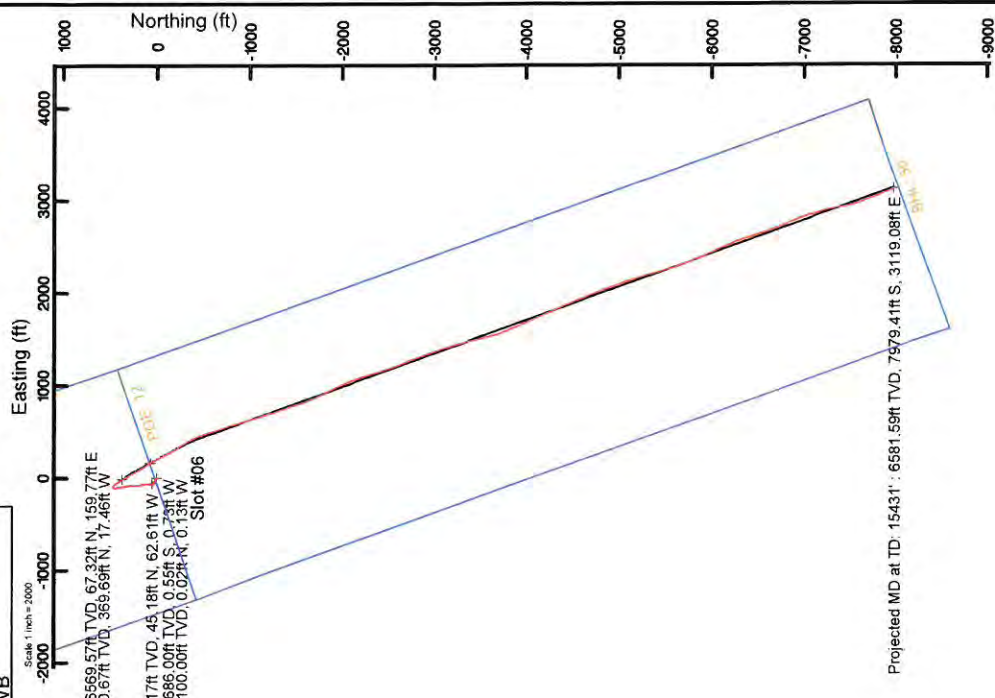




ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Field: Tyler
 Facility: Lemuel Pad

Slot: Slot #06
 Well: Midge Unit 3H
 Wellbore: Midge Unit 3H PWB



BHI AT Curve $-8-1/2^{\circ}$ (6356)\(6401-15406) : 6340.67ft TVD, 67.32ft N, 159.77ft E
 Panther EM $-8-3/4^{\circ}$ (2524)\(2645-6356) : 2641.17ft TVD, 43.18ft N, 62.61ft W
 Panther EM $-12-1/4^{\circ}$ (610)\(686-2524) : 686.00ft TVD, 0.55ft S, 0.73ft W
 Gyrodatta MS Gyro $-17-1/2^{\circ}$ (100-610) : 100.00ft TVD, 0.02ft N, 0.31ft W

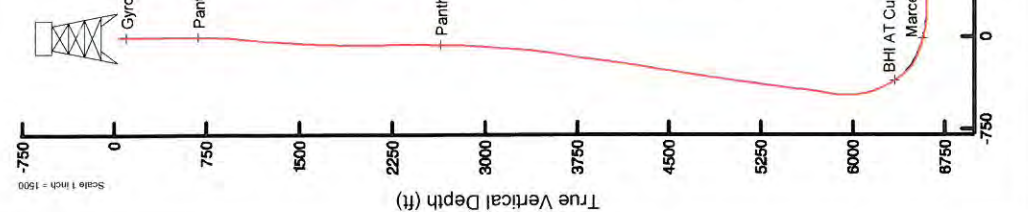
API: 47-095-02439-0000
 BHI Job #: 9263186
 Rig: Frontier 32
 Duration: 07/11/2018-07/14/2018

| Photoreference wellpath is Midge Unit 3H PWB Rev-A.0 | | Grid System: MD27 / UTM Zone 17 North, US feet | |
|---|----------------------------------|--|--|
| True vertical depths are referenced to Frontier 32 (RKB) | Scale: True distance | North Reference: Grid north | |
| Measured depths are referenced to Frontier 32 (RKB) | Scale: True distance | Depths are in feet | |
| Frontier 32 (RKB) to Mean Sea Level: 1190 feet | Created by: delat on 2018-09-03 | | |
| Mean Sea Level to Ground level (At Slot: Slot #06) : -1158 feet | Database: WA_MPL_EstimateUS_Defn | | |
| Coordinates are in feet referenced to Slot | | | |

| Location Information | | | |
|---|-------------------|-------------------|----------------|
| Facility Name | Grid East (US ft) | Latitude | Longitude |
| Lemuel Pad | 1664860.247 | 39°25'20.820"N | 80°54'48.400"W |
| Slot | Local N (ft) | Grid East (US ft) | Latitude |
| Slot #06 | -37.47 | 1664826.551 | 39°25'20.450"N |
| Frontier 32 (RKB) to Ground level (At Slot: Slot #06) | | 14315723.697 | 80°54'48.830"W |
| Mean Sea Level to Ground level (At Slot: Slot #06) | | 32ft | |
| | | -1158ft | |
| | | 1190ft | |

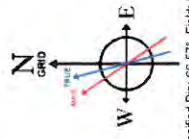
| Well Profile Data | | | | | | | | |
|-------------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Design Comment | MD (ft) | Inc (°) | Az (°) | TVD (ft) | Local N (ft) | Local E (ft) | DLS (°/100ft) | VS (ft) |
| Tie On | 6356.00 | 31.120 | 148.040 | 6302.68 | 390.44 | -29.71 | 6.60 | -377.52 |
| Proj. To Bottom | 6424.00 | 35.000 | 145.000 | 6359.66 | 359.55 | -9.22 | 6.20 | -341.51 |
| End of 3D Arc | 6706.39 | 70.000 | 151.072 | 6529.01 | 171.08 | 105.05 | 12.50 | -125.52 |
| POE | 6840.65 | 74.434 | 151.072 | 6570.00 | 59.22 | 166.88 | 3.30 | 0.66 |
| Landing Pt. | 7052.86 | 90.000 | 151.072 | 6600.00 | -132.89 | 273.05 | 7.00 | 217.34 |
| On Admuth | 7522.68 | 90.000 | 160.250 | 6600.00 | -551.38 | 462.35 | 2.00 | 675.19 |
| BHL | 15410.30 | 90.000 | 160.250 | 6600.00 | -7975.59 | 3127.92 | 0.00 | 8563.41 |

| Well Data | | | |
|-----------|---------------|-------------------|-------------------------------|
| Slot | Well | Wellbore | Wellpath |
| Slot #06 | Midge Unit 3H | Midge Unit 3H PWB | Midge Unit 3H PWB Proj: 15431 |
| Slot #06 | Midge Unit 3H | Midge Unit 3H PWB | Midge Unit 3H PWB Rev-A.0 |



BHI AT Curve $-8-1/2^{\circ}$ (6356)\(6401-15406) : 33.68° Inc, 6401.00ft MD, 6340.67ft TVD, -353.94ft VS
 Marcellus POE: 6833' MD : 75.17° Inc, 6833.00ft MD, 6569.57ft TVD, -9.37ft VS

Projected MD at TD: 15431' : 89.82° Inc, 15431.00ft MD, 6581.59ft TVD, 8564.02ft VS
 Vertical Section (ft)
 Azimuth 160.25° with reference 0.00 N, 0.00 E



User specified Dip: 66.57° Field: 51883° NT
 Magnetic North is 7.89 degrees West of True North (at 09Jul2018)
 To correct azimuth for True to Grid subtract 0.05 degrees
 To correct azimuth from Magnetic to Grid subtract 7.74 degrees

03/08/2019



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'

