

SOUTHWESTERN ENERGY

Location: Brooke County, WV
 Field: Brooke
 Facility: State of WV DNR B BRK Pad Wellbore: State of WV DNR B BRK 5H PWB

Plot reference wellpath is State of WV DNR B BRK 5H PWP Rev-A (Grid System: NAD83 / UTM Zone 17 North, US feet)
 True vertical depths are referenced to SDC 41 (KB)
 Measured depths are referenced to SDC 41 (KB)
 SDC 41 (KB) to Mean Sea Level: 1227.01 feet
 Mean Sea Level to Ground level (At Slot: Slot #5H): -1201.01 feet
 Coordinates are in feet referenced to Slot

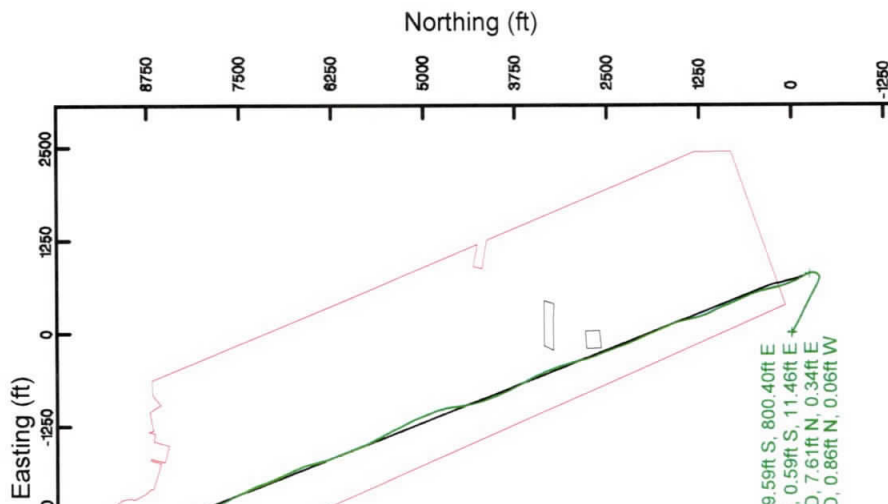


Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
State of WV DNR B BRK Pad	1772008.250	14651201.600	40° 20' 27.022" N	80° 31' 39.936" W
Local N (ft) / Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #6H : 15.77' / -22.96'	1771985.281	14651217.364	40° 20' 27.179" N	80° 31' 40.232" W
Slot #5H : 15.77' / -22.96'	1771985.281	14651217.364	40° 20' 27.179" N	80° 31' 40.232" W
SDC 41 (KB) to Ground level (At Slot: Slot #5H)			26ft	
Mean Sea Level to Ground level (At Slot: Slot #5H)			-1201.01ft	
SDC 41 (KB) to Mean Sea Level			1227.01ft	

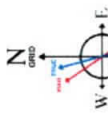
Comments

API: 47-009-00252-0000
 BH Job #: 109414376
 Rig: SDC 41
 Duration: 10/08/2018 - 10/11/2018



Scale 1 inch = 2500

Projection to Bit : 5559.40ft TVD, 8936.41ft N, 2743.45ft W



User specified Dip: 67.69° Field: 52454.nT
 Magnetic North is 8.70 degrees West of True North (at 05/Oct/2018)
 Grid North is 0.31 degrees East of True North
 To correct azimuth from True North to Magnetic North:
 To correct azimuth from Magnetic to Grid subtract 9.01 degrees

Scale 1 inch = 1500



Premier MWD <17 1/2"> (153-698) : 0.78° Inc, 153.00ft MD, 153.00ft TVD, 0.84ft VS

Premier MWD <12 1/4"> (788-1392) : 0.74° Inc, 788.00ft MD, 787.96ft TVD, 7.18ft VS

Premier MWD <8 3/4"> (1479-5458) : 1.58° Inc, 1479.00ft MD, 1478.70ft TVD, -3.92ft VS
 9.625in Casing Intermediate : 1.78° Inc, 1419.00ft MD, 1418.72ft TVD, -2.35ft VS

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BH AT Curve <8 1/2"> (5499-15462) : 5359.04ft TVD, 239.59ft S, 800.40ft E
 Premier MWD <8 3/4"> (1479-5458) : 1478.70ft TVD, 0.59ft S, 11.46ft E
 Premier MWD <12 1/4"> (788-1392) : 787.96ft TVD, 7.61ft N, 0.34ft E
 Premier MWD <17 1/2"> (153-698) : 153.00ft TVD, 0.86ft N, 0.06ft W

5.5in Casing Production : 90.00° Inc, 15487.00ft MD, 5559.40ft TVD, 9348.04ft VS
 Projection to Bit : 90.00° Inc, 15487.00ft MD, 5559.40ft TVD, 9348.04ft VS

BH AT Curve <8 1/2"> (5499-15462) : 25.54° Inc, 5499.00ft MD, 5359.04ft TVD, -463.38ft VS



Vertical Section (ft)
 Azimuth 342.98° with reference 0.00 N, 0.00 E

Scale 1 inch = 1500

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999620	Report Generated	15/Oct/2018 at 10:49
Convergence at slot	0.31° East	Database/Source file	WA_MPL_EASTERNUS_Defn/State_of_WV_DNR_B_BRK_5H_AWP_Proj_15487_MD.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	15.77	-22.98	1771985.28	14651217.36	40°20'27.179"N	80°31'40.232"W
Facility Reference Pt			1772008.25	14651201.60	40°20'27.022"N	80°31'39.936"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM

Calculation method	Minimum curvature	SDC 41 (KB) to Facility Vertical Datum	1227.01ft
Horizontal Reference Pt	Slot	SDC 41 (KB) to Mean Sea Level	1227.01ft
Vertical Reference Pt	SDC 41 (KB)	SDC 41 (KB) to Ground Level at Slot (Slot #5H)	26.00ft
MD Reference Pt	SDC 41 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	342.98°



Actual Wellpath Report

State of WV DNR B BRK 5H AWP Proj: 15487'MD
Page 2 of 10



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Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (182 stations) † = interpolated/extrapolated station

