



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 1 of 14



REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

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	6/26/2020 at 10:19:21 AM
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	-20.63	7.26	1750645.76	14451191.30	39°47'30.7658"N	80°36'27.3081"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	1363.30ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1363.30ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 10H)	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	147.99°

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



Actual Wellpath Report
Charles Jamison MSH 10H AWP Proj: 23974'
Page 2 of 14



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 10H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H			

WELLPATH DATA (311 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	311.700	0.00	0.00	0.00	0.00	1750645.76	14451191.30	39°47'30.7658"N	80°36'27.3081"W	0.00	0.000	0.00	0.00	0.00	
26.00	0.00	311.700	26.00	0.00	0.00	0.00	1750645.76	14451191.30	39°47'30.7658"N	80°36'27.3081"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.330	311.700	100.00	-0.20	0.14	-0.16	1750645.60	14451191.44	39°47'30.7672"N	80°36'27.3101"W	0.21	311.700	0.45	0.45	0.00	
125.00	0.330	313.340	125.00	-0.34	0.24	-0.27	1750645.49	14451191.54	39°47'30.7682"N	80°36'27.3115"W	0.36	312.031	0.04	0.00	6.56	
150.00	0.210	280.470	150.00	-0.44	0.30	-0.36	1750645.40	14451191.60	39°47'30.7687"N	80°36'27.3127"W	0.47	309.299	0.77	-0.48	-131.48	
175.00	0.200	281.200	175.00	-0.50	0.31	-0.45	1750645.31	14451191.61	39°47'30.7689"N	80°36'27.3139"W	0.55	304.843	0.04	-0.04	2.92	
200.00	0.190	255.300	200.00	-0.55	0.31	-0.53	1750645.23	14451191.61	39°47'30.7689"N	80°36'27.3149"W	0.62	300.290	0.35	-0.04	-103.60	
225.00	0.180	257.980	225.00	-0.57	0.29	-0.61	1750645.15	14451191.59	39°47'30.7687"N	80°36'27.3159"W	0.68	295.577	0.05	-0.04	10.72	
250.00	0.190	258.550	250.00	-0.60	0.28	-0.69	1750645.07	14451191.58	39°47'30.7686"N	80°36'27.3170"W	0.74	291.808	0.04	0.04	2.28	
275.00	0.180	258.370	275.00	-0.63	0.26	-0.77	1750644.99	14451191.56	39°47'30.7684"N	80°36'27.3180"W	0.81	288.678	0.04	-0.04	-0.72	
300.00	0.130	239.820	300.00	-0.64	0.24	-0.83	1750644.93	14451191.54	39°47'30.7682"N	80°36'27.3188"W	0.87	285.954	0.28	-0.20	-74.20	
325.00	0.120	228.130	325.00	-0.64	0.21	-0.88	1750644.88	14451191.51	39°47'30.7679"N	80°36'27.3193"W	0.90	283.244	0.11	-0.04	-46.76	
350.00	0.090	174.200	350.00	-0.62	0.17	-0.89	1750644.87	14451191.47	39°47'30.7675"N	80°36'27.3196"W	0.91	280.723	0.40	-0.12	-215.72	
375.00	0.120	198.490	375.00	-0.58	0.13	-0.90	1750644.86	14451191.42	39°47'30.7671"N	80°36'27.3197"W	0.91	277.902	0.21	0.12	97.16	
400.00	0.120	169.220	400.00	-0.54	0.07	-0.90	1750644.86	14451191.37	39°47'30.7666"N	80°36'27.3197"W	0.91	274.709	0.24	0.00	-117.08	
425.00	0.230	167.650	425.00	-0.47	0.00	-0.89	1750644.87	14451191.30	39°47'30.7658"N	80°36'27.3195"W	0.89	269.984	0.44	0.44	-6.28	
450.00	0.350	180.720	450.00	-0.36	-0.13	-0.88	1750644.88	14451191.17	39°47'30.7646"N	80°36'27.3194"W	0.89	261.866	0.55	0.48	52.28	
475.00	0.830	184.790	475.00	-0.15	-0.38	-0.89	1750644.87	14451190.92	39°47'30.7620"N	80°36'27.3196"W	0.97	246.863	1.93	1.92	16.28	
500.00	1.090	188.350	499.99	0.18	-0.80	-0.94	1750644.82	14451190.50	39°47'30.7579"N	80°36'27.3203"W	1.24	229.804	1.07	1.04	14.24	
525.00	1.460	187.780	524.99	0.60	-1.36	-1.02	1750644.74	14451189.95	39°47'30.7525"N	80°36'27.3213"W	1.69	217.155	1.48	1.48	-2.28	
550.00	1.530	188.630	549.98	1.10	-1.99	-1.12	1750644.65	14451189.31	39°47'30.7461"N	80°36'27.3225"W	2.29	209.216	0.29	0.28	3.40	
575.00	1.610	187.790	574.97	1.62	-2.67	-1.21	1750644.55	14451188.63	39°47'30.7394"N	80°36'27.3238"W	2.93	204.415	0.33	0.32	-3.36	
600.00	1.610	187.200	599.96	2.16	-3.37	-1.30	1750644.46	14451187.93	39°47'30.7326"N	80°36'27.3250"W	3.61	201.171	0.07	0.00	-2.36	
625.00	1.650	188.080	624.95	2.71	-4.07	-1.40	1750644.36	14451187.23	39°47'30.7256"N	80°36'27.3263"W	4.31	198.958	0.19	0.16	3.52	
650.00	1.680	186.320	649.94	3.28	-4.79	-1.49	1750644.27	14451186.51	39°47'30.7185"N	80°36'27.3275"W	5.02	197.288	0.24	0.12	-7.04	
675.00	1.550	186.210	674.93	3.83	-5.49	-1.57	1750644.19	14451185.81	39°47'30.7116"N	80°36'27.3285"W	5.71	195.919	0.52	-0.52	-0.44	
700.00	0.560	173.900	699.92	4.20	-5.95	-1.59	1750644.17	14451185.35	39°47'30.7070"N	80°36'27.3288"W	6.16	194.963	4.04	-3.96	-49.24	
725.00	0.220	103.210	724.92	4.35	-6.08	-1.53	1750644.23	14451185.22	39°47'30.7057"N	80°36'27.3281"W	6.27	194.124	2.12	-1.36	-282.76	
750.00	0.290	71.870	749.92	4.40	-6.08	-1.42	1750644.34	14451185.23	39°47'30.7058"N	80°36'27.3267"W	6.24	193.192	0.61	0.28	-125.36	
775.00	0.310	60.460	774.92	4.42	-6.02	-1.31	1750644.46	14451185.28	39°47'30.7063"N	80°36'27.3252"W	6.16	192.228	0.25	0.08	-45.64	

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 3 of 14



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 10H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 10H AWP
Slot	Slot 10H			

