



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 1 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect@ 6.0
North Reference	Grid	User	Atenjen
Scale	0.999614	Report Generated	5/28/2020 at 5:53:29 PM
Convergence at slot	0.25° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-16.07	-12.22	1750626.28	14451195.86	39°47'30.8117"N	80°36'27.5575"W
Facility Reference Pt			1750638.50	14451211.92	39°47'30.9700"N	80°36'27.4000"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 46 (KB) to Facility Vertical Datum	1361.40ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1361.40ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 6H)	26.00ft
MD Reference Pt	SDC 46 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	147.98°

RECEIVED  
 Office of Oil and Gas  
 NOV 23 2020  
 WV Department of  
 Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 2 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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	0.00	113.930	0.00	0.00	0.00	0.00	1750626.28	14451195.86	39°47'30.8117"N	80°36'27.5575"W	0.00	0.000	0.00	0.00	0.00	
26.00	0.00	113.930	26.00	0.00	0.00	0.00	1750626.28	14451195.86	39°47'30.8117"N	80°36'27.5575"W	0.00	0.000	0.00	0.00	0.00	
50.00	0.22	113.930	50.00	0.04	-0.02	0.04	1750626.32	14451195.84	39°47'30.8116"N	80°36'27.5570"W	0.05	113.930	0.92	0.92	0.00	
100.00	0.38	117.620	100.00	0.26	-0.13	0.28	1750626.56	14451195.73	39°47'30.8104"N	80°36'27.5540"W	0.31	115.917	0.32	0.32	7.38	
150.00	0.72	118.730	150.00	0.68	-0.36	0.70	1750626.98	14451195.50	39°47'30.8081"N	80°36'27.5486"W	0.79	117.398	0.68	0.68	2.22	
200.00	1.05	129.400	199.99	1.39	-0.80	1.33	1750627.61	14451195.06	39°47'30.8037"N	80°36'27.5405"W	1.55	121.184	0.73	0.66	21.34	
250.00	1.12	126.090	249.98	2.27	-1.38	2.08	1750628.36	14451194.48	39°47'30.7980"N	80°36'27.5310"W	2.50	123.648	0.19	0.14	-6.62	
300.00	1.36	130.340	299.97	3.29	-2.05	2.92	1750629.20	14451193.81	39°47'30.7913"N	80°36'27.5202"W	3.57	125.090	0.51	0.48	8.50	
350.00	1.27	130.490	349.96	4.39	-2.80	3.80	1750630.08	14451193.06	39°47'30.7839"N	80°36'27.5090"W	4.72	126.383	0.18	-0.18	0.30	
386.00	1.04	134.010	385.95	5.08	-3.28	4.34	1750630.62	14451192.58	39°47'30.7791"N	80°36'27.5021"W	5.44	127.140	0.67	-0.64	9.78	
498.00	0.32	140.070	497.94	6.38	-4.23	5.27	1750631.55	14451191.63	39°47'30.7697"N	80°36'27.4903"W	6.76	128.765	0.65	-0.64	5.41	
589.00	1.24	319.130	588.94	5.66	-3.68	4.79	1750631.07	14451192.18	39°47'30.7751"N	80°36'27.4964"W	6.04	127.557	1.71	1.01	196.77	
680.00	2.40	323.710	679.89	2.79	-1.40	3.02	1750629.29	14451194.46	39°47'30.7977"N	80°36'27.5190"W	3.32	114.914	1.28	1.27	5.03	
770.00	1.44	323.840	769.84	-0.22	1.03	1.23	1750627.51	14451196.89	39°47'30.8219"N	80°36'27.5417"W	1.61	50.078	1.07	-1.07	0.14	
861.00	1.00	343.430	860.82	-2.13	2.72	0.33	1750626.61	14451198.57	39°47'30.8385"N	80°36'27.5531"W	2.74	6.959	0.66	-0.48	21.53	
952.00	0.78	2.470	951.80	-3.40	4.10	0.13	1750626.41	14451199.95	39°47'30.8522"N	80°36'27.5556"W	4.10	1.842	0.40	-0.24	20.92	
974.00	0.90	3.330	973.80	-3.67	4.42	0.15	1750626.43	14451200.28	39°47'30.8554"N	80°36'27.5554"W	4.42	1.921	0.55	0.55	3.91	
1042.00	1.04	4.860	1041.79	-4.60	5.57	0.23	1750626.51	14451201.42	39°47'30.8667"N	80°36'27.5542"W	5.57	2.382	0.21	0.21	2.25	
1133.00	1.96	343.570	1132.76	-6.76	7.88	-0.14	1750626.14	14451203.74	39°47'30.8896"N	80°36'27.5588"W	7.88	358.992	1.17	-1.01	-23.40	
1224.00	2.99	335.770	1223.68	-10.61	11.54	-1.55	1750624.73	14451207.39	39°47'30.9258"N	80°36'27.5768"W	11.64	352.335	1.19	1.13	-8.57	
1314.00	4.51	323.020	1313.48	-16.46	16.51	-4.65	1750621.64	14451212.36	39°47'30.9750"N	80°36'27.6161"W	17.15	344.283	1.92	1.69	-14.17	
1405.00	6.43	317.150	1404.06	-25.03	23.10	-10.26	1750616.02	14451218.95	39°47'31.0405"N	80°36'27.6877"W	25.28	336.045	2.19	2.11	-6.45	
1496.00	9.37	311.740	1494.19	-37.15	31.77	-19.26	1750607.03	14451227.62	39°47'31.1265"N	80°36'27.8024"W	37.15	328.777	3.33	3.23	-5.95	
1586.00	12.85	307.470	1582.49	-53.56	42.74	-32.67	1750593.62	14451236.58	39°47'31.2355"N	80°36'27.9737"W	53.80	322.604	3.97	3.87	-4.74	
1677.00	15.91	304.750	1670.63	-74.51	56.01	-50.96	1750575.34	14451251.85	39°47'31.3674"N	80°36'28.2072"W	75.72	317.704	3.44	3.36	-2.99	
1768.00	17.93	306.210	1757.69	-98.98	71.39	-72.51	1750553.80	14451267.23	39°47'31.5204"N	80°36'28.4824"W	101.76	314.556	2.27	2.22	1.60	
1859.00	19.30	307.190	1843.93	-126.05	88.76	-95.79	1750530.53	14451284.59	39°47'31.6930"N	80°36'28.7797"W	130.59	312.818	1.54	1.51	1.08	
1949.00	19.68	305.090	1928.77	-153.91	106.46	-120.04	1750506.29	14451302.28	39°47'31.8690"N	80°36'29.0894"W	160.45	311.569	0.89	0.42	-2.33	
2040.00	18.61	303.930	2014.74	-181.29	123.38	-144.63	1750481.71	14451319.19	39°47'32.0372"N	80°36'29.4034"W	190.10	310.466	1.25	-1.18	-1.27	
2131.00	17.99	306.550	2101.13	-207.63	139.85	-167.96	1750458.38	14451335.66	39°47'32.2011"N	80°36'29.7014"W	218.56	309.781	1.13	-0.68	2.88	

