

SWN PRODUCTION COMPANY, LLC

Location: Brooke County, WV

Slot: Slot #5H

Field: Brooke

Well: State of WV DNR A BRK 5H

Facility: State of WV DNR A BRK Pad

Wellbore: State of WV DNR A BRK 5H PWB

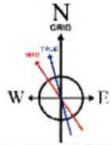
Plot reference wellpath is State of WV DNR A BRK 5H PWB Rev-B.0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 40 (KB)	North Reference: Grid north
Reference wellpath measured depths are referenced to SDC 40 (KB)	Scale: True distance
SDC 40 (KB) to Mean Sea Level: 1165.9 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot #5H): -1139.9 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: aterjen on 2020-09-14; Database: WA_MPL_EASTERNUS_Defn



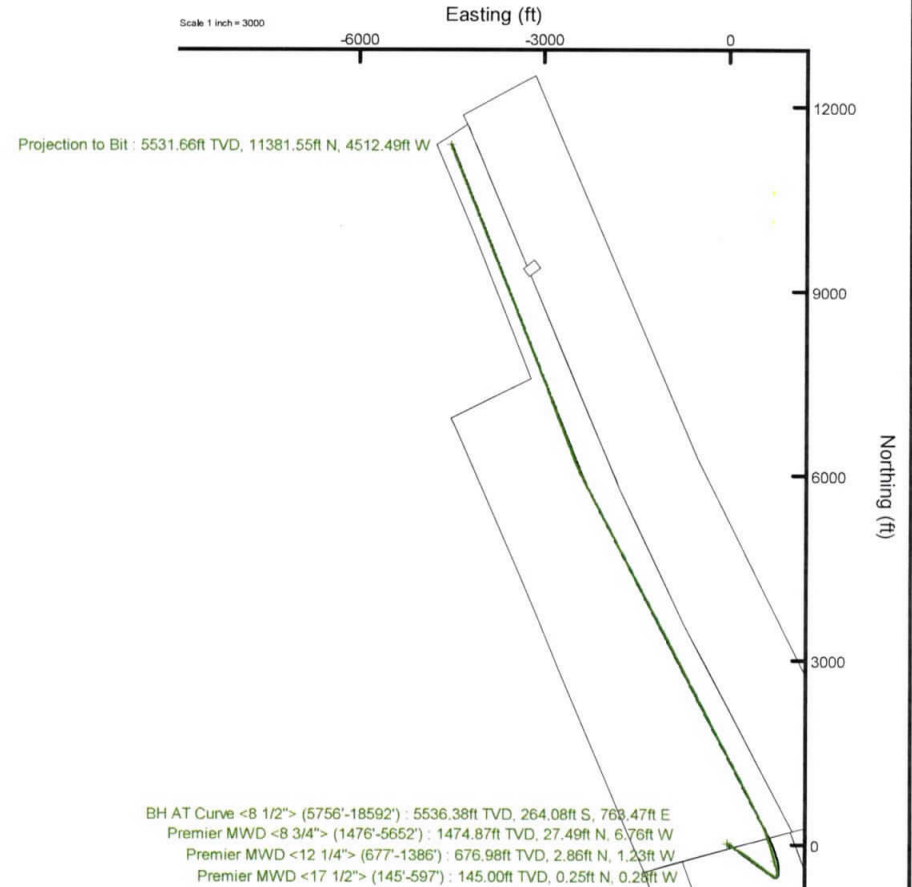
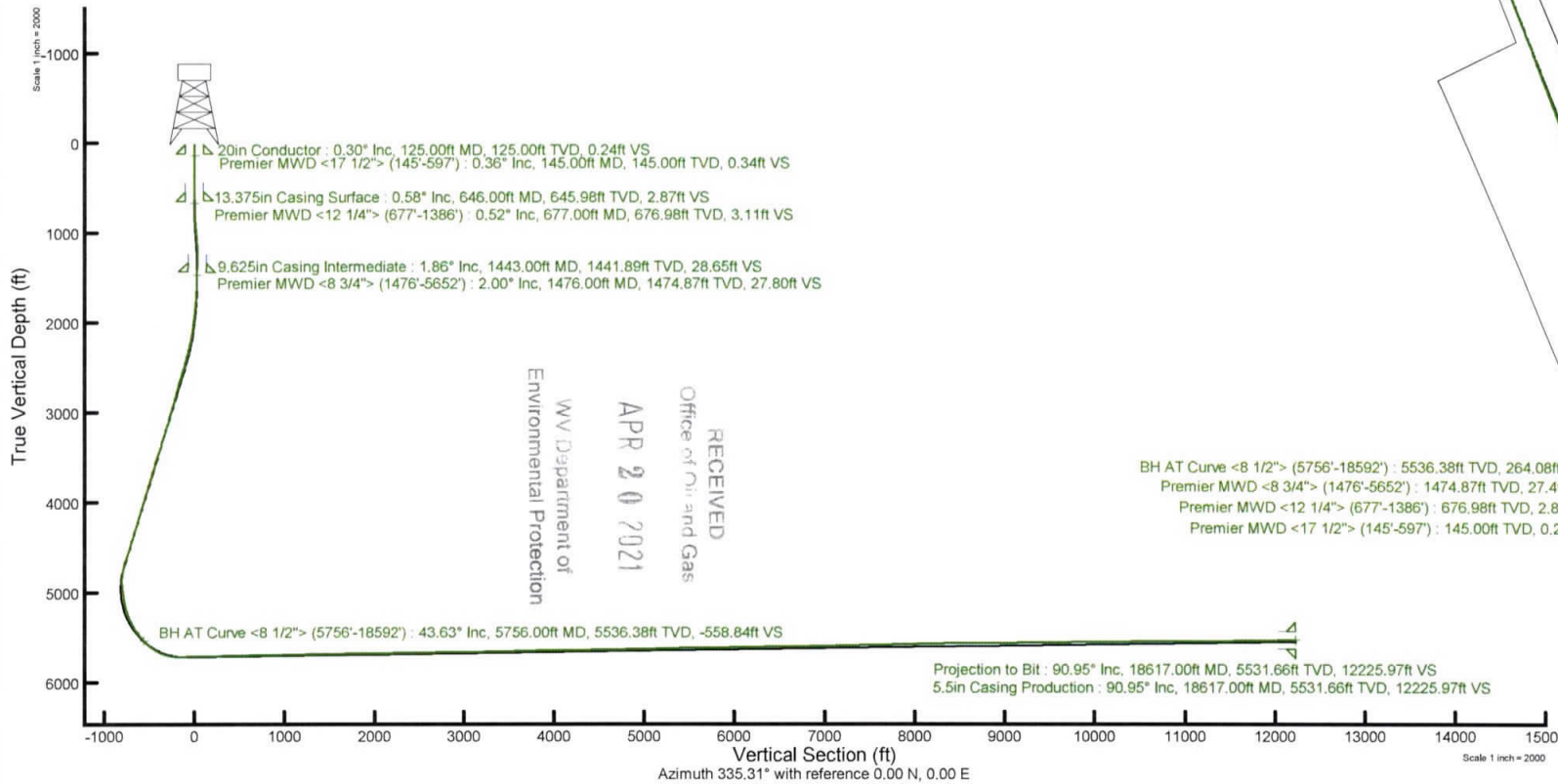
Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
State of WV DNR A BRK Pad	1769998.690	14644013.310	40°19'16.0680"N	80°32'6.3852"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #5H	14.17	-7.60	1769991.090	14644027.470	40°19'16.2084"N	80°32'6.4824"W
SDC 40 (KB) to Ground level (At Slot: Slot #5H)					26ft	
Mean Sea Level to Ground level (At Slot: Slot #5H)					-1139.9ft	
SDC 40 (KB) to Mean Sea Level					1165.9ft	

