



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 1 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| 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 | 6/12/2020 at 11:41:09 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 | -18.32 | -2.52 | 1750635.98 | 14451193.61 | 39°47'30.7891"N | 80°36'27.4333"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 8H) | 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 8H AWP Proj: 24014'
 Page 2 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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 | 338.010 | 0.00 | 0.00 | 0.00 | 0.00 | 1750635.98 | 14451193.61 | 39°47'30.7891"N | 80°36'27.4333"W | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 26.00 | 0.00 | 338.010 | 26.00 | 0.00 | 0.00 | 0.00 | 1750635.98 | 14451193.61 | 39°47'30.7891"N | 80°36'27.4333"W | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 100.00 | 0.48 | 338.010 | 100.00 | -0.31 | 0.29 | -0.12 | 1750635.86 | 14451193.90 | 39°47'30.7919"N | 80°36'27.4348"W | 0.31 | 338.010 | 0.65 | 0.65 | 0.00 | |
| 125.00 | 0.46 | 347.670 | 125.00 | -0.50 | 0.48 | -0.18 | 1750635.80 | 14451194.09 | 39°47'30.7938"N | 80°36'27.4356"W | 0.51 | 339.888 | 0.33 | -0.08 | 38.64 | |
| 150.00 | 0.35 | 1.180 | 150.00 | -0.66 | 0.66 | -0.20 | 1750635.78 | 14451194.27 | 39°47'30.7956"N | 80°36'27.4358"W | 0.69 | 343.342 | 0.58 | -0.44 | 54.04 | |
| 175.00 | 0.23 | 332.960 | 175.00 | -0.78 | 0.78 | -0.22 | 1750635.76 | 14451194.39 | 39°47'30.7967"N | 80°36'27.4361"W | 0.81 | 344.360 | 0.73 | -0.48 | -112.88 | |
| 200.00 | 0.11 | 26.990 | 200.00 | -0.84 | 0.84 | -0.23 | 1750635.75 | 14451194.45 | 39°47'30.7974"N | 80°36'27.4362"W | 0.87 | 344.775 | 0.75 | -0.48 | 216.12 | |
| 225.00 | 0.04 | 86.890 | 225.00 | -0.85 | 0.87 | -0.21 | 1750635.77 | 14451194.48 | 39°47'30.7976"N | 80°36'27.4360"W | 0.89 | 346.360 | 0.39 | -0.28 | 239.60 | |
| 250.00 | 0.06 | 198.650 | 250.00 | -0.83 | 0.85 | -0.21 | 1750635.77 | 14451194.46 | 39°47'30.7975"N | 80°36'27.4359"W | 0.88 | 346.464 | 0.33 | 0.08 | 447.04 | |
| 275.00 | 0.16 | 126.500 | 275.00 | -0.79 | 0.82 | -0.18 | 1750635.80 | 14451194.43 | 39°47'30.7972"N | 80°36'27.4358"W | 0.84 | 347.517 | 0.61 | 0.40 | -288.60 | |
| 300.00 | 0.07 | 117.020 | 300.00 | -0.75 | 0.79 | -0.14 | 1750635.84 | 14451194.40 | 39°47'30.7969"N | 80°36'27.4351"W | 0.81 | 349.986 | 0.37 | -0.36 | -37.92 | |
| 325.00 | 0.07 | 71.760 | 325.00 | -0.73 | 0.79 | -0.11 | 1750635.87 | 14451194.40 | 39°47'30.7969"N | 80°36'27.4347"W | 0.80 | 351.944 | 0.22 | 0.00 | -181.04 | |
| 350.00 | 0.10 | 118.370 | 350.00 | -0.71 | 0.79 | -0.08 | 1750635.90 | 14451194.40 | 39°47'30.7968"N | 80°36'27.4343"W | 0.79 | 354.311 | 0.29 | 0.12 | 186.44 | |
| 375.00 | 0.04 | 78.250 | 375.00 | -0.69 | 0.78 | -0.05 | 1750635.93 | 14451194.39 | 39°47'30.7967"N | 80°36'27.4339"W | 0.78 | 356.280 | 0.30 | -0.24 | -160.48 | |
| 400.00 | 0.18 | 102.370 | 400.00 | -0.65 | 0.77 | 0.00 | 1750635.98 | 14451194.38 | 39°47'30.7967"N | 80°36'27.4333"W | 0.77 | 359.732 | 0.58 | 0.56 | 96.48 | |
| 425.00 | 0.17 | 58.470 | 425.00 | -0.63 | 0.78 | 0.07 | 1750636.05 | 14451194.39 | 39°47'30.7968"N | 80°36'27.4324"W | 0.78 | 4.857 | 0.52 | -0.04 | -175.60 | |
| 450.00 | 0.16 | 83.600 | 450.00 | -0.61 | 0.80 | 0.13 | 1750636.11 | 14451194.41 | 39°47'30.7970"N | 80°36'27.4316"W | 0.82 | 9.365 | 0.29 | -0.04 | 100.52 | |
| 475.00 | 0.15 | 96.290 | 475.00 | -0.58 | 0.80 | 0.20 | 1750636.18 | 14451194.41 | 39°47'30.7970"N | 80°36'27.4307"W | 0.83 | 13.950 | 0.14 | -0.04 | 50.76 | |
| 483.00 | 0.20 | 93.980 | 483.00 | -0.56 | 0.80 | 0.22 | 1750636.20 | 14451194.41 | 39°47'30.7970"N | 80°36'27.4304"W | 0.83 | 15.609 | 0.63 | 0.62 | -28.87 | |
| 592.00 | 0.26 | 78.100 | 592.00 | -0.36 | 0.84 | 0.66 | 1750636.64 | 14451194.45 | 39°47'30.7973"N | 80°36'27.4248"W | 1.07 | 37.975 | 0.08 | 0.06 | -14.57 | |
| 682.00 | 0.32 | 60.690 | 681.99 | -0.28 | 1.01 | 1.07 | 1750637.05 | 14451194.62 | 39°47'30.7989"N | 80°36'27.4195"W | 1.47 | 46.911 | 0.12 | 0.07 | -19.34 | |
| 773.00 | 0.41 | 69.230 | 772.99 | -0.21 | 1.25 | 1.60 | 1750637.58 | 14451194.85 | 39°47'30.8013"N | 80°36'27.4127"W | 2.03 | 52.121 | 0.12 | 0.10 | 9.38 | |
| 863.00 | 0.39 | 74.350 | 862.99 | -0.06 | 1.44 | 2.20 | 1750638.18 | 14451195.05 | 39°47'30.8032"N | 80°36'27.4051"W | 2.63 | 56.717 | 0.05 | -0.02 | 5.69 | |
| 954.00 | 0.38 | 90.110 | 953.99 | 0.19 | 1.53 | 2.80 | 1750638.78 | 14451195.13 | 39°47'30.8040"N | 80°36'27.3974"W | 3.19 | 61.397 | 0.12 | -0.01 | 17.32 | |
| 973.00 | 0.36 | 86.920 | 972.99 | 0.25 | 1.53 | 2.92 | 1750638.90 | 14451195.14 | 39°47'30.8040"N | 80°36'27.3958"W | 3.30 | 62.370 | 0.15 | -0.11 | -16.79 | |
| 1045.00 | 0.23 | 71.340 | 1044.99 | 0.39 | 1.59 | 3.28 | 1750639.26 | 14451195.20 | 39°47'30.8046"N | 80°36'27.3912"W | 3.65 | 64.292 | 0.21 | -0.18 | -21.64 | |
| 1135.00 | 0.12 | 36.980 | 1134.99 | 0.40 | 1.72 | 3.51 | 1750639.49 | 14451195.33 | 39°47'30.8059"N | 80°36'27.3883"W | 3.91 | 63.899 | 0.16 | -0.12 | -38.18 | |
| 1226.00 | 0.24 | 346.340 | 1225.99 | 0.19 | 1.98 | 3.52 | 1750639.50 | 14451195.59 | 39°47'30.8085"N | 80°36'27.3881"W | 4.04 | 60.647 | 0.21 | 0.13 | -55.65 | |
| 1316.00 | 0.79 | 334.360 | 1315.98 | -0.61 | 2.72 | 3.21 | 1750639.19 | 14451196.33 | 39°47'30.8158"N | 80°36'27.3921"W | 4.21 | 49.683 | 0.62 | 0.61 | -13.31 | |
| 1407.00 | 1.60 | 333.900 | 1406.98 | -2.50 | 4.43 | 2.38 | 1750638.36 | 14451198.04 | 39°47'30.8327"N | 80°36'27.4028"W | 5.03 | 28.238 | 0.89 | 0.89 | -0.51 | |