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03/08/2019

| REFERENCE WELLPATH IDENTIFICATION | |
|-----------------------------------|------------------------------|
| Operator | ANTERO RESOURCES CORPORATION |
| Area | Tyler County, WV |
| Field | Tyler |
| Facility | Lemuel Pad |
| Slot | Slot #06 |
| Well | Midge Unit 3H |
| Wellbore | Midge Unit 3H AWB |

| REPORT SETUP INFORMATION | |
|--------------------------|---|
| Projection System | NAD27 / UTM Zone 17 North, US feet |
| North Reference | Grid |
| Scale | 0.999601 |
| Convergence at slot | 0.05° East |
| Software System | WellArchitect® 5.1 |
| User | Delaset |
| Report Generated | 03/Aug/2018 at 16:29 |
| Database/Source file | WA_MPL_EasternUS_Defn/Midge_Unit_3H_AWP_Proj_15431_.xml |

| WELLPATH LOCATION | | | | | | |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|----------------|
| | Local coordinates | | Grid coordinates | | Geographic coordinates | |
| | North[ft] | East[ft] | Easting[US ft] | Northing[US ft] | Latitude | Longitude |
| Slot Location | -37.47 | -33.71 | 1664826.55 | 14315723.70 | 39°25'20.450"N | 80°54'48.830"W |
| Facility Reference Pt | | | 1664860.25 | 14315761.15 | 39°25'20.820"N | 80°54'48.400"W |
| Field Reference Pt | | | 0.00 | 0.00 | 0°00'00.000" | 85°29'19.301"W |

| WELLPATH DATUM | |
|--------------------------|--|
| Calculation method | Minimum curvature |
| Horizontal Reference Pt | Slot |
| Vertical Reference Pt | Frontier 32 (RKB) |
| MD Reference Pt | Frontier 32 (RKB) |
| Field Vertical Reference | Mean Sea Level |
| | Frontier 32 (RKB) to Facility Vertical Datum |
| | Frontier 32 (RKB) to Mean Sea Level |
| | Frontier 32 (RKB) to Ground Level at Slot (Slot #06) |
| | Section Origin |
| | Section Azimuth |
| | 32.00ft |
| | 1190.00ft |
| | 32.00ft |
| | N 0.00, E 0.00 ft |
| | 160.25° |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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| REFERENCE WELLPATH IDENTIFICATION | |
|-----------------------------------|------------------------------|
| Operator | ANTERO RESOURCES CORPORATION |
| Area | Tyler County, WV |
| Field | Tyler |
| Facility | Lemuel Pad |
| Slot | Slot #06 |
| Well | Midge Unit 3H |
| Wellbore | Midge Unit 3H AWB |

| WELLPATH DATA (185 stations) † = interpolated/extrapolated station | | | | | | | | | | | | | | | | |
|--|-----------------|-------------|----------|---------------|------------|-----------|----------------|-----------------|----------------|----------------|-------------------|-----------------|----------------|-----------------------|----------------------|---|
| MD (ft) | Inclination (°) | Azimuth (°) | TVD (ft) | VertSect (ft) | North (ft) | East (ft) | Grid East (ft) | Grid North (ft) | Latitude | Longitude | Closure Dist (ft) | Closure Dir (°) | DLS (ft/100ft) | Built Rate (ft/100ft) | Turn Rate (ft/100ft) | Comments |
| 0.00 | 0.00 | 279.360 | 0.00 | 0.00 | 0.00 | 0.00 | 1664826.55 | 14315723.70 | 39°25'20.450"N | 80°54'48.830"W | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 32.00 | 0.00 | 279.360 | 32.00 | 0.00 | 0.00 | 0.00 | 1664826.55 | 14315723.70 | 39°25'20.450"N | 80°54'48.830"W | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 100.00 | 0.230 | 279.360 | 100.00 | -0.07 | 0.02 | -0.13 | 1664826.42 | 14315723.72 | 39°25'20.450"N | 80°54'48.832"W | 0.14 | 279.360 | 0.34 | 0.34 | -118.59 | Gyrodatta MS Gyro <17-1/2"> (100'-610') |
| 200.00 | 0.080 | 137.250 | 200.00 | -0.10 | 0.00 | -0.29 | 1664826.27 | 14315723.70 | 39°25'20.450"N | 80°54'48.834"W | 0.29 | 270.718 | 0.30 | -0.15 | -142.11 | |
| 300.00 | 0.120 | 172.080 | 300.00 | 0.07 | -0.15 | -0.22 | 1664826.33 | 14315723.55 | 39°25'20.449"N | 80°54'48.833"W | 0.27 | 235.884 | 0.07 | 0.04 | 34.83 | |
| 400.00 | 0.030 | 233.040 | 400.00 | 0.18 | -0.27 | -0.23 | 1664826.32 | 14315723.43 | 39°25'20.447"N | 80°54'48.833"W | 0.36 | 220.334 | 0.11 | -0.09 | 60.96 | |
| 500.00 | 0.060 | 141.320 | 500.00 | 0.23 | -0.33 | -0.22 | 1664826.33 | 14315723.37 | 39°25'20.447"N | 80°54'48.833"W | 0.39 | 213.673 | 0.07 | 0.03 | -91.72 | |
| 600.00 | 0.140 | 214.500 | 600.00 | 0.36 | -0.47 | -0.25 | 1664826.30 | 14315723.23 | 39°25'20.445"N | 80°54'48.833"W | 0.53 | 208.499 | 0.14 | 0.08 | 73.18 | |
| 610.00 | 0.100 | 226.590 | 610.00 | 0.37 | -0.49 | -0.27 | 1664826.28 | 14315723.21 | 39°25'20.445"N | 80°54'48.833"W | 0.55 | 208.911 | 0.47 | -0.40 | 120.90 | |
| 686.00 | 0.620 | 267.520 | 686.00 | 0.27 | -0.55 | -0.73 | 1664825.82 | 14315723.15 | 39°25'20.445"N | 80°54'48.839"W | 0.91 | 232.984 | 0.72 | 0.68 | 53.86 | Parther EM <12-1/4"> (810')(686'-2524') |
| 871.00 | 1.680 | 289.330 | 775.98 | -0.71 | -0.13 | -2.48 | 1664824.09 | 14315723.36 | 39°25'20.449"N | 80°54'48.861"W | 2.46 | 266.907 | 1.25 | 1.18 | 24.23 | |
| 965.00 | 5.210 | 310.840 | 964.61 | -10.06 | 6.60 | -11.39 | 1664815.16 | 14315725.77 | 39°25'20.471"N | 80°54'48.906"W | 6.33 | 289.170 | 1.99 | 1.81 | 20.09 | |
| 1061.00 | 6.100 | 314.810 | 1060.15 | -18.47 | 13.05 | -18.31 | 1664808.25 | 14315736.74 | 39°25'20.579"N | 80°54'49.063"W | 13.17 | 300.093 | 1.93 | 1.93 | 2.57 | |
| 1156.00 | 6.190 | 303.040 | 1154.60 | -27.10 | 19.40 | -26.18 | 1664800.38 | 14315743.09 | 39°25'20.642"N | 80°54'49.163"W | 32.59 | 306.532 | 1.33 | 0.09 | -12.39 | |
| 1290.00 | 5.390 | 297.710 | 1248.12 | -34.39 | 24.21 | -34.34 | 1664792.22 | 14315747.90 | 39°25'20.690"N | 80°54'49.267"W | 42.02 | 305.188 | 1.02 | -0.85 | -5.67 | |
| 1346.00 | 5.390 | 298.320 | 1343.70 | -41.07 | 28.45 | -42.30 | 1664784.27 | 14315752.13 | 39°25'20.732"N | 80°54'49.369"W | 50.98 | 303.922 | 0.06 | 0.00 | 0.64 | |
| 1441.00 | 5.700 | 293.430 | 1438.26 | -47.62 | 32.44 | -50.56 | 1664776.01 | 14315756.13 | 39°25'20.771"N | 80°54'49.474"W | 60.07 | 302.687 | 0.59 | 0.33 | -5.15 | |
| 1536.00 | 5.300 | 288.540 | 1532.82 | -53.57 | 35.71 | -59.05 | 1664767.53 | 14315759.40 | 39°25'20.804"N | 80°54'49.582"W | 69.01 | 301.166 | 0.65 | -0.42 | -5.15 | |
| 1631.00 | 3.710 | 278.320 | 1627.52 | -57.73 | 37.55 | -66.25 | 1664760.33 | 14315761.23 | 39°25'20.822"N | 80°54'49.674"W | 76.15 | 299.547 | 1.87 | -1.67 | -10.76 | |
| 1726.00 | 2.210 | 292.110 | 1722.40 | -60.40 | 38.69 | -70.99 | 1664755.59 | 14315762.37 | 39°25'20.833"N | 80°54'49.734"W | 80.85 | 298.590 | 1.74 | -1.58 | 14.52 | |
| 1821.00 | 1.900 | 340.410 | 1817.34 | -63.20 | 40.86 | -73.21 | 1664753.37 | 14315764.54 | 39°25'20.855"N | 80°54'49.762"W | 83.84 | 299.166 | 1.79 | -0.33 | 50.84 | |
| 1916.00 | 1.190 | 32.020 | 1912.31 | -65.38 | 43.18 | -73.22 | 1664753.36 | 14315766.86 | 39°25'20.877"N | 80°54'49.762"W | 85.00 | 300.530 | 1.57 | -0.75 | 54.33 | |
| 2012.00 | 1.020 | 100.900 | 2008.30 | -65.56 | 43.86 | -71.85 | 1664754.73 | 14315767.54 | 39°25'20.884"N | 80°54'49.745"W | 84.18 | 301.404 | 1.31 | -0.18 | 71.75 | |
| 2107.00 | 1.500 | 112.620 | 2103.27 | -64.29 | 43.23 | -69.87 | 1664756.71 | 14315766.91 | 39°25'20.878"N | 80°54'49.720"W | 82.16 | 301.743 | 0.57 | 0.51 | 12.34 | |
| 2202.00 | 1.190 | 117.210 | 2198.25 | -62.74 | 42.30 | -67.85 | 1664758.73 | 14315765.98 | 39°25'20.869"N | 80°54'49.694"W | 79.95 | 301.940 | 0.35 | -0.33 | 4.83 | |
| 2297.00 | 1.500 | 106.230 | 2293.22 | -61.28 | 41.50 | -65.78 | 1664760.80 | 14315765.18 | 39°25'20.861"N | 80°54'49.668"W | 77.77 | 302.248 | 0.42 | 0.33 | -11.56 | |
| 2392.00 | 1.020 | 48.900 | 2388.20 | -60.86 | 41.71 | -63.94 | 1664762.63 | 14315765.39 | 39°25'20.863"N | 80°54'49.644"W | 76.34 | 303.114 | 1.35 | -0.51 | -60.35 | |
| 2487.00 | 1.020 | 18.410 | 2483.19 | -61.83 | 43.06 | -63.04 | 1664763.54 | 14315766.74 | 39°25'20.876"N | 80°54'49.633"W | 76.35 | 304.338 | 0.56 | 0.00 | -32.09 | |
| 2524.00 | 0.860 | 6.640 | 2520.18 | -62.35 | 43.66 | -62.90 | 1664763.67 | 14315767.34 | 39°25'20.882"N | 80°54'49.631"W | 76.57 | 304.763 | 0.65 | -0.38 | -31.81 | |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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| REFERENCE WELLPATH IDENTIFICATION | | Slot | Slot #06 |
|-----------------------------------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Well | Midge Unit 3H |
| Area | Tyler County, WV | Wellbore | Midge Unit 3H AWB |
| Field | Tyler | | |
| Facility | Lemuel Pad | | |