API: 47-009-00304-0000
 BH Job #: 110544071
 Rig: SDC 40
 Duration: 09/11/2020 - 09/14/2020



User specified Dip: 67.48° Field: 52285 nT
 Magnetic North is 8.54 degrees West of True North (at 9/12/2020)
 Grid North is 0.30 degrees East of True North
 To correct azimuth from True to Grid subtract 0.30 degrees
 To correct azimuth from Magnetic to Grid subtract 8.84 degrees



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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Atenjen
Scale	0.999619	Report Generated	9/14/2020 at 4:21:48 PM
Convergence at slot	0.30° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	14.17	-7.60	1769991.09	14644027.47	40°19'16.2084"N	80°32'6.4824"W
Facility Reference Pt			1769998.69	14644013.31	40°19'16.0680"N	80°32'6.3852"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 40 (KB) to Facility Vertical Datum	1165.90ft
Horizontal Reference Pt	Slot	SDC 40 (KB) to Mean Sea Level	1165.90ft
Vertical Reference Pt	SDC 40 (KB)	SDC 40 (KB) to Ground Level at Slot (Slot #5H)	26.00ft
MD Reference Pt	SDC 40 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	335.31°

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Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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	311.520	0.00	0.00	0.00	0.00	1769991.09	14644027.47	40°19'16.2084"N	80°32'6.4824"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	311.520	26.00	0.00	0.00	0.00	1769991.09	14644027.47	40°19'16.2084"N	80°32'6.4824"W	0.00	0.000	0.00	0.00	0.00
145.00	0.360	311.520	145.00	0.34	0.25	-0.28	1769990.81	14644027.72	40°19'16.2108"N	80°32'6.4860"W	0.37	311.520	0.30	0.30	0.00
205.00	0.700	267.110	205.00	0.65	0.35	-0.79	1769990.30	14644027.82	40°19'16.2119"N	80°32'6.4925"W	0.86	294.234	0.85	0.57	-74.02
295.00	0.120	260.470	294.99	0.88	0.31	-1.43	1769989.66	14644027.78	40°19'16.2115"N	80°32'6.5008"W	1.46	282.276	0.65	-0.64	-7.38
385.00	0.340	317.880	384.99	1.16	0.49	-1.70	1769989.39	14644027.96	40°19'16.2133"N	80°32'6.5043"W	1.77	286.175	0.33	0.24	63.79
477.00	0.460	17.580	476.99	1.69	1.05	-1.77	1769989.32	14644028.52	40°19'16.2188"N	80°32'6.5052"W	2.06	300.591	0.45	0.13	64.89
566.00	0.520	29.130	565.99	2.20	1.74	-1.47	1769989.62	14644029.21	40°19'16.2256"N	80°32'6.5012"W	2.28	319.865	0.13	0.07	12.98
597.00	0.670	9.850	596.99	2.43	2.04	-1.37	1769989.72	14644029.51	40°19'16.2286"N	80°32'6.4999"W	2.46	326.177	0.80	0.48	-62.19
677.00	0.520	9.750	676.98	3.11	2.86	-1.23	1769989.86	14644030.33	40°19'16.2367"N	80°32'6.4981"W	3.11	336.787	0.19	-0.19	-0.12
770.00	1.660	354.220	769.96	4.73	4.62	-1.29	1769989.80	14644032.09	40°19'16.2541"N	80°32'6.4988"W	4.79	344.375	1.26	1.23	-16.70
860.00	3.580	353.100	859.87	8.64	8.70	-1.76	1769989.33	14644036.17	40°19'16.2945"N	80°32'6.5045"W	8.88	348.567	2.13	2.13	-1.24
951.00	5.370	352.530	950.58	15.42	15.75	-2.66	1769988.44	14644043.21	40°19'16.3641"N	80°32'6.5156"W	15.97	350.429	1.97	1.97	-0.63
1042.00	5.120	353.020	1041.20	23.35	24.00	-3.70	1769987.39	14644051.46	40°19'16.4457"N	80°32'6.5286"W	24.28	351.231	0.28	-0.27	0.54
1133.00	2.710	354.210	1131.98	29.26	30.17	-4.41	1769986.68	14644057.63	40°19'16.5067"N	80°32'6.5373"W	30.49	351.679	2.65	-2.65	1.31
1224.00	0.490	309.930	1222.95	31.64	32.56	-4.93	1769986.16	14644060.02	40°19'16.5304"N	80°32'6.5438"W	32.93	351.393	2.62	-2.44	-48.66
1315.00	1.200	195.840	1313.94	31.27	31.90	-5.49	1769985.61	14644059.35	40°19'16.5238"N	80°32'6.5511"W	32.36	350.239	1.62	0.78	-125.37
1386.00	1.620	197.310	1384.92	29.96	30.22	-5.99	1769985.10	14644057.68	40°19'16.5073"N	80°32'6.5577"W	30.81	348.792	0.59	0.59	2.07
1476.00	2.000	194.610	1474.87	27.80	27.49	-6.76	1769984.33	14644054.95	40°19'16.4803"N	80°32'6.5679"W	28.31	346.177	0.43	0.42	-3.00
1539.00	1.370	154.220	1537.85	26.20	25.75	-6.71	1769984.38	14644053.21	40°19'16.4631"N	80°32'6.5673"W	26.61	345.386	2.07	-1.00	-64.11
1630.00	3.200	104.410	1628.78	23.51	24.13	-3.78	1769987.31	14644051.59	40°19'16.4470"N	80°32'6.5296"W	24.43	351.100	2.79	2.01	-54.74
1721.00	5.670	99.710	1719.50	19.36	22.74	3.11	1769994.20	14644050.20	40°19'16.4329"N	80°32'6.4407"W	22.96	7.793	2.74	2.71	-5.16
1812.00	7.550	106.350	1809.89	12.90	20.30	13.28	1770004.37	14644047.76	40°19'16.4083"N	80°32'6.3096"W	24.26	33.192	2.23	2.07	7.30
1903.00	8.250	118.910	1900.03	3.72	15.46	24.73	1770015.81	14644042.93	40°19'16.3599"N	80°32'6.1620"W	29.17	57.989	2.04	0.77	13.80
1994.00	7.940	130.210	1990.13	-7.23	8.25	35.25	1770026.33	14644035.71	40°19'16.2880"N	80°32'6.0268"W	36.20	76.831	1.78	-0.34	12.42
2085.00	8.820	134.970	2080.16	-19.46	-0.74	44.99	1770036.06	14644026.73	40°19'16.1987"N	80°32'5.9017"W	44.99	90.944	1.23	0.97	5.23
2178.00	11.170	134.970	2171.74	-34.60	-12.15	56.40	1770047.47	14644015.33	40°19'16.0854"N	80°32'5.7550"W	57.70	102.154	2.53	2.53	0.00
2269.00	13.310	131.630	2260.67	-52.46	-25.34	70.47	1770061.54	14644002.14	40°19'15.9543"N	80°32'5.5743"W	74.89	109.776	2.48	2.35	-3.67
2361.00	15.190	128.500	2349.84	-72.92	-39.88	87.82	1770078.88	14643987.61	40°19'15.8097"N	80°32'5.3513"W	96.45	114.421	2.21	2.04	-3.40
2453.00	16.900	127.660	2438.25	-95.52	-55.55	107.84	1770098.89	14643971.94	40°19'15.6538"N	80°32'5.0939"W	121.31	117.254	1.88	1.86	-0.91