RECEIVED
Office of Oil and Gas

NOV 23 2020

WV Department of
Environmental Protection



Actual Wellpath Report
Charles Jamison MSH 8H AWP Proj: 24014'
Page 3 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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] |
| 1498.00 | 2.580 | 332.180 | 1497.90 | -5.80 | 7.38 | 0.86 | 1750635.84 | 14451200.99 | 39°47'30.8620"N | 80°36'27.4218"W | 7.43 | 6.678 | 1.08 | 1.08 | -1.89 |
| 1588.00 | 4.140 | 334.150 | 1587.74 | -11.05 | 12.10 | -1.50 | 1750634.48 | 14451205.70 | 39°47'30.9087"N | 80°36'27.4518"W | 12.19 | 352.943 | 1.74 | 1.73 | 2.19 |
| 1679.00 | 5.810 | 334.870 | 1678.40 | -18.89 | 19.22 | -4.89 | 1750631.10 | 14451212.83 | 39°47'30.9792"N | 80°36'27.4948"W | 19.84 | 345.740 | 1.84 | 1.84 | 0.79 |
| 1770.00 | 6.960 | 334.780 | 1768.83 | -28.94 | 28.38 | -9.19 | 1750626.79 | 14451221.98 | 39°47'31.0699"N | 80°36'27.5495"W | 29.83 | 342.056 | 1.26 | 1.26 | -0.10 |
| 1860.00 | 6.900 | 329.370 | 1858.17 | -39.76 | 37.97 | -14.27 | 1750621.72 | 14451231.56 | 39°47'31.1649"N | 80°36'27.6140"W | 40.56 | 339.402 | 0.73 | -0.07 | -6.01 |
| 1951.00 | 7.020 | 324.870 | 1948.50 | -50.78 | 47.22 | -20.25 | 1750615.73 | 14451240.81 | 39°47'31.2566"N | 80°36'27.6901"W | 51.38 | 336.783 | 0.61 | 0.13 | -4.95 |
| 2042.00 | 7.560 | 324.350 | 2038.77 | -62.30 | 56.63 | -26.94 | 1750609.05 | 14451250.22 | 39°47'31.3499"N | 80°36'27.7753"W | 62.71 | 334.557 | 0.60 | 0.59 | -0.57 |
| 2132.00 | 8.370 | 324.310 | 2127.90 | -74.75 | 66.76 | -34.22 | 1750601.78 | 14451260.35 | 39°47'31.4503"N | 80°36'27.8679"W | 75.02 | 332.865 | 0.90 | 0.90 | -0.04 |
| 2223.00 | 8.980 | 330.390 | 2217.86 | -88.45 | 78.32 | -41.59 | 1750594.41 | 14451271.90 | 39°47'31.5648"N | 80°36'27.9617"W | 88.67 | 332.030 | 1.21 | 0.67 | 6.68 |
| 2316.00 | 10.130 | 336.620 | 2309.57 | -103.79 | 92.14 | -48.42 | 1750587.58 | 14451285.71 | 39°47'31.7017"N | 80°36'28.0485"W | 104.08 | 332.276 | 1.66 | 1.24 | 6.70 |
| 2406.00 | 10.860 | 341.210 | 2398.07 | -119.87 | 107.43 | -54.29 | 1750581.71 | 14451301.00 | 39°47'31.8531"N | 80°36'28.1228"W | 120.37 | 333.188 | 1.23 | 0.81 | 5.10 |
| 2497.00 | 12.100 | 344.290 | 2487.24 | -137.37 | 124.73 | -59.64 | 1750576.37 | 14451318.29 | 39°47'32.0242"N | 80°36'28.1903"W | 138.25 | 334.445 | 1.52 | 1.36 | 3.38 |
| 2588.00 | 11.880 | 341.930 | 2576.26 | -155.62 | 142.81 | -65.12 | 1750570.88 | 14451336.37 | 39°47'32.2032"N | 80°36'28.2596"W | 156.96 | 335.486 | 0.59 | -0.24 | -2.59 |
| 2662.00 | 12.110 | 340.390 | 2648.64 | -170.59 | 157.36 | -70.09 | 1750565.91 | 14451350.91 | 39°47'32.3473"N | 80°36'28.3224"W | 172.27 | 335.991 | 0.53 | 0.31 | -2.08 |
| 2746.00 | 12.410 | 338.680 | 2730.73 | -188.07 | 174.07 | -76.33 | 1750559.68 | 14451367.62 | 39°47'32.5126"N | 80°36'28.4014"W | 190.07 | 336.323 | 0.56 | 0.36 | -2.04 |
| 2839.00 | 15.730 | 334.380 | 2820.93 | -210.42 | 194.76 | -85.42 | 1750550.59 | 14451388.29 | 39°47'32.7174"N | 80°36'28.5167"W | 212.66 | 336.318 | 3.74 | 3.57 | -4.62 |
| 2929.00 | 18.690 | 334.970 | 2906.89 | -236.86 | 218.83 | -96.80 | 1750539.22 | 14451412.35 | 39°47'32.9558"N | 80°36'28.6611"W | 239.28 | 336.138 | 3.29 | 3.29 | 0.66 |
| 3020.00 | 18.990 | 331.990 | 2993.02 | -266.11 | 245.11 | -109.92 | 1750526.10 | 14451438.63 | 39°47'33.2161"N | 80°36'28.8277"W | 268.63 | 335.846 | 1.11 | 0.33 | -3.27 |
| 3113.00 | 18.610 | 331.160 | 3081.05 | -296.02 | 271.47 | -124.18 | 1750511.84 | 14451464.97 | 39°47'33.4772"N | 80°36'29.0090"W | 298.52 | 335.418 | 0.50 | -0.41 | -0.89 |
| 3205.00 | 20.080 | 327.770 | 3167.86 | -326.47 | 297.69 | -139.69 | 1750496.35 | 14451491.18 | 39°47'33.7370"N | 80°36'29.2061"W | 328.83 | 334.862 | 2.01 | 1.60 | -3.66 |
| 3297.00 | 21.630 | 325.360 | 3253.83 | -359.21 | 325.00 | -157.75 | 1750478.29 | 14451518.49 | 39°47'34.0077"N | 80°36'29.4360"W | 361.26 | 334.109 | 1.93 | 1.68 | -2.62 |
| 3389.00 | 23.530 | 326.470 | 3338.78 | -394.51 | 354.26 | -177.54 | 1750458.51 | 14451547.74 | 39°47'34.2978"N | 80°36'29.6878"W | 396.26 | 333.383 | 2.12 | 2.07 | 1.21 |
| 3480.00 | 24.690 | 328.440 | 3421.84 | -431.67 | 385.60 | -197.52 | 1750438.54 | 14451579.06 | 39°47'34.6083"N | 80°36'29.9421"W | 433.25 | 332.877 | 1.55 | 1.27 | 2.16 |
| 3573.00 | 26.620 | 325.380 | 3505.67 | -471.91 | 419.30 | -219.52 | 1750416.54 | 14451612.75 | 39°47'34.9424"N | 80°36'30.2221"W | 473.29 | 332.366 | 2.52 | 2.08 | -3.29 |
| 3666.00 | 28.860 | 325.620 | 3587.98 | -515.16 | 454.98 | -244.04 | 1750392.04 | 14451648.41 | 39°47'35.2960"N | 80°36'30.5341"W | 516.29 | 331.792 | 2.41 | 2.41 | 0.26 |
| 3758.00 | 30.790 | 327.080 | 3667.79 | -560.89 | 493.07 | -269.38 | 1750366.71 | 14451686.49 | 39°47'35.6735"N | 80°36'30.8566"W | 561.86 | 331.351 | 2.24 | 2.10 | 1.59 |
| 3849.00 | 32.560 | 328.470 | 3745.23 | -608.67 | 533.50 | -294.84 | 1750341.25 | 14451726.90 | 39°47'36.0742"N | 80°36'31.1806"W | 609.55 | 331.073 | 2.10 | 1.95 | 1.53 |
| 3940.00 | 34.300 | 329.620 | 3821.17 | -658.79 | 576.50 | -320.62 | 1750315.49 | 14451769.88 | 39°47'36.5002"N | 80°36'31.5084"W | 659.65 | 330.920 | 2.03 | 1.91 | 1.26 |
| 4031.00 | 36.460 | 330.880 | 3895.36 | -711.43 | 622.24 | -346.75 | 1750289.37 | 14451815.61 | 39°47'36.9534"N | 80°36'31.8405"W | 712.33 | 330.871 | 2.51 | 2.37 | 1.38 |
| 4122.00 | 36.610 | 329.400 | 3968.48 | -765.58 | 669.22 | -373.72 | 1750262.41 | 14451862.57 | 39°47'37.4188"N | 80°36'32.1834"W | 766.50 | 330.819 | 0.98 | 0.16 | -1.63 |

RECEIVED
Office of Oil and Gas

NOV 23 2020

WV Department of
Environmental Protection



Actual Wellpath Report
Charles Jamison MSH 8H AWP Proj: 24014'
Page 4 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | | |
|-----------------------------------|-----------------------------|--|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | | Well | Charles Jamison MSH 8H |
| Field | Marshall | | API/Legal | |
| Facility | Charles Jamison MSH Pad | | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | | |

