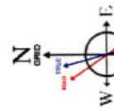


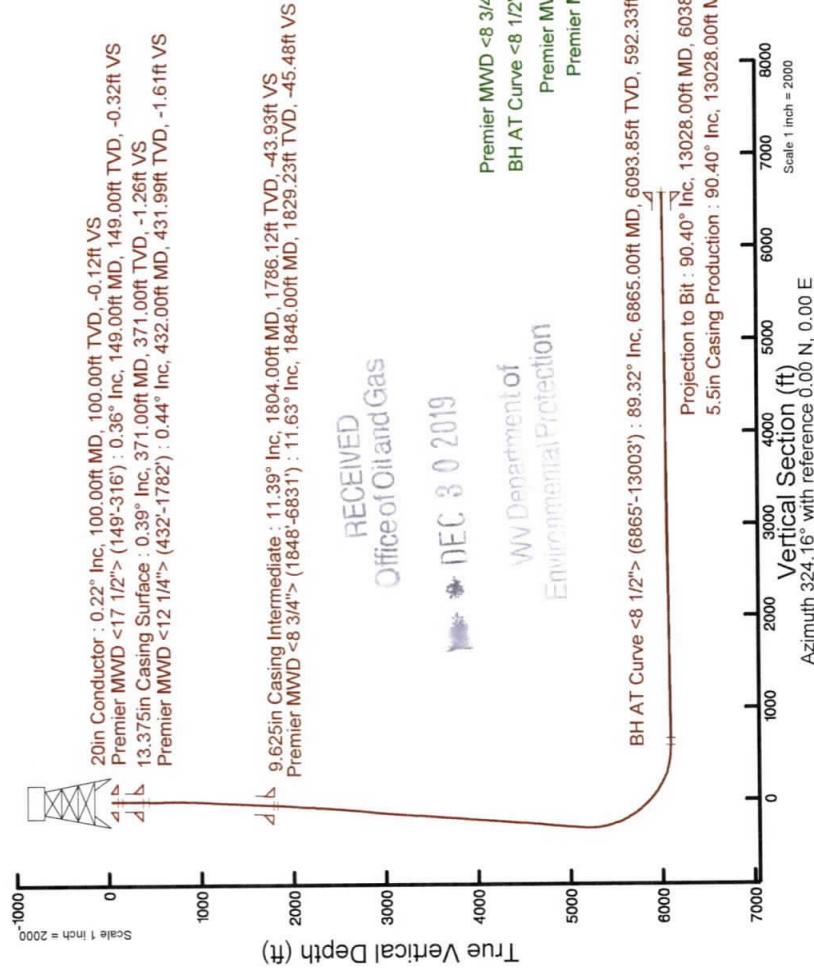
SOUTHWESTERN ENERGY

Location: Brooke County, WV
 Slot: Slot 201H
 Well: Samuel Jones BRK 201H
 Field: Samuel Jones BRK 201H PWB
 Facility: Samuel Jones BRK Pad Wellbore

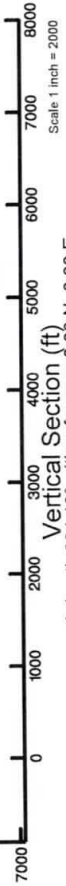
Plot reference wellpath is Samuel Jones BRK 201H PWP Rev-B.0
 Grid System: NAD83 / UTM Zone 17 North, US feet
 North Reference: Grid north
 Scale: True distance
 Measured depths are referenced to SDC 42 (KB)
 SDC 42 (KB) to Mean Sea Level: 1230.1 feet
 Mean Sea Level to Ground level (At Slot: Slot 201H): -1204.1 feet
 Created by: atjenjen on 2019-06-18
 Database: WA_MPL_EASTERNUS_Defn



Magnetic North is 3.1 degrees East of True North (at 30/May/2019)
 Grid North is 0.28 degrees East of True North
 To correct azimuth from True to Grid subtract 0.28 degrees
 To correct azimuth from Magnetic to Grid subtract 0.61 degrees



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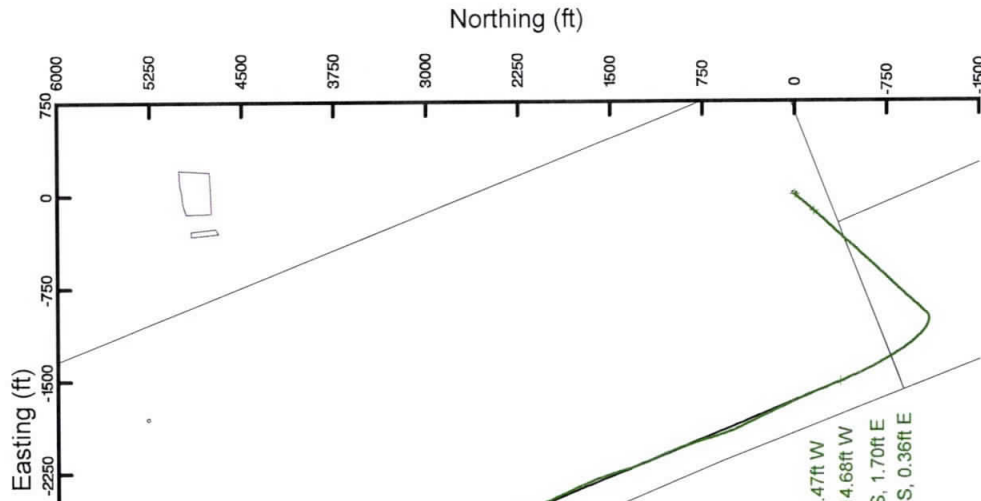


Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Samuel Jones BRK Pad	1762985.776	14596395.998	40°11'25.698"N	80°33'40.002"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid North (US ft)
Slot 201H	8.10	-5.81	1762979.964	14596404.092
SDC 42 (KB) to Ground level (At Slot: Slot 201H)				
Mean Sea Level to Ground level (At Slot: Slot 201H)				
SDC 42 (KB) to Mean Sea Level				

Comments

API: 47-009-00264-0000
 BH Job #: 109843703
 Rig: SDC 42
 Duration: 05/31/2019 - 06/01/2019



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones 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	0.999617	Report Generated	6/18/2019 at 4:24:18 PM
Convergence at slot	0.28° East	Database/Source file	WA_MPL_EASTERNU5_Defn/Samuel_Jones_BRK_201H_AWP_Proj_13028_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	8.10	-5.81	1762979.96	14596404.09	40°11'25.778"N	80°33'40.076"W
Facility Reference Pt			1762985.78	14596396.00	40°11'25.698"N	80°33'40.002"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM		
Calculation method	Minimum curvature	SDC 42 (KB) to Facility Vertical Datum
Horizontal Reference Pt	Slot	SDC 42 (KB) to Mean Sea Level
Vertical Reference Pt	SDC 42 (KB)	SDC 42 (KB) to Ground Level at Slot (Slot 201H)
MD Reference Pt	SDC 42 (KB)	Section Origin
Field Vertical Reference	Mean Sea Level	Section Azimuth
		1230.10ft
		1230.10ft
		26.00ft
		N 0.00, E 0.00 ft
		324.16°

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Actual Wellpath Report

Samuel Jones BRK 201H AWP Proj: 13028'
Page 2 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones BRK Pad		

WELLPATH DATA (147 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	109.590	0.00	0.00	0.00	0.00	1762979.96	14596404.09	40°11'25.778"N	80°33'40.076"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	109.590	26.00	0.00	0.00	0.00	1762979.96	14596404.09	40°11'25.778"N	80°33'40.076"W	0.00	0.000	0.00	0.00	0.00
149.00	0.360	109.590	149.00	-0.32	-0.13	0.36	1762980.33	14596403.96	40°11'25.777"N	80°33'40.072"W	0.39	109.590	0.29	0.29	89.10
210.00	0.310	136.930	210.00	-0.64	-0.31	0.66	1762980.62	14596403.78	40°11'25.775"N	80°33'40.068"W	0.73	115.561	0.27	-0.08	44.82
301.00	0.090	96.110	301.00	-0.93	-0.50	0.90	1762980.86	14596403.59	40°11'25.773"N	80°33'40.065"W	1.03	119.239	0.27	-0.24	-44.86
316.00	0.340	110.140	316.00	-0.98	-0.52	0.95	1762980.91	14596403.57	40°11'25.771"N	80°33'40.064"W	1.08	118.621	1.69	0.67	93.53
432.00	0.440	104.620	431.99	-1.61	-0.75	1.70	1762981.67	14596403.34	40°11'25.771"N	80°33'40.054"W	1.86	113.736	0.09	0.09	-4.76
523.00	0.360	254.110	522.99	-1.78	-0.92	1.77	1762981.73	14596403.18	40°11'25.769"N	80°33'40.054"W	1.99	117.394	0.85	-0.09	164.27
618.00	2.790	237.570	617.95	-1.54	-2.24	-0.47	1762979.49	14596401.86	40°11'25.756"N	80°33'40.083"W	2.29	191.904	2.58	2.56	-17.41
