

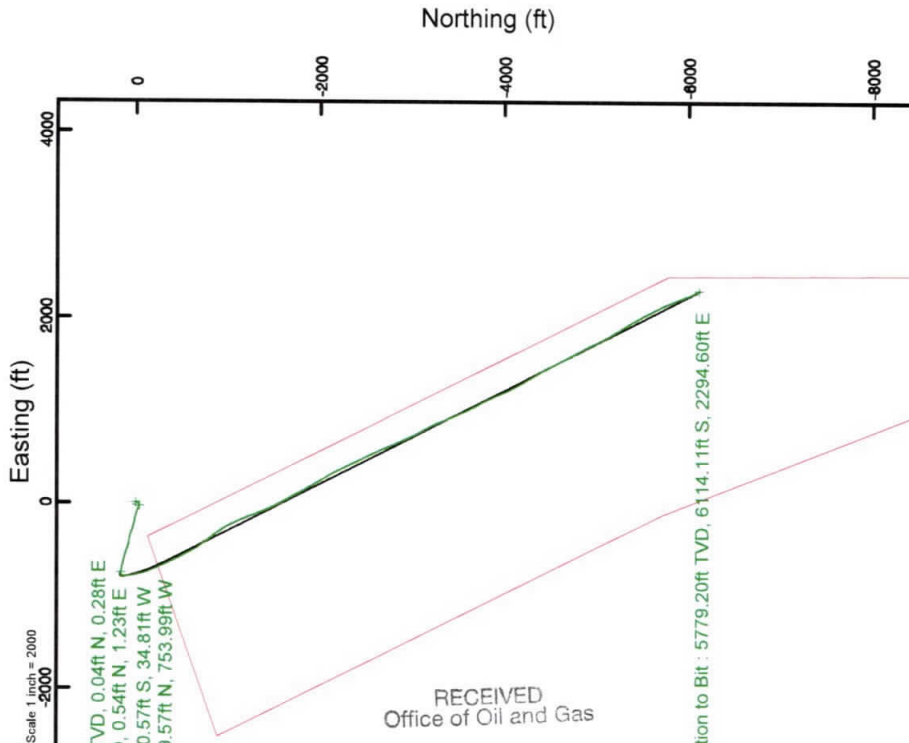
SOUTHWESTERN ENERGY

Location: Brooke County, WV
 Field: Brooke
 Facility: State of WV DNR B BRK Pad Wellbore: State of WV DNR B BRK 6H PWB

Slot: Slot #6H	Grid System: NAD83 / UTM Zone 17 North, US feet
Well: State of WV DNR B BRK 6H	North Reference: Grid north
Wellbore: State of WV DNR B BRK 6H PWB	Scale: True distance
Plot reference wellpath is State of WV DNR B BRK 6H PMP Rev-C.0	Depths are in feet
True vertical depths are referenced to SDC 41 (RKB)	Created by: atlenjen on 2018-10-31
Measured depths are referenced to SDC 41 (RKB)	Database: WA_MPL_EASTERNUS_Dein
SDC 41 (RKB) to Mean Sea Level: 1227 feet	
Mean Sea Level to Ground level (At Slot: Slot #6H): -1201 feet	
Coordinates are in feet referenced to Slot	



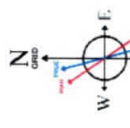
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
State of WV DNR B BRK Pad	1772008.250	14651201.600	40°20'27.022"N 80°31'39.936"W
Slot	Local E (ft)	Grid East (US ft)	Latitude
Slot #6H	-13.97	1772007.269	40°20'26.884"N 80°31'39.950"W
SDC 41 (RKB) to Ground level (At Slot: Slot #6H)	-0.98	14651187.640	26ft
Mean Sea Level to Ground level (At Slot: Slot #6H)			-1201ft
SDC 41 (RKB) to Mean Sea Level			1227ft
Comments			
API 47-009-00247-0000			
BH Job # 109458135			
Rig SDC 41			
Duration: 10/18/2018 - 10/21/2018			



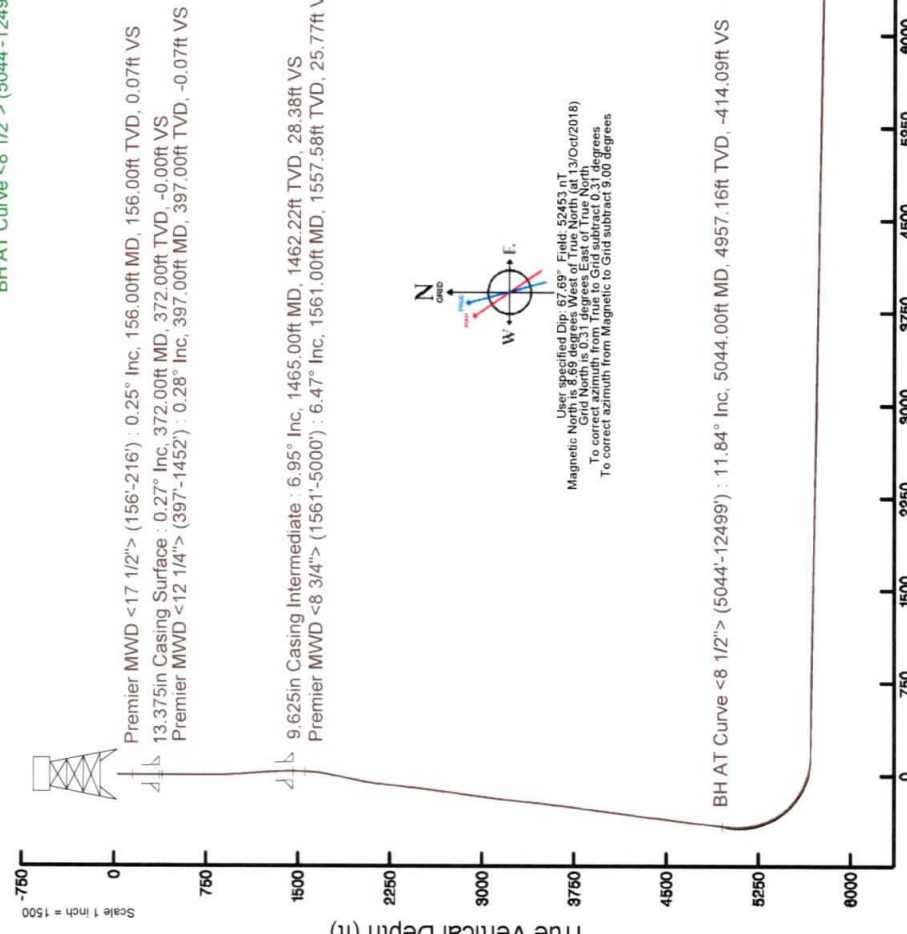
RECEIVED
 Office of Oil and Gas
 JUN - 5 2019
 WV Department of
 Environmental Protection