RECEIVED  
Office of Oil and Gas

NOV 23 2020

WV Department of  
Environmental Protection



# Actual Wellpath Report

Charles Jamison MSH 6H AWP Proj: 21230'  
Page 3 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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)	
2221.00	16.010	310.500	2187.20	-232.41	156.19	-188.57	1750437.78	14451351.99	39°47'32.3634"N	80°36'29.9645"W	244.85	309.634	2.55	-2.20	4.39	
2312.00	18.140	313.230	2274.19	-258.08	174.04	-208.44	1750417.92	14451369.84	39°47'32.5407"N	80°36'30.2180"W	271.55	309.862	2.50	2.34	3.00	
2403.00	18.680	313.040	2360.53	-285.86	193.69	-229.41	1750396.96	14451389.48	39°47'32.7358"N	80°36'30.4856"W	300.24	310.175	0.60	0.59	-0.21	
2494.00	17.830	312.340	2446.95	-313.36	213.02	-250.36	1750376.02	14451408.80	39°47'32.9278"N	80°36'30.7528"W	328.72	310.394	0.96	-0.93	-0.77	
2584.00	17.450	311.240	2532.72	-339.55	231.20	-270.69	1750355.69	14451426.97	39°47'33.1083"N	80°36'31.0123"W	355.99	310.501	0.56	-0.42	-1.22	
2675.00	15.910	307.450	2619.89	-364.30	247.78	-290.85	1750335.54	14451443.54	39°47'33.2730"N	80°36'31.2697"W	382.09	310.428	2.07	-1.69	-4.16	
2800.00	15.010	301.660	2740.37	-394.85	266.70	-318.24	1750308.17	14451462.45	39°47'33.4611"N	80°36'31.6194"W	415.21	309.964	1.43	-0.72	-4.63	
2891.00	17.850	303.530	2827.65	-418.12	280.59	-339.90	1750286.52	14451476.34	39°47'33.5993"N	80°36'31.8961"W	440.75	309.540	3.17	3.12	2.05	
2981.00	20.900	307.760	2912.54	-445.75	298.04	-364.09	1750262.33	14451493.79	39°47'33.7729"N	80°36'32.2051"W	470.52	309.303	3.73	3.39	4.70	
3072.00	23.390	309.230	2996.82	-478.09	319.41	-390.92	1750235.51	14451515.14	39°47'33.9852"N	80°36'32.5476"W	504.82	309.251	2.80	-2.74	-1.62	
3163.00	25.080	308.300	3079.80	-513.35	342.79	-420.05	1750206.39	14451538.51	39°47'34.2175"N	80°36'32.9195"W	542.17	309.217	1.90	1.86	-1.02	
3254.00	26.520	308.630	3161.73	-550.69	367.43	-451.06	1750175.39	14451563.14	39°47'34.4623"N	80°36'33.3154"W	581.77	309.166	1.59	1.58	0.36	
3344.00	27.870	310.540	3241.78	-589.71	393.64	-482.75	1750143.72	14451589.35	39°47'34.7228"N	80°36'33.7198"W	622.90	309.195	1.79	1.50	2.12	
3435.00	28.280	311.260	3322.07	-630.65	421.69	-515.11	1750111.37	14451617.38	39°47'35.0013"N	80°36'34.1329"W	665.70	309.305	0.58	0.45	0.79	
3525.00	28.720	313.930	3401.17	-672.05	450.75	-546.72	1750079.78	14451646.43	39°47'35.2699"N	80°36'34.5361"W	708.57	309.504	1.50	0.49	2.97	
3616.00	29.270	311.900	3480.76	-714.64	480.78	-579.02	1750047.48	14451676.45	39°47'35.5880"N	80°36'34.9483"W	752.60	309.704	1.24	0.60	-2.23	
3707.00	30.400	311.190	3559.70	-758.06	510.80	-612.91	1750013.61	14451706.46	39°47'35.8862"N	80°36'35.3808"W	797.85	309.808	1.30	1.24	-0.78	
3797.00	30.850	310.980	3637.15	-801.93	540.93	-647.46	1749979.07	14451736.58	39°47'36.1854"N	80°36'35.8218"W	843.69	309.877	0.51	0.50	-0.23	
3888.00	30.640	309.750	3715.36	-846.26	571.05	-682.91	1749943.64	14451766.69	39°47'36.4847"N	80°36'36.2742"W	890.21	309.903	0.73	-0.23	-1.35	
3978.00	31.020	309.800	3792.64	-890.08	600.56	-718.36	1749908.20	14451796.19	39°47'36.7779"N	80°36'36.7267"W	936.33	309.896	0.42	0.42	0.06	
4069.00	31.670	309.240	3870.36	-934.98	630.68	-754.87	1749871.70	14451826.30	39°47'37.0771"N	80°36'37.1928"W	983.67	309.878	0.78	0.71	-0.62	
4160.00	30.720	310.040	3948.20	-979.72	660.75	-791.17	1749835.42	14451856.35	39°47'37.3758"N	80°36'37.6561"W	1030.80	309.867	1.14	-1.04	0.88	
4250.00	29.310	313.600	4026.14	-1022.93	690.73	-824.73	1749801.67	14451886.33	39°47'37.6735"N	80°36'38.0844"W	1075.77	309.947	2.52	-1.57	3.96	
4341.00	28.600	314.990	4105.76	-1065.73	721.49	-856.26	1749770.35	14451917.07	39°47'37.9789"N	80°36'38.4866"W	1119.70	310.118	1.07	-0.78	1.53	
4432.00	28.420	312.780	4185.73	-1107.85	751.60	-887.56	1749739.06	14451947.17	39°47'38.2778"N	80°36'38.8859"W	1163.04	310.258	1.18	-0.20	-2.43	
4522.00	28.540	308.460	4264.85	-1148.79	779.52	-920.12	1749706.52	14451975.08	39°47'38.5551"N	80°36'39.3015"W	1205.93	310.271	2.29	0.13	-4.80	
4613.00	28.080	307.940	4344.96	-1189.40	806.21	-954.03	1749672.62	14452001.76	39°47'38.8203"N	80°36'39.7345"W	1249.06	310.200	0.57	-0.51	-0.57	
4704.00	28.050	307.070	4425.26	-1229.51	832.28	-988.00	1749638.67	14452027.81	39°47'39.0794"N	80°36'40.1681"W	1291.83	310.110	0.45	-0.03	-0.96	
4794.00	28.900	304.900	4504.38	-1269.28	857.48	-1022.72	1749603.96	14452053.00	39°47'39.3299"N	80°36'40.6116"W	1334.62	309.977	1.49	0.94	-2.41	
4885.00	30.310	305.400	4583.49	-1310.72	883.36	-1059.47	1749567.22	14452078.88	39°47'39.5873"N	80°36'41.0810"W	1379.42	309.820	1.57	1.55	0.55	

