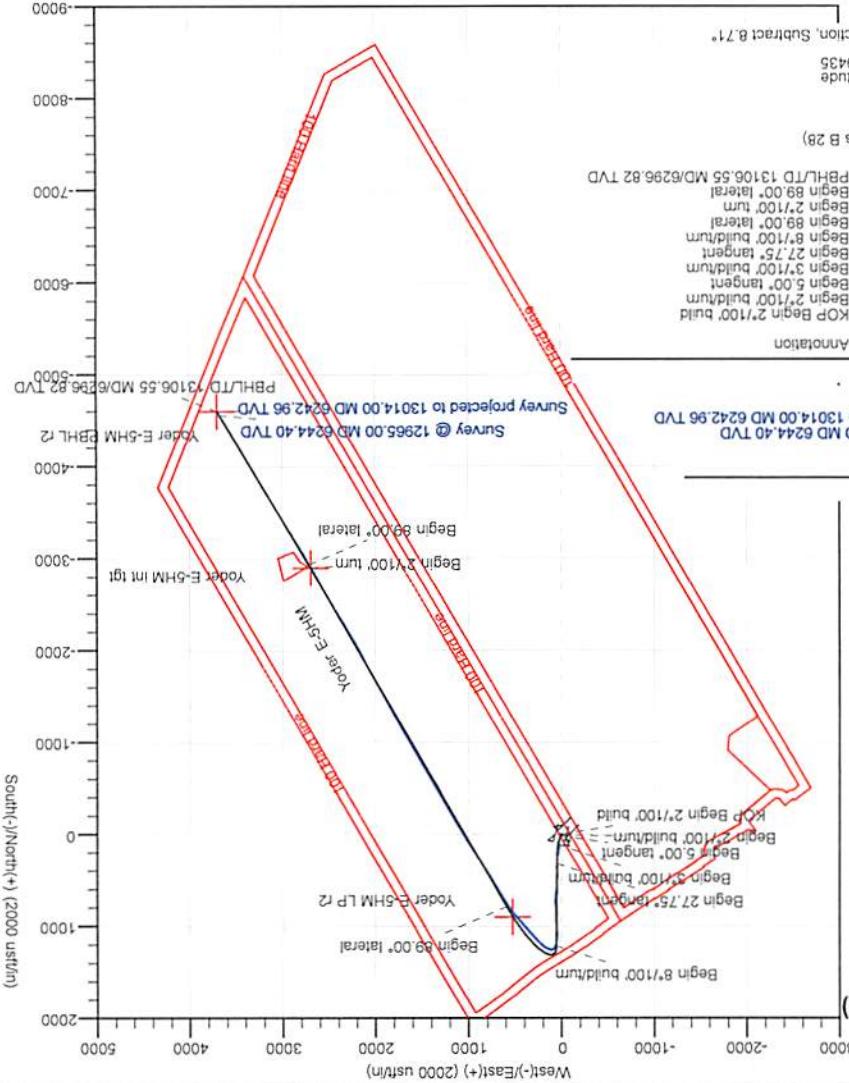
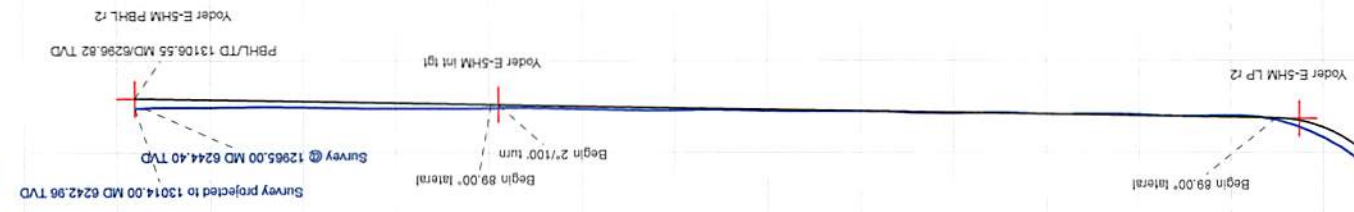
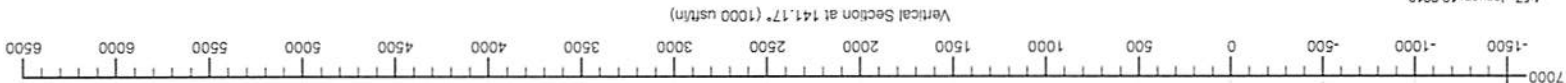
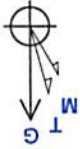




Azimuths to Grid North
 True North: -0.10°
 Magnetic North: -8.71°
 Magnetic Field
 Strength: 52.121 TeraT
 Dip Angle: 66.92°
 Date: 1/8/2018
 Model: IGRF2015



Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Subtract 8.71°

| Sec | MD | Inc | Azi | TVD | +N/S | +E/W | Diag | TFace | Vsect | Annotation |
|-----|----------|-------|--------|---------|----------|---------|-------|---------|---------|--------------------------------|
| 1 | 1300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 1300.00 | 0.00 | 0.00 | 1300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 27'100" build |
| 3 | 1550.00 | 5.00 | 45.00 | 1549.68 | 7.71 | 2.00 | 45.00 | -1.17 | 0.00 | Begin 5.00° tangent |
| 4 | 1679.26 | 5.00 | 15.00 | 1678.47 | 17.13 | 2.00 | 13.15 | -104.95 | -5.10 | Begin 5.00° tangent |
| 5 | 2805.07 | 5.00 | 15.00 | 2800.00 | 111.91 | 38.55 | 0.00 | 0.00 | -63.01 | Begin 37'100" build |
| 6 | 3569.86 | 27.75 | 0.52 | 3529.11 | 325.02 | 48.94 | 3.00 | -17.37 | -222.49 | Begin 27.75" tangent |
| 7 | 5487.29 | 27.75 | 0.52 | 5225.96 | 1217.87 | 57.09 | 0.00 | 0.00 | -912.89 | Begin 87'100" build |
| 8 | 6882.64 | 88.00 | 150.24 | 6188.08 | 788.91 | 590.76 | 8.08 | 146.86 | -244.11 | Begin 89.00° lateral |
| 9 | 11132.64 | 88.00 | 150.24 | 6262.25 | -2900.00 | 2700.00 | 0.00 | 0.00 | 3952.08 | Begin 27'100" turn |
| 10 | 11171.89 | 88.00 | 149.45 | 6262.94 | -2933.93 | 2719.71 | 2.00 | -90.26 | 3990.87 | Begin 89.00° lateral |
| 11 | 13106.55 | 89.00 | 149.45 | 6296.82 | -4599.87 | 3702.79 | 0.00 | 0.00 | 5905.04 | PBHLTD 13106.55 MD/6296.82 TVD |

Surface Location: RKB=1083+26 @ 1109.00usft (Nabors B 28)
 Universal Transverse Mercator (US Survey Feet)
 NAD83 West Virginia - HARN
 Zone 17N (84 W to 78 W)
 Easting 1446843.78
 Northing 1685369.56
 Longitude -80.83999435
 Latitude 39.78049300

RECEIVED
 Office of Oil and Gas
 SEP 11 2018
 WV Department of
 Environmental Protection

Well: Yoder E-5HM
 Site: Yoder
 Project: Wetzel County, West Virginia (UTM17 NAD83)
 Design: rev3



True Vertical Depth (1000 usft/in)

4-57, January 19 2018

SEP 11 2018



Survey Report

WV Department of
Environmental Protection



| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | Wetzel County, West Virginia (UTM17 NAD83) | | |
| Map System: | Universal Transverse Mercator (US Survey Feet) | System Datum: | Mean Sea Level |
| Geo Datum: | NAD83 West Virginia - HARN | | |
| Map Zone: | Zone 17N (84 W to 78 W) | | |

| | | | | | |
|------------------------------|-----------|---------------------|--------------------|--------------------------|--------------|
| Site | Yoder | | | | |
| Site Position: | | Northing: | 14,446,864.35 usft | Latitude: | 39.78054955 |
| From: | Lat/Long | Easting: | 1,685,354.97 usft | Longitude: | -80.84004615 |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.10 ° |

| | | | | | | |
|-----------------------------|--------------|-----------|----------------------------|--------------------|----------------------|---------------|
| Well | Yoder E-5HM | | | | | |
| Well Position | +N/-S | 0.00 usft | Northing: | 14,446,843.79 usft | Latitude: | 39.78049300 |
| | +E/-W | 0.00 usft | Easting: | 1,685,369.56 usft | Longitude: | -80.83999435 |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | 0.00 usft | Ground Level: | 1,083.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Original Hole | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 1/8/2018 | -8.61 | 66.92 | 52,121.69447283 |

| | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| Design | Surveys Original Hole | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) | |
| | 0.00 | 0.00 | 0.00 | 141.17 | |

| | | | | | |
|-----------------------|------------------|--------------------------|------------------|--------------------|--|
| Survey Program | Date | 1/19/2018 | | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 268.00 | 13,014.00 | MWD (Original Hole) | MWD | MWD - Standard | |

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 268.00 | 0.21 | 279.45 | 268.00 | 0.08 | -0.48 | -0.37 | 0.08 | 0.08 | 0.00 | |
| MWD surveys | | | | | | | | | | |
| 347.00 | 0.27 | 314.60 | 347.00 | 0.24 | -0.76 | -0.66 | 0.20 | 0.08 | 44.49 | |
| 439.00 | 0.29 | 224.83 | 439.00 | 0.22 | -1.08 | -0.85 | 0.43 | 0.02 | -97.58 | |
| 530.00 | 0.03 | 162.19 | 530.00 | 0.04 | -1.23 | -0.80 | 0.30 | -0.29 | -68.84 | |
| 622.00 | 0.27 | 173.57 | 622.00 | -0.20 | -1.20 | -0.60 | 0.26 | 0.26 | 12.37 | |
| 713.00 | 0.58 | 250.25 | 713.00 | -0.57 | -1.61 | -0.57 | 0.64 | 0.34 | 84.26 | |
| 817.00 | 0.24 | 323.67 | 816.99 | -0.57 | -2.24 | -0.96 | 0.54 | -0.33 | 70.60 | |
| 908.00 | 0.27 | 303.02 | 907.99 | -0.30 | -2.53 | -1.35 | 0.11 | 0.03 | -22.69 | |
| 1,002.00 | 0.30 | 5.75 | 1,001.99 | 0.06 | -2.69 | -1.74 | 0.32 | 0.03 | 66.73 | |

