



CHESAPEAKE APPALACHIA, LLC

Location: Brooke County, WV Slot: Slot 5H
 Field: Brooke Well: Barry Greathouse A 5H ST01
 Facility: Barry Greathouse A Wellbore: Barry Greathouse A 5H ST01 (PWB)



Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5313.00	25.500	146.800	4966.28	-1141.54	843.38	0.00	-1381.81
End of 3D Arc	5460.67	20.000	183.000	5103.06	-1193.64	859.55	10.00	-1436.06
End of Drop	5660.67	0.000	337.825	5299.02	-1228.14	857.74	10.00	-1467.05
LP	6484.35	90.605	337.825	5819.86	-740.70	659.08	11.00	-940.77
PBHL	12814.57	90.605	337.825	5753.00	5121.00	-1730.00	0.00	5387.96

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Barry Greathouse A	1682862.600	618072.200	40°11'29.047"N	80°38'09.163"W

Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot 5H	-5.70	19.10	1682881.700	618066.500	40°11'28.993"N	80°38'08.916"W

Nomac 243 (RKB) to Mud line (At Slot: Slot 5H) : 16ft
 Mean Sea Level to Mud line (At Slot: Slot 5H) : -1130ft
 Nomac 243 (RKB) to Mean Sea Level : 1146ft

Tie-On Position

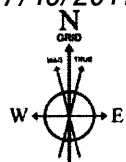
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
5313.00	25.500	146.800	4966.28	-1141.54	843.38	1683525.07	618924.98	40°11'17.618"N	80°37'57.864"W

Bottom Hole Location

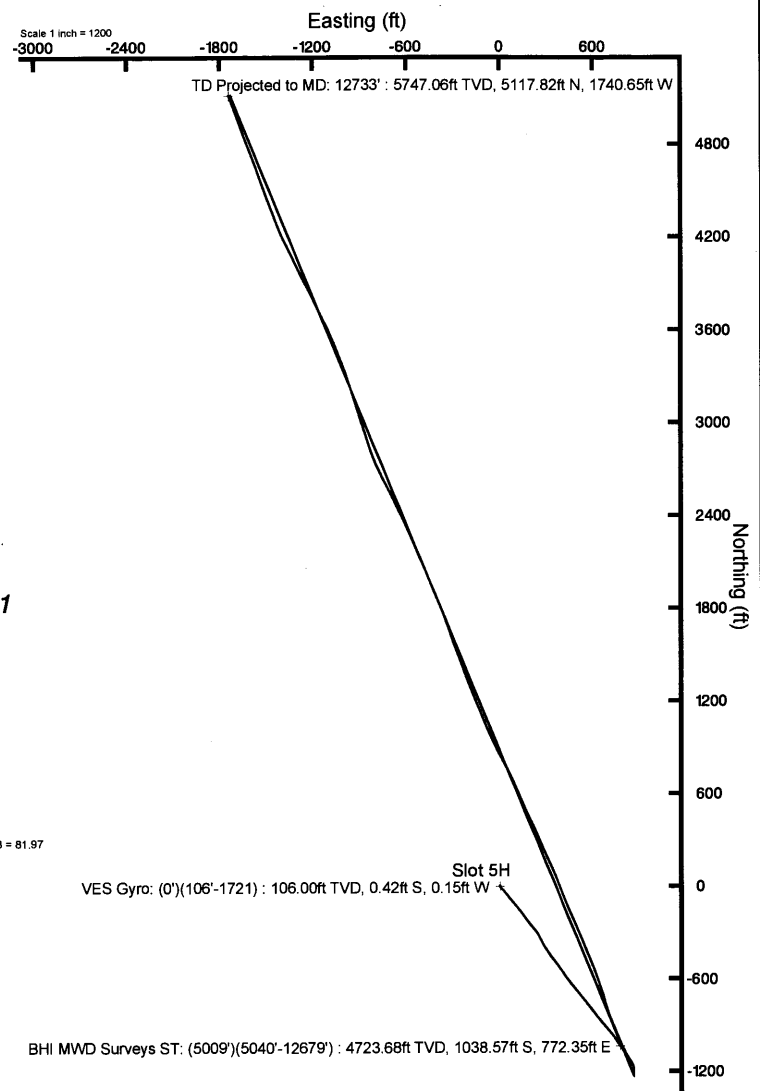
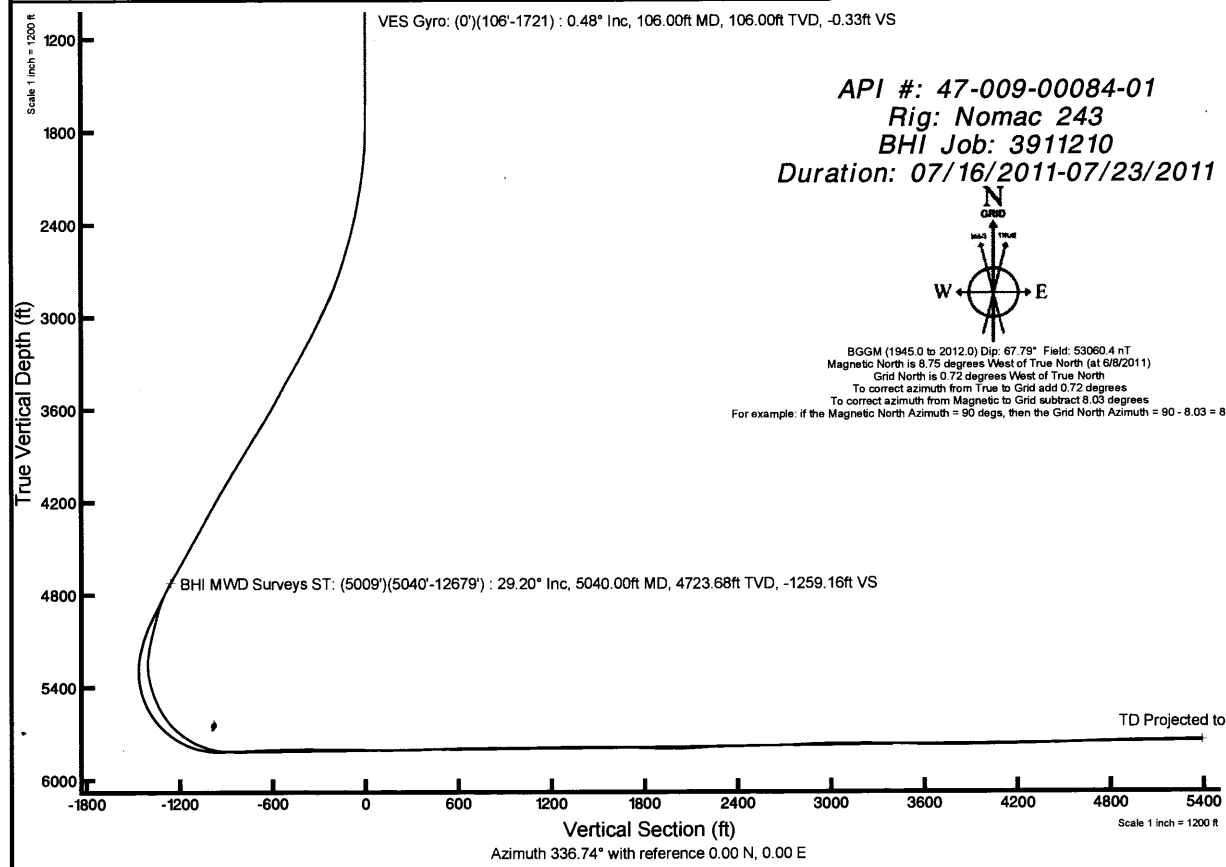
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
12814.57	90.605	337.825	5753.00	5121.00	-1730.00	1680951.72	623187.44	40°12'19.378"N	80°38'32.044"W

VES Gyro: (0°)(106°-1721) : 0.48° Inc, 106.00ft MD, 106.00ft TVD, -0.33ft VS

API #: 47-009-00084-01
Rig: Nomac 243
BHI Job: 3911210
Duration: 07/16/2011-07/23/2011



BGGM (1945.0 to 2012.0) Dip: 67.79° Field: 53060.4 nT
 Magnetic North is 8.75 degrees West of True North (at 6/8/2011)
 Grid North is 0.72 degrees West of True North
 To correct azimuth from True to Grid add 0.72 degrees
 To correct azimuth from Magnetic to Grid subtract 8.03 degrees
 For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 - 8.03 = 81.97





Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Frisjesl
Scale	0.999989	Report Generated	8/5/2011 at 11:47:51 AM
Convergence at slot	0.72° West	Database/Source file	Well Aritiech Eastern US/Barry_Greathouse_A_5H_AWB_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-5.70	19.10	1682681.70	618066.50	40°11'28.993"N	80°38'08.916"W
Facility Reference Pt			1682662.60	618072.20	40°11'29.047"N	80°38'09.163"W
Field Reference Pt			0.00	0.00	38°17'12.460"N	86°28'23.077"W

WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 243 (RKB) to Facility Vertical Datum	16.00ft
Horizontal Reference Pt	Slot	Nomac 243 (RKB) to Mean Sea Level	1146.00ft
Vertical Reference Pt	Nomac 243 (RKB)	Nomac 243 (RKB) to Mud Line at Slot (Slot 5H)	16.00ft
MD Reference Pt	Nomac 243 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	336.74°