| WELLPATH DATA (280 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] |
| 4213.00 | 36.750 | 328.060 | 4041.47 | -819.92 | 715.68 | -401.93 | 1750234.20 | 14451909.01 | 39°47'37.8792"N | 80°36'32.5423"W | 820.82 | 330.681 | 0.89 | 0.15 | -1.47 |
| 4305.00 | 36.420 | 325.990 | 4115.34 | -874.73 | 761.68 | -431.77 | 1750204.38 | 14451954.99 | 39°47'38.3350"N | 80°36'32.9220"W | 875.54 | 330.453 | 1.39 | -0.36 | -2.25 |
| 4398.00 | 35.390 | 328.620 | 4190.67 | -929.26 | 807.56 | -461.24 | 1750174.92 | 14452000.85 | 39°47'38.7897"N | 80°36'33.2969"W | 929.99 | 330.267 | 1.99 | -1.11 | 2.83 |
| 4491.00 | 34.770 | 327.340 | 4266.78 | -982.70 | 852.87 | -489.57 | 1750146.60 | 14452046.15 | 39°47'39.2388"N | 80°36'33.6574"W | 983.40 | 330.143 | 1.03 | -0.67 | -1.38 |
| 4583.00 | 33.520 | 325.220 | 4342.92 | -1034.31 | 895.83 | -518.22 | 1750117.96 | 14452089.09 | 39°47'39.6645"N | 80°36'34.0220"W | 1034.92 | 329.951 | 1.86 | -1.36 | -2.30 |
| 4673.00 | 30.700 | 323.700 | 4419.15 | -1082.05 | 934.76 | -546.00 | 1750090.19 | 14452128.01 | 39°47'40.0505"N | 80°36'34.3758"W | 1082.54 | 329.710 | 3.26 | -3.13 | -1.69 |
| 4764.00 | 29.980 | 326.370 | 4497.69 | -1127.95 | 972.41 | -572.35 | 1750063.85 | 14452165.65 | 39°47'40.4237"N | 80°36'34.7112"W | 1128.35 | 329.520 | 1.68 | -0.79 | 2.93 |
| 4855.00 | 30.710 | 328.620 | 4576.22 | -1173.91 | 1011.19 | -597.04 | 1750039.17 | 14452204.40 | 39°47'40.8080"N | 80°36'35.0254"W | 1174.29 | 329.441 | 1.48 | 0.80 | 2.47 |
| 4945.00 | 31.780 | 329.820 | 4653.17 | -1220.58 | 1051.29 | -620.92 | 1750015.30 | 14452244.50 | 39°47'41.2054"N | 80°36'35.3291"W | 1220.97 | 329.433 | 1.38 | 1.19 | 1.33 |
| 5036.00 | 32.850 | 331.190 | 4730.08 | -1269.18 | 1093.64 | -644.86 | 1749991.37 | 14452286.82 | 39°47'41.6249"N | 80°36'35.6334"W | 1269.60 | 329.474 | 1.42 | 1.18 | 1.51 |
| 5127.00 | 34.240 | 329.570 | 4805.92 | -1319.41 | 1137.34 | -669.73 | 1749966.51 | 14452330.51 | 39°47'42.0578"N | 80°36'35.9495"W | 1319.88 | 329.508 | 1.82 | 1.53 | -1.78 |
| 5218.00 | 33.530 | 328.280 | 4881.47 | -1370.14 | 1180.79 | -695.91 | 1749940.34 | 14452373.95 | 39°47'42.4884"N | 80°36'36.2825"W | 1370.61 | 329.487 | 1.11 | -0.78 | -1.42 |
| 5308.00 | 34.140 | 325.620 | 4956.23 | -1420.23 | 1222.78 | -723.24 | 1749913.02 | 14452415.92 | 39°47'42.9045"N | 80°36'36.6303"W | 1420.66 | 329.397 | 1.78 | 0.68 | -2.96 |
| 5399.00 | 34.310 | 325.260 | 5031.47 | -1471.36 | 1264.93 | -752.27 | 1749884.00 | 14452458.05 | 39°47'43.3223"N | 80°36'36.9999"W | 1471.72 | 329.259 | 0.29 | 0.19 | -0.40 |
| 5490.00 | 32.360 | 322.200 | 5107.50 | -1521.22 | 1305.26 | -781.82 | 1749854.46 | 14452498.36 | 39°47'43.7221"N | 80°36'37.3762"W | 1521.49 | 329.079 | 2.83 | -2.14 | -3.36 |
| 5580.00 | 32.680 | 322.130 | 5183.39 | -1569.35 | 1343.47 | -811.50 | 1749824.80 | 14452536.56 | 39°47'44.1010"N | 80°36'37.7543"W | 1569.54 | 328.867 | 0.36 | 0.36 | -0.08 |
| 5673.00 | 33.830 | 326.380 | 5261.17 | -1620.22 | 1384.86 | -841.25 | 1749795.06 | 14452577.93 | 39°47'44.5113"N | 80°36'38.1331"W | 1620.35 | 328.723 | 2.79 | 1.24 | 4.57 |
| 5765.00 | 34.420 | 328.500 | 5337.33 | -1671.82 | 1428.35 | -869.02 | 1749767.30 | 14452621.41 | 39°47'44.9424"N | 80°36'38.4865"W | 1671.94 | 328.684 | 1.44 | 0.64 | 2.30 |
| 5858.00 | 33.470 | 330.620 | 5414.48 | -1723.72 | 1473.11 | -895.33 | 1749741.00 | 14452666.15 | 39°47'45.3859"N | 80°36'38.8211"W | 1723.86 | 328.710 | 1.63 | -1.02 | 2.28 |
| 5951.00 | 35.250 | 331.180 | 5491.25 | -1776.14 | 1518.98 | -920.85 | 1749715.48 | 14452712.00 | 39°47'45.8402"N | 80°36'39.1455"W | 1776.31 | 328.774 | 1.94 | 1.91 | 0.60 |
| 6044.00 | 35.480 | 329.100 | 5567.09 | -1829.92 | 1565.65 | -947.65 | 1749688.70 | 14452758.65 | 39°47'46.3026"N | 80°36'39.4862"W | 1830.11 | 328.814 | 1.32 | 0.25 | -2.24 |
| 6136.00 | 33.370 | 326.290 | 5642.98 | -1881.92 | 1609.62 | -975.41 | 1749660.95 | 14452802.60 | 39°47'46.7383"N | 80°36'39.8394"W | 1882.10 | 328.785 | 2.87 | -2.29 | -3.05 |
| 6229.00 | 31.770 | 324.060 | 5721.36 | -1931.91 | 1650.72 | -1003.98 | 1749632.39 | 14452843.69 | 39°47'47.1457"N | 80°36'40.2031"W | 1932.06 | 328.692 | 2.15 | -1.72 | -2.40 |
| 6322.00 | 31.300 | 324.280 | 5800.62 | -1980.44 | 1690.15 | -1032.45 | 1749603.93 | 14452883.11 | 39°47'47.5367"N | 80°36'40.5657"W | 1980.55 | 328.581 | 0.52 | -0.51 | 0.24 |
| 6438.00 | 31.800 | 326.340 | 5899.48 | -2041.07 | 1740.06 | -1066.98 | 1749569.41 | 14452932.99 | 39°47'48.0313"N | 80°36'41.0054"W | 2041.14 | 328.484 | 1.02 | 0.43 | 1.78 |
| 6531.00 | 29.690 | 326.080 | 5979.40 | -2088.58 | 1779.57 | -1093.42 | 1749542.98 | 14452972.49 | 39°47'48.4229"N | 80°36'41.3419"W | 2088.65 | 328.432 | 2.27 | -2.27 | -0.28 |
| 6623.00 | 21.860 | 326.060 | 6062.18 | -2128.54 | 1812.74 | -1115.73 | 1749520.68 | 14453005.65 | 39°47'48.7517"N | 80°36'41.6259"W | 2128.59 | 328.388 | 8.51 | -8.51 | -0.02 |
| 6714.00 | 17.290 | 325.480 | 6147.90 | -2158.99 | 1837.95 | -1132.86 | 1749503.56 | 14453030.85 | 39°47'49.0016"N | 80°36'41.8440"W | 2159.04 | 328.351 | 5.03 | -5.02 | -0.64 |
| 6806.00 | 11.570 | 325.490 | 6236.96 | -2181.89 | 1856.83 | -1145.85 | 1749490.57 | 14453049.72 | 39°47'49.1887"N | 80°36'42.0093"W | 2181.92 | 328.321 | 6.22 | -6.22 | 0.01 |
| 6899.00 | 5.600 | 322.400 | 6328.88 | -2195.73 | 1868.12 | -1163.91 | 1749482.52 | 14453061.01 | 39°47'49.8006"N | 80°36'42.1119"W | 2195.77 | 328.297 | 6.44 | -6.42 | -3.32 |

RECEIVED
Office of Oil and Gas

NOV 23 2020

WV Department of
Environmental Protection



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 5 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | | |
|-----------------------------------|-----------------------------|--|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | | Well | Charles Jamison MSH 8H |
| Field | Marshall | | API/Legal | |
| Facility | Charles Jamison MSH Pad | | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | | |

| WELLPATH DATA (280 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] | |
| 6992.00 | 2.280 | 239.680 | 6421.70 | -2200.31 | 1870.79 | -1158.28 | 1749478.15 | 14453063.67 | 39°47'49.3272"N | 80°36'42.1677"W | 2200.33 | 328.237 | 6.21 | -3.57 | -88.95 | |
| 7085.00 | 9.230 | 180.840 | 6514.22 | -2194.09 | 1862.38 | -1159.99 | 1749476.44 | 14453065.27 | 39°47'49.2442"N | 80°36'42.1901"W | 2194.09 | 328.083 | 8.90 | 7.47 | -63.27 | |
| 7175.00 | 14.760 | 166.120 | 6602.24 | -2177.11 | 1844.01 | -1157.34 | 1749479.09 | 14453036.91 | 39°47'49.0625"N | 80°36'42.1572"W | 2177.11 | 327.887 | 6.97 | 6.14 | -16.36 | |
| 7266.00 | 19.750 | 143.080 | 6689.22 | -2150.73 | 1820.43 | -1145.30 | 1749491.12 | 14453013.33 | 39°47'48.8289"N | 80°36'42.0043"W | 2150.74 | 327.824 | 9.20 | 5.48 | -25.32 | |
| 7357.00 | 25.250 | 140.930 | 6773.26 | -2116.12 | 1793.04 | -1123.82 | 1749512.60 | 14452985.96 | 39°47'48.5574"N | 80°36'41.7306"W | 2116.12 | 327.922 | 6.11 | 6.04 | -2.36 | |
| 7449.00 | 31.260 | 144.750 | 6854.27 | -2072.77 | 1758.28 | -1097.65 | 1749538.76 | 14452951.21 | 39°47'48.2127"N | 80°36'41.3972"W | 2072.77 | 328.025 | 6.82 | 6.53 | 4.18 | |
| 7541.00 | 39.010 | 146.180 | 6929.45 | -2019.92 | 1714.67 | -1067.71 | 1749568.89 | 14452907.61 | 39°47'47.7804"N | 80°36'41.0161"W | 2019.92 | 328.090 | 8.47 | 8.42 | 1.55 | |
| 7633.00 | 47.130 | 147.950 | 6996.60 | -1957.16 | 1661.94 | -1033.64 | 1749602.74 | 14452854.91 | 39°47'47.2579"N | 80°36'40.5826"W | 1957.16 | 328.121 | 8.92 | 8.83 | 1.92 | |
| 7724.00 | 56.020 | 147.550 | 7053.10 | -1885.94 | 1601.72 | -995.63 | 1749640.74 | 14452794.71 | 39°47'46.6611"N | 80°36'40.0989"W | 1885.94 | 328.135 | 9.78 | 9.77 | -0.44 | |
| 7814.00 | 66.750 | 147.860 | 7096.14 | -1807.05 | 1535.03 | -953.49 | 1749682.86 | 14452728.04 | 39°47'46.0002"N | 80°36'39.5627"W | 1807.05 | 328.153 | 11.93 | 11.92 | 0.34 | |
| 7905.00 | 77.310 | 148.950 | 7124.18 | -1720.61 | 1461.39 | -908.22 | 1749728.11 | 14452654.43 | 39°47'45.2705"N | 80°36'38.9869"W | 1720.62 | 328.140 | 11.66 | 11.60 | 1.20 | |
| 7996.00 | 86.460 | 150.380 | 7137.01 | -1630.66 | 1383.71 | -862.78 | 1749773.53 | 14452576.79 | 39°47'44.5009"N | 80°36'38.4091"W | 1630.66 | 328.055 | 10.17 | 10.05 | 1.57 | |
| 8087.00 | 89.780 | 148.020 | 7140.00 | -1539.75 | 1305.61 | -816.22 | 1749820.08 | 14452498.71 | 39°47'43.7270"N | 80°36'37.8169"W | 1539.75 | 327.988 | 4.48 | 3.65 | -2.59 | |
| 8177.00 | 89.660 | 146.600 | 7140.44 | -1449.76 | 1229.87 | -767.61 | 1749868.66 | 14452423.00 | 39°47'42.9764"N | 80°36'37.1984"W | 1449.76 | 328.030 | 1.58 | -0.13 | -1.58 | |
| 8268.00 | 89.850 | 147.060 | 7140.83 | -1358.78 | 1153.69 | -717.83 | 1749918.43 | 14452346.86 | 39°47'42.2215"N | 80°36'36.5648"W | 1358.78 | 328.110 | 0.55 | 0.21 | 0.51 | |
| 8359.00 | 90.000 | 148.000 | 7140.95 | -1267.78 | 1076.92 | -668.97 | 1749967.27 | 14452270.11 | 39°47'41.4607"N | 80°36'35.9432"W | 1267.79 | 328.152 | 1.05 | 0.18 | 1.03 | |
| 8449.00 | 89.320 | 146.590 | 7141.48 | -1177.79 | 1001.19 | -620.35 | 1750015.87 | 14452194.42 | 39°47'40.7102"N | 80°36'35.3245"W | 1177.80 | 328.217 | 1.74 | -0.76 | -1.57 | |
| 8540.00 | 89.720 | 146.250 | 7142.24 | -1086.83 | 925.38 | -570.02 | 1750066.19 | 14452118.63 | 39°47'39.9589"N | 80°36'34.6839"W | 1086.85 | 328.365 | 0.58 | 0.44 | -0.37 | |
| 8627.00 | 90.000 | 146.690 | 7142.45 | -999.86 | 852.90 | -521.90 | 1750114.29 | 14452046.18 | 39°47'39.2405"N | 80°36'34.0715"W | 999.91 | 328.537 | 0.51 | 0.32 | 0.39 | |
| 8718.00 | 90.090 | 146.450 | 7142.38 | -908.89 | 777.00 | -471.70 | 1750164.47 | 14451970.31 | 39°47'38.4882"N | 80°36'33.4327"W | 908.97 | 328.739 | 0.18 | 0.10 | -0.15 | |
| 8808.00 | 90.150 | 147.610 | 7142.19 | -818.91 | 701.50 | -422.72 | 1750213.42 | 14451894.83 | 39°47'37.7399"N | 80°36'32.8094"W | 819.02 | 328.927 | 1.29 | 0.07 | 1.29 | |
| 8899.00 | 88.980 | 146.830 | 7142.88 | -727.92 | 624.99 | -373.45 | 1750262.67 | 14451818.36 | 39°47'36.9817"N | 80°36'32.1826"W | 728.07 | 329.140 | 1.55 | -1.29 | -0.86 | |
| 8989.00 | 89.720 | 146.540 | 7143.91 | -637.95 | 549.79 | -324.03 | 1750312.08 | 14451743.18 | 39°47'36.2364"N | 80°36'31.5535"W | 638.17 | 329.486 | 0.88 | 0.82 | -0.32 | |
| 9080.00 | 89.720 | 146.640 | 7144.35 | -546.98 | 473.83 | -273.92 | 1750362.17 | 14451667.25 | 39°47'35.4835"N | 80°36'30.9159"W | 547.31 | 329.968 | 0.11 | 0.00 | 0.11 | |
| 9171.00 | 89.720 | 147.100 | 7144.80 | -456.00 | 397.62 | -224.18 | 1750411.88 | 14451591.08 | 39°47'34.7283"N | 80°36'30.2830"W | 456.47 | 330.585 | 0.51 | 0.00 | 0.51 | |
| 9261.00 | 88.830 | 146.140 | 7145.93 | -366.03 | 322.48 | -174.67 | 1750461.37 | 14451515.96 | 39°47'33.9835"N | 80°36'29.6529"W | 366.74 | 331.557 | 1.45 | -0.99 | -1.07 | |
| 9352.00 | 90.250 | 146.690 | 7146.66 | -275.07 | 246.67 | -124.34 | 1750511.69 | 14451440.19 | 39°47'33.2322"N | 80°36'29.0123"W | 276.24 | 333.249 | 1.67 | 1.56 | 0.60 | |
| 9443.00 | 89.750 | 147.600 | 7146.66 | -184.08 | 170.23 | -74.97 | 1750561.04 | 14451363.77 | 39°47'32.4746"N | 80°36'28.3842"W | 186.00 | 336.231 | 1.14 | -0.55 | 1.00 | |
| 9533.00 | 90.060 | 146.880 | 7146.81 | -94.09 | 94.54 | -26.27 | 1750609.72 | 14451288.12 | 39°47'31.7245"N | 80°36'27.7645"W | 98.12 | 344.472 | 0.87 | 0.34 | -0.80 | |
| 9625.00 | 89.820 | 148.320 | 7146.91 | -2.10 | 16.87 | 23.03 | 1750659.00 | 14451210.47 | 39°47'30.9547"N | 80°36'27.1374"W | 28.54 | 53.776 | 1.59 | -0.26 | 1.57 | |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 6 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | | |
|-----------------------------------|-----------------------------|--|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | | Well | Charles Jamison MSH 8H |
| Field | Marshall | | API/Legal | |
| Facility | Charles Jamison MSH Pad | | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | | |