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Actual Wellpath Report

State of WV DNR A BRK 5H AWP Proj: 18617'
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Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
2546.00	18.500	126.000	2526.84	-120.36	-72.48	130.48	1770121.52	14643955.01	40°19'15.4853"N	80°32'4.8028"W	149.26	119.053	1.80	1.72	-1.78
2639.00	19.170	123.820	2614.87	-146.25	-89.66	155.11	1770146.14	14643937.85	40°19'15.3144"N	80°32'4.4861"W	179.15	120.029	1.04	0.72	-2.34
2731.00	19.530	120.980	2701.67	-171.83	-105.98	180.84	1770171.86	14643921.53	40°19'15.1517"N	80°32'4.1549"W	209.61	120.372	1.09	0.39	-3.09
2824.00	19.410	117.440	2789.36	-196.87	-121.10	207.88	1770198.89	14643906.41	40°19'15.0009"N	80°32'3.8068"W	240.58	120.223	1.28	-0.13	-3.81
2914.00	18.740	116.940	2874.41	-220.01	-134.54	234.04	1770225.04	14643892.98	40°19'14.8667"N	80°32'3.4700"W	269.96	119.893	0.77	-0.74	-0.56
3006.00	18.360	121.220	2961.64	-243.59	-148.75	259.61	1770250.60	14643878.78	40°19'14.7250"N	80°32'3.1409"W	299.21	119.812	1.54	-0.41	4.65
3099.00	18.250	124.220	3049.93	-268.19	-164.53	284.18	1770275.16	14643863.00	40°19'14.5678"N	80°32'2.8248"W	328.37	120.070	1.02	-0.12	3.23
3193.00	19.690	125.020	3138.83	-294.47	-181.90	309.32	1770300.29	14643845.64	40°19'14.3948"N	80°32'2.5014"W	358.84	120.458	1.56	1.53	0.85
3286.00	20.030	128.310	3226.30	-322.19	-200.76	334.65	1770325.61	14643826.78	40°19'14.2071"N	80°32'2.1757"W	390.25	120.961	1.26	0.37	3.54
3378.00	19.130	128.480	3312.98	-349.69	-219.91	358.81	1770349.76	14643807.64	40°19'14.0166"N	80°32'1.8650"W	420.84	121.504	0.98	-0.98	0.18
3470.00	19.050	128.830	3399.92	-376.58	-238.70	382.31	1770373.25	14643788.86	40°19'13.8297"N	80°32'1.5630"W	450.71	121.980	0.15	-0.09	0.38
3561.00	20.380	129.130	3485.58	-404.09	-258.02	406.17	1770397.10	14643769.55	40°19'13.6376"N	80°32'1.2562"W	481.19	122.425	1.47	1.46	0.33
3652.00	20.180	124.430	3570.95	-431.78	-276.89	431.41	1770422.33	14643750.68	40°19'13.4498"N	80°32'0.9317"W	512.62	122.694	1.80	-0.22	-5.16
3743.00	19.430	124.560	3656.56	-458.26	-294.35	456.82	1770447.74	14643733.23	40°19'13.2759"N	80°32'0.6048"W	543.44	122.796	0.83	-0.82	0.14
3833.00	19.360	125.390	3741.46	-484.06	-311.48	481.31	1770472.22	14643716.10	40°19'13.1054"N	80°32'0.2898"W	573.31	122.909	0.32	-0.08	0.92
3924.00	18.270	127.730	3827.59	-509.77	-328.95	504.89	1770495.79	14643698.65	40°19'12.9316"N	80°31'59.9866"W	602.60	123.085	1.46	-1.20	2.57
4015.00	18.700	128.910	3913.90	-535.48	-346.84	527.52	1770518.41	14643680.76	40°19'12.7536"N	80°31'59.6956"W	631.33	123.325	0.63	0.47	1.30
4105.00	19.010	129.190	3999.07	-561.57	-365.17	550.11	1770540.99	14643662.44	40°19'12.5713"N	80°31'59.4053"W	660.28	123.576	0.36	0.34	0.31
4196.00	18.350	128.750	4085.27	-587.69	-383.50	572.77	1770563.64	14643644.12	40°19'12.3890"N	80°31'59.1140"W	689.30	123.804	0.74	-0.73	-0.48
4287.00	19.050	125.850	4171.47	-613.43	-401.16	595.98	1770586.84	14643626.46	40°19'12.2132"N	80°31'58.8156"W	718.41	123.945	1.28	0.77	-3.19
4377.00	19.200	125.700	4256.50	-639.09	-418.40	619.90	1770610.75	14643609.23	40°19'12.0417"N	80°31'58.5079"W	747.89	124.017	0.18	0.17	-0.17
4468.00	18.590	127.230	4342.60	-664.89	-435.91	643.60	1770634.45	14643591.73	40°19'11.8674"N	80°31'58.2031"W	777.33	124.109	0.86	-0.67	1.68
4559.00	19.670	126.230	4428.57	-691.08	-453.73	667.51	1770658.34	14643573.91	40°19'11.6900"N	80°31'57.8957"W	807.12	124.206	1.24	1.19	-1.10
4649.00	20.340	123.410	4513.15	-717.60	-471.30	692.78	1770683.61	14643556.35	40°19'11.5151"N	80°31'57.5706"W	837.90	124.227	1.30	0.74	-3.13
4740.00	20.540	124.920	4598.42	-744.79	-489.15	719.07	1770709.89	14643538.51	40°19'11.3374"N	80°31'57.2324"W	869.67	124.225	0.62	0.22	1.66
4831.00	20.060	125.390	4683.76	-772.09	-507.32	744.89	1770735.69	14643520.34	40°19'11.1564"N	80°31'56.9004"W	901.24	124.258	0.56	-0.53	0.52
4922.00	15.870	106.840	4770.38	-793.89	-519.98	769.55	1770760.35	14643507.69	40°19'11.0300"N	80°31'56.5829"W	928.76	124.047	7.74	-4.60	-20.38
5013.00	11.640	70.030	4858.91	-802.92	-520.45	790.13	1770780.92	14643507.22	40°19'11.0243"N	80°31'56.3171"W	946.14	123.372	10.44	-4.65	-40.45
5103.00	11.830	39.590	4947.11	-799.66	-510.23	804.56	1770795.34	14643517.43	40°19'11.1245"N	80°31'56.1302"W	952.71	122.382	6.80	0.21	-33.82
5195.00	12.170	16.600	5037.16	-788.28	-493.66	813.35	1770804.12	14643534.00	40°19'11.2878"N	80°31'56.0157"W	951.44	121.256	5.17	0.37	-24.99

