

# SOUTHWESTERN ENERGY

Location: Brooke County, WV  
 Slot: Slot 201H  
 Well: Kathy Mayhew BRK 201H  
 Facility: Kathy Mayhew BRK Pad Wellbore: Kathy Mayhew BRK 201H PWB

Plot reference wellpath is Kathy Mayhew BRK 201H PWB Rev-A.0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 41 (KB)	North Reference: Grid north
Measured depths are referenced to SDC 41 (KB)	Scale: True distance
SDC 41 (KB) to Mean Sea Level: 1307.2 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot 201H): -1281.2 feet	Created by: atenjen on 2019-09-03
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Defn

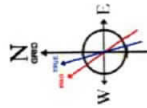


## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Kathy Mayhew BRK Pad	1745806.460	14597023.540	40°11'32.682"N	80°37'21.416"W
Local N (ft)	Local E (ft)	Grid North (US ft)	Latitude	Longitude
-41.79	-20.09	14596981.770	40°11'32.270"N	80°37'21.677"W
Slot 201H	SDC 41 (KB) to Ground level (At Slot: Slot 201H)	Mean Sea Level to Mean Sea Level	26ft	-1281.2ft
SDC 41 (KB)	SDC 41 (KB) to Mean Sea Level		1307.2ft	

## Comments

API: 47-009-00208-0000  
 BH Job #: 109971152A  
 Rig: SDC 41  
 Duration: 08/25/2019 - 09/30/2019



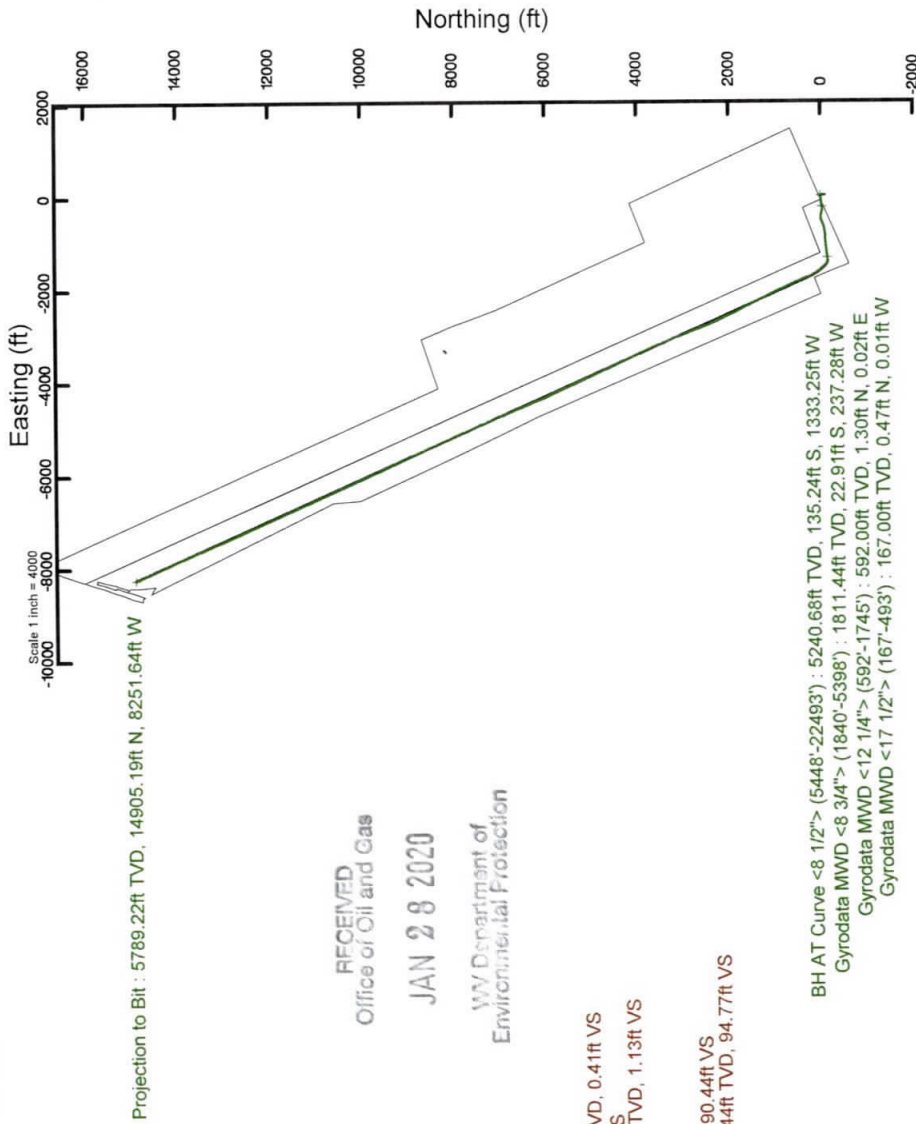
Magnetic North is 67.46° Field: 52471 nT, 155/Aug/2019  
 Grid North is 0°24 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.24 degrees  
 To correct azimuth from Magnetic to Grid subtract 6.38 degrees

20in Conductor : 0.27° Inc, 126.00ft MD, 126.00ft TVD, 0.21ft VS  
 Gyrodota MWD <17 1/2"> (167°-493') : 0.38° Inc, 167.00ft MD, 167.00ft TVD, 0.41ft VS  
 13.375in Casing Surface : 0.10° Inc, 528.00ft MD, 528.00ft TVD, 1.13ft VS  
 Gyrodota MWD <12 1/4"> (592°-1745') : 0.07° Inc, 592.00ft MD, 592.00ft TVD, 1.13ft VS

9.625in Casing Intermediate : 18.09° Inc, 1798.00ft MD, 1771.53ft TVD, 90.44ft VS  
 Gyrodota MWD <8 3/4"> (1840°-5398') : 18.25° Inc, 1840.00ft MD, 1811.44ft TVD, 94.77ft VS

BH AT Curve <8 1/2"> (5448°-22493') : 14.66° Inc, 5448.00ft MD, 5240.68ft TVD, 526.80ft VS  
 Gyrodota MWD <8 3/4"> (1840°-5398') : 1811.44ft TVD, 22.91ft S, 237.28ft W  
 Gyrodota MWD <12 1/4"> (592°-1745') : 592.00ft TVD, 1.30ft N, 0.02ft E  
 Gyrodota MWD <17 1/2"> (167°-493') : 167.00ft TVD, 0.47ft N, 0.01ft W

Projection to Bit : 90.52° Inc, 22518.00ft MD, 5789.22ft TVD, 17036.85ft VS  
 5.5in Casing Production : 90.52° Inc, 22518.00ft MD, 5789.22ft TVD, 17036.85ft VS



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Vertical Section (ft)  
 Azimuth 331.06° with reference 0.00 N, 0.00 E  
 Scale 1 inch = 2500

### REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Kathy Mayhew BRK 201H
Field	Brooke	Wellbore	Kathy Mayhew BRK 201H AWB
Facility	Kathy Mayhew 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	0.999613	Report Generated	9/3/2019 at 8:39:00 AM
Convergence at slot	0.24° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Kathy_Mayhew_BRK_201H_AWP_Proj_22518_.xml

### WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-41.79	-20.09	1745786.38	14596981.77	40°11'32.270"N	80°37'21.677"W
Facility Reference Pt			1745806.46	14597023.54	40°11'32.682"N	80°37'21.416"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

### WELLPATH DATUM

Calculation method	Minimum curvature	SDC 41 (KB) to Facility Vertical Datum	1307.20ft
Horizontal Reference Pt	Slot	SDC 41 (KB) to Mean Sea Level	1307.20ft
Vertical Reference Pt	SDC 41 (KB)	SDC 41 (KB) to Ground Level at Slot (Slot 201H)	26.00ft
MD Reference Pt	SDC 41 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	331.06°

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# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 201H
SOUTHWESTERN ENERGY	Well	Kathy Mayhew BRK 201H
Brooke County, WV	Wellbore	Kathy Mayhew BRK 201H AWP
Brooke		
Kathy Mayhew BRK Pad		