Premier MWD <17 1/2"> (156'-216') : 156.00ft TVD, 0.04ft N, 0.28ft E
 Premier MWD <12 1/4"> (397'-1452') : 397.00ft TVD, 0.54ft N, 1.23ft E
 Premier MWD <8 3/4"> (1561'-5000') : 1557.58ft TVD, 40.57ft S, 34.81ft W
 BH AT Curve <8 1/2"> (5044'-12499') : 4957.16ft TVD, 159.57ft N, 753.99ft W

Premier MWD <17 1/2"> (156'-216') : 0.25° Inc, 156.00ft MD, 156.00ft TVD, 0.07ft VS
 13.375in Casing Surface : 0.27° Inc, 372.00ft MD, 372.00ft TVD, -0.00ft VS
 Premier MWD <12 1/4"> (397'-1452') : 0.28° Inc, 397.00ft MD, 397.00ft TVD, -0.07ft VS
 9.625in Casing Intermediate : 6.95° Inc, 1465.00ft MD, 1462.22ft TVD, 28.38ft VS
 Premier MWD <8 3/4"> (1561'-5000') : 6.47° Inc, 1561.00ft MD, 1557.58ft TVD, 25.77ft VS



Use specified Dip: 67.66° Field: 52453.AT
 Magnetic North is 3.69 degrees West of True North (at 13/Oct/2018)
 Grid North is 0.31 degrees East of True North
 To correct azimuth from True to Grid subtract 0.31 degrees
 To correct azimuth from Magnetic to Grid subtract 3.69 degrees



Scale 1 inch = 1500
 Vertical Section (ft)
 Azimuth 159.45° with reference 0.00 N, 0.00 E

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H 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	31/Oct/2018 at 10:32
Convergence at slot	0.31° East	Database/Source file	WA_MPL_EASTERNUS_Defn/State_of_WV_DNR_B_BRK_6H_AWP_Proj_12524_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-13.97	-0.98	1772007.27	14651187.64	40°20'26.884"N	80°31'39.950"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 (RKB) to Facility Vertical Datum	1227.00ft
Horizontal Reference Pt	Slot	SDC 41 (RKB) to Mean Sea Level	1227.00ft
Vertical Reference Pt	SDC 41 (RKB)	SDC 41 (RKB) to Ground Level at Slot (Slot #6H)	26.00ft
MD Reference Pt	SDC 41 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	159.45°

