

NOV 22 2019



# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 1 of 12

WV Department of  
Environmental Protection



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Hiipthop
Scale	0.999612	Report Generated	09/May/2019 at 09:22
Convergence at slot	0.24° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Barry_Greathouse_A_BRK_205H_AWP_Proj_21584_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	13.59	3.21	1742187.09	14596669.42	40°11'29.331"N	80°38'08.091"W
Facility Reference Pt			1742183.88	14596655.84	40°11'29.197"N	80°38'08.133"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

## WELLPATH DATUM

Calculation method	Minimum curvature	SDC 40 (RKB) to Facility Vertical Datum	1163.00ft
Horizontal Reference Pt	Slot	SDC 40 (RKB) to Mean Sea Level	1163.00ft
Vertical Reference Pt	SDC 40 (RKB)	SDC 40 (RKB) to Ground Level at Slot (Slot #205H)	26.00ft
MD Reference Pt	SDC 40 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	337.99°

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Page 2 of 12

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**REFERENCE WELLPATH IDENTIFICATION**

Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Area	Wellbore	Barry Greathouse A BRK 205H AWB
Field		
Facility		

**WELLPATH DATA (249 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	67.890	0.00	0.00	0.00	0.00	1742187.09	14596669.42	40°11'29.331"N	80°38'08.091"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	67.890	26.00	0.00	0.00	0.00	1742187.09	14596669.42	40°11'29.331"N	80°38'08.091"W	0.00	0.000	0.00	0.00	0.00
143.00	0.930	67.890	142.99	0.00	0.36	0.88	1742187.97	14596669.78	40°11'29.335"N	80°38'08.080"W	0.95	67.890	0.79	0.79	58.03
212.00	0.330	33.720	211.99	0.11	0.73	1.51	1742188.60	14596670.15	40°11'29.338"N	80°38'08.071"W	1.68	64.076	0.99	-0.87	-49.52
303.00	0.360	333.370	302.99	0.55	1.21	1.53	1742188.61	14596670.63	40°11'29.343"N	80°38'08.071"W	1.95	51.661	0.38	0.03	-66.32
328.00	0.400	299.780	327.99	0.69	1.32	1.42	1742188.50	14596670.74	40°11'29.344"N	80°38'08.073"W	1.94	46.982	0.89	0.16	-134.36
422.00	0.690	285.970	421.98	1.30	1.64	0.59	1742187.67	14596671.06	40°11'29.347"N	80°38'08.083"W	1.74	19.679	0.34	0.31	-14.69
512.00	0.870	285.840	511.98	2.05	1.97	-0.59	1742186.50	14596671.40	40°11'29.351"N	80°38'08.098"W	2.06	343.311	0.20	0.20	-0.14
603.00	0.770	284.870	602.97	2.84	2.32	-1.85	1742185.24	14596671.74	40°11'29.354"N	80°38'08.115"W	2.97	321.469	0.11	-0.11	-1.07
696.00	0.430	239.670	695.96	3.17	2.30	-2.75	1742184.34	14596671.72	40°11'29.354"N	80°38'08.126"W	3.59	309.933	0.60	-0.37	-48.60
788.00	0.970	137.620	787.96	2.39	1.55	-2.53	1742184.56	14596670.98	40°11'29.347"N	80°38'08.123"W	2.97	301.614	1.24	0.59	-110.92
881.00	2.470	129.710	880.91	-0.11	-0.31	-0.45	1742186.63	14596669.17	40°11'29.328"N	80°38'08.097"W	0.55	235.898	1.63	1.61	-8.51
974.00	3.750	106.700	973.78	-3.78	-2.46	4.00	1742191.09	14596666.96	40°11'29.307"N	80°38'08.039"W	4.70	121.599	1.90	1.38	-24.74
1067.00	5.290	101.010	1066.49	-8.02	-4.15	11.12	1742198.21	14596665.27	40°11'29.290"N	80°38'07.948"W	11.87	110.480	1.72	1.66	-6.12
1159.00	7.510	100.160	1157.91	-13.53	-6.03	21.21	1742208.28	14596663.40	40°11'29.271"N	80°38'07.818"W	22.04	105.862	2.42	2.41	-0.92
1252.00	9.700	99.950	1249.85	-20.92	-8.45	34.91	1742221.98	14596660.97	40°11'29.246"N	80°38'07.642"W	35.91	103.610	2.36	2.35	-0.23
1345.00	12.400	96.660	1341.12	-29.86	-10.96	52.54	1742239.61	14596658.46	40°11'29.221"N	80°38'07.414"W	53.68	101.786	2.98	2.90	-3.54
1438.00	12.450	94.800	1431.94	-39.17	-12.96	72.45	1742259.51	14596656.47	40°11'29.200"N	80°38'07.158"W	73.60	100.142	0.43	0.05	-2.00
1531.00	12.360	94.820	1522.77	-48.18	-14.64	92.36	1742279.41	14596654.79	40°11'29.183"N	80°38'06.902"W	93.51	99.004	0.10	-0.10	0.02
1602.00	12.760	95.670	1592.07	-55.25	-16.05	107.73	1742294.78	14596653.38	40°11'29.168"N	80°38'06.704"W	108.92	98.473	0.62	0.56	1.20
1677.00	12.200	91.010	1665.30	-62.20	-17.01	123.90	1742320.94	14596652.42	40°11'29.158"N	80°38'06.495"W	125.06	97.816	1.54	-0.75	-6.21
1723.00	12.400	89.450	1710.25	-65.91	-17.05	133.70	1742320.73	14596652.38	40°11'29.157"N	80°38'06.369"W	134.78	97.265	0.84	0.43	-3.39
1816.00	14.420	93.060	1800.71	-74.47	-17.57	155.25	1742342.28	14596651.86	40°11'29.151"N	80°38'06.091"W	156.24	96.456	2.35	2.17	3.88
1908.00	16.500	98.850	1889.38	-86.03	-20.19	179.60	1742366.62	14596649.24	40°11'29.124"N	80°38'05.778"W	180.73	96.414	2.81	2.26	6.29
2001.00	18.010	101.080	1978.19	-100.65	-24.98	206.76	1742393.77	14596644.45	40°11'29.076"N	80°38'05.428"W	208.27	96.890	1.77	1.62	2.40
2094.00	19.210	98.980	2066.33	-116.38	-30.14	235.98	1742422.98	14596639.30	40°11'29.024"N	80°38'05.052"W	237.90	97.277	1.48	1.29	-2.26
2187.00	20.380	96.930	2153.83	-132.09	-34.48	267.17	1742454.16	14596634.96	40°11'28.980"N	80°38'04.650"W	269.39	97.353	1.46	1.26	-2.20
2279.00	18.420	97.620	2240.61	-147.03	-38.34	297.49	1742484.46	14596631.10	40°11'28.940"N	80°38'04.260"W	299.95	97.344	2.14	-2.13	0.75
2369.00	16.500	100.000	2326.46	-160.84	-42.44	324.17	1742511.13	14596626.99	40°11'28.899"N	80°38'03.916"W	326.94	97.459	2.28	-2.13	2.64
2462.00	16.790	98.550	2415.56	-174.67	-46.73	350.46	1742537.41	14596622.71	40°11'28.855"N	80°38'03.578"W	353.56	97.596	0.54	0.31	-1.56

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Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