## WELLPATH DATA (248 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]
0.00H	0.000	359.210	0.00	0.00	0.00	0.00	1745786.38	14596981.77	40°11'32.270"N	80°37'21.677"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	359.210	26.00	0.00	0.00	0.00	1745786.38	14596981.77	40°11'32.270"N	80°37'21.677"W	0.00	0.000	0.00	0.00	0.00
167.00	0.380	359.210	167.00	0.41	0.47	-0.01	1745786.37	14596982.24	40°11'32.275"N	80°37'21.677"W	0.47	359.210	0.27	0.27	-0.56
228.00	0.310	332.520	228.00	0.76	0.82	-0.09	1745786.29	14596982.59	40°11'32.278"N	80°37'21.678"W	0.82	354.028	0.28	0.28	-0.11
319.00	0.210	316.500	319.00	1.16	1.16	-0.31	1745786.07	14596982.93	40°11'32.282"N	80°37'21.681"W	1.20	344.809	0.13	0.13	-0.11
410.00	0.160	110.500	410.00	1.23	1.23	-0.31	1745786.07	14596983.02	40°11'32.283"N	80°37'21.681"W	1.27	345.896	0.40	0.40	-0.05
493.00	0.190	62.520	493.00	1.14	1.25	-0.08	1745786.30	14596983.02	40°11'32.283"N	80°37'21.678"W	1.26	356.402	0.17	0.17	0.04
592.00	0.070	238.560	592.00	1.13	1.30	0.02	1745786.40	14596983.07	40°11'32.283"N	80°37'21.676"W	1.30	0.667	0.26	0.26	-0.12
686.00	1.870	262.920	685.98	1.70	1.08	-1.56	1745784.82	14596982.85	40°11'32.281"N	80°37'21.697"W	1.89	304.768	1.92	1.92	1.91
777.00	3.900	264.360	776.86	3.48	0.59	-6.11	1745780.27	14596982.36	40°11'32.276"N	80°37'21.755"W	6.14	275.543	2.23	2.23	1.58
869.00	6.600	268.020	868.46	7.11	0.10	-14.51	1745771.88	14596981.87	40°11'32.272"N	80°37'21.864"W	14.51	270.406	2.96	2.93	3.98
962.00	8.750	264.310	960.63	12.33	-0.78	-26.89	1745759.50	14596980.99	40°11'32.264"N	80°37'22.023"W	26.90	268.331	2.37	2.31	-3.99
1055.00	9.800	260.440	1052.41	17.75	-2.80	-41.73	1745744.66	14596978.97	40°11'32.244"N	80°37'22.215"W	41.83	266.163	1.31	1.13	-4.16
1146.00	10.840	257.230	1141.94	22.70	-5.98	-57.72	1745728.68	14596975.80	40°11'32.214"N	80°37'22.421"W	58.03	264.088	1.31	1.14	-3.53
1239.00	12.070	259.090	1233.08	28.14	-9.75	-75.79	1745710.61	14596972.02	40°11'32.177"N	80°37'22.654"W	76.42	262.670	1.38	1.32	2.00
1332.00	13.410	264.630	1323.80	35.47	-12.60	-96.08	1745690.34	14596969.17	40°11'32.150"N	80°37'22.916"W	96.90	262.529	1.95	1.44	5.96
1425.00	14.650	270.570	1414.02	45.57	-13.49	-118.58	1745667.85	14596968.28	40°11'32.142"N	80°37'23.205"W	119.35	263.508	2.04	1.33	6.39
1517.00	15.650	269.260	1502.83	57.17	-13.54	-142.62	1745643.81	14596968.24	40°11'32.143"N	80°37'23.515"W	143.26	264.578	1.15	1.09	-1.42
1610.00	16.590	266.420	1592.17	68.78	-14.53	-168.42	1745618.03	14596967.25	40°11'32.134"N	80°37'23.848"W	169.04	265.070	1.32	1.01	-3.05
1701.00	17.420	263.910	1679.19	79.64	-16.78	-194.93	1745591.53	14596964.99	40°11'32.113"N	80°37'24.189"W	195.65	265.079	1.22	0.91	-2.76
1745.00	17.890	262.490	1721.12	84.66	-18.37	-208.18	1745578.28	14596963.41	40°11'32.098"N	80°37'24.360"W	208.99	264.958	1.45	1.07	-3.23
1840.00	18.250	259.780	1811.44	94.77	-22.91	-237.28	1745549.19	14596958.87	40°11'32.054"N	80°37'24.736"W	238.39	264.484	0.96	0.38	-2.85
1886.00	17.930	258.520	1855.16	99.20	-25.60	-251.31	1745535.17	14596956.18	40°11'32.028"N	80°37'24.916"W	252.61	264.183	1.10	-0.70	-2.74
1979.00	16.640	261.050	1943.96	108.05	-30.52	-278.50	1745507.99	14596951.26	40°11'31.980"N	80°37'25.267"W	280.16	263.746	1.61	-1.39	2.72
2072.00	15.540	267.320	2033.32	118.12	-33.18	-304.10	1745482.40	14596948.61	40°11'31.955"N	80°37'25.597"W	305.90	263.774	2.21	-1.18	6.74
2164.00	15.950	275.600	2121.88	130.74	-32.52	-328.99	1745457.52	14596949.26	40°11'31.963"N	80°37'25.918"W	330.59	264.355	2.48	0.45	9.00
2257.00	17.530	284.490	2210.95	147.62	-27.77	-355.27	1745431.24	14596944.01	40°11'32.011"N	80°37'26.256"W	356.36	265.531	3.23	1.70	9.56
2350.00	19.380	287.630	2299.17	168.45	-19.59	-383.54	1745402.99	14596962.19	40°11'32.093"N	80°37'26.620"W	384.04	267.076	2.26	1.99	3.38
2443.00	20.810	283.940	2386.51	190.90	-10.93	-414.28	1745372.26	14596970.84	40°11'32.180"N	80°37'27.016"W	414.43	268.488	2.05	1.54	-3.97
2535.00	22.060	276.850	2472.16	212.13	-4.93	-447.31	1745339.25	14596976.84	40°11'32.240"N	80°37'27.441"W	447.33	269.368	3.12	1.36	-7.71