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (144 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	82.790	0.00	0.00	0.00	0.00	1772007.27	14651187.64	40°20'26.884"N	80°31'39.950"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	82.790	26.00	0.00	0.00	0.00	1772007.27	14651187.64	40°20'26.884"N	80°31'39.950"W	0.00	0.000	0.00	0.00	0.00
156.00	0.250	82.790	156.00	0.07	0.04	0.28	1772007.55	14651187.68	40°20'26.884"N	80°31'39.946"W	0.28	82.790	0.19	0.19	63.68
216.00	0.280	79.150	216.00	0.12	0.08	0.56	1772007.82	14651187.72	40°20'26.885"N	80°31'39.943"W	0.56	81.839	0.06	0.05	-6.07
397.00	0.280	32.460	397.00	-0.07	0.54	1.23	1772008.50	14651188.18	40°20'26.889"N	80°31'39.934"W	1.34	66.400	0.12	0.00	-25.80
487.00	0.290	21.750	487.00	-0.37	0.93	1.43	1772008.70	14651188.57	40°20'26.893"N	80°31'39.931"W	1.71	56.862	0.06	0.01	-11.90
578.00	0.280	4.950	577.99	-0.74	1.37	1.53	1772008.80	14651189.01	40°20'26.897"N	80°31'39.930"W	2.06	48.260	0.09	-0.01	-18.46
697.00	0.220	33.510	696.99	-1.23	1.86	1.46	1772008.73	14651189.50	40°20'26.902"N	80°31'39.931"W	2.36	38.034	0.12	-0.05	-26.42
788.00	0.210	15.180	787.99	-1.54	2.18	1.42	1772008.69	14651189.82	40°20'26.905"N	80°31'39.931"W	2.60	33.131	0.17	-0.01	45.79
878.00	0.950	160.760	877.99	-0.93	1.63	1.71	1772008.98	14651189.27	40°20'26.900"N	80°31'39.928"W	2.37	46.320	1.25	0.82	161.76
969.00	2.870	164.000	968.93	2.10	-1.27	2.59	1772009.86	14651186.37	40°20'26.871"N	80°31'39.917"W	2.88	116.092	2.11	2.11	3.56
1060.00	4.340	180.710	1059.75	7.58	-6.90	3.17	1772010.44	14651180.74	40°20'26.816"N	80°31'39.909"W	7.60	155.302	1.97	1.62	18.36
1150.00	5.490	197.550	1149.43	14.14	-14.41	1.83	1772009.10	14651173.23	40°20'26.741"N	80°31'39.927"W	14.53	172.750	2.04	1.28	18.71
1242.00	6.220	213.600	1240.95	20.52	-22.76	-2.25	1772005.02	14651164.89	40°20'26.659"N	80°31'39.981"W	22.87	185.651	1.94	0.79	17.45
1334.00	7.160	228.580	1332.33	25.48	-30.70	-9.31	1771997.96	14651156.95	40°20'26.581"N	80°31'40.072"W	32.09	196.868	2.15	1.02	16.28
1369.00	7.560	234.560	1367.04	26.85	-33.48	-12.82	1771994.45	14651154.17	40°20'26.554"N	80°31'40.118"W	35.85	200.954	2.47	1.14	17.09
1399.00	7.840	238.940	1396.77	27.73	-35.68	-16.18	1771991.09	14651151.97	40°20'26.532"N	80°31'40.161"W	39.18	204.395	2.17	0.93	14.60
1427.00	7.500	243.130	1424.52	28.28	-37.49	-19.45	1771987.83	14651150.16	40°20'26.515"N	80°31'40.204"W	42.24	207.416	2.34	-1.21	14.96
1452.00	7.080	250.370	1449.32	28.44	-38.75	-22.36	1771984.92	14651148.91	40°20'26.502"N	80°31'40.241"W	44.74	209.981	4.04	-1.68	28.96
1561.00	6.470	274.100	1557.58	25.77	-40.57	-34.81	1771972.47	14651147.09	40°20'26.485"N	80°31'40.402"W	53.45	220.633	2.61	-0.56	21.77
1626.00	7.120	283.420	1622.13	21.99	-39.37	-42.38	1771964.90	14651148.28	40°20'26.497"N	80°31'40.500"W	57.85	227.110	1.97	1.00	14.34
1719.00	12.880	299.590	1713.69	10.80	-32.91	-57.02	1771950.27	14651154.74	40°20'26.562"N	80°31'40.689"W	65.83	240.008	6.83	6.19	17.39
1809.00	15.010	298.380	1801.03	-5.69	-22.41	-75.99	1771931.30	14651165.23	40°20'26.667"N	80°31'40.933"W	79.23	253.567	2.39	2.37	-1.34
1901.00	17.340	291.130	1889.40	-23.79	-11.81	-99.27	1771908.04	14651175.84	40°20'26.773"N	80°31'41.233"W	99.97	263.218	3.35	2.53	-7.88
1993.00	19.030	286.290	1976.80	-41.90	-2.66	-126.46	1771880.86	14651184.99	40°20'26.864"N	80°31'41.583"W	126.49	268.797	2.46	1.84	-5.26
2084.00	17.060	283.020	2063.32	-58.18	4.51	-153.71	1771853.62	14651192.15	40°20'26.937"N	80°31'41.935"W	153.77	271.682	2.43	-2.16	-3.59
2177.00	12.700	280.260	2153.19	-70.97	9.41	-177.07	1771830.27	14651197.05	40°20'26.986"N	80°31'42.236"W	177.32	273.042	4.75	-4.69	-2.97
2267.00	11.860	276.960	2241.12	-80.31	12.30	-196.00	1771811.34	14651199.93	40°20'27.016"N	80°31'42.480"W	196.39	273.590	1.20	-0.91	-3.67
2358.00	11.180	283.480	2330.29	-89.58	15.49	-213.88	1771793.47	14651203.12	40°20'27.048"N	80°31'42.711"W	214.44	274.142	1.62	-0.77	7.16
2449.00	11.270	287.040	2419.55	-99.94	20.15	-230.96	1771776.40	14651207.78	40°20'27.095"N	80°31'42.931"W	231.84	274.986	0.77	0.10	3.91