**WELLPATH DATA (249 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]
2554.00	15.940	99.570	2503.83	-188.04	-50.81	376.06	1742563.00	14596618.63	40°11'28.814"N	80°38'03.248"W	379.47	97.695	0.98	-0.92	1.11
2647.00	16.360	97.070	2593.16	-201.09	-54.55	401.65	1742588.58	14596614.90	40°11'28.776"N	80°38'02.918"W	405.33	97.734	0.87	0.45	-2.69
2740.00	15.090	98.340	2682.68	-213.58	-57.91	426.62	1742613.54	14596611.53	40°11'28.742"N	80°38'02.597"W	430.54	97.731	1.41	-1.37	1.37
2833.00	15.230	95.560	2772.45	-225.35	-60.85	450.76	1742637.67	14596608.59	40°11'28.711"N	80°38'02.286"W	454.85	97.689	0.80	0.15	-2.99
2925.00	15.360	100.030	2861.19	-237.41	-64.15	474.79	1742661.69	14596605.30	40°11'28.678"N	80°38'01.976"W	479.10	97.694	1.29	0.14	4.86
3018.00	15.680	99.350	2950.80	-250.48	-68.33	499.31	1742686.21	14596601.11	40°11'28.636"N	80°38'01.661"W	503.97	97.793	0.40	0.34	-0.73
3111.00	16.360	101.510	3040.19	-264.25	-72.99	524.55	1742711.43	14596596.46	40°11'28.589"N	80°38'01.336"W	529.60	97.922	0.97	0.73	2.32
3203.00	16.070	100.000	3128.53	-278.16	-77.78	549.79	1742736.66	14596591.67	40°11'28.540"N	80°38'01.011"W	555.26	98.053	0.56	-0.32	-1.64
3296.00	15.750	97.360	3217.97	-291.17	-81.64	574.98	1742761.84	14596587.82	40°11'28.501"N	80°38'00.686"W	580.75	98.081	0.85	-0.34	-2.84
3389.00	16.460	99.740	3307.32	-304.30	-85.48	600.49	1742787.34	14596583.97	40°11'28.462"N	80°38'00.358"W	606.54	98.102	1.04	0.76	2.56
3482.00	16.010	98.390	3396.61	-317.72	-89.58	626.16	1742813.00	14596579.87	40°11'28.420"N	80°38'00.027"W	632.53	98.142	0.63	-0.48	-1.45
3574.00	16.860	101.070	3484.85	-331.41	-93.98	651.81	1742838.64	14596575.48	40°11'28.376"N	80°37'59.697"W	658.55	98.205	1.23	0.92	2.85
3667.00	15.940	98.770	3574.07	-345.29	-98.51	677.67	1742864.49	14596570.95	40°11'28.330"N	80°37'59.364"W	684.79	98.271	1.20	-0.99	-2.41
3760.00	16.430	102.680	3663.38	-359.32	-103.34	703.12	1742889.93	14596566.12	40°11'28.281"N	80°37'59.036"W	710.67	98.361	1.28	0.53	4.20
3853.00	15.050	101.460	3752.89	-373.46	-108.63	727.79	1742914.59	14596560.84	40°11'28.228"N	80°37'58.719"W	735.85	98.489	1.53	-1.48	-1.31
3945.00	15.380	102.810	3841.67	-387.01	-113.70	751.39	1742938.18	14596555.76	40°11'28.177"N	80°37'58.415"W	759.94	98.605	0.53	0.36	1.47
4038.00	17.090	99.870	3930.96	-401.27	-118.78	776.88	1742963.67	14596550.69	40°11'28.126"N	80°37'58.087"W	785.91	98.693	2.04	1.84	-3.16
4131.00	16.450	96.860	4020.01	-414.85	-122.70	803.42	1742990.19	14596546.77	40°11'28.086"N	80°37'57.745"W	812.73	98.683	1.16	-0.69	-3.24
4223.00	17.330	96.900	4108.04	-427.76	-125.90	829.95	1743016.72	14596543.57	40°11'28.053"N	80°37'57.403"W	839.45	98.626	0.96	0.96	0.04
4316.00	15.550	95.270	4197.23	-440.17	-128.71	856.12	1743042.87	14596540.76	40°11'28.024"N	80°37'57.066"W	865.74	98.550	1.98	-1.91	-1.75
4406.00	15.160	98.450	4284.02	-451.67	-131.55	879.77	1743066.52	14596537.93	40°11'27.995"N	80°37'56.762"W	889.55	98.504	1.03	-0.43	3.53
4498.00	15.720	101.660	4372.70	-464.68	-135.83	903.88	1743090.61	14596533.64	40°11'27.952"N	80°37'56.451"W	914.03	98.546	1.11	0.61	3.49
4591.00	16.960	106.100	4461.95	-480.04	-142.14	929.25	1743115.98	14596527.34	40°11'27.889"N	80°37'56.125"W	940.06	98.697	1.89	1.33	4.77
4684.00	19.040	107.070	4550.39	-497.97	-150.36	956.79	1743143.50	14596519.12	40°11'27.806"N	80°37'55.770"W	968.53	98.931	2.26	2.24	1.04
4777.00	17.770	106.020	4638.63	-516.28	-158.73	984.93	1743171.64	14596510.76	40°11'27.723"N	80°37'55.408"W	997.64	99.155	1.41	-1.37	-1.13
4869.00	16.700	98.440	4726.51	-531.63	-164.54	1011.51	1743198.20	14596504.94	40°11'27.664"N	80°37'55.066"W	1024.80	99.239	2.70	-1.16	-8.24
4962.00	17.520	103.920	4815.40	-546.62	-169.87	1038.31	1743225.00	14596499.62	40°11'27.610"N	80°37'54.721"W	1052.12	99.291	1.94	0.88	5.89
5055.00	15.460	102.870	4904.57	-561.92	-176.00	1063.99	1743250.66	14596493.49	40°11'27.549"N	80°37'54.390"W	1078.44	99.393	2.24	-2.22	-1.13
5148.00	15.280	93.050	4994.26	-574.20	-179.41	1088.31	1743274.97	14596490.08	40°11'27.514"N	80°37'54.077"W	1103.00	99.361	2.80	-0.19	-10.56
5239.00	15.360	95.230	5082.03	-584.80	-181.15	1112.29	1743298.94	14596488.34	40°11'27.496"N	80°37'53.768"W	1126.94	99.250	0.64	0.09	2.40

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Page 4 of 12

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Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Area	Wellbore	Barry Greathouse A BRK 205H AWB
Field		
Facility		