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Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0.00	0.000	199.590	0.00	0.00	0.00	0.00	1682681.70	618066.50	40°11'28.993"N	80°38'08.916"W	0.00	0.000	0.00
106.00	0.480	199.590	106.00	-0.33	-0.42	-0.15	1682681.55	618066.08	40°11'28.989"N	80°38'08.918"W	0.44	199.590	0.45
206.00	0.380	312.790	206.00	-0.33	-0.59	-0.53	1682681.17	618065.91	40°11'28.987"N	80°38'08.922"W	0.79	222.189	0.72
306.00	0.450	310.470	305.99	0.33	-0.11	-1.07	1682680.63	618066.39	40°11'28.992"N	80°38'08.929"W	1.08	264.287	0.07
406.00	0.700	225.190	405.99	0.45	-0.28	-1.81	1682679.89	618066.22	40°11'28.990"N	80°38'08.939"W	1.83	261.094	0.80
506.00	0.290	285.120	505.99	0.39	-0.65	-2.48	1682679.22	618065.85	40°11'28.986"N	80°38'08.948"W	2.57	255.390	0.61
606.00	0.420	323.880	605.99	0.90	-0.29	-2.94	1682678.76	618066.21	40°11'28.990"N	80°38'08.954"W	2.96	264.461	0.27
706.00	0.160	242.420	705.98	1.25	-0.05	-3.28	1682678.42	618066.45	40°11'28.992"N	80°38'08.958"W	3.29	269.056	0.43
806.00	0.140	324.270	805.98	1.36	-0.02	-3.48	1682678.22	618066.48	40°11'28.992"N	80°38'08.960"W	3.48	269.677	0.20
906.00	0.130	236.010	905.98	1.45	0.02	-3.65	1682678.05	618066.52	40°11'28.992"N	80°38'08.963"W	3.65	270.254	0.19
1006.00	0.090	306.160	1005.98	1.50	0.00	-3.80	1682677.90	618066.50	40°11'28.992"N	80°38'08.965"W	3.80	269.986	0.13
1106.00	0.030	126.830	1105.98	1.55	0.03	-3.85	1682677.85	618066.53	40°11'28.993"N	80°38'08.965"W	3.85	270.443	0.12
1206.00	0.100	85.410	1205.98	1.50	0.02	-3.74	1682677.96	618066.52	40°11'28.992"N	80°38'08.964"W	3.74	270.322	0.08
1306.00	0.210	106.390	1305.98	1.35	-0.02	-3.47	1682678.23	618066.48	40°11'28.992"N	80°38'08.960"W	3.47	269.609	0.12
1406.00	0.080	159.440	1405.98	1.16	-0.14	-3.27	1682678.43	618066.36	40°11'28.991"N	80°38'08.958"W	3.28	267.538	0.17
1506.00	0.210	97.780	1505.98	1.00	-0.23	-3.07	1682678.63	618066.27	40°11'28.990"N	80°38'08.955"W	3.08	265.695	0.19
1606.00	0.040	253.560	1605.98	0.91	-0.27	-2.92	1682678.78	618066.23	40°11'28.990"N	80°38'08.953"W	2.93	264.801	0.25
1721.00	0.170	97.120	1720.98	0.83	-0.30	-2.79	1682678.91	618066.20	40°11'28.989"N	80°38'08.952"W	2.81	263.898	0.18
1751.00	0.200	282.600	1750.98	0.84	-0.29	-2.80	1682678.90	618066.21	40°11'28.990"N	80°38'08.952"W	2.81	264.033	1.23
1795.00	0.200	315.500	1794.98	0.95	-0.22	-2.92	1682678.78	618066.28	40°11'28.990"N	80°38'08.953"W	2.93	265.684	0.26
1838.00	0.800	145.600	1837.98	0.73	-0.41	-2.81	1682678.89	618066.09	40°11'28.988"N	80°38'08.952"W	2.84	261.594	2.32
1882.00	3.100	157.900	1881.95	-0.76	-1.77	-2.19	1682679.51	618064.73	40°11'28.975"N	80°38'08.944"W	2.81	230.997	5.28
1925.00	3.900	148.900	1924.87	-3.37	-4.10	-0.99	1682680.71	618062.40	40°11'28.952"N	80°38'08.928"W	4.22	193.624	2.25
1968.00	5.200	149.800	1967.74	-6.76	-7.04	0.74	1682682.44	618059.46	40°11'28.923"N	80°38'08.905"W	7.08	173.982	3.03
2012.00	6.600	145.800	2011.50	-11.22	-10.85	3.17	1682684.87	618055.65	40°11'28.886"N	80°38'08.873"W	11.30	163.734	3.31
2055.00	7.500	137.300	2054.18	-16.29	-14.96	6.46	1682688.16	618051.54	40°11'28.846"N	80°38'08.830"W	16.29	156.647	3.20
2099.00	8.600	135.100	2097.74	-22.06	-19.40	10.73	1682692.43	618047.10	40°11'28.802"N	80°38'08.774"W	22.17	151.056	2.60
2142.00	9.300	131.100	2140.22	-28.18	-23.96	15.62	1682697.32	618042.54	40°11'28.758"N	80°38'08.711"W	28.60	146.906	2.18
2185.00	9.700	134.300	2182.63	-34.66	-28.77	20.83	1682702.53	618037.73	40°11'28.711"N	80°38'08.643"W	35.52	144.103	1.54
2229.00	10.500	139.200	2225.95	-41.91	-34.40	26.10	1682707.80	618032.10	40°11'28.656"N	80°38'08.574"W	43.18	142.811	2.67



Actual Wellpath Report

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WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2272.00	11.300	139.100	2268.17	-49.66	-40.55	31.42	1682713.12	618025.95	40°11'28.596"N	80°38'08.504"W	51.30	142.231	1.86
2315.00	12.000	140.100	2310.29	-57.96	-47.16	37.04	1682718.74	618019.34	40°11'28.531"N	80°38'08.431"W	59.97	141.852	1.69
2359.00	12.700	143.400	2353.27	-67.05	-54.55	42.86	1682724.56	618011.95	40°11'28.459"N	80°38'08.355"W	69.38	141.844	2.26
2402.00	13.400	145.300	2395.16	-76.53	-62.45	48.52	1682730.22	618004.05	40°11'28.382"N	80°38'08.280"W	79.08	142.155	1.91
2446.00	14.600	144.700	2437.85	-86.95	-71.16	54.62	1682736.32	617995.34	40°11'28.296"N	80°38'08.200"W	89.71	142.491	2.75
2489.00	15.300	141.200	2479.40	-97.72	-80.01	61.31	1682743.01	617986.49	40°11'28.210"N	80°38'08.113"W	100.80	142.537	2.66
2533.00	15.900	142.400	2521.78	-109.15	-89.31	68.63	1682750.32	617977.19	40°11'28.119"N	80°38'08.017"W	112.63	142.461	1.55
2576.00	16.600	143.000	2563.06	-120.82	-98.88	75.92	1682757.62	617967.62	40°11'28.025"N	80°38'07.921"W	124.66	142.484	1.67
2619.00	16.700	142.500	2604.25	-132.78	-108.69	83.37	1682765.07	617957.81	40°11'27.929"N	80°38'07.824"W	136.98	142.508	0.41
2663.00	18.200	137.300	2646.23	-145.39	-118.75	91.88	1682773.58	617947.75	40°11'27.831"N	80°38'07.712"W	150.15	142.270	4.91
2706.00	19.000	139.700	2686.99	-158.41	-129.03	100.96	1682782.66	617937.47	40°11'27.730"N	80°38'07.594"W	163.84	141.957	2.57
2750.00	19.600	139.800	2728.51	-172.32	-140.13	110.36	1682792.06	617926.37	40°11'27.622"N	80°38'07.471"W	178.37	141.777	1.37
2793.00	20.500	138.800	2768.91	-186.38	-151.30	119.98	1682801.67	617915.20	40°11'27.513"N	80°38'07.345"W	193.10	141.587	2.24
2836.00	21.500	144.200	2809.05	-201.24	-163.36	129.55	1682811.24	617903.14	40°11'27.395"N	80°38'07.220"W	208.49	141.585	5.06
2880.00	22.800	140.500	2849.81	-217.30	-176.48	139.69	1682821.38	617890.02	40°11'27.266"N	80°38'07.087"W	225.07	141.638	4.33
2923.00	24.500	146.300	2889.20	-234.07	-190.33	149.93	1682831.63	617876.17	40°11'27.131"N	80°38'06.953"W	242.29	141.770	6.70
2966.00	25.300	146.200	2928.20	-251.87	-205.38	159.99	1682841.69	617861.12	40°11'26.983"N	80°38'06.821"W	260.34	142.081	1.86
3010.00	26.300	146.000	2967.82	-270.69	-221.28	170.67	1682852.37	617845.23	40°11'26.828"N	80°38'06.681"W	279.45	142.356	2.28
3053.00	27.300	142.600	3006.20	-289.61	-237.01	181.99	1682863.69	617829.50	40°11'26.674"N	80°38'06.532"W	298.82	142.480	4.26
3097.00	28.100	141.300	3045.16	-309.39	-253.11	194.60	1682876.30	617813.39	40°11'26.516"N	80°38'06.367"W	319.27	142.446	2.28
3140.00	27.300	139.200	3083.23	-328.55	-268.48	207.38	1682889.07	617798.02	40°11'26.366"N	80°38'06.200"W	339.24	142.317	2.93
3183.00	27.000	144.100	3121.50	-347.48	-283.85	219.54	1682901.24	617782.65	40°11'26.215"N	80°38'06.041"W	358.85	142.280	5.25
3227.00	27.000	143.500	3160.70	-366.95	-299.97	231.34	1682913.04	617766.53	40°11'26.058"N	80°38'05.886"W	378.82	142.360	0.62
3270.00	27.600	148.300	3198.91	-386.31	-316.30	242.38	1682924.08	617750.21	40°11'25.898"N	80°38'05.741"W	398.49	142.536	5.31
3314.00	28.800	153.300	3237.70	-406.97	-334.44	252.50	1682934.20	617732.07	40°11'25.720"N	80°38'05.608"W	419.05	142.947	6.02
3357.00	28.800	153.600	3275.38	-427.65	-352.97	261.76	1682943.46	617713.53	40°11'25.538"N	80°38'05.486"W	439.44	143.439	0.34
3400.00	29.600	152.100	3312.91	-448.58	-371.63	271.34	1682953.03	617694.87	40°11'25.354"N	80°38'05.359"W	460.15	143.866	2.52
3444.00	31.000	148.300	3350.91	-470.62	-390.88	282.38	1682964.07	617675.62	40°11'25.166"N	80°38'05.214"W	482.21	144.155	5.39
3488.00	30.700	148.700	3388.68	-492.95	-410.12	294.17	1682975.86	617656.39	40°11'24.977"N	80°38'05.059"W	504.71	144.349	0.83
3532.00	29.200	149.100	3426.80	-514.71	-428.93	305.51	1682987.21	617637.58	40°11'24.793"N	80°38'04.910"W	526.61	144.539	3.44