RECEIVED  
Office of Oil and Gas  
  
NOV 23 2020  
  
WV Department of  
Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 4 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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)
4976.00	30.900	305.520	4661.82	-1353.51	910.24	-1097.21	1749529.50	14452105.74	39°47'39.8545"N	80°36'41.5629"W	1425.62	309.679	0.65	0.65	0.13
5068.00	31.610	307.810	4740.47	-1397.98	938.74	-1135.48	1749491.24	14452134.24	39°47'40.1379"N	80°36'42.0517"W	1473.28	309.582	1.50	0.77	2.49
5159.00	32.500	310.690	4817.60	-1443.71	969.31	-1172.87	1749453.87	14452164.79	39°47'40.4415"N	80°36'42.5289"W	1521.57	309.572	1.94	0.98	3.16
5250.00	32.810	312.950	4894.22	-1490.87	1002.04	-1209.45	1749417.30	14452197.52	39°47'40.7666"N	80°36'42.9958"W	1570.62	309.642	1.38	0.34	2.48
5340.00	31.320	317.430	4970.50	-1537.42	1035.89	-1243.13	1749383.63	14452231.35	39°47'41.1025"N	80°36'43.4254"W	1618.16	309.804	3.12	-1.66	4.96
5431.00	30.160	315.610	5048.71	-1583.00	1069.65	-1275.12	1749351.65	14452265.09	39°47'41.4375"N	80°36'43.8334"W	1664.36	309.992	1.63	-1.27	-2.00
5520.00	30.170	312.260	5125.66	-1626.37	1100.67	-1307.32	1749319.47	14452296.10	39°47'41.7454"N	80°36'44.2441"W	1708.96	310.095	1.89	0.01	-3.76
5613.00	29.640	313.260	5206.28	-1671.11	1132.14	-1341.36	1749285.44	14452327.56	39°47'42.0580"N	80°36'44.6785"W	1755.28	310.165	0.78	-0.57	1.08
5705.00	28.570	310.980	5286.66	-1714.15	1162.16	-1374.54	1749252.28	14452357.57	39°47'42.3560"N	80°36'45.1019"W	1799.99	310.214	1.67	-1.16	-2.48
5798.00	28.840	309.920	5368.24	-1756.74	1191.14	-1408.53	1749218.30	14452386.54	39°47'42.6439"N	80°36'45.5357"W	1844.66	310.220	0.62	0.29	-1.14
5891.00	29.520	309.870	5449.43	-1799.85	1220.22	-1443.31	1749183.53	14452415.61	39°47'42.9327"N	80°36'45.9798"W	1890.00	310.212	0.73	0.73	-0.05
5981.00	30.570	311.720	5527.34	-1842.89	1249.67	-1477.42	1749149.44	14452445.04	39°47'43.2252"N	80°36'46.4150"W	1935.05	310.226	1.56	1.17	2.06
6072.00	31.160	312.640	5605.45	-1887.81	1281.01	-1512.01	1749114.86	14452476.38	39°47'43.5365"N	80°36'46.8565"W	1981.71	310.272	0.83	0.65	1.01
6165.00	31.190	313.550	5685.02	-1934.34	1313.90	-1547.16	1749079.72	14452509.25	39°47'43.8630"N	80°36'47.3050"W	2029.79	310.339	0.51	0.03	0.98
6258.00	30.740	314.680	5764.77	-1980.79	1347.21	-1581.52	1749045.38	14452542.55	39°47'44.1936"N	80°36'47.7433"W	2077.54	310.426	0.79	-0.48	1.22
6349.00	29.800	311.800	5843.37	-2025.15	1378.64	-1614.91	1749011.99	14452573.96	39°47'44.5056"N	80°36'48.1694"W	2123.34	310.487	1.90	-1.03	-3.16
6397.00	29.210	311.000	5885.14	-2047.80	1394.27	-1632.64	1748994.27	14452589.59	39°47'44.6609"N	80°36'48.3957"W	2146.98	310.497	1.48	-1.23	-1.67
6498.00	30.110	311.850	5972.91	-2095.71	1427.34	-1670.11	1748956.81	14452622.65	39°47'44.9893"N	80°36'48.8739"W	2196.95	310.518	0.98	0.89	0.84
6591.00	24.960	309.170	6055.35	-2136.72	1455.32	-1702.73	1748924.21	14452650.61	39°47'45.2672"N	80°36'49.2902"W	2239.92	310.520	5.69	-5.54	-2.88
6683.00	21.320	305.760	6139.94	-2170.59	1477.36	-1731.36	1748895.59	14452672.65	39°47'45.4863"N	80°36'49.6558"W	2276.01	310.474	4.21	-3.96	-3.71
6776.00	17.310	297.350	6227.70	-2198.17	1493.61	-1757.38	1748869.58	14452688.89	39°47'45.6479"N	80°36'49.9883"W	2306.35	310.361	5.24	-4.31	-9.04
6869.00	7.470	267.420	6318.50	-2213.09	1499.71	-1775.77	1748851.20	14452694.99	39°47'45.7091"N	80°36'50.2236"W	2324.33	310.182	12.30	-10.58	-32.18
6957.00	8.060	237.170	6405.73	-2215.82	1496.11	-1786.67	1748840.30	14452691.39	39°47'45.6739"N	80°36'50.3634"W	2330.35	309.942	4.64	0.67	-34.37
7049.00	9.950	190.930	6496.71	-2209.90	1484.79	-1793.61	1748833.37	14452680.08	39°47'45.5624"N	80°36'50.4529"W	2328.44	309.619	7.89	2.05	-50.26
7140.00	14.790	176.210	6585.59	-2193.90	1465.47	-1794.33	1748832.64	14452660.76	39°47'45.3714"N	80°36'50.4633"W	2316.73	309.239	6.31	5.32	-16.18
7230.00	21.990	163.600	6670.97	-2167.51	1437.79	-1788.81	1748838.17	14452633.10	39°47'45.0977"N	80°36'50.3940"W	2295.01	308.791	9.10	8.00	-14.01
7323.00	28.710	149.610	6755.04	-2128.33	1401.75	-1772.56	1748854.41	14452597.07	39°47'44.7408"N	80°36'50.1878"W	2259.84	308.337	9.64	7.23	-15.04
7416.00	32.970	147.320	6834.88	-2080.67	1361.16	-1747.58	1748879.38	14452556.49	39°47'44.3386"N	80°36'49.8701"W	2215.13	307.914	4.75	4.58	-2.46
7509.00	40.300	147.290	6909.45	-2025.22	1314.49	-1717.63	1748909.32	14452509.84	39°47'43.8761"N	80°36'49.4889"W	2162.90	307.427	7.88	7.88	-0.03
7600.00	50.880	147.280	6973.04	-1960.31	1259.88	-1682.54	1748944.39	14452455.25	39°47'43.3349"N	80°36'49.0424"W	2101.96	306.826	11.63	11.63	-0.01

RECEIVED  
Office of Oil and Gas

NOV 23 2020

WV Department of  
Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 5 of 12



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 6H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H			