WELLPATH DATA (311 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]	
800.00	0.450	53.580	799.92	4.41	-5.93	-1.17	1750644.59	14451185.37	39°47'30.7072"N	80°36'27.3234"W	6.05	191.135	0.59	0.56	-27.52	
825.00	0.410	56.160	824.92	4.40	-5.82	-1.01	1750644.75	14451185.48	39°47'30.7083"N	80°36'27.3214"W	5.91	189.879	0.18	-0.16	10.32	
850.00	0.450	48.420	849.92	4.38	-5.71	-0.87	1750644.89	14451185.59	39°47'30.7094"N	80°36'27.3195"W	5.77	188.630	0.28	0.16	-30.96	
875.00	0.430	53.050	874.92	4.36	-5.59	-0.72	1750645.04	14451185.72	39°47'30.7106"N	80°36'27.3176"W	5.63	187.323	0.16	-0.08	18.52	
900.00	0.450	53.750	899.92	4.34	-5.47	-0.56	1750645.20	14451185.83	39°47'30.7117"N	80°36'27.3156"W	5.50	185.883	0.08	0.08	2.80	
925.00	0.450	52.040	924.92	4.32	-5.35	-0.41	1750645.35	14451185.95	39°47'30.7129"N	80°36'27.3136"W	5.37	184.350	0.05	0.00	-6.84	
950.00	0.340	50.900	949.92	4.30	-5.25	-0.27	1750645.49	14451186.06	39°47'30.7140"N	80°36'27.3119"W	5.25	182.971	0.44	-0.44	-4.56	
975.00	0.070	311.880	974.92	4.28	-5.19	-0.23	1750645.53	14451186.11	39°47'30.7145"N	80°36'27.3113"W	5.19	182.495	1.43	-1.08	-396.08	
1000.00	0.090	261.050	999.92	4.26	-5.18	-0.26	1750645.50	14451186.12	39°47'30.7146"N	80°36'27.3117"W	5.19	182.837	0.28	0.08	-203.32	
1025.00	0.310	240.180	1024.92	4.25	-5.22	-0.33	1750645.43	14451186.08	39°47'30.7142"N	80°36'27.3127"W	5.23	183.672	0.91	0.88	-83.48	
1050.00	0.460	236.380	1049.92	4.25	-5.31	-0.48	1750645.28	14451185.99	39°47'30.7133"N	80°36'27.3145"W	5.33	185.137	0.61	0.60	-15.20	
1075.00	0.540	234.000	1074.92	4.26	-5.43	-0.66	1750645.10	14451185.87	39°47'30.7121"N	80°36'27.3168"W	5.47	186.885	0.33	0.32	-9.52	
1100.00	0.590	230.820	1099.91	4.28	-5.58	-0.85	1750644.91	14451185.72	39°47'30.7106"N	80°36'27.3193"W	5.65	188.667	0.24	0.20	-12.72	
1125.00	0.650	228.530	1124.91	4.32	-5.76	-1.06	1750644.70	14451185.54	39°47'30.7089"N	80°36'27.3220"W	5.86	190.402	0.26	0.24	-9.16	
1150.00	0.680	228.140	1149.91	4.37	-5.95	-1.27	1750644.49	14451185.35	39°47'30.7070"N	80°36'27.3248"W	6.09	192.081	0.12	0.12	-1.58	
1175.00	0.680	228.800	1174.91	4.42	-6.15	-1.50	1750644.26	14451185.15	39°47'30.7051"N	80°36'27.3276"W	6.33	193.675	0.03	0.00	2.64	
1200.00	0.670	229.010	1199.91	4.47	-6.34	-1.72	1750644.04	14451184.96	39°47'30.7032"N	80°36'27.3305"W	6.57	195.157	0.04	-0.04	0.84	
1225.00	0.550	236.990	1224.91	4.49	-6.50	-1.93	1750643.83	14451184.80	39°47'30.7016"N	80°36'27.3332"W	6.78	196.520	0.59	-0.48	31.92	
1250.00	0.270	273.900	1249.91	4.46	-6.56	-2.09	1750643.67	14451184.74	39°47'30.7010"N	80°36'27.3352"W	6.89	197.646	1.49	-1.12	147.64	
1275.00	0.110	316.170	1274.91	4.40	-6.54	-2.16	1750643.60	14451184.76	39°47'30.7012"N	80°36'27.3362"W	6.89	198.297	0.81	-0.64	169.08	
1300.00	0.180	354.490	1299.91	4.34	-6.49	-2.18	1750643.58	14451184.82	39°47'30.7018"N	80°36'27.3365"W	6.84	198.608	0.46	0.28	153.28	
1325.00	0.320	4.100	1324.91	4.25	-6.38	-2.18	1750643.58	14451184.92	39°47'30.7028"N	80°36'27.3364"W	6.74	198.893	0.58	0.56	38.44	
1350.00	0.250	13.130	1349.91	4.16	-6.26	-2.17	1750643.60	14451185.05	39°47'30.7041"N	80°36'27.3362"W	6.62	199.094	0.33	-0.28	36.12	
1375.00	0.380	18.090	1374.90	4.06	-6.12	-2.13	1750643.63	14451185.18	39°47'30.7054"N	80°36'27.3357"W	6.48	199.157	0.53	0.52	19.84	
1400.00	0.510	25.380	1399.90	3.95	-5.94	-2.05	1750643.71	14451185.36	39°47'30.7071"N	80°36'27.3348"W	6.29	199.061	0.57	0.52	29.16	
1425.00	1.170	41.780	1424.90	3.82	-5.65	-1.84	1750643.92	14451185.65	39°47'30.7100"N	80°36'27.3320"W	5.94	197.993	2.78	2.64	65.60	
1450.00	1.640	50.110	1449.89	3.70	-5.23	-1.39	1750644.37	14451186.07	39°47'30.7141"N	80°36'27.3262"W	5.42	194.890	2.05	1.88	33.32	
1475.00	1.920	46.390	1474.88	3.57	-4.72	-0.81	1750644.95	14451186.59	39°47'30.7192"N	80°36'27.3188"W	4.79	189.793	1.21	1.12	-14.88	
1500.00	2.020	46.500	1499.87	3.40	-4.12	-0.19	1750645.57	14451187.18	39°47'30.7250"N	80°36'27.3108"W	4.13	182.653	0.40	0.40	0.44	
1525.00	2.210	45.430	1524.85	3.20	-3.48	0.47	1750646.23	14451187.82	39°47'30.7314"N	80°36'27.3023"W	3.51	172.281	0.78	0.76	-4.28	

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 4 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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]	
1550.00	2.480	45.250	1549.83	2.98	-2.76	1.20	1750646.96	14451188.54	39°47'30.7384"N	80°36'27.2929"W	3.01	156.531	1.08	1.08	-0.72	
1575.00	3.070	39.340	1574.80	2.64	-1.86	2.01	1750647.77	14451189.44	39°47'30.7473"N	80°36'27.2825"W	2.74	132.871	2.62	2.36	-23.64	
1596.00	3.320	37.950	1595.77	2.26	-0.95	2.74	1750648.50	14451190.35	39°47'30.7563"N	80°36'27.2731"W	2.90	109.126	1.25	1.19	-6.62	
1708.00	5.690	18.440	1707.42	-2.39	6.88	6.49	1750652.25	14451198.17	39°47'30.8335"N	80°36'27.2246"W	9.46	43.343	2.49	2.12	-17.42	
1829.00	8.340	3.870	1827.51	-13.32	21.33	8.98	1750654.74	14451212.02	39°47'30.9762"N	80°36'27.1919"W	23.14	22.835	2.62	2.19	-12.04	
1889.00	9.100	354.310	1886.82	-21.10	30.39	8.80	1750654.56	14451221.68	39°47'31.0657"N	80°36'27.1936"W	31.64	16.156	2.72	1.27	-15.93	
1980.00	10.900	344.480	1976.44	-35.80	45.84	5.79	1750651.54	14451237.12	39°47'31.2186"N	80°36'27.2314"W	46.21	7.195	2.72	1.98	-10.80	
2072.00	13.390	336.250	2066.38	-54.69	63.98	-0.83	1750644.93	14451255.25	39°47'31.3981"N	80°36'27.3152"W	63.98	359.255	3.29	2.71	-8.95	
2165.00	15.210	343.550	2156.50	-77.10	85.54	-8.63	1750637.14	14451276.81	39°47'31.6115"N	80°36'27.4138"W	85.97	354.242	2.75	1.96	7.85	
2256.00	16.800	340.980	2243.97	-101.42	109.42	-16.29	1750629.47	14451300.68	39°47'31.8479"N	80°36'27.5107"W	110.63	351.531	1.91	1.75	-2.82	
2347.00	17.240	343.130	2330.99	-127.25	134.76	-24.49	1750621.28	14451326.01	39°47'32.0986"N	80°36'27.6143"W	136.97	349.700	0.84	0.48	2.36	
2438.00	16.550	347.250	2418.06	-152.51	160.31	-31.27	1750614.51	14451351.55	39°47'32.3514"N	80°36'27.6996"W	163.33	348.964	1.52	-0.76	4.53	
2528.00	16.230	352.300	2504.41	-176.07	185.27	-35.78	1750609.99	14451376.50	39°47'32.5983"N	80°36'27.7561"W	188.70	349.070	1.62	-0.36	5.61	
2619.00	13.780	353.620	2592.30	-197.43	208.65	-38.69	1750607.09	14451399.87	39°47'32.8295"N	80°36'27.7920"W	212.21	349.495	2.72	-2.69	1.45	
2658.00	13.040	353.620	2630.24	-205.59	217.64	-39.69	1750606.08	14451408.86	39°47'32.9184"N	80°36'27.8044"W	221.23	349.664	1.90	-1.90	0.00	
2742.00	11.420	351.070	2712.33	-221.79	235.27	-42.04	1750603.74	14451426.48	39°47'33.0927"N	80°36'27.8334"W	239.00	349.870	2.03	-1.93	-3.04	
2833.00	14.400	349.190	2801.02	-240.63	255.29	-45.56	1750600.22	14451446.49	39°47'33.2907"N	80°36'27.8774"W	259.33	349.882	3.31	3.27	-2.07	
2920.00	20.140	348.430	2884.06	-264.77	280.61	-50.60	1750595.18	14451471.81	39°47'33.5412"N	80°36'27.9405"W	285.14	349.779	6.60	6.60	-0.87	
3011.00	24.370	349.950	2968.27	-296.87	314.46	-57.02	1750588.76	14451505.64	39°47'33.8760"N	80°36'28.0209"W	319.59	349.723	4.69	4.65	1.67	
3101.00	28.140	349.410	3048.97	-333.87	353.62	-84.16	1750581.62	14451544.79	39°47'34.2633"N	80°36'28.1102"W	359.40	349.716	4.20	4.19	-0.60	
3192.00	31.140	348.080	3128.05	-375.95	397.75	-72.97	1750572.82	14451588.90	39°47'34.6997"N	80°36'28.2206"W	404.39	349.605	3.37	3.30	-1.46	
3283.00	33.210	346.850	3205.07	-421.64	445.04	-83.50	1750562.30	14451636.17	39°47'35.1676"N	80°36'28.3528"W	452.81	349.374	2.39	2.27	-1.35	
3373.00	33.570	345.660	3280.22	-468.67	493.15	-95.27	1750550.53	14451684.26	39°47'35.6435"N	80°36'28.5009"W	502.27	349.066	0.83	0.40	-1.32	
3464.00	34.520	343.890	3355.62	-517.44	542.30	-108.65	1750537.15	14451733.39	39°47'36.1299"N	80°36'28.6696"W	553.08	348.670	1.51	1.04	-1.95	
3555.00	33.630	340.080	3431.01	-566.89	590.77	-124.40	1750521.41	14451781.84	39°47'36.6095"N	80°36'28.8686"W	603.73	348.109	2.54	-0.98	-4.19	
3645.00	35.030	341.390	3505.33	-616.39	638.69	-141.13	1750504.68	14451829.74	39°47'37.0838"N	80°36'29.0803"W	654.09	347.539	1.76	1.56	1.46	
3736.00	35.580	345.620	3579.60	-667.03	689.09	-156.04	1750489.78	14451880.12	39°47'37.5825"N	80°36'29.2685"W	706.54	347.241	2.75	0.60	4.65	
3826.00	36.170	348.170	3652.53	-716.92	740.45	-167.99	1750477.83	14451931.46	39°47'38.0906"N	80°36'29.4187"W	759.27	347.217	1.78	0.66	2.83	
3918.00	34.070	347.290	3727.78	-766.73	792.17	-179.23	1750466.60	14451983.16	39°47'38.6022"N	80°36'29.5597"W	812.19	347.251	2.35	-2.28	-0.96	
4011.00	32.300	346.400	3805.61	-814.89	841.73	-190.80	1750455.03	14452032.71	39°47'39.0925"N	80°36'29.7053"W	863.09	347.228	1.97	-1.90	-0.96	