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3575.00	27.800	149.200	3464.59	-535.05	-446.54	316.04	1682997.73	617619.97	40°11'24.620"N	80°38'04.771"W	547.06	144.711	3.26
3619.00	28.700	141.200	3503.36	-555.41	-463.59	327.91	1683009.61	617602.91	40°11'24.453"N	80°38'04.615"W	567.84	144.727	8.84
3662.00	28.500	141.200	3541.12	-575.24	-479.63	340.81	1683022.51	617586.87	40°11'24.296"N	80°38'04.446"W	588.39	144.604	0.47
3705.00	29.400	140.400	3578.74	-595.25	-495.76	353.97	1683035.66	617570.74	40°11'24.138"N	80°38'04.274"W	609.16	144.474	2.28
3749.00	31.100	146.300	3616.76	-616.80	-513.54	367.16	1683048.86	617552.96	40°11'23.964"N	80°38'04.101"W	631.30	144.437	7.78
3792.00	32.700	141.500	3653.27	-638.93	-531.88	380.56	1683062.25	617534.63	40°11'23.785"N	80°38'03.926"W	654.00	144.416	6.97
3836.00	32.800	142.600	3690.28	-661.95	-550.65	395.19	1683076.89	617515.86	40°11'23.601"N	80°38'03.734"W	677.78	144.333	1.37
3879.00	31.400	146.800	3726.71	-684.29	-569.28	408.40	1683090.10	617497.23	40°11'23.419"N	80°38'03.561"W	700.62	144.344	6.13
3922.00	30.200	147.100	3763.64	-705.98	-587.73	420.41	1683102.11	617478.78	40°11'23.238"N	80°38'03.403"W	722.62	144.423	2.81
3966.00	31.300	142.100	3801.46	-727.96	-606.04	433.45	1683115.14	617460.46	40°11'23.058"N	80°38'03.232"W	745.09	144.427	6.32
4009.00	32.900	142.900	3837.89	-750.10	-624.17	447.35	1683129.05	617442.33	40°11'22.881"N	80°38'03.050"W	767.93	144.370	3.85
4052.00	32.900	142.000	3873.99	-772.74	-642.69	461.59	1683143.28	617423.82	40°11'22.700"N	80°38'02.864"W	791.27	144.314	1.14
4096.00	33.600	141.400	3910.79	-796.03	-661.62	476.54	1683158.23	617404.89	40°11'22.515"N	80°38'02.668"W	815.37	144.236	1.76
4139.00	33.500	141.400	3946.62	-818.95	-680.19	491.37	1683173.06	617386.31	40°11'22.333"N	80°38'02.474"W	839.11	144.156	0.23
4183.00	32.000	141.000	3983.63	-841.88	-698.75	506.28	1683187.97	617367.76	40°11'22.151"N	80°38'02.279"W	862.88	144.075	3.44
4226.00	30.600	141.000	4020.37	-863.39	-716.11	520.34	1683202.03	617350.40	40°11'21.982"N	80°38'02.095"W	885.19	143.997	3.26
4270.00	31.100	139.600	4058.14	-885.02	-733.46	534.75	1683216.44	617333.05	40°11'21.812"N	80°38'01.906"W	907.70	143.905	1.99
4313.00	31.900	144.200	4094.81	-906.73	-751.14	548.60	1683230.29	617315.37	40°11'21.639"N	80°38'01.725"W	930.14	143.857	5.89
4357.00	32.000	143.500	4132.15	-929.43	-769.94	562.33	1683244.03	617296.57	40°11'21.455"N	80°38'01.545"W	953.43	143.857	0.87
4400.00	30.300	142.200	4168.95	-951.02	-787.67	575.76	1683257.45	617278.84	40°11'21.281"N	80°38'01.369"W	975.66	143.835	4.25
4444.00	29.100	142.500	4207.17	-972.14	-804.93	589.08	1683270.77	617261.58	40°11'21.112"N	80°38'01.195"W	997.46	143.802	2.75
4488.00	29.900	142.200	4245.46	-993.12	-822.08	602.31	1683284.00	617244.43	40°11'20.945"N	80°38'01.022"W	1019.12	143.771	1.85
4532.00	30.400	142.700	4283.51	-1014.54	-839.60	615.78	1683297.47	617226.91	40°11'20.773"N	80°38'00.845"W	1041.21	143.743	1.27
4575.00	28.900	137.500	4320.88	-1034.91	-855.92	629.39	1683311.09	617210.59	40°11'20.614"N	80°38'00.667"W	1062.42	143.671	6.92
4619.00	30.400	137.800	4359.12	-1055.48	-872.01	644.06	1683325.75	617194.50	40°11'20.456"N	80°38'00.476"W	1084.07	143.551	3.43
4662.00	30.600	142.700	4396.18	-1076.39	-888.78	658.00	1683339.69	617177.73	40°11'20.293"N	80°38'00.293"W	1105.84	143.486	5.80
4705.00	29.500	139.500	4433.40	-1097.12	-905.54	671.51	1683353.20	617160.97	40°11'20.129"N	80°38'00.117"W	1127.35	143.441	4.52
4749.00	28.700	139.100	4471.84	-1117.53	-921.76	685.46	1683367.15	617144.75	40°11'19.970"N	80°37'59.934"W	1148.70	143.364	1.87
4792.00	30.400	138.900	4509.25	-1137.73	-937.76	699.37	1683381.07	617128.75	40°11'19.814"N	80°37'59.752"W	1169.84	143.285	3.96
4836.00	30.300	140.700	4547.22	-1159.00	-954.74	713.72	1683395.41	617111.77	40°11'19.648"N	80°37'59.565"W	1192.03	143.220	2.08



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
4879.00	29.400	142.900	4584.52	-1179.67	-971.56	726.96	1683408.65	617094.96	40°11'19.483"N	80°37'59.391"W	1213.42	143.195	3.30
4922.00	30.500	145.400	4621.78	-1200.62	-988.96	739.53	1683421.22	617077.55	40°11'19.313"N	80°37'59.227"W	1234.88	143.212	3.87
4966.00	30.700	146.100	4659.65	-1222.61	-1007.47	752.13	1683433.82	617059.04	40°11'19.131"N	80°37'59.061"W	1257.26	143.257	0.93
5009.00	30.100	147.700	4696.74	-1244.04	-1025.70	764.01	1683445.70	617040.82	40°11'18.953"N	80°37'58.905"W	1278.97	143.319	2.34
5040.00	29.200	146.400	4723.68	-1259.16	-1038.57	772.35	1683454.04	617027.95	40°11'18.827"N	80°37'58.796"W	1294.28	143.363	3.57
5083.00	28.200	145.900	4761.39	-1279.46	-1055.72	783.85	1683465.54	617010.80	40°11'18.659"N	80°37'58.645"W	1314.90	143.407	2.39
5127.00	26.400	149.300	4800.49	-1299.37	-1072.74	794.68	1683476.37	616993.78	40°11'18.492"N	80°37'58.502"W	1335.02	143.469	5.41
5170.00	21.000	155.700	4839.86	-1316.57	-1087.99	802.74	1683484.43	616978.52	40°11'18.342"N	80°37'58.396"W	1352.08	143.580	13.89
5214.00	17.100	160.100	4881.44	-1330.92	-1101.27	808.19	1683489.88	616965.25	40°11'18.212"N	80°37'58.324"W	1366.00	143.726	9.44
5257.00	16.100	155.400	4922.65	-1343.19	-1112.63	812.82	1683494.51	616953.88	40°11'18.100"N	80°37'58.262"W	1377.91	143.851	3.89
5300.00	14.700	153.200	4964.11	-1354.59	-1122.93	817.76	1683499.45	616943.59	40°11'17.999"N	80°37'58.197"W	1389.14	143.936	3.53
5344.00	14.000	149.400	5006.74	-1365.45	-1132.49	822.99	1683504.68	616934.02	40°11'17.905"N	80°37'58.128"W	1399.94	143.994	2.67
5388.00	13.300	145.700	5049.49	-1375.69	-1141.25	828.55	1683510.24	616925.26	40°11'17.819"N	80°37'58.055"W	1410.30	144.020	2.54
5431.00	11.600	155.400	5091.49	-1384.87	-1149.27	833.14	1683514.83	616917.24	40°11'17.740"N	80°37'57.995"W	1419.49	144.061	6.25
5474.00	11.100	151.800	5133.65	-1393.32	-1156.85	836.89	1683518.58	616909.66	40°11'17.666"N	80°37'57.945"W	1427.83	144.117	2.02
5518.00	10.500	150.300	5176.87	-1401.52	-1164.07	840.88	1683522.57	616902.45	40°11'17.595"N	80°37'57.892"W	1436.01	144.157	1.51
5561.00	4.800	159.000	5219.47	-1407.22	-1169.15	843.47	1683525.16	616897.36	40°11'17.545"N	80°37'57.858"W	1441.65	144.192	13.49
5605.00	1.100	323.600	5263.42	-1408.65	-1170.53	843.88	1683525.57	616895.98	40°11'17.532"N	80°37'57.853"W	1443.01	144.211	13.34
5648.00	6.400	337.600	5306.32	-1405.85	-1167.98	842.72	1683524.41	616898.53	40°11'17.557"N	80°37'57.868"W	1440.26	144.189	12.42
5691.00	11.600	334.300	5348.77	-1399.12	-1161.87	839.93	1683521.62	616904.65	40°11'17.617"N	80°37'57.905"W	1433.67	144.136	12.15
5735.00	14.600	338.100	5391.62	-1389.16	-1152.73	835.94	1683517.63	616913.78	40°11'17.706"N	80°37'57.958"W	1423.94	144.051	7.09
5778.00	17.400	339.500	5432.96	-1377.32	-1141.68	831.67	1683513.36	616924.83	40°11'17.815"N	80°37'58.015"W	1412.48	143.928	6.57
5822.00	21.400	340.600	5474.45	-1362.73	-1127.94	826.70	1683508.39	616938.57	40°11'17.950"N	80°37'58.081"W	1398.46	143.761	9.13
5865.00	25.500	336.100	5513.89	-1345.64	-1112.07	820.34	1683502.03	616954.44	40°11'18.106"N	80°37'58.165"W	1381.90	143.585	10.40
5908.00	29.300	331.600	5552.07	-1325.89	-1094.35	811.58	1683493.27	616972.17	40°11'18.280"N	80°37'58.281"W	1362.44	143.439	10.06
5952.00	33.000	334.400	5589.72	-1303.19	-1074.06	801.28	1683482.97	616992.45	40°11'18.480"N	80°37'58.417"W	1340.02	143.276	9.03
5995.00	38.400	335.000	5624.62	-1278.12	-1051.38	790.56	1683472.25	617015.13	40°11'18.702"N	80°37'58.559"W	1315.44	143.059	12.58
6039.00	42.900	336.500	5658.00	-1249.47	-1025.25	778.81	1683460.50	617041.27	40°11'18.959"N	80°37'58.715"W	1287.51	142.779	10.46
6082.00	48.400	339.200	5688.05	-1218.75	-996.77	767.26	1683448.95	617069.74	40°11'19.239"N	80°37'58.868"W	1257.87	142.413	13.55
6125.00	54.300	339.200	5714.89	-1185.21	-965.39	755.34	1683437.03	617101.12	40°11'19.548"N	80°37'59.027"W	1225.77	141.960	13.72