SEP 11 2018



Survey Report

WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 1,082.00 | 0.34 | 354.20 | 1,081.99 | 0.51 | -2.69 | -2.08 | 0.09 | 0.05 | -14.44 |
| 1,176.00 | 0.37 | 13.38 | 1,175.99 | 1.08 | -2.65 | -2.50 | 0.13 | 0.03 | 20.40 |
| 1,285.00 | 1.62 | 35.49 | 1,284.97 | 2.68 | -1.67 | -3.14 | 1.18 | 1.15 | 20.28 |
| 1,380.00 | 3.53 | 32.67 | 1,379.87 | 6.23 | 0.68 | -4.43 | 2.01 | 2.01 | -2.97 |
| 1,475.00 | 5.19 | 36.85 | 1,474.59 | 12.13 | 4.84 | -6.42 | 1.78 | 1.75 | 4.40 |
| 1,570.00 | 4.84 | 37.63 | 1,569.23 | 18.75 | 9.86 | -8.42 | 0.38 | -0.37 | 0.82 |
| 1,665.00 | 2.66 | 45.38 | 1,664.02 | 23.47 | 13.88 | -9.58 | 2.35 | -2.29 | 8.16 |
| 1,758.00 | 2.25 | 38.94 | 1,756.93 | 26.40 | 16.56 | -10.18 | 0.53 | -0.44 | -6.92 |
| 1,851.00 | 4.00 | 23.46 | 1,849.79 | 30.80 | 19.00 | -12.08 | 2.07 | 1.88 | -16.65 |
| 1,946.00 | 5.69 | 13.93 | 1,944.45 | 38.41 | 21.46 | -16.47 | 1.96 | 1.78 | -10.03 |
| 2,041.00 | 7.33 | 8.16 | 2,038.84 | 48.98 | 23.45 | -23.45 | 1.86 | 1.73 | -6.07 |
| 2,135.00 | 6.80 | 10.72 | 2,132.12 | 60.39 | 25.34 | -31.15 | 0.66 | -0.56 | 2.72 |
| 2,228.00 | 5.53 | 24.09 | 2,224.59 | 69.89 | 28.19 | -36.77 | 2.05 | -1.37 | 14.38 |
| 2,323.00 | 4.51 | 30.20 | 2,319.22 | 77.29 | 31.94 | -40.19 | 1.21 | -1.07 | 6.43 |
| 2,418.00 | 2.91 | 20.69 | 2,414.02 | 82.78 | 34.67 | -42.75 | 1.80 | -1.68 | -10.01 |
| 2,512.00 | 3.39 | 356.74 | 2,507.88 | 87.79 | 35.35 | -46.22 | 1.48 | 0.51 | -25.48 |
| 2,685.00 | 5.40 | 339.53 | 2,680.37 | 100.52 | 32.21 | -58.11 | 1.38 | 1.16 | -9.95 |
| 2,780.00 | 5.90 | 355.74 | 2,774.92 | 109.58 | 30.29 | -66.37 | 1.75 | 0.53 | 17.06 |
| 2,874.00 | 7.89 | 4.89 | 2,868.24 | 120.83 | 30.48 | -75.01 | 2.41 | 2.12 | 9.73 |
| 2,971.00 | 10.83 | 9.85 | 2,963.94 | 136.44 | 32.61 | -85.84 | 3.14 | 3.03 | 5.11 |
| 3,066.00 | 12.65 | 10.02 | 3,056.94 | 155.48 | 35.94 | -98.58 | 1.92 | 1.92 | 0.18 |
| 3,161.00 | 14.39 | 6.38 | 3,149.31 | 177.46 | 39.07 | -113.75 | 2.04 | 1.83 | -3.83 |
| 3,256.00 | 16.66 | 7.29 | 3,240.84 | 202.70 | 42.11 | -131.50 | 2.40 | 2.39 | 0.96 |
| 3,351.00 | 19.22 | 6.05 | 3,331.21 | 231.76 | 45.48 | -152.03 | 2.72 | 2.69 | -1.31 |
| 3,446.00 | 22.16 | 4.26 | 3,420.08 | 265.19 | 48.46 | -176.20 | 3.17 | 3.09 | -1.88 |
| 3,540.00 | 26.08 | 0.70 | 3,505.86 | 303.54 | 50.03 | -205.09 | 4.45 | 4.17 | -3.79 |
| 3,635.00 | 29.76 | 0.32 | 3,589.78 | 348.02 | 50.42 | -239.50 | 3.88 | 3.87 | -0.40 |
| 3,730.00 | 29.46 | 359.34 | 3,672.38 | 394.95 | 50.28 | -276.15 | 0.60 | -0.32 | -1.03 |
| 3,824.00 | 28.52 | 358.48 | 3,754.60 | 440.50 | 49.42 | -312.17 | 1.09 | -1.00 | -0.91 |
| 3,919.00 | 27.21 | 1.11 | 3,838.59 | 484.89 | 49.24 | -346.86 | 1.89 | -1.38 | 2.77 |
| 4,013.00 | 27.85 | 3.07 | 3,921.94 | 528.31 | 50.83 | -379.68 | 1.18 | 0.68 | 2.09 |
| 4,109.00 | 27.74 | 4.56 | 4,006.87 | 572.97 | 53.81 | -412.61 | 0.73 | -0.11 | 1.55 |
| 4,204.00 | 28.87 | 5.05 | 4,090.51 | 617.86 | 57.59 | -445.21 | 1.21 | 1.19 | 0.52 |
| 4,298.00 | 29.50 | 4.87 | 4,172.58 | 663.52 | 61.55 | -478.30 | 0.68 | 0.67 | -0.19 |
| 4,393.00 | 29.02 | 1.49 | 4,255.46 | 709.87 | 64.13 | -512.78 | 1.81 | -0.51 | -3.56 |
| 4,488.00 | 27.97 | 359.06 | 4,338.95 | 755.18 | 64.37 | -547.93 | 1.65 | -1.11 | -2.56 |
| 4,583.00 | 29.27 | 359.49 | 4,422.34 | 800.68 | 63.79 | -583.74 | 1.39 | 1.37 | 0.45 |
| 4,678.00 | 28.96 | 359.09 | 4,505.34 | 846.90 | 63.22 | -620.10 | 0.39 | -0.33 | -0.42 |
| 4,772.00 | 28.30 | 358.09 | 4,587.85 | 891.92 | 62.12 | -655.87 | 0.87 | -0.70 | -1.06 |
| 4,867.00 | 27.17 | 356.41 | 4,671.93 | 936.08 | 60.01 | -691.59 | 1.45 | -1.19 | -1.77 |
| 4,962.00 | 26.43 | 358.23 | 4,756.73 | 978.86 | 58.00 | -726.18 | 1.16 | -0.78 | 1.92 |
| 5,057.00 | 26.38 | 356.11 | 4,841.82 | 1,021.05 | 55.91 | -760.35 | 0.99 | -0.05 | -2.23 |
| 5,150.00 | 25.13 | 356.02 | 4,925.58 | 1,061.37 | 53.14 | -793.49 | 1.34 | -1.34 | -0.10 |