713.00	4.530	239.170	712.75	-1.07	-5.40	-5.65	1762974.32	14596398.69	40°11'25.725"N	80°33'40.149"W	7.81	226.269	1.83	1.83	1.68
808.00	6.140	227.060	807.34	-1.37	-10.78	-12.59	1762967.38	14596393.31	40°11'25.672"N	80°33'40.239"W	16.57	229.409	2.06	1.69	-12.75
903.00	7.970	220.970	901.62	-3.50	-19.22	-20.62	1762959.35	14596384.88	40°11'25.589"N	80°33'40.343"W	28.19	227.020	2.08	1.93	-6.41
998.00	9.310	219.610	995.54	-6.94	-30.11	-29.84	1762960.13	14596373.99	40°11'25.482"N	80°33'40.463"W	42.40	224.742	1.43	1.41	-1.43
1093.00	11.130	217.330	1089.03	-11.52	-43.32	-40.30	1762939.68	14596360.78	40°11'25.352"N	80°33'40.598"W	59.17	222.931	1.96	1.92	-2.40
1189.00	10.660	216.850	1183.30	-16.85	-57.80	-51.25	1762928.74	14596346.32	40°11'25.210"N	80°33'40.740"W	77.25	221.562	0.50	-0.49	-0.50
1286.00	10.010	222.000	1278.73	-21.29	-71.24	-62.27	1762917.72	14596332.88	40°11'25.077"N	80°33'40.883"W	94.62	221.155	1.16	-0.67	5.31
1381.00	11.200	222.980	1372.10	-24.82	-84.13	-74.08	1762905.91	14596320.00	40°11'24.951"N	80°33'41.036"W	112.10	221.367	1.27	1.25	1.03
1476.00	12.720	222.170	1465.04	-28.78	-98.63	-87.40	1762892.60	14596305.50	40°11'24.808"N	80°33'41.209"W	131.78	221.544	1.61	1.60	-0.85
1572.00	12.270	220.130	1558.76	-33.45	-114.26	-101.07	1762878.94	14596289.87	40°11'24.654"N	80°33'41.386"W	152.55	221.493	0.66	-0.47	-2.13
1667.00	11.350	219.680	1651.75	-38.24	-129.18	-113.54	1762866.47	14596274.97	40°11'24.507"N	80°33'41.548"W	171.98	221.314	0.97	-0.97	-0.47
1764.00	11.140	223.040	1746.89	-42.43	-143.37	-126.03	1762853.98	14596260.78	40°11'24.368"N	80°33'41.709"W	190.89	221.317	0.71	-0.22	3.46
1848.00	11.630	224.450	1829.23	-45.48	-155.40	-137.47	1762842.55	14596248.75	40°11'24.249"N	80°33'41.858"W	194.39	221.347	0.73	0.72	-0.56
1939.00	14.780	221.290	1917.82	-49.62	-170.67	-151.55	1762828.47	14596233.48	40°11'24.099"N	80°33'42.040"W	207.48	221.496	0.71	0.55	2.29
2034.00	16.310	220.210	2009.34	-55.53	-189.97	-168.16	1762811.86	14596214.20	40°11'23.909"N	80°33'42.255"W	228.25	221.604	3.55	3.46	-3.47
2130.00	17.660	220.930	2101.15	-62.12	-211.26	-186.41	1762793.63	14596192.91	40°11'23.700"N	80°33'42.492"W	253.71	221.516	1.64	1.61	-1.14
2226.00	18.250	222.350	2192.48	-68.53	-233.37	-206.07	1762773.97	14596170.81	40°11'23.482"N	80°33'42.747"W	281.74	221.423	1.42	1.41	0.75
2323.00	19.770	223.470	2284.18	-74.68	-256.51	-227.59	1762752.46	14596147.68	40°11'23.255"N	80°33'43.025"W	311.34	221.445	0.77	0.61	1.48
2419.00	20.530	221.810	2374.31	-81.29	-280.84	-249.99	1762730.07	14596123.36	40°11'23.015"N	80°33'43.315"W	342.92	221.582	1.61	1.57	1.15
2515.00	20.550	224.240	2464.21	-87.79	-305.46	-272.96	1762707.11	14596098.75	40°11'22.773"N	80°33'43.613"W	375.98	221.674	0.99	0.79	-1.73
											409.65	221.785	0.89	0.02	2.53