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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	356.240	0.00	0.00	0.00	0.00	1771985.28	14651217.36	40°20'27.179"N	80°31'40.232"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	356.240	26.00	0.00	0.00	0.00	1771985.28	14651217.36	40°20'27.179"N	80°31'40.232"W	0.00	0.000	0.00	0.00	0.00
153.00	0.780	356.240	153.00	0.84	0.86	-0.06	1771985.22	14651218.23	40°20'27.188"N	80°31'40.233"W	0.86	356.240	0.61	0.61	-2.96
210.00	0.690	347.900	209.99	1.56	1.59	-0.15	1771985.13	14651218.95	40°20'27.195"N	80°31'40.234"W	1.59	354.449	0.24	-0.16	-14.63
305.00	0.790	358.120	304.98	2.76	2.80	-0.30	1771984.99	14651220.16	40°20'27.207"N	80°31'40.236"W	2.81	353.975	0.17	0.11	10.76
396.00	0.710	6.250	395.98	3.89	3.99	-0.25	1771985.03	14651221.35	40°20'27.218"N	80°31'40.235"W	3.99	356.345	0.15	-0.09	8.93
485.00	0.450	5.490	484.97	4.72	4.88	-0.16	1771985.12	14651222.25	40°20'27.227"N	80°31'40.234"W	4.89	358.109	0.29	-0.29	-0.85
577.00	0.420	15.450	576.97	5.33	5.57	-0.04	1771985.24	14651222.93	40°20'27.234"N	80°31'40.232"W	5.57	359.621	0.09	-0.03	10.83
583.00	0.440	24.340	582.97	5.37	5.61	-0.02	1771985.26	14651222.97	40°20'27.234"N	80°31'40.232"W	5.61	359.781	1.16	0.33	148.17
698.00	0.580	10.090	697.96	6.22	6.58	0.26	1771985.54	14651223.95	40°20'27.244"N	80°31'40.228"W	6.59	2.283	0.16	0.12	-12.39
788.00	0.740	359.560	787.96	7.18	7.61	0.34	1771985.62	14651224.98	40°20'27.254"N	80°31'40.227"W	7.62	2.541	0.22	0.18	-11.70
880.00	0.930	357.600	879.95	8.47	8.95	0.30	1771985.58	14651226.32	40°20'27.267"N	80°31'40.227"W	8.96	1.932	0.21	0.21	-2.13
970.00	0.390	85.010	969.94	9.12	9.71	0.58	1771985.86	14651227.07	40°20'27.275"N	80°31'40.224"W	9.73	3.398	1.10	-0.60	97.12
1060.00	1.220	129.370	1059.93	8.26	9.13	1.62	1771986.90	14651226.49	40°20'27.269"N	80°31'40.210"W	9.27	10.077	1.09	0.92	49.29
1150.00	1.700	134.720	1149.90	6.28	7.58	3.31	1771988.59	14651224.94	40°20'27.254"N	80°31'40.189"W	8.27	23.593	0.55	0.53	5.94
1240.00	2.530	134.910	1239.84	3.35	5.24	5.67	1771990.95	14651222.60	40°20'27.230"N	80°31'40.158"W	7.72	47.238	0.92	0.92	0.21
1333.00	1.950	135.150	1332.77	0.14	2.67	8.24	1771993.52	14651220.03	40°20'27.205"N	80°31'40.125"W	8.66	72.039	0.62	-0.62	0.26
1392.00	1.870	134.130	1391.74	-1.59	1.29	9.64	1771994.91	14651218.65	40°20'27.191"N	80°31'40.107"W	9.72	82.386	0.15	-0.14	-1.73
1479.00	1.580	137.580	1478.70	-3.92	-0.59	11.46	1771996.74	14651216.78	40°20'27.173"N	80°31'40.084"W	11.48	92.925	0.35	-0.33	3.97
1539.00	1.590	140.010	1538.68	-5.43	-1.83	12.56	1771997.83	14651215.53	40°20'27.160"N	80°31'40.070"W	12.69	98.310	0.11	0.02	4.05
1631.00	1.670	133.140	1630.64	-7.77	-3.73	14.35	1771999.63	14651213.64	40°20'27.141"N	80°31'40.047"W	14.83	104.561	0.23	0.09	-7.47
1720.00	1.530	130.810	1719.60	-9.90	-5.39	16.20	1772001.48	14651211.97	40°20'27.125"N	80°31'40.023"W	17.07	108.409	0.17	-0.16	-2.62
1811.00	2.960	120.300	1810.53	-12.65	-7.37	19.15	1772004.42	14651210.00	40°20'27.105"N	80°31'39.985"W	20.52	111.055	1.63	1.57	-11.55
1901.00	5.160	121.800	1900.30	-17.41	-10.68	24.60	1772009.87	14651206.69	40°20'27.072"N	80°31'39.915"W	26.81	113.466	2.45	2.44	1.67
1991.00	7.340	121.730	1989.76	-24.78	-15.83	32.93	1772018.19	14651201.54	40°20'27.021"N	80°31'39.808"W	36.54	115.683	2.42	2.42	-0.08
2083.00	9.580	121.230	2080.75	-34.91	-22.89	44.47	1772029.74	14651194.48	40°20'26.950"N	80°31'39.659"W	50.02	117.240	2.44	2.43	-0.54
2175.00	11.160	120.970	2171.25	-47.24	-31.45	58.65	1772043.91	14651185.93	40°20'26.865"N	80°31'39.477"W	66.55	118.197	1.72	1.72	-0.28
2266.00	12.600	121.320	2260.30	-61.20	-41.14	74.68	1772059.94	14651176.24	40°20'26.769"N	80°31'39.270"W	85.26	118.847	1.58	1.58	0.38
2356.00	13.020	117.210	2348.06	-75.60	-50.88	92.09	1772077.33	14651166.51	40°20'26.671"N	80°31'39.046"W	105.21	118.920	1.11	0.47	-4.57
2448.00	14.140	119.170	2437.49	-90.94	-61.09	111.12	1772096.36	14651156.30	40°20'26.569"N	80°31'38.801"W	126.80	118.802	1.32	1.22	2.13