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# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'  
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## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (248 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]
2627.00	22.960	265.980	2557.19	229.80	-4.13	-482.37	1745304.19	14596977.64	40°11'32.250"N	80°37'27.893"W	482.39	269.509	4.62	0.98	-11.82
2718.00	21.340	255.360	2641.50	241.38	-9.56	-516.12	1745270.46	14596972.21	40°11'32.197"N	80°37'28.328"W	516.20	268.938	4.74	-1.78	-11.67
2811.00	18.870	248.980	2728.84	247.63	-19.24	-546.54	1745240.06	14596962.54	40°11'32.103"N	80°37'28.720"W	546.87	267.984	3.55	-2.66	-6.86
2904.00	17.900	245.580	2817.09	250.83	-30.54	-573.59	1745213.01	14596951.24	40°11'31.993"N	80°37'29.070"W	574.40	266.952	1.55	-1.04	-3.66
2996.00	17.280	248.150	2904.79	253.63	-41.47	-599.14	1745187.47	14596940.31	40°11'31.888"N	80°37'29.399"W	600.58	266.040	1.08	-0.67	2.79
3089.00	16.630	250.490	2993.75	257.51	-51.06	-624.51	1745162.11	14596930.73	40°11'31.792"N	80°37'29.727"W	626.59	265.326	1.01	-0.70	2.52
3181.00	16.890	252.660	3081.84	262.36	-59.44	-649.68	1745136.96	14596922.36	40°11'31.710"N	80°37'30.052"W	652.39	264.773	0.74	0.28	2.36
3274.00	16.350	259.350	3170.97	269.18	-65.88	-675.44	1745111.20	14596915.91	40°11'31.648"N	80°37'30.384"W	678.64	264.429	2.14	-0.58	7.19
3367.00	17.360	260.420	3259.97	277.89	-70.61	-701.98	1745084.67	14596911.19	40°11'31.602"N	80°37'30.726"W	705.53	264.256	1.14	1.09	1.15
3459.00	19.790	259.700	3347.17	287.42	-75.68	-730.85	1745055.82	14596906.12	40°11'31.553"N	80°37'31.098"W	734.75	264.088	2.65	2.64	-0.78
3552.00	20.730	260.840	3434.42	298.02	-81.12	-762.59	1745024.09	14596900.69	40°11'31.501"N	80°37'31.508"W	766.89	263.928	1.10	1.01	1.23
3644.00	19.480	258.200	3520.81	308.05	-86.85	-793.68	1744993.01	14596894.96	40°11'31.445"N	80°37'31.909"W	798.42	263.755	1.68	-1.36	-2.87
3737.00	16.720	260.760	3609.20	317.14	-92.17	-822.07	1744964.63	14596889.64	40°11'31.394"N	80°37'32.275"W	827.22	263.603	3.09	-2.97	2.75
3829.00	15.140	267.300	3697.67	326.91	-94.86	-847.14	1744939.57	14596886.95	40°11'31.368"N	80°37'32.598"W	852.43	263.611	2.60	-1.72	7.11
3922.00	14.840	272.590	3787.51	338.51	-94.89	-871.16	1744915.55	14596886.92	40°11'31.369"N	80°37'32.907"W	876.32	263.784	1.51	-0.32	5.69
4015.00	16.570	272.090	3877.04	351.57	-93.87	-896.32	1744890.41	14596887.94	40°11'31.380"N	80°37'33.232"W	901.22	264.021	1.87	1.86	-0.54
4107.00	18.470	267.000	3964.77	364.71	-94.15	-923.98	1744862.76	14596887.65	40°11'31.379"N	80°37'33.588"W	928.77	264.182	2.65	2.07	-5.53
4199.00	19.210	264.910	4051.84	377.21	-96.26	-953.61	1744833.14	14596885.55	40°11'31.359"N	80°37'33.970"W	958.46	264.236	1.09	0.80	-2.27
4291.00	19.060	264.650	4138.76	389.34	-99.00	-983.65	1744803.12	14596882.81	40°11'31.333"N	80°37'34.357"W	988.62	264.253	0.19	-0.16	-0.28
4384.00	18.930	265.050	4226.69	401.55	-101.72	-1013.79	1744772.98	14596880.09	40°11'31.308"N	80°37'34.746"W	1018.88	264.270	0.20	-0.14	0.43
4477.00	18.300	264.150	4314.83	413.41	-104.51	-1043.35	1744743.44	14596877.30	40°11'31.281"N	80°37'35.127"W	1048.57	264.280	0.74	-0.68	-0.97
4569.00	17.940	264.580	4402.27	424.73	-107.32	-1071.82	1744714.98	14596874.49	40°11'31.255"N	80°37'35.494"W	1077.18	264.282	0.42	-0.39	0.47
4660.00	17.590	265.760	4488.93	436.07	-109.66	-1099.49	1744687.32	14596872.15	40°11'31.233"N	80°37'35.850"W	1104.94	264.304	0.55	-0.38	1.30
4752.00	17.660	265.240	4576.61	447.59	-111.85	-1127.26	1744659.56	14596869.97	40°11'31.212"N	80°37'36.208"W	1132.79	264.334	0.19	0.08	-0.57
4845.00	18.560	263.860	4665.00	459.11	-114.60	-1156.03	1744630.80	14596867.22	40°11'31.186"N	80°37'36.579"W	1161.70	264.339	1.07	0.97	-1.46
4937.00	19.710	265.010	4751.92	471.09	-117.51	-1186.05	1744600.80	14596864.31	40°11'31.159"N	80°37'36.966"W	1191.85	264.342	1.31	1.25	1.23
5029.00	18.880	263.420	4838.75	483.05	-120.56	-1216.29	1744570.56	14596861.26	40°11'31.130"N	80°37'37.356"W	1222.25	264.339	1.07	-0.90	-1.73
5121.00	17.480	260.500	4926.16	493.31	-124.55	-1244.71	1744542.16	14596857.27	40°11'31.092"N	80°37'37.722"W	1250.92	264.286	1.82	-1.52	-3.17
5214.00	16.590	260.130	5015.07	502.30	-129.13	-1271.56	1744515.31	14596852.69	40°11'31.047"N	80°37'38.069"W	1278.10	264.201	0.96	-0.96	-0.40
5307.00	15.580	263.290	5104.43	511.36	-132.86	-1297.05	1744489.84	14596848.96	40°11'31.012"N	80°37'38.397"W	1303.83	264.151	1.44	-1.09	3.40



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Kathy Mayhew BRK 201H AWP Proj: 22518'  
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REFERENCE WELLPATH IDENTIFICATION	
Operator	SOUTHWESTERN ENERGY
Area	Brooke County, WV
Field	Brooke
Facility	Kathy Mayhew BRK Pad
Slot	Slot 201H
Well	Kathy Mayhew BRK 201H
Wellbore	Kathy Mayhew BRK 201H AWB

WELLPATH DATA (248 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]
5398.00	14.590	267.330	5192.30	521.06	-134.83	-1320.63	1744466.26	14596847.00	40°11'30.993"N	80°37'38.701"W	1327.50	264.171	1.59	-1.09	4.44
5448.00	14.660	268.880	5240.68	526.80	-135.24	-1333.25	1744453.65	14596846.58	40°11'30.990"N	80°37'38.864"W	1340.09	264.208	0.80	0.14	3.10
5508.00	15.900	267.740	5298.56	534.03	-135.72	-1349.06	1744437.85	14596846.11	40°11'30.986"N	80°37'39.068"W	1355.86	264.255	2.13	2.07	-1.90
5600.00	19.280	267.010	5386.24	546.34	-137.01	-1376.82	1744410.09	14596844.82	40°11'30.974"N	80°37'39.426"W	1383.62	264.317	3.68	3.67	-0.79
5693.00	18.620	264.100	5474.21	558.87	-139.33	-1406.93	1744380.00	14596842.49	40°11'30.952"N	80°37'39.814"W	1413.81	264.344	1.24	-0.71	-3.13
5784.00	20.810	280.100	5559.93	574.75	-137.99	-1437.32	1744349.62	14596843.83	40°11'30.967"N	80°37'40.205"W	1443.93	264.516	6.38	2.41	17.58
5877.00	27.230	300.590	5644.98	603.57	-124.23	-1471.99	1744314.96	14596857.59	40°11'31.104"N	80°37'40.651"W	1477.22	265.176	11.23	6.90	22.03
5989.00	35.770	311.340	5723.41	647.14	-95.68	-1510.40	1744276.57	14596886.13	40°11'31.388"N	80°37'41.145"W	1513.43	266.375	11.08	9.28	11.68
6060.00	44.140	317.470	5793.13	703.10	-54.67	-1551.88	1744235.11	14596927.12	40°11'31.795"N	80°37'41.677"W	1552.84	267.982	10.16	9.20	6.74
6152.00	51.640	321.220	5854.79	769.88	-2.86	-1596.20	1744190.80	14596978.91	40°11'32.309"N	80°37'42.245"W	1596.20	269.897	8.69	8.15	4.08
6245.00	60.840	323.100	5906.42	846.19	58.17	-1643.52	1744143.50	14597039.92	40°11'32.914"N	80°37'42.852"W	1644.55	272.027	10.03	9.89	2.02
6336.00	70.100	328.030	5944.18	928.49	126.42	-1690.15	1744096.88	14597108.14	40°11'33.590"N	80°37'43.449"W	1694.88	274.278	11.30	10.18	5.42
6429.00	75.830	334.640	5971.44	1017.31	204.40	-1732.69	1744054.36	14597186.09	40°11'34.362"N	80°37'43.993"W	1744.71	276.728	9.17	6.16	7.11
6522.00	85.110	340.290	5986.83	1108.31	289.01	-1767.73	1744019.33	14597270.66	40°11'35.200"N	80°37'44.440"W	1791.20	279.285	11.64	9.98	6.08
6615.00	90.680	339.600	5990.25	1200.10	376.27	-1799.59	1743987.49	14597357.90	40°11'36.064"N	80°37'44.846"W	1838.51	281.810	6.03	5.99	-0.74
6707.00	90.090	333.150	5989.63	1291.65	460.51	-1836.44	1743950.65	14597442.10	40°11'36.898"N	80°37'45.316"W	1893.30	284.077	7.04	-0.64	-7.01
6800.00	90.490	338.310	5989.16	1384.31	545.26	-1874.65	1743912.46	14597526.82	40°11'37.737"N	80°37'45.804"W	1952.34	286.218	5.56	0.43	5.55
6893.00	90.280	334.440	5988.53	1476.89	630.45	-1911.92	1743875.21	14597611.98	40°11'38.580"N	80°37'46.279"W	2013.18	288.250	4.17	-0.23	-4.16
6986.00	90.430	334.660	5987.96	1569.71	714.43	-1951.88	1743835.26	14597695.92	40°11'39.411"N	80°37'46.790"W	2078.52	290.104	0.29	0.16	0.24
7079.00	90.120	334.080	5987.51	1662.56	798.27	-1992.11	1743795.05	14597779.73	40°11'40.242"N	80°37'47.304"W	2146.10	291.837	0.71	-0.33	-0.62
7171.00	90.180	335.990	5987.27	1754.33	881.67	-2030.93	1743756.24	14597863.10	40°11'41.067"N	80°37'47.799"W	2214.06	293.467	2.08	0.07	2.08
7264.00	91.510	337.430	5985.90	1846.87	967.08	-2067.70	1743719.49	14597948.48	40°11'41.913"N	80°37'48.269"W	2282.68	295.066	2.11	1.43	1.55
7357.00	90.950	334.360	5983.90	1939.50	1051.94	-2105.67	1743681.53	14598033.30	40°11'42.753"N	80°37'48.753"W	2353.81	296.546	3.35	-0.60	-3.30
7449.00	90.430	334.080	5982.79	2031.35	1134.78	-2145.68	1743641.54	14598116.11	40°11'43.573"N	80°37'49.265"W	2427.27	297.873	0.64	-0.57	-0.30
7542.00	90.430	332.180	5982.09	2124.29	1217.73	-2187.71	1743599.52	14598199.03	40°11'44.395"N	80°37'49.802"W	2503.78	299.101	2.04	0.00	-2.04
7635.00	89.230	333.110	5982.37	2217.25	1300.33	-2230.44	1743556.81	14598281.59	40°11'45.213"N	80°37'50.348"W	2581.81	300.242	1.63	-1.29	1.00
7727.00	91.450	335.650	5981.82	2309.08	1383.27	-2270.21	1743517.05	14598364.50	40°11'46.034"N	80°37'50.856"W	2658.44	301.354	3.67	2.41	2.76
7820.00	90.610	332.900	5980.15	2401.91	1467.03	-2310.57	1743476.71	14598448.23	40°11'46.863"N	80°37'51.372"W	2736.95	302.412	3.09	-0.90	-2.96
7913.00	91.110	334.060	5978.76	2494.81	1550.23	-2352.09	1743435.21	14598531.40	40°11'47.687"N	80°37'51.902"W	2817.01	303.388	1.36	0.54	1.25
8005.00	91.760	332.660	5976.45	2586.71	1632.44	-2393.33	1743393.98	14598613.57	40°11'48.501"N	80°37'52.429"W	2897.05	304.297	1.68	0.71	-1.52



