

9.00122

# End of Well Report for Chesapeake

Rig:	Nomac 37
Well Name:	State of WV DNR B BRK 8H
Field Name:	Steubenville East
Country:	USA
Job Number:	NE-XX-0009586548
Job Start Date:	16-Jul-12
API Number:	47-009-00122

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Directional Survey Data

Tie-in

4500.00      0.85      356.19      4499.74      36.99 N      0.94 E

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
4648.00	0.96	24.40	4,647.72	39.21 N	1.38 E	-34.64	0.31
4680.00	0.91	28.32	4,679.72	39.68 N	1.61 E	-34.96	0.25
4711.00	0.86	29.09	4,710.71	40.10 N	1.84 E	-35.24	0.16
4743.00	0.78	36.06	4,742.71	40.49 N	2.09 E	-35.48	0.40
4805.00	6.35	143.22	4,804.59	38.08 N	4.39 E	-32.30	10.68
4836.00	8.90	145.25	4,835.31	34.74 N	6.78 E	-28.25	8.29
4900.00	8.68	145.07	4,898.56	26.71 N	12.37 E	-18.59	0.36
4964.00	7.73	140.22	4,961.90	19.45 N	17.89 E	-9.64	1.83
4996.00	7.60	140.57	4,993.62	16.16 N	20.61 E	-5.49	0.43
5027.00	9.55	152.04	5,024.27	12.30 N	23.12 E	-0.92	8.34
5059.00	12.82	161.40	5,055.66	6.59 N	25.50 E	5.25	11.65
5091.00	15.92	161.41	5,086.66	0.93 S	28.03 E	13.13	9.70
5123.00	18.85	156.56	5,117.19	9.84 S	31.48 E	22.65	10.19
5155.00	21.42	155.82	5,147.24	19.91 S	35.93 E	33.65	8.09
5186.00	24.75	155.73	5,175.75	31.00 S	40.92 E	45.80	10.74
5218.00	28.18	155.43	5,204.39	43.98 S	46.82 E	60.06	10.73
5250.00	31.52	154.82	5,232.14	58.43 S	53.52 E	75.98	10.47
5281.00	33.34	155.52	5,258.31	73.52 S	60.50 E	92.60	6.00
5313.00	35.51	155.36	5,284.70	89.97 S	68.02 E	110.68	6.78
5345.00	37.52	155.36	5,310.42	107.28 S	75.96 E	129.72	6.27
5376.00	39.85	154.88	5,334.61	124.85 S	84.12 E	149.09	7.59
5408.00	41.96	155.09	5,358.80	143.84 S	92.98 E	170.04	6.59
5439.00	43.81	155.96	5,381.51	163.04 S	101.71 E	191.13	6.27
5471.00	45.80	156.67	5,404.22	183.69 S	110.77 E	213.66	6.41
5503.00	48.42	157.27	5,425.99	205.27 S	119.93 E	237.07	8.31
5534.00	50.81	157.63	5,446.08	227.07 S	128.99 E	260.64	7.76
5565.00	53.51	157.43	5,465.09	249.69 S	138.35 E	285.07	8.73
5597.00	56.04	157.30	5,483.55	273.82 S	148.41 E	311.16	7.91
5629.00	58.20	156.31	5,500.92	298.52 S	158.99 E	338.00	7.21
5660.00	59.99	155.66	5,516.84	322.81 S	169.82 E	364.58	6.07
5692.00	62.26	155.14	5,532.29	348.29 S	181.48 E	392.60	7.21
5724.00	64.47	154.85	5,546.64	374.21 S	193.57 E	421.19	6.96
5755.00	66.49	155.03	5,559.50	399.76 S	205.52 E	449.39	6.54
5787.00	68.50	155.94	5,571.75	426.65 S	217.78 E	478.94	6.79
5819.00	70.34	156.06	5,583.00	454.02 S	229.97 E	508.88	5.76
5850.00	72.20	155.91	5,592.96	480.83 S	241.92 E	538.22	6.04
5882.00	75.02	156.60	5,601.98	508.93 S	254.27 E	568.89	9.06
5914.00	77.34	157.15	5,609.62	537.51 S	266.48 E	599.93	7.43
5945.00	78.76	157.07	5,616.04	565.45 S	278.27 E	630.21	4.57
5977.00	81.24	156.87	5,621.60	594.45 S	290.60 E	661.68	7.78
6009.00	83.95	156.93	5,625.72	623.63 S	303.05 E	693.37	8.48
6041.00	84.52	157.13	5,628.94	652.95 S	315.48 E	725.16	1.88