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Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (182 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2541.00	15.820	119.420	2527.32	-108.33	-72.86	132.08	1772117.31	14651144.54	40°20'26.452"N	80°31'38.531"W	150.84	118.882	1.81	1.81	0.27
2633.00	16.380	115.010	2615.72	-126.10	-84.50	154.76	1772139.98	14651132.89	40°20'26.336"N	80°31'38.239"W	176.33	118.636	1.46	0.61	-4.79
2725.00	16.090	118.560	2704.05	-143.89	-96.08	177.71	1772162.93	14651121.32	40°20'26.220"N	80°31'37.944"W	202.02	118.398	1.12	-0.32	3.86
2818.00	15.950	116.190	2793.44	-161.84	-107.88	200.50	1772185.70	14651109.52	40°20'26.102"N	80°31'37.650"W	227.68	118.283	0.72	-0.15	-2.55
2909.00	16.790	115.840	2880.75	-179.35	-119.13	223.55	1772208.74	14651098.28	40°20'25.990"N	80°31'37.353"W	253.31	118.053	0.93	0.92	-0.38
3002.00	16.390	119.340	2969.88	-197.98	-131.41	247.08	1772232.26	14651086.00	40°20'25.867"N	80°31'37.050"W	279.85	118.007	1.16	-0.43	3.76
3094.00	16.340	116.570	3058.15	-216.30	-143.56	269.97	1772255.14	14651073.86	40°20'25.746"N	80°31'36.756"W	305.76	118.003	0.85	-0.05	-3.01
3187.00	15.990	113.210	3147.48	-233.59	-154.46	293.44	1772278.61	14651062.96	40°20'25.637"N	80°31'36.453"W	331.61	117.762	1.07	-0.38	-3.61
3280.00	15.990	115.970	3236.88	-250.60	-165.12	316.73	1772301.89	14651052.31	40°20'25.531"N	80°31'36.153"W	357.19	117.534	0.82	0.00	2.97
3373.00	16.050	117.110	3326.27	-268.28	-176.59	339.69	1772324.84	14651040.84	40°20'25.416"N	80°31'35.858"W	382.85	117.468	0.34	0.06	1.23
3465.00	16.210	115.340	3414.65	-285.79	-187.88	362.61	1772347.76	14651029.56	40°20'25.303"N	80°31'35.562"W	408.40	117.390	0.56	0.17	-1.92
3558.00	16.270	116.620	3503.94	-303.53	-199.27	385.99	1772371.13	14651018.17	40°20'25.189"N	80°31'35.261"W	434.40	117.305	0.39	0.06	1.38
3651.00	16.550	120.220	3593.15	-322.24	-211.78	409.09	1772394.21	14651005.67	40°20'25.065"N	80°31'34.964"W	460.65	117.370	1.13	0.30	3.87
3743.00	17.330	119.390	3681.16	-341.79	-225.10	432.35	1772417.46	14650992.35	40°20'24.932"N	80°31'34.664"W	487.44	117.503	0.89	0.85	-0.90
3836.00	16.170	115.280	3770.22	-360.54	-237.43	456.13	1772441.23	14650980.03	40°20'24.809"N	80°31'34.358"W	514.22	117.498	1.78	-1.25	-4.42
3928.00	16.520	118.270	3858.50	-378.46	-249.09	479.23	1772464.33	14650968.37	40°20'24.692"N	80°31'34.060"W	540.10	117.464	0.99	0.38	3.25
4021.00	17.030	119.340	3947.54	-397.71	-262.03	502.75	1772487.84	14650955.44	40°20'24.563"N	80°31'33.758"W	566.93	117.528	0.64	0.55	1.15
4114.00	16.010	116.150	4036.70	-416.34	-274.35	526.13	1772511.21	14650943.12	40°20'24.440"N	80°31'33.457"W	593.37	117.540	1.47	-1.10	-3.43
4207.00	16.640	118.870	4125.95	-434.67	-286.43	549.31	1772534.38	14650931.04	40°20'24.320"N	80°31'33.158"W	619.50	117.540	1.07	0.68	2.92
4299.00	17.360	119.150	4213.93	-454.03	-299.48	572.83	1772557.89	14650918.00	40°20'24.189"N	80°31'32.855"W	646.39	117.601	0.79	0.78	0.30
4392.00	16.030	116.420	4303.01	-472.87	-311.95	596.45	1772581.50	14650905.53	40°20'24.065"N	80°31'32.551"W	673.10	117.610	1.66	-1.43	-2.94
4483.00	17.130	117.390	4399.23	-490.89	-323.71	619.60	1772604.64	14650893.78	40°20'23.948"N	80°31'32.253"W	699.06	117.585	1.25	1.21	1.07
4576.00	16.480	115.950	4479.26	-509.47	-335.78	643.62	1772628.66	14650881.71	40°20'23.827"N	80°31'31.944"W	725.95	117.551	0.83	-0.70	-1.55
4669.00	17.130	116.220	4568.29	-527.84	-347.61	667.77	1772652.80	14650869.89	40°20'23.709"N	80°31'31.633"W	752.83	117.499	0.70	0.70	0.29
4762.00	16.830	114.810	4657.23	-546.20	-359.31	692.28	1772677.29	14650858.20	40°20'23.592"N	80°31'31.317"W	779.97	117.430	0.55	-0.32	-1.52
4855.00	15.410	111.530	4746.57	-562.88	-369.49	715.99	1772701.00	14650848.02	40°20'23.490"N	80°31'31.011"W	805.71	117.296	1.81	-1.53	-3.53
4901.00	14.010	102.040	4791.07	-569.40	-372.90	727.13	1772712.13	14650844.61	40°20'23.456"N	80°31'30.868"W	817.17	117.150	6.05	-3.04	-20.63
4948.00	13.810	92.390	4836.70	-574.03	-374.32	738.30	1772723.30	14650843.19	40°20'23.441"N	80°31'30.724"W	827.77	116.885	4.95	-0.43	-20.53
4994.00	13.300	81.520	4881.43	-576.64	-373.76	749.02	1772734.01	14650843.74	40°20'23.446"N	80°31'30.585"W	837.10	116.519	5.64	-1.11	-23.63
5040.00	12.700	68.660	4926.26	-577.04	-371.14	758.96	1772743.95	14650846.36	40°20'23.471"N	80°31'30.457"W	844.85	116.059	6.41	-1.30	-27.96