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5287.00	14.200	1.140	5126.75	-770.82	-473.08	816.34	1770807.12	14643554.57	40°19'11.4911"N	80°31'55.9756"W	943.51	120.093	4.40	2.21	-16.80
5377.00	17.710	354.560	5213.28	-747.96	-448.41	815.26	1770806.04	14643579.24	40°19'11.7349"N	80°31'55.9878"W	930.44	118.811	4.38	3.90	-7.31
5469.00	23.930	348.900	5299.24	-716.58	-416.13	810.34	1770801.12	14643611.50	40°19'12.0541"N	80°31'56.0492"W	910.94	117.182	7.10	6.76	-6.15
5561.00	30.620	342.470	5380.98	-675.14	-375.43	799.68	1770790.46	14643652.19	40°19'12.4569"N	80°31'56.1841"W	883.42	115.149	7.94	7.27	-6.99
5652.00	36.450	340.720	5456.80	-625.19	-327.77	783.76	1770774.55	14643699.83	40°19'12.9287"N	80°31'56.3864"W	849.53	112.695	6.49	6.41	-1.92
5756.00	43.630	343.720	5536.38	-558.84	-264.08	763.47	1770754.27	14643763.50	40°19'13.5591"N	80°31'56.6439"W	807.85	109.080	7.15	6.90	2.88
5801.00	46.760	345.190	5568.09	-527.33	-233.32	754.92	1770745.72	14643794.24	40°19'13.8635"N	80°31'56.7521"W	790.16	107.174	7.33	6.96	3.27
5847.00	50.820	344.750	5598.39	-493.22	-199.90	745.95	1770736.75	14643827.64	40°19'14.1942"N	80°31'56.8657"W	772.27	105.002	8.86	8.83	-0.96
5892.00	55.340	345.600	5625.41	-457.78	-165.13	736.75	1770727.56	14643862.40	40°19'14.5382"N	80°31'56.9821"W	755.03	102.633	10.16	10.04	1.89
5937.00	60.260	345.080	5649.39	-420.30	-128.31	727.11	1770717.93	14643899.21	40°19'14.9027"N	80°31'57.1040"W	738.35	100.007	10.98	10.93	-1.16
5985.00	65.650	344.020	5671.20	-378.12	-87.12	715.72	1770706.54	14643940.38	40°19'15.3102"N	80°31'57.2483"W	721.00	96.940	11.40	11.23	-2.21
6029.00	70.530	343.570	5687.62	-337.75	-47.93	704.33	1770695.15	14643979.56	40°19'15.6981"N	80°31'57.3927"W	705.96	93.893	11.13	11.09	-1.02
6120.00	80.610	342.690	5710.27	-250.56	36.29	678.77	1770669.60	14644063.75	40°19'16.5317"N	80°31'57.7169"W	679.74	86.940	11.12	11.08	-0.97
6210.00	90.740	342.510	5717.04	-161.65	121.82	651.97	1770642.81	14644149.24	40°19'17.3782"N	80°31'58.0571"W	663.25	79.417	11.26	11.26	-0.20
6301.00	92.120	338.530	5714.77	-71.08	207.56	621.64	1770612.49	14644234.95	40°19'18.2271"N	80°31'58.4428"W	655.38	71.536	4.63	1.52	-4.37
6392.00	90.550	335.060	5712.65	19.85	291.16	585.80	1770576.67	14644318.52	40°19'19.0550"N	80°31'58.8998"W	654.17	63.571	4.18	-1.73	-3.81
6482.00	91.020	333.260	5711.42	109.82	372.15	546.58	1770537.46	14644399.48	40°19'19.8574"N	80°31'59.4007"W	661.24	55.750	2.07	0.52	-2.00
6573.00	90.950	333.120	5709.85	200.74	453.36	505.54	1770496.44	14644480.65	40°19'20.6620"N	80°31'59.9250"W	679.05	48.115	0.17	-0.08	-0.15
6663.00	90.490	333.040	5708.72	290.67	533.60	464.80	1770455.71	14644560.86	40°19'21.4570"N	80°32'0.4455"W	707.65	41.058	0.52	-0.51	-0.09
6755.00	91.170	332.470	5707.39	382.57	615.38	422.68	1770413.61	14644642.62	40°19'22.2674"N	80°32'0.9837"W	746.56	34.484	0.96	0.74	-0.62
6846.00	91.450	333.390	5705.31	473.46	696.39	381.28	1770372.23	14644723.59	40°19'23.0700"N	80°32'1.5127"W	793.94	28.701	1.06	0.31	1.01
6937.00	91.260	333.570	5703.16	564.39	777.79	340.66	1770331.62	14644804.97	40°19'23.8765"N	80°32'2.0316"W	849.12	23.653	0.29	-0.21	0.20
7027.00	91.260	333.470	5701.18	654.33	858.33	300.54	1770291.52	14644885.47	40°19'24.6745"N	80°32'2.5441"W	909.43	19.298	0.11	0.00	-0.11
7118.00	91.020	332.110	5699.37	745.22	939.24	258.94	1770249.93	14644966.35	40°19'25.4762"N	80°32'3.0757"W	974.28	15.413	1.52	-0.26	-1.49
7210.00	91.390	332.170	5697.43	837.06	1020.56	215.96	1770206.96	14645047.64	40°19'26.2820"N	80°32'3.6251"W	1043.16	11.948	0.41	0.40	0.07
7300.00	90.430	332.260	5696.00	926.91	1100.17	174.01	1770165.03	14645127.22	40°19'27.0708"N	80°32'4.1612"W	1113.85	8.988	1.07	-1.07	0.10
7391.00	91.880	332.010	5694.17	1017.75	1180.60	131.49	1770122.53	14645207.62	40°19'27.8678"N	80°32'4.7048"W	1187.90	6.355	1.62	1.59	-0.27
7482.00	90.580	333.190	5692.22	1108.63	1261.37	89.62	1770080.68	14645288.36	40°19'28.6681"N	80°32'5.2398"W	1264.55	4.064	1.93	-1.43	1.30
7573.00	92.180	332.930	5690.02	1199.53	1342.47	48.41	1770039.48	14645369.43	40°19'29.4717"N	80°32'5.7665"W	1343.34	2.065	1.78	1.76	-0.29
7666.00	90.620	332.210	5687.75	1292.39	1424.99	5.58	1769996.67	14645451.91	40°19'30.2893"N	80°32'6.3138"W	1425.00	0.224	1.85	-1.68	-0.77

