9,465	1.75
9,751	2.50
9,877	2.00
9,900	2.25
10,059	3.25

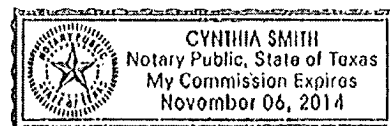
STATE OF TEXAS

COUNTY OF MIDLAND

BY: *Linda Robinson*

The foregoing instrument was acknowledged before me on 5/25/11, by Linda Robinson on behalf of Patterson-UTD Drilling Company LLC.

Cynthia Smith
Notary Public for Midland County, Texas
My Commission Expires:



Directional Survey

Chesapeake Operating, Inc.

Well ID: 623049

Well Name: PLU Piorco Canyon 16 Stato 1H

Field: South Eddy

Sect: 16 Town: 25S Rng: 30E County: Eddy State: NM

Survey Type	Measured Depth	Inclination	Azimuth	TVD	Coordinates N-S	E-W	Closure	Vertical Section	Dog Leg Severity
Wellbore:	Lateral				Plane of Vertical Section:		352.0		
** Tlein	7,894.0	1.97	195.0	7,893.1	S 106.3	E 41.7		-110.7	0.000
MWD	7,955.0	7.00	319.6	7,953.9	S 104.2	E 38.7	111.1	-108.1	15.021
MWD	7,987.0	6.90	273.6	7,985.7	S 102.4	E 35.3	108.3	-105.9	18.257
MWD	8,019.0	8.50	307.9	8,017.4	S 100.8	E 31.5	105.6	-103.9	14.937
MWD	8,050.0	14.00	309.7	8,047.8	S 97.0	E 26.8	100.6	-99.6	17.776
MWD	8,082.0	19.00	313.3	8,078.5	S 90.9	E 20.1	93.1	-92.7	15.941
MWD	8,114.0	22.90	319.9	8,108.4	S 82.6	E 12.2	83.5	-83.5	14.227
MWD	8,177.0	31.30	329.3	8,164.4	S 59.1	W 4.0	59.2	-58.1	14.929
MWD	8,209.0	35.10	333.2	8,191.2	S 43.7	W 12.4	45.5	-41.8	13.616
MWD	8,241.0	38.10	336.6	8,216.9	S 26.4	W 20.5	33.5	-23.7	11.312
MWD	8,273.0	41.00	339.5	8,241.6	S 7.5	W 28.1	29.1	-4.0	10.742
MWD	8,304.0	45.00	342.0	8,264.2	N 12.4	W 35.1	37.2	16.7	14.024
MWD	8,336.0	48.90	344.4	8,286.1	N 34.8	W 41.8	54.4	39.7	13.361
MWD	8,368.0	52.70	347.0	8,306.3	N 58.8	W 47.9	75.9	64.3	13.439
MWD	8,399.0	56.40	349.8	8,324.3	N 83.6	W 53.0	98.9	89.5	14.019
MWD	8,431.0	60.80	352.6	8,340.9	N 110.5	W 57.1	124.4	116.8	15.645
MWD	8,463.0	65.00	355.0	8,355.5	N 138.8	W 60.2	151.3	145.2	14.724
MWD	8,495.0	69.80	356.7	8,367.8	N 168.3	W 62.3	179.5	174.7	15.781
MWD	8,527.0	74.90	357.3	8,377.5	N 198.7	W 63.9	208.8	205.1	16.037
MWD	8,559.0	78.20	358.3	8,385.0	N 229.8	W 65.1	238.9	236.1	10.751
MWD	8,590.0	80.80	358.5	8,390.6	N 260.3	W 66.0	268.5	266.5	8.411
MWD	8,622.0	83.20	358.7	8,395.1	N 292.0	W 66.7	299.5	298.0	7.525
MWD	8,654.0	85.50	358.4	8,398.2	N 323.8	W 67.5	330.8	329.7	7.248
MWD	8,685.0	87.10	357.3	8,400.2	N 354.7	W 68.7	361.3	360.5	6.259
MWD	8,717.0	88.40	355.9	8,401.5	N 386.6	W 70.6	393.0	392.4	5.968
MWD	8,749.0	89.30	354.3	8,402.1	N 418.5	W 73.3	424.9	424.4	5.730
MWD	8,781.0	89.40	354.4	8,402.5	N 450.4	W 76.5	456.8	456.4	0.442
MWD	8,812.0	89.40	354.4	8,402.8	N 481.2	W 79.5	487.7	487.4	0.000
MWD	8,844.0	89.40	354.5	8,403.1	N 513.1	W 82.6	519.7	519.3	0.313
MWD	8,940.0	90.60	354.3	8,403.1	N 608.6	W 92.0	615.5	615.3	1.267
MWD	9,035.0	92.00	353.5	8,401.0	N 703.0	W 102.1	710.4	710.3	1.697
MWD	9,130.0	90.70	353.9	8,398.7	N 797.4	W 112.5	805.3	805.2	1.432
MWD	9,225.0	89.00	352.1	8,399.0	N 891.7	W 124.1	900.3	900.2	2.606
MWD	9,320.0	88.90	351.1	8,400.7	N 985.7	W 137.9	995.3	995.2	1.058
MWD	9,415.0	89.40	350.8	8,402.1	N 1,079.5	W 152.9	1,090.3	1,090.1	0.614
MWD	9,511.0	88.60	351.7	8,403.9	N 1,174.4	W 167.5	1,186.2	1,186.1	1.326
MWD	9,606.0	88.40	353.3	8,406.5	N 1,268.5	W 179.9	1,281.2	1,281.0	1.687
MWD	9,701.0	88.20	352.8	8,409.3	N 1,362.8	W 191.4	1,376.1	1,376.0	0.567
MWD	9,796.0	89.90	353.6	8,410.9	N 1,457.1	W 202.7	1,471.1	1,471.0	1.935
MWD	9,891.0	90.30	353.2	8,410.7	N 1,551.4	W 213.7	1,566.1	1,566.0	0.526
MWD	9,987.0	89.40	353.3	8,410.9	N 1,646.8	W 225.0	1,662.1	1,662.0	0.943