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 5 of 14



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 10H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H			

WELLPATH DATA (311 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]
4103.00	33.070	343.630	3883.05	-862.39	889.71	-203.66	1750442.18	14452080.67	39°47'39.5672"N	80°36'29.8673"W	912.72	347.107	1.83	0.84	-3.01
4195.00	32.410	343.620	3960.43	-910.30	937.45	-217.69	1750428.16	14452128.38	39°47'40.0396"N	80°36'30.0443"W	962.39	346.927	0.72	-0.72	-0.01
4288.00	31.520	344.440	4039.33	-957.62	984.78	-231.24	1750414.61	14452175.70	39°47'40.5080"N	80°36'30.2152"W	1011.56	346.786	1.06	-0.96	0.88
4380.00	31.700	343.240	4117.68	-1004.01	1031.09	-244.66	1750401.20	14452221.99	39°47'40.9662"N	80°36'30.3846"W	1059.72	346.652	0.71	0.20	-1.30
4472.00	31.520	344.720	4196.03	-1050.36	1077.44	-257.97	1750387.89	14452268.32	39°47'41.4248"N	80°36'30.5525"W	1107.89	346.535	0.87	-0.20	1.61
4565.00	31.860	342.750	4275.17	-1097.37	1124.33	-271.65	1750374.21	14452315.19	39°47'41.8888"N	80°36'30.7252"W	1156.68	346.417	1.17	0.37	-2.12
4657.00	31.210	344.600	4353.58	-1143.70	1170.50	-285.18	1750360.69	14452361.35	39°47'42.3457"N	80°36'30.8959"W	1204.74	346.307	1.27	-0.71	2.01
4747.00	30.600	344.880	4430.80	-1187.96	1215.10	-297.35	1750348.53	14452405.92	39°47'42.7869"N	80°36'31.0493"W	1250.95	346.249	0.70	-0.68	0.31
4838.00	30.440	341.620	4509.20	-1232.53	1259.33	-310.66	1750335.22	14452450.15	39°47'43.2247"N	80°36'31.2174"W	1297.09	346.143	1.83	-0.18	-3.58
4928.00	30.710	344.540	4586.69	-1276.72	1303.12	-323.98	1750321.91	14452493.92	39°47'43.6580"N	80°36'31.3855"W	1342.79	346.038	1.68	0.30	3.24
5019.00	30.670	347.040	4664.95	-1320.93	1348.14	-335.38	1750310.51	14452538.91	39°47'44.1034"N	80°36'31.5290"W	1389.23	346.030	1.40	-0.04	2.75
5110.00	31.230	345.520	4742.99	-1365.37	1393.60	-346.48	1750299.42	14452584.36	39°47'44.5531"N	80°36'31.6687"W	1436.02	346.038	1.06	0.62	-1.67
5200.00	31.120	346.570	4820.00	-1409.66	1438.81	-357.71	1750288.18	14452629.55	39°47'45.0004"N	80°36'31.8102"W	1482.61	346.038	0.62	-0.12	1.17
5291.00	30.780	345.080	4898.04	-1454.21	1484.18	-369.17	1750276.73	14452674.91	39°47'45.4493"N	80°36'31.9544"W	1529.41	346.032	0.92	-0.37	-1.64
5384.00	32.050	344.700	4977.41	-1500.59	1530.98	-381.81	1750264.10	14452721.69	39°47'45.9123"N	80°36'32.1137"W	1577.87	345.997	1.38	1.37	-0.41
5475.00	32.440	345.950	5054.37	-1546.93	1577.95	-394.11	1750251.81	14452768.63	39°47'46.3770"N	80°36'32.2686"W	1626.42	345.977	0.85	0.43	1.37
5565.00	31.420	346.970	5130.76	-1592.08	1624.22	-405.26	1750240.66	14452814.89	39°47'46.8348"N	80°36'32.4089"W	1674.01	345.990	1.28	-1.13	1.13
5656.00	30.690	344.200	5208.72	-1636.81	1669.68	-416.93	1750228.99	14452860.33	39°47'47.2845"N	80°36'32.5558"W	1720.94	345.980	1.76	-0.80	-3.04
5747.00	30.860	343.730	5286.98	-1681.44	1714.30	-429.75	1750216.17	14452904.93	39°47'47.7260"N	80°36'32.7176"W	1767.34	345.927	0.27	-0.03	-0.52
5837.00	30.700	345.570	5364.39	-1725.43	1758.57	-441.91	1750204.03	14452949.19	39°47'48.1641"N	80°36'32.8709"W	1813.25	345.894	1.04	0.04	2.04
5928.00	30.810	346.840	5442.59	-1769.63	1803.76	-453.00	1750192.93	14452994.36	39°47'48.6112"N	80°36'33.0105"W	1859.78	345.902	0.72	0.12	1.40
6019.00	32.610	348.020	5520.00	-1814.73	1850.45	-463.40	1750182.54	14453041.03	39°47'49.0730"N	80°36'33.1411"W	1907.59	345.941	2.09	1.98	1.30
6109.00	32.960	346.790	5595.67	-1860.69	1898.01	-474.03	1750171.92	14453088.57	39°47'49.5435"N	80°36'33.2746"W	1956.31	345.977	0.84	0.39	-1.37
6200.00	32.770	344.160	5672.11	-1907.78	1945.80	-486.41	1750159.54	14453136.35	39°47'50.0163"N	80°36'33.4305"W	2005.67	345.965	1.58	-0.21	-2.89
6291.00	32.720	342.670	5748.65	-1955.23	1992.97	-500.45	1750145.50	14453183.50	39°47'50.4831"N	80°36'33.6079"W	2054.85	345.904	0.89	-0.05	-1.64
6381.00	32.440	345.290	5824.49	-2001.81	2039.54	-513.83	1750132.13	14453230.05	39°47'50.9439"N	80°36'33.7766"W	2103.27	345.860	1.60	-0.31	2.91
6432.00	32.210	346.170	5887.59	-2027.78	2065.97	-520.55	1750125.41	14453276.47	39°47'51.2054"N	80°36'33.8613"W	2150.54	345.858	1.03	-0.45	1.73
6523.00	31.650	345.460	5944.82	-2073.60	2112.63	-532.34	1750113.62	14453323.11	39°47'51.6670"N	80°36'34.0097"W	2178.67	345.857	0.74	-0.62	-0.78
6613.00	26.580	345.840	6023.42	-2115.31	2155.04	-543.21	1750102.77	14453369.50	39°47'52.0866"N	80°36'34.1465"W	2222.45	345.853	5.64	-5.63	0.42
6704.00	21.200	343.930	6106.59	-2150.54	2190.62	-552.75	1750093.23	14453416.07	39°47'52.4386"N	80°36'34.2668"W	2259.28	345.838	5.97	-5.91	-2.10

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



Actual Wellpath Report
Charles Jamison MSH 10H AWP Proj: 23974'
Page 6 of 14



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 10H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H			