WELLPATH DATA (242 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)
7691.00	57.100	145.850	7026.52	-1886.76	1198.50	-1641.97	1748984.94	14452393.89	39°47'42.7266"N	80°36'48.5261"W	2032.85	306.126	6.95	6.84	-1.57
7782.00	65.410	147.210	7070.25	-1807.07	1131.98	-1598.04	1749028.86	14452327.40	39°47'42.0674"N	80°36'47.9670"W	1958.35	305.312	9.23	9.13	1.49
7872.00	73.240	146.390	7102.00	-1722.96	1061.59	-1551.96	1749074.92	14452257.04	39°47'41.3697"N	80°36'47.3805"W	1880.31	304.373	8.74	8.70	-0.91
7963.00	78.440	145.670	7124.25	-1634.80	988.44	-1502.67	1749124.19	14452183.92	39°47'40.6447"N	80°36'46.7530"W	1798.62	303.337	5.77	5.71	-0.79
8054.00	85.100	146.130	7137.27	-1544.85	913.91	-1452.21	1749174.63	14452109.41	39°47'39.9059"N	80°36'46.1107"W	1715.85	302.183	7.34	7.32	0.51
8094.00	89.420	146.120	7139.18	-1504.93	880.74	-1429.94	1749196.89	14452076.26	39°47'39.5772"N	80°36'45.8273"W	1679.42	301.630	10.80	10.80	-0.03
8144.00	89.110	146.040	7139.82	-1454.96	839.25	-1402.04	1749224.78	14452034.79	39°47'39.1661"N	80°36'45.4722"W	1634.04	300.904	0.64	-0.62	-0.16
8235.00	89.660	146.560	7140.80	-1364.00	763.55	-1351.56	1749275.25	14451959.11	39°47'38.4158"N	80°36'44.8296"W	1552.33	299.464	0.83	0.60	0.57
8326.00	89.140	146.340	7141.75	-1273.04	687.72	-1301.27	1749325.52	14451883.31	39°47'37.6641"N	80°36'44.1895"W	1471.82	297.856	0.62	-0.57	-0.24
8416.00	89.260	146.480	7143.01	-1183.08	612.75	-1251.48	1749375.29	14451808.37	39°47'36.9212"N	80°36'43.5559"W	1393.44	296.087	0.20	0.13	0.16
8507.00	88.740	148.210	7144.60	-1092.11	536.15	-1202.39	1749424.36	14451731.80	39°47'36.1621"N	80°36'42.9312"W	1316.51	294.032	1.98	-0.57	1.90
8598.00	89.630	148.030	7145.89	-1001.12	458.89	-1154.33	1749472.40	14451654.57	39°47'35.3964"N	80°36'42.3198"W	1242.20	291.679	1.00	0.98	-0.20
8690.00	88.490	147.180	7147.40	-909.13	381.22	-1105.05	1749521.66	14451576.93	39°47'34.6267"N	80°36'41.6928"W	1168.96	289.033	1.55	-1.24	-0.92
8783.00	89.260	146.730	7149.23	-816.17	303.27	-1054.35	1749572.34	14451499.02	39°47'33.8543"N	80°36'41.0476"W	1097.10	286.047	0.96	0.83	-0.48
8876.00	88.180	148.940	7151.31	-723.20	224.57	-1004.86	1749621.81	14451420.35	39°47'33.0744"N	80°36'40.4179"W	1029.64	282.598	2.64	-1.16	2.38
8968.00	88.890	147.990	7153.66	-631.23	146.19	-956.75	1749669.90	14451341.99	39°47'32.2977"N	80°36'39.8061"W	967.86	278.667	1.29	0.77	-1.03
9061.00	89.200	148.110	7155.21	-538.25	67.29	-907.55	1749719.08	14451263.12	39°47'31.5158"N	80°36'39.1801"W	910.04	274.240	0.36	0.33	0.13
9154.00	87.750	148.210	7157.68	-445.28	-11.69	-858.50	1749768.11	14451184.18	39°47'30.7332"N	80°36'38.5562"W	858.58	269.220	1.56	-1.56	0.11
9247.00	90.250	148.750	7159.31	-352.31	-90.95	-809.90	1749816.70	14451104.95	39°47'29.9479"N	80°36'37.9379"W	814.99	263.593	2.75	2.69	0.58
9340.00	89.380	146.490	7159.61	-259.32	-169.48	-760.09	1749866.48	14451026.44	39°47'29.1696"N	80°36'37.3043"W	778.76	257.430	2.60	-0.94	-2.43
9432.00	90.000	148.830	7160.10	-167.33	-247.20	-710.88	1749915.67	14450948.75	39°47'28.3994"N	80°36'36.6782"W	752.64	250.825	2.63	0.67	2.54
9525.00	89.380	147.490	7160.61	-74.33	-326.21	-661.82	1749964.71	14450869.78	39°47'27.6165"N	80°36'36.0542"W	737.85	243.762	1.59	-0.67	-1.44
9618.00	89.970	147.710	7161.14	18.67	-404.73	-611.99	1750014.52	14450791.29	39°47'26.8384"N	80°36'35.4202"W	733.72	236.522	0.68	0.63	0.24
9708.00	89.480	148.380	7161.57	108.66	-481.09	-564.36	1750062.14	14450714.96	39°47'26.0817"N	80°36'34.8143"W	741.59	229.554	0.92	-0.54	0.74
9801.00	89.690	147.770	7162.24	201.66	-560.02	-515.18	1750111.30	14450636.06	39°47'25.2995"N	80°36'34.1887"W	760.94	222.612	0.69	0.23	-0.66
9894.00	90.370	148.530	7162.19	294.66	-639.01	-466.11	1750160.35	14450557.09	39°47'24.5167"N	80°36'33.5644"W	790.95	216.108	1.10	0.73	0.82
9986.00	89.420	146.970	7162.36	386.65	-716.82	-417.02	1750209.42	14450479.32	39°47'23.7457"N	80°36'32.9399"W	829.30	210.189	1.99	-1.03	-1.70
10079.00	90.000	147.270	7162.83	479.64	-794.92	-366.53	1750259.89	14450401.25	39°47'22.9717"N	80°36'32.2975"W	875.35	204.754	0.70	0.62	0.32
10170.00	89.880	148.860	7162.93	570.64	-872.14	-318.40	1750308.01	14450324.05	39°47'22.2064"N	80°36'31.6852"W	928.45	200.056	1.75	-0.13	1.75
10260.00	89.910	148.010	7163.08	660.83	-948.83	-271.29	1750355.10	14450247.40	39°47'21.4466"N	80°36'31.0860"W	986.85	195.956	0.95	0.03	-0.94