Actual Wellpath Report

State of WV DNR B BRK 6H AWP Proj:12524'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (144 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]
2542.00	11.390	284.900	2510.74	-110.81	25.17	-248.52	1771758.84	14651212.80	40°20'27.146"N	80°31'43.158"W	249.79	275.784	0.47	0.13	-2.30
2634.00	12.140	283.770	2600.80	-121.53	29.81	-266.70	1771740.67	14651217.44	40°20'27.193"N	80°31'43.392"W	268.36	276.378	0.85	0.82	-1.23
2726.00	13.180	282.220	2690.57	-132.66	34.34	-286.34	1771721.03	14651221.96	40°20'27.238"N	80°31'43.645"W	288.40	276.838	1.19	1.13	-1.68
2819.00	12.770	292.170	2781.20	-145.38	40.46	-306.23	1771701.16	14651228.08	40°20'27.300"N	80°31'43.902"W	308.89	277.526	2.44	-0.44	10.70
2910.00	11.940	291.810	2870.10	-158.54	47.75	-324.28	1771683.11	14651235.37	40°20'27.373"N	80°31'44.134"W	327.78	278.377	0.92	-0.91	-0.40
3003.00	12.210	288.190	2961.04	-171.18	54.40	-342.56	1771664.84	14651242.01	40°20'27.440"N	80°31'44.370"W	346.85	279.023	0.86	0.29	-3.89
3096.00	12.270	283.760	3051.93	-182.90	59.82	-361.50	1771645.91	14651247.43	40°20'27.494"N	80°31'44.614"W	366.41	279.395	1.01	0.06	-4.76
3189.00	12.310	280.950	3142.80	-193.66	64.05	-380.83	1771626.58	14651251.67	40°20'27.537"N	80°31'44.864"W	386.18	279.547	0.64	0.04	-3.02
3281.00	11.220	284.480	3232.86	-203.92	68.15	-399.13	1771608.29	14651255.76	40°20'27.578"N	80°31'45.100"W	404.90	279.690	1.42	-1.18	3.84
3374.00	10.930	281.950	3324.13	-213.85	72.24	-416.51	1771590.91	14651259.85	40°20'27.620"N	80°31'45.324"W	422.73	279.839	0.61	-0.31	-2.72
3467.00	11.010	278.880	3415.43	-222.95	75.44	-433.91	1771573.52	14651263.05	40°20'27.652"N	80°31'45.548"W	440.42	279.862	0.63	0.09	-3.30
3559.00	11.400	284.480	3505.68	-232.49	79.07	-451.40	1771556.04	14651266.67	40°20'27.689"N	80°31'45.774"W	458.27	279.935	1.26	0.42	6.09
3652.00	11.260	283.350	3596.87	-242.83	83.46	-469.13	1771538.32	14651271.07	40°20'27.733"N	80°31'46.003"W	476.50	280.088	0.28	-0.15	-1.22
3745.00	11.210	286.940	3688.09	-253.39	88.19	-486.61	1771520.84	14651275.80	40°20'27.781"N	80°31'46.228"W	494.54	280.272	0.75	-0.05	3.86
3837.00	12.580	290.660	3778.11	-265.44	94.33	-504.54	1771502.92	14651281.93	40°20'27.843"N	80°31'46.459"W	513.29	280.590	1.71	1.49	4.04
3930.00	12.860	288.690	3868.83	-278.65	101.22	-523.82	1771483.65	14651288.82	40°20'27.912"N	80°31'46.708"W	533.51	280.937	0.56	0.30	-2.12
4023.00	12.200	284.680	3959.62	-290.87	107.03	-543.13	1771464.34	14651294.63	40°20'27.970"N	80°31'46.957"W	553.58	281.148	1.17	-0.71	-4.31
4116.00	12.330	287.400	4050.50	-302.65	112.49	-562.11	1771445.37	14651300.08	40°20'28.025"N	80°31'47.201"W	573.26	281.316	0.64	0.14	2.92
4208.00	12.060	284.420	4140.42	-314.20	117.82	-580.80	1771426.69	14651305.41	40°20'28.079"N	80°31'47.442"W	592.63	281.467	0.74	-0.29	-3.24
4301.00	12.970	285.920	4231.21	-325.97	123.10	-600.24	1771407.26	14651310.69	40°20'28.132"N	80°31'47.693"W	612.74	281.590	1.04	0.98	1.61
4393.00	13.000	283.650	4320.86	-337.92	128.37	-620.23	1771387.28	14651315.97	40°20'28.185"N	80°31'47.951"W	633.37	281.694	0.56	0.03	-2.47
4485.00	12.680	279.890	4410.56	-348.85	132.55	-640.23	1771367.28	14651320.14	40°20'28.227"N	80°31'48.209"W	653.81	281.697	0.97	-0.35	-4.09
4577.00	12.440	285.920	4500.36	-359.86	137.00	-659.71	1771347.81	14651324.59	40°20'28.273"N	80°31'48.460"W	673.78	281.732	1.45	-0.26	6.55
4670.00	12.490	285.420	4591.17	-371.72	142.43	-679.03	1771328.49	14651330.01	40°20'28.327"N	80°31'48.709"W	693.81	281.846	0.13	0.05	-0.54
4763.00	12.310	283.060	4682.00	-383.11	147.34	-698.39	1771309.15	14651334.92	40°20'28.377"N	80°31'48.959"W	713.76	281.913	0.58	-0.19	-2.54
4856.00	11.740	278.720	4772.96	-393.23	151.01	-717.40	1771290.15	14651338.60	40°20'28.414"N	80°31'49.204"W	733.12	281.887	1.15	-0.61	-4.67
4949.00	11.600	283.850	4864.04	-403.14	154.69	-735.83	1771271.72	14651342.27	40°20'28.451"N	80°31'49.442"W	751.91	281.872	1.13	-0.15	5.52
5000.00	11.150	283.630	4914.04	-408.80	157.08	-745.60	1771261.96	14651344.66	40°20'28.475"N	80°31'49.568"W	761.96	281.897	0.89	-0.88	-0.43
5044.00	11.840	289.280	4957.16	-414.09	159.57	-753.99	1771253.56	14651347.15	40°20'28.500"N	80°31'49.676"W	770.69	281.949	3.00	1.57	12.84
5137.00	8.890	272.950	5048.65	-423.07	163.09	-770.18	1771237.38	14651350.67	40°20'28.536"N	80°31'49.885"W	787.26	281.956	4.45	-3.17	-17.56