WELLPATH DATA (311 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)
6795.00	15.130	352.120	6193.03	-2177.23	2218.22	-558.94	1750087.04	14453408.66	39°47'52.7117"N	80°36'34.3445"W	2287.56	345.857	7.22	-6.67	9.00
6885.00	9.390	3.690	6280.96	-2193.93	2237.20	-560.08	1750085.90	14453427.63	39°47'52.8993"N	80°36'34.3581"W	2306.24	345.945	6.91	-6.38	12.86
6976.00	5.750	43.970	6371.21	-2201.07	2247.90	-556.43	1750089.55	14453438.33	39°47'53.0049"N	80°36'34.3108"W	2315.74	346.097	6.84	-4.00	44.28
7067.00	5.780	108.620	6461.83	-2198.62	2249.72	-548.91	1750097.06	14453440.15	39°47'53.0225"N	80°36'34.2144"W	2315.72	346.288	6.77	0.03	71.04
7158.00	9.940	135.600	6551.99	-2187.40	2242.64	-539.07	1750106.90	14453433.07	39°47'52.9522"N	80°36'34.0886"W	2306.52	346.484	5.99	4.57	29.65
7248.00	16.720	152.840	6639.54	-2166.88	2225.55	-527.71	1750118.26	14453415.98	39°47'52.7827"N	80°36'33.9440"W	2287.25	346.661	8.65	7.53	19.16
7339.00	23.330	148.900	6725.00	-2135.79	2198.44	-512.41	1750133.55	14453388.88	39°47'52.5142"N	80°36'33.7495"W	2257.36	346.880	7.41	7.26	-4.33
7430.00	29.700	145.680	6806.39	-2095.20	2164.35	-490.37	1750155.58	14453354.81	39°47'52.1764"N	80°36'33.4690"W	2219.21	347.234	7.17	7.00	-3.54
7520.00	37.500	145.240	6881.29	-2045.49	2123.37	-462.13	1750183.81	14453313.85	39°47'51.7701"N	80°36'33.1096"W	2173.08	347.722	8.67	8.67	-0.49
7611.00	46.200	145.270	6949.01	-1984.90	2073.53	-427.57	1750218.36	14453264.02	39°47'51.2761"N	80°36'32.6695"W	2117.15	348.349	9.56	9.56	0.03
7702.00	53.820	146.100	7007.45	-1915.29	2015.97	-388.31	1750257.60	14453206.49	39°47'50.7056"N	80°36'32.1699"W	2053.03	349.097	8.40	8.37	0.91
7793.00	62.750	146.520	7055.24	-1837.99	1951.62	-345.43	1750300.47	14453142.16	39°47'50.0678"N	80°36'31.6240"W	1981.95	349.963	9.82	9.81	0.46
7883.00	71.590	147.310	7090.13	-1755.13	1882.18	-300.21	1750345.67	14453072.75	39°47'49.3796"N	80°36'31.0486"W	1905.97	350.938	9.86	9.82	0.88
7974.00	75.230	148.250	7116.11	-1667.94	1808.41	-253.72	1750392.13	14452999.00	39°47'48.6485"N	80°36'30.4572"W	1826.12	352.013	4.12	4.00	1.03
8064.00	79.690	148.880	7135.64	-1580.11	1733.46	-207.92	1750437.92	14452924.09	39°47'47.9059"N	80°36'29.8746"W	1745.89	353.160	5.00	4.96	0.70
8155.00	86.270	148.880	7146.76	-1489.86	1656.19	-161.27	1750484.55	14452846.84	39°47'47.1402"N	80°36'29.2812"W	1664.02	354.438	7.23	7.23	0.00
8246.00	89.290	147.470	7150.28	-1398.94	1578.94	-113.32	1750532.48	14452769.62	39°47'46.3747"N	80°36'28.6713"W	1583.00	355.895	3.66	3.32	-1.55
8336.00	89.420	147.030	7151.30	-1308.95	1503.25	-64.64	1750581.15	14452693.97	39°47'45.6246"N	80°36'28.0518"W	1504.64	357.538	0.51	0.14	-0.49
8427.00	89.420	146.570	7152.22	-1217.98	1427.11	-14.81	1750630.95	14452617.85	39°47'44.8699"N	80°36'27.4177"W	1427.18	359.405	0.51	0.00	-0.51
8518.00	89.880	147.690	7152.77	-1126.99	1350.68	34.57	1750680.32	14452541.45	39°47'44.1125"N	80°36'26.7893"W	1351.12	1.466	1.33	0.51	1.23
8608.00	87.970	146.850	7154.46	-1037.02	1274.99	83.22	1750728.95	14452465.79	39°47'43.3623"N	80°36'26.1703"W	1277.70	3.735	2.32	-2.12	-0.93
8699.00	88.550	147.660	7157.23	-946.07	1198.48	132.42	1750778.13	14452389.32	39°47'42.6042"N	80°36'25.5443"W	1205.78	6.305	1.09	0.64	0.89
8790.00	87.720	146.780	7160.19	-855.13	1122.02	181.66	1750827.35	14452312.88	39°47'41.8463"N	80°36'24.9178"W	1136.63	9.197	1.33	-0.91	-0.97
8880.00	89.480	147.940	7162.39	-765.16	1046.26	230.19	1750875.86	14452237.15	39°47'41.0955"N	80°36'24.3004"W	1071.28	12.408	2.34	1.96	1.29
8971.00	89.080	147.710	7163.53	-674.17	969.24	278.64	1750924.29	14452160.16	39°47'40.3323"N	80°36'23.6839"W	1008.50	16.039	0.51	-0.44	-0.25
9062.00	88.950	146.930	7165.09	-583.19	892.65	327.77	1750973.40	14452083.61	39°47'39.5733"N	80°36'23.0589"W	950.93	20.163	0.87	-0.14	-0.86
9152.00	88.920	146.680	7166.77	-493.23	817.35	377.04	1751022.65	14452008.34	39°47'38.8270"N	80°36'22.4320"W	900.12	24.763	0.28	-0.03	-0.28
9243.00	89.910	148.040	7167.70	-402.24	740.73	426.11	1751071.71	14451931.74	39°47'38.0676"N	80°36'21.8075"W	854.55	29.910	1.85	1.09	1.49
9334.00	90.150	148.020	7167.65	-311.24	663.53	474.30	1751119.87	14451854.58	39°47'37.3026"N	80°36'21.1946"W	815.62	35.557	0.26	0.26	-0.02
9424.00	89.510	146.940	7167.92	-221.25	587.85	522.68	1751168.23	14451778.72	39°47'36.5506"N	80°36'20.5791"W	786.46	41.651	1.39	-0.71	-1.20

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 7 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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]
9515.00	89.940	146.850	7168.35	-130.26	511.42	572.38	1751217.92	14451702.52	39°47'35.7951"N	80°36'19.9467"W	767.57	48.219	0.48	0.47	-0.10
9606.00	90.400	145.450	7168.08	-39.31	435.85	623.07	1751268.58	14451626.98	39°47'35.0460"N	80°36'19.3016"W	760.38	55.026	1.52	0.51	-1.54
9696.00	89.970	147.680	7167.79	50.65	360.75	672.65	1751318.15	14451551.91	39°47'34.3017"N	80°36'18.6706"W	763.28	61.795	2.52	-0.48	2.48
9787.00	90.340	147.510	7167.55	141.65	283.92	721.42	1751366.90	14451475.11	39°47'33.5403"N	80°36'18.0502"W	775.28	68.518	0.45	0.41	-0.19
9877.00	89.260	145.610	7167.86	231.62	208.82	771.01	1751416.47	14451400.04	39°47'32.7960"N	80°36'17.4191"W	798.79	74.845	2.43	-1.20	-2.11
9968.00	90.460	147.440	7168.08	322.58	132.92	821.20	1751466.64	14451324.17	39°47'32.0437"N	80°36'16.7804"W	831.89	80.806	2.40	1.32	2.01
10059.00	90.430	146.740	7167.38	413.57	56.53	870.64	1751516.06	14451247.81	39°47'31.2866"N	80°36'16.1514"W	872.47	86.285	0.77	-0.03	-0.77
10149.00	89.110	146.370	7167.74	503.53	-18.57	920.24	1751565.64	14451172.74	39°47'30.5423"N	80°36'15.5202"W	920.43	91.156	1.52	-1.47	-0.41
10240.00	90.800	145.890	7167.81	594.48	-94.12	970.96	1751616.34	14451097.21	39°47'29.7934"N	80°36'14.8748"W	975.51	95.537	1.93	1.86	-0.53
10331.00	90.220	146.930	7167.00	685.44	-169.92	1021.30	1751666.66	14451021.44	39°47'29.0421"N	80°36'14.2342"W	1035.34	99.446	1.31	-0.64	1.14
10421.00	89.970	146.740	7166.85	775.42	-245.26	1070.53	1751715.88	14450946.13	39°47'28.2954"N	80°36'13.6078"W	1098.27	102.904	0.35	-0.28	-0.21
10512.00	89.910	148.640	7166.94	866.42	-322.17	1119.17	1751764.49	14450869.26	39°47'27.5332"N	80°36'12.9890"W	1164.62	106.059	2.09	-0.07	2.09
10602.00	90.740	148.580	7166.43	956.41	-398.99	1166.05	1751811.35	14450792.46	39°47'26.7719"N	80°36'12.3929"W	1232.42	108.890	0.92	0.92	-0.07
10693.00	90.000	149.480	7165.85	1047.39	-477.02	1212.87	1751858.16	14450714.47	39°47'25.9988"N	80°36'11.7975"W	1303.30	111.470	1.28	-0.81	0.99
10784.00	89.970	149.570	7165.87	1138.36	-555.45	1259.02	1751904.29	14450636.07	39°47'25.2217"N	80°36'11.2107"W	1376.10	113.806	0.10	-0.03	0.10
10874.00	90.460	147.710	7165.53	1228.35	-632.29	1305.86	1751951.11	14450559.25	39°47'24.4602"N	80°36'10.6151"W	1450.88	115.836	2.14	0.54	-2.07
10965.00	90.550	149.600	7164.73	1319.34	-710.01	1353.19	1751998.43	14450481.57	39°47'23.6901"N	80°36'10.0131"W	1528.15	117.686	2.08	0.10	2.08
11056.00	89.850	149.730	7164.41	1410.30	-788.55	1399.15	1752044.37	14450403.06	39°47'22.9119"N	80°36'9.4289"W	1606.06	119.405	0.78	-0.77	0.14
11146.00	89.690	145.950	7164.77	1500.28	-864.72	1447.05	1752092.25	14450326.91	39°47'22.1570"N	80°36'8.8196"W	1685.73	120.862	4.20	-0.18	-4.20
11237.00	90.370	148.900	7164.73	1591.26	-941.40	1496.04	1752141.22	14450250.27	39°47'21.3971"N	80°36'8.1964"W	1767.58	122.181	3.33	0.75	3.24
11327.00	90.180	149.210	7164.29	1681.25	-1018.59	1542.31	1752187.48	14450173.11	39°47'20.6322"N	80°36'7.6080"W	1848.31	123.442	0.40	-0.21	0.34
11418.00	89.570	148.580	7164.49	1772.23	-1096.50	1589.33	1752234.47	14450095.22	39°47'19.8602"N	80°36'7.0102"W	1930.87	124.602	0.96	-0.67	-0.69
11509.00	89.720	147.370	7165.06	1863.23	-1173.65	1637.58	1752282.70	14450018.10	39°47'19.0956"N	80°36'6.3964"W	2014.73	125.629	1.34	0.16	-1.33
11599.00	89.880	149.180	7165.37	1953.23	-1250.20	1684.90	1752330.01	14449941.59	39°47'18.3370"N	80°36'5.7946"W	2098.07	126.575	2.02	0.18	2.01
11690.00	90.950	149.050	7164.71	2044.20	-1328.29	1731.61	1752376.70	14449863.52	39°47'17.5632"N	80°36'5.2007"W	2182.39	127.491	1.18	1.18	-0.14
11781.00	90.740	148.220	7163.37	2135.19	-1405.99	1778.97	1752424.04	14449785.86	39°47'16.7933"N	80°36'4.5985"W	2267.50	128.321	0.94	-0.23	-0.91
11871.00	91.910	149.260	7161.29	2225.15	-1482.90	1825.66	1752470.71	14449708.98	39°47'16.0312"N	80°36'4.0048"W	2352.02	129.085	1.74	1.30	1.16
11962.00	90.000	148.410	7159.77	2316.13	-1560.75	1872.75	1752517.78	14449631.16	39°47'15.2598"N	80°36'3.4061"W	2437.85	129.808	2.30	-2.10	-0.93
12053.00	90.650	148.070	7159.26	2407.12	-1638.12	1920.64	1752565.66	14449553.82	39°47'14.4930"N	80°36'2.7969"W	2524.34	130.461	0.81	0.71	-0.37
12143.00	90.800	149.720	7158.12	2497.10	-1715.17	1967.13	1752612.13	14449478.79	39°47'13.7295"N	80°36'2.2058"W	2609.87	131.086	1.84	0.17	1.83

