

Directional Survey Report

Chesapeake Operating, Inc.

Well ID: 611246

Well Name: Hugh 17

Well Bore: Original Well Bore

Plane of Vertical Section: 300.9 degrees

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
** Tieln	300.0	0.00	0.0	300.0				0.0	
MWD	385.0	1.50	316.7	385.0	N 0.8	W 0.8	1.1	1.1	1.765
MWD	448.0	1.80	300.6	448.0	N 1.9	W 2.2	2.9	2.9	0.872
MWD	509.0	1.90	301.8	508.9	N 2.9	W 3.9	4.9	4.8	0.176
MWD	571.0	3.10	300.2	570.9	N 4.3	W 6.2	7.5	7.5	1.939
MWD	633.0	3.60	300.5	632.8	N 6.2	W 9.3	11.2	11.1	0.807
MWD	691.0	4.00	299.6	690.6	N 8.1	W 12.6	15.0	15.0	0.697
MWD	751.0	4.30	302.6	750.5	N 10.3	W 16.4	19.3	19.3	0.617
MWD	814.0	4.90	300.8	813.3	N 13.0	W 20.7	24.4	24.4	0.979
MWD	878.0	5.80	300.3	877.0	N 16.0	W 25.8	30.4	30.4	1.408
MWD	941.0	6.20	303.2	939.7	N 19.5	W 31.4	36.9	36.9	0.796
MWD	1004.0	6.70	303.8	1002.3	N 23.4	W 37.3	44.0	44.0	0.801
MWD	1055.0	7.40	300.2	1052.9	N 26.7	W 42.6	50.3	50.3	1.622
MWD	1133.0	6.90	302.7	1130.3	N 31.7	W 50.9	60.0	60.0	0.755
MWD	1195.0	6.40	303.9	1191.8	N 35.7	W 56.9	67.2	67.1	0.837
MWD	1258.0	6.30	305.1	1254.5	N 39.6	W 62.6	74.1	74.1	0.264
MWD	1320.0	6.70	303.5	1316.1	N 43.6	W 68.4	81.1	81.1	0.708
MWD	1383.0	6.90	301.9	1378.6	N 47.6	W 74.7	88.6	88.6	0.437
MWD	1445.0	7.30	300.1	1440.1	N 51.6	W 81.3	96.2	96.2	0.738
MWD	1507.0	7.20	299.4	1501.6	N 55.4	W 88.1	104.1	104.0	0.215
MWD	1568.0	7.20	299.4	1562.2	N 59.2	W 94.7	111.7	111.7	0.000
MWD	1631.0	6.60	301.9	1624.7	N 63.0	W 101.2	119.3	119.2	1.065
MWD	1692.0	6.80	301.3	1685.3	N 66.8	W 107.3	126.4	126.4	0.347
MWD	1754.0	6.90	302.5	1746.8	N 70.7	W 113.6	133.8	133.8	0.282
MWD	1816.0	7.00	303.1	1808.4	N 74.7	W 119.9	141.3	141.3	0.199
MWD	1879.0	6.70	302.4	1870.9	N 78.8	W 126.2	148.8	148.8	0.494
MWD	1941.0	7.00	299.7	1932.5	N 82.6	W 132.5	156.2	156.2	0.682
MWD	2004.0	6.90	298.7	1995.0	N 86.4	W 139.2	163.8	163.8	0.280
MWD	2066.0	6.20	296.8	2056.6	N 89.7	W 145.4	170.9	170.8	1.182