RECEIVED  
Office of Oil and Gas

NOV 23 2020

WV Department of  
Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 6 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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)
10351.00	89.940	146.780	7163.21	751.63	-1025.48	-222.25	1750404.11	14450170.77	39°47'20.6869"N	80°36'30.4622"W	1049.29	192.229	1.35	0.03	-1.35
10443.00	90.620	149.650	7162.76	843.62	-1103.68	-173.80	1750452.55	14450092.61	39°47'19.9120"N	80°36'29.8459"W	1117.28	188.949	3.21	0.74	3.12
10536.00	89.720	148.030	7162.49	936.60	-1183.26	-125.68	1750500.65	14450013.06	39°47'19.1235"N	80°36'29.2339"W	1189.91	186.063	1.99	-0.97	-1.74
10627.00	90.680	147.510	7162.17	1027.60	-1260.23	-77.15	1750549.16	14449936.12	39°47'18.3607"N	80°36'28.6166"W	1262.59	183.503	1.20	1.05	-0.57
10718.00	88.770	144.830	7162.60	1118.54	-1335.81	-26.50	1750599.80	14449860.56	39°47'17.6116"N	80°36'27.9719"W	1336.08	181.136	3.62	-2.10	-2.95
10809.00	90.180	148.500	7163.44	1209.49	-1411.82	23.50	1750649.77	14449784.58	39°47'16.8582"N	80°36'27.3357"W	1412.02	179.046	4.32	1.55	4.03
10899.00	89.720	148.280	7163.52	1299.49	-1488.47	70.67	1750696.92	14449707.97	39°47'16.0987"N	80°36'26.7358"W	1490.15	177.282	0.57	-0.51	-0.24
10990.00	89.720	148.190	7163.96	1390.49	-1565.84	118.58	1750744.81	14449630.63	39°47'15.3320"N	80°36'26.1264"W	1570.32	175.669	0.10	0.00	-0.10
11081.00	89.420	147.580	7164.64	1481.49	-1642.91	166.95	1750793.17	14449553.58	39°47'14.5682"N	80°36'25.5111"W	1651.37	174.198	0.75	-0.33	-0.67
11171.00	90.550	149.280	7164.67	1571.48	-1719.59	214.07	1750840.27	14449476.94	39°47'13.8084"N	80°36'24.9119"W	1732.86	172.904	2.27	1.26	1.89
11262.00	90.490	148.940	7163.84	1662.46	-1797.68	260.79	1750886.96	14449398.88	39°47'13.0347"N	80°36'24.3178"W	1816.50	171.746	0.38	-0.07	-0.37
11353.00	90.150	147.020	7163.33	1753.45	-1874.83	309.03	1750935.19	14449321.76	39°47'12.2702"N	80°36'23.7041"W	1900.13	170.640	2.14	-0.37	-2.11
11443.00	90.580	148.040	7162.76	1843.45	-1950.76	357.35	1750983.49	14449245.86	39°47'11.5177"N	80°36'23.0895"W	1983.22	169.619	1.23	0.48	1.13
11534.00	90.120	147.250	7162.20	1934.44	-2027.63	406.05	1751032.17	14449169.02	39°47'10.7559"N	80°36'22.4700"W	2067.88	168.676	1.00	-0.51	-0.87
11621.00	91.540	148.290	7160.94	2021.43	-2101.21	452.44	1751078.54	14449095.47	39°47'10.0267"N	80°36'21.8799"W	2149.37	167.848	2.02	1.63	1.20
11712.00	91.020	146.480	7158.91	2112.40	-2177.84	501.47	1751127.56	14449018.87	39°47'9.2673"N	80°36'21.2561"W	2234.83	167.033	2.07	-0.57	-1.99
11803.00	89.970	149.010	7158.13	2203.38	-2254.78	550.03	1751176.10	14448941.95	39°47'8.5047"N	80°36'20.6384"W	2320.90	166.291	3.01	-1.15	2.78
11893.00	91.780	148.030	7156.75	2293.36	-2331.53	597.02	1751223.07	14448865.24	39°47'7.7443"N	80°36'20.0408"W	2406.75	165.637	2.29	2.01	-1.09
11984.00	90.650	148.470	7154.82	2384.34	-2408.89	644.90	1751270.92	14448787.91	39°47'6.9777"N	80°36'19.4320"W	2493.72	165.013	1.33	-1.24	0.48
12074.00	89.720	147.750	7154.53	2474.34	-2485.30	692.44	1751318.45	14448711.52	39°47'6.2204"N	80°36'18.8273"W	2579.96	164.431	1.31	-1.03	-0.80
12165.00	90.650	147.810	7154.24	2565.34	-2562.29	740.96	1751366.95	14448634.57	39°47'5.4575"N	80°36'18.2101"W	2667.27	163.871	1.02	1.02	0.07
12256.00	90.000	146.150	7153.72	2656.32	-2638.59	790.54	1751416.52	14448558.30	39°47'4.7013"N	80°36'17.5793"W	2754.47	163.321	1.96	-0.71	-1.82
12346.00	91.020	148.650	7152.92	2746.30	-2714.40	839.03	1751464.98	14448482.52	39°47'3.9500"N	80°36'16.9625"W	2841.11	162.823	3.00	1.13	2.78
12437.00	90.580	148.110	7151.65	2837.29	-2791.88	886.73	1751512.67	14448405.06	39°47'3.1822"N	80°36'16.3558"W	2929.31	162.380	0.77	-0.48	-0.59
12527.00	90.770	148.660	7150.59	2927.28	-2868.52	933.91	1751559.82	14448328.46	39°47'2.4227"N	80°36'15.7559"W	3016.71	161.966	0.65	0.21	0.61
12619.00	90.860	147.320	7149.28	3019.27	-2946.52	982.67	1751608.57	14448250.49	39°47'1.6497"N	80°36'15.1357"W	3106.06	161.558	1.46	0.10	-1.46
12712.00	90.980	148.530	7147.79	3112.26	-3025.31	1032.05	1751657.93	14448171.72	39°47'0.8689"N	80°36'14.5077"W	3196.50	161.164	1.31	0.13	1.30
12804.00	90.400	148.990	7146.68	3204.24	-3103.96	1079.76	1751705.62	14448093.10	39°47'0.0895"N	80°36'13.9010"W	3286.41	160.819	0.80	-0.63	0.50
12896.00	91.480	148.560	7145.17	3296.22	-3182.63	1127.44	1751753.28	14448014.47	39°46'59.3101"N	80°36'13.2947"W	3376.42	160.493	1.26	1.17	-0.47
12989.00	90.490	147.850	7143.57	3389.20	-3261.66	1176.43	1751802.26	14447935.47	39°46'58.5269"N	80°36'12.6716"W	3467.33	160.166	1.31	-1.06	-0.76