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
7756.00	91.050	332.470	5686.44	1382.26	1504.69	-36.20	1769954.91	14645531.59	40°19'31.0791"N	80°32'6.8478"W	1505.13	358.622	0.56	0.48	0.29
7847.00	90.980	331.730	5684.83	1473.10	1585.10	-78.77	1769912.35	14645611.97	40°19'31.8759"N	80°32'7.3920"W	1587.06	357.155	0.82	-0.08	-0.81
7939.00	90.830	332.250	5683.38	1564.93	1666.32	-121.97	1769869.16	14645693.15	40°19'32.6806"N	80°32'7.9442"W	1670.78	355.813	0.59	-0.16	0.57
8029.00	90.580	332.240	5682.27	1654.80	1745.96	-163.88	1769827.27	14645772.76	40°19'33.4698"N	80°32'8.4799"W	1753.63	354.638	0.28	-0.28	-0.01
8120.00	90.310	331.850	5681.56	1745.65	1826.34	-206.54	1769784.63	14645853.11	40°19'34.2662"N	80°32'9.0252"W	1837.98	353.548	0.52	-0.30	-0.43
8211.00	91.320	334.490	5680.27	1836.57	1907.52	-247.60	1769743.58	14645934.26	40°19'35.0706"N	80°32'9.5499"W	1923.53	352.604	3.11	1.11	2.90
8301.00	89.910	331.360	5679.30	1926.47	1987.64	-288.56	1769702.64	14646014.35	40°19'35.8645"N	80°32'10.0733"W	2008.48	351.740	3.81	-1.57	-3.48
8392.00	91.910	334.510	5677.86	2017.36	2068.65	-329.95	1769661.26	14646095.33	40°19'36.6671"N	80°32'10.6023"W	2094.80	350.938	4.10	2.20	3.46
8482.00	90.090	331.780	5676.28	2107.27	2148.92	-370.60	1769620.63	14646175.57	40°19'37.4624"N	80°32'11.1216"W	2180.65	350.215	3.65	-2.02	-3.03
8573.00	90.650	333.080	5675.70	2198.15	2229.59	-412.71	1769578.53	14646256.20	40°19'38.2617"N	80°32'11.6599"W	2267.46	349.513	1.56	0.62	1.43
8664.00	92.000	333.830	5673.59	2289.08	2310.97	-453.37	1769537.89	14646337.55	40°19'39.0680"N	80°32'12.1794"W	2355.02	348.901	1.70	1.48	0.82
8755.00	90.120	332.180	5671.91	2379.98	2392.03	-494.67	1769496.61	14646418.59	40°19'39.8712"N	80°32'12.7071"W	2442.65	348.316	2.75	-2.07	-1.81
8846.00	90.250	332.600	5671.62	2470.86	2472.67	-536.84	1769454.46	14646499.19	40°19'40.6702"N	80°32'13.2461"W	2530.28	347.751	0.48	0.14	0.46
8937.00	91.080	331.570	5670.56	2561.71	2553.07	-579.44	1769411.87	14646579.57	40°19'41.4669"N	80°32'13.7907"W	2618.00	347.213	1.45	0.91	-1.13
9027.00	90.650	333.010	5669.20	2651.57	2632.74	-621.28	1769370.05	14646659.20	40°19'42.2563"N	80°32'14.3256"W	2705.05	346.722	1.67	-0.48	1.60
9119.00	90.950	333.250	5667.92	2743.50	2714.80	-662.86	1769328.49	14646741.23	40°19'43.0693"N	80°32'14.8569"W	2794.55	346.279	0.42	0.33	0.26
9211.00	90.220	332.630	5666.98	2835.41	2796.72	-704.71	1769286.65	14646823.12	40°19'43.8810"N	80°32'15.3917"W	2884.14	345.857	1.04	-0.79	-0.67
9304.00	91.080	332.110	5665.92	2928.28	2879.11	-747.83	1769243.54	14646905.48	40°19'44.6974"N	80°32'15.9430"W	2974.65	345.439	1.08	0.92	-0.56
9394.00	90.430	332.540	5664.74	3018.15	2958.81	-789.63	1769201.76	14646985.15	40°19'45.4871"N	80°32'16.4773"W	3062.36	345.057	0.87	-0.72	0.48
9485.00	90.180	332.700	5664.25	3109.05	3039.61	-831.48	1769159.93	14647065.92	40°19'46.2877"N	80°32'17.0122"W	3151.29	344.701	0.33	-0.27	0.18
9575.00	91.570	332.430	5662.88	3198.94	3119.48	-872.94	1769118.48	14647145.76	40°19'47.0790"N	80°32'17.5422"W	3239.32	344.366	1.57	1.54	-0.30
9666.00	90.030	331.910	5661.61	3289.79	3199.94	-915.42	1769076.02	14647226.19	40°19'47.8764"N	80°32'18.0852"W	3328.31	344.036	1.79	-1.69	-0.57
9757.00	90.680	334.200	5661.04	3380.71	3281.06	-956.65	1769034.80	14647307.27	40°19'48.6800"N	80°32'18.6121"W	3417.68	343.745	2.62	0.71	2.52
9847.00	92.860	332.910	5658.26	3470.62	3361.59	-996.71	1768994.76	14647387.78	40°19'49.4779"N	80°32'19.1239"W	3506.24	343.485	2.81	2.42	-1.43
9938.00	90.890	329.990	5655.28	3561.35	3441.47	-1040.17	1768951.32	14647467.63	40°19'50.2695"N	80°32'19.6797"W	3595.23	343.183	3.87	-2.16	-3.21
10029.00	91.290	331.890	5653.55	3652.06	3521.00	-1084.36	1768907.14	14647547.12	40°19'51.0576"N	80°32'20.2450"W	3684.19	342.883	2.13	0.44	2.09
10119.00	91.690	332.750	5651.21	3741.91	3600.67	-1126.16	1768865.37	14647626.76	40°19'51.8470"N	80°32'20.7793"W	3772.67	342.632	1.05	0.44	0.96
10210.00	92.190	332.180	5648.13	3832.74	3681.32	-1168.20	1768823.34	14647707.38	40°19'52.6461"N	80°32'21.3167"W	3862.23	342.394	0.83	0.55	-0.63
10300.00	90.460	331.660	5646.05	3922.56	3760.70	-1210.55	1768781.00	14647786.73	40°19'53.4327"N	80°32'21.8582"W	3950.73	342.157	2.01	-1.92	-0.58
10391.00	90.250	333.250	5645.49	4013.44	3841.38	-1252.63	1768738.94	14647867.38	40°19'54.2321"N	80°32'22.3961"W	4040.46	341.939	1.76	-0.23	1.75