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# Actual Wellpath Report

## Kathy Mayhew BRK 201H AWP Proj: 22518'

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### REFERENCE WELLPATH IDENTIFICATION

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

### WELLPATH DATA (248 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]
8097.00	90.520	331.940	5974.62	2678.67	1713.88	-2436.08	1743351.24	14598694.98	40°11'49.308"N	80°37'52.976"W	2978.57	305.128	1.56	-1.35	-0.78
8190.00	90.310	331.740	5973.95	2771.65	1795.87	-2479.97	1743307.37	14598776.94	40°11'50.120"N	80°37'53.537"W	3061.93	305.910	0.31	-0.23	-0.22
8281.00	90.710	333.490	5973.14	2862.61	1876.66	-2521.83	1743265.54	14598857.70	40°11'50.920"N	80°37'54.072"W	3143.48	306.655	1.97	0.44	1.92
8374.00	90.800	334.590	5971.91	2955.48	1960.27	-2562.53	1743224.85	14598941.28	40°11'51.748"N	80°37'54.592"W	3226.33	307.415	1.19	0.10	1.18
8466.00	90.650	335.540	5970.75	3047.24	2043.69	-2601.31	1743186.08	14599024.66	40°11'52.574"N	80°37'55.087"W	3308.10	308.154	1.05	-0.16	1.03
8559.00	90.650	335.240	5969.69	3139.97	2128.23	-2640.04	1743147.37	14599109.18	40°11'53.411"N	80°37'55.582"W	3391.05	308.874	0.32	0.00	-0.32
8651.00	91.200	333.440	5968.21	3231.81	2211.15	-2679.87	1743107.55	14599192.06	40°11'54.232"N	80°37'56.091"W	3474.32	309.526	2.05	0.60	-1.96
8744.00	90.770	334.110	5966.61	3324.69	2294.56	-2720.96	1743066.48	14599275.44	40°11'55.058"N	80°37'56.616"W	3559.30	310.141	0.86	-0.46	0.72
8837.00	90.710	337.410	5965.41	3417.35	2379.34	-2759.14	1743028.32	14599360.19	40°11'55.897"N	80°37'57.103"W	3643.36	310.773	3.55	-0.06	3.55
8928.00	90.550	338.970	5964.41	3507.64	2463.82	-2792.94	1742994.52	14599444.63	40°11'56.733"N	80°37'57.535"W	3724.37	311.417	1.72	-0.18	1.71
9020.00	90.580	339.630	5963.50	3598.69	2549.88	-2825.46	1742962.02	14599530.65	40°11'57.585"N	80°37'57.949"W	3805.93	312.065	0.72	0.03	0.72
9113.00	90.490	338.270	5962.63	3690.80	2636.66	-2858.86	1742928.63	14599617.41	40°11'58.444"N	80°37'58.375"W	3889.10	312.685	1.47	-0.10	-1.46
9206.00	90.550	338.750	5961.79	3783.01	2723.20	-2892.93	1742894.58	14599703.91	40°11'59.301"N	80°37'58.809"W	3973.01	313.269	0.52	0.06	0.52
9297.00	90.580	338.980	5960.89	3873.16	2808.07	-2925.74	1742861.78	14599788.75	40°12'00.141"N	80°37'59.228"W	4055.27	313.824	0.25	0.03	0.25
9390.00	90.770	339.530	5959.79	3965.21	2895.03	-2958.68	1742828.85	14599875.68	40°12'01.001"N	80°37'59.647"W	4139.45	314.377	0.63	0.20	0.59
9483.00	90.680	337.980	5958.62	4057.36	2981.70	-2992.37	1742795.17	14599962.31	40°12'01.859"N	80°38'00.077"W	4224.32	314.898	1.67	-0.10	-1.67
9576.00	89.630	339.150	5958.37	4149.56	3068.27	-3026.36	1742761.20	14600048.84	40°12'02.716"N	80°38'00.510"W	4309.66	315.394	1.69	-1.13	1.26
9666.00	91.230	340.940	5957.69	4238.45	3152.86	-3057.07	1742730.50	14600133.40	40°12'03.553"N	80°38'00.902"W	4391.61	315.884	2.67	1.78	1.99
9757.00	91.350	338.090	5956.64	4328.43	3238.07	-3088.91	1742698.68	14600218.58	40°12'04.396"N	80°38'01.307"W	4475.09	316.351	3.13	0.13	-3.13
9850.00	90.400	336.560	5954.22	4420.86	3323.87	-3124.75	1742662.84	14600304.35	40°12'05.246"N	80°38'01.765"W	4562.04	316.769	1.94	-1.02	-1.65
9942.00	90.090	337.610	5953.83	4512.35	3408.61	-3160.57	1742627.04	14600389.05	40°12'06.085"N	80°38'02.222"W	4648.42	317.162	1.19	-0.34	-1.14
10034.00	91.260	338.440	5952.74	4603.66	3493.92	-3195.00	1742592.63	14600474.33	40°12'06.929"N	80°38'02.661"W	4734.50	317.559	1.56	1.27	0.90
10127.00	90.830	336.150	5951.05	4696.09	3578.69	-3230.89	1742556.75	14600560.06	40°12'07.778"N	80°38'03.119"W	4822.11	317.932	2.50	-0.46	-2.46
10220.00	90.950	337.370	5949.60	4788.61	3665.13	-3267.58	1742520.07	14600645.47	40°12'08.624"N	80°38'03.587"W	4910.22	318.282	1.32	0.13	1.31
10312.00	90.430	335.370	5948.49	4880.21	3749.41	-3304.45	1742483.22	14600729.72	40°12'09.458"N	80°38'04.058"W	4997.74	318.609	2.25	-0.57	-2.17
10405.00	90.400	335.190	5947.82	4972.95	3833.88	-3343.34	1742444.34	14600814.16	40°12'10.295"N	80°38'04.555"W	5086.90	318.910	0.20	-0.03	-0.19
10498.00	91.540	335.660	5946.25	5065.67	3918.44	-3382.01	1742405.69	14600898.69	40°12'11.132"N	80°38'05.049"W	5176.12	319.203	1.33	1.03	0.51
10590.00	90.680	333.630	5944.46	5157.46	4001.56	-3421.40	1742366.31	14600981.77	40°12'11.955"N	80°38'05.552"W	5264.83	319.469	2.40	-0.93	-2.21
10682.00	90.340	335.210	5943.65	5249.30	4084.54	-3461.12	1742326.61	14601064.72	40°12'12.776"N	80°38'06.059"W	5353.76	319.723	1.76	-0.37	1.72
10775.00	90.090	334.490	5943.30	5342.09	4168.72	-3500.64	1742287.10	14601148.87	40°12'13.610"N	80°38'06.564"W	5443.59	319.978	0.82	-0.27	-0.77