| WELLPATH DATA (185 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) | Comments |
| 2645.00 | 0.590 | 17.190 | 2641.17 | -63.88 | 45.18 | -62.61 | 1664763.96 | 14315768.86 | 39°25'20.89"N | 80°54'49.62"W | 77.21 | 305.812 | 0.26 | -0.24 | 8.72 | Panther EM -8-3/4" > (2524)/(2645-6356) |
| 2740.00 | 0.790 | 353.370 | 2736.16 | -64.71 | 46.30 | -62.54 | 1664764.03 | 14315769.97 | 39°25'20.90"N | 80°54'49.62"W | 77.81 | 306.510 | 0.36 | 0.21 | -25.07 | |
| 2834.00 | 2.240 | 356.350 | 2830.13 | -67.10 | 48.77 | -62.73 | 1664763.84 | 14315772.45 | 39°25'20.93"N | 80°54'49.62"W | 79.46 | 307.863 | 1.54 | 1.54 | 3.17 | |
| 2929.00 | 4.640 | 352.800 | 2924.95 | -72.84 | 54.44 | -63.33 | 1664763.24 | 14315778.11 | 39°25'20.98"N | 80°54'49.63"W | 83.52 | 310.680 | 2.54 | 2.53 | -3.74 | |
| 3025.00 | 4.590 | 345.750 | 3020.64 | -80.25 | 62.01 | -64.77 | 1664761.81 | 14315785.69 | 39°25'21.064"N | 80°54'49.655"W | 89.67 | 313.756 | 0.59 | -0.05 | -7.34 | |
| 3120.00 | 3.800 | 357.060 | 3115.39 | -87.05 | 68.84 | -65.86 | 1664760.71 | 14315792.51 | 39°25'21.131"N | 80°54'49.668"W | 95.28 | 316.266 | 1.20 | -0.83 | 11.91 | |
| 3220.00 | 4.920 | 358.310 | 3215.12 | -94.05 | 76.18 | -66.15 | 1664760.42 | 14315799.84 | 39°25'21.204"N | 80°54'49.672"W | 100.89 | 319.029 | 0.83 | 0.82 | 1.25 | |
| 3314.00 | 5.140 | 357.350 | 3308.78 | -101.67 | 84.17 | -66.46 | 1664760.12 | 14315807.83 | 39°25'21.282"N | 80°54'49.676"W | 107.24 | 321.705 | 0.56 | 0.55 | -1.02 | |
| 3409.00 | 6.430 | 356.050 | 3403.29 | -110.86 | 93.73 | -67.02 | 1664759.56 | 14315817.39 | 39°25'21.377"N | 80°54'49.683"W | 115.22 | 324.432 | 1.36 | 1.36 | -1.37 | |
| 3504.00 | 7.840 | 356.690 | 3497.55 | -122.19 | 105.50 | -67.76 | 1664758.82 | 14315829.16 | 39°25'21.493"N | 80°54'49.692"W | 125.39 | 327.288 | 1.49 | 1.48 | 0.67 | |
| 3598.00 | 9.650 | 355.900 | 3590.45 | -135.93 | 119.76 | -68.70 | 1664757.88 | 14315843.41 | 39°25'21.634"N | 80°54'49.704"W | 138.07 | 330.161 | 1.93 | 1.93 | -0.84 | |
| 3694.00 | 10.800 | 353.620 | 3684.93 | -152.43 | 136.73 | -70.27 | 1664756.31 | 14315860.37 | 39°25'21.802"N | 80°54'49.724"W | 153.73 | 332.799 | 1.27 | 1.20 | -2.37 | |
| 3788.00 | 8.590 | 341.520 | 3777.59 | -168.02 | 152.14 | -73.48 | 1664753.10 | 14315875.78 | 39°25'21.954"N | 80°54'49.764"W | 168.95 | 334.222 | 3.19 | -2.35 | -12.87 | |
| 3883.00 | 7.360 | 345.740 | 3871.67 | -181.17 | 164.77 | -77.22 | 1664749.36 | 14315888.40 | 39°25'22.079"N | 80°54'49.812"W | 181.97 | 334.888 | 1.43 | -1.29 | 4.44 | |
| 3978.00 | 7.400 | 358.170 | 3965.99 | -193.05 | 176.78 | -78.92 | 1664747.66 | 14315900.41 | 39°25'22.198"N | 80°54'49.833"W | 193.60 | 335.943 | 1.68 | 0.04 | 13.08 | |
| 4074.00 | 8.560 | 0.800 | 4060.96 | -205.62 | 190.10 | -79.02 | 1664747.57 | 14315913.72 | 39°25'22.330"N | 80°54'49.835"W | 205.87 | 337.430 | 1.27 | 1.21 | 2.74 | |
| 4169.00 | 9.130 | 356.320 | 4154.83 | -219.48 | 204.70 | -79.40 | 1664747.18 | 14315928.31 | 39°25'22.474"N | 80°54'49.839"W | 219.56 | 338.799 | 0.94 | 0.60 | -4.72 | |
| 4264.00 | 9.520 | 352.500 | 4248.58 | -234.40 | 220.01 | -80.91 | 1664745.67 | 14315943.61 | 39°25'22.625"N | 80°54'49.858"W | 234.41 | 339.808 | 0.77 | 0.41 | -4.02 | |
| 4359.00 | 9.550 | 358.470 | 4342.26 | -249.57 | 235.67 | -82.15 | 1664744.44 | 14315959.28 | 39°25'22.780"N | 80°54'49.874"W | 249.58 | 340.784 | 1.04 | 0.03 | 6.28 | |
| 4454.00 | 8.480 | 352.920 | 4436.09 | -263.89 | 250.50 | -83.22 | 1664743.36 | 14315974.10 | 39°25'22.927"N | 80°54'49.887"W | 263.96 | 341.623 | 1.45 | -1.13 | -5.84 | |
| 4550.00 | 9.320 | 359.750 | 4530.94 | -278.12 | 265.30 | -84.13 | 1664742.46 | 14315988.89 | 39°25'23.073"N | 80°54'49.899"W | 278.32 | 342.406 | 1.40 | 0.87 | 7.11 | |
| 4645.00 | 9.110 | 358.100 | 4624.71 | -292.53 | 280.51 | -84.41 | 1664742.18 | 14316004.09 | 39°25'23.223"N | 80°54'49.902"W | 292.93 | 343.253 | 0.68 | -0.22 | -1.74 | |
| 4740.00 | 8.660 | 355.090 | 4718.57 | -306.60 | 295.15 | -85.27 | 1664741.31 | 14316018.73 | 39°25'23.368"N | 80°54'49.913"W | 307.22 | 343.886 | 0.66 | -0.47 | -3.17 | |
| 4835.00 | 8.570 | 350.550 | 4812.50 | -320.48 | 309.26 | -87.04 | 1664739.54 | 14316032.83 | 39°25'23.507"N | 80°54'49.935"W | 321.28 | 344.280 | 0.72 | -0.09 | -4.78 | |
| 4930.00 | 8.170 | 346.000 | 4906.49 | -334.16 | 322.79 | -89.84 | 1664736.75 | 14316046.36 | 39°25'23.641"N | 80°54'49.971"W | 335.06 | 344.447 | 0.81 | -0.42 | -4.79 | |
| 5025.00 | 8.770 | 356.060 | 5000.46 | -347.85 | 336.57 | -91.97 | 1664734.62 | 14316060.13 | 39°25'23.777"N | 80°54'49.998"W | 348.91 | 344.716 | 1.68 | 0.63 | 10.59 | |
| 5121.00 | 8.050 | 357.640 | 5095.43 | -361.31 | 350.59 | -92.75 | 1664733.84 | 14316074.14 | 39°25'23.916"N | 80°54'50.008"W | 362.65 | 345.181 | 0.79 | -0.75 | 1.65 | |
| 5216.00 | 8.480 | 351.110 | 5189.44 | -374.53 | 364.15 | -94.11 | 1664732.48 | 14316087.70 | 39°25'24.050"N | 80°54'50.025"W | 376.12 | 345.510 | 1.09 | 0.45 | -6.87 | |
| 5311.00 | 7.720 | 347.020 | 5283.49 | -387.75 | 377.29 | -96.62 | 1664729.97 | 14316100.84 | 39°25'24.180"N | 80°54'50.057"W | 389.47 | 345.636 | 1.00 | -0.80 | -4.31 | |
| 5406.00 | 8.140 | 353.150 | 5377.59 | -400.64 | 390.19 | -98.86 | 1664727.73 | 14316113.73 | 39°25'24.307"N | 80°54'50.085"W | 402.52 | 345.783 | 0.99 | 0.44 | 6.45 | |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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03/08/2019