Actual Wellpath Report

State of WV DNR B BRK 5H AWP Proj: 15487MD

Page 4 of 10



REFERENCE WELLPATH IDENTIFICATION

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Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
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Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (182 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
5087.00	13.290	55.010	4972.06	-574.99	-366.16	768.20	1772753.19	14650851.34	40°20'23.520"N	80°31'30.337"W	851.01	115.485	6.63	1.26	-29.04
5133.00	15.060	46.640	5016.67	-570.70	-359.03	776.88	1772761.87	14650858.47	40°20'23.590"N	80°31'30.224"W	855.83	114.804	5.88	3.85	-18.20
5179.00	16.630	38.200	5060.92	-564.29	-349.75	785.30	1772770.28	14650867.75	40°20'23.681"N	80°31'30.115"W	859.66	114.007	6.05	3.41	-18.35
5276.00	18.430	29.380	5105.75	-555.33	-337.99	793.11	1772778.08	14650879.50	40°20'23.797"N	80°31'30.013"W	862.12	113.082	6.82	3.83	-18.77
5272.00	19.840	20.450	5149.21	-544.12	-324.33	799.40	1772784.38	14650893.15	40°20'23.932"N	80°31'29.931"W	862.69	112.083	7.05	3.07	-19.41
5319.00	21.210	13.980	5193.23	-530.50	-308.61	804.24	1772789.22	14650908.87	40°20'24.087"N	80°31'29.867"W	861.42	110.993	5.63	2.91	-13.77
5365.00	22.240	5.130	5235.98	-515.30	-291.86	807.03	1772792.01	14650925.62	40°20'24.252"N	80°31'29.830"W	858.19	109.882	7.46	2.24	-19.24
5411.00	22.430	355.130	5278.54	-498.65	-274.44	807.07	1772792.04	14650943.03	40°20'24.424"N	80°31'29.829"W	852.45	108.780	8.26	0.41	-21.74
5458.00	23.770	348.010	5321.78	-480.45	-256.23	804.34	1772789.31	14650961.23	40°20'24.604"N	80°31'29.863"W	844.16	107.670	6.59	2.85	-15.15
5499.00	25.540	345.480	5359.04	-463.38	-239.59	800.40	1772785.38	14650977.86	40°20'24.769"N	80°31'29.912"W	835.49	106.665	5.03	4.32	-6.17
5588.00	32.870	333.220	5436.75	-420.32	-199.37	784.68	1772769.66	14651018.07	40°20'25.167"N	80°31'30.113"W	809.61	104.256	10.59	8.24	-13.78
5681.00	45.110	330.350	5508.90	-363.07	-148.01	756.90	1772741.89	14651069.41	40°20'25.676"N	80°31'30.468"W	771.23	101.064	13.30	13.16	-3.09
5774.00	57.820	332.810	5566.72	-291.89	-84.10	722.47	1772707.48	14651133.29	40°20'26.310"N	80°31'30.908"W	727.35	96.640	13.82	13.67	2.65
5866.00	67.040	335.670	5609.27	-211.37	-10.71	687.15	1772672.17	14651206.66	40°20'27.037"N	80°31'31.359"W	687.23	90.893	10.39	10.02	3.11
5959.00	74.940	340.050	5639.55	-123.88	70.68	654.12	1772639.16	14651288.02	40°20'27.843"N	80°31'31.780"W	657.93	83.833	9.59	8.49	4.71
6006.00	79.070	342.170	5650.12	-78.12	114.00	639.31	1772624.35	14651331.32	40°20'28.272"N	80°31'31.968"W	649.39	79.889	9.82	8.79	4.51
6052.00	82.440	344.270	5657.51	-32.73	157.46	626.21	1772611.25	14651374.77	40°20'28.702"N	80°31'32.134"W	645.70	75.885	8.60	7.33	4.57
6098.00	85.190	345.640	5662.46	12.97	201.62	614.34	1772599.39	14651418.91	40°20'29.139"N	80°31'32.285"W	646.58	71.831	6.67	5.98	2.98
6145.00	85.160	347.310	5666.41	59.71	247.15	603.39	1772588.44	14651464.42	40°20'29.589"N	80°31'32.423"W	652.04	67.725	3.54	-0.06	3.55
6191.00	85.290	348.030	5670.24	105.40	291.94	593.60	1772578.65	14651509.19	40°20'30.032"N	80°31'32.546"W	661.50	63.812	1.59	0.28	1.57
6238.00	88.680	347.450	5672.72	152.17	337.79	583.63	1772568.69	14651555.03	40°20'30.486"N	80°31'32.672"W	674.34	59.939	7.32	7.21	-1.23
6330.00	91.850	344.680	5672.29	244.01	427.07	561.48	1772546.55	14651644.27	40°20'31.369"N	80°31'32.952"W	705.44	52.743	4.58	3.45	-3.01
6423.00	90.980	341.530	5669.99	336.97	516.01	534.47	1772519.54	14651733.18	40°20'32.250"N	80°31'33.294"W	742.91	46.006	3.51	-0.94	-3.39
6516.00	90.710	336.850	5668.62	429.73	602.91	501.44	1772486.53	14651820.05	40°20'33.110"N	80°31'33.715"W	784.18	39.750	5.04	-0.29	-5.03
6609.00	90.800	334.890	5667.40	522.00	687.77	463.42	1772448.53	14651904.87	40°20'33.951"N	80°31'34.200"W	829.33	33.972	2.11	0.10	-2.11
6702.00	90.550	336.130	5666.30	614.21	772.40	424.88	1772410.00	14651989.47	40°20'34.789"N	80°31'34.692"W	881.54	28.814	1.36	-0.27	1.33
6794.00	90.800	337.280	5665.22	705.65	856.89	388.50	1772373.63	14652073.93	40°20'35.626"N	80°31'35.156"W	940.85	24.389	1.28	0.27	1.25
6887.00	90.680	338.910	5664.01	798.30	943.17	353.81	1772338.95	14652160.17	40°20'36.480"N	80°31'35.598"W	1007.34	20.562	1.76	-0.13	1.75
6980.00	90.800	333.200	5662.81	890.57	1028.12	316.08	1772301.24	14652245.09	40°20'37.322"N	80°31'36.079"W	1075.61	17.089	6.14	0.13	-6.14
7073.00	91.260	333.940	5661.14	982.31	1111.39	274.69	1772259.87	14652328.33	40°20'38.147"N	80°31'36.608"W	1144.83	13.883	0.94	0.49	0.80