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



Actual Wellpath Report
Charles Jamison MSH 10H AWP Proj: 23974'
Page 8 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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]
12234.00	90.980	148.770	7156.70	2588.07	-1793.36	2013.66	1752658.64	14449398.63	39°47'12.9547"N	80°36'1.6142"W	2696.48	131.688	1.06	0.20	-1.04
12325.00	90.340	148.810	7155.65	2679.05	-1871.19	2060.81	1752705.77	14449320.84	39°47'12.1835"N	80°36'1.0147"W	2783.57	132.239	0.70	-0.70	0.04
12415.00	91.200	149.500	7154.45	2769.02	-1948.45	2106.95	1752751.89	14449243.61	39°47'11.4179"N	80°36'0.4281"W	2869.79	132.762	1.23	0.96	0.77
12506.00	90.180	148.720	7153.35	2860.00	-2026.53	2153.67	1752798.59	14449165.55	39°47'10.6442"N	80°35'59.8342"W	2957.21	133.258	1.41	-1.12	-0.86
12597.00	90.680	148.360	7152.67	2950.99	-2104.15	2201.16	1752846.06	14449087.96	39°47'9.8750"N	80°35'59.2303"W	3045.09	133.709	0.68	0.55	-0.40
12687.00	90.550	148.890	7151.70	3040.98	-2180.99	2248.01	1752892.90	14449011.16	39°47'9.1136"N	80°35'58.6345"W	3132.14	134.133	0.61	-0.14	0.59
12778.00	90.680	148.960	7150.72	3131.96	-2258.93	2294.98	1752939.85	14448933.25	39°47'8.3413"N	80°35'58.0373"W	3220.20	134.546	0.16	0.14	0.08
12869.00	90.950	147.960	7149.43	3222.95	-2336.47	2342.58	1752987.43	14448855.73	39°47'7.5728"N	80°35'57.4321"W	3308.59	134.925	1.14	0.30	-1.10
12960.00	91.050	149.270	7147.84	3313.93	-2414.15	2389.96	1753034.79	14448778.09	39°47'6.8031"N	80°35'56.8296"W	3397.06	135.288	1.44	0.11	1.44
13050.00	90.120	148.470	7146.92	3403.91	-2491.18	2436.48	1753081.30	14448701.09	39°47'6.0398"N	80°35'56.2380"W	3484.60	135.636	1.36	-1.03	-0.89
13141.00	90.490	148.020	7146.44	3494.91	-2568.56	2484.38	1753129.17	14448623.74	39°47'5.2730"N	80°35'55.6290"W	3573.46	135.954	0.64	0.41	-0.49
13231.00	90.310	147.310	7145.81	3584.90	-2644.60	2532.51	1753177.29	14448547.73	39°47'4.5194"N	80°35'55.0168"W	3661.63	136.240	0.81	-0.20	-0.79
13322.00	90.340	148.340	7145.29	3675.90	-2721.62	2580.97	1753225.73	14448470.74	39°47'3.7560"N	80°35'54.4005"W	3750.82	136.519	1.13	0.03	-1.13
13413.00	91.050	148.440	7144.19	3766.89	-2799.11	2628.66	1753273.40	14448393.27	39°47'2.9881"N	80°35'53.7940"W	3839.91	136.799	0.79	0.78	0.11
13503.00	90.980	149.060	7142.59	3856.87	-2876.04	2675.34	1753320.07	14448316.37	39°47'2.2258"N	80°35'53.2005"W	3927.99	137.071	0.69	-0.08	0.69
13594.00	90.950	148.830	7141.06	3947.84	-2953.99	2722.28	1753366.98	14448238.46	39°47'1.4534"N	80°35'52.6038"W	4017.07	137.338	0.25	-0.03	-0.25
13685.00	90.890	148.560	7139.60	4038.82	-3031.73	2769.56	1753414.24	14448160.75	39°47'0.6830"N	80°35'52.0027"W	4106.32	137.588	0.30	-0.07	-0.30
13776.00	90.710	150.310	7138.33	4129.78	-3110.08	2815.83	1753460.49	14448082.43	39°46'59.9067"N	80°35'51.4145"W	4195.41	137.843	1.93	-0.20	1.92
13866.00	90.800	148.620	7137.14	4219.74	-3187.58	2861.55	1753506.20	14448004.95	39°46'59.1387"N	80°35'50.8333"W	4283.59	138.085	1.88	0.10	-1.88
13957.00	90.120	148.650	7136.41	4310.73	-3265.28	2908.91	1753553.54	14447927.28	39°46'58.3687"N	80°35'50.2311"W	4373.08	138.303	0.75	-0.75	0.03
14048.00	90.520	147.990	7135.91	4401.73	-3342.72	2956.70	1753601.31	14447849.87	39°46'57.6013"N	80°35'49.6235"W	4462.72	138.507	0.85	0.44	-0.73
14138.00	90.430	150.820	7135.16	4491.69	-3420.18	3002.50	1753647.09	14447772.44	39°46'56.8337"N	80°35'49.0413"W	4551.12	138.721	3.15	-0.10	3.14
14229.00	91.790	147.250	7133.40	4582.64	-3498.19	3049.30	1753693.88	14447694.47	39°46'56.0608"N	80°35'48.4463"W	4640.64	138.922	4.20	1.49	-3.92
14320.00	89.850	149.140	7132.09	4673.62	-3575.51	3097.25	1753741.81	14447617.18	39°46'55.2945"N	80°35'47.8365"W	4730.46	139.100	2.98	-2.13	2.08
14410.00	90.620	148.920	7131.72	4763.61	-3652.67	3143.56	1753788.10	14447540.04	39°46'54.5298"N	80°35'47.2478"W	4819.13	139.284	0.89	0.86	-0.24
14501.00	91.820	149.600	7129.79	4854.56	-3730.87	3190.07	1753834.59	14447461.88	39°46'53.7550"N	80°35'46.6567"W	4908.76	139.468	1.52	1.32	0.75
14592.00	90.770	148.530	7127.73	4945.52	-3808.90	3236.83	1753881.34	14447383.88	39°46'52.9817"N	80°35'46.0621"W	4998.48	139.642	1.65	-1.15	-1.18
14682.00	90.060	148.430	7127.08	5035.51	-3885.62	3283.88	1753928.37	14447307.19	39°46'52.2215"N	80°35'45.4639"W	5087.43	139.798	0.80	-0.79	-0.11
14773.00	90.620	148.790	7126.54	5126.51	-3963.30	3331.28	1753975.75	14447229.54	39°46'51.4517"N	80°35'44.8613"W	5177.37	139.952	0.73	0.62	0.40
14864.00	90.550	149.140	7125.61	5217.49	-4041.27	3378.19	1754022.64	14447151.60	39°46'50.6790"N	80°35'44.2649"W	5267.26	140.107	0.39	-0.08	0.38