SEP 11 2018



Survey Report

WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 5,245.00 | 25.43 | 4.22 | 5,011.51 | 1,101.84 | 53.24 | -824.96 | 3.70 | 0.32 | 8.63 | |
| 5,339.00 | 25.49 | 4.41 | 5,096.38 | 1,142.14 | 56.28 | -854.45 | 0.11 | 0.06 | 0.20 | |
| 5,459.00 | 20.75 | 7.39 | 5,206.71 | 1,188.99 | 61.00 | -887.99 | 4.07 | -3.95 | 2.48 | |
| 5,554.00 | 15.65 | 21.27 | 5,296.97 | 1,217.65 | 67.83 | -906.04 | 7.01 | -5.37 | 14.61 | |
| 5,648.00 | 13.67 | 37.01 | 5,387.95 | 1,238.35 | 79.12 | -915.08 | 4.71 | -2.11 | 16.74 | |
| 5,742.00 | 13.58 | 68.73 | 5,479.43 | 1,251.24 | 96.11 | -914.47 | 7.85 | -0.10 | 33.74 | |
| 5,837.00 | 16.79 | 93.26 | 5,571.19 | 1,254.51 | 120.23 | -901.89 | 7.48 | 3.38 | 25.82 | |
| 5,932.00 | 21.05 | 110.83 | 5,661.11 | 1,247.65 | 149.92 | -877.94 | 7.44 | 4.48 | 18.49 | |
| 6,026.00 | 25.85 | 125.77 | 5,747.40 | 1,229.65 | 182.37 | -843.56 | 8.09 | 5.11 | 15.89 | |
| 6,121.00 | 33.27 | 132.89 | 5,830.00 | 1,199.75 | 218.33 | -797.73 | 8.63 | 7.81 | 7.49 | |
| 6,216.00 | 40.92 | 136.32 | 5,905.73 | 1,159.45 | 258.97 | -740.85 | 8.34 | 8.05 | 3.61 | |
| 6,310.00 | 50.77 | 139.66 | 5,971.14 | 1,109.31 | 303.92 | -673.60 | 10.78 | 10.48 | 3.55 | |
| 6,405.00 | 57.54 | 140.80 | 6,026.74 | 1,050.13 | 353.12 | -596.65 | 7.19 | 7.13 | 1.20 | |
| 6,500.00 | 62.55 | 138.34 | 6,074.16 | 987.54 | 406.51 | -514.41 | 5.73 | 5.27 | -2.59 | |
| 6,594.00 | 66.15 | 137.46 | 6,114.85 | 924.68 | 463.32 | -429.83 | 3.92 | 3.83 | -0.94 | |
| 6,689.00 | 70.55 | 141.51 | 6,149.90 | 857.56 | 520.62 | -341.61 | 6.09 | 4.63 | 4.26 | |
| 6,784.00 | 77.71 | 145.37 | 6,175.87 | 784.19 | 574.96 | -250.39 | 8.49 | 7.54 | 4.06 | |
| 6,879.00 | 83.03 | 148.45 | 6,191.76 | 705.75 | 626.05 | -157.24 | 6.45 | 5.60 | 3.24 | |
| 6,973.00 | 87.78 | 149.59 | 6,199.29 | 625.44 | 674.26 | -64.45 | 5.20 | 5.05 | 1.21 | |
| 7,067.00 | 90.55 | 150.21 | 6,200.66 | 544.13 | 721.39 | 28.44 | 3.02 | 2.95 | 0.66 | |
| 7,161.00 | 90.33 | 149.51 | 6,199.94 | 462.84 | 768.59 | 121.36 | 0.78 | -0.23 | -0.74 | |
| 7,255.00 | 91.08 | 148.27 | 6,198.78 | 382.37 | 817.16 | 214.50 | 1.54 | 0.80 | -1.32 | |
| 7,350.00 | 89.41 | 147.57 | 6,198.37 | 301.88 | 867.61 | 308.83 | 1.91 | -1.76 | -0.74 | |
| 7,445.00 | 87.21 | 147.31 | 6,201.18 | 221.85 | 918.71 | 403.22 | 2.33 | -2.32 | -0.27 | |
| 7,540.00 | 87.34 | 149.77 | 6,205.69 | 140.91 | 968.23 | 497.32 | 2.59 | 0.14 | 2.59 | |
| 7,635.00 | 88.62 | 149.51 | 6,209.04 | 58.99 | 1,016.22 | 591.22 | 1.37 | 1.35 | -0.27 | |
| 7,730.00 | 89.49 | 149.07 | 6,210.61 | -22.67 | 1,064.72 | 685.26 | 1.03 | 0.92 | -0.46 | |
| 7,825.00 | 90.68 | 148.10 | 6,210.47 | -103.74 | 1,114.24 | 779.46 | 1.62 | 1.25 | -1.02 | |
| 7,919.00 | 90.59 | 149.68 | 6,209.43 | -184.22 | 1,162.80 | 872.60 | 1.68 | -0.10 | 1.68 | |
| 8,014.00 | 89.27 | 149.59 | 6,209.54 | -266.18 | 1,210.83 | 966.56 | 1.39 | -1.39 | -0.09 | |
| 8,108.00 | 88.18 | 151.18 | 6,211.63 | -347.88 | 1,257.26 | 1,059.32 | 2.05 | -1.16 | 1.69 | |
| 8,202.00 | 88.57 | 150.56 | 6,214.30 | -429.96 | 1,303.00 | 1,151.94 | 0.78 | 0.41 | -0.66 | |
| 8,297.00 | 89.67 | 150.21 | 6,215.76 | -512.54 | 1,349.94 | 1,245.70 | 1.22 | 1.16 | -0.37 | |
| 8,392.00 | 90.86 | 150.12 | 6,215.32 | -594.94 | 1,397.20 | 1,339.53 | 1.26 | 1.25 | -0.09 | |
| 8,487.00 | 89.85 | 150.38 | 6,214.73 | -677.42 | 1,444.34 | 1,433.34 | 1.10 | -1.06 | 0.27 | |
| 8,582.00 | 90.51 | 150.30 | 6,214.43 | -759.97 | 1,491.35 | 1,527.12 | 0.70 | 0.69 | -0.08 | |
| 8,676.00 | 88.92 | 149.94 | 6,214.90 | -841.47 | 1,538.18 | 1,619.97 | 1.73 | -1.69 | -0.38 | |
| 8,771.00 | 87.38 | 150.56 | 6,217.97 | -923.90 | 1,585.30 | 1,713.73 | 1.75 | -1.62 | 0.65 | |
| 8,866.00 | 88.04 | 150.03 | 6,221.76 | -1,006.35 | 1,632.33 | 1,807.45 | 0.89 | 0.69 | -0.56 | |
| 8,961.00 | 89.19 | 149.59 | 6,224.06 | -1,088.44 | 1,680.09 | 1,901.34 | 1.30 | 1.21 | -0.46 | |
| 9,056.00 | 89.05 | 151.61 | 6,225.52 | -1,171.19 | 1,726.72 | 1,995.04 | 2.13 | -0.15 | 2.13 | |
| 9,151.00 | 90.42 | 151.61 | 6,225.96 | -1,254.76 | 1,771.89 | 2,088.47 | 1.44 | 1.44 | 0.00 | |
| 9,244.00 | 89.67 | 151.26 | 6,225.88 | -1,336.44 | 1,816.36 | 2,179.98 | 0.89 | -0.81 | -0.38 | |