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# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Kathy Mayhew BRK 201H
Field	Brooke	Wellbore	Kathy Mayhew BRK 201H AWP
Facility	Kathy Mayhew BRK Pad		

## WELLPATH DATA (248 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]
10868.00	91.200	336.290	5942.25	5434.82	4253.26	-3539.36	1742248.39	14601233.37	40°12'14.447"N	80°38'07.059"W	5533.29	320.234	2.27	1.19	1.94
10961.00	90.830	333.310	5940.60	5527.60	4337.39	-3578.95	1742208.82	14601317.47	40°12'15.280"N	80°38'07.565"W	5623.33	320.473	3.23	-0.40	-3.20
11051.00	89.970	334.710	5939.97	5617.47	4418.28	-3618.39	1742169.40	14601398.33	40°12'16.081"N	80°38'08.069"W	5710.86	320.684	1.83	-0.96	1.56
11144.00	91.140	335.960	5939.07	5710.20	4502.79	-3657.20	1742130.61	14601482.81	40°12'16.917"N	80°38'08.564"W	5800.88	320.916	1.84	1.26	1.34
11235.00	90.800	334.380	5937.53	5800.95	4585.36	-3695.40	1742092.42	14601565.35	40°12'17.735"N	80°38'09.052"W	5889.10	321.134	1.78	-0.37	-1.74
11328.00	90.430	336.590	5936.53	5893.67	4669.97	-3733.99	1742053.85	14601649.92	40°12'18.573"N	80°38'09.545"W	5979.23	321.355	2.41	-0.40	2.38
11421.00	89.940	334.980	5936.23	5986.35	4754.78	-3772.13	1742015.72	14601734.70	40°12'19.412"N	80°38'10.032"W	6069.34	321.574	1.81	-0.53	-1.73
11514.00	90.650	335.620	5935.75	6079.09	4839.27	-3810.99	1741976.87	14601819.16	40°12'20.249"N	80°38'10.529"W	6159.72	321.779	1.03	0.76	0.69
11607.00	90.490	335.730	5934.83	6171.78	4924.01	-3849.30	1741938.58	14601903.86	40°12'21.088"N	80°38'11.018"W	6250.04	321.984	0.21	-0.17	0.12
11699.00	90.890	334.550	5933.72	6263.54	5007.48	-3887.97	1741899.92	14601987.30	40°12'21.914"N	80°38'11.512"W	6339.65	322.173	1.35	0.43	-1.28
11791.00	91.260	335.210	5932.00	6355.32	5090.76	-3927.02	1741860.89	14602070.55	40°12'22.739"N	80°38'12.011"W	6429.41	322.353	0.82	0.40	0.72
11884.00	90.520	335.420	5930.55	6448.05	5175.25	-3965.85	1741822.07	14602155.01	40°12'23.575"N	80°38'12.507"W	6520.06	322.537	0.83	-0.80	0.23
11976.00	91.290	335.850	5929.10	6539.75	5259.05	-4003.80	1741784.14	14602238.77	40°12'24.405"N	80°38'12.992"W	6609.69	322.717	0.96	0.84	0.47
12069.00	90.580	334.860	5927.58	6632.47	5343.56	-4042.58	1741745.38	14602323.25	40°12'25.241"N	80°38'13.487"W	6700.45	322.891	1.31	-0.76	-1.06
12162.00	91.020	335.700	5926.28	6725.21	5428.03	-4081.46	1741706.51	14602407.69	40°12'26.078"N	80°38'13.984"W	6791.31	323.060	1.02	0.47	0.90
12255.00	90.800	336.540	5924.80	6817.83	5513.06	-4119.11	1741668.88	14602492.68	40°12'26.919"N	80°38'14.464"W	6881.92	323.235	0.93	-0.24	0.90
12347.00	90.770	336.070	5923.54	6909.44	5597.29	-4156.08	1741631.92	14602576.88	40°12'27.753"N	80°38'14.936"W	6971.56	323.406	0.51	-0.03	-0.51
12440.00	90.710	335.500	5922.34	7002.12	5682.10	-4194.22	1741593.80	14602661.66	40°12'28.593"N	80°38'15.423"W	7062.42	323.567	0.62	-0.06	-0.61
12533.00	91.720	335.930	5920.37	7094.79	5766.85	-4232.46	1741555.57	14602746.38	40°12'29.432"N	80°38'15.912"W	7153.34	323.724	1.18	1.09	0.46
12626.00	90.710	334.270	5918.40	7187.53	5851.19	-4271.60	1741516.44	14602830.68	40°12'30.267"N	80°38'16.412"W	7244.51	323.869	2.09	-1.09	-1.78
12718.00	90.340	333.670	5917.56	7279.41	5933.85	-4311.97	1741476.09	14602913.31	40°12'31.085"N	80°38'16.928"W	7335.10	323.995	0.77	-0.40	-0.65
12811.00	90.620	335.770	5916.78	7372.21	6017.93	-4351.68	1741436.39	14602997.36	40°12'31.918"N	80°38'17.435"W	7426.49	324.129	2.28	0.30	2.26
12904.00	90.400	338.970	5915.95	7464.63	6103.76	-4387.46	1741400.62	14603083.15	40°12'32.768"N	80°38'17.892"W	7517.03	324.291	3.45	-0.24	3.44
12997.00	91.690	339.320	5914.25	7556.69	6190.65	-4420.57	1741367.54	14603170.01	40°12'33.628"N	80°38'18.314"W	7606.94	324.470	1.44	1.39	0.38
13089.00	91.420	336.720	5911.76	7647.97	6275.92	-4454.98	1741333.13	14603255.25	40°12'34.472"N	80°38'18.753"W	7696.37	324.631	2.84	-0.29	-2.83
13182.00	90.250	336.900	5910.40	7740.49	6361.40	-4491.60	1741296.53	14603340.69	40°12'35.318"N	80°38'19.221"W	7787.29	324.775	1.27	-1.26	0.19
13275.00	89.880	337.080	5910.29	7832.99	6447.00	-4527.95	1741260.19	14603426.26	40°12'36.165"N	80°38'19.685"W	7878.21	324.918	0.44	-0.40	0.19
13367.00	91.140	339.580	5909.48	7924.24	6532.49	-4561.92	1741226.23	14603511.71	40°12'37.011"N	80°38'20.118"W	7967.72	325.072	3.04	1.37	2.72
13460.00	90.830	336.820	5907.88	8016.49	6618.81	-4596.45	1741191.72	14603598.01	40°12'37.866"N	80°38'20.559"W	8058.29	325.222	2.99	-0.33	-2.97
13552.00	90.280	336.700	5906.99	8108.04	6703.35	-4632.75	1741155.43	14603682.51	40°12'38.702"N	80°38'21.022"W	8148.45	325.361	0.61	-0.60	-0.13



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Southwestern Energy  
Environmental Protection

# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'