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Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
6072.00	86.10	156.71	5,631.48	681.37 S	327.59 E	756.02	5.27
6104.00	87.31	155.93	5,633.31	710.62 S	340.42 E	787.93	4.50
6167.00	89.06	155.78	5,635.31	768.08 S	366.18 E	850.87	2.78
6293.00	89.43	154.83	5,636.97	882.54 S	418.82 E	976.82	0.81
6420.00	89.93	153.29	5,637.68	996.74 S	474.37 E	1103.82	1.28
6546.00	90.07	153.32	5,637.68	1,109.31 S	530.98 E	1229.81	0.11
6672.00	88.79	154.20	5,638.94	1,222.31 S	586.69 E	1355.80	1.23
6799.00	87.21	154.09	5,643.37	1,336.52 S	642.05 E	1482.71	1.25
6925.00	87.78	154.43	5,648.87	1,449.91 S	696.72 E	1608.59	0.53
7052.00	89.33	155.41	5,652.07	1,564.89 S	750.53 E	1735.53	1.44
7177.00	88.59	153.25	5,654.34	1,677.53 S	804.67 E	1860.50	1.83
7304.00	89.23	151.25	5,656.76	1,789.90 S	863.79 E	1987.41	1.65
7428.00	88.12	152.28	5,659.63	1,899.11 S	922.44 E	2111.28	1.22
7555.00	88.39	154.13	5,663.50	2,012.42 S	979.66 E	2238.20	1.47
7683.00	86.61	154.54	5,669.08	2,127.68 S	1,035.03 E	2366.07	1.43
7809.00	86.71	154.48	5,676.43	2,241.22 S	1,089.16 E	2491.85	0.10
7935.00	87.95	153.74	5,682.29	2,354.45 S	1,144.11 E	2617.71	1.15
8062.00	88.39	153.83	5,686.35	2,468.33 S	1,200.18 E	2744.65	0.35
8188.00	89.26	154.17	5,688.93	2,581.56 S	1,255.40 E	2870.62	0.74
8314.00	90.34	153.14	5,689.38	2,694.47 S	1,311.31 E	2996.61	1.19
8439.00	90.17	152.56	5,688.83	2,805.69 S	1,368.35 E	3121.59	0.48
8565.00	90.27	152.80	5,688.35	2,917.63 S	1,426.18 E	3247.55	0.20
8690.00	90.20	153.36	5,687.83	3,029.08 S	1,482.78 E	3372.53	0.45
8815.00	90.84	154.12	5,686.70	3,141.18 S	1,538.09 E	3497.53	0.80
8939.00	90.07	154.79	5,685.72	3,253.05 S	1,591.55 E	3621.52	0.82
9065.00	89.73	155.33	5,685.94	3,367.30 S	1,644.69 E	3747.49	0.51
9191.00	89.23	154.78	5,687.09	3,481.54 S	1,697.82 E	3873.47	0.59
9317.00	89.03	154.43	5,689.01	3,595.35 S	1,751.86 E	3999.44	0.32
9441.00	88.55	154.72	5,691.63	3,707.32 S	1,805.08 E	4123.41	0.45
9567.00	87.98	153.37	5,695.44	3,820.55 S	1,860.20 E	4249.35	1.16
9692.00	88.52	153.21	5,699.25	3,932.16 S	1,916.36 E	4374.28	0.45
9816.00	88.69	153.62	5,702.27	4,043.02 S	1,971.84 E	4498.24	0.35
9941.00	89.16	154.34	5,704.61	4,155.32 S	2,026.67 E	4623.21	0.69
10065.00	88.89	154.73	5,706.71	4,267.26 S	2,079.97 E	4747.19	0.39
10189.00	89.06	154.93	5,708.93	4,379.47 S	2,132.70 E	4871.16	0.21
10314.00	89.40	154.96	5,710.61	4,492.70 S	2,185.63 E	4996.13	0.27
10439.00	89.09	153.04	5,712.26	4,605.04 S	2,240.41 E	5121.11	1.56
10565.00	89.36	152.65	5,713.95	4,717.14 S	2,297.91 E	5247.07	0.38
10617.00	89.36	152.65	5,714.53	4,763.33 S	2,321.80 E	5299.06	0.01



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## DIRECTIONAL SURVEY DATA NOTES

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head.
- Vertical section is computed along a direction of 154.00 degrees (Grid)
- A total correction of -8.15 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 10,617.00 feet is 5,299.06 feet along 154.01 degrees (Grid)

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