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MWD	2128.0	6.20	301.4	2118.3	N 92.9	W 151.3	177.5	177.5	0.801
MWD	2190.0	6.60	302.2	2179.9	N 96.6	W 157.2	184.4	184.4	0.661
MWD	2253.0	6.60	303.3	2242.5	N 100.5	W 163.2	191.7	191.7	0.201
MWD	2314.0	7.30	300.3	2303.0	N 104.3	W 169.5	199.1	199.1	1.292
MWD	2377.0	7.40	299.2	2365.5	N 108.3	W 176.5	207.1	207.1	0.274
MWD	2439.0	7.00	300.1	2427.0	N 112.2	W 183.3	214.9	214.9	0.670
MWD	2502.0	6.90	297.8	2489.5	N 115.9	W 189.9	222.5	222.5	0.469
MWD	2565.0	6.50	297.9	2552.1	N 119.3	W 196.4	229.8	229.8	0.635
MWD	2628.0	6.40	302.3	2614.7	N 122.9	W 202.6	236.9	236.9	0.800
MWD	2690.0	6.40	303.2	2676.3	N 126.6	W 208.4	243.8	243.8	0.162
MWD	2753.0	6.70	301.6	2738.9	N 130.4	W 214.4	251.0	251.0	0.557
MWD	2815.0	6.50	302.0	2800.5	N 134.2	W 220.5	258.1	258.1	0.331
MWD	2878.0	6.70	300.2	2863.1	N 137.9	W 226.7	265.4	265.4	0.457
MWD	2941.0	6.90	300.6	2925.7	N 141.7	W 233.1	272.8	272.8	0.326
MWD	3003.0	6.70	299.9	2987.2	N 145.4	W 239.5	280.2	280.2	0.349
MWD	3066.0	6.90	301.0	3049.8	N 149.2	W 245.9	287.6	287.6	0.379
MWD	3128.0	6.50	300.6	3111.3	N 152.9	W 252.1	294.9	294.9	0.650
MWD	3191.0	6.90	299.1	3173.9	N 156.6	W 258.5	302.2	302.2	0.693
MWD	3253.0	7.00	298.5	3235.5	N 160.2	W 265.1	309.7	309.7	0.199
MWD	3316.0	7.10	301.7	3298.0	N 164.0	W 271.8	317.4	317.4	0.643
MWD	3380.0	7.20	300.5	3361.5	N 168.2	W 278.6	325.4	325.4	0.281
MWD	3442.0	7.10	299.2	3423.0	N 172.0	W 285.3	333.1	333.1	0.307
MWD	3504.0	6.90	299.5	3484.5	N 175.7	W 291.9	340.7	340.7	0.328
MWD	3566.0	6.80	298.9	3546.1	N 179.3	W 298.3	348.1	348.1	0.198
MWD	3628.0	6.80	298.8	3607.7	N 182.9	W 304.7	355.4	355.4	0.019
MWD	3690.0	6.80	299.1	3669.2	N 186.4	W 311.2	362.7	362.7	0.057
MWD	3753.0	6.70	299.4	3731.8	N 190.0	W 317.6	370.1	370.1	0.168
MWD	3815.0	6.60	299.2	3793.4	N 193.5	W 323.9	377.3	377.3	0.166
MWD	3878.0	6.70	299.2	3856.0	N 197.1	W 330.3	384.6	384.6	0.159

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					N-S	E-W			
MWD	3941.0	6.50	300.2	3918.5	N 200.7	W 336.5	391.8	391.8	0.366
MWD	4003.0	6.50	301.6	3980.1	N 204.3	W 342.6	398.9	398.9	0.256
MWD	4066.0	6.30	300.4	4042.7	N 207.9	W 348.6	405.9	405.9	0.382
MWD	4126.0	6.40	300.4	4102.4	N 211.3	W 354.3	412.5	412.5	0.167
MWD	4153.0	6.50	299.6	4129.2	N 212.8	W 356.9	415.5	415.5	0.498
MWD	4200.0	6.70	300.4	4175.9	N 215.5	W 361.6	420.9	420.9	0.468

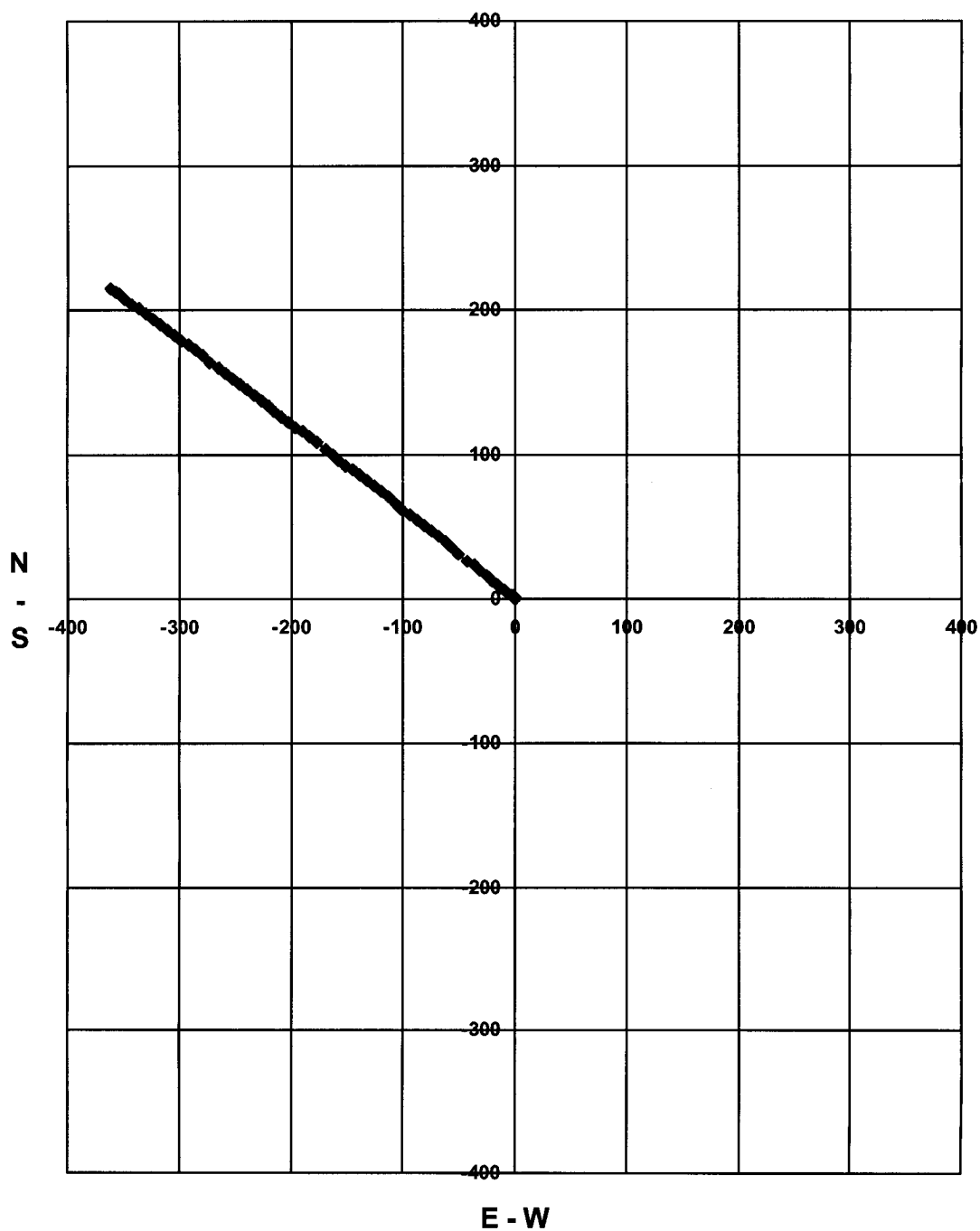
Calculations using Minimum Curvature Method