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## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (248 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]
13644.00	90.680	337.540	5906.21	8199.52	6788.10	-4668.52	1741119.68	14603767.23	40°12'39.541"N	80°38'21.479"W	8238.53	325.482	1.01	0.43	0.91
13737.00	90.800	337.430	5905.01	8291.93	6874.01	-4704.13	1741084.08	14603853.10	40°12'40.392"N	80°38'21.933"W	8329.51	325.615	0.18	0.13	-0.12
13830.00	90.710	337.270	5903.79	8384.36	6959.83	-4739.94	1741048.29	14603938.89	40°12'41.241"N	80°38'22.390"W	8420.58	325.743	0.20	-0.10	-0.17
13922.00	90.460	335.770	5902.85	8475.93	7044.20	-4776.59	1741011.65	14604023.23	40°12'42.077"N	80°38'22.858"W	8510.97	325.859	1.65	-0.27	-1.63
14015.00	90.340	338.240	5902.20	8568.42	7129.80	-4812.92	1740975.34	14604108.80	40°12'42.924"N	80°38'23.322"W	8602.23	325.979	2.66	-0.13	2.66
14108.00	91.260	336.740	5900.90	8660.83	7215.71	-4848.52	1740939.75	14604194.67	40°12'43.774"N	80°38'23.776"W	8693.36	326.101	1.89	0.99	-1.61
14200.00	90.370	337.050	5899.59	8752.34	7300.32	-4884.62	1740903.67	14604279.25	40°12'44.612"N	80°38'24.237"W	8783.74	326.214	1.02	-0.97	0.34
14292.00	90.680	336.190	5898.75	8843.95	7384.76	-4921.12	1740867.17	14604363.65	40°12'45.448"N	80°38'24.703"W	8874.24	326.321	0.99	0.34	-0.93
14385.00	90.620	336.650	5897.55	8936.45	7470.12	-4958.02	1740830.29	14604448.98	40°12'46.293"N	80°38'25.175"W	8965.75	326.427	0.93	0.13	0.92
14477.00	90.740	336.200	5895.32	9119.57	7639.02	-5030.98	1740757.36	14604617.81	40°12'47.130"N	80°38'25.636"W	9056.24	326.532	0.48	-0.20	-0.43
14569.00	90.860	337.210	5894.02	9212.11	7724.43	-5067.76	1740720.60	14604703.19	40°12'48.810"N	80°38'26.106"W	9146.88	326.631	0.51	0.13	-0.49
14662.00	90.740	337.040	5892.73	9303.58	7809.18	-5103.52	1740684.85	14604787.91	40°12'49.649"N	80°38'27.032"W	9238.45	326.732	1.09	0.13	1.09
14754.00	90.520	335.970	5891.72	9395.16	7893.55	-5140.19	1740648.19	14604872.25	40°12'50.484"N	80°38'27.501"W	9328.94	326.834	0.23	-0.13	-0.18
14846.00	90.710	335.790	5890.72	9487.83	7978.42	-5178.19	1740610.20	14604957.09	40°12'51.324"N	80°38'27.986"W	9419.64	326.928	1.19	-0.24	-1.16
14939.00	90.620	335.790	5889.64	9580.50	8063.24	-5216.33	1740572.08	14605041.87	40°12'52.164"N	80°38'28.473"W	9511.51	327.015	0.28	0.20	-0.19
15032.00	90.740	336.200	5888.55	9672.19	8147.11	-5254.11	1740534.31	14605125.71	40°12'52.995"N	80°38'28.956"W	9603.43	327.100	0.10	-0.10	0.00
15124.00	90.860	337.210	5887.27	9763.84	8231.16	-5291.51	1740496.93	14605209.72	40°12'53.827"N	80°38'29.433"W	9694.39	327.182	0.16	0.13	-0.09
15216.00	90.680	335.310	5886.02	9856.51	8315.98	-5329.62	1740458.84	14605294.52	40°12'54.666"N	80°38'29.920"W	9785.30	327.265	0.67	0.13	0.65
15309.00	90.650	335.940	5884.94	9949.21	8400.69	-5367.99	1740420.47	14605379.19	40°12'55.505"N	80°38'30.411"W	9877.27	327.345	1.09	-0.19	-1.08
15402.00	90.710	336.040	5883.83	10041.86	8485.64	-5405.83	1740382.65	14605464.10	40°12'56.346"N	80°38'30.894"W	9969.30	327.422	0.68	-0.03	0.68
15495.00	90.860	336.310	5882.57	10133.56	8569.40	-5443.85	1740344.65	14605547.84	40°12'57.175"N	80°38'31.380"W	10061.26	327.501	0.13	0.06	0.11
15587.00	90.860	335.140	5881.24	10225.32	8652.85	-5482.57	1740305.94	14605631.25	40°12'58.001"N	80°38'31.874"W	10152.35	327.574	0.99	0.16	-0.98
15679.00	90.800	335.070	5879.84	10317.04	8736.51	-5520.82	1740267.71	14605714.88	40°12'58.829"N	80°38'32.363"W	10243.55	327.641	0.10	-0.07	-0.08
15771.00	90.950	335.800	5878.34	10409.76	8821.09	-5559.46	1740229.09	14605799.42	40°12'59.667"N	80°38'32.857"W	10334.70	327.710	0.81	0.16	0.79
15864.00	90.890	335.090	5877.34	10502.52	8905.38	-5598.72	1740189.84	14605883.68	40°13'00.501"N	80°38'33.358"W	10426.85	327.779	0.77	-0.06	-0.76
15957.00	90.860	334.960	5876.92	10595.21	8990.13	-5636.99	1740151.58	14605968.40	40°13'01.340"N	80°38'33.847"W	10519.10	327.843	0.14	-0.03	-0.14
16050.00	90.650	336.430	5875.70	10686.88	9074.07	-5674.63	1740113.96	14606052.31	40°13'02.171"N	80°38'34.328"W	10611.22	327.911	1.60	-0.23	1.58
16142.00	90.710	335.270	5874.61	10778.57	9157.85	-5712.62	1740075.99	14606136.05	40°13'03.001"N	80°38'34.814"W	10702.34	327.979	1.26	0.07	-1.26
16234.00	91.140	335.950	5873.12	10871.62	9242.68	-5750.68	1740037.94	14606220.86	40°13'03.841"N	80°38'35.300"W	10793.52	328.044	0.87	0.47	0.74
16327.00	90.710	335.720	5871.62	10964.88	9331.81	-5789.14	1739999.99	14606305.71	40°13'04.671"N	80°38'35.786"W	10885.66	328.111	0.52	-0.46	-0.25



**Actual Wellpath Report**  
Kathy Mayhew BRK 201H AWP Proj: 22518'  
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**REFERENCE WELLPATH IDENTIFICATION**

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Kathy Mayhew BRK 201H
Field	Brooke	Wellbore	Kathy Mayhew BRK 201H AWP
Facility	Kathy Mayhew BRK Pad		