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY		Slot	Slot #5H
Area	Brooke County, WV		Well	State of WV DNR B BRK 5H
Field	Brooke		Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad			

WELLPATH DATA (182 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7165.00	90.980	340.810	5659.34	1073.79	1196.24	239.33	1772224.52	14652413.15	40°20'38.987"N	80°31'37.059"W	1219.95	11.314	7.47	-0.30	7.47
7258.00	90.890	344.960	5657.82	1166.76	1285.09	211.97	1772197.17	14652501.96	40°20'39.867"N	80°31'37.406"W	1302.45	9.366	4.46	-0.10	4.46
7351.00	90.920	349.610	5656.35	1259.46	1375.77	191.51	1772176.72	14652592.61	40°20'40.764"N	80°31'37.664"W	1389.04	7.925	5.00	0.03	5.00
7444.00	91.020	347.010	5654.78	1352.04	1466.82	172.67	1772157.88	14652683.63	40°20'41.664"N	80°31'37.901"W	1476.95	6.714	2.80	0.11	-2.80
7536.00	91.140	342.280	5653.04	1443.96	1555.50	148.32	1772133.54	14652772.27	40°20'42.542"N	80°31'38.209"W	1562.55	5.447	5.14	0.13	-5.14
7629.00	90.800	337.660	5651.47	1536.79	1642.84	116.48	1772101.71	14652859.57	40°20'43.407"N	80°31'38.615"W	1646.96	4.055	4.98	-0.37	-4.97
7722.00	90.550	336.320	5650.37	1629.27	1728.43	80.13	1772065.38	14652945.13	40°20'44.254"N	80°31'39.078"W	1730.29	2.654	1.47	-0.27	-1.44
7815.00	90.520	336.520	5649.50	1721.66	1813.66	42.93	1772028.19	14653030.33	40°20'45.099"N	80°31'39.553"W	1814.17	1.356	0.22	-0.03	0.22
7907.00	90.430	337.420	5648.74	1813.15	1898.32	6.94	1771992.22	14653114.96	40°20'45.937"N	80°31'40.012"W	1898.34	0.209	0.98	-0.10	0.98
8000.00	90.370	335.510	5648.09	1905.54	1983.58	-30.20	1771955.10	14653200.19	40°20'46.782"N	80°31'40.485"W	1983.81	359.128	2.05	-0.06	-2.05
8093.00	90.430	335.800	5647.44	1997.78	2068.31	-68.53	1771916.77	14653284.88	40°20'47.621"N	80°31'40.975"W	2069.44	358.102	0.32	0.06	0.31
8186.00	90.580	337.220	5646.62	2090.18	2153.60	-105.60	1771879.72	14653370.14	40°20'48.466"N	80°31'41.447"W	2156.18	357.193	1.54	0.16	1.53
8278.00	90.490	338.370	5645.76	2181.80	2238.77	-140.37	1771844.97	14653455.28	40°20'49.309"N	80°31'41.891"W	2243.17	356.412	1.25	-0.10	1.25
8371.00	90.620	340.010	5644.86	2274.59	2325.70	-173.40	1771811.94	14653542.17	40°20'50.170"N	80°31'42.311"W	2332.15	355.736	1.77	0.14	1.76
8462.00	90.860	340.870	5643.69	2365.49	2411.44	-203.87	1771781.49	14653627.88	40°20'51.019"N	80°31'42.699"W	2420.04	355.168	0.98	0.26	0.95
8554.00	90.680	339.940	5642.45	2457.39	2498.10	-234.72	1771750.65	14653714.51	40°20'51.877"N	80°31'43.091"W	2509.10	354.632	1.03	-0.20	-1.01
8647.00	90.770	337.780	5641.27	2550.14	2584.83	-268.25	1771717.13	14653801.20	40°20'52.735"N	80°31'43.518"W	2598.71	354.075	2.32	0.10	-2.32
8739.00	90.920	338.550	5639.92	2641.80	2670.22	-302.47	1771682.93	14653886.56	40°20'53.581"N	80°31'43.954"W	2687.29	353.537	0.85	0.16	0.84
8832.00	90.950	343.100	5638.40	2734.70	2758.02	-333.00	1771652.41	14653974.33	40°20'54.450"N	80°31'44.343"W	2778.05	353.115	4.89	0.03	4.89
8925.00	91.420	346.600	5636.47	2827.62	2847.76	-357.30	1771628.12	14654064.03	40°20'55.338"N	80°31'44.650"W	2870.08	352.849	3.80	0.51	3.76
9017.00	91.350	344.990	5634.25	2919.48	2936.92	-379.87	1771605.56	14654153.16	40°20'56.220"N	80°31'44.936"W	2961.38	352.630	1.75	-0.08	-1.75
9109.00	91.320	343.110	5632.11	3011.43	3025.35	-405.14	1771580.30	14654241.55	40°20'57.096"N	80°31'45.256"W	3052.35	352.373	2.04	-0.03	-2.04
9202.00	90.950	341.930	5630.26	3104.41	3114.03	-433.07	1771552.38	14654330.21	40°20'57.973"N	80°31'45.611"W	3144.00	352.083	1.33	-0.40	-1.27
9295.00	90.890	341.020	5628.77	3197.36	3202.20	-462.61	1771522.85	14654418.34	40°20'58.846"N	80°31'45.986"W	3235.44	351.780	0.98	-0.06	-0.98
9387.00	90.650	339.450	5627.54	3289.25	3288.77	-493.72	1771491.75	14654504.88	40°20'59.703"N	80°31'46.382"W	3325.62	351.462	1.73	-0.26	-1.71
9479.00	90.650	335.800	5626.49	3380.82	3373.82	-528.73	1771456.75	14654589.90	40°21'00.546"N	80°31'46.828"W	3415.00	351.093	3.97	0.00	-3.97
9571.00	90.430	335.010	5625.62	3472.01	3457.47	-567.02	1771418.48	14654673.52	40°21'01.374"N	80°31'47.317"W	3503.66	350.686	0.89	-0.24	-0.86
9664.00	90.370	333.410	5624.97	3563.92	3541.20	-607.48	1771378.03	14654757.22	40°21'02.204"N	80°31'47.834"W	3592.93	350.266	1.72	-0.06	-1.72
9757.00	90.370	332.000	5624.37	3655.43	3623.85	-650.13	1771335.40	14654839.83	40°21'03.023"N	80°31'48.379"W	3681.70	349.829	1.52	0.00	-1.52
9849.00	90.460	332.560	5623.71	3745.82	3705.28	-692.92	1771292.63	14654921.23	40°21'03.830"N	80°31'48.926"W	3769.52	349.408	0.62	0.10	0.61