Actual Wellpath Report
Samuel Jones BRK 201H AWP Proj: 13028'

Page 3 of 8

WV Department of
Environmental Protection

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones BRK Pad		

WELLPATH DATA (147 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)
2610.00	21.510	222.170	2552.88	-94.28	-330.31	-296.29	1762683.79	14596073.91	40°11'22.529"N	80°33'43.915"W	443.73	221.892	1.28	1.01	-2.18
2707.00	21.180	221.990	2843.22	-101.67	-356.51	-319.95	1762660.14	14596047.71	40°11'22.271"N	80°33'44.222"W	479.03	221.906	0.35	-0.34	-0.19
2802.00	21.460	222.890	2731.72	-108.69	-382.00	-343.26	1762636.84	14596022.24	40°11'22.020"N	80°33'44.524"W	513.57	221.942	0.45	0.29	0.95
2897.00	20.810	217.670	2820.34	-116.87	-408.10	-365.40	1762614.70	14595996.15	40°11'21.763"N	80°33'44.811"W	547.78	221.841	2.10	-0.68	-5.49
2993.00	19.970	220.240	2910.33	-125.66	-434.11	-386.41	1762593.70	14595970.15	40°11'21.507"N	80°33'45.083"W	581.18	221.673	1.28	-0.88	2.68
3089.00	20.370	219.720	3000.44	-133.77	-459.47	-407.68	1762572.44	14595944.80	40°11'21.258"N	80°33'45.359"W	614.26	221.582	0.46	0.42	-0.54
3184.00	20.850	222.370	3089.36	-141.35	-484.68	-429.64	1762550.49	14595919.60	40°11'21.010"N	80°33'45.643"W	647.69	221.555	1.10	0.51	2.79
3280.00	20.780	224.770	3179.10	-147.91	-509.60	-452.93	1762527.20	14595894.69	40°11'20.765"N	80°33'45.945"W	681.79	221.631	0.52	-0.07	1.46
3376.00	20.780	224.270	3268.85	-153.90	-534.09	-476.60	1762503.55	14595870.20	40°11'20.524"N	80°33'46.251"W	715.82	221.744	0.18	0.00	0.52
3472.00	21.320	222.960	3358.44	-160.22	-559.06	-500.38	1762479.77	14595845.25	40°11'20.278"N	80°33'46.559"W	750.29	221.830	0.75	0.56	-1.36
3568.00	20.680	222.030	3448.07	-167.17	-584.42	-523.62	1762456.54	14595819.89	40°11'20.029"N	80°33'46.861"W	784.69	221.859	0.75	-0.67	-0.97
3665.00	20.160	221.340	3538.97	-174.48	-609.69	-546.13	1762434.04	14595794.63	40°11'19.780"N	80°33'47.152"W	818.53	221.852	0.59	-0.54	-0.71
3761.00	19.980	221.940	3629.14	-181.62	-634.32	-568.02	1762412.16	14595770.02	40°11'19.538"N	80°33'47.436"W	851.47	221.844	0.28	-0.19	0.63
3857.00	20.040	223.210	3719.35	-188.22	-658.50	-590.25	1762389.95	14595745.84	40°11'19.300"N	80°33'47.724"W	884.32	221.871	0.46	0.06	1.32
3953.00	21.220	224.260	3809.19	-194.33	-682.94	-613.63	1762366.57	14595721.42	40°11'19.060"N	80°33'48.027"W	918.12	221.940	1.29	1.23	1.09
4049.00	20.300	221.810	3898.96	-200.88	-707.79	-636.86	1762343.35	14595696.57	40°11'18.815"N	80°33'48.327"W	952.14	221.980	1.32	-0.96	-2.55
4145.00	20.160	223.250	3989.04	-207.57	-732.25	-659.30	1762320.92	14595672.12	40°11'18.574"N	80°33'48.618"W	985.33	221.999	0.54	-0.15	1.50
4240.00	20.330	222.690	4078.17	-213.95	-756.31	-681.71	1762298.52	14595648.08	40°11'18.338"N	80°33'48.908"W	1018.20	222.030	0.27	0.18	-0.59
4336.00	21.120	224.540	4167.96	-220.16	-780.89	-705.14	1762275.09	14595623.50	40°11'18.096"N	80°33'49.212"W	1052.15	222.082	1.07	0.82	1.93
4432.00	20.970	223.510	4257.55	-226.22	-805.68	-729.10	1762251.14	14595598.72	40°11'17.852"N	80°33'49.522"W	1086.60	222.144	0.42	-0.16	-1.07
4527.00	20.370	223.090	4346.44	-232.54	-830.08	-752.10	1762228.15	14595574.33	40°11'17.612"N	80°33'49.820"W	1120.13	222.178	0.65	-0.63	-0.44
4623.00	20.770	221.890	4436.32	-239.36	-854.96	-774.88	1762205.38	14595549.46	40°11'17.367"N	80°33'50.115"W	1153.86	222.187	0.61	0.42	-1.25
4719.00	21.230	222.220	4525.94	-246.58	-880.50	-797.93	1762182.34	14595523.93	40°11'17.116"N	80°33'50.414"W	1188.26	222.183	0.49	0.48	0.34
4815.00	21.520	222.140	4615.34	-253.84	-906.43	-821.42	1762158.86	14595498.01	40°11'16.861"N	80°33'50.718"W	1223.25	222.183	0.30	0.30	-0.08
4911.00	22.860	221.310	4704.23	-261.65	-933.49	-845.54	1762134.75	14595470.96	40°11'16.595"N	80°33'51.031"W	1259.51	222.170	1.43	1.40	-0.86
5008.00	21.900	218.820	4793.92	-270.63	-961.74	-869.32	1762110.98	14595442.72	40°11'16.317"N	80°33'51.339"W	1296.41	222.111	1.39	-0.99	-2.57
5104.00	22.130	222.000	4882.92	-279.18	-989.13	-892.65	1762087.66	14595415.34	40°11'16.047"N	80°33'51.641"W	1332.36	222.065	1.26	0.24	3.31
5200.00	20.610	224.810	4972.32	-285.73	-1014.55	-916.66	1762063.66	14595389.93	40°11'15.797"N	80°33'51.923"W	1367.33	222.098	1.91	-1.58	2.93
5296.00	20.160	223.100	5062.31	-291.65	-1038.62	-939.87	1762040.46	14595365.87	40°11'15.561"N	80°33'52.253"W	1400.74	222.143	0.78	-0.47	-1.78
5392.00	17.870	221.340	5153.07	-298.09	-1061.76	-960.90	1762019.43	14595342.74	40°11'15.333"N	80°33'52.526"W	1432.02	222.145	2.46	-2.39	-1.83

Actual Wellpath Report

Samuel Jones BRK 201H AWP Proj: 13028'
Page 4 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones BRK Pad		