SEP 11 2018



Survey Report

WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 9,339.00 | 90.77 | 151.53 | 6,225.52 | -1,419.85 | 1,861.84 | 2,273.47 | 1.19 | 1.16 | 0.28 |
| 9,434.00 | 89.23 | 151.18 | 6,225.52 | -1,503.22 | 1,907.38 | 2,366.97 | 1.66 | -1.62 | -0.37 |
| 9,528.00 | 88.35 | 150.74 | 6,227.50 | -1,585.38 | 1,953.00 | 2,459.58 | 1.05 | -0.94 | -0.47 |
| 9,623.00 | 89.32 | 150.82 | 6,229.44 | -1,668.27 | 1,999.36 | 2,553.22 | 1.02 | 1.02 | 0.08 |
| 9,717.00 | 88.53 | 150.47 | 6,231.20 | -1,750.19 | 2,045.43 | 2,645.92 | 0.92 | -0.84 | -0.37 |
| 9,812.00 | 88.44 | 152.23 | 6,233.71 | -1,833.52 | 2,090.96 | 2,739.39 | 1.85 | -0.09 | 1.85 |
| 9,907.00 | 89.89 | 152.41 | 6,235.10 | -1,917.64 | 2,135.09 | 2,832.59 | 1.54 | 1.53 | 0.19 |
| 10,000.00 | 91.08 | 152.58 | 6,234.31 | -2,000.12 | 2,178.04 | 2,923.77 | 1.29 | 1.28 | 0.18 |
| 10,095.00 | 91.82 | 150.30 | 6,231.90 | -2,083.53 | 2,223.44 | 3,017.21 | 2.52 | 0.78 | -2.40 |
| 10,190.00 | 90.15 | 149.42 | 6,230.27 | -2,165.67 | 2,271.13 | 3,111.10 | 1.99 | -1.76 | -0.93 |
| 10,284.00 | 89.23 | 148.36 | 6,230.78 | -2,246.15 | 2,319.69 | 3,204.25 | 1.49 | -0.98 | -1.13 |
| 10,378.00 | 88.04 | 148.80 | 6,233.02 | -2,326.34 | 2,368.68 | 3,297.43 | 1.35 | -1.27 | 0.47 |
| 10,472.00 | 88.04 | 148.54 | 6,236.23 | -2,406.59 | 2,417.53 | 3,390.58 | 0.28 | 0.00 | -0.28 |
| 10,567.00 | 88.18 | 150.12 | 6,239.37 | -2,488.25 | 2,465.96 | 3,484.56 | 1.67 | 0.15 | 1.66 |
| 10,662.00 | 89.27 | 150.47 | 6,241.48 | -2,570.75 | 2,513.02 | 3,578.33 | 1.21 | 1.15 | 0.37 |
| 10,757.00 | 89.49 | 149.33 | 6,242.51 | -2,652.93 | 2,560.66 | 3,672.22 | 1.22 | 0.23 | -1.20 |
| 10,851.00 | 88.53 | 150.03 | 6,244.13 | -2,734.06 | 2,608.11 | 3,765.17 | 1.26 | -1.02 | 0.74 |
| 10,945.00 | 89.98 | 151.26 | 6,245.36 | -2,815.98 | 2,654.18 | 3,857.88 | 2.02 | 1.54 | 1.31 |
| 11,038.00 | 91.16 | 150.91 | 6,244.43 | -2,897.38 | 2,699.15 | 3,949.48 | 1.32 | 1.27 | -0.38 |
| 11,133.00 | 90.29 | 150.82 | 6,243.23 | -2,980.35 | 2,745.40 | 4,043.12 | 0.92 | -0.92 | -0.09 |
| 11,227.00 | 91.43 | 150.91 | 6,241.82 | -3,062.45 | 2,791.16 | 4,135.76 | 1.22 | 1.21 | 0.10 |
| 11,321.00 | 89.45 | 149.68 | 6,241.10 | -3,144.09 | 2,837.73 | 4,228.57 | 2.48 | -2.11 | -1.31 |
| 11,416.00 | 89.23 | 148.71 | 6,242.19 | -3,225.68 | 2,886.38 | 4,322.63 | 1.05 | -0.23 | -1.02 |