**WELLPATH DATA (248 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]
16420.00	90.830	335.370	5870.37	10963.95	9327.33	-5789.18	1739999.46	14606305.47	40°13'04.679"N	80°38'35.792"W	10977.88	328.173	0.40	0.13	-0.38
16513.00	90.830	335.750	5869.02	11056.65	9411.99	-5827.65	1739961.00	14606390.10	40°13'05.517"N	80°38'36.283"W	11070.10	328.235	0.41	0.00	0.41
16604.00	90.830	335.630	5867.70	11147.34	9494.91	-5865.11	1739923.55	14606472.99	40°13'06.338"N	80°38'36.762"W	11160.33	328.296	0.13	0.00	-0.13
16696.00	91.020	335.190	5866.22	11239.07	9578.56	-5903.39	1739885.29	14606556.60	40°13'07.166"N	80°38'37.251"W	11251.61	328.354	0.52	0.21	-0.48
16787.00	91.140	336.010	5864.50	11329.76	9661.42	-5940.97	1739847.72	14606639.42	40°13'07.986"N	80°38'37.731"W	11341.88	328.412	0.91	0.13	0.90
16880.00	91.170	336.040	5862.63	11422.40	9746.37	-5978.76	1739809.95	14606724.35	40°13'08.827"N	80°38'38.214"W	11434.04	328.474	0.05	0.03	0.03
16971.00	91.200	335.980	5860.75	11513.04	9829.50	-6015.75	1739772.98	14606807.44	40°13'09.650"N	80°38'38.686"W	11524.24	328.533	0.07	0.03	-0.07
17064.00	90.710	336.510	5859.20	11605.64	9914.60	-6053.20	1739735.53	14606892.51	40°13'10.492"N	80°38'39.165"W	11616.40	328.595	0.78	-0.53	0.57
17157.00	90.800	335.180	5857.97	11698.31	9999.45	-6091.26	1739697.50	14606977.33	40°13'11.332"N	80°38'39.651"W	11708.65	328.652	1.43	0.10	-1.43
17250.00	90.830	335.410	5856.65	11791.05	10083.93	-6130.12	1739658.65	14607061.78	40°13'12.169"N	80°38'40.148"W	11801.02	328.704	0.25	0.03	0.25
17341.00	90.950	336.130	5855.24	11881.73	10166.90	-6167.46	1739621.32	14607144.72	40°13'12.990"N	80°38'40.625"W	11891.32	328.758	0.80	0.13	0.79
17434.00	90.740	336.380	5853.86	11974.33	10252.02	-6204.91	1739583.89	14607229.80	40°13'13.833"N	80°38'41.103"W	11983.52	328.816	0.35	-0.23	0.27
17525.00	90.800	336.140	5852.64	12064.95	10335.31	-6241.54	1739547.27	14607313.06	40°13'14.657"N	80°38'41.571"W	12073.75	328.872	0.27	0.07	-0.26
17618.00	90.620	335.330	5851.49	12157.63	10420.09	-6279.75	1739509.07	14607397.80	40°13'15.497"N	80°38'42.059"W	12166.08	328.924	0.89	-0.19	-0.87
17710.00	90.860	336.260	5850.30	12249.31	10503.99	-6317.47	1739471.37	14607481.68	40°13'16.327"N	80°38'42.541"W	12257.42	328.976	1.04	0.26	1.01
17802.00	90.950	336.250	5848.85	12340.92	10588.20	-6354.51	1739434.34	14607565.84	40°13'17.161"N	80°38'43.014"W	12348.67	329.030	0.10	0.10	-0.01
17895.00	90.800	336.210	5847.43	12433.53	10673.30	-6391.99	1739396.88	14607650.91	40°13'18.003"N	80°38'43.493"W	12440.93	329.084	0.17	-0.16	-0.04
17988.00	90.770	336.030	5846.15	12526.16	10758.33	-6429.64	1739359.25	14607735.91	40°13'18.845"N	80°38'43.974"W	12533.23	329.136	0.20	-0.03	-0.19
18080.00	90.800	336.110	5844.89	12617.80	10842.41	-6466.95	1739321.95	14607819.96	40°13'19.677"N	80°38'44.451"W	12624.55	329.186	0.09	0.03	0.09
18173.00	90.980	336.080	5843.45	12710.43	10927.42	-6504.63	1739284.28	14607904.94	40°13'20.519"N	80°38'44.932"W	12716.87	329.236	0.20	0.19	-0.03
18266.00	90.800	336.110	5841.93	12803.06	11012.43	-6542.31	1739246.61	14607989.92	40°13'21.360"N	80°38'45.413"W	12809.20	329.286	0.10	-0.10	0.03
18357.00	90.860	335.610	5840.54	12893.73	11095.47	-6579.52	1739209.42	14608072.92	40°13'22.182"N	80°38'45.889"W	12899.59	329.332	0.55	-0.03	-0.55
18450.00	90.800	336.280	5839.19	12986.38	11180.38	-6617.43	1739171.53	14608157.80	40°13'23.023"N	80°38'46.373"W	12991.97	329.380	0.72	-0.06	0.72
18543.00	90.860	336.490	5837.85	13078.97	11265.58	-6654.68	1739134.29	14608242.97	40°13'23.866"N	80°38'46.849"W	13084.27	329.429	0.23	0.06	0.23
18635.00	90.770	336.170	5836.54	13170.57	11349.84	-6691.61	1739097.37	14608327.19	40°13'24.700"N	80°38'47.321"W	13175.60	329.477	0.36	-0.10	-0.35
18728.00	90.800	336.150	5835.26	13263.20	11434.89	-6729.20	1739059.80	14608412.21	40°13'25.542"N	80°38'47.801"W	13267.96	329.524	0.04	0.03	-0.02
18821.00	90.860	335.910	5833.92	13355.84	11519.86	-6766.97	1739022.04	14608497.15	40°13'26.384"N	80°38'48.284"W	13360.36	329.569	0.27	0.06	-0.26
18913.00	90.740	336.130	5832.63	13447.48	11603.91	-6804.36	1738984.67	14608581.17	40°13'27.216"N	80°38'48.761"W	13451.77	329.613	0.27	-0.13	0.24
19006.00	90.740	336.010	5831.43	13540.12	11688.91	-6842.08	1738946.96	14608666.13	40°13'28.057"N	80°38'49.243"W	13544.18	329.658	0.13	0.00	-0.13
19099.00	90.580	336.120	5830.36	13632.76	11773.91	-6879.81	1738909.25	14608751.10	40°13'28.898"N	80°38'49.725"W	13636.59	329.701	0.21	-0.17	0.12

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# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 201H
Area	Brooke County, WV	Well	Kathy Mayhew BRK 201H
Field	Brooke	Wellbore	Kathy Mayhew BRK 201H AWP
Facility	Kathy Mayhew BRK Pad		