| REFERENCE WELLPATH IDENTIFICATION | | Slot | Slot #06 |
|-----------------------------------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Well | Midge Unit 3H |
| Area | Tyler County, WV | Wellbore | Midge Unit 3H AWB |
| Field | Tyler | | |
| Facility | Lemuel Pad | | |

| WELLPATH DATA (185 stations) † = interpolated/extrapolated station | | | | | | | | | | | | | | | | |
|--|-----------------|-------------|----------|-----------------|------------|-----------|----------------|-----------------|----------------|----------------|-------------------|-----------------|----------------|-----------------------|----------------------|---|
| MD (ft) | Inclination (°) | Azimuth (°) | TVD (ft) | Vert. Sect (ft) | North (ft) | East (ft) | Grid East (ft) | Grid North (ft) | Latitude | Longitude | Closure Dist (ft) | Closure Dir (°) | DLS (ft/100ft) | Build Rate (ft/100ft) | Turn Rate (ft/100ft) | Comments |
| 5501.00 | 7.970 | 349.470 | 5471.65 | -413.70 | 403.34 | -100.86 | 1664725.73 | 14316128.88 | 39°25'24.43"N | 80°54'50.110"W | 415.76 | 345.960 | 0.57 | -0.18 | -3.87 | |
| 5596.00 | 6.040 | 344.390 | 5565.94 | -425.19 | 414.63 | -103.41 | 1664723.18 | 14316138.16 | 39°25'24.549"N | 80°54'50.143"W | 427.33 | 345.996 | 2.13 | -2.03 | -5.35 | |
| 5691.00 | 6.770 | 355.130 | 5660.35 | -435.58 | 425.02 | -105.23 | 1664721.36 | 14316148.55 | 39°25'24.652"N | 80°54'50.166"W | 437.86 | 346.094 | 1.47 | 0.77 | 11.31 | |
| 5786.00 | 10.300 | 358.910 | 5754.28 | -449.05 | 439.10 | -105.87 | 1664720.72 | 14316162.62 | 39°25'24.791"N | 80°54'50.174"W | 451.68 | 346.444 | 3.76 | 3.72 | 3.98 | |
| 5831.00 | 10.710 | 3650 | 5798.53 | -456.69 | 447.29 | -105.68 | 1664720.91 | 14316170.81 | 39°25'24.872"N | 80°54'50.171"W | 459.61 | 346.707 | 2.12 | 0.91 | 10.53 | |
| 5881.00 | 8.530 | 15.100 | 5847.83 | -464.00 | 455.51 | -104.42 | 1664722.17 | 14316179.03 | 39°25'24.953"N | 80°54'50.155"W | 467.33 | 347.089 | 5.78 | -4.36 | 22.90 | |
| 5926.00 | 7.470 | 35.800 | 5892.42 | -468.31 | 460.98 | -101.93 | 1664724.66 | 14316184.49 | 39°25'25.007"N | 80°54'50.123"W | 472.12 | 347.532 | 6.98 | -3.24 | 46.00 | |
| 5977.00 | 7.030 | 62.280 | 5943.02 | -470.54 | 465.06 | -97.17 | 1664729.42 | 14316188.57 | 39°25'25.047"N | 80°54'50.063"W | 475.11 | 348.198 | 6.53 | 0.71 | 51.92 | |
| 6022.00 | 7.040 | 90.900 | 5987.68 | -469.97 | 466.37 | -91.84 | 1664734.75 | 14316189.88 | 39°25'25.060"N | 80°54'49.995"W | 475.33 | 348.860 | 7.97 | -0.87 | 63.60 | |
| 6071.00 | 6.550 | 120.480 | 6036.35 | -466.77 | 464.91 | -86.42 | 1664740.16 | 14316188.42 | 39°25'25.046"N | 80°54'49.926"W | 472.87 | 349.469 | 7.13 | -1.00 | 60.37 | |
| 6116.00 | 9.650 | 138.190 | 6080.90 | -461.29 | 460.79 | -81.70 | 1664744.89 | 14316184.31 | 39°25'25.005"N | 80°54'49.865"W | 467.98 | 349.946 | 8.77 | 6.89 | 39.36 | |
| 6166.00 | 14.160 | 140.330 | 6129.81 | -451.66 | 452.96 | -75.00 | 1664751.59 | 14316176.47 | 39°25'24.928"N | 80°54'49.780"W | 459.13 | 350.599 | 9.06 | 9.02 | 4.28 | |
| 6211.00 | 20.230 | 142.160 | 6172.78 | -439.07 | 442.57 | -66.70 | 1664759.88 | 14316166.09 | 39°25'24.825"N | 80°54'49.675"W | 447.57 | 351.429 | 13.54 | 13.49 | 4.07 | |
| 6261.00 | 24.770 | 143.260 | 6218.97 | -420.83 | 427.34 | -55.13 | 1664771.45 | 14316150.86 | 39°25'24.674"N | 80°54'49.527"W | 430.88 | 352.650 | 9.12 | 9.08 | 2.20 | |
| 6306.00 | 28.220 | 144.860 | 6259.23 | -401.55 | 411.08 | -43.36 | 1664783.21 | 14316134.61 | 39°25'24.513"N | 80°54'49.378"W | 413.36 | 353.979 | 7.83 | 7.67 | 3.56 | |
| 6356.00 | 31.120 | 148.040 | 6302.68 | -377.52 | 390.44 | -29.71 | 1664796.85 | 14316113.98 | 39°25'24.309"N | 80°54'49.204"W | 391.57 | 355.648 | 6.60 | 5.80 | 6.36 | |
| 6401.00 | 33.680 | 150.770 | 6340.67 | -353.84 | 369.69 | -17.46 | 1664809.10 | 14316093.23 | 39°25'24.104"N | 80°54'49.048"W | 370.10 | 357.296 | 6.55 | 5.69 | 6.07 | BH AT Curve <8-1/2"> (6356)-(6401)-15406) |
| 6415.00 | 34.140 | 152.160 | 6352.29 | -346.12 | 362.82 | -13.73 | 1664812.83 | 14316086.37 | 39°25'24.036"N | 80°54'49.001"W | 363.08 | 357.833 | 6.44 | 3.29 | 9.93 | |
| 6462.00 | 36.750 | 152.060 | 6390.58 | -319.14 | 338.74 | -0.98 | 1664825.57 | 14316062.30 | 39°25'23.798"N | 80°54'48.838"W | 338.74 | 359.834 | 5.55 | 5.55 | -0.21 | |
| 6505.00† | 42.295 | 151.325 | 6423.73 | -292.09 | 314.66 | 12.00 | 1664838.54 | 14316038.23 | 39°25'23.560"N | 80°54'48.673"W | 314.89 | 2.184 | 12.94 | 12.90 | -1.71 | Middlesex: 6505' MD |
| 6510.00 | 42.940 | 151.250 | 6427.41 | -288.75 | 311.69 | 13.62 | 1664840.17 | 14316035.26 | 39°25'23.530"N | 80°54'48.653"W | 311.99 | 2.503 | 12.94 | 12.90 | -1.50 | |
| 6557.00 | 50.000 | 149.720 | 6459.76 | -255.20 | 282.07 | 30.42 | 1664856.96 | 14316005.65 | 39°25'23.238"N | 80°54'48.439"W | 283.71 | 6.156 | 15.20 | 15.02 | -3.26 | |
| 6605.00 | 57.160 | 148.770 | 6488.24 | -217.31 | 248.91 | 50.17 | 1664876.71 | 14315972.50 | 39°25'22.910"N | 80°54'48.188"W | 253.91 | 11.397 | 15.00 | 14.92 | -1.98 | |
| 6652.00 | 64.320 | 148.340 | 6511.20 | -177.18 | 213.95 | 71.56 | 1664898.08 | 14315937.56 | 39°25'22.564"N | 80°54'47.916"W | 225.60 | 18.493 | 15.25 | 15.23 | -0.91 | |
| 6661.00† | 65.475 | 148.389 | 6515.02 | -169.21 | 207.01 | 75.83 | 1664902.35 | 14315930.63 | 39°25'22.495"N | 80°54'47.861"W | 220.46 | 20.118 | 12.84 | 12.83 | 0.54 | Burkett: 6661' MD |
| 6700.00 | 70.480 | 148.590 | 6529.64 | -133.83 | 176.20 | 94.72 | 1664921.23 | 14315899.82 | 39°25'22.191"N | 80°54'47.621"W | 200.04 | 28.262 | 12.84 | 12.83 | 0.52 | |
| 6740.00† | 71.646 | 149.212 | 6542.62 | -96.73 | 143.80 | 114.26 | 1664940.77 | 14315867.44 | 39°25'21.870"N | 80°54'47.372"W | 183.67 | 38.470 | 3.26 | 2.91 | 1.56 | Tully: 6740' MD |
| 6747.00 | 71.850 | 149.320 | 6544.81 | -90.20 | 138.09 | 117.66 | 1664944.16 | 14315861.73 | 39°25'21.814"N | 80°54'47.329"W | 181.42 | 40.433 | 3.26 | 2.92 | 1.54 | |
| 6795.00 | 73.220 | 149.020 | 6559.22 | -45.27 | 98.77 | 141.12 | 1664967.62 | 14315822.43 | 39°25'21.425"N | 80°54'47.030"W | 172.25 | 55.012 | 2.92 | 2.85 | -0.62 | |
| 6833.00† | 75.168 | 149.644 | 6569.57 | -9.37 | 67.32 | 159.77 | 1664986.26 | 14315790.99 | 39°25'21.114"N | 80°54'46.793"W | 173.38 | 67.151 | 5.36 | 5.13 | 1.64 | Marcellus POE: 6833' MD |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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03/08/2019