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
6169.00	57.200	336.200	5739.66	-1148.86	-931.76	741.52	1683423.22	617134.75	40°11'19.878"N	80°37'59.210"W	1190.81	141.486	8.67
6212.00	62.800	335.600	5761.15	-1111.64	-897.78	726.32	1683408.01	617168.73	40°11'20.212"N	80°37'59.412"W	1154.79	141.027	13.08
6256.00	67.400	337.400	5779.67	-1071.74	-861.19	710.42	1683392.11	617205.32	40°11'20.572"N	80°37'59.622"W	1116.40	140.480	11.09
6299.00	71.200	340.300	5794.87	-1031.56	-823.68	695.92	1683377.62	617242.83	40°11'20.940"N	80°37'59.815"W	1078.31	139.806	10.86
6342.00	76.300	343.600	5806.90	-990.47	-784.44	683.15	1683364.85	617282.06	40°11'21.327"N	80°37'59.986"W	1040.22	138.948	13.96
6386.00	82.000	345.100	5815.18	-947.65	-742.85	671.51	1683353.20	617323.66	40°11'21.736"N	80°38'00.143"W	1001.37	137.888	13.38
6429.00	88.800	344.000	5818.63	-905.22	-701.56	660.09	1683341.79	617364.95	40°11'22.143"N	80°38'00.297"W	963.28	136.744	16.02
6473.00	92.100	342.200	5818.28	-861.50	-659.47	647.31	1683329.00	617407.04	40°11'22.557"N	80°38'00.468"W	924.07	135.533	8.54
6516.00	92.300	339.300	5816.63	-818.64	-618.91	633.14	1683314.83	617447.60	40°11'22.956"N	80°38'00.657"W	885.39	134.349	6.76
6559.00	92.500	339.300	5814.83	-775.72	-578.72	617.96	1683299.65	617487.79	40°11'23.351"N	80°38'00.860"W	846.63	133.122	0.47
6603.00	91.600	338.200	5813.26	-731.77	-537.74	602.02	1683283.71	617528.77	40°11'23.754"N	80°38'01.072"W	807.21	131.772	3.23
6646.00	92.200	338.300	5811.83	-688.81	-497.82	586.09	1683267.79	617568.68	40°11'24.147"N	80°38'01.283"W	768.98	130.344	1.41
6690.00	92.700	338.200	5809.95	-644.87	-456.99	569.80	1683251.50	617609.51	40°11'24.548"N	80°38'01.500"W	730.42	128.730	1.16
6733.00	91.400	337.200	5808.41	-601.90	-417.24	553.50	1683235.19	617649.27	40°11'24.939"N	80°38'01.716"W	693.14	127.010	3.81
6776.00	91.900	336.700	5807.17	-558.92	-377.69	536.67	1683218.36	617688.82	40°11'25.328"N	80°38'01.940"W	656.25	125.136	1.64
6820.00	91.100	336.900	5806.02	-514.94	-337.26	519.34	1683201.04	617729.25	40°11'25.725"N	80°38'02.169"W	619.24	123.000	1.87
6863.00	91.500	337.600	5805.05	-471.95	-297.61	502.72	1683184.41	617768.89	40°11'26.115"N	80°38'02.390"W	584.21	120.626	1.87
6907.00	90.700	337.700	5804.20	-427.96	-256.93	485.99	1683167.68	617809.58	40°11'26.515"N	80°38'02.612"W	549.73	117.864	1.83
6950.00	89.400	338.100	5804.16	-384.97	-217.09	469.81	1683151.51	617849.41	40°11'26.906"N	80°38'02.827"W	517.54	114.800	3.16
6993.00	89.800	337.400	5804.46	-341.98	-177.29	453.53	1683135.23	617889.21	40°11'27.297"N	80°38'03.043"W	486.95	111.351	1.87
7037.00	88.800	337.200	5805.00	-297.99	-136.70	436.55	1683118.25	617929.80	40°11'27.696"N	80°38'03.269"W	457.46	107.388	2.32
7080.00	89.200	337.200	5805.75	-255.00	-97.07	419.89	1683101.59	617969.43	40°11'28.086"N	80°38'03.490"W	430.97	103.017	0.93
7123.00	89.700	337.600	5806.17	-212.00	-57.37	403.37	1683085.06	618009.13	40°11'28.476"N	80°38'03.709"W	407.43	98.095	1.49
7167.00	90.300	337.900	5806.17	-168.01	-16.65	386.71	1683068.40	618049.85	40°11'28.877"N	80°38'03.930"W	387.07	92.465	1.52
7210.00	89.200	338.200	5806.35	-125.02	23.23	370.63	1683052.33	618089.73	40°11'29.269"N	80°38'04.144"W	371.36	86.413	2.65
7254.00	89.300	337.700	5806.93	-81.03	64.01	354.12	1683035.81	618130.51	40°11'29.669"N	80°38'04.364"W	359.86	79.754	1.16
7297.00	88.300	337.400	5807.83	-38.05	103.74	337.70	1683019.40	618170.24	40°11'30.060"N	80°38'04.581"W	353.28	72.923	2.43
7340.00	88.100	337.100	5809.18	4.93	143.38	321.08	1683002.78	618209.88	40°11'30.450"N	80°38'04.802"W	351.64	65.937	0.84
7384.00	88.600	336.700	5810.45	48.91	183.83	303.83	1682985.52	618250.33	40°11'30.847"N	80°38'05.031"W	355.11	58.824	1.46
7427.00	88.700	335.800	5811.46	91.90	223.18	286.51	1682968.21	618289.68	40°11'31.234"N	80°38'05.260"W	363.18	52.083	2.11



Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
7471.00	89.500	335.500	5812.15	135.88	263.26	268.37	1682950.07	618329.76	40°11'31.628"N	80°38'05.501"W	375.94	45.551	1.94
7514.00	90.500	336.000	5812.15	178.87	302.47	250.71	1682932.41	618368.96	40°11'32.013"N	80°38'05.735"W	392.86	39.655	2.60
7557.00	91.100	336.000	5811.55	221.87	341.74	233.22	1682914.92	618408.24	40°11'32.399"N	80°38'05.966"W	413.74	34.312	1.40
7601.00	91.300	336.000	5810.63	265.85	381.93	215.33	1682897.03	618448.43	40°11'32.794"N	80°38'06.203"W	438.45	29.414	0.45
7644.00	91.700	335.100	5809.50	308.83	421.06	197.54	1682879.24	618487.56	40°11'33.178"N	80°38'06.439"W	465.10	25.134	2.29
7688.00	92.100	336.400	5808.04	352.80	461.16	179.48	1682861.18	618527.65	40°11'33.572"N	80°38'06.678"W	494.85	21.266	3.09
7731.00	92.700	336.200	5806.24	395.76	500.49	162.21	1682843.91	618566.99	40°11'33.959"N	80°38'06.907"W	526.12	17.958	1.47
7775.00	92.400	336.400	5804.29	439.71	540.74	144.54	1682826.24	618607.24	40°11'34.354"N	80°38'07.141"W	559.73	14.965	0.82
7818.00	92.700	337.300	5802.37	482.67	580.24	127.65	1682809.35	618646.73	40°11'34.742"N	80°38'07.365"W	594.12	12.408	2.20
7861.00	90.800	336.700	5801.06	525.65	619.80	110.86	1682792.56	618686.29	40°11'35.131"N	80°38'07.588"W	629.64	10.141	4.63
7905.00	91.200	336.400	5800.29	569.64	660.16	93.35	1682775.05	618726.65	40°11'35.528"N	80°38'07.820"W	666.73	8.049	1.14
7948.00	91.100	335.700	5799.43	612.63	699.45	75.90	1682757.60	618765.94	40°11'35.914"N	80°38'08.052"W	703.56	6.193	1.64
7992.00	90.900	333.900	5798.66	656.59	739.26	57.17	1682738.87	618805.75	40°11'36.305"N	80°38'08.299"W	741.46	4.422	4.12
8035.00	90.700	332.600	5798.06	699.51	777.65	37.82	1682719.52	618844.14	40°11'36.682"N	80°38'08.555"W	778.57	2.784	3.06
8078.00	90.300	330.700	5797.69	742.34	815.49	17.40	1682699.10	618881.98	40°11'37.053"N	80°38'08.824"W	815.67	1.223	4.52
8122.00	89.900	331.400	5797.61	786.12	853.99	-3.89	1682677.81	618920.48	40°11'37.431"N	80°38'09.105"W	854.00	359.739	1.83
8165.00	89.300	333.800	5797.91	829.00	892.16	-23.68	1682658.02	618958.65	40°11'37.806"N	80°38'09.366"W	892.48	358.480	5.75
8252.00	90.800	336.600	5797.83	915.96	971.13	-60.17	1682621.53	619037.62	40°11'38.581"N	80°38'09.849"W	972.99	356.455	3.65
8339.00	91.600	338.100	5796.01	1002.93	1051.40	-93.66	1682588.04	619117.89	40°11'39.370"N	80°38'10.294"W	1055.56	354.909	1.95
8426.00	90.400	337.800	5794.49	1089.90	1132.02	-126.32	1682555.38	619198.51	40°11'40.163"N	80°38'10.728"W	1139.05	353.633	1.42
8512.00	91.300	336.900	5793.22	1175.88	1211.38	-159.43	1682522.27	619277.86	40°11'40.943"N	80°38'11.167"W	1221.83	352.502	1.48
8599.00	90.200	339.500	5792.08	1262.84	1292.14	-191.74	1682489.97	619358.63	40°11'41.737"N	80°38'11.597"W	1306.29	351.560	3.24
8686.00	91.100	339.800	5791.09	1349.72	1373.71	-221.99	1682459.71	619440.19	40°11'42.539"N	80°38'12.000"W	1391.53	350.820	1.09
8773.00	89.500	339.900	5790.64	1436.59	1455.38	-251.96	1682429.75	619521.86	40°11'43.342"N	80°38'12.399"W	1477.03	350.178	1.84
8860.00	90.400	340.300	5790.71	1523.44	1537.18	-281.57	1682400.13	619603.66	40°11'44.147"N	80°38'12.794"W	1562.76	349.620	1.13
8947.00	88.400	340.600	5791.62	1610.24	1619.16	-310.68	1682371.02	619685.64	40°11'44.953"N	80°38'13.183"W	1648.69	349.138	2.32
9033.00	88.800	340.900	5793.72	1696.01	1700.32	-339.02	1682342.68	619766.80	40°11'45.752"N	80°38'13.561"W	1733.79	348.724	0.58
9120.00	87.400	338.800	5796.61	1782.82	1781.95	-368.97	1682312.73	619848.42	40°11'46.555"N	80°38'13.960"W	1819.75	348.302	2.90
9207.00	88.400	337.800	5799.80	1869.73	1862.73	-401.12	1682280.58	619929.20	40°11'47.349"N	80°38'14.388"W	1905.42	347.847	1.62
9294.00	89.000	337.900	5801.77	1956.69	1943.28	-433.91	1682247.79	620009.76	40°11'48.141"N	80°38'14.823"W	1991.14	347.413	0.70



Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
9380.00	92.500	337.000	5800.64	2042.66	2022.69	-466.89	1682214.82	620089.16	40°11'48.921"N	80°38'15.261"W	2075.87	347.002	4.20
9467.00	93.000	337.500	5796.47	2129.56	2102.83	-500.49	1682181.22	620169.30	40°11'49.709"N	80°38'15.707"W	2161.57	346.612	0.81
9554.00	92.700	337.400	5792.15	2216.45	2183.08	-533.81	1682147.89	620249.55	40°11'50.498"N	80°38'16.150"W	2247.39	346.259	0.36
9641.00	92.200	336.800	5788.43	2303.36	2263.15	-567.64	1682114.07	620329.62	40°11'51.285"N	80°38'16.599"W	2333.25	345.920	0.90
9728.00	89.600	333.700	5787.06	2390.31	2342.13	-604.05	1682077.66	620408.60	40°11'52.061"N	80°38'17.081"W	2418.77	345.538	4.65
9814.00	91.600	335.900	5786.16	2476.24	2419.93	-640.66	1682041.05	620486.40	40°11'52.825"N	80°38'17.565"W	2503.30	345.172	3.46
9901.00	91.300	334.600	5783.96	2563.18	2498.91	-677.07	1682004.64	620565.38	40°11'53.601"N	80°38'18.047"W	2589.01	344.840	1.53
9988.00	90.100	331.600	5782.89	2649.99	2576.48	-716.42	1681965.29	620642.95	40°11'54.362"N	80°38'18.567"W	2674.23	344.461	3.71
10075.00	92.500	332.800	5780.92	2736.69	2653.41	-756.99	1681924.72	620719.88	40°11'55.117"N	80°38'19.102"W	2759.28	344.077	3.08
10162.00	93.400	337.700	5776.44	2823.51	2732.29	-793.35	1681888.36	620798.76	40°11'55.892"N	80°38'19.584"W	2845.14	343.809	5.72
10249.00	92.000	341.300	5772.34	2910.30	2813.68	-823.78	1681857.93	620880.14	40°11'56.693"N	80°38'19.989"W	2931.79	343.681	4.44
10335.00	89.700	342.100	5771.06	2995.96	2895.31	-850.78	1681830.94	620961.77	40°11'57.496"N	80°38'20.350"W	3017.72	343.625	2.83
10422.00	89.900	342.300	5771.37	3082.57	2978.15	-877.37	1681804.34	621044.61	40°11'58.311"N	80°38'20.707"W	3104.70	343.585	0.33
10509.00	90.400	342.800	5771.14	3169.12	3061.14	-903.46	1681778.25	621127.60	40°11'59.128"N	80°38'21.056"W	3191.68	343.557	0.81
10596.00	89.400	341.600	5771.29	3255.72	3143.97	-930.05	1681751.66	621210.43	40°11'59.943"N	80°38'21.412"W	3278.65	343.521	1.80
10683.00	89.600	342.100	5772.05	3342.37	3226.64	-957.15	1681724.56	621293.10	40°12'00.757"N	80°38'21.775"W	3365.61	343.477	0.62
10769.00	89.200	340.400	5772.95	3428.10	3308.07	-984.80	1681696.92	621374.53	40°12'01.558"N	80°38'22.145"W	3451.54	343.422	2.03
10856.00	88.900	339.200	5774.39	3514.96	3389.71	-1014.83	1681666.88	621456.16	40°12'02.361"N	80°38'22.545"W	3538.36	343.333	1.42
10944.00	86.600	338.300	5777.85	3602.83	3471.65	-1046.70	1681635.01	621538.11	40°12'03.166"N	80°38'22.969"W	3626.01	343.222	2.81
11030.00	89.800	336.000	5780.55	3688.77	3550.85	-1080.07	1681601.64	621617.30	40°12'03.945"N	80°38'23.412"W	3711.48	343.082	4.58
11117.00	91.300	335.100	5779.72	3775.74	3630.04	-1116.08	1681565.64	621696.49	40°12'04.723"N	80°38'23.889"W	3797.74	342.910	2.01
11204.00	91.500	334.600	5777.59	3862.67	3708.77	-1153.04	1681528.67	621775.22	40°12'05.496"N	80°38'24.378"W	3883.87	342.730	0.62
11291.00	90.800	334.400	5775.84	3949.59	3787.28	-1190.49	1681491.23	621853.73	40°12'06.267"N	80°38'24.874"W	3969.98	342.550	0.84
11378.00	90.800	333.200	5774.63	4036.46	3865.33	-1228.89	1681452.82	621931.78	40°12'07.034"N	80°38'25.381"W	4055.98	342.363	1.38
11464.00	90.900	332.700	5773.35	4122.26	3941.91	-1268.00	1681413.72	622008.36	40°12'07.785"N	80°38'25.898"W	4140.83	342.169	0.59
11551.00	91.300	332.200	5771.68	4209.00	4019.03	-1308.23	1681373.48	622085.48	40°12'08.542"N	80°38'26.429"W	4226.60	341.969	0.74
11638.00	90.600	333.700	5770.24	4295.80	4096.50	-1347.79	1681333.93	622162.95	40°12'09.303"N	80°38'26.951"W	4312.53	341.788	1.90
11725.00	91.200	336.000	5768.87	4382.73	4175.24	-1384.76	1681296.96	622241.69	40°12'10.076"N	80°38'27.441"W	4398.88	341.651	2.73
11811.00	92.000	337.600	5766.47	4468.70	4254.25	-1418.62	1681263.10	622320.70	40°12'10.853"N	80°38'27.890"W	4484.55	341.559	2.08
11898.00	92.000	339.600	5763.44	4555.59	4335.20	-1450.34	1681231.37	622401.65	40°12'11.649"N	80°38'28.312"W	4571.37	341.502	2.30



Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

WELLPATH DATA (220 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
11985.00	92.000	338.800	5760.40	4642.46	4416.48	-1481.22	1681200.50	622482.92	40°12'12.448"N	80°38'28.723"W	4658.25	341.459	0.92
12072.00	91.800	339.900	5757.52	4729.32	4497.84	-1511.88	1681169.84	622564.29	40°12'13.248"N	80°38'29.132"W	4745.14	341.421	1.28
12159.00	91.800	341.500	5754.78	4816.07	4579.91	-1540.62	1681141.10	622646.35	40°12'14.056"N	80°38'29.515"W	4832.09	341.408	1.84
12245.00	90.600	339.900	5752.98	4901.84	4661.06	-1569.04	1681112.68	622727.50	40°12'14.854"N	80°38'29.895"W	4918.06	341.395	2.33
12332.00	90.200	338.200	5752.37	4988.76	4742.30	-1600.15	1681081.57	622808.74	40°12'15.653"N	80°38'30.309"W	5004.99	341.355	2.01
12419.00	90.700	339.200	5751.69	5075.71	4823.35	-1631.75	1681049.97	622889.79	40°12'16.450"N	80°38'30.730"W	5091.89	341.309	1.29
12506.00	90.700	339.800	5750.63	5162.60	4904.84	-1662.21	1681019.51	622971.28	40°12'17.251"N	80°38'31.135"W	5178.84	341.279	0.69
12593.00	91.000	340.200	5749.34	5249.45	4986.58	-1691.96	1680989.76	623053.02	40°12'18.055"N	80°38'31.532"W	5265.81	341.258	0.57
12679.00	90.900	339.400	5747.91	5335.31	5067.28	-1721.66	1680960.07	623133.72	40°12'18.849"N	80°38'31.928"W	5351.77	341.234	0.94
12733.00	90.900	339.400	5747.06	5389.25	5117.82	-1740.65	1680941.07	623184.26	40°12'19.346"N	80°38'32.181"W	5405.74	341.216	0.00



Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Barry G. A 5H PBHL: Rev-1		5664.00	5609.27	-1939.82	1680741.90	623675.70	40°12'24.177"N	80°38'34.829"W	point
Barry G. A 5H PBHL: Rev-2		5733.27	1995.81	-387.56	1682294.14	620062.28	40°11'48.666"N	80°38'14.235"W	point
Barry G. A 5H PBHL: Rev-5		5753.00	5121.00	-1730.00	1680951.72	623187.44	40°12'19.378"N	80°38'32.044"W	point
Barry G. A 5H PBHL: Rev-4		5759.00	5121.00	-1730.00	1680951.72	623187.44	40°12'19.378"N	80°38'32.044"W	point
Barry G. A 5H PBHL: Rev-3		5800.00	1995.81	-387.56	1682294.14	620062.28	40°11'48.666"N	80°38'14.235"W	point
Barry G. A 5H LP: Rev-3		5836.44	-741.55	788.95	1683470.64	617324.96	40°11'21.764"N	80°37'58.630"W	point

WELLPATH COMPOSITION - Ref Wellbore: Barry Greathouse A 5H (AWB) Ref Wellpath: BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1721.00	Generic gyro - northseeking (Standard)	VES Gyro (0') (106'-1721')	Barry Greathouse A 5H (AWB)
1721.00	5009.00	NaviTrak (MagCorr)	BHI / NaviTrak MWD 8 3/4" - <1751'-6342'>	Barry Greathouse A 5H (AWB)
5009.00	12679.00	NaviTrak (MagCorr)	BHI / NaviTrak MWD (5040'-12679)	Barry Greathouse A 5H (AWB)
12679.00	12733.00	Blind Drilling (std)	Projection to bit	Barry Greathouse A 5H (AWB)



Actual Wellpath Report

BHI / NaviTrak MWD <5009'> <5040'-12679'> Proj: 12733

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H ST01
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A	Sidetrack from	Barry Greathouse A 5H (AWB) at 4313.00 MD