| 11,511.00 | 89.85 | 148.45 | 6,242.95 | -3,306.74 | 2,935.90 | 4,416.83 | 0.71 | 0.65 | -0.27 |
| 11,606.00 | 91.16 | 148.54 | 6,242.12 | -3,387.74 | 2,985.54 | 4,511.05 | 1.38 | 1.38 | 0.09 |
| 11,701.00 | 89.27 | 148.98 | 6,241.76 | -3,468.96 | 3,034.81 | 4,605.21 | 2.04 | -1.99 | 0.46 |
| 11,796.00 | 89.85 | 148.45 | 6,242.49 | -3,550.14 | 3,084.14 | 4,699.39 | 0.83 | 0.61 | -0.56 |
| 11,891.00 | 88.26 | 148.71 | 6,244.06 | -3,631.20 | 3,133.66 | 4,793.58 | 1.70 | -1.67 | 0.27 |
| 11,985.00 | 89.01 | 148.63 | 6,246.29 | -3,711.47 | 3,182.52 | 4,886.75 | 0.80 | 0.80 | -0.09 |
| 12,080.00 | 88.88 | 150.38 | 6,248.04 | -3,793.31 | 3,230.72 | 4,980.72 | 1.85 | -0.14 | 1.84 |
| 12,175.00 | 89.32 | 150.21 | 6,249.54 | -3,875.81 | 3,277.79 | 5,074.51 | 0.50 | 0.46 | -0.18 |
| 12,270.00 | 89.45 | 150.30 | 6,250.56 | -3,958.29 | 3,324.92 | 5,168.31 | 0.17 | 0.14 | 0.09 |
| 12,362.00 | 90.37 | 150.03 | 6,250.70 | -4,038.10 | 3,370.69 | 5,259.18 | 1.04 | 1.00 | -0.29 |
| 12,456.00 | 90.86 | 149.77 | 6,249.69 | -4,119.42 | 3,417.83 | 5,352.08 | 0.59 | 0.52 | -0.28 |
| 12,551.00 | 90.07 | 149.86 | 6,248.92 | -4,201.53 | 3,465.59 | 5,446.00 | 0.84 | -0.83 | 0.09 |
| 12,645.00 | 91.34 | 150.03 | 6,247.76 | -4,282.89 | 3,512.67 | 5,538.89 | 1.36 | 1.35 | 0.18 |
| 12,740.00 | 89.89 | 149.51 | 6,246.74 | -4,364.96 | 3,560.49 | 5,632.82 | 1.62 | -1.53 | -0.55 |
| 12,835.00 | 90.24 | 148.71 | 6,246.64 | -4,446.48 | 3,609.26 | 5,726.90 | 0.92 | 0.37 | -0.84 |
| 12,930.00 | 91.34 | 148.63 | 6,245.33 | -4,527.62 | 3,658.65 | 5,821.08 | 1.16 | 1.16 | -0.08 |
| 12,965.00 | 91.69 | 148.36 | 6,244.40 | -4,557.45 | 3,676.94 | 5,855.78 | 1.26 | 1.00 | -0.77 |
| Survey @ 12965.00 MD 6244.40 TVD | | | | | | | | | |
| 13,014.00 | 91.69 | 148.36 | 6,242.96 | -4,599.15 | 3,702.63 | 5,904.38 | 0.00 | 0.00 | 0.00 |
| Survey projected to 13014.00 MD 6242.96 TVD | | | | | | | | | |



Survey Report



| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| Design Annotations | | | | |
|-----------------------|-----------------------|-------------------|--------------|---|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
| | | +N/-S (usft) | +E/-W (usft) | |
| 268.00 | 268.00 | 0.08 | -0.48 | MWD surveys |
| 12,965.00 | 6,244.40 | -4,557.45 | 3,676.94 | Survey @ 12965.00 MD 6244.40 TVD |
| 13,014.00 | 6,242.96 | -4,599.15 | 3,702.63 | Survey projected to 13014.00 MD 6242.96 TVD |