| REFERENCE WELLPATH IDENTIFICATION | | Slot | Slot #06 |
|-----------------------------------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Well | Midge Unit 3H |
| Area | Tyler County, WV | Wellbore | Midge Unit 3H AWB |
| Field | Tyler | | |
| Facility | Lemuel Pad | | |

| WELLPATH DATA (185 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) | Comments |
| 6842.00 | 75.630 | 149.790 | 6571.83 | -0.81 | 59.80 | 164.16 | 1664990.65 | 14315783.47 | 39°25'21.039"N | 80°54'46.737"W | 174.72 | 69.984 | 5.36 | 5.13 | 1.62 | |
| 6890.00 | 78.380 | 149.630 | 6582.63 | 45.17 | 19.42 | 187.75 | 1665014.23 | 14315743.11 | 39°25'20.640"N | 80°54'46.437"W | 188.75 | 84.095 | 5.74 | 5.73 | -0.33 | |
| 6937.00 | 81.510 | 151.390 | 6590.83 | 90.77 | -20.86 | 210.53 | 1665036.99 | 14315702.85 | 39°25'20.242"N | 80°54'46.148"W | 211.56 | 95.658 | 7.81 | 6.66 | 3.74 | |
| 6986.00 | 84.640 | 152.050 | 6596.74 | 138.87 | -63.89 | 233.57 | 1665060.03 | 14315660.03 | 39°25'19.818"N | 80°54'45.855"W | 242.10 | 105.253 | 6.53 | 6.39 | 1.35 | |
| 7033.00 | 88.860 | 152.470 | 6599.40 | 185.33 | -105.21 | 265.40 | 1665081.85 | 14315618.53 | 39°25'19.408"N | 80°54'45.577"W | 276.23 | 112.389 | 9.02 | 8.98 | 0.89 | |
| 7081.00 | 90.340 | 150.930 | 6599.74 | 232.79 | -147.47 | 278.16 | 1665104.60 | 14315576.29 | 39°25'18.990"N | 80°54'45.287"W | 314.83 | 117.931 | 4.45 | 3.08 | -3.21 | |
| 7176.00 | 90.310 | 148.690 | 6598.89 | 419.11 | -310.28 | 376.06 | 1665202.46 | 14315494.44 | 39°25'18.180"N | 80°54'44.675"W | 398.85 | 125.102 | 2.93 | -0.03 | -2.93 | |
| 7271.00 | 90.370 | 162.800 | 6596.53 | 797.52 | -661.74 | 517.02 | 1665343.96 | 14315062.22 | 39°25'13.905"N | 80°54'42.250"W | 839.76 | 141.999 | 4.03 | -0.03 | -0.93 | |
| 7746.00 | 90.180 | 161.290 | 6596.07 | 892.48 | -752.06 | 546.46 | 1665372.79 | 14314971.94 | 39°25'13.012"N | 80°54'41.878"W | 929.63 | 143.997 | 1.39 | -0.20 | -1.38 | |
| 7842.00 | 90.400 | 161.850 | 6595.59 | 988.45 | -843.13 | 576.81 | 1665403.13 | 14314880.90 | 39°25'12.111"N | 80°54'41.491"W | 1021.56 | 145.623 | 0.63 | 0.23 | 0.58 | |
| 7937.00 | 90.370 | 162.400 | 6594.95 | 1083.39 | -933.54 | 605.97 | 1665432.27 | 14314790.53 | 39°25'11.218"N | 80°54'41.120"W | 1112.97 | 147.012 | 0.58 | -0.03 | 0.58 | |
| 8032.00 | 90.370 | 162.890 | 6594.34 | 1178.31 | -1024.22 | 634.30 | 1665460.60 | 14314699.89 | 39°25'10.321"N | 80°54'40.760"W | 1204.72 | 148.230 | 0.52 | 0.00 | 0.52 | |
| 8126.00 | 90.250 | 162.600 | 6593.83 | 1272.22 | -1113.98 | 662.19 | 1665488.47 | 14314610.16 | 39°25'09.434"N | 80°54'40.406"W | 1295.94 | 149.271 | 0.33 | -0.13 | -0.31 | |
| 8220.00 | 90.340 | 162.770 | 6593.34 | 1366.13 | -1203.72 | 690.16 | 1665516.44 | 14314520.46 | 39°25'08.546"N | 80°54'40.051"W | 1387.54 | 150.172 | 0.20 | 0.10 | 0.18 | |
| 8316.00 | 90.370 | 161.860 | 6592.75 | 1462.07 | -1295.18 | 719.32 | 1665545.59 | 14314429.03 | 39°25'07.642"N | 80°54'39.680"W | 1481.53 | 150.953 | 0.95 | 0.03 | -0.95 | |
| 8411.00 | 90.310 | 161.980 | 6592.18 | 1557.03 | -1385.49 | 748.81 | 1665575.06 | 14314338.76 | 39°25'06.749"N | 80°54'39.306"W | 1574.90 | 151.610 | 0.14 | -0.06 | 0.13 | |
| 8503.00 | 90.340 | 161.360 | 6591.66 | 1649.00 | -1472.82 | 777.74 | 1665603.98 | 14314251.47 | 39°25'05.886"N | 80°54'38.938"W | 1665.56 | 152.163 | 0.67 | 0.03 | -0.67 | |
| 8599.00 | 90.400 | 161.050 | 6591.04 | 1744.98 | -1563.70 | 808.67 | 1665634.88 | 14314160.62 | 39°25'04.987"N | 80°54'38.545"W | 1760.43 | 152.654 | 0.33 | 0.06 | -0.32 | |
| 8693.00 | 90.370 | 157.890 | 6590.41 | 1838.96 | -1651.72 | 841.63 | 1665667.84 | 14314072.64 | 39°25'04.117"N | 80°54'38.126"W | 1853.78 | 152.999 | 3.36 | -0.03 | -3.36 | |
| 8789.00 | 90.220 | 155.800 | 6589.92 | 1934.78 | -1739.98 | 879.38 | 1665705.57 | 14313984.42 | 39°25'03.244"N | 80°54'37.646"W | 1949.57 | 153.188 | 2.18 | -0.16 | -2.18 | |
| 8884.00 | 90.310 | 154.570 | 6589.48 | 2029.41 | -1826.20 | 919.24 | 1665745.43 | 14313898.23 | 39°25'02.392"N | 80°54'37.140"W | 2044.51 | 153.281 | 1.30 | 0.09 | -1.29 | |
| 8979.00 | 90.250 | 153.860 | 6589.01 | 2123.88 | -1911.74 | 960.57 | 1665786.73 | 14313812.72 | 39°25'01.546"N | 80°54'36.614"W | 2139.50 | 153.322 | 0.75 | -0.06 | -0.75 | |
| 9073.00 | 90.220 | 154.690 | 6588.63 | 2217.37 | -1996.43 | 1001.37 | 1665827.52 | 14313728.07 | 39°25'00.709"N | 80°54'36.095"W | 2233.48 | 153.363 | 0.88 | -0.03 | 0.88 | |
| 9168.00 | 90.250 | 158.240 | 6588.24 | 2312.14 | -2083.51 | 1039.30 | 1665865.43 | 14313641.03 | 39°24'59.848"N | 80°54'35.613"W | 2328.33 | 153.489 | 3.74 | 0.03 | 3.74 | |
| 9263.00 | 90.280 | 161.960 | 6587.80 | 2407.13 | -2172.82 | 1071.63 | 1665897.75 | 14313551.75 | 39°24'58.965"N | 80°54'35.202"W | 2422.71 | 153.748 | 3.92 | 0.03 | 3.92 | |
| 9358.00 | 90.430 | 162.590 | 6587.21 | 2502.06 | -2263.31 | 1100.55 | 1665926.66 | 14313461.30 | 39°24'58.070"N | 80°54'34.835"W | 2516.70 | 154.068 | 0.68 | 0.16 | 0.66 | |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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| REFERENCE WELLPATH IDENTIFICATION | |
|-----------------------------------|------------------------------|
| Operator | ANTERO RESOURCES CORPORATION |
| Area | Tyler County, WV |
| Field | Tyler |
| Facility | Lemuel Pad |
| Slot | Slot #06 |
| Well | Midge Unit 3H |
| Wellbore | Midge Unit 3H AWB |