## WELLPATH DATA (249 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]
5285.00	14.540	96.160	5126.47	-590.31	-182.32	1124.10	1743310.75	14596487.17	40°11'27.484"N	80°37'53.616"W	1138.79	99.213	1.86	-1.78	2.02
5332.00	14.190	84.020	5172.01	-594.69	-182.36	1135.69	1743322.34	14596487.13	40°11'27.483"N	80°37'53.467"W	1150.24	99.122	6.44	-0.74	-25.83
5378.00	15.190	71.960	5216.52	-596.66	-179.90	1147.03	1743333.67	14596489.59	40°11'27.507"N	80°37'53.320"W	1161.06	98.914	6.98	2.17	-26.22
5424.00	16.610	59.320	5260.77	-596.09	-174.68	1158.42	1743345.06	14596494.81	40°11'27.558"N	80°37'53.173"W	1171.52	98.575	8.12	3.09	-27.48
5470.00	18.930	46.610	5304.59	-592.38	-166.20	1169.51	1743356.14	14596503.29	40°11'27.641"N	80°37'53.030"W	1181.26	98.088	9.80	5.04	-27.63
5517.00	20.650	37.080	5348.82	-585.34	-154.34	1180.05	1743366.67	14596515.14	40°11'27.758"N	80°37'52.894"W	1190.10	97.452	7.77	3.66	-20.28
5563.00	20.680	26.190	5391.88	-575.75	-140.58	1188.52	1743375.15	14596528.90	40°11'27.894"N	80°37'52.784"W	1196.81	96.746	8.34	0.07	-23.67
5610.00	19.280	11.820	5436.07	-563.77	-125.53	1193.78	1743380.40	14596543.94	40°11'28.042"N	80°37'52.715"W	1200.36	96.003	10.83	-2.98	-30.57
5656.00	20.440	1.210	5479.35	-550.07	-110.06	1195.51	1743382.13	14596559.41	40°11'28.195"N	80°37'52.692"W	1200.56	95.260	8.22	2.52	-23.07
5679.00	21.470	358.690	5500.83	-542.45	-101.83	1195.49	1743382.12	14596567.63	40°11'28.276"N	80°37'52.692"W	1199.82	94.869	5.95	4.48	-10.96
5772.00	29.070	353.910	5584.88	-504.74	-62.29	1192.70	1743379.33	14596607.16	40°11'28.667"N	80°37'52.726"W	1194.33	92.990	8.46	8.17	-5.14
5864.00	39.670	358.200	5660.72	-455.54	-10.56	1189.40	1743376.02	14596658.86	40°11'29.178"N	80°37'52.765"W	1189.45	90.509	11.81	11.52	4.66
5911.00	45.080	357.750	5695.43	-425.78	21.08	1188.28	1743374.90	14596690.50	40°11'29.491"N	80°37'52.778"W	1188.46	88.983	11.53	11.51	-0.96
5957.00	50.210	353.530	5726.42	-393.40	54.95	1185.64	1743372.27	14596724.35	40°11'29.826"N	80°37'52.810"W	1186.91	87.346	13.05	11.15	-9.17
6003.00	56.620	349.210	5753.83	-357.48	91.43	1180.05	1743366.67	14596760.81	40°11'30.186"N	80°37'52.880"W	1183.58	85.570	15.84	13.93	-9.39
6050.00	63.090	347.930	5777.42	-317.55	131.24	1171.98	1743358.61	14596800.61	40°11'30.580"N	80°37'52.982"W	1179.31	83.611	13.97	13.77	-2.72
6096.00	68.930	348.380	5796.11	-276.20	172.35	1163.36	1743350.00	14596841.71	40°11'30.987"N	80°37'53.091"W	1176.06	81.573	12.73	12.70	0.98
6142.00	74.780	349.060	5810.43	-233.27	215.20	1154.82	1743341.46	14596884.54	40°11'31.411"N	80°37'53.199"W	1174.70	79.444	12.79	12.72	1.48
6189.00	80.850	348.730	5820.35	-188.18	260.26	1145.98	1743332.62	14596929.58	40°11'31.856"N	80°37'53.310"W	1175.16	77.205	12.93	12.91	-0.70
6235.00	86.150	348.320	5825.55	-143.26	305.04	1136.89	1743323.53	14596974.34	40°11'32.299"N	80°37'53.425"W	1177.10	74.981	11.56	11.52	-0.89
6281.00	90.310	346.100	5826.97	-97.89	349.86	1126.71	1743313.36	14597019.15	40°11'32.743"N	80°37'53.554"W	1179.78	72.750	10.25	9.04	-4.83
6328.00	90.280	341.610	5826.73	-51.15	394.99	1113.64	1743300.30	14597064.26	40°11'33.189"N	80°37'53.720"W	1181.62	70.471	9.55	-0.06	-9.55
6421.00	90.280	337.300	5826.28	41.79	482.08	1081.08	1743267.75	14597151.32	40°11'34.051"N	80°37'54.135"W	1183.70	65.967	4.54	0.00	-4.54
6513.00	89.570	335.650	5826.40	133.76	566.46	1044.43	1743231.11	14597235.66	40°11'34.886"N	80°37'54.603"W	1188.15	61.526	2.04	-0.77	-1.89
6606.00	89.600	334.650	5827.07	226.64	650.85	1005.35	1743192.04	14597320.02	40°11'35.722"N	80°37'55.102"W	1197.63	57.081	1.08	0.03	-1.08
6699.00	90.770	335.730	5826.77	319.53	735.26	966.32	1743153.04	14597404.40	40°11'36.558"N	80°37'55.600"W	1214.25	52.733	1.71	1.26	1.16
6792.00	89.290	336.870	5826.72	412.48	820.42	928.94	1743115.67	14597489.52	40°11'37.401"N	80°37'56.077"W	1239.36	48.550	2.01	-1.59	1.23
6884.00	89.260	335.880	5827.89	504.44	904.70	892.08	1743078.82	14597573.77	40°11'38.235"N	80°37'56.548"W	1270.54	44.598	1.08	-0.03	-1.08
6977.00	90.000	335.700	5828.49	597.37	989.51	853.94	1743040.70	14597658.55	40°11'39.075"N	80°37'57.035"W	1307.04	40.794	0.82	0.80	-0.19
7070.00	90.680	335.410	5827.93	690.28	1074.18	815.46	1743002.23	14597743.18	40°11'39.913"N	80°37'57.526"W	1348.64	37.204	0.79	0.73	-0.31

NOV 22 2019



WV Department of  
Environmental Protection

# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 5 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Area	Wellbore	Barry Greathouse A BRK 205H AWB
Field		
Facility		