## WELLPATH DATA (248 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]
19191.00	90.680	335.880	5829.35	13724.41	11867.95	-6917.23	1738871.85	14608835.10	40°13'29.730"N	80°38'50.203"W	13728.04	329.743	0.28	0.11	-0.26
19284.00	90.650	335.650	5828.27	13817.09	11942.75	-6955.40	1738833.69	14608919.87	40°13'30.570"N	80°38'50.691"W	13820.52	329.784	0.25	-0.03	-0.25
19377.00	90.650	336.540	5827.21	13909.73	12027.76	-6993.08	1738796.02	14609004.85	40°13'31.411"N	80°38'51.172"W	13912.95	329.826	0.96	0.00	0.96
19470.00	90.550	336.260	5826.24	14002.32	12112.98	-7030.31	1738758.81	14609090.04	40°13'32.255"N	80°38'51.648"W	14005.34	329.869	0.32	-0.11	-0.30
19562.00	90.550	335.930	5825.36	14093.96	12197.09	-7067.59	1738721.54	14609174.11	40°13'33.088"N	80°38'52.124"W	14096.80	329.910	0.36	0.00	-0.36
19655.00	90.370	336.020	5824.61	14186.61	12282.03	-7105.45	1738683.69	14609259.01	40°13'33.928"N	80°38'52.608"W	14189.28	329.950	0.22	-0.19	0.10
19748.00	90.620	335.520	5823.81	14279.30	12366.83	-7143.62	1738645.54	14609343.79	40°13'34.768"N	80°38'53.096"W	14281.80	329.987	0.60	0.27	-0.54
19841.00	90.340	335.610	5823.03	14372.00	12451.50	-7182.09	1738607.09	14609428.42	40°13'35.606"N	80°38'53.587"W	14374.36	330.023	0.32	-0.30	0.10
19933.00	90.830	336.450	5822.09	14463.65	12535.56	-7219.46	1738569.73	14609512.45	40°13'36.438"N	80°38'54.065"W	14465.85	330.062	1.06	0.53	0.91
20026.00	90.740	336.780	5820.81	14556.21	12620.91	-7256.37	1738532.84	14609597.77	40°13'37.283"N	80°38'54.536"W	14558.24	330.103	0.37	-0.10	0.35
20119.00	90.710	335.650	5819.64	14648.82	12706.00	-7293.87	1738495.35	14609682.83	40°13'38.126"N	80°38'55.016"W	14650.70	330.142	1.22	-0.03	-1.22
20212.00	90.580	336.580	5818.59	14741.45	12791.03	-7331.53	1738457.71	14609767.82	40°13'38.967"N	80°38'55.497"W	14743.19	330.180	1.01	-0.14	1.00
20304.00	90.620	336.910	5817.63	14833.00	12875.55	-7367.85	1738421.40	14609852.31	40°13'39.804"N	80°38'55.961"W	14834.59	330.220	0.36	0.04	0.36
20397.00	90.710	336.810	5816.55	14925.51	12961.07	-7404.39	1738384.87	14609937.79	40°13'40.650"N	80°38'56.427"W	14926.96	330.262	0.14	0.10	-0.11
20490.00	90.950	337.220	5815.20	15018.00	13046.67	-7440.70	1738348.57	14610023.36	40°13'41.498"N	80°38'56.891"W	15019.31	330.303	0.51	0.26	0.44
20583.00	90.920	336.900	5813.68	15110.48	13132.31	-7476.95	1738312.34	14610108.96	40°13'42.345"N	80°38'57.354"W	15111.66	330.345	0.35	-0.03	-0.34
20675.00	90.830	337.130	5812.28	15201.97	13216.99	-7512.87	1738276.44	14610193.62	40°13'43.184"N	80°38'57.813"W	15203.03	330.385	0.27	-0.10	0.25
20768.00	90.740	337.050	5811.00	15294.45	13302.65	-7549.07	1738240.25	14610279.24	40°13'44.031"N	80°38'58.275"W	15295.39	330.426	0.13	-0.10	-0.09
20861.00	90.950	336.610	5809.63	15386.97	13388.14	-7585.66	1738203.68	14610364.69	40°13'44.878"N	80°38'58.743"W	15387.80	330.464	0.52	0.23	-0.47
20953.00	90.890	337.080	5808.15	15478.49	13472.71	-7621.83	1738167.52	14610449.24	40°13'45.715"N	80°38'59.205"W	15479.22	330.502	0.51	-0.07	0.51
21046.00	90.800	337.470	5806.78	15570.93	13558.49	-7657.75	1738131.61	14610534.98	40°13'46.564"N	80°38'59.664"W	15571.57	330.543	0.43	-0.10	0.42
21135.00	90.890	337.560	5805.47	15659.36	13640.71	-7691.78	1738097.59	14610617.17	40°13'47.378"N	80°39'00.098"W	15659.90	330.582	0.14	0.10	0.10
21225.00	90.800	336.400	5804.14	15748.87	13723.53	-7726.97	1738062.41	14610699.96	40°13'48.198"N	80°39'00.548"W	15749.33	330.619	1.29	-0.10	-1.29
21315.00	90.770	336.240	5802.91	15838.48	13805.95	-7763.12	1738026.29	14610782.34	40°13'49.013"N	80°39'01.009"W	15838.88	330.651	0.18	-0.03	-0.18
21407.00	90.920	335.950	5801.55	15930.11	13890.05	-7800.39	1737989.02	14610866.41	40°13'49.846"N	80°39'01.486"W	15930.46	330.682	0.35	0.16	-0.32
21500.00	90.800	336.100	5800.16	16022.75	13975.01	-7838.18	1737951.25	14610951.34	40°13'50.687"N	80°39'01.969"W	16023.05	330.713	0.21	-0.13	0.16
21589.00	90.830	335.550	5798.89	16111.44	14056.20	-7874.62	1737914.82	14611032.50	40°13'51.491"N	80°39'02.434"W	16111.69	330.741	0.62	0.03	-0.62
21682.00	90.890	335.940	5797.50	16204.12	14140.98	-7912.82	1737876.64	14611117.25	40°13'52.330"N	80°39'02.923"W	16204.32	330.770	0.42	0.06	0.42
21775.00	90.580	335.950	5796.30	16296.77	14225.90	-7950.73	1737838.75	14611202.13	40°13'53.171"N	80°39'03.407"W	16296.94	330.800	0.33	-0.33	0.01
21868.00	90.650	336.190	5795.30	16389.41	14310.90	-7988.45	1737801.04	14611287.10	40°13'54.012"N	80°39'03.889"W	16389.54	330.829	0.27	0.08	0.26

# Actual Wellpath Report

Kathy Mayhew BRK 201H AWP Proj: 22518'

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## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (248 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]
21956.00	90.520	335.790	5794.41	16477.08	14391.28	-8024.25	1737765.25	14611367.45	40°13'54.808"N	80°39'04.347"W	16477.18	330.857	0.48	-0.15	-0.45
22049.00	90.490	336.100	5793.59	16569.74	14476.20	-8062.16	1737727.36	14611452.33	40°13'55.648"N	80°39'04.831"W	16569.81	330.885	0.33	-0.03	0.33
22141.00	90.580	336.250	5792.73	16661.37	14560.36	-8099.32	1737690.21	14611536.46	40°13'56.481"N	80°39'05.306"W	16661.42	330.915	0.19	0.10	0.16
22234.00	90.520	336.340	5791.83	16753.97	14645.50	-8136.71	1737652.84	14611621.57	40°13'57.324"N	80°39'05.784"W	16754.01	330.944	0.12	-0.06	0.10
22327.00	90.490	335.610	5791.01	16846.63	14730.44	-8174.57	1737614.99	14611706.48	40°13'58.165"N	80°39'06.267"W	16846.65	330.972	0.79	-0.03	-0.78
22420.00	90.580	336.190	5790.15	16939.29	14815.33	-8212.54	1737577.04	14611791.34	40°13'59.005"N	80°39'06.753"W	16939.30	330.999	0.63	0.10	0.62
22493.00	90.520	336.660	5789.45	17011.97	14882.24	-8241.74	1737547.85	14611858.21	40°13'59.668"N	80°39'07.126"W	17011.97	331.022	0.65	-0.08	0.64
22518.00	90.520	336.660	5789.22	17036.85	14905.19	-8251.64	1737537.95	14611881.16	40°13'59.895"N	80°39'07.252"W	17036.85	331.031	0.00	0.00	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: Kathy Mayhew BRK 201H AWB Ref Wellpath: Kathy Mayhew BRK 201H AWP Proj: 22518'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start E/W [ft]	End E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	26.00	126.00	100.00	26.00	126.00	0.00	0.00	0.00	0.00	0.24	0.00
17.5in Open Hole	126.00	549.00	423.00	126.00	549.00	0.24	0.24	0.00	0.00	1.31	0.02
13.375in Casing Surface	26.00	528.00	502.00	26.00	528.00	0.00	0.00	0.00	0.00	1.30	0.00
12.25in Open Hole	549.00	1818.00	1269.00	549.00	1790.54	1.31	1.31	0.02	0.02	-21.73	-230.51
9.625in Casing Intermediate	26.00	1798.00	1772.00	26.00	1771.53	0.00	0.00	0.00	0.00	-20.72	-224.37
8.75in Open Hole	1818.00	5473.00	3655.00	1790.54	5264.84	-21.73	-21.73	-230.51	-230.51	-135.40	-1339.69
8.5in Open Hole	5473.00	22518.00	17045.00	5264.84	5789.22	-135.40	-135.40	-1339.69	-1339.69	14905.19	-8251.64
5.5in Casing Production	26.00	22518.00	22492.00	26.00	5789.22	0.00	0.00	0.00	0.00	14905.19	-8251.64

JAN 28 2020

WV Department of  
Environmental Protection



# Actual Wellpath Report

Kathy Mahew BRK 201H AWP Proj: 22518'  
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## REFERENCE WELLPATH IDENTIFICATION

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

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Kathy Mahew BRK 201H BHL Rev-5	5777.89	14909.03	-8244.59	1737545.00	14611885.00	40°13'59.933"N	80°39'07.161"W	point
Kathy Mahew BRK 201H LP Rev-5	5990.00	318.67	-1799.58	1743987.50	14597300.32	40°11'35.494"N	80°37'44.849"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Kathy Mayhew BRK 201H AWB Ref Wellpath: Kathy Mayhew BRK 201H AWP Proj: 22518'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	493.00	OWSG MWD rev2 + HRGM	01_Gyrodata MWD <17-1/2">(167'-493')	Kathy Mayhew BRK 201H AWB
493.00	1745.00	OWSG MWD rev2 + HRGM	02_Gyrodata MWD <12-1/4">(493')(592'-1745')	Kathy Mayhew BRK 201H AWB
1745.00	5398.00	OWSG MWD rev2 + HRGM	03_Gyrodata MWD <8-3/4">(1745')(1840'-5398')	Kathy Mayhew BRK 201H AWB
5398.00	22493.00	BHI AutoTrak Curve (Short)	04_BH AT Curve<8-1/2">(5398')(5448'-22493')	Kathy Mayhew BRK 201H AWB
22493.00	22518.00	Blind Drilling (std)	Projection to bit	Kathy Mayhew BRK 201H AWB

**REFERENCE WELLPATH IDENTIFICATION**

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

**COMMENTS**

Wellpath general comments  
API: 47-009-00208-0000  
BH Job #: 109971152A  
Rig: SDC 41  
Duration: 08/25/2019 - 08/30/2019