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (144 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]
5229.00	10.630	215.320	5139.51	-421.14	156.52	-782.22	1771225.35	14651344.10	40°20'28.472"N	80°31'50.041"W	797.72	281.315	10.32	1.89	-62.64
5322.00	16.430	192.760	5229.96	-405.31	136.66	-790.09	1771217.48	14651324.25	40°20'28.276"N	80°31'50.144"W	801.82	279.813	8.32	6.24	-24.26
5415.00	23.330	180.790	5317.40	-377.12	105.37	-793.26	1771214.32	14651292.97	40°20'27.967"N	80°31'50.187"W	800.22	277.566	8.58	7.42	-12.87
5507.00	31.680	171.030	5398.97	-336.39	63.20	-789.73	1771217.84	14651250.81	40°20'27.550"N	80°31'50.144"W	792.26	274.575	10.29	9.08	-10.61
5600.00	42.020	167.740	5473.29	-281.51	8.50	-779.28	1771228.28	14651196.14	40°20'27.009"N	80°31'50.013"W	779.33	270.625	11.32	11.12	-3.54
5693.00	51.250	164.690	5537.09	-214.44	-57.04	-763.06	1771244.50	14651130.62	40°20'26.360"N	80°31'49.808"W	765.19	265.725	10.20	9.92	-3.28
5784.00	59.220	160.400	5588.95	-139.88	-128.23	-740.54	1771267.01	14651059.46	40°20'25.656"N	80°31'49.522"W	751.56	260.176	9.57	8.76	-4.71
5876.00	67.550	156.490	5630.14	-57.74	-204.60	-710.26	1771297.28	14650983.12	40°20'24.900"N	80°31'49.136"W	739.14	253.930	9.82	9.05	-4.25
5922.00	71.850	155.360	5646.10	-14.69	-243.98	-692.66	1771314.88	14650943.75	40°20'24.510"N	80°31'48.912"W	734.37	250.596	9.63	9.35	-2.46
5969.00	77.310	155.480	5658.59	30.49	-285.17	-673.82	1771333.71	14650902.58	40°20'24.102"N	80°31'48.671"W	731.68	247.061	11.62	11.62	0.26
6015.00	82.040	156.450	5666.84	75.65	-326.49	-655.39	1771352.12	14650861.28	40°20'23.692"N	80°31'48.436"W	732.21	243.520	10.49	10.28	2.11
6061.00	85.440	156.820	5671.85	121.32	-368.46	-637.26	1771370.25	14650819.32	40°20'23.277"N	80°31'48.205"W	736.12	239.964	7.43	7.39	0.80
6108.00	89.110	155.230	5674.08	168.17	-411.34	-618.19	1771389.31	14650776.45	40°20'22.852"N	80°31'47.961"W	742.54	236.360	8.51	7.81	-3.38
6154.00	89.110	152.640	5674.80	213.95	-452.66	-597.98	1771409.51	14650735.16	40°20'22.442"N	80°31'47.703"W	749.99	232.875	5.63	0.00	-5.63
6247.00	89.020	151.580	5676.32	306.17	-534.84	-554.49	1771452.99	14650653.00	40°20'21.628"N	80°31'47.147"W	770.40	226.033	1.14	-0.10	-1.14
6339.00	89.110	150.960	5677.82	397.22	-615.51	-510.27	1771497.19	14650572.37	40°20'20.829"N	80°31'46.582"W	799.51	219.660	0.68	0.10	-0.67
6431.00	89.570	146.080	5678.88	487.52	-693.94	-462.24	1771545.20	14650493.97	40°20'20.051"N	80°31'45.967"W	833.80	213.668	5.33	0.50	-5.30
6524.00	88.920	142.320	5680.10	577.22	-769.35	-407.86	1771599.57	14650418.59	40°20'19.303"N	80°31'45.270"W	870.77	207.930	4.10	-0.70	-4.04
6617.00	89.450	142.240	5681.43	666.07	-842.90	-350.97	1771656.44	14650345.06	40°20'18.573"N	80°31'44.540"W	913.05	202.606	0.58	0.57	-0.09
6709.00	89.050	145.990	5682.63	754.77	-917.42	-297.05	1771710.33	14650270.57	40°20'17.834"N	80°31'43.849"W	964.31	197.942	4.10	-0.43	4.08
6801.00	89.080	152.320	5684.13	845.23	-996.36	-249.91	1771757.45	14650191.66	40°20'17.052"N	80°31'43.246"W	1027.22	194.081	6.88	0.03	6.88
6893.00	89.050	155.290	5685.64	936.76	-1078.89	-209.31	1771798.04	14650109.16	40°20'16.234"N	80°31'42.727"W	1099.00	190.979	3.23	-0.03	3.23
6986.00	88.980	156.890	5687.24	1029.58	-1163.89	-171.63	1771835.71	14650024.19	40°20'15.392"N	80°31'42.246"W	1176.48	188.388	1.72	-0.08	1.72
7079.00	88.980	159.080	5688.89	1122.53	-1250.09	-136.77	1771870.55	14649938.03	40°20'14.538"N	80°31'41.802"W	1257.55	186.244	2.35	0.00	2.35
7171.00	88.980	159.190	5690.53	1214.52	-1336.04	-104.01	1771903.30	14649852.11	40°20'13.687"N	80°31'41.385"W	1340.09	184.451	0.12	0.00	0.12
7264.00	88.890	156.130	5692.26	1307.44	-1422.04	-68.67	1771938.62	14649766.14	40°20'12.836"N	80°31'40.935"W	1423.70	182.765	3.29	-0.10	-3.29
7357.00	88.950	153.210	5694.01	1400.09	-1506.07	-28.90	1771978.38	14649682.14	40°20'12.003"N	80°31'40.427"W	1506.35	181.099	3.14	0.06	-3.14
7449.00	88.920	152.280	5695.72	1491.45	-1587.84	13.23	1772020.49	14649600.40	40°20'11.193"N	80°31'39.889"W	1587.90	179.523	1.01	-0.03	-1.01
7542.00	88.860	151.760	5697.52	1583.65	-1669.96	56.85	1772064.10	14649518.32	40°20'10.379"N	80°31'39.331"W	1670.93	178.050	0.56	-0.06	-0.56
7635.00	88.920	151.550	5699.32	1675.77	-1751.79	101.00	1772108.23	14649436.52	40°20'09.568"N	80°31'38.766"W	1754.70	176.700	0.23	0.06	-0.23