## WELLPATH DATA (249 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]
7163.00	90.770	334.340	5826.76	783.13	1158.37	775.98	1742962.76	14597827.34	40°11'40.746"N	80°37'58.030"W	1394.26	33.818	1.15	0.10	-1.15
7255.00	90.800	334.150	5825.50	874.93	1241.22	736.00	1742922.80	14597910.16	40°11'41.567"N	80°37'58.541"W	1443.03	30.667	0.21	0.03	-0.21
7348.00	90.830	333.850	5824.17	967.69	1324.80	695.24	1742882.05	14597993.71	40°11'42.394"N	80°37'59.062"W	1496.15	27.690	0.32	0.03	-0.32
7441.00	90.710	332.500	5822.92	1060.36	1407.78	653.28	1742840.11	14598076.66	40°11'43.216"N	80°37'59.598"W	1551.97	24.893	1.46	-0.13	-1.45
7533.00	90.800	330.850	5821.71	1151.79	1488.76	609.63	1742796.48	14598157.60	40°11'44.018"N	80°38'00.156"W	1608.74	22.269	1.80	0.10	-1.79
7626.00	90.680	331.080	5820.51	1244.08	1570.06	564.50	1742751.36	14598238.87	40°11'44.823"N	80°38'00.734"W	1668.46	19.775	0.28	-0.13	0.25
7719.00	90.680	332.120	5819.41	1336.49	1651.86	520.27	1742707.15	14598320.64	40°11'45.634"N	80°38'01.299"W	1731.86	17.482	1.12	0.00	1.12
7812.00	90.740	333.310	5818.25	1429.09	1734.51	477.64	1742664.54	14598403.25	40°11'46.452"N	80°38'01.844"W	1799.07	15.396	1.28	0.06	1.28
7901.00	90.550	335.320	5817.25	1517.90	1814.71	439.07	1742625.98	14598483.42	40°11'47.246"N	80°38'02.337"W	1867.07	13.601	2.27	-0.21	2.26
7994.00	90.370	337.620	5816.51	1610.86	1899.96	401.94	1742588.87	14598568.64	40°11'48.090"N	80°38'02.811"W	1942.02	11.945	2.48	-0.19	2.47
8084.00	90.860	339.240	5815.54	1700.85	1983.65	368.86	1742555.80	14598652.30	40°11'48.918"N	80°38'03.233"W	2017.66	10.534	1.88	0.54	1.80
8176.00	90.740	339.360	5814.26	1792.81	2069.71	336.34	1742523.30	14598738.32	40°11'49.770"N	80°38'03.647"W	2096.86	9.230	0.18	-0.13	0.13
8269.00	90.800	337.370	5813.01	1885.80	2156.14	302.06	1742489.03	14598824.72	40°11'50.626"N	80°38'04.084"W	2177.20	7.975	2.14	0.06	-2.14
8362.00	90.830	336.440	5811.68	1978.77	2241.68	265.58	1742452.57	14598910.23	40°11'51.472"N	80°38'04.550"W	2257.36	6.757	1.00	0.03	-1.00
8454.00	90.620	336.310	5810.52	2070.73	2325.96	228.72	1742415.72	14598994.48	40°11'52.307"N	80°38'05.020"W	2337.18	5.616	0.27	-0.23	-0.14
8547.00	90.650	335.420	5809.49	2163.66	2410.83	190.69	1742377.71	14599079.31	40°11'53.147"N	80°38'05.506"W	2418.36	4.523	0.96	0.03	-0.96
8640.00	90.680	334.470	5808.41	2256.52	2495.07	151.31	1742338.34	14599163.52	40°11'53.981"N	80°38'06.009"W	2499.65	3.470	1.02	0.03	-1.02
8729.00	90.680	335.250	5807.35	2345.38	2575.63	113.50	1742300.55	14599244.05	40°11'54.779"N	80°38'06.492"W	2578.13	2.523	0.88	0.00	0.88
8822.00	90.680	335.990	5806.25	2438.29	2660.33	75.12	1742262.18	14599328.72	40°11'55.617"N	80°38'06.982"W	2661.39	1.617	0.80	0.00	0.80
8915.00	90.580	336.950	5805.23	2531.25	2745.59	37.99	1742225.07	14599413.94	40°11'56.461"N	80°38'07.456"W	2745.86	0.793	1.04	-0.11	1.03
9008.00	90.800	338.290	5804.11	2624.24	2831.58	2.59	1742189.67	14599499.90	40°11'57.312"N	80°38'07.908"W	2831.58	0.052	1.46	0.24	1.44
9101.00	90.920	339.180	5802.71	2717.22	2918.24	-31.14	1742155.96	14599586.52	40°11'58.170"N	80°38'08.338"W	2918.40	359.389	0.97	0.13	0.96
9193.00	90.800	339.090	5801.33	2809.19	3004.19	-63.90	1742123.21	14599672.44	40°11'59.021"N	80°38'08.756"W	3004.87	358.781	0.16	-0.13	-0.10
9286.00	90.680	338.600	5800.13	2902.17	3090.92	-97.46	1742089.66	14599759.13	40°11'59.879"N	80°38'09.183"W	3092.46	358.194	0.54	-0.13	-0.53
9376.00	90.770	338.350	5798.99	2992.16	3174.64	-130.48	1742056.66	14599842.82	40°12'00.708"N	80°38'09.605"W	3177.32	357.646	0.30	0.10	-0.28
9469.00	90.740	337.910	5797.76	3085.15	3260.93	-165.12	1742022.03	14599929.08	40°12'01.562"N	80°38'10.046"W	3265.11	357.101	0.47	-0.03	-0.47
9558.00	90.830	337.340	5796.54	3174.14	3343.23	-199.00	1741988.17	14600011.34	40°12'02.377"N	80°38'10.479"W	3349.14	356.594	0.65	0.10	-0.64
9651.00	90.800	337.010	5795.22	3267.13	3428.93	-235.07	1741952.11	14600097.02	40°12'03.225"N	80°38'10.939"W	3436.98	356.078	0.36	-0.03	-0.35
9744.00	90.770	337.660	5793.95	3360.11	3514.74	-270.90	1741916.29	14600182.79	40°12'04.075"N	80°38'11.396"W	3525.17	355.593	0.70	-0.03	0.70
9837.00	90.800	338.740	5792.67	3453.10	3601.08	-305.44	1741881.77	14600269.10	40°12'04.929"N	80°38'11.837"W	3614.01	355.152	1.16	0.03	1.16