Actual Wellpath Report

State of WV DNR B BRK 5H AWP Proj: 15487MD

Page 6 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (182 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[°]	[°]	[ft]	[°]	["/100ft]	["/100ft]	[°/100ft]
9942.00	90.370	334.230	5623.03	3837.52	3788.43	-734.57	1771251.00	14655004.35	40°21'04.653"N	80°31'49.459"W	3858.99	349.027	1.80	-0.10	1.80
10035.00	90.280	333.350	5622.51	3929.32	3871.87	-775.64	1771209.94	14655087.75	40°21'05.480"N	80°31'49.983"W	3948.79	348.672	0.95	-0.10	-0.95
10127.00	90.090	336.150	5622.21	4020.37	3955.07	-814.88	1771170.71	14655170.92	40°21'06.304"N	80°31'50.484"W	4038.14	348.358	3.05	-0.21	3.04
10220.00	90.370	338.910	5621.84	4112.94	4041.00	-850.42	1771135.19	14655256.82	40°21'07.155"N	80°31'50.938"W	4129.51	348.116	2.98	0.30	2.97
10313.00	90.340	340.630	5621.26	4205.79	4128.26	-882.58	1771103.04	14655344.04	40°21'08.019"N	80°31'51.347"W	4221.55	347.932	1.85	-0.03	1.85
10406.00	90.460	341.640	5620.61	4298.73	4216.26	-912.65	1771072.98	14655432.01	40°21'08.890"N	80°31'51.729"W	4313.90	347.786	1.09	0.13	1.09
10498.00	90.400	345.770	5619.92	4390.70	4304.54	-938.45	1771047.19	14655520.26	40°21'09.764"N	80°31'52.057"W	4405.65	347.701	4.49	-0.07	4.49
10591.00	90.800	346.590	5618.95	4483.55	4394.84	-960.67	1771024.98	14655610.53	40°21'10.658"N	80°31'52.337"W	4498.61	347.670	0.98	0.43	0.88
10684.00	90.920	350.490	5617.55	4576.09	4485.96	-979.14	1771006.52	14655701.61	40°21'11.559"N	80°31'52.570"W	4591.58	347.687	4.20	0.13	4.19
10776.00	91.820	354.780	5615.35	4666.74	4577.15	-990.93	1770994.73	14655792.77	40°21'12.461"N	80°31'52.716"W	4683.19	347.784	4.76	0.98	4.66
10869.00	90.740	349.460	5613.27	4758.50	4669.22	-1003.67	1770982.00	14655884.80	40°21'13.371"N	80°31'52.874"W	4775.87	347.869	5.84	-1.16	-5.72
10962.00	90.950	343.270	5611.90	4851.28	4759.54	-1025.58	1770960.09	14655975.09	40°21'14.265"N	80°31'53.151"W	4868.78	347.840	6.66	0.23	-6.66
11055.00	90.890	341.550	5610.40	4944.26	4848.18	-1053.68	1770932.00	14656063.69	40°21'15.142"N	80°31'53.508"W	4961.36	347.738	1.85	-0.06	-1.85
11147.00	91.050	335.810	5608.85	5035.95	4933.84	-1087.11	1770898.59	14656149.31	40°21'15.990"N	80°31'53.934"W	5052.18	347.574	6.24	0.17	-6.24
11240.00	91.020	338.880	5607.16	5128.47	5019.64	-1122.92	1770862.79	14656235.08	40°21'16.840"N	80°31'54.390"W	5143.70	347.390	3.30	-0.03	3.30
11333.00	91.510	339.250	5605.11	5221.23	5106.47	-1156.14	1770829.58	14656321.89	40°21'17.700"N	80°31'54.814"W	5235.72	347.243	0.66	0.53	0.40
11425.00	91.020	332.390	5603.08	5312.44	5190.33	-1193.80	1770791.94	14656405.71	40°21'18.530"N	80°31'55.294"W	5325.85	347.047	7.47	-0.53	-7.46
11518.00	90.830	331.840	5601.58	5403.76	5272.52	-1237.29	1770748.47	14656487.87	40°21'19.345"N	80°31'55.850"W	5415.75	346.794	0.63	-0.20	-0.59
11611.00	90.950	335.800	5600.13	5495.55	5355.96	-1278.30	1770707.47	14656571.27	40°21'20.171"N	80°31'56.374"W	5506.39	346.576	4.26	0.13	4.26
11704.00	90.950	333.010	5598.59	5587.48	5439.81	-1318.47	1770667.31	14656655.09	40°21'21.002"N	80°31'56.887"W	5597.31	346.376	3.00	0.00	-3.00
11796.00	90.830	332.500	5597.16	5678.01	5521.59	-1360.58	1770625.22	14656736.85	40°21'21.812"N	80°31'57.426"W	5686.75	346.157	0.57	-0.13	-0.55
11889.00	90.920	331.110	5595.74	5769.24	5603.55	-1404.52	1770581.30	14656818.77	40°21'22.625"N	80°31'57.988"W	5776.88	345.929	1.50	0.10	-1.49
11982.00	90.650	332.350	5594.47	5860.44	5685.44	-1448.56	1770537.28	14656900.64	40°21'23.436"N	80°31'58.551"W	5867.08	345.706	1.36	-0.29	1.33
12075.00	90.890	335.550	5593.22	5952.26	5768.98	-1489.39	1770496.46	14656984.14	40°21'24.264"N	80°31'59.073"W	5958.14	345.524	3.45	0.26	3.44
12168.00	91.080	339.400	5591.62	6044.80	5854.85	-1525.01	1770460.86	14657069.98	40°21'25.114"N	80°31'59.527"W	6050.20	345.401	4.14	0.20	4.14
12260.00	91.020	340.100	5589.93	6136.64	5941.15	-1556.84	1770429.03	14657156.25	40°21'25.969"N	80°31'59.932"W	6141.75	345.316	0.76	-0.07	0.76
12353.00	90.920	336.650	5588.36	6229.32	6027.58	-1591.11	1770394.78	14657242.64	40°21'26.824"N	80°32'00.369"W	6234.05	345.213	3.71	-0.11	-3.71
12446.00	90.680	337.550	5587.06	6321.82	6113.24	-1627.29	1770358.61	14657328.27	40°21'27.673"N	80°32'00.831"W	6326.12	345.094	1.00	-0.26	0.97
12538.00	90.620	338.280	5586.01	6413.45	6198.49	-1661.88	1770324.04	14657413.48	40°21'28.517"N	80°32'01.272"W	6417.40	344.991	0.80	-0.07	0.79
12629.00	90.430	341.310	5585.18	6504.30	6283.87	-1693.30	1770292.62	14657498.84	40°21'29.362"N	80°32'01.672"W	6508.02	344.919	3.34	-0.21	3.33