Well Plan View

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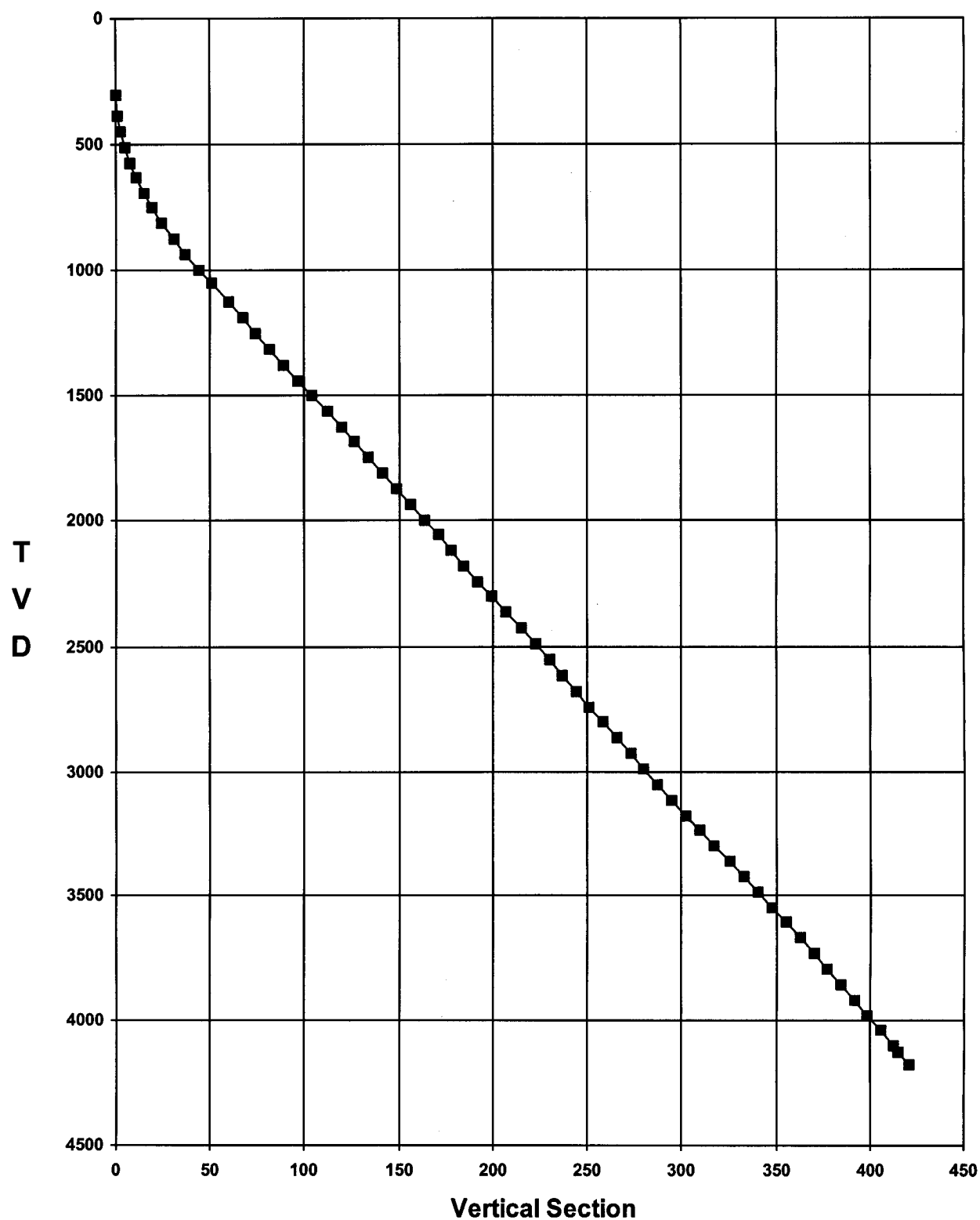
Well Elevation View

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