RECEIVED
Office of Oil and Gas

SEP 11 2018

WV Department of
Environmental Protection

SEP 11 2018



Survey Report - Geographic

WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | Wetzel County, West Virginia (UTM17 NAD83) | | |
| Map System: | Universal Transverse Mercator (US Survey Feet) | System Datum: | Mean Sea Level |
| Geo Datum: | NAD83 West Virginia - HARN | | |
| Map Zone: | Zone 17N (84 W to 78 W) | | |

| | | | | | |
|------------------------------|-----------|---------------------|--------------------|--------------------------|--------------|
| Site | Yoder | | | | |
| Site Position: | | Northing: | 14,446,864.35 usft | Latitude: | 39.78054955 |
| From: | Lat/Long | Easting: | 1,685,354.97 usft | Longitude: | -80.84004615 |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.10 ° |

| | | | | | | |
|-----------------------------|--------------|-----------|----------------------------|--------------------|----------------------|---------------|
| Well | Yoder E-5HM | | | | | |
| Well Position | +N/-S | 0.00 usft | Northing: | 14,446,843.79 usft | Latitude: | 39.78049300 |
| | +E/-W | 0.00 usft | Easting: | 1,685,369.56 usft | Longitude: | -80.83999435 |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | 0.00 usft | Ground Level: | 1,083.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Original Hole | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 1/8/2018 | -8.61 | 66.92 | 52,121.69447283 |

| | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| Design | Surveys Original Hole | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) | |
| | 0.00 | 0.00 | 0.00 | 141.17 | |

| | | | | |
|-----------------------|------------------|--------------------------|------------------|--------------------|
| Survey Program | Date | 1/19/2018 | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
| 268.00 | 13,014.00 | MWD (Original Hole) | MWD | MWD - Standard |

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|-------------|--------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14,446,843.79 | 1,685,369.56 | 39.78049300 | -80.83999435 |
| 268.00 | 0.21 | 279.45 | 268.00 | 0.08 | -0.48 | 14,446,843.87 | 1,685,369.08 | 39.78049323 | -80.83999608 |
| MWD surveys | | | | | | | | | |
| 347.00 | 0.27 | 314.60 | 347.00 | 0.24 | -0.76 | 14,446,844.02 | 1,685,368.80 | 39.78049365 | -80.83999705 |
| 439.00 | 0.29 | 224.83 | 439.00 | 0.22 | -1.08 | 14,446,844.01 | 1,685,368.48 | 39.78049362 | -80.83999819 |
| 530.00 | 0.03 | 162.19 | 530.00 | 0.04 | -1.23 | 14,446,843.82 | 1,685,368.33 | 39.78049311 | -80.83999874 |
| 622.00 | 0.27 | 173.57 | 622.00 | -0.20 | -1.20 | 14,446,843.59 | 1,685,368.36 | 39.78049245 | -80.83999863 |
| 713.00 | 0.58 | 250.25 | 713.00 | -0.57 | -1.61 | 14,446,843.22 | 1,685,367.95 | 39.78049144 | -80.84000009 |
| 817.00 | 0.24 | 323.67 | 816.99 | -0.57 | -2.24 | 14,446,843.22 | 1,685,367.32 | 39.78049144 | -80.84000231 |
| 908.00 | 0.27 | 303.02 | 907.99 | -0.30 | -2.53 | 14,446,843.49 | 1,685,367.03 | 39.78049218 | -80.84000335 |
| 1,002.00 | 0.30 | 5.75 | 1,001.99 | 0.06 | -2.69 | 14,446,843.85 | 1,685,366.87 | 39.78049319 | -80.84000392 |
| 1,082.00 | 0.34 | 354.20 | 1,081.99 | 0.51 | -2.69 | 14,446,844.30 | 1,685,366.87 | 39.78049441 | -80.84000393 |