Actual Wellpath Report

State of WV DNR B BRK 6H AWP Proj:12524'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (144 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]
7728.00	89.050	151.010	5700.97	1767.81	-1833.34	145.68	1772152.89	14649355.00	40°20'08.760"N	80°31'38.195"W	1839.12	175.457	0.60	0.14	-0.58
7820.00	88.860	149.080	5702.65	1858.56	-1913.03	191.61	1772198.80	14649275.34	40°20'07.970"N	80°31'37.608"W	1922.60	174.280	2.11	-0.21	-2.10
7913.00	89.420	149.780	5704.05	1950.13	-1993.10	238.90	1772246.08	14649195.31	40°20'07.176"N	80°31'37.002"W	2007.36	173.165	0.96	0.60	0.75
8006.00	89.080	148.670	5705.26	2041.64	-2072.99	286.48	1772293.64	14649115.44	40°20'06.384"N	80°31'36.394"W	2092.69	172.132	1.25	-0.37	-1.19
8098.00	88.740	152.770	5707.01	2132.54	-2153.21	331.46	1772338.60	14649035.26	40°20'05.589"N	80°31'35.818"W	2178.57	171.249	4.47	-0.37	4.46
8191.00	88.890	153.970	5708.94	2225.00	-2236.32	373.13	1772380.26	14648952.17	40°20'04.766"N	80°31'35.286"W	2267.24	170.527	1.30	0.16	1.29
8284.00	88.830	154.230	5710.79	2317.57	-2319.96	413.75	1772420.86	14648868.56	40°20'03.937"N	80°31'34.767"W	2356.57	169.888	0.29	-0.06	0.28
8377.00	88.770	154.230	5712.73	2410.17	-2403.70	454.17	1772461.27	14648784.86	40°20'03.108"N	80°31'34.251"W	2446.23	169.300	0.06	-0.06	0.00
8469.00	88.580	153.740	5714.86	2501.72	-2486.35	494.51	1772501.59	14648702.24	40°20'02.289"N	80°31'33.736"W	2535.05	168.751	0.57	-0.21	-0.53
8562.00	89.140	154.510	5716.71	2594.30	-2570.01	535.09	1772542.16	14648618.61	40°20'01.460"N	80°31'33.218"W	2625.12	168.239	1.02	0.60	0.83
8655.00	88.580	156.340	5718.56	2687.05	-2654.57	573.76	1772580.81	14648534.09	40°20'00.622"N	80°31'32.724"W	2715.86	167.804	2.06	-0.60	1.97
8747.00	88.060	156.350	5721.26	2778.88	-2738.80	610.66	1772617.69	14648449.89	40°19'59.788"N	80°31'32.254"W	2806.05	167.431	0.57	-0.57	0.01
8840.00	88.710	157.170	5723.88	2871.73	-2824.22	647.34	1772654.36	14648364.50	40°19'58.942"N	80°31'31.786"W	2897.46	167.090	1.12	0.70	0.88
8933.00	88.830	156.230	5725.88	2964.60	-2909.61	684.11	1772691.12	14648279.14	40°19'58.096"N	80°31'31.317"W	2988.96	166.769	1.02	0.13	-1.01
9026.00	89.200	154.390	5727.48	3057.34	-2994.10	722.95	1772729.95	14648194.69	40°19'57.259"N	80°31'30.821"W	3080.14	166.425	2.02	0.40	-1.98
9118.00	89.290	151.980	5728.69	3148.78	-3076.19	764.45	1772771.43	14648112.63	40°19'56.446"N	80°31'30.291"W	3169.75	166.044	2.62	0.10	-2.62
9211.00	89.110	151.310	5729.99	3240.91	-3158.02	808.61	1772815.57	14648030.82	40°19'55.635"N	80°31'29.727"W	3259.90	165.638	0.75	-0.19	-0.72
9304.00	89.230	155.670	5731.34	3333.37	-3241.22	850.11	1772857.05	14647947.66	40°19'54.811"N	80°31'29.197"W	3350.85	165.303	4.69	0.13	4.69
9397.00	89.170	157.060	5732.63	3426.23	-3326.40	887.39	1772894.32	14647862.51	40°19'53.967"N	80°31'28.721"W	3442.74	165.063	1.50	-0.06	1.49
9490.00	89.230	156.440	5733.93	3519.12	-3411.84	924.10	1772931.01	14647777.10	40°19'53.121"N	80°31'28.263"W	3534.77	164.845	0.67	0.06	-0.67
9582.00	89.260	156.580	5735.14	3610.99	-3496.21	960.76	1772967.67	14647692.76	40°19'52.285"N	80°31'27.785"W	3625.82	164.634	0.16	0.03	0.15
9675.00	89.260	155.820	5736.35	3703.83	-3581.30	998.29	1773005.18	14647607.71	40°19'51.442"N	80°31'27.307"W	3717.83	164.424	0.82	0.00	-0.82
9768.00	89.230	151.110	5737.57	3796.29	-3664.47	1039.82	1773046.69	14647524.57	40°19'50.618"N	80°31'26.776"W	3809.14	164.158	5.06	-0.03	-5.06
9860.00	89.260	151.200	5738.78	3887.32	-3745.05	1084.20	1773091.06	14647444.02	40°19'49.820"N	80°31'26.209"W	3898.83	163.854	0.10	0.03	0.10
9951.00	89.170	155.130	5740.03	3977.74	-3826.22	1125.27	1773132.11	14647362.88	40°19'49.015"N	80°31'25.684"W	3988.26	163.612	4.32	-0.10	4.32
10043.00	89.320	156.860	5741.24	4069.57	-3910.26	1162.69	1773169.52	14647278.88	40°19'48.183"N	80°31'25.207"W	4079.46	163.440	1.89	0.16	1.88
10135.00	89.230	155.580	5742.41	4161.41	-3994.44	1199.79	1773206.60	14647194.73	40°19'47.349"N	80°31'24.734"W	4170.73	163.282	1.39	-0.10	-1.39
10227.00	89.260	153.770	5743.62	4253.08	-4077.58	1239.13	1773245.93	14647111.61	40°19'46.525"N	80°31'24.231"W	4261.71	163.097	1.97	0.03	-1.97
10317.00	89.260	150.030	5744.78	4342.28	-4156.95	1281.51	1773288.29	14647032.27	40°19'45.739"N	80°31'23.690"W	4350.01	162.866	4.16	0.00	-4.16
10407.00	89.110	149.700	5746.06	4431.01	-4234.78	1326.69	1773333.45	14646954.48	40°19'44.967"N	80°31'23.112"W	4437.74	162.605	0.40	-0.17	-0.37