MWD	10,082.0	90.20	353.4	8,411.3 N	1,741.1	W 238.0	1,757.0	1,756.9	0.849
MWD	10,177.0	87.20	351.9	8,413.4 N	1,835.3	W 248.1	1,852.0	1,851.9	3.530
MWD	10,272.0	88.00	353.0	8,417.4 N	1,929.4	W 260.6	1,946.8	1,946.8	1.431
MWD	10,368.0	88.80	355.5	8,420.1 N	2,024.9	W 270.2	2,042.8	2,042.7	2.733
MWD	10,463.0	89.30	355.0	8,421.7 N	2,119.5	W 278.1	2,137.7	2,137.7	0.744
MWD	10,558.0	89.40	354.6	8,422.7 N	2,214.1	W 288.7	2,232.6	2,232.6	0.434
MWD	10,653.0	91.40	354.5	8,422.1 N	2,308.7	W 295.7	2,327.6	2,327.5	2.108
MWD	10,749.0	91.60	354.5	8,419.6 N	2,404.2	W 304.8	2,423.5	2,423.5	0.208
MWD	10,844.0	90.60	353.2	8,417.7 N	2,498.7	W 315.1	2,518.4	2,518.4	1.726
MWD	10,939.0	92.00	354.0	8,415.6 N	2,593.0	W 325.7	2,613.4	2,613.4	1.697
MWD	11,035.0	93.00	354.1	8,411.4 N	2,688.4	W 335.6	2,709.3	2,709.3	1.047
MWD	11,130.0	93.10	354.7	8,406.3 N	2,782.8	W 344.9	2,804.1	2,804.1	0.639
MWD	11,225.0	93.10	354.7	8,401.2 N	2,877.3	W 353.6	2,898.9	2,898.9	0.000
MWD	11,320.0	93.80	354.2	8,395.5 N	2,971.7	W 362.8	2,993.7	2,993.7	0.905
MWD	11,415.0	92.20	354.8	8,390.6 N	3,066.1	W 371.9	3,088.6	3,088.6	1.798
MWD	11,510.0	92.20	354.3	8,386.9 N	3,160.6	W 380.9	3,183.5	3,183.4	0.526
MWD	11,606.0	92.10	354.3	8,383.3 N	3,256.1	W 390.4	3,279.4	3,279.3	0.104
MWD	11,701.0	91.90	353.3	8,379.9 N	3,350.4	W 400.7	3,374.3	3,374.3	1.073
MWD	11,796.0	92.00	353.4	8,376.7 N	3,444.8	W 411.7	3,469.3	3,469.2	0.149
MWD	11,891.0	92.30	353.9	8,373.2 N	3,539.1	W 422.2	3,564.2	3,564.1	0.613
MWD	11,987.0	92.00	354.6	8,369.6 N	3,634.6	W 431.8	3,660.1	3,660.0	0.793
MWD	12,082.0	91.00	354.0	8,367.1 N	3,729.0	W 441.2	3,755.1	3,755.0	1.227
MWD	12,177.0	90.30	353.2	8,366.0 N	3,823.4	W 451.8	3,850.1	3,850.0	1.119
MWD	12,272.0	90.40	352.9	8,365.4 N	3,917.7	W 463.3	3,945.0	3,945.0	0.333
MWD	12,367.0	90.50	352.7	8,364.7 N	4,012.0	W 475.2	4,040.0	4,040.0	0.235
MWD	12,463.0	90.60	352.8	8,363.7 N	4,107.2	W 487.3	4,136.0	4,136.0	0.147
MWD	12,558.0	90.20	352.6	8,363.1 N	4,201.5	W 499.4	4,231.0	4,230.9	0.471
MWD	12,653.0	90.40	352.9	8,362.6 N	4,295.7	W 511.4	4,326.0	4,325.9	0.380
MWD	12,748.0	90.50	352.0	8,361.8 N	4,389.9	W 523.9	4,421.0	4,420.9	0.953
MWD	12,844.0	90.30	352.4	8,361.2 N	4,485.0	W 536.9	4,517.0	4,516.9	0.466
MWD	12,939.0	90.90	352.3	8,360.2 N	4,579.1	W 549.5	4,612.0	4,611.9	0.640
PROJ	12,992.0	90.90	352.3	8,359.3 N	4,631.6	W 556.0	4,665.0	4,664.9	0.000

Calculations use Minimum Curvature Method.