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 9 of 14



REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Charles Jamison MSH 10H
Field	Marshall		API/Legal	
Facility	Charles Jamison MSH Pad		Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H			

WELLPATH DATA (311 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)
14954.00	90.370	148.320	7124.89	5307.48	-4118.19	3424.91	1754069.34	14447074.71	39°46'49.9168"N	80°35'43.6710"W	5356.26	140.251	0.93	-0.20	-0.91
15045.00	91.170	148.480	7123.66	5398.46	-4195.69	3472.59	1754117.00	14446997.24	39°46'49.1487"N	80°35'43.0648"W	5446.35	140.387	0.90	0.88	0.18
15136.00	90.150	149.230	7122.62	5489.45	-4273.57	3519.65	1754164.04	14446919.39	39°46'48.3770"N	80°35'42.4666"W	5536.36	140.526	1.39	-1.12	0.82
15226.00	89.970	148.920	7122.52	5579.43	-4350.77	3565.90	1754210.28	14446842.21	39°46'47.6120"N	80°35'41.8786"W	5625.38	140.662	0.40	-0.20	-0.34
15317.00	89.970	147.860	7122.57	5670.43	-4428.27	3613.60	1754257.95	14446764.75	39°46'46.8439"N	80°35'41.2722"W	5715.56	140.785	1.16	0.00	-1.15
15408.00	90.370	148.710	7122.30	5761.42	-4505.68	3661.43	1754305.77	14446687.37	39°46'46.0768"N	80°35'40.6640"W	5805.80	140.902	1.03	0.44	0.93
15498.00	90.370	147.880	7121.72	5851.42	-4582.25	3708.73	1754353.05	14446610.83	39°46'45.3180"N	80°35'40.0626"W	5895.06	141.014	0.92	0.00	-0.92
15589.00	90.060	147.350	7121.38	5942.42	-4659.09	3757.47	1754401.77	14446534.01	39°46'44.5564"N	80°35'39.4428"W	5985.46	141.114	0.67	-0.34	-0.58
15679.00	90.490	148.180	7120.94	6032.41	-4735.22	3805.48	1754449.76	14446457.92	39°46'43.8019"N	80°35'38.8323"W	6074.86	141.213	1.04	0.48	0.92
15770.00	89.910	147.630	7120.63	6123.41	-4812.31	3853.82	1754498.09	14446380.86	39°46'43.0379"N	80°35'38.2175"W	6165.25	141.311	0.88	-0.64	-0.60
15861.00	90.090	147.470	7120.63	6214.41	-4889.10	3902.65	1754546.90	14446304.09	39°46'42.2768"N	80°35'37.5966"W	6255.72	141.402	0.26	0.20	-0.18
15951.00	90.030	147.420	7120.53	6304.41	-4964.96	3951.08	1754595.31	14446228.27	39°46'41.5249"N	80°35'36.9807"W	6345.23	141.487	0.09	-0.07	-0.06
16042.00	89.940	148.510	7120.56	6395.40	-5042.10	3999.35	1754643.56	14446151.15	39°46'40.7604"N	80°35'36.3670"W	6435.65	141.579	1.20	-0.10	1.20
16133.00	89.660	148.150	7120.87	6486.40	-5119.55	4047.13	1754691.32	14446073.74	39°46'39.9929"N	80°35'35.7595"W	6526.03	141.673	0.50	-0.31	-0.40
16223.00	89.780	147.640	7121.31	6576.40	-5195.79	4094.96	1754739.13	14445997.53	39°46'39.2373"N	80°35'35.1514"W	6615.50	141.757	0.58	0.13	-0.57
16314.00	89.910	147.630	7121.56	6667.40	-5272.65	4143.67	1754787.82	14445920.70	39°46'38.4755"N	80°35'34.5319"W	6706.03	141.837	0.14	0.14	-0.01
16404.00	90.000	147.900	7121.63	6757.40	-5348.78	4191.68	1754835.81	14445844.60	39°46'37.7210"N	80°35'33.9215"W	6795.56	141.915	0.32	0.10	0.30
16495.00	90.680	148.650	7121.09	6848.39	-5426.18	4239.53	1754883.64	14445767.23	39°46'36.9540"N	80°35'33.3131"W	6886.00	141.999	1.11	0.75	0.82
16586.00	90.180	147.960	7120.41	6939.39	-5503.60	4287.34	1754931.43	14445689.83	39°46'36.1867"N	80°35'32.7053"W	6976.45	142.081	0.94	-0.55	-0.76
16676.00	89.880	148.110	7120.35	7029.39	-5579.96	4334.98	1754979.06	14445613.51	39°46'35.4300"N	80°35'32.0995"W	7065.98	142.157	0.37	-0.33	0.17
16767.00	89.910	147.840	7120.53	7120.39	-5657.11	4383.24	1755027.30	14445536.39	39°46'34.6653"N	80°35'31.4860"W	7156.51	142.231	0.30	0.03	-0.30
16858.00	89.570	148.410	7120.94	7211.39	-5734.38	4431.29	1755075.33	14445459.14	39°46'33.8995"N	80°35'30.8750"W	7247.04	142.305	0.73	-0.37	0.63
16948.00	89.750	147.840	7121.47	7301.38	-5810.81	4478.82	1755122.84	14445382.74	39°46'33.1420"N	80°35'30.2708"W	7336.58	142.376	0.66	0.20	-0.63
17039.00	89.540	147.940	7122.04	7392.38	-5887.89	4527.19	1755171.19	14445305.70	39°46'32.3781"N	80°35'29.6558"W	7427.16	142.443	0.26	-0.23	0.11
17129.00	90.120	148.210	7122.31	7482.38	-5964.27	4574.78	1755218.77	14445229.34	39°46'31.6211"N	80°35'29.0507"W	7516.73	142.511	0.71	0.64	0.30
17220.00	89.720	148.080	7122.43	7573.38	-6041.57	4622.81	1755266.77	14445152.08	39°46'30.8551"N	80°35'28.4401"W	7607.29	142.578	0.46	-0.44	-0.14
17310.00	89.720	148.440	7122.87	7663.38	-6118.11	4670.15	1755314.10	14445075.57	39°46'30.0965"N	80°35'27.8382"W	7696.85	142.644	0.40	0.00	0.40
17401.00	89.880	147.960	7123.19	7754.38	-6195.45	4718.11	1755362.03	14444998.26	39°46'29.3300"N	80°35'27.2286"W	7787.43	142.709	0.56	0.18	-0.53
17492.00	89.510	147.810	7123.67	7845.38	-6272.52	4766.48	1755410.39	14444921.21	39°46'28.5662"N	80°35'26.6135"W	7878.06	142.769	0.44	-0.41	-0.16
17582.00	89.880	147.940	7124.16	7935.37	-6348.74	4814.34	1755458.23	14444845.02	39°46'27.8108"N	80°35'26.0050"W	7967.71	142.826	0.44	0.41	0.14