| WELLPATH DATA (280 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) | |
| 9718.00 | 90.090 | 148.210 | 7146.98 | 90.90 | -82.23 | 71.94 | 1750707.90 | 14451131.41 | 39°47'30.1710"N | 80°36'26.5152"W | 95.12 | 130.859 | 0.31 | 0.29 | -0.12 | |
| 9809.00 | 89.780 | 148.240 | 7147.09 | 181.90 | -139.59 | 119.86 | 1750755.80 | 14451054.08 | 39°47'29.4044"N | 80°36'25.9056"W | 183.99 | 139.348 | 0.34 | -0.34 | 0.03 | |
| 9902.00 | 89.910 | 149.020 | 7147.34 | 274.89 | -218.99 | 168.27 | 1750804.19 | 14450974.70 | 39°47'28.6175"N | 80°36'25.2899"W | 276.18 | 142.461 | 0.85 | 0.14 | 0.84 | |
| 9995.00 | 89.660 | 148.810 | 7147.69 | 367.88 | -298.64 | 216.29 | 1750852.19 | 14450895.09 | 39°47'27.8284"N | 80°36'24.6793"W | 368.74 | 144.086 | 0.35 | -0.27 | -0.23 | |
| 10086.00 | 89.570 | 147.460 | 7148.30 | 458.88 | -375.92 | 264.33 | 1750900.21 | 14450817.84 | 39°47'27.0625"N | 80°36'24.0682"W | 459.55 | 144.887 | 1.49 | -0.10 | -1.48 | |
| 10179.00 | 89.570 | 147.270 | 7149.00 | 551.87 | -454.24 | 314.48 | 1750950.34 | 14450739.55 | 39°47'26.2864"N | 80°36'23.4302"W | 552.48 | 145.304 | 0.20 | 0.00 | -0.20 | |
| 10272.00 | 89.660 | 147.910 | 7149.62 | 644.86 | -532.75 | 364.33 | 1751000.16 | 14450661.07 | 39°47'25.5083"N | 80°36'22.7961"W | 645.41 | 145.633 | 0.69 | 0.10 | 0.69 | |
| 10363.00 | 90.430 | 147.800 | 7149.55 | 735.86 | -609.80 | 412.74 | 1751048.56 | 14450584.05 | 39°47'24.7448"N | 80°36'22.1802"W | 736.35 | 145.908 | 0.85 | 0.85 | -0.12 | |
| 10454.00 | 89.170 | 147.030 | 7149.87 | 826.85 | -686.47 | 461.75 | 1751097.55 | 14450507.41 | 39°47'23.9849"N | 80°36'21.5567"W | 827.32 | 146.074 | 1.62 | -1.38 | -0.85 | |
| 10545.00 | 90.490 | 147.950 | 7150.14 | 917.85 | -763.21 | 510.65 | 1751146.44 | 14450430.70 | 39°47'23.2244"N | 80°36'20.9345"W | 918.29 | 146.214 | 1.77 | 1.45 | 1.01 | |
| 10635.00 | 90.220 | 148.250 | 7149.58 | 1007.85 | -839.61 | 558.21 | 1751193.98 | 14450354.32 | 39°47'22.4673"N | 80°36'20.3296"W | 1008.24 | 146.382 | 0.45 | -0.30 | 0.33 | |
| 10726.00 | 90.060 | 148.530 | 7149.36 | 1098.84 | -917.11 | 605.91 | 1751241.65 | 14450276.85 | 39°47'21.6993"N | 80°36'19.7230"W | 1099.19 | 146.548 | 0.35 | -0.18 | 0.31 | |
| 10816.00 | 89.940 | 147.350 | 7149.36 | 1188.84 | -993.39 | 653.68 | 1751269.41 | 14450200.61 | 39°47'20.9434"N | 80°36'19.1153"W | 1189.16 | 146.654 | 1.32 | -0.13 | -1.31 | |
| 10907.00 | 89.940 | 148.000 | 7149.45 | 1279.84 | -1070.28 | 702.34 | 1751338.05 | 14450123.74 | 39°47'20.1814"N | 80°36'18.4963"W | 1280.15 | 146.726 | 0.71 | 0.00 | 0.71 | |
| 10998.00 | 89.260 | 147.840 | 7150.09 | 1370.84 | -1147.38 | 750.67 | 1751386.36 | 14450046.67 | 39°47'19.4173"N | 80°36'17.8816"W | 1371.13 | 146.806 | 0.77 | -0.75 | -0.18 | |
| 11090.00 | 89.720 | 148.040 | 7150.91 | 1462.83 | -1225.35 | 799.50 | 1751435.17 | 14449968.73 | 39°47'18.6447"N | 80°36'17.2604"W | 1463.11 | 146.877 | 0.55 | 0.50 | 0.22 | |
| 11181.00 | 89.970 | 148.000 | 7151.15 | 1553.83 | -1302.54 | 847.70 | 1751483.35 | 14449891.58 | 39°47'17.8797"N | 80°36'16.6474"W | 1554.09 | 146.944 | 0.26 | 0.27 | -0.04 | |
| 11272.00 | 90.280 | 148.780 | 7150.95 | 1644.83 | -1379.19 | 896.74 | 1751532.37 | 14449814.95 | 39°47'17.1201"N | 80°36'16.0236"W | 1645.09 | 146.968 | 1.38 | 0.34 | -1.34 | |
| 11363.00 | 90.800 | 146.880 | 7150.10 | 1735.80 | -1455.36 | 946.52 | 1751582.14 | 14449738.81 | 39°47'16.3652"N | 80°36'15.3901"W | 1736.08 | 146.961 | 0.58 | 0.57 | 0.11 | |
| 11454.00 | 90.490 | 148.100 | 7149.07 | 1826.79 | -1532.09 | 995.43 | 1751631.02 | 14449662.11 | 39°47'15.6047"N | 80°36'14.7680"W | 1827.07 | 146.988 | 1.38 | -0.34 | 1.34 | |
| 11544.00 | 90.030 | 148.260 | 7148.66 | 1916.79 | -1608.57 | 1042.88 | 1751678.45 | 14449585.67 | 39°47'14.8469"N | 80°36'14.1645"W | 1917.05 | 147.044 | 0.54 | -0.51 | 0.18 | |
| 11635.00 | 90.800 | 146.790 | 7148.01 | 2007.78 | -1685.33 | 1091.74 | 1751727.29 | 14449508.93 | 39°47'14.0861"N | 80°36'13.5430"W | 2008.04 | 147.065 | 1.82 | 0.85 | -1.62 | |
| 11725.00 | 89.780 | 147.330 | 7147.55 | 2097.77 | -1760.86 | 1140.67 | 1751776.21 | 14449433.43 | 39°47'13.3375"N | 80°36'12.9204"W | 2098.04 | 147.065 | 1.28 | -1.13 | 0.60 | |
| 11816.00 | 90.120 | 147.650 | 7147.63 | 2188.76 | -1837.60 | 1189.58 | 1751825.10 | 14449356.72 | 39°47'12.5770"N | 80°36'12.2982"W | 2189.04 | 147.083 | 0.51 | 0.37 | 0.35 | |
| 11907.00 | 89.690 | 149.420 | 7147.78 | 2279.75 | -1915.22 | 1237.08 | 1751872.58 | 14449279.14 | 39°47'11.8079"N | 80°36'11.6942"W | 2280.00 | 147.141 | 2.00 | -0.47 | 1.95 | |
| 11997.00 | 90.250 | 148.340 | 7147.83 | 2369.74 | -1992.26 | 1283.59 | 1751919.08 | 14449202.12 | 39°47'11.0444"N | 80°36'11.1027"W | 2369.96 | 147.207 | 1.35 | 0.62 | -1.20 | |
| 12088.00 | 90.830 | 148.660 | 7146.97 | 2460.73 | -2069.85 | 1331.14 | 1751966.60 | 14449124.56 | 39°47'10.2756"N | 80°36'10.4981"W | 2460.94 | 147.255 | 0.73 | 0.64 | 0.35 | |
| 12179.00 | 90.710 | 148.420 | 7145.75 | 2551.72 | -2147.47 | 1378.63 | 1752014.07 | 14449046.98 | 39°47'9.5064"N | 80°36'9.8942"W | 2551.91 | 147.300 | 0.29 | -0.13 | -0.26 | |
| 12269.00 | 90.490 | 148.290 | 7144.80 | 2641.71 | -2224.08 | 1425.84 | 1752061.27 | 14448970.39 | 39°47'8.7472"N | 80°36'9.2937"W | 2641.89 | 147.336 | 0.28 | -0.24 | -0.14 | |
| 12360.00 | 90.860 | 146.610 | 7143.73 | 2732.70 | -2300.78 | 1474.80 | 1752110.21 | 14448893.72 | 39°47'7.9874"N | 80°36'8.6710"W | 2732.88 | 147.340 | 1.89 | 0.41 | -1.85 | |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 7 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | | |
|-----------------------------------|-----------------------------|--|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | | Well | Charles Jamison MSH 8H |
| Field | Marshall | | API/Legal | |
| Facility | Charles Jamison MSH Pad | | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | | |

| WELLPATH DATA (280 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] |
| 12451.00 | 90.460 | 149.030 | 7142.68 | 2823.69 | -2377.79 | 1523.26 | 1752158.65 | 14448816.74 | 39°47'7.2239"N | 80°36'8.0547"W | 2823.86 | 147.356 | 2.70 | -0.44 | 2.66 |
| 12541.00 | 90.680 | 147.490 | 7141.79 | 2913.68 | -2454.32 | 1570.60 | 1752205.97 | 14448740.24 | 39°47'6.4655"N | 80°36'7.4526"W | 2913.84 | 147.384 | 1.73 | 0.24 | -1.71 |
| 12632.00 | 91.390 | 148.230 | 7140.14 | 3004.66 | -2531.36 | 1619.00 | 1752254.35 | 14448663.23 | 39°47'5.7020"N | 80°36'6.8370"W | 3004.82 | 147.398 | 1.13 | 0.78 | 0.81 |
| 12723.00 | 90.650 | 147.900 | 7138.52 | 3095.65 | -2608.58 | 1667.13 | 1752302.46 | 14448586.05 | 39°47'4.9368"N | 80°36'6.2249"W | 3095.80 | 147.418 | 0.89 | -0.81 | -0.36 |
| 12814.00 | 91.140 | 148.770 | 7137.10 | 3186.63 | -2686.02 | 1714.89 | 1752350.21 | 14448508.63 | 39°47'4.1694"N | 80°36'5.6175"W | 3186.78 | 147.444 | 1.10 | 0.54 | 0.96 |
| 12904.00 | 90.340 | 147.560 | 7135.94 | 3276.62 | -2762.47 | 1762.36 | 1752397.66 | 14448432.21 | 39°47'3.4117"N | 80°36'5.0138"W | 3276.76 | 147.464 | 1.61 | -0.89 | -1.34 |
| 12995.00 | 91.110 | 147.820 | 7134.79 | 3367.61 | -2839.38 | 1811.00 | 1752446.27 | 14448355.34 | 39°47'2.6496"N | 80°36'4.3952"W | 3367.75 | 147.470 | 0.89 | 0.85 | 0.29 |
| 13086.00 | 90.980 | 148.330 | 7133.13 | 3458.60 | -2916.60 | 1859.11 | 1752494.37 | 14448278.14 | 39°47'1.8843"N | 80°36'3.7833"W | 3458.73 | 147.486 | 0.58 | -0.14 | 0.56 |
| 13176.00 | 91.480 | 149.930 | 7131.20 | 3548.56 | -2993.83 | 1905.28 | 1752540.52 | 14448200.94 | 39°47'1.1191"N | 80°36'3.1964"W | 3548.67 | 147.527 | 1.86 | 0.56 | 1.78 |
| 13267.00 | 90.890 | 146.980 | 7129.32 | 3639.52 | -3071.35 | 1952.87 | 1752588.09 | 14448123.45 | 39°47'0.3508"N | 80°36'2.5912"W | 3639.63 | 147.550 | 3.31 | -0.65 | -3.24 |
| 13358.00 | 91.260 | 148.430 | 7127.61 | 3730.50 | -3148.26 | 2001.48 | 1752636.68 | 14448046.57 | 39°46'59.5886"N | 80°36'1.9729"W | 3730.61 | 147.554 | 1.64 | 0.41 | 1.59 |
| 13449.00 | 90.620 | 148.200 | 7126.12 | 3821.49 | -3225.69 | 2049.27 | 1752684.45 | 14447969.17 | 39°46'58.8213"N | 80°36'1.3652"W | 3821.59 | 147.572 | 0.75 | -0.70 | -0.25 |
| 13539.00 | 91.260 | 148.730 | 7124.64 | 3911.47 | -3302.39 | 2096.33 | 1752731.50 | 14447892.51 | 39°46'58.0613"N | 80°36'0.7667"W | 3911.57 | 147.593 | 0.92 | 0.71 | 0.59 |
| 13630.00 | 90.890 | 148.690 | 7122.93 | 4002.45 | -3380.14 | 2143.59 | 1752778.74 | 14447814.79 | 39°46'57.2908"N | 80°36'0.1659"W | 4002.53 | 147.618 | 0.41 | -0.41 | -0.04 |
| 13720.00 | 91.260 | 148.990 | 7121.24 | 4092.42 | -3457.14 | 2190.15 | 1752825.28 | 14447737.81 | 39°46'56.5278"N | 80°35'59.5739"W | 4092.50 | 147.645 | 0.53 | 0.41 | 0.33 |
| 13811.00 | 90.340 | 148.290 | 7119.97 | 4183.41 | -3534.83 | 2237.50 | 1752872.61 | 14447660.15 | 39°46'55.7579"N | 80°35'58.9718"W | 4183.47 | 147.667 | 1.27 | -1.01 | -0.77 |
| 13902.00 | 91.230 | 147.900 | 7118.73 | 4274.40 | -3612.08 | 2285.59 | 1752920.68 | 14447582.93 | 39°46'54.9924"N | 80°35'58.3603"W | 4274.46 | 147.676 | 1.07 | 0.98 | -0.43 |
| 13992.00 | 90.770 | 149.300 | 7117.15 | 4364.38 | -3688.88 | 2332.47 | 1752967.55 | 14447506.16 | 39°46'54.2313"N | 80°35'57.7642"W | 4364.43 | 147.695 | 1.64 | -0.51 | 1.56 |
| 14083.00 | 90.090 | 148.480 | 7116.47 | 4455.36 | -3766.79 | 2379.49 | 1753014.55 | 14447428.28 | 39°46'53.4592"N | 80°35'57.1664"W | 4455.41 | 147.719 | 1.17 | -0.75 | -0.90 |
| 14174.00 | 90.580 | 148.290 | 7115.94 | 4546.36 | -3844.29 | 2427.19 | 1753062.23 | 14447350.82 | 39°46'52.6913"N | 80°35'56.5599"W | 4546.40 | 147.733 | 0.58 | 0.54 | -0.21 |
| 14264.00 | 91.110 | 149.230 | 7114.61 | 4636.34 | -3921.23 | 2473.86 | 1753108.88 | 14447273.91 | 39°46'51.9289"N | 80°35'55.9665"W | 4636.38 | 147.753 | 1.20 | 0.59 | 1.04 |
| 14355.00 | 89.850 | 147.800 | 7113.85 | 4727.33 | -3998.82 | 2521.38 | 1753156.39 | 14447196.34 | 39°46'51.1599"N | 80°35'55.3622"W | 4727.36 | 147.767 | 2.09 | -1.38 | -1.57 |
| 14446.00 | 90.770 | 148.170 | 7113.36 | 4818.33 | -4075.98 | 2569.63 | 1753204.61 | 14447119.21 | 39°46'50.3952"N | 80°35'54.7488"W | 4818.36 | 147.771 | 1.09 | 1.01 | 0.41 |
| 14536.00 | 90.550 | 148.330 | 7112.32 | 4908.32 | -4152.51 | 2616.98 | 1753251.95 | 14447042.71 | 39°46'49.6369"N | 80°35'54.1466"W | 4908.35 | 147.780 | 0.30 | -0.24 | 0.18 |
| 14627.00 | 90.490 | 148.470 | 7111.50 | 4999.31 | -4230.01 | 2664.66 | 1753299.61 | 14446965.24 | 39°46'48.8688"N | 80°35'53.5403"W | 4999.34 | 147.791 | 0.17 | -0.07 | 0.15 |
| 14718.00 | 90.460 | 148.350 | 7110.74 | 5090.31 | -4307.52 | 2712.33 | 1753347.26 | 14446887.76 | 39°46'48.1007"N | 80°35'52.9342"W | 5090.33 | 147.802 | 0.14 | -0.03 | -0.13 |
| 14808.00 | 90.060 | 149.150 | 7110.33 | 5180.30 | -4384.46 | 2759.02 | 1753393.93 | 14446810.85 | 39°46'47.3382"N | 80°35'52.3406"W | 5180.32 | 147.819 | 0.99 | -0.44 | 0.89 |
| 14899.00 | 90.180 | 148.980 | 7110.14 | 5271.28 | -4462.52 | 2805.80 | 1753440.69 | 14446732.82 | 39°46'46.5648"N | 80°35'51.7460"W | 5271.30 | 147.840 | 0.23 | 0.13 | -0.19 |
| 14990.00 | 90.000 | 147.060 | 7110.00 | 5362.28 | -4539.70 | 2853.99 | 1753488.86 | 14446655.67 | 39°46'45.7998"N | 80°35'51.1331"W | 5362.29 | 147.844 | 2.12 | -0.20 | -2.11 |
| 15080.00 | 90.180 | 148.700 | 7109.86 | 5452.27 | -4615.93 | 2901.84 | 1753536.70 | 14446579.48 | 39°46'45.0444"N | 80°35'50.5246"W | 5452.29 | 147.844 | 1.83 | 0.20 | 1.82 |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 8 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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] | |
| 15171.00 | 90.250 | 148.530 | 7109.52 | 5543.27 | -4693.61 | 2949.23 | 1753584.07 | 14445501.82 | 39°46'44.2746"N | 80°35'49.9221"W | 5543.28 | 147.857 | 0.20 | 0.08 | -0.19 | |
| 15262.00 | 90.520 | 148.990 | 7108.90 | 5634.26 | -4771.41 | 2986.43 | 1753631.24 | 14445424.05 | 39°46'43.5036"N | 80°35'49.3221"W | 5634.27 | 147.871 | 0.59 | 0.30 | 0.51 | |
| 15352.00 | 90.030 | 148.460 | 7108.47 | 5724.25 | -4848.33 | 3043.15 | 1753677.95 | 14446347.16 | 39°46'42.7414"N | 80°35'48.7281"W | 5724.26 | 147.885 | 0.80 | -0.54 | -0.59 | |
| 15443.00 | 90.370 | 149.420 | 7108.15 | 5815.23 | -4926.29 | 3080.10 | 1753724.88 | 14446269.24 | 39°46'41.9689"N | 80°35'48.1313"W | 5815.24 | 147.901 | 1.12 | 0.37 | 1.05 | |
| 15534.00 | 89.660 | 147.980 | 7108.13 | 5906.22 | -5004.04 | 3137.37 | 1753772.14 | 14446191.51 | 39°46'41.1984"N | 80°35'47.5303"W | 5906.23 | 147.914 | 1.76 | -0.78 | -1.58 | |
| 15624.00 | 90.800 | 148.200 | 7107.77 | 5996.22 | -5080.44 | 3184.95 | 1753819.69 | 14446115.14 | 39°46'40.4413"N | 80°35'46.9254"W | 5996.23 | 147.916 | 1.29 | 1.27 | 0.24 | |
| 15715.00 | 90.120 | 148.930 | 7107.04 | 6087.21 | -5158.08 | 3232.40 | 1753867.13 | 14446037.53 | 39°46'39.6719"N | 80°35'46.3220"W | 6087.22 | 147.926 | 1.10 | -0.75 | 0.80 | |
| 15805.00 | 89.910 | 147.760 | 7107.02 | 6177.21 | -5234.69 | 3279.63 | 1753914.34 | 14445960.96 | 39°46'38.9127"N | 80°35'45.7215"W | 6177.21 | 147.932 | 1.32 | -0.23 | -1.30 | |
| 15896.00 | 90.220 | 148.080 | 7108.91 | 6268.21 | -5311.79 | 3327.96 | 1753962.65 | 14445883.88 | 39°46'38.1485"N | 80°35'45.1069"W | 6268.21 | 147.932 | 0.49 | 0.34 | 0.35 | |
| 15987.00 | 90.310 | 147.380 | 7106.49 | 6359.21 | -5388.73 | 3376.55 | 1754011.22 | 14445806.97 | 39°46'37.3860"N | 80°35'44.4891"W | 6359.21 | 147.929 | 0.78 | 0.10 | -0.77 | |
| 16077.00 | 90.460 | 148.750 | 7105.89 | 6449.20 | -5465.11 | 3424.15 | 1754058.80 | 14445730.62 | 39°46'36.6290"N | 80°35'43.8838"W | 6449.20 | 147.931 | 1.53 | 0.17 | 1.52 | |
| 16168.00 | 90.030 | 148.840 | 7105.50 | 6540.19 | -5542.94 | 3471.30 | 1754105.93 | 14445652.82 | 39°46'35.8577"N | 80°35'43.2845"W | 6540.19 | 147.943 | 0.48 | -0.47 | 0.10 | |
| 16258.00 | 89.880 | 148.740 | 7105.57 | 6630.18 | -5619.92 | 3517.94 | 1754152.55 | 14445575.87 | 39°46'35.0950"N | 80°35'42.6916"W | 6630.18 | 147.954 | 0.20 | -0.17 | -0.11 | |
| 16349.00 | 90.000 | 147.730 | 7105.66 | 6721.18 | -5697.28 | 3565.84 | 1754200.44 | 14445498.54 | 39°46'34.3282"N | 80°35'42.0825"W | 6721.18 | 147.958 | 1.12 | 0.13 | -1.11 | |
| 16440.00 | 90.150 | 149.020 | 7105.54 | 6812.18 | -5774.77 | 3613.56 | 1754248.13 | 14445421.08 | 39°46'33.5603"N | 80°35'41.4759"W | 6812.18 | 147.964 | 1.43 | 0.16 | 1.42 | |
| 16530.00 | 89.880 | 148.650 | 7105.52 | 6902.17 | -5851.78 | 3660.13 | 1754294.69 | 14445344.10 | 39°46'32.7972"N | 80°35'40.8838"W | 6902.17 | 147.975 | 0.51 | -0.30 | -0.41 | |
| 16621.00 | 90.030 | 148.670 | 7105.59 | 6993.16 | -5929.50 | 3707.46 | 1754342.00 | 14445266.41 | 39°46'32.0270"N | 80°35'40.2822"W | 6993.16 | 147.984 | 0.17 | 0.16 | 0.02 | |
| 16712.00 | 89.910 | 148.480 | 7105.64 | 7084.15 | -6007.16 | 3754.91 | 1754389.43 | 14445188.79 | 39°46'31.2574"N | 80°35'39.6790"W | 7084.15 | 147.992 | 0.25 | -0.13 | -0.21 | |
| 16802.00 | 90.490 | 149.070 | 7105.33 | 7174.15 | -6084.12 | 3801.56 | 1754436.07 | 14445111.85 | 39°46'30.4948"N | 80°35'39.0859"W | 7174.15 | 148.001 | 0.92 | 0.64 | 0.66 | |
| 16893.00 | 90.090 | 148.290 | 7104.87 | 7265.14 | -6161.85 | 3848.87 | 1754483.35 | 14445034.15 | 39°46'29.7244"N | 80°35'38.4846"W | 7265.14 | 148.010 | 0.96 | -0.44 | -0.86 | |
| 16983.00 | 90.280 | 148.440 | 7104.57 | 7355.13 | -6238.48 | 3896.07 | 1754530.54 | 14444957.55 | 39°46'28.9650"N | 80°35'37.8845"W | 7355.13 | 148.014 | 0.27 | 0.21 | 0.17 | |
| 17074.00 | 89.880 | 148.580 | 7104.45 | 7446.13 | -6316.08 | 3943.60 | 1754578.05 | 14444879.98 | 39°46'28.1960"N | 80°35'37.2802"W | 7446.13 | 148.020 | 0.47 | -0.44 | 0.15 | |
| 17165.00 | 90.180 | 148.300 | 7104.40 | 7537.13 | -6393.62 | 3991.23 | 1754625.66 | 14444802.47 | 39°46'27.4276"N | 80°35'36.6747"W | 7537.13 | 148.025 | 0.45 | 0.33 | -0.31 | |
| 17255.00 | 90.090 | 148.640 | 7104.19 | 7627.12 | -6470.33 | 4038.30 | 1754672.71 | 14444725.79 | 39°46'26.6674"N | 80°35'36.0764"W | 7627.13 | 148.031 | 0.39 | -0.10 | 0.38 | |
| 17346.00 | 90.060 | 148.650 | 7104.07 | 7718.12 | -6548.04 | 4085.65 | 1754720.04 | 14444648.11 | 39°46'25.8972"N | 80°35'35.4745"W | 7718.12 | 148.038 | 0.03 | -0.03 | 0.01 | |
| 17437.00 | 89.660 | 148.770 | 7104.29 | 7809.11 | -6625.81 | 4132.91 | 1754767.29 | 14444570.38 | 39°46'25.1266"N | 80°35'34.8737"W | 7809.11 | 148.046 | 0.46 | -0.44 | 0.13 | |
| 17527.00 | 89.750 | 147.500 | 7104.75 | 7899.11 | -6702.24 | 4180.42 | 1754814.78 | 14444493.97 | 39°46'24.3691"N | 80°35'34.2696"W | 7899.11 | 148.047 | 1.41 | 0.10 | -1.41 | |
| 17618.00 | 90.460 | 148.510 | 7104.59 | 7990.10 | -6779.41 | 4228.64 | 1754862.98 | 14444416.83 | 39°46'23.6043"N | 80°35'33.6566"W | 7990.11 | 148.046 | 1.36 | 0.78 | 1.11 | |
| 17709.00 | 89.110 | 148.580 | 7104.93 | 8081.10 | -6857.04 | 4276.12 | 1754910.44 | 14444339.23 | 39°46'22.8350"N | 80°35'33.0530"W | 8081.10 | 148.052 | 1.49 | -1.48 | 0.08 | |
| 17799.00 | 89.380 | 148.730 | 7106.11 | 8171.08 | -6933.90 | 4322.93 | 1754957.24 | 14444262.40 | 39°46'22.0733"N | 80°35'32.4580"W | 8171.09 | 148.059 | 0.34 | 0.30 | 0.17 | |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 9 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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] |
| 17890.00 | 89.230 | 148.710 | 7107.22 | 8262.07 | -7011.66 | 4370.18 | 1755004.46 | 14444184.67 | 39°46'21.3027"N | 80°35'31.8574"W | 8262.08 | 148.066 | 0.17 | -0.16 | -0.02 |
| 17981.00 | 89.170 | 147.770 | 7108.49 | 8353.06 | -7089.03 | 4418.07 | 1755052.34 | 14444107.33 | 39°46'20.5359"N | 80°35'31.2485"W | 8353.07 | 148.068 | 1.03 | -0.07 | -1.03 |
| 18071.00 | 89.420 | 148.540 | 7109.60 | 8443.05 | -7165.48 | 4465.56 | 1755099.80 | 14444030.92 | 39°46'19.7783"N | 80°35'30.6449"W | 8443.06 | 148.069 | 0.90 | 0.28 | 0.86 |
| 18162.00 | 89.420 | 148.610 | 7110.52 | 8534.04 | -7243.12 | 4513.00 | 1755147.23 | 14443953.30 | 39°46'19.0088"N | 80°35'30.0418"W | 8534.05 | 148.074 | 0.08 | 0.00 | 0.08 |
| 18253.00 | 89.480 | 148.590 | 7111.39 | 8625.03 | -7320.79 | 4560.41 | 1755194.62 | 14443875.66 | 39°46'18.2391"N | 80°35'29.4392"W | 8625.04 | 148.080 | 0.07 | 0.07 | -0.02 |