| WELLPATH DATA (185 stations) | | | | | | | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|----------------|----------------|-------------------|-----------------|---------------|----------------------|---------------------|----------|
| MD (ft) | Inclination (°) | Azimuth (°) | TVD (ft) | Vert Sect (ft) | North (ft) | East (ft) | Grid East (ft) | Grid North (ft) | Latitude | Longitude | Closure Dist (ft) | Closure Dir (°) | DLS (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | Comments |
| 9453.00 | 90.220 | 163.660 | 6586.67 | 2596.94 | -2354.21 | 1128.13 | 1665954.22 | 14313370.43 | 39°24'57.171"N | 80°54'34.485"W | 2610.55 | 154.397 | 1.15 | -0.22 | 1.13 | |
| 9548.00 | 90.150 | 164.080 | 6586.36 | 2891.75 | -2445.47 | 1154.52 | 1665980.61 | 14313279.21 | 39°24'56.269"N | 80°54'34.150"W | 2704.30 | 154.728 | 0.45 | -0.07 | 0.44 | |
| 9643.00 | 90.090 | 160.380 | 6586.16 | 2786.68 | -2535.92 | 1183.51 | 1666009.58 | 14313188.79 | 39°24'55.375"N | 80°54'33.782"W | 2798.50 | 154.982 | 3.90 | -0.06 | -3.89 | |
| 9738.00 | 90.280 | 158.080 | 6585.86 | 2881.66 | -2624.74 | 1217.19 | 1666043.25 | 14313100.01 | 39°24'54.497"N | 80°54'33.353"W | 2893.24 | 155.121 | 2.43 | 0.20 | -2.42 | |
| 9833.00 | 90.150 | 156.910 | 6585.50 | 2976.54 | -2712.51 | 1253.55 | 1666079.60 | 14313012.28 | 39°24'53.629"N | 80°54'32.891"W | 2988.16 | 155.197 | 1.24 | -0.14 | -1.23 | |
| 9928.00 | 90.310 | 158.240 | 6585.12 | 3071.44 | -2800.32 | 1289.79 | 1666115.83 | 14312924.50 | 39°24'52.761"N | 80°54'32.431"W | 3083.08 | 155.270 | 1.41 | 0.17 | 1.40 | |
| 10023.00 | 90.340 | 161.040 | 6584.58 | 3166.42 | -2889.38 | 1322.84 | 1666148.86 | 14312835.48 | 39°24'51.880"N | 80°54'32.011"W | 3177.80 | 155.400 | 2.95 | 0.03 | 2.95 | |
| 10118.00 | 90.250 | 162.470 | 6584.09 | 3261.38 | -2979.60 | 1352.58 | 1666178.59 | 14312745.30 | 39°24'50.988"N | 80°54'31.633"W | 3272.23 | 155.584 | 1.51 | -0.09 | 1.51 | |
| 10213.00 | 90.060 | 162.180 | 6583.83 | 3356.32 | -3070.11 | 1381.43 | 1666207.42 | 14312654.82 | 39°24'50.093"N | 80°54'31.267"W | 3366.59 | 155.774 | 0.36 | -0.20 | -0.31 | |
| 10308.00 | 90.060 | 162.360 | 6583.74 | 3451.26 | -3160.60 | 1410.36 | 1666236.34 | 14312564.37 | 39°24'49.199"N | 80°54'30.899"W | 3461.00 | 155.952 | 0.19 | 0.00 | 0.19 | |
| 10403.00 | 90.000 | 163.220 | 6583.69 | 3546.17 | -3251.34 | 1438.46 | 1666264.44 | 14312473.66 | 39°24'48.301"N | 80°54'30.542"W | 3555.34 | 156.134 | 0.91 | -0.06 | 0.91 | |
| 10498.00 | 90.280 | 165.140 | 6583.45 | 3640.94 | -3342.74 | 1464.36 | 1666290.33 | 14312382.30 | 39°24'47.398"N | 80°54'30.214"W | 3649.42 | 156.343 | 2.04 | 0.29 | 2.02 | |
| 10593.00 | 90.060 | 167.110 | 6583.17 | 3735.44 | -3434.96 | 1487.14 | 1666313.10 | 14312290.11 | 39°24'46.486"N | 80°54'29.924"W | 3743.07 | 156.590 | 2.09 | -0.23 | 2.07 | |
| 10689.00 | 90.220 | 166.950 | 6582.94 | 3830.76 | -3528.51 | 1508.69 | 1666334.63 | 14312196.60 | 39°24'45.561"N | 80°54'29.651"W | 3837.52 | 156.850 | 0.24 | 0.17 | -0.17 | |
| 10784.00 | 90.400 | 165.530 | 6582.42 | 3925.24 | -3620.78 | 1531.28 | 1666357.22 | 14312104.37 | 39°24'44.649"N | 80°54'29.364"W | 3931.27 | 157.076 | 1.51 | 0.19 | -1.49 | |
| 10879.00 | 90.220 | 161.070 | 6581.91 | 4020.08 | -3711.75 | 1558.58 | 1666384.50 | 14312013.43 | 39°24'43.750"N | 80°54'29.018"W | 4025.70 | 157.222 | 4.70 | -0.19 | -4.69 | |
| 10973.00 | 90.120 | 158.070 | 6581.63 | 4114.06 | -3799.83 | 1591.38 | 1666417.30 | 14311925.39 | 39°24'42.879"N | 80°54'28.601"W | 4119.61 | 157.276 | 3.19 | -0.11 | -3.19 | |
| 11068.00 | 90.120 | 156.910 | 6581.43 | 4208.95 | -3887.59 | 1627.75 | 1666453.65 | 14311837.67 | 39°24'42.011"N | 80°54'28.139"W | 4214.61 | 157.281 | 1.22 | 0.00 | -1.22 | |
| 11163.00 | 89.880 | 156.300 | 6581.43 | 4303.76 | -3974.78 | 1665.47 | 1666491.36 | 14311750.51 | 39°24'41.149"N | 80°54'27.659"W | 4309.60 | 157.266 | 0.89 | -0.25 | -0.64 | |
| 11258.00 | 90.120 | 156.840 | 6581.43 | 4398.56 | -4061.95 | 1703.25 | 1666529.12 | 14311663.38 | 39°24'40.287"N | 80°54'27.179"W | 4404.60 | 157.251 | 0.62 | 0.25 | 0.57 | |
| 11353.00 | 89.970 | 156.600 | 6581.36 | 4493.38 | -4149.21 | 1740.80 | 1666566.65 | 14311576.15 | 39°24'39.424"N | 80°54'26.702"W | 4499.59 | 157.240 | 0.30 | -0.16 | -0.25 | |
| 11448.00 | 90.060 | 156.540 | 6581.33 | 4588.19 | -4236.38 | 1778.57 | 1666604.41 | 14311489.02 | 39°24'38.562"N | 80°54'26.222"W | 4594.59 | 157.226 | 0.11 | 0.09 | -0.06 | |
| 11543.00 | 90.000 | 156.050 | 6581.28 | 4682.96 | -4323.36 | 1816.76 | 1666642.58 | 14311402.07 | 39°24'37.702"N | 80°54'25.736"W | 4689.57 | 157.207 | 0.52 | -0.06 | -0.52 | |
| 11638.00 | 90.030 | 157.080 | 6581.26 | 4777.76 | -4410.53 | 1854.54 | 1666680.35 | 14311314.94 | 39°24'36.840"N | 80°54'25.256"W | 4784.57 | 157.194 | 1.08 | 0.03 | 1.08 | |
| 11733.00 | 90.000 | 157.360 | 6581.23 | 4872.63 | -4498.12 | 1891.33 | 1666717.12 | 14311227.39 | 39°24'35.974"N | 80°54'24.789"W | 4879.57 | 157.195 | 0.30 | -0.03 | 0.29 | |
| 11828.00 | 90.000 | 157.630 | 6581.23 | 4967.52 | -4585.88 | 1927.69 | 1666753.47 | 14311139.66 | 39°24'35.106"N | 80°54'24.327"W | 4974.56 | 157.200 | 0.28 | 0.00 | 0.28 | |
| 11923.00 | 90.120 | 158.090 | 6581.13 | 5062.44 | -4673.88 | 1963.49 | 1666789.26 | 14311051.70 | 39°24'34.236"N | 80°54'23.872"W | 5069.56 | 157.213 | 0.50 | 0.13 | 0.48 | |
| 12018.00 | 90.000 | 158.330 | 6581.03 | 5157.38 | -4762.09 | 1998.76 | 1666824.51 | 14310963.52 | 39°24'33.364"N | 80°54'23.424"W | 5164.54 | 157.231 | 0.28 | -0.13 | 0.25 | |
| 12113.00 | 90.030 | 159.300 | 6581.01 | 5252.35 | -4850.67 | 2033.09 | 1666858.82 | 14310874.98 | 39°24'32.488"N | 80°54'22.987"W | 5259.51 | 157.260 | 1.02 | 0.03 | 1.02 | |
| 12208.00 | 90.090 | 159.630 | 6580.91 | 5347.34 | -4939.63 | 2066.41 | 1666892.13 | 14310786.05 | 39°24'31.609"N | 80°54'22.564"W | 5354.44 | 157.299 | 0.35 | 0.06 | 0.35 | |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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| REFERENCE WELLPATH IDENTIFICATION | |
|-----------------------------------|------------------------------|
| Operator | ANTERO RESOURCES CORPORATION |
| Area | Tyler County, WV |
| Field | Tyler |
| Facility | Lemuel Pad |
| Slot | Slot #06 |
| Well | Midge Unit 3H |
| Wellbore | Midge Unit 3H AWB |