WELLPATH DATA (147 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]
5489.00	14.850	243.450	5246.22	-299.39	-1078.51	-981.88	1761998.46	14595326.00	40°11'15.168"N	80°33'52.796"W	1458.52	222.315	7.08	-3.11	22.79
5537.00	15.940	256.410	5292.51	-295.90	-1082.81	-993.79	1761986.56	14595321.70	40°11'15.126"N	80°33'52.950"W	1469.73	222.545	7.50	2.27	27.00
5584.00	17.030	266.770	5337.59	-289.74	-1084.72	-1006.94	1761973.41	14595319.79	40°11'15.108"N	80°33'53.120"W	1480.05	222.870	6.66	2.32	22.04
5679.00	18.230	286.680	5428.21	-270.44	-1081.23	-1035.09	1761945.27	14595323.28	40°11'15.144"N	80°33'53.482"W	1496.82	223.751	6.44	1.26	20.96
5774.00	23.740	295.880	5516.90	-241.78	-1068.61	-1066.56	1761913.81	14595335.90	40°11'15.270"N	80°33'53.887"W	1509.79	224.945	6.74	5.80	9.68
5870.00	28.970	306.980	5602.94	-202.49	-1046.16	-1102.57	1761877.82	14595358.34	40°11'15.494"N	80°33'54.349"W	1519.90	226.504	7.46	5.45	11.56
5965.00	32.970	316.360	5684.43	-154.86	-1013.58	-1138.82	1761841.58	14595390.90	40°11'15.818"N	80°33'54.814"W	1524.55	228.330	6.59	4.21	9.87
6060.00	37.930	319.830	5761.80	-100.09	-972.53	-1175.52	1761804.90	14595431.94	40°11'16.225"N	80°33'55.285"W	1525.67	230.398	5.63	5.22	3.65
6157.00	44.040	321.530	5834.99	-36.62	-923.30	-1215.77	1761764.67	14595481.14	40°11'16.713"N	80°33'55.800"W	1526.62	232.785	6.40	6.30	1.75
6253.00	50.310	327.430	5900.25	33.69	-865.97	-1256.47	1761723.98	14595538.46	40°11'17.282"N	80°33'56.321"W	1525.98	235.425	7.93	6.53	6.15
6350.00	56.750	329.250	5957.88	111.44	-799.58	-1297.34	1761683.12	14595604.81	40°11'17.940"N	80°33'56.844"W	1523.95	238.353	6.81	6.64	1.88
6398.00	60.000	329.840	5983.04	152.12	-764.36	-1318.05	1761662.42	14595640.03	40°11'18.289"N	80°33'57.108"W	1523.65	239.890	6.85	6.77	1.23
6446.00	62.280	330.060	6006.21	193.94	-727.97	-1339.10	1761641.38	14595676.40	40°11'18.650"N	80°33'57.377"W	1524.18	241.470	4.77	4.75	0.46
6494.00	65.500	330.900	6027.33	236.78	-690.47	-1360.33	1761620.16	14595713.89	40°11'19.021"N	80°33'57.648"W	1525.53	243.089	6.89	6.71	1.75
6542.00	69.240	331.470	6045.80	280.74	-651.65	-1381.68	1761598.82	14595752.69	40°11'19.406"N	80°33'57.921"W	1527.64	244.750	7.87	7.79	1.19
6590.00	74.110	333.220	6060.89	325.82	-611.30	-1402.81	1761577.69	14595793.03	40°11'19.806"N	80°33'58.191"W	1530.22	246.454	10.72	10.15	3.65
6638.00	77.280	334.370	6072.75	371.67	-569.58	-1423.35	1761557.17	14595834.74	40°11'20.219"N	80°33'58.453"W	1533.08	248.190	7.00	6.60	2.40
6686.00	81.100	334.790	6081.75	418.03	-527.00	-1443.58	1761536.94	14595877.30	40°11'20.641"N	80°33'58.711"W	1536.77	249.945	8.00	7.96	0.87
6735.00	84.860	335.980	6087.73	465.73	-482.79	-1463.83	1761516.70	14595921.48	40°11'21.078"N	80°33'58.969"W	1541.39	251.747	8.04	7.67	2.43
6831.00	88.580	337.490	6093.23	559.25	-394.76	-1501.68	1761478.87	14596009.48	40°11'21.950"N	80°33'59.451"W	1552.70	255.271	4.18	3.87	1.57
6885.00	89.320	337.530	6093.85	592.33	-363.35	-1514.68	1761465.87	14596040.88	40°11'22.261"N	80°33'59.616"W	1557.65	256.510	2.18	2.18	0.12
6921.00	90.800	337.830	6093.79	646.77	-311.55	-1535.95	1761444.61	14596092.66	40°11'22.774"N	80°33'59.887"W	1567.23	258.534	2.70	2.64	0.54
7016.00	90.710	337.590	6092.54	739.12	-223.66	-1571.98	1761408.59	14596180.52	40°11'23.644"N	80°34'00.346"W	1587.81	261.902	0.27	-0.09	-0.25
7111.00	90.950	337.280	6091.16	831.57	-135.94	-1608.43	1761372.16	14596268.21	40°11'24.513"N	80°34'00.810"W	1614.16	265.169	0.41	0.25	-0.33
7206.00	90.650	336.090	6089.84	924.30	-48.71	-1646.02	1761334.58	14596355.40	40°11'25.377"N	80°34'01.289"W	1646.74	268.305	1.29	-0.32	-1.25
7300.00	90.680	335.390	6088.74	1016.38	36.99	-1684.64	1761295.97	14596441.06	40°11'26.226"N	80°34'01.781"W	1685.05	271.258	0.75	0.03	-0.74
7395.00	90.680	335.280	6087.62	1109.57	123.31	-1724.28	1761256.34	14596527.36	40°11'27.080"N	80°34'02.289"W	1728.69	274.091	0.12	0.00	-0.12
7491.00	90.740	335.180	6086.43	1203.78	210.47	-1764.50	1761216.14	14596614.48	40°11'27.944"N	80°34'02.799"W	1777.01	276.802	0.12	0.06	-0.10
7587.00	90.650	334.490	6085.26	1298.11	297.35	-1805.32	1761175.34	14596701.33	40°11'28.804"N	80°34'03.320"W	1829.65	279.353	0.72	-0.09	-0.72
7683.00	90.220	333.790	6084.53	1392.65	383.74	-1847.19	1761133.48	14596787.68	40°11'29.660"N	80°34'03.854"W	1886.63	281.736	0.86	-0.45	-0.73



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DEC 30 2019

Actual Wellpath Report

Samuel Jones BRK 201H AWP Proj: 13028'