COMMENTS

Wellpath general comments

API #: 47-009-00084-01

Rig: Nomac 243

BHI Job#: 3911210

Duration: 07/16/2011-07/23/2011

VES Gyro: (0')(106'-1721)

BHI MWD Surveys OH: (1721')(1751'-6342')

BHI MWD Surveys ST: (5009')(5040'-12679')

TD Projected to MD: 12733'



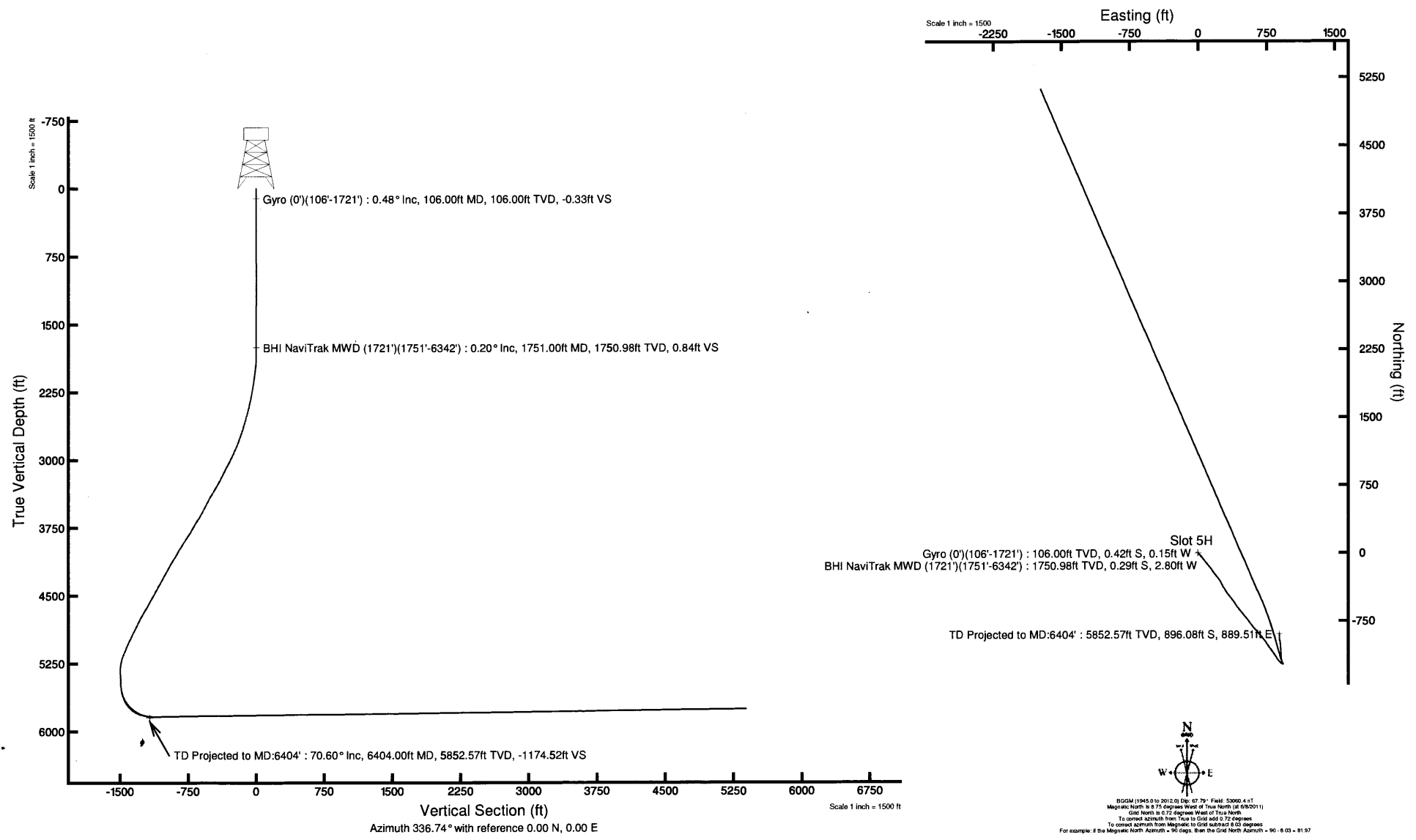
CHESAPEAKE APPALACHIA, LLC

Location: Brooke County, WV
Field: Brooke
Facility: Barry Greathouse A

Slot: Slot 5H
Well: Barry Greathouse A 5H
Wellbore: Barry Greathouse A 5H (PWB)



Plot reference wellpath is Rev-D.0	
True vertical depths are referenced to Nomac 243 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Nomac 243 (RKB)	North Reference: Grid north
Nomac 243 (RKB) to Mean Sea Level: 1146 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot 5H): -1130 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzo on 8/16/2011





Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Thomsuzc
Scale	0.999989	Report Generated	8/24/2011 at 8:05:06 AM
Convergence at slot	0.72° West	Database/Source file	Well Architect Eastern US/Barry_Greathouse_A_5H_AWB_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-5.70	19.10	1682681.70	618066.50	40°11'28.993"N	80°38'08.916"W
Facility Reference Pt			1682662.60	618072.20	40°11'29.047"N	80°38'09.163"W
Field Reference Pt			0.00	0.00	38°17'12.460"N	86°28'23.077"W

WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 243 (RKB) to Facility Vertical Datum	16.00ft
Horizontal Reference Pt	Slot	Nomac 243 (RKB) to Mean Sea Level	1146.00ft
Vertical Reference Pt	Nomac 243 (RKB)	Nomac 243 (RKB) to Mud Line at Slot (Slot 5H)	16.00ft
MD Reference Pt	Nomac 243 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	336.74°



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0.00	0.000	199.590	0.00	0.00	0.00	0.00	1682681.70	618066.50	40°11'28.993"N	80°38'08.916"W	0.00	0.000	0.00
106.00	0.480	199.590	106.00	-0.33	-0.42	-0.15	1682681.55	618066.08	40°11'28.989"N	80°38'08.918"W	0.44	199.590	0.45
206.00	0.380	312.790	206.00	-0.33	-0.59	-0.53	1682681.17	618065.91	40°11'28.987"N	80°38'08.922"W	0.79	222.189	0.72
306.00	0.450	310.470	305.99	0.33	-0.11	-1.07	1682680.63	618066.39	40°11'28.992"N	80°38'08.929"W	1.08	264.287	0.07
406.00	0.700	225.190	405.99	0.45	-0.28	-1.81	1682679.89	618066.22	40°11'28.990"N	80°38'08.939"W	1.83	261.094	0.80
506.00	0.290	285.120	505.99	0.39	-0.65	-2.48	1682679.22	618065.85	40°11'28.986"N	80°38'08.948"W	2.57	255.390	0.61
606.00	0.420	323.880	605.99	0.90	-0.29	-2.94	1682678.76	618066.21	40°11'28.990"N	80°38'08.954"W	2.96	264.461	0.27
706.00	0.160	242.420	705.98	1.25	-0.05	-3.28	1682678.42	618066.45	40°11'28.992"N	80°38'08.958"W	3.29	269.056	0.43
806.00	0.140	324.270	805.98	1.36	-0.02	-3.48	1682678.22	618066.48	40°11'28.992"N	80°38'08.960"W	3.48	269.677	0.20
906.00	0.130	236.010	905.98	1.45	0.02	-3.65	1682678.05	618066.52	40°11'28.992"N	80°38'08.963"W	3.65	270.254	0.19
1006.00	0.090	306.160	1005.98	1.50	0.00	-3.80	1682677.90	618066.50	40°11'28.992"N	80°38'08.965"W	3.80	269.986	0.13
1106.00	0.030	126.830	1105.98	1.55	0.03	-3.85	1682677.85	618066.53	40°11'28.993"N	80°38'08.965"W	3.85	270.443	0.12
1206.00	0.100	85.410	1205.98	1.50	0.02	-3.74	1682677.96	618066.52	40°11'28.992"N	80°38'08.964"W	3.74	270.322	0.08
1306.00	0.210	106.390	1305.98	1.35	-0.02	-3.47	1682678.23	618066.48	40°11'28.992"N	80°38'08.960"W	3.47	269.609	0.12
1406.00	0.080	159.440	1405.98	1.16	-0.14	-3.27	1682678.43	618066.36	40°11'28.991"N	80°38'08.958"W	3.28	267.538	0.17
1506.00	0.210	97.780	1505.98	1.00	-0.23	-3.07	1682678.63	618066.27	40°11'28.990"N	80°38'08.955"W	3.08	265.695	0.19
1606.00	0.040	253.560	1605.98	0.91	-0.27	-2.92	1682678.78	618066.23	40°11'28.990"N	80°38'08.953"W	2.93	264.801	0.25
1721.00	0.170	97.120	1720.98	0.83	-0.30	-2.79	1682678.91	618066.20	40°11'28.989"N	80°38'08.952"W	2.81	263.898	0.18
1751.00	0.200	282.600	1750.98	0.84	-0.29	-2.80	1682678.90	618066.21	40°11'28.990"N	80°38'08.952"W	2.81	264.033	1.23
1795.00	0.200	315.500	1794.98	0.95	-0.22	-2.92	1682678.78	618066.28	40°11'28.990"N	80°38'08.953"W	2.93	265.684	0.26
1838.00	0.800	145.600	1837.98	0.73	-0.41	-2.81	1682678.89	618066.09	40°11'28.988"N	80°38'08.952"W	2.84	261.594	2.32
1882.00	3.100	157.900	1881.95	-0.76	-1.77	-2.19	1682679.51	618064.73	40°11'28.975"N	80°38'08.944"W	2.81	230.997	5.28
1925.00	3.900	148.900	1924.87	-3.37	-4.10	-0.99	1682680.71	618062.40	40°11'28.952"N	80°38'08.928"W	4.22	193.624	2.25
1968.00	5.200	149.800	1967.74	-6.76	-7.04	0.74	1682682.44	618059.46	40°11'28.923"N	80°38'08.905"W	7.08	173.982	3.03
2012.00	6.600	145.800	2011.50	-11.22	-10.85	3.17	1682684.87	618055.65	40°11'28.886"N	80°38'08.873"W	11.30	163.734	3.31
2055.00	7.500	137.300	2054.18	-16.29	-14.96	6.46	1682688.16	618051.54	40°11'28.846"N	80°38'08.830"W	16.29	156.647	3.20
2099.00	8.600	135.100	2097.74	-22.06	-19.40	10.73	1682692.43	618047.10	40°11'28.802"N	80°38'08.774"W	22.17	151.056	2.60
2142.00	9.300	131.100	2140.22	-28.18	-23.96	15.62	1682697.32	618042.54	40°11'28.758"N	80°38'08.711"W	28.60	146.906	2.18
2185.00	9.700	134.300	2182.63	-34.66	-28.77	20.83	1682702.53	618037.73	40°11'28.711"N	80°38'08.643"W	35.52	144.103	1.54
2229.00	10.500	139.200	2225.95	-41.91	-34.40	26.10	1682707.80	618032.10	40°11'28.656"N	80°38'08.574"W	43.18	142.811	2.67