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 10 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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]
17673.00	89.750	148.100	7124.45	8026.37	-6425.93	4862.54	1755506.41	14444767.86	39°46'27.0458"N	80°35'25.3923"W	8058.34	142.885	0.23	-0.14	0.18
17763.00	89.010	147.770	7125.42	8116.37	-6502.19	4910.31	1755554.17	14444691.63	39°46'26.2899"N	80°35'24.7849"W	8147.99	142.941	0.90	-0.82	-0.37
17854.00	89.290	147.750	7126.77	8207.36	-6579.16	4958.85	1755602.69	14444614.70	39°46'25.5271"N	80°35'24.1677"W	8238.66	142.994	0.31	0.31	-0.02
17945.00	89.660	147.850	7127.60	8298.35	-6656.16	5007.34	1755651.16	14444537.73	39°46'24.7640"N	80°35'23.5512"W	8329.34	143.046	0.42	0.41	0.11
18035.00	89.570	148.730	7128.21	8388.35	-6732.72	5054.65	1755698.44	14444461.20	39°46'24.0052"N	80°35'22.9499"W	8418.96	143.102	0.98	-0.10	0.98
18126.00	89.290	148.040	7129.11	8479.34	-6810.21	5102.35	1755746.13	14444383.73	39°46'23.2372"N	80°35'22.3435"W	8509.58	143.159	0.82	-0.31	-0.76
18217.00	89.080	146.980	7130.41	8570.33	-6886.96	5151.22	1755794.98	14444307.02	39°46'22.4766"N	80°35'21.7220"W	8600.31	143.205	1.19	-0.23	-1.16
18307.00	89.260	147.910	7131.71	8660.31	-6962.81	5199.65	1755843.39	14444231.20	39°46'21.7248"N	80°35'21.1063"W	8690.05	143.249	1.05	0.20	1.03
18398.00	89.320	148.400	7132.84	8751.30	-7040.10	5247.66	1755891.38	14444153.93	39°46'20.9587"N	80°35'20.4960"W	8780.71	143.299	0.54	0.07	0.54
18489.00	88.890	147.380	7134.26	8842.29	-7117.17	5296.02	1755939.72	14444076.89	39°46'20.1949"N	80°35'19.8811"W	8871.41	143.346	1.22	-0.47	-1.12
18579.00	89.570	148.070	7135.47	8932.28	-7193.26	5344.07	1755987.76	14444000.83	39°46'19.4407"N	80°35'19.2702"W	8961.14	143.390	1.03	0.76	0.77
18670.00	89.170	147.660	7136.47	9023.28	-7270.31	5392.47	1756036.14	14443923.81	39°46'18.6771"N	80°35'18.6548"W	9051.86	143.435	0.63	-0.44	-0.45
18760.00	89.660	148.220	7137.39	9113.27	-7346.58	5440.24	1756083.89	14443847.57	39°46'17.9211"N	80°35'18.0475"W	9141.58	143.480	0.83	0.54	0.62
18851.00	89.170	148.140	7138.32	9204.26	-7423.90	5488.22	1756131.85	14443770.28	39°46'17.1549"N	80°35'17.4377"W	9232.27	143.526	0.55	-0.54	-0.09
18942.00	89.170	148.010	7139.64	9295.26	-7501.13	5536.34	1756179.95	14443693.08	39°46'16.3895"N	80°35'16.8260"W	9322.98	143.570	0.14	0.00	-0.14
19032.00	89.690	148.990	7140.53	9385.25	-7577.86	5583.36	1756226.95	14443616.38	39°46'15.6290"N	80°35'16.2283"W	9412.64	143.617	1.23	0.58	1.09
19123.00	89.080	147.890	7141.51	9476.24	-7655.40	5630.98	1756274.56	14443538.88	39°46'14.8606"N	80°35'15.6230"W	9503.32	143.663	1.38	-0.67	-1.21
19214.00	88.710	147.980	7143.27	9567.22	-7732.50	5679.29	1756322.84	14443461.80	39°46'14.0964"N	80°35'15.0089"W	9594.05	143.704	0.42	-0.41	0.10
19305.00	88.990	147.750	7145.09	9658.20	-7809.64	5727.68	1756371.22	14443384.79	39°46'13.3328"N	80°35'14.3937"W	9684.80	143.743	0.40	0.31	-0.25
19395.00	88.590	147.430	7146.99	9748.18	-7885.51	5775.91	1756419.43	14443308.85	39°46'12.5799"N	80°35'13.7806"W	9774.57	143.778	0.57	-0.44	-0.36
19486.00	88.620	147.850	7149.21	9839.15	-7962.35	5824.60	1756468.10	14443232.04	39°46'11.8183"N	80°35'13.1615"W	9865.34	143.814	0.46	0.03	0.46
19577.00	88.650	148.080	7151.38	9930.12	-8039.47	5872.85	1756516.34	14443154.95	39°46'11.0539"N	80°35'12.5481"W	9956.08	143.852	0.25	0.03	0.25
19667.00	88.740	147.570	7153.43	10020.10	-8115.63	5920.77	1756564.23	14443078.82	39°46'10.2991"N	80°35'11.9390"W	10045.84	143.887	0.58	0.10	-0.57
19758.00	88.710	147.720	7155.45	10111.07	-8192.48	5969.46	1756612.90	14443002.00	39°46'9.5374"N	80°35'11.3200"W	10136.63	143.921	0.17	-0.03	0.16
19849.00	88.680	147.720	7157.52	10202.05	-8269.40	6018.04	1756661.47	14442925.11	39°46'8.7750"N	80°35'10.7023"W	10227.40	143.955	0.03	-0.03	0.00
19939.00	88.770	147.260	7159.53	10292.02	-8345.28	6066.40	1756709.81	14442849.26	39°46'8.0229"N	80°35'10.0875"W	10317.21	143.986	0.52	0.10	-0.51
20030.00	88.770	147.280	7161.48	10383.00	-8421.81	6115.59	1756758.98	14442772.76	39°46'7.2643"N	80°35'9.4621"W	10408.04	144.014	0.02	0.00	0.02
20121.00	88.740	147.400	7163.46	10473.97	-8498.40	6164.69	1756808.06	14442696.19	39°46'6.5051"N	80°35'8.8379"W	10498.87	144.043	0.14	-0.03	0.13
20212.00	88.800	147.680	7165.41	10564.94	-8575.17	6213.52	1756856.87	14442619.46	39°46'5.7443"N	80°35'8.2171"W	10589.68	144.073	0.31	0.07	0.31
20304.00	88.000	147.910	7167.98	10656.91	-8652.98	6262.53	1756905.86	14442541.67	39°46'4.9730"N	80°35'7.5940"W	10681.45	144.105	0.90	-0.87	0.25

RECEIVED
Office of Oil and Gas

NOV 23 2020

WV Department of
Environmental Protection



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 11 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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)
20394.00	88.000	147.130	7171.12	10746.85	-8728.86	6310.83	1756954.14	14442465.83	39°46'4.2210"N	80°35'6.9800"W	10771.24	144.134	0.87	0.00	-0.87
20485.00	88.150	148.050	7174.18	10837.79	-8805.64	6359.58	1757002.87	14442389.08	39°46'3.4599"N	80°35'6.3603"W	10862.02	144.163	1.02	0.16	1.01
20576.00	88.220	148.000	7177.06	10928.75	-8882.79	6407.74	1757051.01	14442311.95	39°46'2.6953"N	80°35'5.7481"W	10952.77	144.195	0.09	0.08	-0.05
20665.00	88.400	148.300	7179.68	11017.71	-8958.36	6454.68	1757097.94	14442236.42	39°46'1.9463"N	80°35'5.1514"W	11041.52	144.226	0.39	0.20	0.34
20758.00	88.090	148.100	7182.63	11110.67	-9037.36	6503.67	1757146.90	14442157.44	39°46'1.1633"N	80°35'4.5288"W	11134.26	144.260	0.40	-0.33	-0.22
20850.00	88.150	147.660	7185.55	11202.62	-9115.24	6552.56	1757195.77	14442079.60	39°46'0.3915"N	80°35'3.9073"W	11226.02	144.299	0.48	0.07	-0.48
20943.00	88.120	147.640	7188.58	11295.56	-9193.76	6602.29	1757245.49	14442001.10	39°45'59.6131"N	80°35'3.2751"W	11318.82	144.317	0.04	-0.03	-0.02
21036.00	88.060	147.970	7191.68	11388.51	-9272.42	6651.82	1757295.00	14441922.48	39°45'58.8335"N	80°35'2.6456"W	11411.59	144.345	0.36	-0.06	0.35
21126.00	88.180	147.250	7194.63	11478.46	-9348.38	6700.00	1757343.16	14441846.55	39°45'58.0807"N	80°35'2.0330"W	11501.40	144.371	0.81	0.13	-0.80
21218.00	88.120	147.900	7197.60	11570.41	-9425.99	6749.31	1757392.45	14441768.97	39°45'57.3114"N	80°35'1.4063"W	11593.21	144.396	0.71	-0.07	0.71
21309.00	88.030	147.710	7200.66	11661.36	-9502.96	6797.76	1757440.89	14441692.03	39°45'56.5485"N	80°35'0.7903"W	11684.00	144.423	0.23	-0.10	-0.21
21402.00	88.340	147.780	7203.60	11754.31	-9581.57	6847.37	1757490.48	14441613.45	39°45'55.7694"N	80°35'0.1597"W	11776.80	144.449	0.34	0.33	0.08
21494.00	88.180	147.510	7206.39	11846.27	-9659.25	6896.58	1757539.67	14441535.80	39°45'54.9995"N	80°34'59.5341"W	11868.61	144.474	0.34	-0.17	-0.29
21586.00	88.120	147.860	7209.36	11938.22	-9736.96	6945.74	1757588.80	14441458.12	39°45'54.2292"N	80°34'58.9093"W	11960.42	144.498	0.39	-0.07	0.38
21678.00	88.310	148.160	7212.23	12030.17	-9814.95	6994.46	1757637.50	14441380.16	39°45'53.4562"N	80°34'58.2901"W	12052.20	144.525	0.39	0.21	0.33
21771.00	88.120	148.180	7215.13	12123.13	-9893.92	7043.48	1757686.51	14441301.22	39°45'52.6735"N	80°34'57.6670"W	12144.97	144.553	0.21	-0.20	0.02
21864.00	88.090	147.630	7218.20	12216.08	-9972.67	7092.87	1757735.87	14441222.50	39°45'51.8930"N	80°34'57.0393"W	12237.76	144.578	0.59	-0.03	-0.59
21955.00	88.280	147.750	7221.08	12307.03	-10049.54	7141.48	1757784.47	14441145.66	39°45'51.1311"N	80°34'56.4214"W	12328.58	144.601	0.25	0.21	0.13
22046.00	88.220	147.730	7223.86	12397.98	-10126.46	7190.03	1757833.00	14441068.77	39°45'50.3687"N	80°34'55.8043"W	12419.41	144.624	0.07	-0.07	-0.02
22137.00	87.780	147.790	7227.04	12488.93	-10203.38	7238.55	1757881.50	14440991.88	39°45'49.6083"N	80°34'55.1876"W	12510.22	144.647	0.49	-0.48	0.07
22227.00	88.000	147.810	7230.35	12578.87	-10279.48	7286.47	1757929.40	14440915.80	39°45'48.8519"N	80°34'54.5784"W	12600.02	144.670	0.25	0.24	0.02
22319.00	87.970	147.770	7233.59	12670.81	-10357.28	7335.48	1757978.39	14440838.04	39°45'48.0809"N	80°34'53.9555"W	12691.83	144.692	0.05	-0.03	-0.04
22412.00	88.030	147.830	7236.83	12763.75	-10435.93	7385.01	1758027.90	14440759.42	39°45'47.3013"N	80°34'53.3280"W	12784.63	144.715	0.09	0.06	0.06
22505.00	87.910	147.710	7240.13	12856.69	-10514.55	7434.58	1758077.45	14440680.83	39°45'46.5221"N	80°34'52.6960"W	12877.44	144.737	0.18	-0.13	-0.13
22596.00	87.970	147.930	7243.40	12947.63	-10591.52	7483.01	1758125.86	14440603.89	39°45'45.7592"N	80°34'52.0804"W	12968.26	144.758	0.25	0.07	0.24
22688.00	87.880	147.640	7246.73	13039.57	-10669.30	7532.02	1758174.86	14440526.14	39°45'44.9882"N	80°34'51.4574"W	13060.07	144.780	0.33	-0.10	-0.32
22780.00	88.030	147.890	7250.01	13131.51	-10747.07	7581.06	1758223.88	14440448.40	39°45'44.2173"N	80°34'50.8341"W	13151.89	144.801	0.32	0.16	0.27
22871.00	87.850	147.740	7253.28	13222.45	-10824.04	7629.50	1758272.30	14440371.46	39°45'43.4545"N	80°34'50.2184"W	13242.70	144.821	0.26	-0.20	-0.16
22962.00	87.750	147.680	7256.78	13313.39	-10900.91	7678.08	1758320.86	14440294.62	39°45'42.6925"N	80°34'49.6010"W	13333.52	144.841	0.13	-0.11	-0.07
23053.00	88.060	147.680	7260.10	13404.32	-10977.76	7726.70	1758369.46	14440217.80	39°45'41.9308"N	80°34'48.9830"W	13424.35	144.860	0.34	0.34	0.00