Page 5 of 8

WV Department of
Environmental Protection



REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 201H
SOUTHWESTERN ENERGY	Well	Samuel Jones BRK 201H
Brooke County, WV	Wellbore	Samuel Jones BRK 201H AWB
Brooke		
Samuel Jones BRK Pad		

WELLPATH DATA (147 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]
7780.00	89.850	335.860	6084.48	1487.97	471.52	-1888.45	1761092.24	14596875.43	40°11'30.529"N	80°34'04.380"W	1946.43	284.019	2.17	-0.38	2.13
7876.00	89.850	339.940	6084.73	1581.21	560.45	-1924.56	1761056.14	14596964.32	40°11'31.410"N	80°34'04.840"W	2004.50	286.236	4.25	0.00	4.25
7973.00	90.680	343.680	6084.28	1673.62	652.58	-1954.84	1761025.88	14597056.42	40°11'32.322"N	80°34'05.224"W	2060.88	288.461	3.95	0.86	3.86
8069.00	90.650	343.300	6083.16	1764.20	744.62	-1982.12	1760998.61	14597148.42	40°11'33.233"N	80°34'05.570"W	2117.37	290.590	0.40	-0.03	-0.40
8165.00	90.490	341.450	6082.21	1855.38	836.10	-2011.18	1760969.56	14597239.87	40°11'34.138"N	80°34'05.939"W	2178.05	292.574	1.93	-0.17	-1.93
8260.00	90.580	339.740	6081.32	1946.50	925.70	-2042.74	1760938.01	14597329.43	40°11'35.025"N	80°34'06.340"W	2242.70	294.378	1.80	0.09	-1.80
8356.00	90.920	338.470	6080.06	2039.24	1015.38	-2076.98	1760903.79	14597419.08	40°11'35.913"N	80°34'06.775"W	2311.89	296.053	1.37	0.35	-1.32
8452.00	90.860	335.850	6078.57	2132.76	1103.83	-2114.23	1760866.55	14597507.50	40°11'36.789"N	80°34'07.250"W	2385.04	297.569	2.73	-0.06	-2.73
8548.00	90.830	335.830	6077.16	2226.76	1191.41	-2153.52	1760827.27	14597595.05	40°11'37.656"N	80°34'07.751"W	2461.12	298.953	0.04	-0.03	-0.02
8645.00	90.890	339.900	6075.70	2320.97	1281.23	-2190.06	1760790.75	14597684.83	40°11'38.545"N	80°34'08.216"W	2537.30	300.329	4.20	0.06	4.20
8741.00	90.800	342.730	6074.28	2412.68	1372.15	-2220.80	1760760.01	14597775.72	40°11'39.445"N	80°34'08.606"W	2610.51	301.710	2.95	-0.09	2.95
8837.00	90.860	342.640	6072.89	2503.69	1463.79	-2249.37	1760731.46	14597867.32	40°11'40.352"N	80°34'08.969"W	2683.72	303.054	0.11	0.06	-0.09
8932.00	90.950	340.670	6071.39	2594.28	1553.95	-2279.27	1760701.57	14597957.44	40°11'41.245"N	80°34'09.348"W	2758.59	304.285	2.08	0.09	-2.07
9028.00	90.890	338.820	6069.85	2686.74	1644.00	-2312.50	1760668.36	14598047.46	40°11'42.136"N	80°34'09.771"W	2837.32	305.410	1.93	-0.06	-1.93
9124.00	90.890	335.750	6068.36	2780.21	1732.53	-2349.56	1760631.31	14598135.96	40°11'43.013"N	80°34'10.243"W	2919.26	306.405	3.20	0.00	-3.20
9220.00	90.890	335.130	6066.87	2874.34	1819.83	-2389.46	1760591.43	14598223.23	40°11'43.877"N	80°34'10.752"W	3003.55	307.293	0.65	0.00	-0.65
9315.00	90.430	335.910	6065.78	2967.47	1906.29	-2428.82	1760552.08	14598309.65	40°11'44.733"N	80°34'11.254"W	3087.57	308.127	0.95	-0.48	0.82
9411.00	90.430	334.300	6065.05	3061.72	1993.36	-2469.23	1760511.69	14598396.69	40°11'45.596"N	80°34'11.769"W	3173.42	308.913	1.68	0.00	-1.68
9506.00	90.460	333.840	6064.32	3155.30	2078.80	-2510.77	1760470.16	14598482.09	40°11'46.442"N	80°34'12.299"W	3259.65	309.623	0.49	0.03	-0.48
9602.00	90.520	336.720	6063.50	3249.49	2165.99	-2550.91	1760430.04	14598569.25	40°11'47.306"N	80°34'12.811"W	3346.43	310.335	3.00	0.06	3.00
9698.00	90.460	338.750	6062.67	3342.80	2254.82	-2587.28	1760393.68	14598658.05	40°11'48.185"N	80°34'13.274"W	3431.94	311.072	2.12	-0.06	2.11
9795.00	90.460	338.380	6061.90	3436.74	2345.11	-2622.72	1760358.25	14598748.30	40°11'49.079"N	80°34'13.725"W	3518.27	311.801	0.38	0.00	-0.38
9891.00	90.430	338.040	6061.15	3529.87	2434.25	-2658.36	1760322.63	14598837.40	40°11'49.962"N	80°34'14.179"W	3604.50	312.480	0.36	-0.03	-0.35
9986.00	90.460	336.850	6060.41	3622.32	2521.98	-2694.80	1760286.20	14598925.10	40°11'50.830"N	80°34'14.643"W	3690.84	313.103	1.25	0.03	-1.25
10082.00	90.490	335.490	6059.62	3716.21	2609.79	-2733.58	1760247.44	14599012.87	40°11'51.700"N	80°34'15.137"W	3779.35	313.673	1.42	0.03	-1.42
10179.00	90.490	335.700	6058.79	3811.29	2698.12	-2773.66	1760207.37	14599101.17	40°11'52.575"N	80°34'15.648"W	3869.50	314.209	0.22	0.00	0.22
10274.00	90.460	335.410	6058.00	3904.41	2784.60	-2812.97	1760168.08	14599187.62	40°11'53.431"N	80°34'16.149"W	3958.13	314.710	0.31	-0.03	-0.31
10370.00	90.490	334.020	6057.20	3998.78	2871.40	-2853.97	1760127.09	14599274.38	40°11'54.291"N	80°34'16.672"W	4048.46	315.174	1.45	0.03	-1.45
10466.00	90.430	334.250	6056.43	4093.33	2957.78	-2895.85	1760085.23	14599360.73	40°11'55.146"N	80°34'17.207"W	4139.37	315.606	0.25	-0.06	0.24
10562.00	90.430	334.990	6055.71	4187.73	3044.51	-2937.00	1760044.10	14599447.43	40°11'56.006"N	80°34'17.731"W	4230.24	316.030	0.77	0.00	0.77