| WELLPATH DATA (185 stations) | | | | | | | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|----------------|----------------|-------------------|-----------------|----------------|-----------------------|----------------------|----------|
| MD (ft) | Inclination (°) | Azimuth (°) | TVD (ft) | Vert Sect (ft) | North (ft) | East (ft) | Grid East (ft) | Grid North (ft) | Latitude | Longitude | Closure Dist (ft) | Closure Dir (°) | DLS (ft/100ft) | Build Rate (ft/100ft) | Turn Rate (ft/100ft) | Comments |
| 12303.00 | 90.060 | 160.870 | 6580.78 | 5442.33 | -5029.04 | 2098.51 | 1666924.22 | 14310696.68 | 39°24'30.725"N | 80°54'22.156"W | 5449.31 | 157.350 | 1.31 | -0.03 | 1.31 | |
| 12398.00 | 89.880 | 162.020 | 6580.83 | 5537.31 | -5119.10 | 2128.74 | 1666954.44 | 14310606.65 | 39°24'29.834"N | 80°54'21.772"W | 5544.07 | 157.420 | 1.23 | -0.19 | 1.21 | |
| 12493.00 | 89.940 | 162.790 | 6580.98 | 5632.24 | -5209.65 | 2157.46 | 1666983.15 | 14310516.13 | 39°24'28.939"N | 80°54'21.408"W | 5638.72 | 157.504 | 0.81 | 0.06 | 0.81 | |
| 12588.00 | 89.720 | 164.090 | 6581.26 | 5727.09 | -5300.71 | 2184.54 | 1667010.21 | 14310425.11 | 39°24'28.039"N | 80°54'21.064"W | 5733.21 | 157.602 | 1.39 | -0.23 | 1.37 | |
| 12683.00 | 90.030 | 164.920 | 6581.47 | 5821.83 | -5392.26 | 2209.92 | 1667035.58 | 14310333.60 | 39°24'27.134"N | 80°54'20.742"W | 5827.54 | 157.715 | 0.93 | 0.33 | 0.87 | |
| 12778.00 | 90.030 | 163.520 | 6581.42 | 5916.60 | -5483.68 | 2235.75 | 1667061.40 | 14310242.22 | 39°24'26.230"N | 80°54'20.414"W | 5921.93 | 157.819 | 1.47 | 0.00 | -1.47 | |
| 12873.00 | 90.150 | 162.010 | 6581.27 | 6011.51 | -5574.41 | 2263.90 | 1667089.54 | 14310151.53 | 39°24'25.333"N | 80°54'20.056"W | 6016.58 | 157.897 | 1.59 | 0.13 | -1.59 | |
| 12968.00 | 90.150 | 160.580 | 6581.02 | 6106.49 | -5664.39 | 2294.36 | 1667119.99 | 14310061.58 | 39°24'24.443"N | 80°54'19.670"W | 6111.41 | 157.950 | 1.51 | 0.00 | -1.51 | |
| 13063.00 | 90.150 | 159.300 | 6580.78 | 6201.48 | -5753.62 | 2326.95 | 1667152.56 | 14309972.38 | 39°24'23.561"N | 80°54'19.256"W | 6206.35 | 157.980 | 1.35 | 0.00 | -1.35 | |
| 13158.00 | 90.030 | 158.020 | 6580.63 | 6296.45 | -5842.11 | 2361.52 | 1667187.12 | 14309883.94 | 39°24'22.686"N | 80°54'18.816"W | 6301.35 | 157.990 | 1.35 | -0.13 | -1.35 | |
| 13253.00 | 89.940 | 156.520 | 6580.65 | 6391.31 | -5929.72 | 2398.22 | 1667223.81 | 14309796.35 | 39°24'21.820"N | 80°54'18.350"W | 6396.34 | 157.980 | 1.58 | -0.09 | -1.58 | |
| 13348.00 | 90.000 | 154.580 | 6580.70 | 6485.99 | -6016.20 | 2437.54 | 1667263.11 | 14309709.91 | 39°24'20.965"N | 80°54'17.850"W | 6491.25 | 157.944 | 2.04 | 0.06 | -2.04 | |
| 13443.00 | 89.940 | 155.170 | 6580.75 | 6580.57 | -6102.21 | 2477.88 | 1667303.43 | 14309623.93 | 39°24'20.114"N | 80°54'17.337"W | 6586.11 | 157.900 | 0.62 | -0.06 | 0.62 | |
| 13538.00 | 90.030 | 156.390 | 6580.78 | 6675.28 | -6188.85 | 2516.85 | 1667342.39 | 14309537.33 | 39°24'19.257"N | 80°54'16.842"W | 6681.05 | 157.870 | 1.29 | 0.09 | 1.28 | |
| 13633.00 | 90.060 | 159.540 | 6580.70 | 6770.19 | -6276.90 | 2552.49 | 1667378.01 | 14309449.32 | 39°24'18.387"N | 80°54'16.399"W | 6776.03 | 157.871 | 3.32 | 0.03 | 3.32 | |
| 13728.00 | 90.030 | 161.870 | 6580.63 | 6865.18 | -6366.56 | 2583.87 | 1667409.39 | 14309359.70 | 39°24'17.500"N | 80°54'15.991"W | 6870.91 | 157.910 | 2.45 | -0.03 | 2.45 | |
| 13823.00 | 90.090 | 162.970 | 6580.53 | 6960.11 | -6457.12 | 2612.57 | 1667438.07 | 14309269.17 | 39°24'16.605"N | 80°54'15.626"W | 6965.62 | 157.972 | 1.16 | 0.06 | 1.16 | |
| 13919.00 | 90.030 | 162.250 | 6580.43 | 7056.03 | -6548.73 | 2641.26 | 1667466.75 | 14309177.60 | 39°24'15.699"N | 80°54'15.262"W | 7061.31 | 158.035 | 0.75 | -0.06 | -0.75 | |
| 14014.00 | 90.060 | 160.450 | 6580.35 | 7151.01 | -6638.74 | 2671.64 | 1667497.12 | 14309087.62 | 39°24'14.809"N | 80°54'14.876"W | 7156.15 | 158.079 | 1.89 | 0.03 | -1.89 | |
| 14108.00 | 89.970 | 157.990 | 6580.33 | 7244.99 | -6726.62 | 2704.99 | 1667530.45 | 14308999.78 | 39°24'13.940"N | 80°54'14.453"W | 7250.12 | 158.093 | 2.62 | -0.10 | -2.62 | |
| 14204.00 | 90.030 | 157.180 | 6580.33 | 7340.88 | -6815.36 | 2741.59 | 1667567.04 | 14308911.07 | 39°24'13.063"N | 80°54'13.988"W | 7346.12 | 158.087 | 0.85 | 0.06 | -0.84 | |
| 14299.00 | 90.030 | 157.330 | 6580.28 | 7435.75 | -6902.97 | 2778.32 | 1667603.76 | 14308823.49 | 39°24'12.197"N | 80°54'13.521"W | 7441.11 | 158.076 | 0.16 | 0.00 | 0.16 | |
| 14393.00 | 90.000 | 159.430 | 6580.25 | 7529.70 | -6990.36 | 2812.95 | 1667638.37 | 14308736.15 | 39°24'11.333"N | 80°54'13.081"W | 7535.10 | 158.080 | 2.23 | -0.03 | 2.23 | |
| 14487.00 | 90.030 | 163.160 | 6580.23 | 7623.67 | -7079.38 | 2843.09 | 1667668.50 | 14308647.16 | 39°24'10.452"N | 80°54'12.698"W | 7628.94 | 158.119 | 3.97 | 0.03 | 3.97 | |
| 14582.00 | 90.060 | 165.010 | 6580.15 | 7718.45 | -7170.73 | 2869.14 | 1667694.54 | 14308557.84 | 39°24'09.549"N | 80°54'12.368"W | 7723.43 | 158.193 | 1.95 | 0.03 | 1.95 | |
| 14677.00 | 90.120 | 167.320 | 6580.00 | 7812.94 | -7262.97 | 2891.86 | 1667717.25 | 14308463.64 | 39°24'08.637"N | 80°54'12.079"W | 7817.51 | 158.289 | 2.43 | 0.06 | 2.43 | |
| 14772.00 | 90.000 | 169.690 | 6579.90 | 7906.95 | -7356.06 | 2910.79 | 1667736.17 | 14308370.59 | 39°24'07.717"N | 80°54'11.840"W | 7911.02 | 158.411 | 2.50 | -0.13 | 2.49 | |
| 14866.00 | 89.820 | 167.830 | 6580.05 | 7999.91 | -7448.25 | 2929.11 | 1667754.48 | 14308278.44 | 39°24'06.806"N | 80°54'11.607"W | 8003.50 | 158.532 | 1.99 | -0.19 | -1.98 | |
| 14962.00 | 90.000 | 164.070 | 6580.20 | 8095.42 | -7541.36 | 2952.41 | 1667777.78 | 14308185.36 | 39°24'05.885"N | 80°54'11.312"W | 8098.69 | 158.620 | 3.92 | 0.19 | -3.92 | |
| 15057.00 | 89.860 | 160.980 | 6580.30 | 8190.33 | -7631.96 | 2980.93 | 1667806.29 | 14308094.80 | 39°24'04.990"N | 80°54'10.950"W | 8193.46 | 158.665 | 3.26 | -0.13 | -3.25 | |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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03/08/2019