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2272.00	11.300	139.100	2268.17	-49.66	-40.55	31.42	1682713.12	618025.95	40°11'28.596"N	80°38'08.504"W	51.30	142.231	1.86
2315.00	12.000	140.100	2310.29	-57.96	-47.16	37.04	1682718.74	618019.34	40°11'28.531"N	80°38'08.431"W	59.97	141.852	1.69
2359.00	12.700	143.400	2353.27	-67.05	-54.55	42.86	1682724.56	618011.95	40°11'28.459"N	80°38'08.355"W	69.38	141.844	2.26
2402.00	13.400	145.300	2395.16	-76.53	-62.45	48.52	1682730.22	618004.05	40°11'28.382"N	80°38'08.280"W	79.08	142.155	1.91
2446.00	14.600	144.700	2437.85	-86.95	-71.16	54.62	1682736.32	617995.34	40°11'28.296"N	80°38'08.200"W	89.71	142.491	2.75
2489.00	15.300	141.200	2479.40	-97.72	-80.01	61.31	1682743.01	617986.49	40°11'28.210"N	80°38'08.113"W	100.80	142.537	2.66
2533.00	15.900	142.400	2521.78	-109.15	-89.31	68.63	1682750.32	617977.19	40°11'28.119"N	80°38'08.017"W	112.63	142.461	1.55
2576.00	16.600	143.000	2563.06	-120.82	-98.88	75.92	1682757.62	617967.62	40°11'28.025"N	80°38'07.921"W	124.66	142.484	1.67
2619.00	16.700	142.500	2604.25	-132.78	-108.69	83.37	1682765.07	617957.81	40°11'27.929"N	80°38'07.824"W	136.98	142.508	0.41
2663.00	18.200	137.300	2646.23	-145.39	-118.75	91.88	1682773.58	617947.75	40°11'27.831"N	80°38'07.712"W	150.15	142.270	4.91
2706.00	19.000	139.700	2686.99	-158.41	-129.03	100.96	1682782.66	617937.47	40°11'27.730"N	80°38'07.594"W	163.84	141.957	2.57
2750.00	19.600	139.800	2728.51	-172.32	-140.13	110.36	1682792.06	617926.37	40°11'27.622"N	80°38'07.471"W	178.37	141.777	1.37
2793.00	20.500	138.800	2768.91	-186.38	-151.30	119.98	1682801.67	617915.20	40°11'27.513"N	80°38'07.345"W	193.10	141.587	2.24
2836.00	21.500	144.200	2809.05	-201.24	-163.36	129.55	1682811.24	617903.14	40°11'27.395"N	80°38'07.220"W	208.49	141.585	5.06
2880.00	22.800	140.500	2849.81	-217.30	-176.48	139.69	1682821.38	617890.02	40°11'27.266"N	80°38'07.087"W	225.07	141.638	4.33
2923.00	24.500	146.300	2889.20	-234.07	-190.33	149.93	1682831.63	617876.17	40°11'27.131"N	80°38'06.953"W	242.29	141.770	6.70
2966.00	25.300	146.200	2928.20	-251.87	-205.38	159.99	1682841.69	617861.12	40°11'26.983"N	80°38'06.821"W	260.34	142.081	1.86
3010.00	26.300	146.000	2967.82	-270.69	-221.28	170.67	1682852.37	617845.23	40°11'26.828"N	80°38'06.681"W	279.45	142.356	2.28
3053.00	27.300	142.600	3006.20	-289.61	-237.01	181.99	1682863.69	617829.50	40°11'26.674"N	80°38'06.532"W	298.82	142.480	4.26
3097.00	28.100	141.300	3045.16	-309.39	-253.11	194.60	1682876.30	617813.39	40°11'26.516"N	80°38'06.367"W	319.27	142.446	2.28
3140.00	27.300	139.200	3083.23	-328.55	-268.48	207.38	1682889.07	617798.02	40°11'26.366"N	80°38'06.200"W	339.24	142.317	2.93
3183.00	27.000	144.100	3121.50	-347.48	-283.85	219.54	1682901.24	617782.65	40°11'26.215"N	80°38'06.041"W	358.85	142.280	5.25
3227.00	27.000	143.500	3160.70	-366.95	-299.97	231.34	1682913.04	617766.53	40°11'26.058"N	80°38'05.886"W	378.82	142.360	0.62
3270.00	27.600	148.300	3198.91	-386.31	-316.30	242.38	1682924.08	617750.21	40°11'25.898"N	80°38'05.741"W	398.49	142.536	5.31
3314.00	28.800	153.300	3237.70	-406.97	-334.44	252.50	1682934.20	617732.07	40°11'25.720"N	80°38'05.608"W	419.05	142.947	6.02
3357.00	28.800	153.600	3275.38	-427.65	-352.97	261.76	1682943.46	617713.53	40°11'25.538"N	80°38'05.486"W	439.44	143.439	0.34
3400.00	29.600	152.100	3312.91	-448.58	-371.63	271.34	1682953.03	617694.87	40°11'25.354"N	80°38'05.359"W	460.15	143.866	2.52
3444.00	31.000	148.300	3350.91	-470.62	-390.88	282.38	1682964.07	617675.62	40°11'25.166"N	80°38'05.214"W	482.21	144.155	5.39
3488.00	30.700	148.700	3388.68	-492.95	-410.12	294.17	1682975.86	617656.39	40°11'24.977"N	80°38'05.059"W	504.71	144.349	0.83
3532.00	29.200	149.100	3426.80	-514.71	-428.93	305.51	1682987.21	617637.58	40°11'24.793"N	80°38'04.910"W	526.61	144.539	3.44



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
3575.00	27.800	149.200	3464.59	-535.05	-446.54	316.04	1682997.73	617619.97	40°11'24.620"N	80°38'04.771"W	547.06	144.711	3.26
3619.00	28.700	141.200	3503.36	-555.41	-463.59	327.91	1683009.61	617602.91	40°11'24.453"N	80°38'04.615"W	567.84	144.727	8.84
3662.00	28.500	141.200	3541.12	-575.24	-479.63	340.81	1683022.51	617586.87	40°11'24.296"N	80°38'04.446"W	588.39	144.604	0.47
3705.00	29.400	140.400	3578.74	-595.25	-495.76	353.97	1683035.66	617570.74	40°11'24.138"N	80°38'04.274"W	609.16	144.474	2.28
3749.00	31.100	146.300	3616.76	-616.80	-513.54	367.16	1683048.86	617552.96	40°11'23.964"N	80°38'04.101"W	631.30	144.437	7.78
3792.00	32.700	141.500	3653.27	-638.93	-531.88	380.56	1683062.25	617534.63	40°11'23.785"N	80°38'03.926"W	654.00	144.416	6.97
3836.00	32.800	142.600	3690.28	-661.95	-550.65	395.19	1683076.89	617515.86	40°11'23.601"N	80°38'03.734"W	677.78	144.333	1.37
3879.00	31.400	146.800	3726.71	-684.29	-569.28	408.40	1683090.10	617497.23	40°11'23.419"N	80°38'03.561"W	700.62	144.344	6.13
3922.00	30.200	147.100	3763.64	-705.98	-587.73	420.41	1683102.11	617478.78	40°11'23.238"N	80°38'03.403"W	722.62	144.423	2.81
3966.00	31.300	142.100	3801.46	-727.96	-606.04	433.45	1683115.14	617460.46	40°11'23.058"N	80°38'03.232"W	745.09	144.427	6.32
4009.00	32.900	142.900	3837.89	-750.10	-624.17	447.35	1683129.05	617442.33	40°11'22.881"N	80°38'03.050"W	767.93	144.370	3.85
4052.00	32.900	142.000	3873.99	-772.74	-642.69	461.59	1683143.28	617423.82	40°11'22.700"N	80°38'02.864"W	791.27	144.314	1.14
4096.00	33.600	141.400	3910.79	-796.03	-661.62	476.54	1683158.23	617404.89	40°11'22.515"N	80°38'02.668"W	815.37	144.236	1.76
4139.00	33.500	141.400	3946.62	-818.95	-680.19	491.37	1683173.06	617386.31	40°11'22.333"N	80°38'02.474"W	839.11	144.156	0.23
4183.00	32.000	141.000	3983.63	-841.88	-698.75	506.28	1683187.97	617367.76	40°11'22.151"N	80°38'02.279"W	862.88	144.075	3.44
4226.00	30.600	141.000	4020.37	-863.39	-716.11	520.34	1683202.03	617350.40	40°11'21.982"N	80°38'02.095"W	885.19	143.997	3.26
4270.00	31.100	139.600	4058.14	-885.02	-733.46	534.75	1683216.44	617333.05	40°11'21.812"N	80°38'01.906"W	907.70	143.905	1.99
4313.00	31.900	144.200	4094.81	-906.73	-751.14	548.60	1683230.29	617315.37	40°11'21.639"N	80°38'01.725"W	930.14	143.857	5.89
4357.00	32.000	143.500	4132.15	-929.43	-769.94	562.33	1683244.03	617296.57	40°11'21.455"N	80°38'01.545"W	953.43	143.857	0.87
4400.00	30.300	142.200	4168.95	-951.02	-787.67	575.76	1683257.45	617278.84	40°11'21.281"N	80°38'01.369"W	975.66	143.835	4.25
4444.00	29.100	142.500	4207.17	-972.14	-804.93	589.08	1683270.77	617261.58	40°11'21.112"N	80°38'01.195"W	997.46	143.802	2.75
4488.00	29.900	142.200	4245.46	-993.12	-822.08	602.31	1683284.00	617244.43	40°11'20.945"N	80°38'01.022"W	1019.12	143.771	1.85
4532.00	30.400	142.700	4283.51	-1014.54	-839.60	615.78	1683297.47	617226.91	40°11'20.773"N	80°38'00.845"W	1041.21	143.743	1.27
4575.00	28.900	137.500	4320.88	-1034.91	-855.92	629.39	1683311.09	617210.59	40°11'20.614"N	80°38'00.667"W	1062.42	143.671	6.92
4619.00	30.400	137.800	4359.12	-1055.48	-872.01	644.06	1683325.75	617194.50	40°11'20.456"N	80°38'00.476"W	1084.07	143.551	3.43
4662.00	30.600	142.700	4396.18	-1076.39	-888.78	658.00	1683339.69	617177.73	40°11'20.293"N	80°38'00.293"W	1105.84	143.486	5.80
4705.00	29.500	139.500	4433.40	-1097.12	-905.54	671.51	1683353.20	617160.97	40°11'20.129"N	80°38'00.117"W	1127.35	143.441	4.52
4749.00	28.700	139.100	4471.84	-1117.53	-921.76	685.46	1683367.15	617144.75	40°11'19.970"N	80°37'59.934"W	1148.70	143.364	1.87
4792.00	30.400	138.900	4509.25	-1137.73	-937.76	699.37	1683381.07	617128.75	40°11'19.814"N	80°37'59.752"W	1169.84	143.285	3.96
4836.00	30.300	140.700	4547.22	-1159.00	-954.74	713.72	1683395.41	617111.77	40°11'19.648"N	80°37'59.565"W	1192.03	143.220	2.08