| 18343.00 | 89.230 | 149.090 | 7112.40 | 8715.02 | -7397.80 | 4606.97 | 1755241.17 | 14443798.68 | 39°46'17.4759"N | 80°35'28.8473"W | 8715.03 | 148.087 | 0.62 | -0.28 | 0.56 |
| 18434.00 | 89.020 | 148.630 | 7113.79 | 8805.99 | -7475.68 | 4654.03 | 1755288.20 | 14443720.83 | 39°46'16.7042"N | 80°35'28.2493"W | 8806.01 | 148.095 | 0.56 | -0.23 | -0.51 |
| 18525.00 | 89.350 | 148.820 | 7115.09 | 8896.98 | -7553.45 | 4701.27 | 1755335.42 | 14443643.09 | 39°46'15.9335"N | 80°35'27.6489"W | 8896.99 | 148.102 | 0.42 | 0.36 | 0.21 |
| 18616.00 | 89.080 | 146.380 | 7116.34 | 8987.96 | -7630.27 | 4750.02 | 1755384.15 | 14443566.30 | 39°46'15.1721"N | 80°35'27.0290"W | 8987.98 | 148.097 | 2.70 | -0.30 | -2.68 |
| 18706.00 | 88.800 | 145.490 | 7118.00 | 9077.89 | -7704.81 | 4800.42 | 1755434.54 | 14443491.79 | 39°46'14.4331"N | 80°35'26.3879"W | 9077.90 | 148.075 | 1.04 | -0.31 | -0.99 |
| 18797.00 | 89.200 | 146.450 | 7119.59 | 9168.81 | -7780.22 | 4851.34 | 1755485.44 | 14443416.41 | 39°46'13.6857"N | 80°35'25.7402"W | 9168.82 | 148.054 | 1.14 | 0.44 | 1.05 |
| 18887.00 | 89.850 | 146.380 | 7120.33 | 9258.78 | -7855.19 | 4901.12 | 1755535.20 | 14443341.47 | 39°46'12.9425"N | 80°35'25.1070"W | 9258.78 | 148.039 | 0.73 | 0.72 | -0.08 |
| 18978.00 | 89.260 | 147.060 | 7121.04 | 9349.75 | -7931.26 | 4951.05 | 1755585.11 | 14443265.43 | 39°46'12.1884"N | 80°35'24.4720"W | 9349.75 | 148.026 | 0.99 | -0.65 | 0.75 |
| 19069.00 | 89.260 | 146.510 | 7122.22 | 9440.72 | -8007.39 | 5000.90 | 1755634.94 | 14443189.33 | 39°46'11.4339"N | 80°35'23.8381"W | 9440.72 | 148.014 | 0.60 | 0.00 | -0.60 |
| 19160.00 | 89.350 | 146.740 | 7123.32 | 9531.69 | -8083.38 | 5050.95 | 1755684.97 | 14443113.37 | 39°46'10.6806"N | 80°35'23.2015"W | 9531.69 | 148.001 | 0.27 | 0.10 | 0.25 |
| 19250.00 | 89.230 | 146.820 | 7124.44 | 9621.66 | -8158.66 | 5100.26 | 1755734.26 | 14443038.11 | 39°46'9.9344"N | 80°35'22.5745"W | 9621.66 | 147.989 | 0.16 | -0.13 | 0.09 |
| 19341.00 | 89.200 | 146.930 | 7125.68 | 9712.64 | -8234.87 | 5149.98 | 1755783.96 | 14442961.94 | 39°46'9.1790"N | 80°35'21.9422"W | 9712.64 | 147.979 | 0.13 | -0.03 | 0.12 |
| 19432.00 | 89.050 | 147.080 | 7127.07 | 9803.61 | -8311.18 | 5199.53 | 1755833.49 | 14442885.66 | 39°46'8.4226"N | 80°35'21.3122"W | 9803.61 | 147.970 | 0.23 | -0.16 | 0.16 |
| 19522.00 | 89.200 | 146.880 | 7128.45 | 9893.59 | -8386.63 | 5248.57 | 1755882.51 | 14442810.23 | 39°46'7.6747"N | 80°35'20.6886"W | 9893.59 | 147.961 | 0.28 | 0.17 | -0.22 |
| 19613.00 | 89.880 | 146.010 | 7129.18 | 9984.55 | -8462.47 | 5298.87 | 1755932.79 | 14442734.43 | 39°46'6.9230"N | 80°35'20.0489"W | 9984.55 | 147.947 | 1.21 | 0.75 | -0.96 |
| 19704.00 | 89.910 | 146.370 | 7129.34 | 10075.51 | -8538.08 | 5349.50 | 1755983.41 | 14442658.85 | 39°46'6.1735"N | 80°35'19.4049"W | 10075.51 | 147.931 | 0.40 | 0.03 | 0.40 |
| 19794.00 | 89.940 | 147.260 | 7129.46 | 10165.49 | -8613.40 | 5398.76 | 1756032.65 | 14442583.56 | 39°46'5.4269"N | 80°35'18.7785"W | 10165.49 | 147.921 | 0.99 | 0.03 | 0.99 |
| 19885.00 | 89.850 | 148.240 | 7129.63 | 10256.48 | -8690.36 | 5447.32 | 1756081.19 | 14442506.63 | 39°46'4.6641"N | 80°35'18.1612"W | 10256.49 | 147.920 | 1.08 | -0.10 | 1.08 |
| 19976.00 | 89.110 | 146.430 | 7130.45 | 10347.47 | -8766.96 | 5496.43 | 1756130.28 | 14442430.05 | 39°46'3.9049"N | 80°35'17.5368"W | 10347.48 | 147.914 | 2.15 | -0.81 | -1.99 |
| 20066.00 | 89.510 | 147.550 | 7131.54 | 10437.45 | -8842.42 | 5545.46 | 1756179.29 | 14442354.62 | 39°46'3.1569"N | 80°35'16.9134"W | 10437.46 | 147.906 | 1.32 | 0.44 | 1.24 |
| 20157.00 | 89.540 | 147.860 | 7132.29 | 10528.44 | -8919.34 | 5594.08 | 1756227.88 | 14442277.73 | 39°46'2.3945"N | 80°35'16.2953"W | 10528.46 | 147.905 | 0.34 | 0.03 | 0.34 |
| 20248.00 | 89.420 | 147.610 | 7133.12 | 10619.44 | -8996.29 | 5642.65 | 1756276.44 | 14442200.81 | 39°46'1.6318"N | 80°35'15.6777"W | 10619.45 | 147.903 | 0.30 | -0.13 | -0.27 |
| 20338.00 | 89.660 | 147.300 | 7133.84 | 10709.43 | -9072.15 | 5691.07 | 1756324.84 | 14442124.98 | 39°46'0.8799"N | 80°35'15.0622"W | 10709.45 | 147.899 | 0.44 | 0.27 | -0.34 |
| 20429.00 | 89.450 | 147.770 | 7134.55 | 10800.43 | -9148.93 | 5739.91 | 1756373.67 | 14442048.23 | 39°46'0.1189"N | 80°35'14.4412"W | 10800.44 | 147.896 | 0.57 | -0.23 | 0.52 |
| 20520.00 | 88.820 | 146.610 | 7136.08 | 10891.40 | -9225.40 | 5789.21 | 1756422.95 | 14441971.79 | 39°45'59.3610"N | 80°35'13.8144"W | 10891.42 | 147.891 | 1.57 | -0.91 | -1.27 |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 10 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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) |
| 20610.00 | 88.280 | 147.580 | 7138.52 | 10981.36 | -9300.93 | 5838.09 | 1756471.80 | 14441896.29 | 39°45'58.6123"N | 80°35'13.1930"W | 10981.36 | 147.884 | 1.14 | -0.38 | 1.08 |
| 20701.00 | 87.450 | 147.280 | 7141.91 | 11072.29 | -9377.57 | 5887.04 | 1756520.74 | 14441819.68 | 39°45'57.8527"N | 80°35'12.5706"W | 11072.31 | 147.880 | 0.97 | -0.91 | -0.33 |
| 20792.00 | 88.030 | 147.060 | 7145.49 | 11163.21 | -9453.97 | 5936.34 | 1756570.01 | 14441743.31 | 39°45'57.0954"N | 80°35'11.9438"W | 11163.23 | 147.874 | 0.68 | 0.64 | -0.24 |
| 20882.00 | 87.910 | 147.630 | 7148.68 | 11253.15 | -9529.70 | 5984.87 | 1756618.53 | 14441667.61 | 39°45'56.3448"N | 80°35'11.3268"W | 11253.17 | 147.870 | 0.65 | -0.13 | 0.63 |
| 20973.00 | 87.910 | 146.290 | 7152.00 | 11344.07 | -9605.93 | 6034.45 | 1756668.09 | 14441591.41 | 39°45'55.5891"N | 80°35'10.6964"W | 11344.10 | 147.863 | 1.47 | 0.00 | -1.47 |
| 21064.00 | 87.350 | 148.710 | 7155.76 | 11434.98 | -9682.61 | 6083.30 | 1756716.92 | 14441514.76 | 39°45'54.8291"N | 80°35'10.0754"W | 11435.01 | 147.860 | 2.73 | -0.62 | 2.66 |
| 21154.00 | 87.420 | 149.860 | 7159.87 | 11524.86 | -9759.90 | 6129.22 | 1756762.82 | 14441437.50 | 39°45'54.0632"N | 80°35'9.4919"W | 11524.89 | 147.871 | 1.28 | 0.08 | 1.28 |
| 21245.00 | 88.830 | 148.520 | 7162.85 | 11615.79 | -9838.01 | 6175.80 | 1756809.39 | 14441359.42 | 39°45'53.2891"N | 80°35'8.9000"W | 11615.81 | 147.881 | 2.14 | 1.55 | -1.47 |
| 21335.00 | 87.850 | 149.020 | 7165.46 | 11705.74 | -9914.94 | 6222.44 | 1756856.01 | 14441282.52 | 39°45'52.5268"N | 80°35'8.3073"W | 11705.76 | 147.888 | 1.22 | -1.09 | 0.56 |
| 21426.00 | 86.860 | 148.710 | 7169.65 | 11796.63 | -9992.74 | 6269.45 | 1756902.99 | 14441204.74 | 39°45'51.7557"N | 80°35'7.7100"W | 11796.65 | 147.896 | 1.14 | -1.09 | -0.34 |
| 21517.00 | 87.010 | 148.590 | 7174.52 | 11887.50 | -10070.35 | 6316.72 | 1756950.25 | 14441127.17 | 39°45'50.9866"N | 80°35'7.1092"W | 11887.51 | 147.902 | 0.21 | 0.16 | -0.13 |
| 21607.00 | 87.040 | 148.770 | 7179.19 | 11977.37 | -10147.13 | 6363.44 | 1756996.95 | 14441050.42 | 39°45'50.2257"N | 80°35'6.5155"W | 11977.38 | 147.907 | 0.20 | 0.03 | 0.20 |
| 21698.00 | 88.310 | 148.060 | 7182.88 | 12068.29 | -10224.58 | 6411.07 | 1757044.56 | 14440973.00 | 39°45'49.4580"N | 80°35'5.9103"W | 12068.30 | 147.911 | 1.60 | 1.40 | -0.78 |
| 21789.00 | 88.250 | 148.540 | 7185.61 | 12159.25 | -10301.97 | 6458.86 | 1757092.33 | 14440895.64 | 39°45'48.6910"N | 80°35'5.3028"W | 12159.26 | 147.914 | 0.53 | -0.07 | 0.53 |
| 21879.00 | 88.250 | 148.600 | 7188.36 | 12249.20 | -10378.73 | 6505.77 | 1757139.23 | 14440818.91 | 39°45'47.9303"N | 80°35'4.7067"W | 12249.21 | 147.919 | 0.07 | 0.00 | 0.07 |
| 21970.00 | 88.090 | 148.410 | 7191.27 | 12340.15 | -10456.29 | 6553.29 | 1757186.72 | 14440741.38 | 39°45'47.1617"N | 80°35'4.1028"W | 12340.16 | 147.923 | 0.27 | -0.18 | -0.21 |
| 22060.00 | 88.370 | 148.390 | 7194.05 | 12430.10 | -10532.90 | 6600.42 | 1757233.84 | 14440664.79 | 39°45'46.4023"N | 80°35'3.5038"W | 12430.11 | 147.927 | 0.31 | 0.31 | -0.02 |
| 22151.00 | 88.250 | 148.830 | 7196.73 | 12521.06 | -10610.55 | 6647.80 | 1757281.20 | 14440587.18 | 39°45'45.6328"N | 80°35'2.9017"W | 12521.06 | 147.932 | 0.50 | -0.13 | 0.48 |
| 22242.00 | 88.220 | 148.440 | 7199.54 | 12612.01 | -10688.22 | 6695.14 | 1757328.52 | 14440509.54 | 39°45'44.8631"N | 80°35'2.3001"W | 12612.01 | 147.937 | 0.43 | -0.03 | -0.43 |
| 22332.00 | 88.340 | 148.680 | 7202.24 | 12701.96 | -10764.96 | 6742.08 | 1757375.44 | 14440432.83 | 39°45'44.1025"N | 80°35'1.7036"W | 12701.97 | 147.941 | 0.28 | 0.13 | 0.24 |
| 22423.00 | 88.220 | 148.980 | 7204.97 | 12792.91 | -10842.78 | 6789.17 | 1757422.52 | 14440355.04 | 39°45'43.3313"N | 80°35'1.1052"W | 12792.92 | 147.947 | 0.38 | -0.13 | 0.35 |
| 22514.00 | 88.370 | 148.430 | 7207.68 | 12883.87 | -10920.51 | 6836.42 | 1757469.75 | 14440277.34 | 39°45'42.5610"N | 80°35'0.5049"W | 12883.87 | 147.953 | 0.63 | 0.16 | -0.60 |
| 22604.00 | 88.280 | 148.780 | 7210.31 | 12973.82 | -10997.30 | 6883.28 | 1757516.59 | 14440200.58 | 39°45'41.7999"N | 80°34'59.9093"W | 12973.82 | 147.957 | 0.40 | -0.10 | 0.39 |
| 22695.00 | 88.370 | 148.240 | 7212.97 | 13064.78 | -11074.86 | 6930.80 | 1757564.09 | 14440123.05 | 39°45'41.0312"N | 80°34'59.3055"W | 13064.78 | 147.961 | 0.60 | 0.10 | -0.59 |
| 22785.00 | 88.250 | 148.330 | 7215.62 | 13154.74 | -11151.39 | 6978.09 | 1757611.36 | 14440046.55 | 39°45'40.2728"N | 80°34'58.7045"W | 13154.74 | 147.963 | 0.17 | -0.13 | 0.10 |
| 22876.00 | 88.340 | 148.390 | 7218.33 | 13245.70 | -11228.83 | 7025.80 | 1757659.06 | 14439969.14 | 39°45'39.5053"N | 80°34'58.0981"W | 13245.70 | 147.966 | 0.12 | 0.10 | 0.07 |
| 22967.00 | 88.310 | 149.280 | 7220.99 | 13336.65 | -11306.66 | 7072.88 | 1757706.11 | 14439891.34 | 39°45'38.7339"N | 80°34'57.5000"W | 13336.65 | 147.972 | 0.98 | -0.03 | 0.98 |
| 23057.00 | 88.150 | 148.710 | 7223.77 | 13426.59 | -11383.76 | 7119.21 | 1757752.43 | 14439814.26 | 39°45'37.9698"N | 80°34'56.9113"W | 13426.59 | 147.979 | 0.65 | -0.18 | -0.63 |
| 23148.00 | 88.190 | 148.590 | 7226.67 | 13517.54 | -11461.44 | 7166.53 | 1757799.73 | 14439736.62 | 39°45'37.2000"N | 80°34'56.3100"W | 13517.54 | 147.983 | 0.14 | 0.04 | -0.13 |
| 23238.00 | 88.120 | 148.690 | 7229.57 | 13607.48 | -11539.25 | 7213.35 | 1757846.53 | 14439659.84 | 39°45'36.4387"N | 80°34'55.7152"W | 13607.48 | 147.988 | 0.14 | -0.08 | 0.11 |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 11 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| WELLPATH DATA (280 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] |
| 23329.00 | 88.430 | 148.980 | 7232.31 | 13698.43 | -11616.08 | 7260.42 | 1757893.58 | 14439582.03 | 39°45'35.6674"N | 80°34'55.1171"W | 13698.43 | 147.993 | 0.47 | 0.34 | 0.32 |
| 23420.00 | 88.250 | 148.700 | 7234.95 | 13789.38 | -11693.92 | 7307.49 | 1757940.63 | 14439504.23 | 39°45'34.8959"N | 80°34'54.5190"W | 13789.39 | 147.999 | 0.37 | -0.20 | -0.31 |
| 23510.00 | 88.310 | 149.120 | 7237.65 | 13879.33 | -11770.96 | 7353.94 | 1757987.06 | 14439427.22 | 39°45'34.1325"N | 80°34'53.9288"W | 13879.33 | 148.005 | 0.47 | 0.07 | 0.47 |
| 23601.00 | 88.120 | 148.800 | 7240.48 | 13970.28 | -11848.89 | 7400.84 | 1758033.95 | 14439349.32 | 39°45'33.3601"N | 80°34'53.3329"W | 13970.28 | 148.011 | 0.41 | -0.21 | -0.35 |
| 23691.00 | 88.180 | 148.150 | 7243.39 | 14060.22 | -11925.57 | 7447.87 | 1758080.96 | 14439272.67 | 39°45'32.6002"N | 80°34'52.7353"W | 14060.23 | 148.014 | 0.72 | 0.07 | -0.72 |
| 23782.00 | 88.120 | 148.830 | 7246.33 | 14151.17 | -12003.11 | 7495.41 | 1758128.48 | 14439195.16 | 39°45'31.8317"N | 80°34'52.1313"W | 14151.17 | 148.017 | 0.75 | -0.07 | 0.75 |
| 23873.00 | 88.180 | 148.460 | 7249.26 | 14242.12 | -12080.78 | 7542.73 | 1758175.79 | 14439117.52 | 39°45'31.0619"N | 80°34'51.5299"W | 14242.12 | 148.021 | 0.41 | 0.07 | -0.41 |
| 23963.00 | 88.150 | 148.690 | 7252.15 | 14332.07 | -12157.54 | 7589.63 | 1758222.67 | 14439040.79 | 39°45'30.3012"N | 80°34'50.9340"W | 14332.07 | 148.025 | 0.26 | -0.03 | 0.26 |
| 23989.00 | 88.400 | 148.550 | 7252.93 | 14358.06 | -12179.72 | 7603.17 | 1758236.20 | 14439018.61 | 39°45'30.0813"N | 80°34'50.7620"W | 14358.06 | 148.026 | 1.10 | 0.96 | -0.54 |
| 24014.00‡ | 88.400 | 148.550 | 7253.63 | 14383.04 | -12201.04 | 7616.21 | 1758249.23 | 14438997.30 | 39°45'29.8700"N | 80°34'50.5964"W | 14383.05 | 148.027 | 0.00 | 0.00 | 0.00 |