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Slot | Slot #06 |
| Area | Tyler County, WV | Well | Midge Unit 3H |
| Field | Tyler | Wellbore | Midge Unit 3H AWB |
| Facility | Lemuel Pad | | |

WELLPATH DATA (185 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [JUS ft] | Grid North [JUS ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [F/100ft] | Build Rate [F/100ft] | Turn Rate [F/100ft] | Comments |
|----------|-----------------|-------------|----------|----------------|------------|-----------|--------------------|---------------------|----------------|----------------|-------------------|-----------------|---------------|----------------------|---------------------|----------------------------|
| 15150.00 | 89.720 | 158.770 | 6580.63 | 8283.32 | -7719.28 | 3012.93 | 1667838.27 | 14308007.52 | 39°24'04.126"N | 80°54'10.543"W | 8286.44 | 158.679 | 2.38 | -0.17 | -2.38 | |
| 15245.00 | 89.820 | 158.720 | 6581.01 | 8378.29 | -7807.82 | 3047.37 | 1667872.70 | 14307919.01 | 39°24'03.251"N | 80°54'10.106"W | 8381.44 | 158.679 | 0.12 | 0.11 | -0.05 | |
| 15341.00 | 89.820 | 157.460 | 6581.31 | 8474.22 | -7896.88 | 3083.19 | 1667908.51 | 14307829.99 | 39°24'02.370"N | 80°54'09.651"W | 8477.43 | 158.673 | 1.31 | 0.00 | -1.31 | |
| 15406.00 | 89.820 | 155.960 | 6581.51 | 8539.09 | -7956.58 | 3108.89 | 1667934.19 | 14307770.31 | 39°24'01.780"N | 80°54'09.324"W | 8542.39 | 158.658 | 2.31 | 0.00 | -2.31 | |
| 15431.00 | 89.820 | 155.960 | 6581.59 | 8564.02 | -7979.41 | 3119.08 | 1667944.37 | 14307747.49 | 39°24'01.554"N | 80°54'09.195"W | 8567.36 | 158.650 | 0.00 | 0.00 | 0.00 | Projected MD at ID: 15431' |

HOLE & CASING SECTIONS - Ref Wellbore: Midge Unit 3H AWB Ref Wellpath: Midge Unit 3H AWP Proj: 15431'

| 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 | 32.00 | 112.00 | 80.00 | 32.00 | 112.00 | 0.00 | 0.00 | 0.00 | -0.18 |
| 17.5in Open Hole | 112.00 | 641.60 | 529.60 | 112.00 | 641.60 | 0.00 | -0.18 | -0.52 | -0.37 |
| 13.375in Casing Surface | 32.00 | 641.60 | 609.60 | 32.00 | 641.60 | 0.00 | 0.00 | -0.52 | -0.37 |
| 12.25in Open Hole | 641.60 | 2589.10 | 1947.50 | 641.60 | 2585.27 | -0.52 | -0.37 | 44.56 | -62.77 |
| 9.625in Casing Intermediate | 32.00 | 2589.10 | 2557.10 | 32.00 | 2585.27 | 0.00 | 0.00 | 44.56 | -62.77 |
| 8.75in Open Hole | 2589.10 | 6424.00 | 3834.90 | 2585.27 | 6359.72 | 44.56 | -62.77 | 358.33 | -11.36 |
| 8.5in Open Hole | 6424.00 | 15431.00 | 9007.00 | 6359.72 | 6581.59 | 358.33 | -11.36 | -7979.41 | 3119.08 |
| 5.5in Casing Production | 32.00 | 15431.00 | 15399.00 | 32.00 | 6581.59 | 0.00 | 0.00 | -7979.41 | 3119.08 |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Slot | Slot #06 |
| Area | Tyler County, WV | Well | Midge Unit 3H |
| Field | Tyler | Wellbore | Midge Unit 3H AWB |
| Facility | Lemuel Pad | | |

TARGETS

| Name | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape |
|---------------------------|----------|------------|-----------|-------------------|--------------------|----------------|----------------|-------|
| Midge Unit 3H POE - Rev-3 | 6570.00 | 59.22 | 166.88 | 1664993.36 | 14315782.89 | 39°25'21.034"N | 80°54'46.703"W | point |
| Midge Unit 3H BHL - Rev-3 | 6600.00 | -7975.59 | 3127.92 | 1667953.22 | 14307751.31 | 39°24'01.592"N | 80°54'09.082"W | point |
| Midge Unit 3H LP - Rev-3 | 6600.00 | -132.89 | 273.05 | 1665099.49 | 14315590.86 | 39°25'19.134"N | 80°54'45.352"W | point |

WELLPATH COMPOSITION - Ref Wellbore: Midge Unit 3H AWB Ref Wellpath: Midge Unit 3H AWP Proj: 15431'

| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
|---------------|-------------|---|--|-------------------|
| 32.00 | 610.00 | Gyrodata standard - Drop gyro or Multi-shot | 01 Gyrodata MS Gyro <17-1/2">(100'-610') | Midge Unit 3H AWB |
| 610.00 | 2524.00 | ISCWSA MWD, Rev. 4 (Standard) | 02 Panther EM <12-1/4">(686'-2524') | Midge Unit 3H AWB |
| 2524.00 | 6356.00 | ISCWSA MWD, Rev. 4 (Standard) | 03 Panther EM <8-3/4">(2524')(2645'-6356') | Midge Unit 3H AWB |
| 6356.00 | 15406.00 | BHI AutoTrak Curve (Short) | 04 AT Curve <8-1/2">(6356')(6401'-15406') | Midge Unit 3H AWB |
| 15406.00 | 15431.00 | Blind Drilling (std) | Projection to bit | Midge Unit 3H AWB |



Actual Wellpath Report

Midge Unit 3H AWP Proj: 15431'
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REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|------------------------------|----------|-------------------|
| Operator | ANTERO RESOURCES CORPORATION | Slot | Slot #06 |
| Area | Tyler County, WV | Well | Midge Unit 3H |
| Field | Tyler | Wellbore | Midge Unit 3H AWB |
| Facility | Lemuel Pad | | |

COMMENTS

Wellpath general comments

API: 47-095-02439-0000
 BHI Job #: 9263186
 Rig: Frontier 32
 Duration: 07/11/2018-07/14/2018
 Gyrodatta MS Gyro <17-1/2"> (100'-610')
 Panther EM <12-1/4"> (610') (686'-2524')
 Panther EM <8-3/4"> (2524') (2645'-6356')
 BHI AT Curve <8-1/2"> (6356') (6401'-15406')
 Middlesex: 6505' MD
 Burkett: 6661' MD
 Tully: 6740' MD
 Marcellus POE: 6833' MD
 Projected MD at TD: 15431'