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
4879.00	29.400	142.900	4584.52	-1179.67	-971.56	726.96	1683408.65	617094.96	40°11'19.483"N	80°37'59.391"W	1213.42	143.195	3.30
4922.00	30.500	145.400	4621.78	-1200.62	-988.96	739.53	1683421.22	617077.55	40°11'19.313"N	80°37'59.227"W	1234.88	143.212	3.87
4966.00	30.700	146.100	4659.65	-1222.61	-1007.47	752.13	1683433.82	617059.04	40°11'19.131"N	80°37'59.061"W	1257.26	143.257	0.93
5009.00	30.100	147.700	4696.74	-1244.04	-1025.70	764.01	1683445.70	617040.82	40°11'18.953"N	80°37'58.905"W	1278.97	143.319	2.34
5052.00	29.100	144.000	4734.13	-1264.89	-1043.27	775.92	1683457.61	617023.24	40°11'18.781"N	80°37'58.749"W	1300.18	143.360	4.84
5096.00	28.100	147.700	4772.76	-1285.56	-1060.69	787.75	1683469.44	617005.82	40°11'18.610"N	80°37'58.594"W	1321.22	143.400	4.62
5139.00	27.400	144.700	4810.82	-1305.24	-1077.32	798.88	1683480.57	616989.19	40°11'18.447"N	80°37'58.448"W	1341.21	143.442	3.63
5183.00	26.500	143.400	4850.04	-1324.70	-1093.47	810.58	1683492.27	616973.05	40°11'18.289"N	80°37'58.294"W	1361.15	143.451	2.44
5226.00	26.800	147.700	4888.47	-1343.61	-1109.37	821.48	1683503.17	616957.15	40°11'18.133"N	80°37'58.151"W	1380.41	143.480	4.54
5270.00	27.000	144.300	4927.72	-1363.16	-1125.86	832.61	1683514.30	616940.65	40°11'17.972"N	80°37'58.005"W	1400.29	143.516	3.53
5313.00	25.500	146.800	4966.28	-1381.81	-1141.54	843.38	1683525.07	616924.98	40°11'17.818"N	80°37'57.864"W	1419.29	143.543	4.33
5344.00	25.400	147.300	4994.27	-1394.94	-1152.71	850.62	1683532.31	616913.80	40°11'17.708"N	80°37'57.769"W	1432.59	143.575	0.76
5388.00	24.400	147.600	5034.18	-1413.22	-1168.33	860.59	1683542.28	616898.19	40°11'17.555"N	80°37'57.638"W	1451.07	143.625	2.29
5431.00	24.300	141.200	5073.36	-1430.52	-1182.73	870.90	1683552.59	616883.79	40°11'17.414"N	80°37'57.503"W	1468.78	143.634	6.14
5474.00	23.800	138.900	5112.63	-1447.30	-1196.16	882.15	1683563.83	616870.36	40°11'17.283"N	80°37'57.356"W	1486.26	143.592	2.47
5518.00	23.000	139.000	5153.01	-1463.94	-1209.34	893.62	1683575.31	616857.18	40°11'17.154"N	80°37'57.206"W	1503.68	143.538	1.82
5561.00	18.400	132.000	5193.23	-1478.11	-1220.23	904.18	1683585.87	616846.29	40°11'17.048"N	80°37'57.068"W	1518.72	143.462	12.13
5605.00	16.100	125.300	5235.26	-1489.63	-1228.40	914.33	1683596.01	616838.12	40°11'16.969"N	80°37'56.936"W	1531.32	143.339	6.90
5648.00	10.900	113.200	5277.06	-1497.67	-1233.45	922.94	1683604.62	616833.06	40°11'16.920"N	80°37'56.824"W	1540.52	143.194	13.70
5691.00	6.200	87.700	5319.59	-1501.45	-1234.96	929.00	1683610.69	616831.55	40°11'16.906"N	80°37'56.746"W	1545.37	143.048	13.79
5735.00	4.900	27.600	5363.41	-1501.11	-1233.20	932.25	1683613.93	616833.32	40°11'16.923"N	80°37'56.704"W	1545.92	142.912	12.87
5778.00	4.700	324.300	5406.29	-1498.23	-1230.14	932.07	1683613.76	616836.38	40°11'16.954"N	80°37'56.707"W	1543.37	142.849	11.71
5822.00	2.600	237.500	5450.22	-1496.63	-1229.21	930.17	1683611.86	616837.31	40°11'16.962"N	80°37'56.731"W	1541.49	142.884	11.91
5865.00	4.100	316.100	5493.17	-1495.35	-1228.63	928.28	1683609.97	616837.89	40°11'16.968"N	80°37'56.756"W	1539.88	142.927	10.23
5908.00	8.600	336.700	5535.90	-1490.69	-1224.56	925.94	1683607.63	616841.95	40°11'17.008"N	80°37'56.787"W	1535.23	142.906	11.57
5951.00	13.300	338.700	5578.10	-1482.53	-1217.00	922.87	1683604.56	616849.52	40°11'17.082"N	80°37'56.827"W	1527.34	142.826	10.96
5995.00	17.900	341.700	5620.47	-1470.73	-1205.86	918.91	1683600.60	616860.66	40°11'17.192"N	80°37'56.880"W	1516.08	142.691	10.61
6038.00	25.900	353.800	5660.35	-1455.13	-1190.21	915.81	1683597.50	616876.30	40°11'17.346"N	80°37'56.923"W	1501.77	142.423	21.27
6081.00	34.400	353.800	5697.50	-1434.51	-1168.76	913.48	1683595.17	616897.75	40°11'17.558"N	80°37'56.956"W	1483.39	141.989	19.77
6125.00	42.600	355.200	5731.91	-1408.45	-1141.52	910.89	1683592.58	616925.00	40°11'17.827"N	80°37'56.994"W	1460.41	141.411	18.74



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
6168.00	49.900	357.400	5761.63	-1379.22	-1110.54	908.93	1683590.61	616955.97	40°11'18.132"N	80°37'57.024"W	1435.08	140.701	17.37
6211.00	58.200	356.600	5786.85	-1346.59	-1075.81	907.09	1683588.78	616990.70	40°11'18.475"N	80°37'57.054"W	1407.19	139.863	19.36
6255.00	66.700	355.200	5807.18	-1309.77	-1036.94	904.29	1683585.98	617029.57	40°11'18.859"N	80°37'57.096"W	1375.86	138.909	19.52
6298.00	75.100	351.700	5821.24	-1270.88	-996.62	899.63	1683581.31	617069.89	40°11'19.257"N	80°37'57.163"W	1342.60	137.928	20.99
6319.00	79.000	350.500	5825.95	-1251.06	-976.41	896.46	1683578.15	617090.11	40°11'19.456"N	80°37'57.207"W	1325.52	137.444	19.39
6342.00	70.600	355.800	5831.98	-1229.79	-954.40	893.79	1683575.48	617112.11	40°11'19.673"N	80°37'57.245"W	1307.57	136.878	42.75
6404.00	70.600	355.800	5852.57	-1174.52	-896.08	889.51	1683571.20	617170.43	40°11'20.249"N	80°37'57.309"W	1262.61	135.211	0.00



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4'' - <1751'-6342'> Proj: 6404'
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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Barry G. A 5H PBHL: Rev-1		5664.00	5609.27	-1939.82	1680741.90	623675.70	40°12'24.177"N	80°38'34.829"W	point
Barry G. A 5H PBHL: Rev-2		5733.27	1995.81	-387.56	1682294.14	620062.28	40°11'48.666"N	80°38'14.235"W	point
Barry G. A 5H PBHL: Rev-4		5759.00	5121.00	-1730.00	1680951.72	623187.44	40°12'19.378"N	80°38'32.044"W	point
Barry G. A 5H PBHL: Rev-3		5800.00	1995.81	-387.56	1682294.14	620062.28	40°11'48.666"N	80°38'14.235"W	point
Barry G. A 5H LP: Rev-3		5836.44	-741.55	788.95	1683470.64	617324.96	40°11'21.764"N	80°37'58.630"W	point

WELLPATH COMPOSITION - Ref Wellbore: Barry Greathouse A 5H (AWB) Ref Wellpath: Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4'' - <1751'-6342'> Proj: 6404'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1721.00	Generic gyro - northseeking (Standard)	VES Gyro (0') (106'-1721')	Barry Greathouse A 5H (AWB)
1721.00	6342.00	NaviTrak (MagCorr)	BHI / NaviTrak MWD 8 3/4'' - <1751'-6342'>	Barry Greathouse A 5H (AWB)
6342.00	6404.00	Blind Drilling (std)	Projection to bit	Barry Greathouse A 5H (AWB)



Actual Wellpath Report

Barry Greathouse A 5H BHI / NaviTrak MWD 8 3/4" - <1751'-6342'> Proj: 6404'

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REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot 5H
Area	Brooke County, WV	Well	Barry Greathouse A 5H
Field	Brooke	Wellbore	Barry Greathouse A 5H (AWB)
Facility	Barry Greathouse A		

COMMENTS

Wellpath general comments

API: 47-009-00084-00

Rig: Nomac 243

BHI Job#: 3911210

Duration: 07/02/2011-07/13/2011

Gyro (0')(106'-1721')

BHI NaviTrak MWD (1721')(1751'-6342')

TD Projected to MD:6404'