RECEIVED  
 Office of Oil and Gas  
 NOV 23 2020  
 WV Department of  
 Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 7 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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)	
13081.00	90.860	148.470	7142.49	3481.19	-3339.81	1224.96	1751850.77	14447857.35	39°46'57.7524"N	80°36'12.0544"W	3557.36	159.858	0.78	0.40	0.67	
13173.00	90.800	148.470	7141.15	3573.18	-3418.22	1273.07	1751898.86	14447778.97	39°46'56.9754"N	80°36'11.4427"W	3647.59	159.573	0.07	-0.07	0.00	
13266.00	90.710	148.110	7139.93	3666.17	-3497.33	1321.95	1751947.71	14447699.89	39°46'56.1915"N	80°36'10.8211"W	3738.83	159.294	0.40	-0.10	-0.39	
13358.00	91.080	148.830	7138.49	3758.16	-3575.73	1370.05	1751995.80	14447621.51	39°46'55.4145"N	80°36'10.2094"W	3829.22	159.036	0.88	0.40	0.78	
13448.00	90.710	148.050	7137.09	3848.14	-3652.41	1417.15	1752042.88	14447544.87	39°46'54.6547"N	80°36'9.6104"W	3917.71	158.794	0.96	-0.41	-0.87	
13539.00	90.980	147.890	7135.74	3939.13	-3729.55	1465.41	1752091.12	14447467.76	39°46'53.8902"N	80°36'8.9967"W	4007.12	158.549	0.34	0.30	-0.18	
13629.00	90.550	148.080	7134.54	4029.12	-3805.86	1513.12	1752138.81	14447391.48	39°46'53.1340"N	80°36'8.3900"W	4095.61	158.318	0.52	-0.48	0.21	
13720.00	91.110	148.690	7133.22	4120.11	-3883.34	1560.82	1752186.49	14447314.03	39°46'52.3662"N	80°36'7.7834"W	4185.27	158.104	0.91	0.62	0.67	
13811.00	90.310	148.370	7132.10	4211.10	-3960.95	1608.32	1752233.97	14447236.45	39°46'51.5971"N	80°36'7.1794"W	4275.02	157.901	0.95	-0.88	-0.35	
13901.00	91.230	148.980	7130.89	4301.08	-4037.82	1655.10	1752280.74	14447159.60	39°46'50.8354"N	80°36'6.5845"W	4363.87	157.711	1.23	-1.02	0.68	
13992.00	90.370	147.180	7129.62	4392.07	-4115.05	1703.21	1752328.83	14447082.41	39°46'50.0700"N	80°36'5.9727"W	4453.60	157.515	2.19	-0.95	-1.98	
14085.00	90.740	148.220	7128.72	4485.06	-4193.65	1752.90	1752378.50	14447003.83	39°46'49.2910"N	80°36'5.3407"W	4545.26	157.316	1.19	0.40	1.12	
14176.00	90.950	148.340	7127.37	4576.05	-4271.05	1800.74	1752426.32	14446926.48	39°46'48.5240"N	80°36'4.7324"W	4635.15	157.139	0.27	0.23	0.13	
14266.00	90.620	147.880	7126.14	4666.04	-4347.46	1848.28	1752473.85	14446850.09	39°46'47.7668"N	80°36'4.1278"W	4724.04	156.968	0.63	-0.37	-0.51	
14357.00	91.110	149.230	7124.77	4757.02	-4425.09	1895.75	1752521.29	14446772.49	39°46'46.9976"N	80°36'3.5243"W	4814.07	156.809	1.58	0.54	1.48	
14448.00	90.310	147.230	7123.64	4848.01	-4502.44	1943.66	1752569.18	14446695.17	39°46'46.2310"N	80°36'2.9151"W	4904.06	156.651	2.37	-0.88	-2.20	
14538.00	90.250	147.190	7123.20	4938.00	-4578.10	1992.40	1752617.90	14446619.54	39°46'45.4812"N	80°36'2.2951"W	4992.86	156.481	0.08	-0.07	-0.04	
14629.00	91.140	147.740	7122.10	5028.99	-4654.81	2041.33	1752666.82	14446542.85	39°46'44.7209"N	80°36'1.6727"W	5082.75	156.321	1.15	0.98	0.60	
14720.00	90.580	148.220	7120.73	5119.98	-4731.96	2089.58	1752715.05	14446465.74	39°46'43.9564"N	80°36'1.0592"W	5172.79	156.174	0.81	-0.62	0.53	
14810.00	90.430	147.320	7119.94	5209.97	-4808.09	2137.57	1752763.02	14446389.64	39°46'43.2019"N	80°36'0.4488"W	5261.84	156.031	1.01	-0.17	-1.00	
14901.00	90.340	147.070	7119.32	5300.96	-4884.57	2186.87	1752812.31	14446313.18	39°46'42.4439"N	80°35'59.8217"W	5351.77	155.881	0.29	-0.10	-0.27	
14992.00	90.520	147.630	7118.64	5391.95	-4961.19	2235.97	1752861.38	14446236.60	39°46'41.6845"N	80°35'59.1973"W	5441.78	155.739	0.65	0.20	0.62	
15082.00	90.340	147.250	7117.97	5481.95	-5037.04	2284.40	1752909.80	14446160.77	39°46'40.9327"N	80°35'58.5813"W	5530.85	155.605	0.47	-0.20	-0.42	
15173.00	90.430	147.400	7117.35	5572.94	-5113.64	2333.53	1752958.90	14446084.21	39°46'40.1736"N	80°35'57.9564"W	5620.91	155.471	0.19	0.10	0.16	
15264.00	90.460	147.720	7116.65	5663.93	-5190.44	2382.34	1753007.70	14446007.44	39°46'39.4125"N	80°35'57.3356"W	5711.06	155.345	0.35	0.03	0.35	
15354.00	90.650	147.550	7115.78	5753.93	-5266.45	2430.52	1753055.85	14445931.45	39°46'38.6591"N	80°35'56.7230"W	5800.25	155.226	0.28	0.21	-0.19	
15445.00	90.650	148.160	7114.74	5844.92	-5343.50	2478.93	1753104.25	14445854.44	39°46'37.8956"N	80°35'56.1073"W	5890.51	155.113	0.67	0.00	0.67	
15536.00	90.430	147.670	7113.89	5935.92	-5420.59	2527.27	1753152.57	14445777.37	39°46'37.1315"N	80°35'55.4926"W	5980.80	155.003	0.59	-0.24	-0.54	
15626.00	90.550	147.950	7113.12	6025.91	-5496.76	2575.21	1753200.49	14445701.24	39°46'36.3767"N	80°35'54.8830"W	6070.09	154.897	0.34	0.13	0.31	
15717.00	90.280	147.310	7112.46	6116.91	-5573.61	2623.93	1753249.19	14445624.41	39°46'35.6150"N	80°35'54.2634"W	6160.37	154.790	0.76	-0.30	-0.70	