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
10482.00	89.880	331.290	5645.38	4104.31	3921.92	-1294.97	1768696.61	14647947.89	40°19'55.0302"N	80°32'22.9374"W	4130.19	341.727	2.19	-0.41	-2.15
10572.00	91.450	331.780	5644.34	4194.10	4001.04	-1337.86	1768653.74	14648026.97	40°19'55.8142"N	80°32'23.4860"W	4218.79	341.511	1.83	1.74	0.54
10663.00	90.340	332.870	5642.92	4284.96	4081.61	-1380.12	1768611.50	14648107.52	40°19'56.6126"N	80°32'24.0262"W	4308.63	341.318	1.71	-1.22	1.20
10755.00	90.460	332.530	5642.28	4376.87	4163.36	-1422.32	1768569.32	14648189.24	40°19'57.4226"N	80°32'24.5655"W	4399.61	341.138	0.39	0.13	-0.37
10845.00	90.680	332.250	5641.38	4466.75	4243.11	-1464.02	1768527.63	14648268.96	40°19'58.2127"N	80°32'25.0988"W	4488.58	340.964	0.40	0.24	-0.31
10936.00	90.550	332.030	5640.40	4557.60	4323.56	-1506.55	1768485.12	14648349.37	40°19'59.0099"N	80°32'25.6424"W	4578.52	340.789	0.28	-0.14	-0.24
11029.00	91.260	331.440	5638.93	4650.41	4405.46	-1550.58	1768441.10	14648431.24	40°19'59.8214"N	80°32'26.2055"W	4670.37	340.610	0.99	0.76	-0.63
11120.00	91.450	332.240	5636.78	4741.21	4485.66	-1593.52	1768398.18	14648511.42	40°20'0.6162"N	80°32'26.7545"W	4760.30	340.443	0.90	0.21	0.88
11212.00	91.540	333.460	5634.38	4833.10	4567.50	-1635.48	1768356.23	14648593.22	40°20'1.4270"N	80°32'27.2910"W	4851.48	340.299	1.33	0.10	1.33
11304.00	90.890	333.130	5632.43	4925.02	4649.66	-1676.82	1768314.92	14648675.35	40°20'2.2411"N	80°32'27.8192"W	4942.78	340.169	0.79	-0.71	-0.36
11395.00	90.680	332.590	5631.19	5015.93	4730.64	-1718.32	1768273.42	14648756.30	40°20'3.0433"N	80°32'28.3497"W	5033.05	340.037	0.64	-0.23	-0.59
11486.00	91.630	331.120	5629.35	5106.74	4810.86	-1761.24	1768230.53	14648836.49	40°20'3.8382"N	80°32'28.8985"W	5123.12	339.892	1.92	1.04	-1.62
11577.00	91.600	332.300	5626.79	5197.52	4890.96	-1804.35	1768187.43	14648916.55	40°20'4.6319"N	80°32'29.4498"W	5213.17	339.750	1.30	-0.03	1.30
11668.00	91.230	332.970	5624.54	5288.39	4971.75	-1846.16	1768145.63	14648997.31	40°20'5.4324"N	80°32'29.9844"W	5303.45	339.628	0.84	-0.41	0.74
11758.00	91.350	333.220	5622.51	5378.30	5051.98	-1886.88	1768104.93	14649077.52	40°20'6.2274"N	80°32'30.5048"W	5392.85	339.520	0.31	0.13	0.28
11850.00	90.650	331.830	5620.91	5470.18	5133.59	-1929.32	1768062.51	14649159.10	40°20'7.0360"N	80°32'31.0473"W	5484.16	339.403	1.69	-0.76	-1.51
11941.00	90.770	331.600	5619.78	5560.99	5213.72	-1972.44	1768019.41	14649239.20	40°20'7.8300"N	80°32'31.5987"W	5574.35	339.278	0.29	0.13	-0.25
12031.00	90.990	332.420	5618.40	5650.83	5293.18	-2014.67	1767977.19	14649318.63	40°20'8.6174"N	80°32'32.1388"W	5663.63	339.162	0.94	0.24	0.91
12120.00	90.650	333.010	5617.12	5739.73	5372.27	-2055.46	1767936.41	14649397.69	40°20'9.4010"N	80°32'32.6603"W	5752.06	339.063	0.77	-0.38	0.66
12211.00	90.310	331.610	5616.36	5830.60	5452.85	-2097.75	1767894.15	14649478.23	40°20'10.1993"N	80°32'33.2009"W	5842.44	338.958	1.58	-0.37	-1.54
12302.00	90.620	330.930	5615.62	5921.37	5532.64	-2141.49	1767850.42	14649557.99	40°20'10.9901"N	80°32'33.7604"W	5932.63	338.840	0.82	0.34	-0.75
12392.00	90.830	331.660	5614.48	6011.14	5611.57	-2184.71	1767807.22	14649636.90	40°20'11.7723"N	80°32'34.3133"W	6021.85	338.728	0.84	0.23	0.81
12483.00	91.850	333.980	5612.36	6102.02	5692.50	-2226.26	1767765.68	14649717.79	40°20'12.5740"N	80°32'34.8445"W	6112.34	338.640	2.78	1.12	2.55
12574.00	90.520	332.060	5610.47	6192.93	5773.57	-2267.54	1767724.42	14649798.83	40°20'13.3773"N	80°32'35.3720"W	6202.89	338.558	2.57	-1.46	-2.11
12664.00	90.830	332.440	5609.41	6282.79	5853.21	-2309.44	1767682.53	14649878.44	40°20'14.1664"N	80°32'35.9078"W	6292.34	338.468	0.54	0.34	0.42
12755.00	91.480	332.390	5607.58	6373.66	5933.85	-2351.57	1767640.42	14649959.05	40°20'14.9654"N	80°32'36.4465"W	6382.83	338.382	0.72	0.71	-0.05
12846.00	90.430	334.210	5606.06	6464.58	6015.13	-2392.45	1767599.56	14650040.30	40°20'15.7707"N	80°32'36.9690"W	6473.46	338.310	2.31	-1.15	2.00
12937.00	90.550	336.630	5605.28	6555.57	6097.88	-2430.30	1767561.72	14650123.01	40°20'16.5902"N	80°32'37.4522"W	6564.33	338.270	2.66	0.13	2.66
13027.00	90.520	337.070	5604.44	6645.53	6180.63	-2465.68	1767526.35	14650205.73	40°20'17.4097"N	80°32'37.9036"W	6654.30	338.251	0.49	-0.03	0.49
13118.00	90.920	339.120	5603.30	6736.41	6265.04	-2499.62	1767492.42	14650290.12	40°20'18.2457"N	80°32'38.3363"W	6745.29	338.249	2.30	0.44	2.25