NOV 22 2019

**Actual Wellpath Report**  
Barry Greathouse A BRK 205H AWP Proj: 21584  
Page 6 of 12



**REFERENCE WELLPATH IDENTIFICATION**

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

**WELLPATH DATA (249 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]
9929.00	90.620	339.100	5791.53	3545.08	3686.92	-338.52	1741848.70	14600354.90	40°12'05.779"N	80°38'12.259"W	3702.43	354.754	0.44	-0.20	0.39
10022.00	90.680	338.950	5790.48	3638.06	3773.75	-371.81	1741815.42	14600441.70	40°12'06.638"N	80°38'12.683"W	3792.02	354.373	0.17	0.06	-0.16
10114.00	92.060	338.780	5788.28	3730.02	3859.54	-404.97	1741782.27	14600527.45	40°12'07.487"N	80°38'13.106"W	3880.73	354.010	1.51	1.50	-0.18
10207.00	90.740	338.570	5786.01	3822.98	3946.14	-438.78	1741748.48	14600614.02	40°12'08.344"N	80°38'13.537"W	3970.46	353.655	1.44	-1.42	-0.23
10300.00	90.680	338.400	5784.85	3915.97	4032.66	-472.89	1741714.38	14600700.50	40°12'09.201"N	80°38'13.972"W	4060.29	353.312	0.19	-0.06	-0.18
10393.00	90.920	338.000	5783.56	4008.96	4119.00	-507.42	1741679.86	14600786.81	40°12'10.055"N	80°38'14.413"W	4150.13	352.977	0.50	0.26	-0.43
10486.00	90.710	336.730	5782.23	4101.95	4204.82	-543.21	1741644.09	14600872.60	40°12'10.905"N	80°38'14.869"W	4239.76	352.639	1.38	-0.23	-1.37
10578.00	90.980	335.350	5780.88	4193.88	4288.88	-580.56	1741606.75	14600956.63	40°12'11.737"N	80°38'15.346"W	4328.00	352.291	1.53	0.29	-1.50
10671.00	90.430	333.360	5779.73	4286.68	4372.71	-620.81	1741566.52	14601040.43	40°12'12.567"N	80°38'15.860"W	4416.56	351.920	2.22	-0.59	-2.14
10764.00	90.430	332.830	5779.03	4379.34	4456.64	-662.89	1741524.45	14601123.32	40°12'13.388"N	80°38'16.398"W	4504.68	351.538	0.57	0.00	-0.57
10857.00	90.430	332.460	5778.34	4471.93	4538.24	-705.62	1741481.74	14601205.89	40°12'14.206"N	80°38'16.945"W	4592.77	351.162	0.40	0.00	-0.40
10949.00	90.460	332.680	5777.62	4563.52	4619.89	-748.00	1741439.38	14601287.51	40°12'15.015"N	80°38'17.487"W	4680.06	350.803	0.24	0.03	0.24
11042.00	90.430	333.170	5776.90	4656.15	4702.70	-790.33	1741397.06	14601370.29	40°12'15.835"N	80°38'18.028"W	4768.65	350.460	0.53	-0.03	0.53
11135.00	90.430	333.030	5776.20	4748.81	4785.63	-832.41	1741355.01	14601453.19	40°12'16.656"N	80°38'18.566"W	4857.49	350.133	0.15	0.00	-0.15
11227.00	90.280	333.670	5775.63	4840.51	4867.86	-873.67	1741313.76	14601535.38	40°12'17.470"N	80°38'19.093"W	4945.64	349.825	0.71	-0.16	0.70
11320.00	90.400	335.630	5775.08	4933.34	4951.90	-913.49	1741273.96	14601619.39	40°12'18.302"N	80°38'19.602"W	5035.45	349.548	2.11	0.13	2.11
11413.00	90.920	337.390	5774.01	5026.30	5037.18	-950.55	1741236.91	14601704.64	40°12'19.146"N	80°38'20.075"W	5126.09	349.314	1.97	0.56	1.89
11502.00	91.380	337.000	5772.22	5115.27	5119.21	-985.04	1741202.43	14601786.63	40°12'19.958"N	80°38'20.516"W	5213.12	349.108	0.68	0.52	-0.44
11595.00	90.860	335.100	5770.40	5208.20	5204.18	-1022.78	1741164.70	14601871.57	40°12'20.800"N	80°38'20.998"W	5303.73	348.881	2.12	-0.56	-2.04
11688.00	90.860	331.990	5769.01	5300.90	5287.42	-1064.21	1741123.30	14601954.78	40°12'21.624"N	80°38'21.527"W	5393.46	348.620	3.34	0.00	-3.34
11780.00	90.860	329.200	5767.63	5392.11	5367.55	-1109.37	1741078.15	14602034.88	40°12'22.418"N	80°38'22.105"W	5481.00	348.323	3.03	0.00	-3.03
11873.00	90.830	327.250	5766.25	5483.75	5446.60	-1158.33	1741029.21	14602113.90	40°12'23.201"N	80°38'22.732"W	5568.41	347.994	2.10	-0.03	-2.10
11966.00	90.800	326.790	5764.93	5575.04	5524.61	-1208.95	1740978.61	14602191.87	40°12'23.974"N	80°38'23.380"W	5655.34	347.657	0.50	-0.03	-0.49
12055.00	90.680	328.980	5763.78	5662.65	5599.98	-1256.26	1740931.32	14602267.21	40°12'24.720"N	80°38'23.986"W	5739.16	347.356	2.46	-0.13	2.46
12148.00	90.680	330.530	5762.68	5754.68	5680.31	-1303.10	1740884.50	14602347.52	40°12'25.516"N	80°38'24.585"W	5827.86	347.080	1.67	0.00	1.67
12238.00	90.650	329.640	5761.63	5843.82	5758.31	-1347.98	1740839.64	14602425.49	40°12'26.289"N	80°38'25.160"W	5913.98	346.825	0.99	-0.03	-0.99
12331.00	90.620	329.230	5760.60	5935.78	5838.39	-1395.27	1740792.37	14602505.53	40°12'27.082"N	80°38'25.765"W	6002.79	346.569	0.44	-0.03	-0.44
12424.00	90.620	329.520	5759.60	6027.72	5918.41	-1442.64	1740745.01	14602585.52	40°12'27.874"N	80°38'26.371"W	6091.70	346.301	0.31	0.00	0.31
12517.00	91.050	331.220	5758.24	6119.89	5999.24	-1488.61	1740699.06	14602666.32	40°12'28.675"N	80°38'26.960"W	6181.17	346.064	1.89	0.46	1.83
12609.00	90.770	329.980	5756.78	6211.11	6079.38	-1533.77	1740653.92	14602746.43	40°12'29.469"N	80°38'27.538"W	6269.87	345.840	1.38	-0.30	-1.35



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# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 7 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

## WELLPATH DATA (249 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]
12702.00	90.890	331.180	5755.43	6303.32	6160.37	-1579.44	1740608.26	14602827.39	40°12'30.271"N	80°38'28.122"W	6359.63	345.620	1.30	0.13	1.29
12795.00	90.950	332.400	5753.94	6395.76	6242.32	-1623.40	1740564.32	14602909.30	40°12'31.082"N	80°38'28.684"W	6449.96	345.422	1.31	0.06	1.31
12884.00	91.020	333.080	5752.41	6484.38	6321.42	-1664.16	1740523.58	14602988.37	40°12'31.866"N	80°38'29.206"W	6536.80	345.251	0.77	0.08	0.76
12973.00	90.770	332.480	5751.02	6573.00	6400.55	-1704.86	1740482.89	14603067.48	40°12'32.649"N	80°38'29.726"W	6623.72	345.085	0.73	-0.28	-0.67
13063.00	90.680	331.370	5749.88	6662.49	6479.95	-1747.21	1740440.55	14603146.85	40°12'33.436"N	80°38'30.268"W	6711.38	344.910	1.24	-0.10	-1.23
13152.00	90.800	330.360	5748.73	6750.79	6557.69	-1790.54	1740397.24	14603224.55	40°12'34.206"N	80°38'30.822"W	6797.74	344.728	1.14	0.13	-1.13
13240.00	90.770	329.990	5747.53	6837.97	6634.02	-1834.30	1740353.50	14603300.86	40°12'34.982"N	80°38'31.382"W	6882.95	344.544	0.42	-0.03	-0.42
13329.00	90.800	330.790	5746.31	6926.17	6711.39	-1878.27	1740309.55	14603378.20	40°12'35.728"N	80°38'31.945"W	6969.27	344.365	0.90	0.03	0.90
13419.00	90.710	332.860	5745.12	7015.64	6790.72	-1920.76	1740267.07	14603457.49	40°12'36.514"N	80°38'32.489"W	7057.14	344.206	2.30	-0.10	2.30
13508.00	90.830	334.160	5743.92	7104.36	6870.36	-1960.46	1740227.40	14603537.11	40°12'37.302"N	80°38'33.996"W	7144.60	344.074	1.47	0.13	1.46
13598.00	91.080	334.200	5742.42	7194.15	6951.37	-1999.65	1740188.22	14603616.08	40°12'38.104"N	80°38'33.497"W	7233.27	343.951	0.28	0.28	0.04
13686.00	91.020	332.710	5740.81	7281.86	7030.08	-2038.97	1740148.91	14603696.75	40°12'38.884"N	80°38'34.000"W	7319.79	343.826	1.69	-0.07	-1.69
13774.00	91.110	328.740	5739.17	7369.12	7106.81	-2081.99	1740105.91	14603773.46	40°12'39.644"N	80°38'34.550"W	7405.50	343.672	4.51	0.10	-4.51
13863.00	91.140	329.670	5737.43	7457.05	7183.24	-2127.54	1740060.38	14603849.86	40°12'40.401"N	80°38'35.133"W	7491.69	343.502	1.05	0.03	1.04
13952.00	90.890	330.090	5735.85	7545.15	7260.22	-2172.20	1740015.74	14603926.80	40°12'41.163"N	80°38'35.705"W	7578.20	343.343	0.55	-0.28	0.47
14041.00	90.990	330.440	5734.39	7633.33	7337.49	-2216.33	1739971.62	14604004.04	40°12'41.928"N	80°38'36.270"W	7664.91	343.193	0.41	0.11	0.39
14131.00	90.800	331.040	5732.98	7722.60	7415.99	-2260.32	1739927.65	14604082.52	40°12'42.706"N	80°38'36.833"W	7752.80	343.049	0.70	-0.21	0.67
14220.00	91.050	331.380	5731.55	7810.97	7493.98	-2303.17	1739884.81	14604160.48	40°12'43.478"N	80°38'37.381"W	7839.92	342.916	0.47	0.28	0.38
14308.00	91.110	331.040	5729.89	7898.33	7571.09	-2345.55	1739842.46	14604237.56	40°12'44.242"N	80°38'37.923"W	7926.10	342.787	0.39	0.07	-0.39
14397.00	90.830	330.820	5728.38	7986.65	7648.87	-2388.78	1739799.24	14604315.30	40°12'45.012"N	80°38'38.477"W	8013.20	342.656	0.40	-0.31	-0.25
14488.00	90.800	330.710	5727.09	8076.91	7728.27	-2433.22	1739754.81	14604394.67	40°12'45.799"N	80°38'39.045"W	8102.26	342.524	0.13	-0.03	-0.12
14577.00	91.110	330.200	5725.61	8165.13	7805.68	-2477.10	1739710.95	14604474.06	40°12'46.565"N	80°38'39.607"W	8189.31	342.393	0.67	0.35	-0.57
14666.00	91.450	329.390	5723.02	8253.20	7882.58	-2521.87	1739666.20	14604548.93	40°12'47.327"N	80°38'40.180"W	8276.16	342.259	0.99	0.38	-0.91
14758.00	91.050	327.950	5721.61	8343.96	7961.14	-2569.69	1739618.40	14604627.46	40°12'48.105"N	80°38'40.792"W	8365.59	342.111	1.62	-0.43	-1.57
14851.00	90.860	327.360	5720.06	8435.44	8039.70	-2619.44	1739568.67	14604705.99	40°12'48.884"N	80°38'41.429"W	8455.67	341.954	0.67	-0.20	-0.63
14944.00	90.950	327.650	5718.59	8526.88	8118.13	-2669.40	1739518.73	14604784.39	40°12'49.661"N	80°38'42.069"W	8545.75	341.798	0.33	0.10	0.31
15037.00	90.740	327.190	5717.22	8618.29	8196.49	-2719.47	1739468.68	14604862.71	40°12'50.437"N	80°38'42.711"W	8635.85	341.645	0.54	-0.23	-0.49
15129.00	90.860	328.190	5715.93	8708.80	8274.24	-2768.64	1739419.53	14604940.43	40°12'51.207"N	80°38'43.341"W	8725.16	341.499	1.09	0.13	1.09
15222.00	90.430	328.240	5714.89	8800.44	8353.28	-2817.62	1739370.57	14605019.45	40°12'51.990"N	80°38'43.968"W	8815.69	341.360	0.47	-0.46	0.05
15315.00	90.620	327.990	5714.04	8892.06	8432.25	-2866.74	1739321.46	14605098.38	40°12'52.772"N	80°38'44.597"W	8906.24	341.223	0.34	0.20	-0.27