DEC 30 2019

WV Department of
Environmental Protection

Actual Wellpath Report

Samuel Jones BRK 201H AWP Proj: 13028'

Page 6 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones BRK Pad		

WELLPATH DATA (147 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]
10658.00	90.370	336.800	6055.04	4281.71	3132.13	-2976.20	1760004.91	1459935.02	40°11'56.873"N	80°34'18.231"W	4320.65	316.462	1.89	-0.06	1.89
10755.00	90.430	339.250	6054.36	4375.88	3222.07	-3012.49	1759968.63	14599624.93	40°11'57.764"N	80°34'18.693"W	4411.00	316.925	2.53	0.06	2.53
10851.00	90.400	340.020	6053.67	4468.39	3312.07	-3045.90	1759935.23	14599714.89	40°11'58.655"N	80°34'19.118"W	4499.70	317.397	0.80	-0.03	0.80
10947.00	90.220	338.600	6053.15	4561.05	3401.87	-3079.82	1759901.33	14599804.66	40°11'59.544"N	80°34'19.550"W	4588.90	317.845	1.49	-0.19	-1.48
11044.00	90.280	338.360	6052.73	4655.04	3492.11	-3115.40	1759865.76	14599894.86	40°12'00.437"N	80°34'20.003"W	4679.80	318.263	0.26	0.06	-0.25
11140.00	90.460	338.940	6052.11	4747.98	3581.52	-3150.35	1759830.83	14599984.24	40°12'01.322"N	80°34'20.447"W	4769.91	318.665	0.63	0.19	0.60
11237.00	90.650	339.580	6051.17	4841.63	3672.23	-3184.70	1759796.49	14600074.91	40°12'02.220"N	80°34'20.885"W	4860.82	319.067	0.69	0.20	0.66
11333.00	90.310	340.530	6050.36	4933.95	3762.47	-3217.44	1759763.76	14600165.11	40°12'03.114"N	80°34'21.301"W	4950.57	319.465	1.05	-0.35	0.99
11430.00	90.400	341.690	6049.76	5026.75	3854.23	-3248.89	1759732.33	14600256.84	40°12'04.022"N	80°34'21.700"W	5040.87	319.871	1.15	0.09	1.14
11526.00	90.400	341.830	6049.09	5118.30	3945.35	-3279.08	1759702.14	14600347.93	40°12'04.924"N	80°34'22.084"W	5130.13	320.269	0.05	0.00	0.05
11623.00	90.650	337.400	6044.75	5210.76	4037.47	-3309.44	1759671.79	14600440.01	40°12'05.836"N	80°34'22.470"W	5220.50	320.659	0.30	0.26	0.14
11717.00	90.250	338.730	6047.46	5301.05	4125.95	-3341.16	1759640.09	14600528.45	40°12'06.711"N	80°34'22.873"W	5309.12	321.000	3.33	-0.43	-3.30
11814.00	90.180	337.010	6047.10	5395.28	4215.80	-3377.70	1759603.57	14600618.27	40°12'07.601"N	80°34'23.338"W	5402.02	321.298	1.77	-0.07	-1.77
11910.00	90.650	337.250	6046.41	5488.83	4304.25	-3415.00	1759566.27	14600706.68	40°12'08.477"N	80°34'23.813"W	5494.43	321.571	0.55	0.49	0.25
12007.00	90.430	336.830	6045.49	5583.38	4393.56	-3452.84	1759528.45	14600795.96	40°12'09.361"N	80°34'24.295"W	5587.98	321.837	0.49	-0.23	-0.43
12103.00	90.460	337.400	6044.75	5676.94	4482.00	-3490.17	1759491.13	14600884.37	40°12'10.237"N	80°34'24.771"W	5680.64	322.092	0.59	0.03	0.59
12199.00	90.400	337.620	6044.02	5770.34	4570.70	-3526.89	1759454.43	14600973.03	40°12'11.115"N	80°34'25.239"W	5773.24	322.345	0.24	-0.06	0.23
12295.00	90.370	337.860	6043.38	5863.65	4659.54	-3563.26	1759418.08	14601061.84	40°12'11.995"N	80°34'25.702"W	5865.84	322.594	0.25	-0.03	0.25
12392.00	90.460	337.700	6042.68	5957.92	4749.33	-3599.94	1759381.41	14601151.60	40°12'12.884"N	80°34'26.169"W	5959.51	322.838	0.19	0.09	-0.16
12488.00	90.400	337.960	6041.96	6051.20	4838.23	-3636.16	1759345.20	14601240.46	40°12'13.764"N	80°34'26.631"W	6052.29	323.073	0.28	-0.06	0.27
12583.00	90.400	338.300	6041.29	6143.39	4926.39	-3671.55	1759309.83	14601328.59	40°12'14.637"N	80°34'27.081"W	6144.07	323.304	0.36	0.00	0.36
12680.00	90.400	338.620	6040.62	6237.38	5016.62	-3707.16	1759274.23	14601418.78	40°12'15.530"N	80°34'27.535"W	6237.75	323.536	0.33	0.00	0.33
12775.00	90.400	338.820	6039.95	6329.33	5105.14	-3741.64	1759239.76	14601507.27	40°12'16.407"N	80°34'27.973"W	6329.48	323.762	0.21	0.00	0.21
12872.00	90.310	338.190	6039.35	6423.30	5195.39	-3777.18	1759204.23	14601597.48	40°12'17.300"N	80°34'28.426"W	6423.33	323.982	0.66	-0.09	-0.65
12967.00	90.340	335.970	6038.81	6515.89	5282.88	-3814.18	1759167.25	14601684.94	40°12'18.167"N	80°34'28.897"W	6515.89	324.171	2.34	0.03	-2.34
13003.00	90.400	335.420	6038.58	6551.16	5315.69	-3828.99	1759152.44	14601717.74	40°12'18.491"N	80°34'29.086"W	6551.17	324.234	1.54	0.17	-1.53
13028.00	90.400	335.420	6038.41	6575.68	5338.42	-3839.39	1759142.05	14601740.46	40°12'18.717"N	80°34'29.219"W	6575.69	324.276	0.00	0.00	0.00