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
13209.00	90.770	339.090	5601.96	6827.21	6350.05	-2532.08	1767459.98	14650375.09	40°20'19.0873"N	80°32'38.7497"W	6836.27	338.260	0.17	-0.16	-0.03
13299.00	91.140	339.620	5600.46	6916.97	6434.26	-2563.80	1767428.27	14650459.27	40°20'19.9210"N	80°32'39.1538"W	6926.24	338.275	0.72	0.41	0.59
13390.00	91.510	338.810	5598.35	7007.73	6519.31	-2596.09	1767396.00	14650544.29	40°20'20.7632"N	80°32'39.5651"W	7017.20	338.287	0.98	0.41	-0.89
13481.00	91.540	339.700	5595.93	7098.48	6604.38	-2628.31	1767363.79	14650629.32	40°20'21.6054"N	80°32'39.9755"W	7108.15	338.299	0.98	0.03	0.98
13571.00	91.140	338.280	5593.83	7188.27	6688.37	-2660.57	1767331.54	14650713.28	40°20'22.4370"N	80°32'40.3865"W	7198.12	338.308	1.64	-0.44	-1.58
13662.00	91.690	338.480	5591.58	7279.11	6772.94	-2694.08	1767298.04	14650797.82	40°20'23.2744"N	80°32'40.8137"W	7289.09	338.309	0.64	0.60	0.22
13752.00	91.450	338.850	5589.11	7368.92	6856.75	-2726.82	1767265.32	14650881.59	40°20'24.1042"N	80°32'41.2309"W	7379.06	338.313	0.49	-0.27	0.41
13843.00	90.770	338.870	5587.35	7459.73	6941.60	-2759.63	1767232.52	14650966.42	40°20'24.9444"N	80°32'41.6490"W	7470.04	338.320	0.75	-0.75	0.02
13934.00	90.740	339.320	5586.15	7550.52	7026.61	-2792.10	1767200.06	14651051.39	40°20'25.7860"N	80°32'42.0626"W	7561.02	338.329	0.50	-0.03	0.49
14024.00	91.350	339.190	5584.51	7640.30	7110.76	-2823.97	1767168.20	14651135.51	40°20'26.6192"N	80°32'42.4686"W	7650.99	338.340	0.69	0.68	-0.14
14115.00	91.170	338.460	5582.51	7731.10	7195.59	-2856.83	1767135.35	14651220.31	40°20'27.4591"N	80°32'42.8874"W	7741.97	338.346	0.83	-0.20	-0.80
14205.00	91.420	339.460	5580.48	7820.90	7279.57	-2889.14	1767103.06	14651304.25	40°20'28.2906"N	80°32'43.2990"W	7831.94	338.353	1.15	0.28	1.11
14296.00	91.290	339.450	5578.32	7911.63	7364.76	-2921.06	1767071.15	14651389.41	40°20'29.1340"N	80°32'43.7056"W	7922.89	338.365	0.14	-0.14	-0.01
14387.00	91.480	339.740	5576.12	8002.35	7450.02	-2952.78	1767039.44	14651474.64	40°20'29.9782"N	80°32'44.1096"W	8013.85	338.379	0.38	0.21	0.32
14477.00	91.320	339.470	5573.92	8092.07	7534.36	-2984.14	1767008.10	14651558.94	40°20'30.8131"N	80°32'44.5089"W	8103.80	338.393	0.35	-0.18	-0.30
14568.00	91.290	338.180	5571.85	8182.87	7619.19	-3017.00	1766975.25	14651643.74	40°20'31.6531"N	80°32'44.9277"W	8194.77	338.398	1.42	-0.03	-1.42
14659.00	91.230	338.090	5569.85	8273.74	7703.62	-3050.88	1766941.38	14651728.14	40°20'32.4891"N	80°32'45.3596"W	8285.75	338.395	0.12	-0.07	-0.10
14749.00	91.660	338.490	5567.58	8363.59	7787.21	-3084.16	1766908.11	14651811.70	40°20'33.3168"N	80°32'45.7839"W	8375.72	338.394	0.65	0.48	0.44
14840.00	90.920	338.440	5565.53	8454.43	7871.84	-3117.56	1766874.73	14651896.29	40°20'34.1547"N	80°32'46.2095"W	8466.70	338.394	0.82	-0.81	-0.05
14931.00	90.180	338.120	5564.66	8545.30	7956.37	-3151.23	1766841.07	14651980.79	40°20'34.9918"N	80°32'46.6388"W	8557.69	338.393	0.89	-0.81	-0.35
15021.00	90.280	338.390	5564.30	8635.18	8039.97	-3184.57	1766807.74	14652064.36	40°20'35.8195"N	80°32'47.0639"W	8647.69	338.392	0.32	0.11	0.30
15112.00	90.310	338.440	5563.83	8726.05	8124.58	-3218.05	1766774.27	14652148.94	40°20'36.6574"N	80°32'47.4906"W	8738.69	338.392	0.06	0.03	0.05
15203.00	89.850	338.810	5563.70	8816.90	8209.32	-3251.22	1766741.12	14652233.65	40°20'37.4964"N	80°32'47.9133"W	8829.69	338.394	0.65	-0.51	0.41
15293.00	89.910	338.060	5563.89	8906.76	8293.02	-3284.30	1766708.05	14652317.32	40°20'38.3252"N	80°32'48.3350"W	8919.69	338.395	0.84	0.07	-0.83
15384.00	90.620	337.920	5563.47	8997.66	8377.39	-3318.40	1766673.96	14652401.65	40°20'39.1606"N	80°32'48.7699"W	9010.68	338.391	0.80	0.78	-0.15
15475.00	90.460	338.210	5562.61	9088.55	8461.80	-3352.39	1766639.98	14652486.03	40°20'39.9964"N	80°32'49.2033"W	9101.68	338.388	0.36	-0.18	0.32
15565.00	91.450	339.040	5561.11	9178.39	8545.59	-3385.19	1766607.20	14652569.79	40°20'40.8261"N	80°32'49.6213"W	9191.66	338.390	1.44	1.10	0.92
15656.00	90.520	338.410	5559.55	9269.21	8630.38	-3418.20	1766574.20	14652654.54	40°20'41.6656"N	80°32'50.0421"W	9282.65	338.393	1.23	-1.02	-0.69
15747.00	90.520	338.760	5558.72	9360.06	8715.09	-3451.43	1766540.99	14652739.22	40°20'42.5044"N	80°32'50.4656"W	9373.64	338.395	0.38	0.00	0.38
15837.00	90.430	338.480	5557.98	9449.90	8798.89	-3484.23	1766508.19	14652823.00	40°20'43.3341"N	80°32'50.8837"W	9463.64	338.397	0.33	-0.10	-0.31