Actual Wellpath Report

State of WV DNR B BRK 6H AWP Proj:12524'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

WELLPATH DATA (144 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]
10499.00	89.260	149.020	5747.37	4521.58	-4313.93	1373.58	1773380.32	14646875.36	40°19'44.183"N	80°31'22.512"W	4527.33	162.338	0.76	0.16	-0.74
10591.00	89.140	149.930	5748.66	4612.18	-4393.17	1420.30	1773427.02	14646796.15	40°19'43.397"N	80°31'21.914"W	4617.05	162.084	1.00	-0.13	0.99
10683.00	89.170	154.190	5750.01	4703.38	-4474.42	1463.39	1773470.10	14646714.93	40°19'42.592"N	80°31'21.364"W	4707.65	161.889	4.63	0.03	4.63
10774.00	89.260	153.670	5751.26	4793.95	-4556.15	1503.38	1773510.07	14646633.23	40°19'41.782"N	80°31'20.853"W	4797.78	161.739	0.58	0.10	-0.57
10863.00	88.920	152.330	5752.67	4882.37	-4635.44	1543.78	1773550.46	14646553.97	40°19'40.997"N	80°31'20.337"W	4885.75	161.580	1.55	-0.38	-1.51
10954.00	88.890	152.130	5754.41	4972.64	-4715.94	1586.17	1773592.83	14646473.50	40°19'40.199"N	80°31'19.795"W	4975.55	161.410	0.22	-0.03	-0.22
11045.00	88.890	152.000	5756.18	5062.86	-4796.33	1628.79	1773635.44	14646393.15	40°19'39.402"N	80°31'19.250"W	5065.34	161.243	0.14	0.00	-0.14
11137.00	88.950	152.820	5757.91	5154.15	-4877.85	1671.39	1773678.02	14646311.65	40°19'38.594"N	80°31'18.706"W	5156.26	161.086	0.89	0.07	0.89
11229.00	88.890	154.490	5759.64	5245.66	-4960.28	1712.21	1773718.82	14646229.26	40°19'37.778"N	80°31'18.185"W	5247.48	160.956	1.82	-0.07	1.82
11321.00	89.080	154.130	5761.27	5337.28	-5043.17	1752.09	1773758.69	14646146.40	40°19'36.956"N	80°31'17.676"W	5338.85	160.842	0.44	0.21	-0.39
11414.00	89.170	150.780	5762.69	5429.56	-5125.61	1795.08	1773801.67	14646063.99	40°19'36.140"N	80°31'17.126"W	5430.85	160.699	3.60	0.10	-3.60
11506.00	89.020	148.020	5764.15	5520.13	-5204.78	1841.90	1773848.47	14645984.85	40°19'35.355"N	80°31'16.527"W	5521.08	160.512	3.00	-0.16	-3.00
11599.00	89.080	148.090	5765.69	5611.29	-5283.68	1891.10	1773897.65	14645905.98	40°19'34.572"N	80°31'15.898"W	5611.91	160.307	0.10	0.06	0.08
11692.00	89.050	148.490	5767.21	5702.51	-5362.79	1939.98	1773946.51	14645826.90	40°19'33.788"N	80°31'15.272"W	5702.90	160.112	0.43	-0.03	0.43
11784.00	89.080	151.270	5768.71	5793.21	-5442.35	1986.14	1773992.65	14645747.37	40°19'32.999"N	80°31'14.682"W	5793.43	159.951	3.02	0.03	3.02
11877.00	89.110	153.380	5770.18	5885.48	-5524.69	2029.32	1774035.82	14645665.06	40°19'32.183"N	80°31'14.130"W	5885.61	159.831	2.27	0.03	2.27
11970.00	89.110	152.770	5771.62	5977.89	-5607.60	2071.43	1774077.91	14645582.18	40°19'31.362"N	80°31'13.592"W	5977.96	159.726	0.66	0.00	-0.66
12063.00	89.050	153.820	5773.12	6070.34	-5690.67	2113.22	1774119.68	14645499.15	40°19'30.539"N	80°31'13.058"W	6070.37	159.628	1.13	-0.06	1.13
12155.00	89.080	157.520	5774.62	6162.11	-5774.47	2151.11	1774157.56	14645415.37	40°19'29.709"N	80°31'12.575"W	6162.13	159.569	4.02	0.03	4.02
12248.00	89.260	159.390	5775.96	6255.09	-5860.96	2185.26	1774191.69	14645328.92	40°19'28.852"N	80°31'12.140"W	6255.10	159.552	2.02	0.19	2.01
12341.00	89.290	158.760	5777.14	6348.08	-5947.82	2218.47	1774224.89	14645242.09	40°19'27.992"N	80°31'11.718"W	6348.08	159.545	0.68	0.03	-0.68
12434.00	89.380	155.220	5778.22	6440.97	-6033.40	2254.81	1774261.22	14645156.54	40°19'27.144"N	80°31'11.254"W	6440.97	159.508	3.81	0.10	-3.81
12499.00	89.380	152.930	5778.92	6505.68	-6091.85	2283.23	1774289.62	14645098.11	40°19'26.565"N	80°31'10.892"W	6505.68	159.454	3.52	0.00	-3.52
12524.00	89.380	152.930	5779.20	6530.51	-6114.11	2294.60	1774301.00	14645075.86	40°19'26.345"N	80°31'10.746"W	6530.51	159.429	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY		Slot	Slot #6H
Area	Brooke County, WV		Well	State of WV DNR B BRK 6H
Field	Brooke		Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad			