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 12 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

WELLPATH DATA (311 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)
23143.00	88.000	147.790	7263.20	13494.27	-11053.82	7774.72	1758417.46	14440141.77	39°45'41.1769"N	80°34'48.3727"W	13514.18	144.879	0.14	-0.07	0.12
23234.00	88.030	147.980	7266.35	13585.21	-11130.85	7823.06	1758465.79	14440064.77	39°45'40.4134"N	80°34'47.7583"W	13605.00	144.899	0.21	0.03	0.21
23325.00	87.880	148.330	7269.60	13676.16	-11208.10	7871.05	1758513.75	14439987.55	39°45'39.6478"N	80°34'47.1485"W	13695.80	144.921	0.42	-0.16	0.38
23415.00	87.820	147.740	7272.97	13766.09	-11284.40	7918.66	1758561.35	14439911.28	39°45'38.8915"N	80°34'46.5434"W	13785.60	144.941	0.66	-0.07	-0.66
23506.00	88.060	147.400	7276.24	13857.03	-11361.16	7967.43	1758610.10	14439834.55	39°45'38.1307"N	80°34'45.9235"W	13876.45	144.959	0.46	0.28	-0.37
23597.00	87.940	147.610	7279.42	13947.97	-11437.86	8016.29	1758658.94	14439757.87	39°45'37.3704"N	80°34'45.3025"W	13967.30	144.975	0.27	-0.13	0.23
23688.00	87.910	147.910	7282.72	14038.91	-11514.78	8064.80	1758707.43	14439680.99	39°45'36.6079"N	80°34'44.6859"W	14058.14	144.993	0.33	-0.03	0.33
23778.00	87.840	147.670	7286.05	14128.85	-11590.88	8112.74	1758755.35	14439604.92	39°45'35.8537"N	80°34'44.0767"W	14147.97	145.011	0.28	-0.08	-0.27
23869.00	88.060	147.940	7289.31	14219.79	-11667.84	8161.19	1758803.79	14439527.99	39°45'35.0909"N	80°34'43.4609"W	14238.80	145.029	0.38	0.24	0.30
23949.00	88.060	147.370	7292.02	14299.74	-11735.39	8203.97	1758846.55	14439460.47	39°45'34.4213"N	80°34'42.9172"W	14318.67	145.043	0.71	0.00	-0.71
23974.00†	88.060	147.370	7292.86	14324.73	-11756.43	8217.44	1758860.01	14439439.43	39°45'34.2128"N	80°34'42.7459"W	14343.64	145.047	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Charles Jamison MSH 10H AWB Ref Wellpath: Charles Jamison MSH 10H AWP Proj: 23974'									
String/Diameter	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start N/S (ft)	Start E/W (ft)	End N/S (ft)	End E/W (ft)
20in Conductor	26.00	100.00	74.00	26.00	100.00	0.00	0.00	0.14	-0.16
17.5in Open Hole	100.00	440.00	340.00	100.00	440.00	0.14	-0.16	-0.07	-0.88
13.375in Casing Surface	26.00	440.00	414.00	26.00	440.00	0.00	0.00	-0.07	-0.88
12.25in Open Hole	440.00	2617.00	2177.00	440.00	2590.36	-0.07	-0.88	208.18	-38.64
9.625in Casing Intermediate	26.00	2617.00	2591.00	26.00	2590.36	0.00	0.00	208.18	-38.64
8.75in Open Hole	2617.00	6451.00	3834.00	2590.36	5883.67	208.18	-38.64	2075.79	-522.98
8.5in Open Hole	6451.00	23974.00	17523.00	5883.67	7292.86	2075.79	-522.98	-11756.43	8217.44
5.5in Casing Production	26.00	23974.00	23948.00	26.00	7292.86	0.00	0.00	-11756.43	8217.44

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



Actual Wellpath Report
 Charles Jamison MSH 10H AWP Proj: 23974'
 Page 13 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Charles Jamison MSH 10H LP Rev-1	7124.30	1698.52	-178.98	1750466.85	14452889.16	39°47'47.5593"N	80°36'29.5057"W	point
Charles Jamison MSH 10H LP Rev-2	7143.00	1698.52	-178.98	1750466.85	14452889.16	39°47'47.5593"N	80°36'29.5057"W	point
Charles Jamison MSH 10H BHL Rev-2	7253.68	-11749.52	8228.45	1758871.02	14439446.34	39°45'34.2805"N	80°34'42.6045"W	point
Charles Jamison MSH 10H BHL Rev-1	7311.30	-11749.52	8228.45	1758871.02	14439446.34	39°45'34.2805"N	80°34'42.6045"W	point

WELLPATH COMPOSITION - Ref Wellbore: Charles Jamison MSH 10H AWB Ref Wellpath: Charles Jamison MSH 10H AWP Proj: 23974'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	425.00	Gyrodata 2015 - GC+WIR+DPIPE	01_Gyrodata GC+WIR_DPIPE <17 1/2"> (100'-425')	Charles Jamison MSH 10H AWB	6/17/2020
425.00	1596.00	Gyrodata 2015 - GC+WIR+DPIPE	02_Gyrodata GC+WIR_DPIPE <12 1/4"> (450'-1596')	Charles Jamison MSH 10H AWB	6/17/2020
1596.00	2658.00	OWSG MWD rev2 + HRGM	03_Premier MWD <12 1/4"> (1708'-2658')	Charles Jamison MSH 10H AWB	6/17/2020
2658.00	6381.00	OWSG MWD rev2 + HRGM	04_Premier MWD <8 3/4"> (2742'-6381')	Charles Jamison MSH 10H AWB	6/19/2020
6381.00	23974.00	BH AutoTrak Curve (2019) (Short spacing)	05_BH AT Curve <8 1/2"> (6432'-23949')	Charles Jamison MSH 10H AWB	6/19/2020

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



Actual Wellpath Report
Charles Jamison MSH 10H AWP Proj: 23974'
Page 14 of 14



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Charles Jamison MSH 10H
Field	Marshall	API/Legal	
Facility	Charles Jamison MSH Pad	Wellbore	Charles Jamison MSH 10H AWB
Slot	Slot 10H		

COMMENTS
Wellpath general comments API: 47-051-02301-0000 BH Job #: 110436711 Rig: SDC 46 Duration: 06/21/2020 - 06/24/2020

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