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Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
15928.00	90.620	337.970	5557.14	9540.78	8883.40	-3517.99	1766474.45	14652907.47	40°20'44.1709"N	80°32'51.3141"W	9554.63	338.396	0.60	0.21	-0.56
16019.00	90.340	337.940	5556.38	9631.68	8967.74	-3552.14	1766440.31	14652991.78	40°20'45.0060"N	80°32'51.7496"W	9645.63	338.391	0.31	-0.31	-0.03
16109.00	90.620	338.020	5555.63	9721.58	9051.17	-3585.89	1766406.58	14653075.18	40°20'45.8322"N	80°32'52.1799"W	9735.62	338.388	0.32	0.31	0.09
16200.00	90.830	338.350	5554.47	9812.46	9135.65	-3619.70	1766372.77	14653159.62	40°20'46.6687"N	80°32'52.6110"W	9826.61	338.386	0.43	0.23	0.36
16290.00	90.830	338.150	5553.17	9902.33	9219.23	-3653.05	1766339.44	14653243.17	40°20'47.4963"N	80°32'53.0362"W	9916.60	338.384	0.22	0.00	-0.22
16381.00	90.550	338.210	5552.08	9993.21	9303.71	-3686.87	1766305.63	14653327.62	40°20'48.3327"N	80°32'53.4674"W	10007.60	338.383	0.31	-0.31	0.07
16472.00	90.520	338.650	5551.23	10084.07	9388.33	-3720.32	1766272.19	14653412.21	40°20'49.1706"N	80°32'53.8939"W	10098.59	338.383	0.48	-0.03	0.48
16564.00	90.430	337.870	5550.46	10175.94	9473.78	-3754.40	1766238.13	14653497.63	40°20'50.0168"N	80°32'54.3284"W	10190.59	338.382	0.85	-0.10	-0.85
16654.00	90.550	338.480	5549.69	10265.83	9557.33	-3787.86	1766204.68	14653581.14	40°20'50.8440"N	80°32'54.7550"W	10280.58	338.380	0.69	0.13	0.68
16745.00	90.400	338.260	5548.94	10356.70	9641.92	-3821.40	1766171.15	14653665.70	40°20'51.6816"N	80°32'55.1826"W	10371.58	338.380	0.29	-0.16	-0.24
16836.00	90.460	338.030	5548.26	10447.58	9726.38	-3855.27	1766137.29	14653750.12	40°20'52.5179"N	80°32'55.6145"W	10462.58	338.378	0.26	0.07	-0.25
16927.00	90.090	338.060	5547.82	10538.48	9810.78	-3889.30	1766103.28	14653834.49	40°20'53.3536"N	80°32'56.0484"W	10553.57	338.375	0.41	-0.41	0.03
17017.00	90.120	338.290	5547.65	10628.36	9894.32	-3922.75	1766069.84	14653918.01	40°20'54.1809"N	80°32'56.4750"W	10643.57	338.373	0.26	0.03	0.26
17108.00	90.090	338.430	5547.49	10719.23	9978.91	-3956.31	1766036.29	14654002.56	40°20'55.0184"N	80°32'56.9029"W	10734.57	338.373	0.16	-0.03	0.15
17199.00	90.030	338.350	5547.39	10810.10	10063.51	-3989.83	1766002.79	14654087.13	40°20'55.8561"N	80°32'57.3302"W	10825.57	338.373	0.11	-0.07	-0.09
17289.00	90.310	338.090	5547.12	10899.99	10147.09	-4023.22	1765969.41	14654170.67	40°20'56.6836"N	80°32'57.7560"W	10915.57	338.372	0.42	0.31	-0.29
17380.00	90.490	338.270	5546.49	10990.87	10231.57	-4057.04	1765935.60	14654255.12	40°20'57.5201"N	80°32'58.1873"W	11006.57	338.371	0.28	0.20	0.20
17471.00	90.550	338.830	5545.66	11081.72	10316.26	-4090.32	1765902.34	14654339.78	40°20'58.3587"N	80°32'58.6115"W	11097.56	338.372	0.62	0.07	0.62
17561.00	90.310	338.770	5544.99	11171.55	10400.17	-4122.87	1765869.80	14654423.66	40°20'59.1895"N	80°32'59.0263"W	11187.56	338.375	0.27	-0.27	-0.07
17652.00	90.430	338.370	5544.40	11262.40	10484.87	-4156.11	1765836.57	14654508.33	40°21'0.0282"N	80°32'59.4501"W	11278.56	338.377	0.46	0.13	-0.44
17743.00	90.340	338.310	5543.79	11353.27	10569.45	-4189.70	1765802.99	14654592.87	40°21'0.8656"N	80°32'59.8784"W	11369.55	338.377	0.12	-0.10	-0.07
17833.00	90.550	338.580	5543.09	11443.13	10653.15	-4222.76	1765769.94	14654676.54	40°21'1.6944"N	80°33'0.2999"W	11459.55	338.377	0.38	0.23	0.30
17924.00	90.710	338.030	5542.09	11534.00	10737.70	-4256.40	1765736.32	14654761.06	40°21'2.5315"N	80°33'0.7288"W	11550.55	338.377	0.63	0.18	-0.60
18015.00	90.520	338.400	5541.11	11624.88	10822.19	-4290.17	1765702.56	14654845.52	40°21'3.3682"N	80°33'1.1595"W	11641.54	338.375	0.46	-0.21	0.41
18105.00	90.550	338.340	5540.27	11714.75	10905.85	-4323.35	1765669.40	14654929.15	40°21'4.1965"N	80°33'1.5824"W	11731.54	338.375	0.07	0.03	-0.07
18196.00	90.980	338.200	5539.06	11805.62	10990.38	-4357.03	1765635.72	14655013.64	40°21'5.0335"N	80°33'2.0120"W	11822.53	338.375	0.50	0.47	-0.15
18286.00	91.140	338.590	5537.39	11895.47	11074.04	-4390.17	1765602.60	14655097.27	40°21'5.8619"N	80°33'2.4345"W	11912.51	338.375	0.47	0.18	0.43
18378.00	90.920	338.150	5535.74	11987.33	11159.55	-4424.07	1765568.71	14655182.75	40°21'6.7085"N	80°33'2.8668"W	12004.50	338.375	0.53	-0.24	-0.48
18470.00	90.950	338.130	5534.24	12079.20	11244.92	-4458.32	1765534.47	14655268.09	40°21'7.5539"N	80°33'3.3036"W	12096.48	338.373	0.04	0.03	-0.02
18560.00	91.080	338.380	5532.64	12169.07	11328.50	-4491.66	1765501.15	14655351.64	40°21'8.3815"N	80°33'3.7287"W	12186.47	338.372	0.31	0.14	0.28

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	State of WV DNR A BRK 5H
Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH DATA (212 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]
18592.00	90.950	338.630	5532.08	12201.02	11358.27	-4503.39	1765489.43	14655381.40	40°21'8.6762"N	80°33'3.8782"W	12218.46	338.372	0.88	-0.41	0.78
18617.00‡	90.950	338.630	5531.66	12225.97	11381.55	-4512.49	1765480.32	14655404.67	40°21'8.9067"N	80°33'3.9943"W	12243.46	338.373	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: State of WV DNR A BRK 5H AWB Ref Wellpath: State of WV DNR A BRK 5H AWP Proj: 18617'									
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]
20in Conductor	26.00	125.00	99.00	26.00	125.00	0.00	0.00	0.17	-0.19
17.5in Open Hole	125.00	646.00	521.00	125.00	645.98	0.17	-0.19	2.57	-1.28
13.375in Casing Surface	26.00	646.00	620.00	26.00	645.98	0.00	0.00	2.57	-1.28
12.25in Open Hole	646.00	1443.00	797.00	645.98	1441.89	2.57	-1.28	28.56	-6.47
9.625in Casing Intermediate	26.00	1443.00	1417.00	26.00	1441.89	0.00	0.00	28.56	-6.47
8.75in Open Hole	1443.00	5620.00	4177.00	1441.89	5430.73	28.56	-6.47	-345.30	789.80
8.5in Open Hole	5620.00	18617.00	12997.00	5430.73	5531.66	-345.30	789.80	11381.55	-4512.49
5.5in Casing Production	26.00	18617.00	18591.00	26.00	5531.66	0.00	0.00	11381.55	-4512.49

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
State of WV DNR A BRK 5H BHL Rev-5	5550.02	11384.15	-4504.58	1765488.23	14655407.26	40°21'8.9319"N	80°33'3.8920"W	point
State of WV DNR A BRK 5H LP Rev-5	5720.00	176.09	647.12	1770637.96	14644203.50	40°19'17.9148"N	80°31'58.1160"W	point

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Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

WELLPATH COMPOSITION - Ref Wellbore: State of WV DNR A BRK 5H AWB Ref Wellpath: State of WV DNR A BRK 5H AWP Proj: 18617'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	597.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17 1/2"> (145'-597')	State of WV DNR A BRK 5H AWB	9/9/2020
597.00	1386.00	OWSG MWD rev2 + HRGM	02_Premier MWD <12 1/4"> (677'-1386')	State of WV DNR A BRK 5H AWB	9/9/2020
1386.00	5652.00	OWSG MWD rev2 + HRGM	03_Premier MWD <8 3/4"> (1476'-5652')	State of WV DNR A BRK 5H AWB	9/9/2020
5652.00	18617.00	BH AutoTrak Curve (2019) (Short spacing)	04_BH AT Curve <8 1/2"> (5756'-18592')	State of WV DNR A BRK 5H AWB	9/9/2020

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Field	Brooke	API	47-009-00304-00-00
Facility	State of WV DNR A BRK Pad	Wellbore	State of WV DNR A BRK 5H AWB
Slot	Slot #5H		

COMMENTS
<p>Wellpath general comments API: 47-009-00304-0000 BH Job #: 110544071 Rig: SDC 40 Duration: 09/11/2020 - 09/14/2020</p>

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