NOV 22 2019

**Actual Wellpath Report**  
Barry Greathouse A BRK 205H AWP Proj: 21584'

Page 8 of 12



**REFERENCE WELLPATH IDENTIFICATION**

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

**WELLPATH DATA (249 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]
15407.00	90.430	327.280	5713.19	8982.56	8509.95	-2915.99	1739272.24	14605176.05	40°12'53.542"N	80°38'45.228"W	8995.68	341.086	0.80	-0.21	-0.77
15500.00	90.370	326.900	5712.54	9073.87	8588.03	-2966.52	1739221.73	14605254.10	40°12'54.316"N	80°38'45.875"W	9085.95	340.944	0.41	-0.06	-0.41
15593.00	90.520	327.920	5711.82	9165.29	8666.38	-3016.61	1739171.66	14605332.42	40°12'55.092"N	80°38'46.517"W	9176.39	340.808	1.11	0.16	1.10
15685.00	90.800	329.070	5710.76	9256.02	8744.81	-3064.68	1739123.60	14605410.82	40°12'55.869"N	80°38'47.132"W	9266.28	340.687	1.29	0.30	1.25
15778.00	90.650	329.530	5709.58	9347.95	8824.77	-3112.16	1739076.15	14605490.75	40°12'56.661"N	80°38'47.740"W	9357.46	340.574	0.52	-0.16	0.49
15871.00	90.650	330.000	5708.53	9439.98	8905.12	-3158.98	1739029.34	14605571.06	40°12'57.457"N	80°38'48.340"W	9448.82	340.468	0.51	0.00	0.51
15963.00	90.520	330.300	5707.59	9531.12	8984.91	-3204.77	1738983.57	14605650.82	40°12'58.247"N	80°38'48.926"W	9539.34	340.370	0.36	-0.14	0.33
16056.00	90.490	331.000	5706.77	9623.35	9065.96	-3250.35	1738938.00	14605731.85	40°12'59.050"N	80°38'49.509"W	9631.02	340.276	0.75	-0.03	0.75
16149.00	90.710	331.310	5705.80	9715.69	9147.42	-3295.22	1738893.16	14605813.27	40°12'59.857"N	80°38'50.083"W	9722.85	340.189	0.41	0.24	0.33
16242.00	90.860	330.540	5704.52	9807.97	9228.69	-3340.41	1738847.99	14605894.91	40°13'00.661"N	80°38'50.265"W	9814.64	340.102	0.84	0.16	-0.83
16334.00	90.710	328.960	5703.26	9899.01	9308.16	-3386.75	1738801.66	14605970.55	40°13'01.449"N	80°38'51.655"W	9905.14	340.006	1.72	-0.16	-1.72
16424.00	90.620	328.510	5702.22	9987.83	9385.08	-3433.45	1738754.97	14606050.84	40°13'02.211"N	80°38'51.853"W	9993.42	339.905	0.51	-0.10	-0.50
16514.00	90.710	327.650	5701.17	10076.48	9461.47	-3481.04	1738707.41	14606127.20	40°13'02.967"N	80°38'52.463"W	10081.52	339.801	0.96	0.10	-0.96
16606.00	90.770	326.670	5699.98	10166.84	9538.76	-3530.92	1738657.54	14606204.46	40°13'03.733"N	80°38'53.102"W	10171.30	339.687	1.07	0.07	-1.07
16699.00	90.460	326.690	5698.99	10258.02	9616.46	-3582.01	1738606.48	14606282.13	40°13'04.503"N	80°38'53.756"W	10261.93	339.570	0.33	-0.33	0.02
16792.00	90.920	328.420	5697.87	10349.48	9694.94	-3631.89	1738556.61	14606360.58	40°13'05.280"N	80°38'54.395"W	10352.90	339.463	1.92	0.49	1.86
16885.00	90.770	326.850	5696.49	10440.95	9773.48	-3681.67	1738506.85	14606439.09	40°13'06.058"N	80°38'55.033"W	10443.93	339.359	1.70	-0.16	-1.69
16977.00	90.800	327.100	5695.23	10531.24	9850.61	-3731.81	1738456.74	14606516.19	40°13'06.823"N	80°38'55.675"W	10533.80	339.251	0.27	0.03	0.27
17070.00	90.770	328.870	5693.96	10622.82	9929.45	-3781.10	1738407.46	14606595.00	40°13'07.604"N	80°38'56.307"W	10625.01	339.153	1.90	-0.03	1.90
17163.00	90.830	329.520	5692.66	10714.71	10009.32	-3828.72	1738359.86	14606674.84	40°13'08.395"N	80°38'56.917"W	10716.61	339.067	0.70	0.06	0.70
17252.00	91.050	330.530	5691.20	10802.84	10086.41	-3873.18	1738315.41	14606751.89	40°13'09.158"N	80°38'57.486"W	10804.50	338.993	1.16	0.25	1.13
17345.00	90.830	331.130	5689.68	10895.10	10167.60	-3918.50	1738270.11	14606833.06	40°13'09.962"N	80°38'58.066"W	10896.55	338.924	0.69	-0.24	0.65
17438.00	90.860	332.710	5688.30	10987.57	10249.57	-3962.28	1738226.36	14606915.07	40°13'10.775"N	80°38'58.626"W	10988.85	338.865	1.70	0.03	1.70
17530.00	90.280	332.910	5687.39	11079.19	10331.47	-4004.31	1738184.34	14606996.86	40°13'11.585"N	80°38'59.164"W	11080.34	338.814	0.67	-0.63	0.22
17623.00	90.890	336.070	5686.44	11172.00	10415.39	-4044.36	1738144.31	14607080.75	40°13'12.416"N	80°38'59.676"W	11173.06	338.779	3.46	0.66	3.40
17716.00	90.800	337.350	5685.07	11264.96	10500.80	-4081.12	1738107.56	14607166.13	40°13'13.261"N	80°39'00.145"W	11265.99	338.761	1.38	-0.10	1.38
17809.00	90.920	337.820	5683.67	11357.95	10586.77	-4116.58	1738072.11	14607252.06	40°13'14.112"N	80°39'00.598"W	11358.96	338.752	0.52	0.13	0.51
17901.00	90.740	338.450	5682.34	11449.94	10672.14	-4150.84	1738037.87	14607337.40	40°13'14.957"N	80°39'01.035"W	11450.94	338.747	0.71	-0.20	0.68
17994.00	90.800	339.450	5681.09	11542.92	10758.92	-4184.24	1738004.48	14607424.15	40°13'15.816"N	80°39'01.461"W	11543.93	338.748	1.08	0.06	1.08
18087.00	90.770	338.540	5679.82	11635.89	10845.73	-4217.57	1737971.16	14607510.92	40°13'16.675"N	80°39'01.887"W	11636.92	338.750	0.98	-0.03	-0.98



# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 9 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Brooke County, WV	Wellbore	Barry Greathouse A BRK 205H AWB
Brooke		
Barry Greathouse A BRK Pad		

## WELLPATH DATA (249 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]
18176.00	90.920	337.620	5678.50	11724.88	10928.29	-4250.79	1737937.95	14607593.45	40°13'17.492"N	80°39'02.311"W	11725.90	338.745	1.05	0.17	-1.03
18263.00	90.620	336.140	5677.33	11811.86	11008.29	-4284.95	1737903.81	14607673.42	40°13'18.284"N	80°39'02.747"W	11812.85	338.732	1.74	-0.34	-1.70
18355.00	90.430	335.770	5676.49	11903.79	11092.31	-4322.44	1737866.34	14607757.40	40°13'19.116"N	80°39'03.226"W	11904.73	338.710	0.45	-0.21	-0.40
18448.00	90.740	335.420	5675.54	11996.71	11176.99	-4360.86	1737827.93	14607842.05	40°13'19.954"N	80°39'03.717"W	11997.59	338.686	0.50	0.33	-0.38
18541.00	90.490	334.070	5674.54	12089.55	11261.10	-4400.53	1737788.27	14607926.12	40°13'20.787"N	80°39'04.224"W	12090.37	338.656	1.48	-0.27	-1.45
18632.00	90.580	333.440	5673.69	12180.30	11342.71	-4440.77	1737748.05	14608007.71	40°13'21.595"N	80°39'04.739"W	12181.03	338.619	0.70	0.10	-0.69
18725.00	90.710	332.550	5672.65	12272.94	11425.56	-4483.00	1737705.84	14608090.53	40°13'22.415"N	80°39'05.279"W	12273.58	338.577	0.97	0.14	-0.96
18817.00	90.520	333.050	5671.66	12364.56	11507.39	-4525.05	1737663.80	14608172.32	40°13'23.225"N	80°39'05.817"W	12365.11	338.534	0.58	-0.21	0.54
18906.00	90.430	333.570	5670.92	12453.26	11586.90	-4565.02	1737623.85	14608255.80	40°13'24.013"N	80°39'06.328"W	12456.44	338.496	0.59	-0.10	0.58
18999.00	90.520	334.140	5670.15	12546.01	11670.38	-4606.00	1737582.88	14608335.25	40°13'24.839"N	80°39'06.852"W	12546.44	338.462	0.62	0.10	0.61
19092.00	91.170	336.740	5668.78	12638.90	11754.95	-4644.65	1737544.25	14608419.79	40°13'25.677"N	80°39'07.346"W	12639.29	338.440	2.88	0.70	2.80
19185.00	91.320	335.670	5666.76	12731.83	11840.02	-4682.16	1737506.75	14608504.83	40°13'26.519"N	80°39'07.826"W	12732.20	338.424	1.16	0.16	-1.15
19278.00	90.920	335.440	5664.94	12824.73	11924.67	-4720.64	1737468.29	14608589.44	40°13'27.357"N	80°39'08.317"W	12825.06	338.403	0.50	-0.43	-0.25
19371.00	90.920	336.140	5663.45	12917.65	12009.48	-4758.77	1737430.17	14608674.22	40°13'28.196"N	80°39'08.805"W	12917.95	338.384	0.75	0.00	0.75
19463.00	90.950	336.720	5661.94	13009.60	12093.79	-4795.56	1737393.40	14608758.50	40°13'29.031"N	80°39'09.275"W	13009.89	338.370	0.63	0.03	0.63
19556.00	90.920	338.280	5660.43	13102.58	12179.70	-4831.14	1737357.83	14608844.37	40°13'29.881"N	80°39'09.729"W	13102.86	338.364	1.68	-0.03	1.68
19649.00	90.980	338.350	5658.89	13195.57	12266.11	-4865.50	1737323.49	14608930.74	40°13'30.736"N	80°39'10.168"W	13195.85	338.364	0.10	0.06	0.08
19742.00	90.990	337.830	5657.29	13288.55	12352.38	-4900.20	1737288.80	14609016.98	40°13'31.590"N	80°39'10.611"W	13288.83	338.362	0.56	0.01	-0.56
19830.00	90.710	338.560	5655.98	13376.54	12434.07	-4932.88	1737256.13	14609098.64	40°13'32.399"N	80°39'11.028"W	13376.82	338.361	0.89	-0.32	0.83
19914.00	90.740	338.850	5654.92	13460.53	12512.33	-4963.38	1737225.64	14609176.87	40°13'33.173"N	80°39'11.417"W	13460.81	338.363	0.35	0.04	0.35
20007.00	90.650	339.330	5653.79	13553.51	12599.20	-4996.57	1737192.46	14609263.70	40°13'34.033"N	80°39'11.841"W	13553.80	338.368	0.53	-0.10	0.52
20096.00	90.740	337.900	5652.71	13642.49	12682.06	-5029.02	1737160.03	14609346.53	40°13'34.853"N	80°39'12.255"W	13642.79	338.369	1.61	0.10	-1.61
20189.00	91.290	335.550	5651.06	13735.45	12767.47	-5065.76	1737123.30	14609431.91	40°13'35.698"N	80°39'12.724"W	13735.73	338.358	2.59	0.59	-2.53
20281.00	91.420	333.300	5648.89	13827.24	12850.43	-5105.46	1737083.62	14609514.84	40°13'36.520"N	80°39'13.232"W	13827.48	338.332	2.45	0.14	-2.45
20374.00	91.380	331.930	5646.61	13919.80	12932.98	-5148.23	1737040.87	14609597.36	40°13'37.337"N	80°39'13.779"W	13919.99	338.294	1.47	-0.04	-1.47
20467.00	90.680	331.510	5644.94	14012.23	13014.87	-5192.28	1736996.83	14609679.21	40°13'38.148"N	80°39'14.343"W	14012.37	338.250	0.88	-0.75	-0.45
20559.00	90.980	330.750	5643.61	14103.56	13095.42	-5236.70	1736952.44	14609759.74	40°13'38.946"N	80°39'14.911"W	14103.66	338.204	0.89	0.33	-0.83
20652.00	90.800	331.040	5642.17	14195.83	13176.67	-5281.93	1736907.22	14609840.95	40°13'39.750"N	80°39'15.490"W	14195.89	338.156	0.37	-0.19	0.31
20745.00	90.430	332.930	5641.17	14288.31	13258.77	-5325.60	1736863.56	14609923.01	40°13'40.563"N	80°39'16.049"W	14288.35	338.116	2.07	-0.40	2.03
20837.00	90.680	333.450	5640.28	14379.99	13340.87	-5367.10	1736822.08	14610005.09	40°13'41.376"N	80°39'16.580"W	14380.01	338.085	0.63	0.27	0.57