| HOLE & CASING SECTIONS - Ref Wellbore: Charles Jamison MSH 8H AWB Ref Wellpath: Charles Jamison MSH 8H AWP Proj: 24014' | | | | | | | | | | |
|---|---------------|-------------|---------------|----------------|--------------|----------------|----------------|--------------|--------------|--|
| 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 | 126.00 | 100.00 | 26.00 | 126.00 | 0.00 | 0.00 | 0.49 | -0.18 | |
| 17.5in Open Hole | 126.00 | 442.00 | 316.00 | 126.00 | 442.00 | 0.49 | -0.18 | 0.80 | 0.11 | |
| 13.375in Casing Surface | 26.00 | 442.00 | 416.00 | 26.00 | 442.00 | 0.00 | 0.00 | 0.80 | 0.11 | |
| 12.25in Open Hole | 442.00 | 2662.00 | 2220.00 | 442.00 | 2648.64 | 0.80 | 0.11 | 157.36 | -70.09 | |
| 9.625in Casing Intermediate | 26.00 | 2662.00 | 2636.00 | 26.00 | 2648.64 | 0.00 | 0.00 | 157.36 | -70.09 | |
| 8.75in Open Hole | 2662.00 | 6395.00 | 3733.00 | 2648.64 | 5862.89 | 157.36 | -70.09 | 1721.33 | -1054.34 | |
| 8.5in Open Hole | 6395.00 | 24014.00 | 17619.00 | 5862.89 | 7253.63 | 1721.33 | -1054.34 | -12201.04 | 7616.21 | |
| 5.5in Casing Production | 26.00 | 24014.00 | 23988.00 | 26.00 | 7253.63 | 0.00 | 0.00 | -12201.04 | 7616.21 | |