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (182 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
12721.00	90.400	344.280	5584.51	6596.28	6371.74	-1720.51	1770265.43	14657586.67	40°21'30.232"N	80°32'02.017"W	6599.95	344.889	3.23	-0.03	3.23
12813.00	90.580	345.210	5583.73	6688.23	6460.50	-1744.72	1770241.23	14657675.39	40°21'31.110"N	80°32'02.324"W	6691.94	344.887	1.03	0.20	1.01
12905.00	90.580	345.550	5582.79	6780.15	6549.51	-1767.94	1770218.02	14657764.38	40°21'31.991"N	80°32'02.618"W	6783.93	344.894	0.37	0.00	0.37
12995.00	91.380	340.570	5581.25	6870.11	6635.57	-1794.15	1770191.82	14657850.40	40°21'32.843"N	80°32'02.950"W	6873.85	344.870	5.60	0.89	-5.53
13085.00	91.200	335.980	5579.23	6959.76	6719.13	-1827.45	1770158.53	14657933.93	40°21'33.670"N	80°32'03.375"W	6963.21	344.785	5.10	-0.20	-5.10
13177.00	90.400	335.450	5577.94	7051.01	6802.98	-1865.28	1770120.72	14658017.75	40°21'34.501"N	80°32'03.858"W	7054.07	344.667	1.04	-0.87	-0.58
13270.00	90.250	335.160	5577.42	7143.17	6887.48	-1904.13	1770081.88	14658102.21	40°21'35.338"N	80°32'04.354"W	7145.84	344.546	0.35	-0.16	-0.31
13361.00	90.280	334.820	5576.99	7233.29	6969.94	-1942.61	1770043.42	14658184.64	40°21'36.155"N	80°32'04.845"W	7235.59	344.426	0.38	0.03	-0.37
13452.00	90.460	336.590	5576.41	7323.55	7052.88	-1980.04	1770005.99	14658267.55	40°21'36.976"N	80°32'05.323"W	7325.55	344.318	1.96	0.20	1.95
13542.00	90.400	338.900	5575.73	7413.17	7136.17	-2014.13	1769971.93	14658350.80	40°21'37.801"N	80°32'05.758"W	7414.96	344.239	2.57	-0.07	2.57
13632.00	90.770	340.530	5574.81	7503.01	7220.58	-2045.33	1769940.74	14658435.18	40°21'38.637"N	80°32'06.155"W	7504.67	344.185	1.86	0.41	1.81
13724.00	90.830	336.750	5573.53	7594.72	7306.23	-2078.82	1769907.25	14658520.80	40°21'39.485"N	80°32'06.582"W	7596.22	344.117	4.11	0.07	-4.11
13815.00	90.490	333.010	5572.48	7684.79	7388.61	-2117.45	1769868.64	14658603.15	40°21'40.301"N	80°32'07.075"W	7686.03	344.009	4.13	-0.37	-4.11
13907.00	89.750	335.540	5572.29	7775.72	7471.48	-2157.38	1769828.73	14658685.99	40°21'41.122"N	80°32'07.586"W	7776.71	343.894	2.87	-0.80	2.75
13999.00	90.340	336.620	5572.21	7867.06	7555.58	-2194.68	1769791.44	14658770.05	40°21'41.955"N	80°32'08.062"W	7867.87	343.803	1.34	0.64	1.17
14092.00	90.490	334.050	5571.54	7959.22	7640.08	-2233.48	1769752.65	14658854.53	40°21'42.792"N	80°32'08.557"W	7959.86	343.704	2.77	0.16	-2.76
14185.00	90.340	335.520	5570.87	8051.27	7724.22	-2273.10	1769713.05	14658938.63	40°21'43.625"N	80°32'09.063"W	8051.74	343.602	1.59	-0.16	1.58
14277.00	90.250	337.390	5570.39	8142.66	7808.55	-2309.85	1769676.32	14659022.93	40°21'44.461"N	80°32'09.532"W	8143.03	343.521	2.03	-0.10	2.03
14370.00	90.400	344.440	5569.86	8235.54	7896.38	-2340.24	1769645.94	14659110.73	40°21'45.330"N	80°32'09.919"W	8235.87	343.492	7.58	0.16	7.58
14462.00	91.260	344.800	5568.53	8327.50	7985.08	-2364.64	1769621.55	14659199.39	40°21'46.208"N	80°32'10.228"W	8327.84	343.504	1.01	0.93	0.39
14555.00	90.770	342.200	5568.88	8420.47	8074.23	-2391.04	1769595.15	14659288.51	40°21'47.090"N	80°32'10.563"W	8420.82	343.504	2.84	-0.53	-2.80
14648.00	90.860	337.700	5565.56	8513.31	8161.56	-2422.91	1769563.29	14659375.80	40°21'47.955"N	80°32'10.969"W	8513.61	343.465	4.84	0.10	-4.84
14741.00	90.580	334.400	5564.39	8605.61	8246.53	-2460.66	1769525.56	14659460.75	40°21'48.796"N	80°32'11.451"W	8605.82	343.386	3.56	-0.30	-3.55
14833.00	90.650	334.510	5563.40	8696.58	8329.54	-2500.33	1769485.91	14659543.72	40°21'49.619"N	80°32'11.958"W	8696.71	343.291	0.14	0.08	0.12
14926.00	90.680	337.240	5562.32	8788.85	8414.40	-2538.33	1769447.92	14659628.55	40°21'50.459"N	80°32'12.443"W	8788.93	343.213	2.94	0.03	2.94
15019.00	90.740	337.910	5561.17	8881.43	8500.36	-2573.81	1769412.46	14659714.47	40°21'51.310"N	80°32'12.895"W	8881.47	343.154	0.72	0.06	0.72
15112.00	90.310	336.790	5560.32	8973.98	8586.18	-2609.62	1769376.66	14659800.26	40°21'52.160"N	80°32'13.352"W	8974.00	343.094	1.29	-0.46	-1.20
15205.00	90.280	338.050	5559.84	9066.54	8672.05	-2645.33	1769340.96	14659886.10	40°21'53.011"N	80°32'13.808"W	9066.54	343.036	1.36	-0.03	1.35
15297.00	90.030	339.380	5559.59	9158.28	8757.77	-2678.73	1769307.58	14659971.79	40°21'53.859"N	80°32'14.233"W	9158.28	342.993	1.47	-0.27	1.45
15390.00	90.120	340.270	5559.47	9251.14	8845.06	-2710.80	1769275.52	14660059.05	40°21'54.724"N	80°32'14.642"W	9251.14	342.961	0.96	0.10	0.96