Actual Wellpath Report

Samuel Jones BRK 201H AWP Proj: 13028'

REFERENCE WELLPATH IDENTIFICATION		
Operator	SOUTHWESTERN ENERGY	Slot
Area	Brooke County, WV	Well
Field	Brooke	Wellbore
Facility	Samuel Jones BRK Pad	

HOLE & CASING SECTIONS - Ref Wellbore: Samuel Jones BRK 201H AWB Ref Wellpath: Samuel Jones BRK 201H AWP Proj: 13028'									
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	-0.05	0.13
17.5in Open Hole	100.00	371.00	271.00	100.00	371.00	-0.05	0.13	-0.63	1.28
13.375in Casing Surface	26.00	371.00	345.00	26.00	371.00	0.00	0.00	-0.63	1.28
12.25in Open Hole	371.00	1830.00	1459.00	371.00	1811.60	-0.63	1.28	-152.81	-134.95
9.625in Casing Intermediate	26.00	1804.00	1778.00	26.00	1786.12	0.00	0.00	-149.08	-131.37
8.75in Open Hole	1804.00	6891.00	5087.00	1786.12	6094.00	-149.08	-131.37	-339.32	-1524.59
8.5in Open Hole	6891.00	13028.00	6137.00	6094.00	6038.41	-339.32	-1524.59	5338.42	-3839.39
5.5in Casing Production	26.00	13028.00	13002.00	26.00	6038.41	0.00	0.00	5338.42	-3839.39

TARGETS									
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
Samuel Jones BRK 201H BHL Rev-2	6036.00	5330.30	-3849.42	1759132.03	14601732.34	40°12'18.637"N	80°34'29.349"W	point	
Samuel Jones BRK 201H LP Rev-2	6090.44	-448.83	-1462.73	1761517.79	14595955.43	40°11'21.414"N	80°33'58.953"W	point	

WELLPATH COMPOSITION - Ref Wellbore: Samuel Jones BRK 201H AWB Ref Wellpath: Samuel Jones BRK 201H AWP Proj: 13028'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	316.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17 1/2"> (149'-316')	Samuel Jones BRK 201H AWB
316.00	1782.00	OWSG MWD rev2 + HRGM	02_Premier MWD <12 1/4"> (432'-1782')	Samuel Jones BRK 201H AWB
1782.00	6831.00	OWSG MWD rev2 + HRGM	03_Premier MWD <8 3/4"> (1848'-6831')	Samuel Jones BRK 201H AWB
6831.00	13003.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8 1/2"> (6865'-13003')	Samuel Jones BRK 201H AWB
13003.00	13028.00	Blind Drilling (std)	Projection to bit	Samuel Jones BRK 201H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Samuel Jones BRK 201H
Field	Brooke	Wellbore	Samuel Jones BRK 201H AWB
Facility	Samuel Jones BRK Pad		

COMMENTS

Wellpath general comments
API: 47-009-00264-0000
BH Job #: 109843703
Rig: SDC 42
Duration: 05/31/2019 - 06/01/2019

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JUN 3 2019

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