NOV 22 2019

WV Department of  
Environmental Protection

# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 10 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Area	Wellbore	Barry Greathouse A BRK 205H AWP
Field		
Facility		

## WELLPATH DATA (249 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]
20930.00	90.520	333.860	5639.30	14472.72	13424.21	-5408.37	1736780.83	14610088.39	40°13'42.201"N	80°39'17.108"W	14472.73	338.056	0.47	-0.17	0.44
21023.00	90.650	333.070	5638.35	14565.42	13507.41	-5449.91	1736739.30	14610171.56	40°13'43.025"N	80°39'17.640"W	14565.42	338.027	0.86	0.14	-0.85
21115.00	90.310	334.720	5637.58	14657.18	13590.02	-5490.39	1736698.84	14610254.13	40°13'43.843"N	80°39'18.157"W	14657.18	338.001	1.83	-0.37	1.79
21208.00	90.430	336.340	5636.98	14750.09	13674.66	-5528.91	1736660.34	14610338.74	40°13'44.681"N	80°39'18.650"W	14750.09	337.986	1.75	0.13	1.74
21301.00	90.580	337.110	5636.16	14843.06	13760.09	-5565.66	1736623.60	14610424.14	40°13'45.527"N	80°39'19.119"W	14843.06	337.978	0.84	0.16	0.83
21393.00	90.550	336.970	5635.25	14935.04	13844.79	-5601.54	1736587.73	14610508.81	40°13'46.365"N	80°39'19.578"W	14935.04	337.972	0.16	-0.03	-0.15
21486.00	90.430	338.680	5634.46	15028.04	13930.91	-5636.64	1736552.65	14610594.89	40°13'47.217"N	80°39'20.026"W	15028.04	337.971	1.84	-0.13	1.84
21584.00	90.370	339.710	5633.95	15101.02	13999.14	-5662.57	1736526.73	14610663.10	40°13'47.893"N	80°39'20.357"W	15101.02	337.977	1.41	-0.08	1.41
21584.00	90.370	339.710	5633.79	15126.01	14022.59	-5671.24	1736518.06	14610686.54	40°13'48.125"N	80°39'20.467"W	15126.01	337.980	0.00	0.00	0.00

## HOLE & CASING SECTIONS

### - Ref Wellbore: Barry Greathouse A BRK 205H AWP Ref Wellpath: Barry Greathouse A BRK 205H AWP Proj: 21584'

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	100.00	74.00	26.00	100.00	0.00	0.00	0.14	0.35
17.5in Open Hole	100.00	378.00	278.00	100.00	377.99	0.14	0.35	1.49	1.04
13.375in Casing Surface	26.00	378.00	352.00	26.00	377.99	0.00	0.00	1.49	1.04
12.25in Open Hole	378.00	1624.00	1246.00	377.99	1613.54	1.49	1.04	-16.47	112.54
9.625in Casing Intermediate	26.00	1624.00	1598.00	26.00	1613.54	0.00	0.00	-16.47	112.54
8.75in Open Hole	1624.00	5715.00	4091.00	1613.54	5533.98	-16.47	112.54	-87.82	1194.89
8.5in Open Hole	5715.00	21584.00	15869.00	5533.98	5633.79	-87.82	1194.89	14022.59	-5671.24
5.5in Casing Production	26.00	21584.00	21558.00	26.00	5633.79	0.00	0.00	14022.59	-5671.24

**REFERENCE WELLPATH IDENTIFICATION**

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205H
Area	Brooke County, WV	Well	Barry Greathouse A BRK 205H
Field	Brooke	Wellbore	Barry Greathouse A BRK 205H AWB
Facility	Barry Greathouse A BRK Pad		

**TARGETS**

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Barry Greathouse A BRK 205H BHL Rev-5	5652.00	14030.22	-5670.46	1736518.84	14610694.17	40°13'48.200"N	80°39'20.457"W	point
Barry Greathouse A BRK 205H TP2 Rev-3	5698.80	10542.19	-4084.27	1738104.41	14607207.50	40°13'13.670"N	80°39'00.184"W	point
Barry Greathouse A BRK 205H TP1 Rev-3	5769.30	5555.17	-1189.30	1740998.26	14602222.43	40°12'24.275"N	80°38'23.125"W	point
Barry Greathouse A BRK 205H LP Rev-4	5838.00	418.02	1076.34	1743263.01	14597087.28	40°11'33.418"N	80°37'54.199"W	point

**WELLPATH COMPOSITION - Ref Wellbore: Barry Greathouse A BRK 205H AWB Ref Wellpath: Barry Greathouse A BRK 205H AWP Proj: 21584'**

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	328.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17 1/2"> (143'-328')	Barry Greathouse A BRK 205H AWB
328.00	1602.00	OWSG MWD rev2 + HRGM	02_Premier MWD <12 1/4"> (422'-1602')	Barry Greathouse A BRK 205H AWB
1602.00	5656.00	OWSG MWD rev2 + HRGM	03_Premier MWD <8 3/4"> (1677'-5656')	Barry Greathouse A BRK 205H AWB
5656.00	21559.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8 1/2"> (5679'-21559')	Barry Greathouse A BRK 205H AWB
21559.00	21584.00	Blind Drilling (std)	Projection to bit	Barry Greathouse A BRK 205H AWB

# Actual Wellpath Report

Barry Greathouse A BRK 205H AWP Proj: 21584'  
Page 12 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #205H
SOUTHWESTERN ENERGY	Well	Barry Greathouse A BRK 205H
Brooke County, WV	Wellbore	Barry Greathouse A BRK 205H AWB
Brooke		
Barry Greathouse A BRK Pad		

## COMMENTS

**Wellpath general comments**  
 API: 47-009-00239-0000  
 BH Job #: 109752261  
 Rig: SDC 40  
 Duration: 4/23/2019 - 4/27/19  
 Premier MWD <17 1/2"> (143'-328')  
 Premier MWD <12 1/4"> (422'-1602')  
 Premier MWD <8 3/4"> (1677'-5656')  
 BH AT Curve <8 1/2"> (5679'-21559')  
 Projected MD at TD: 21,584'