RECEIVED  
 Office of Oil and Gas  
 NOV 23 2020  
 WV Department of  
 Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 8 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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)
15808.00	90.520	147.780	7111.82	6207.90	-5650.40	2672.78	1753296.00	14445547.65	39°46'34.8540"N	80°35'53.6424"W	6250.65	154.685	0.58	0.26	0.52
15899.00	90.650	148.480	7110.89	6298.90	-5727.68	2720.81	1753346.03	14445470.41	39°46'34.0882"N	80°35'53.0315"W	6341.06	154.591	0.78	0.14	0.77
15989.00	89.910	147.810	7110.45	6388.90	-5804.12	2768.31	1753393.51	14445393.99	39°46'33.3306"N	80°35'52.4275"W	6430.50	154.501	1.11	-0.82	-0.74
16080.00	90.250	147.660	7110.33	6479.89	-5881.07	2816.88	1753442.07	14445317.08	39°46'32.5680"N	80°35'51.8098"W	6520.87	154.407	0.41	0.37	-0.16
16171.00	90.000	147.960	7110.13	6570.89	-5958.08	2865.36	1753490.53	14445240.09	39°46'31.8048"N	80°35'51.1933"W	6611.28	154.316	0.43	-0.27	0.33
16261.00	90.030	148.370	7110.10	6660.89	-6034.54	2912.83	1753537.98	14445163.66	39°46'31.0470"N	80°35'50.5897"W	6700.77	154.234	0.46	0.03	0.46
16352.00	89.850	147.770	7110.20	6751.89	-6111.77	2960.96	1753586.09	14445086.46	39°46'30.2817"N	80°35'49.9777"W	6791.25	154.151	0.69	-0.20	-0.66
16443.00	89.850	147.720	7110.44	6842.89	-6188.73	3009.53	1753634.64	14445009.53	39°46'29.5190"N	80°35'49.3602"W	6881.69	154.067	0.05	0.00	-0.05
16533.00	89.970	147.990	7110.58	6932.89	-6264.93	3057.41	1753682.51	14444933.36	39°46'28.7638"N	80°35'48.7512"W	6971.16	153.987	0.33	0.13	0.30
16624.00	89.660	147.340	7110.87	7023.89	-6341.82	3106.09	1753731.16	14444856.50	39°46'28.0017"N	80°35'48.1323"W	7061.62	153.905	0.79	-0.34	-0.71
16715.00	89.940	148.300	7111.19	7114.89	-6418.84	3154.55	1753779.61	14444779.51	39°46'27.2384"N	80°35'47.5161"W	7152.11	153.828	1.10	0.31	1.05
16805.00	90.150	148.990	7111.12	7204.88	-6495.69	3201.38	1753826.42	14444702.69	39°46'26.4768"N	80°35'46.9207"W	7241.75	153.764	0.80	0.23	0.77
16896.00	90.000	148.880	7111.00	7295.87	-6573.64	3248.34	1753873.36	14444624.77	39°46'25.7044"N	80°35'46.3238"W	7332.43	153.704	0.20	-0.16	-0.12
16986.00	89.880	147.910	7111.10	7385.86	-6650.29	3295.50	1753920.50	14444548.15	39°46'24.9448"N	80°35'45.7242"W	7422.04	153.640	1.09	-0.13	-1.08
17077.00	90.180	149.190	7111.05	7476.86	-6727.92	3342.98	1753967.96	14444470.55	39°46'24.1755"N	80°35'45.1206"W	7512.69	153.578	1.44	0.33	1.41
17168.00	89.720	147.910	7111.13	7567.85	-6805.55	3390.46	1754015.42	14444392.95	39°46'23.4062"N	80°35'44.5170"W	7603.34	153.518	1.49	-0.51	-1.41
17259.00	89.880	148.000	7111.44	7658.85	-6882.69	3438.74	1754063.69	14444315.84	39°46'22.6417"N	80°35'43.9031"W	7693.91	153.452	0.20	0.18	0.10
17349.00	90.310	147.940	7111.30	7748.85	-6958.99	3486.47	1754111.40	14444239.57	39°46'21.8856"N	80°35'43.2962"W	7783.51	153.389	0.48	0.48	-0.07
17440.00	89.750	147.980	7111.25	7839.85	-7036.12	3534.75	1754159.66	14444162.47	39°46'21.1211"N	80°35'42.6824"W	7874.10	153.326	0.62	-0.62	0.04
17531.00	89.910	147.950	7111.52	7930.85	-7113.27	3583.02	1754207.91	14444085.35	39°46'20.3585"N	80°35'42.0687"W	7964.71	153.265	0.18	0.18	-0.03
17621.00	89.970	147.910	7111.61	8020.85	-7189.53	3630.81	1754255.68	14444009.12	39°46'19.6007"N	80°35'41.4611"W	8054.32	153.206	0.08	0.07	-0.04
17712.00	89.940	147.740	7111.68	8111.85	-7266.56	3679.26	1754304.12	14443932.12	39°46'18.8373"N	80°35'40.8450"W	8144.93	153.146	0.19	-0.03	-0.19
17802.00	90.000	148.030	7111.73	8201.85	-7342.79	3727.11	1754351.94	14443855.92	39°46'18.0819"N	80°35'40.2366"W	8234.55	153.088	0.33	0.07	0.32
17893.00	89.880	147.570	7111.83	8292.85	-7419.79	3775.60	1754400.42	14443778.95	39°46'17.3187"N	80°35'39.6201"W	8325.17	153.030	0.52	-0.13	-0.51
17984.00	90.060	147.780	7111.87	8383.85	-7496.69	3824.26	1754449.06	14443702.08	39°46'16.5566"N	80°35'39.0013"W	8415.78	152.973	0.30	0.20	0.23
18075.00	89.350	147.490	7112.34	8474.84	-7573.55	3872.97	1754497.75	14443625.25	39°46'15.7948"N	80°35'38.3820"W	8506.38	152.916	0.84	-0.78	-0.32
18165.00	89.260	147.680	7113.43	8564.83	-7649.52	3921.21	1754545.97	14443549.31	39°46'15.0418"N	80°35'37.7686"W	8595.99	152.850	0.23	-0.10	0.21
18256.00	89.540	147.960	7114.39	8655.83	-7726.54	3969.68	1754594.42	14443472.32	39°46'14.2785"N	80°35'37.1524"W	8686.64	152.807	0.44	0.31	0.31
18347.00	89.380	147.810	7115.24	8746.82	-7803.61	4018.05	1754642.77	14443395.28	39°46'13.5147"N	80°35'36.5373"W	8777.30	152.756	0.24	-0.18	-0.16
18437.00	89.080	147.480	7116.45	8836.81	-7879.63	4066.21	1754690.91	14443319.29	39°46'12.7613"N	80°35'35.9250"W	8866.94	152.704	0.50	-0.33	-0.37

RECEIVED  
Office of Oil and Gas

NOV 23 2020

WV Department of  
Environmental Protection





**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 9 of 12



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 6H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H			