Actual Wellpath Report

State of WV DNR B BRK 5H AWP Proj: 15487*MD

Page 8 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #5H
SOUTHWESTERN ENERGY	Well	State of WV DNR B BRK 5H
Area	Wellbore	State of WV DNR B BRK 5H AWB
Field		
Facility		

WELLPATH DATA (182 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
15462.00	90.000	340.370	5559.40	9323.06	8912.86	-2735.05	1769251.28	14660126.82	40°21'55.395"N	80°32'14.951"W	9323.06	342.941	0.22	-0.17	0.14
15487.00	90.000	340.370	5559.40	9348.04	8936.41	-2743.45	1769242.88	14660150.35	40°21'55.628"N	80°32'15.057"W	9348.04	342.934	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: State of WV DNR B BRK 5H AWB Ref Wellpath: State of WV DNR B BRK 5H AWP Proj: 15487*MD

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start E/W [ft]	End E/W [ft]	End E/W [ft]
12.25in Open Hole	26.00	1419.00	1393.00	26.00	1418.72	0.00	0.68	0.00	0.68	10.25
9.625in Casing Intermediate	26.00	1419.00	1393.00	26.00	1418.72	0.00	0.68	0.00	0.68	10.25
8.75in Open Hole	1419.00	5528.00	4109.00	1418.72	5384.96	0.68	-227.15	10.25	-227.15	796.62
8.5in Open Hole	5528.00	15487.00	9959.00	5384.96	5559.40	-227.15	8936.41	796.62	8936.41	-2743.45
5.5in Casing Production	26.00	15487.00	15461.00	26.00	5559.40	0.00	8936.41	0.00	8936.41	-2743.45

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
State of WV DNR B BRK 5H BHL Rev-4	5551.00	8989.38	-2751.01	1769235.33	14660203.31	40°21'56.152"N	80°32'15.152"W	point
State of WV DNR B BRK 5H LP Rev-4	5657.00	340.63	628.61	1772613.66	14651557.86	40°20'30.512"N	80°31'32.091"W	point

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH COMPOSITION - Ref Wellbore: State of WV DNR B BRK 5H AWB Ref Wellpath: State of WV DNR B BRK 5H AWP Proj: 15487'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	698.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17-1/2"> (153'-698')	State of WV DNR B BRK 5H AWB
698.00	1392.00	OWSG MWD rev2 + HRGM	02_Premier MWD <12-1/4">(698')(788'-1392')	State of WV DNR B BRK 5H AWB
1392.00	5458.00	OWSG MWD rev2 + HRGM	03_Premier MWD <8-3/4"> (1392')(1479'-5458')	State of WV DNR B BRK 5H AWB
5458.00	15462.00	BHI AutoTrak Curve (Standard)	04_BH AT Curve <8-1/2"> (5499'-15462')	State of WV DNR B BRK 5H AWB
15462.00	15487.00	Blind Drilling (std)	Projection to bit	State of WV DNR B BRK 5H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #5H
Area	Brooke County, WV	Well	State of WV DNR B BRK 5H
Field	Brooke	Wellbore	State of WV DNR B BRK 5H AWB
Facility	State of WV DNR B BRK Pad		

COMMENTS

Wellpath general comments
 API: 47-009-00252-0000
 BH Job #: 109414376
 Rig: SDC 41
 Duration: 10/08/2018 - 10/11/2018



Well Name: State of WV DNR B BRK 5H

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	0.00	0.00	543.00	543.00	
Top of Salt Water	693.00	693.00	NA	NA	
Pittsburgh Coal	135.00	135.00	139.00	139.00	
Raven Cliff (ss)	683.00	683.00	1008.00	1008.00	
Maxton (ss)	1008.00	1008.00	1263.00	1263.00	
Big Injun (ss)	1263.00	1263.00	5253.00	5131.00	
Rhinestreet (shale)	5253.00	5131.00	5573.00	5424.00	
Middlesex (shale)	5573.00	5424.00	5642.00	5479.00	
Burket (shale)	5642.00	5479.00	5661.00	5493.00	
Tully (ls)	5661.00	5493.00	5749.00	5551.00	
Mahantango (shale)	5749.00	5551.00	5909.00	5623.00	
Marcellus (shale)	5909.00	5623.00	NA	NA	GAS