HOLE & CASING SECTIONS - Ref Wellbore: State of WV DNR B BRK 6H AWB Ref Wellpath: State of WV DNR B BRK 6H AWP Proj:12524'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
17.5in Open Hole	26.00	372.00	346.00	26.00	372.00	0.00	0.00	0.44	1.16
13.375in Casing Surface	26.00	372.00	346.00	26.00	372.00	0.00	0.00	0.44	1.16
12.25in Open Hole	372.00	1465.00	1093.00	372.00	1462.22	0.44	1.16	-39.25	-23.86
9.625in Casing Intermediate	26.00	1465.00	1439.00	26.00	1462.22	0.00	0.00	-39.25	-23.86
8.75in Open Hole	1465.00	5016.00	3551.00	1462.22	4929.73	-39.25	-23.86	157.87	-748.62
8.5in Open Hole	5016.00	12524.00	7508.00	4929.73	5779.20	157.87	-748.62	-6114.11	2294.60
5.5in Casing Production	26.00	12524.00	12498.00	26.00	5779.20	0.00	0.00	-6114.11	2294.60

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 6H LP Rev-2	5675.00	-377.10	-609.96	1771397.54	14650810.68	40°20'23.190"N	80°31'47.853"W	point
State of WV DNR B BRK 6H BHL Rev-2	5778.00	-612.71	2295.08	1774301.48	14645068.27	40°19'26.270"N	80°31'10.741"W	point

WELLPATH COMPOSITION - Ref Wellbore: State of WV DNR B BRK 6H AWB Ref Wellpath: State of WV DNR B BRK 6H AWP Proj:12524'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
26.00	216.00	OWSG MWD rev2 + HRGM	Wellbore
216.00	1452.00	OWSG MWD rev2 + HRGM	State of WV DNR B BRK 6H AWB
1452.00	5000.00	OWSG MWD rev2 + HRGM	State of WV DNR B BRK 6H AWB
5000.00	12499.00	BHI AutoTrak Curve (Short)	State of WV DNR B BRK 6H AWB
12499.00	12524.00	Blind Drilling (std)	State of WV DNR B BRK 6H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #6H
Area	Brooke County, WV	Well	State of WV DNR B BRK 6H
Field	Brooke	Wellbore	State of WV DNR B BRK 6H AWB
Facility	State of WV DNR B BRK Pad		

COMMENTS

Wellpath general comments
 API: 47-009-00247-0000
 BH Job #: 109458135
 Rig: SDC 41
 Duration: 10/18/2018 - 10/21/2018



Well Name: State of WV DNR B BRK 6H

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	
Rhinstreet (shale)	5219.00	5129.00	5530.00	5417.00	
Middlesex (shale)	5530.00	5417.00	5603.00	5475.00	
Burket (shale)	5603.00	5475.00	5625.00	5490.00	
Tully (ls)	5625.00	5490.00	5712.00	5548.00	
Mahantango (shale)	5712.00	5548.00	5857.00	5629.00	
Marcellus (shale)	5857.00	5629.00	NA	NA	GAS