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



Actual Wellpath Report
 Charles Jamison MSH 8H AWP Proj: 24014'
 Page 12 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| TARGETS | | | | | | | | |
|----------------------------------|----------|------------|-----------|-------------------|--------------------|-----------------|-----------------|-------|
| Name | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape |
| Charles Jamison MSH 8H LP Rev-4 | 7140.00 | 1310.98 | -810.14 | 1749826.15 | 14452504.08 | 39°47'43.7799"N | 80°36'37.7388"W | point |
| Charles Jamison MSH 8H BHL Rev-4 | 7195.60 | -12200.30 | 7635.64 | 1758268.66 | 14438998.04 | 39°45'29.8764"N | 80°34'50.3474"W | point |

| WELLPATH COMPOSITION - Ref Wellbore: Charles Jamison MSH 8H AWB Ref Wellpath: Charles Jamison MSH 8H AWP Proj: 24014' | | | | | |
|---|-------------|--|---|----------------------------|-------------|
| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore | Survey Date |
| 26.00 | 483.00 | Gyrodatta 2015 - GC+WIR+DPIPE | 01_Gyrodatta GC+WIR+DPIPE <17 1/2"> (100'-483') | Charles Jamison MSH 8H AWB | 5/31/2020 |
| 483.00 | 2662.00 | OWSG MWD rev2 + HRGM | 02_Premier MWD <12 1/4"> (592'-2662') | Charles Jamison MSH 8H AWB | 6/2/2020 |
| 2662.00 | 6322.00 | OWSG MWD rev2 + HRGM | 03_Premier MWD <8 3/4"> (2746'-6322') | Charles Jamison MSH 8H AWB | 6/2/2020 |
| 6322.00 | 24014.00 | BH AutoTrak Curve (2019) (Short spacing) | 04_BH AT Curve <8 1/2"> (6438'-23989') | Charles Jamison MSH 8H AWB | 6/2/2020 |

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



Actual Wellpath Report
Charles Jamison MSH 8H AWP Proj: 24014'
Page 13 of 13



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-----------------------------|-----------|----------------------------|
| Operator | SWN PRODUCTION COMPANY, LLC | Well | Charles Jamison MSH 8H |
| Field | Marshall | API/Legal | |
| Facility | Charles Jamison MSH Pad | Wellbore | Charles Jamison MSH 8H AWB |
| Slot | Slot 8H | | |

| COMMENTS |
|--|
| Wellpath general comments API: 47-051-02127-0000 BH Job #: 110433029 Rig: SDC 46 Duration: 06/06/2020 - 06/10/2020 |

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