WELLPATH DATA (242 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)
18528.00	88.860	147.840	7118.09	8927.80	-7956.50	4114.88	1754739.57	14443242.45	39°46'11.9994"N	80°35'35.3061"W	8957.58	152.653	0.46	-0.24	0.40
18618.00	88.860	148.130	7119.88	9017.78	-8032.80	4162.59	1754787.25	14443166.18	39°46'11.2432"N	80°35'34.6997"W	9047.26	152.607	0.32	0.00	0.32
18709.00	89.230	148.130	7121.40	9108.77	-8110.07	4210.63	1754835.27	14443088.94	39°46'10.4774"N	80°35'34.0889"W	9137.98	152.562	0.41	0.41	0.00
18800.00	88.770	147.570	7122.98	9199.75	-8187.10	4259.04	1754883.67	14443011.94	39°46'9.7140"N	80°35'33.4734"W	9228.66	152.516	0.80	-0.51	-0.62
18890.00	89.170	148.390	7124.60	9289.74	-8263.40	4306.76	1754931.36	14442935.67	39°46'8.9578"N	80°35'32.8668"W	9318.36	152.472	1.01	0.44	0.91
18981.00	88.860	149.120	7126.17	9380.71	-8341.19	4353.95	1754978.54	14442857.91	39°46'8.1870"N	80°35'32.2669"W	9409.16	152.436	0.87	-0.34	0.80
19072.00	89.940	148.150	7127.12	9471.70	-8418.88	4401.31	1755025.88	14442780.25	39°46'7.4170"N	80°35'31.6649"W	9499.95	152.400	1.60	1.19	-1.07
19162.00	89.320	147.510	7127.70	9561.70	-8495.06	4449.23	1755073.78	14442704.10	39°46'6.6620"N	80°35'31.0557"W	9589.67	152.357	0.99	-0.69	-0.71
19253.00	89.420	148.200	7128.70	9652.69	-8572.11	4497.64	1755122.18	14442627.08	39°46'5.8984"N	80°35'30.4402"W	9680.38	152.315	0.77	0.11	0.76
19343.00	89.260	147.300	7129.74	9742.68	-8648.22	4545.66	1755170.18	14442551.00	39°46'5.1441"N	80°35'29.8297"W	9770.09	152.273	1.02	-0.18	-1.00
19434.00	89.110	148.230	7131.03	9833.67	-8725.18	4594.20	1755218.69	14442474.07	39°46'4.3813"N	80°35'29.2126"W	9860.80	152.231	1.04	-0.16	1.02
19524.00	89.750	148.500	7131.93	9923.67	-8801.80	4641.40	1755265.88	14442397.47	39°46'3.6219"N	80°35'28.6126"W	9950.59	152.196	0.77	0.71	0.30
19615.00	90.950	148.100	7131.37	10014.66	-8879.22	4689.22	1755313.68	14442320.08	39°46'2.8546"N	80°35'28.0048"W	10041.38	152.161	1.39	1.32	-0.44
19706.00	89.350	147.280	7131.13	10105.66	-8956.13	4737.85	1755362.30	14442243.21	39°46'2.0924"N	80°35'27.3865"W	10132.10	152.121	1.98	-1.76	-0.90
19796.00	90.180	147.130	7131.50	10195.65	-9031.78	4786.60	1755411.02	14442167.58	39°46'1.3425"N	80°35'26.7666"W	10221.77	152.078	0.94	0.92	-0.17
19887.00	89.630	147.640	7131.65	10286.64	-9108.43	4835.65	1755460.05	14442090.96	39°46'0.5828"N	80°35'26.1430"W	10312.47	152.036	0.82	-0.60	0.56
19978.00	90.150	147.770	7131.83	10377.64	-9185.36	4884.27	1755508.65	14442014.07	39°45'59.8204"N	80°35'25.5249"W	10403.21	151.998	0.59	0.57	0.14
20068.00	89.690	147.630	7131.95	10467.64	-9261.43	4932.36	1755556.72	14441938.02	39°45'59.0664"N	80°35'24.9135"W	10492.96	151.962	0.53	-0.51	-0.16
20159.00	89.350	147.630	7132.72	10558.63	-9338.29	4981.08	1755605.42	14441861.20	39°45'58.3047"N	80°35'24.2941"W	10583.70	151.924	0.37	-0.37	0.00
20250.00	89.230	147.760	7133.84	10649.62	-9415.20	5029.71	1755654.03	14441784.32	39°45'57.5424"N	80°35'23.8759"W	10674.45	151.888	0.19	-0.13	0.14
20340.00	89.350	148.260	7134.96	10739.62	-9491.52	5077.38	1755701.69	14441708.02	39°45'56.7860"N	80°35'23.0698"W	10764.24	151.856	0.57	0.13	0.56
20431.00	89.200	147.820	7136.11	10830.61	-9568.72	5125.55	1755749.84	14441630.85	39°45'56.0209"N	80°35'22.4576"W	10855.03	151.824	0.51	-0.16	-0.48
20522.00	89.200	147.860	7137.38	10921.60	-9645.75	5173.98	1755798.25	14441553.85	39°45'55.2574"N	80°35'21.8419"W	10945.80	151.791	0.04	0.00	0.04
20612.00	89.050	148.290	7138.76	11011.59	-9722.13	5221.57	1755845.82	14441477.50	39°45'54.5005"N	80°35'21.2370"W	11035.60	151.761	0.51	-0.17	0.48
20703.00	88.980	147.850	7140.32	11102.57	-9799.35	5269.69	1755893.92	14441400.31	39°45'53.7351"N	80°35'20.6253"W	11126.40	151.730	0.49	-0.08	-0.48
20794.00	88.980	147.920	7141.94	11193.56	-9876.41	5318.06	1755942.27	14441323.28	39°45'52.9714"N	80°35'20.0104"W	11217.19	151.699	0.06	0.00	0.08
20884.00	88.950	147.920	7143.57	11283.55	-9952.66	5365.85	1755990.05	14441247.07	39°45'52.2157"N	80°35'19.4029"W	11306.98	151.669	0.03	-0.03	0.00
20975.00	88.650	147.140	7145.47	11374.52	-10029.41	5414.69	1756038.87	14441170.34	39°45'51.4549"N	80°35'18.7819"W	11397.72	151.636	0.92	-0.33	-0.86
21066.00	87.600	147.270	7148.45	11465.46	-10105.87	5463.95	1756088.11	14441093.91	39°45'50.6971"N	80°35'18.1556"W	11488.40	151.601	1.16	-1.15	0.14
21156.00	87.940	148.050	7151.95	11555.39	-10181.85	5512.06	1756136.20	14441017.96	39°45'49.9440"N	80°35'17.5440"W	11578.12	151.571	0.94	0.38	0.87

RECEIVED  
Office of Oil and Gas

NOV 23 2020

WV Department of  
Environmental Protection



# Actual Wellpath Report

Charles Jamison MSH 6H AWP Proj: 21230'  
Page 10 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH DATA (242 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]
21205.00	88.120	147.960	7153.64	11604.36	-10223.38	5538.01	1756162.14	14440976.45	39°45'49.5324"N	80°35'17.2142"W	11627.00	151.556	0.41	0.37	-0.16
21230.00 ‡	88.120	147.960	7154.46	11629.35	-10244.56	5551.26	1756175.39	14440955.27	39°45'49.3225"N	80°35'17.0457"W	11651.93	151.548	0.30	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Charles Jamison MSH 6H AWB Ref Wellpath: Charles Jamison MSH 6H AWP Proj: 21230'									
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	-0.13	0.28
17.5in Open Hole	100.00	452.00	352.00	100.00	451.94	-0.13	0.28	-3.96	5.01
13.375in Casing Surface	26.00	452.00	426.00	26.00	451.94	0.00	0.00	-3.96	5.01
12.25in Open Hole	452.00	2717.00	2265.00	451.94	2660.31	-3.96	5.01	254.56	-300.01
9.625in Casing Intermediate	26.00	2717.00	2691.00	26.00	2660.31	0.00	0.00	254.56	-300.01
8.75in Open Hole	2717.00	6422.00	3705.00	2660.31	5906.94	254.56	-300.01	1402.32	-1641.87
8.5in Open Hole	6422.00	21230.00	14808.00	5906.94	7154.46	1402.32	-1641.87	-10244.56	5551.26
5.5in Casing Production	26.00	21230.00	21204.00	26.00	7154.46	0.00	0.00	-10244.56	5551.26

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Charles Jamison MSH 6H LP Rev-3	7124.00	920.74	-1444.84	1749182.00	14452116.24	39°47'39.9731"N	80°36'46.0159"W	point
Charles Jamison MSH 6H BHL Rev-4	7261.96	-10253.11	5543.65	1756167.78	14440946.73	39°45'49.2384"N	80°35'17.1437"W	point

RECEIVED  
Office of Oil and Gas  
  
NOV 23 2020  
  
WV Department of  
Environmental Protection



**Actual Wellpath Report**  
 Charles Jamison MSH 6H AWP Proj: 21230'  
 Page 11 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

WELLPATH COMPOSITION - Ref Wellbore: Charles Jamison MSH 6H AWB Ref Wellpath: Charles Jamison MSH 6H AWP Proj: 21230'					
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	386.00	Gyrodatta 2015 - GC+WIR+DPIPE	01 Gyrodatta GC WIR DPIPE <17 1/2"> (50'-386')	Charles Jamison MSH 6H AWB	5/18/2020
386.00	2675.00	OWSG MWD rev2 + HRGM	02 Premier MWD <12 1/4"> (498'-2675')	Charles Jamison MSH 6H AWB	5/18/2020
2675.00	6349.00	OWSG MWD rev2 + HRGM	03 Premier MWD <8 3/4"> (2800'-6349')	Charles Jamison MSH 6H AWB	5/18/2020
6349.00	21230.00	BH AutoTrak Curve (2019) (Short spacing)	04 BH AT Curve <8 1/2"> (6397'-21205')	Charles Jamison MSH 6H AWB	5/18/2020

RECEIVED  
 Office of Oil and Gas  
 NOV 23 2020  
 WV Department of  
 Environmental Protection



**Actual Wellpath Report**  
Charles Jamison MSH 6H AWP Proj: 21230'  
Page 12 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 6H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 6H AWB
Slot	Slot 6H		

COMMENTS
Wellpath general comments API: 47-051-02294-0000 BH Job #: 110339061 Rig: SDC 46 Duration: 05/19/2020 - 05/25/2020

RECEIVED  
Office of Oil and Gas  
NOV 23 2020  
WV Department of  
Environmental Protection