SEP 11 2018



Survey Report - Geographic

WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|---------------------------|--------------------------|-------------|--------------|
| 1,176.00 | 0.37 | 13.38 | 1,175.99 | 1.08 | -2.65 | 14,446,844.87 | 1,685,366.91 | 39.78049598 | -80.84000378 |
| 1,285.00 | 1.62 | 35.49 | 1,284.97 | 2.68 | -1.67 | 14,446,846.47 | 1,685,367.89 | 39.78050036 | -80.84000029 |
| 1,380.00 | 3.53 | 32.67 | 1,379.87 | 6.23 | 0.68 | 14,446,850.02 | 1,685,370.24 | 39.78051011 | -80.83999188 |
| 1,475.00 | 5.19 | 36.85 | 1,474.59 | 12.13 | 4.84 | 14,446,855.92 | 1,685,374.40 | 39.78052630 | -80.83997705 |
| 1,570.00 | 4.84 | 37.63 | 1,569.23 | 18.75 | 9.86 | 14,446,862.53 | 1,685,379.42 | 39.78054443 | -80.83995912 |
| 1,665.00 | 2.66 | 45.38 | 1,664.02 | 23.47 | 13.88 | 14,446,867.26 | 1,685,383.44 | 39.78055739 | -80.83994480 |
| 1,758.00 | 2.25 | 38.94 | 1,756.93 | 26.40 | 16.56 | 14,446,870.19 | 1,685,386.12 | 39.78056543 | -80.83993523 |
| 1,851.00 | 4.00 | 23.46 | 1,849.79 | 30.80 | 19.00 | 14,446,874.59 | 1,685,388.56 | 39.78057749 | -80.83992652 |
| 1,946.00 | 5.69 | 13.93 | 1,944.45 | 38.41 | 21.46 | 14,446,882.20 | 1,685,391.02 | 39.78059839 | -80.83991774 |
| 2,041.00 | 7.33 | 8.16 | 2,038.84 | 48.98 | 23.45 | 14,446,892.77 | 1,685,393.01 | 39.78062741 | -80.83991057 |
| 2,135.00 | 6.80 | 10.72 | 2,132.12 | 60.39 | 25.34 | 14,446,904.17 | 1,685,394.90 | 39.78065871 | -80.83990379 |
| 2,228.00 | 5.53 | 24.09 | 2,224.59 | 69.89 | 28.19 | 14,446,913.68 | 1,685,397.75 | 39.78068479 | -80.83989357 |
| 2,323.00 | 4.51 | 30.20 | 2,319.22 | 77.29 | 31.94 | 14,446,921.08 | 1,685,401.50 | 39.78070512 | -80.83988018 |
| 2,418.00 | 2.91 | 20.69 | 2,414.02 | 82.78 | 34.67 | 14,446,926.57 | 1,685,404.23 | 39.78072017 | -80.83987043 |
| 2,512.00 | 3.39 | 356.74 | 2,507.88 | 87.79 | 35.35 | 14,446,931.57 | 1,685,404.91 | 39.78073391 | -80.83986796 |
| 2,685.00 | 5.40 | 339.53 | 2,680.37 | 100.52 | 32.21 | 14,446,944.31 | 1,685,401.78 | 39.78076890 | -80.83987905 |
| 2,780.00 | 5.90 | 355.74 | 2,774.92 | 109.58 | 30.29 | 14,446,953.37 | 1,685,399.85 | 39.78079379 | -80.83988584 |
| 2,874.00 | 7.89 | 4.89 | 2,868.24 | 120.83 | 30.48 | 14,446,964.61 | 1,685,400.04 | 39.78082468 | -80.83988509 |
| 2,971.00 | 10.83 | 9.85 | 2,963.94 | 136.44 | 32.61 | 14,446,980.23 | 1,685,402.17 | 39.78086755 | -80.83987742 |
| 3,066.00 | 12.65 | 10.02 | 3,056.94 | 155.48 | 35.94 | 14,446,999.27 | 1,685,405.50 | 39.78091982 | -80.83986542 |
| 3,161.00 | 14.39 | 6.38 | 3,149.31 | 177.46 | 39.07 | 14,447,021.25 | 1,685,408.63 | 39.78098016 | -80.83985417 |
| 3,256.00 | 16.66 | 7.29 | 3,240.84 | 202.70 | 42.11 | 14,447,046.49 | 1,685,411.67 | 39.78104947 | -80.83984319 |
| 3,351.00 | 19.22 | 6.05 | 3,331.21 | 231.76 | 45.48 | 14,447,075.55 | 1,685,415.04 | 39.78112927 | -80.83983099 |
| 3,446.00 | 22.16 | 4.26 | 3,420.08 | 265.19 | 48.46 | 14,447,108.98 | 1,685,418.02 | 39.78122104 | -80.83982017 |
| 3,540.00 | 26.08 | 0.70 | 3,505.86 | 303.54 | 50.03 | 14,447,147.33 | 1,685,419.59 | 39.78132638 | -80.83981433 |
| 3,635.00 | 29.76 | 0.32 | 3,589.78 | 348.02 | 50.42 | 14,447,191.81 | 1,685,419.98 | 39.78144851 | -80.83981267 |
| 3,730.00 | 29.46 | 359.34 | 3,672.38 | 394.95 | 50.28 | 14,447,238.74 | 1,685,419.84 | 39.78157741 | -80.83981286 |
| 3,824.00 | 28.52 | 358.48 | 3,754.60 | 440.50 | 49.42 | 14,447,284.29 | 1,685,418.98 | 39.78170251 | -80.83981564 |
| 3,919.00 | 27.21 | 1.11 | 3,838.59 | 484.89 | 49.24 | 14,447,328.68 | 1,685,418.80 | 39.78182442 | -80.83981600 |
| 4,013.00 | 27.85 | 3.07 | 3,921.94 | 528.31 | 50.83 | 14,447,372.10 | 1,685,420.39 | 39.78194363 | -80.83981006 |
| 4,109.00 | 27.74 | 4.56 | 4,006.87 | 572.97 | 53.81 | 14,447,416.76 | 1,685,423.37 | 39.78206628 | -80.83979918 |
| 4,204.00 | 28.87 | 5.05 | 4,090.51 | 617.86 | 57.59 | 14,447,461.64 | 1,685,427.15 | 39.78218953 | -80.83978545 |
| 4,298.00 | 29.50 | 4.87 | 4,172.58 | 663.52 | 61.55 | 14,447,507.31 | 1,685,431.11 | 39.78231492 | -80.83977105 |
| 4,393.00 | 29.02 | 1.49 | 4,255.46 | 709.87 | 64.13 | 14,447,553.65 | 1,685,433.69 | 39.78244218 | -80.83976156 |
| 4,488.00 | 27.97 | 359.06 | 4,338.95 | 755.18 | 64.37 | 14,447,598.97 | 1,685,433.93 | 39.78256662 | -80.83976043 |
| 4,583.00 | 29.27 | 359.49 | 4,422.34 | 800.68 | 63.79 | 14,447,644.47 | 1,685,433.35 | 39.78269158 | -80.83976218 |
| 4,678.00 | 28.96 | 359.09 | 4,505.34 | 846.90 | 63.22 | 14,447,690.69 | 1,685,432.78 | 39.78281852 | -80.83976392 |
| 4,772.00 | 28.30 | 358.09 | 4,587.85 | 891.92 | 62.12 | 14,447,735.71 | 1,685,431.68 | 39.78294217 | -80.83976757 |
| 4,867.00 | 27.17 | 356.41 | 4,671.93 | 936.08 | 60.01 | 14,447,779.87 | 1,685,429.57 | 39.78306345 | -80.83977479 |
| 4,962.00 | 26.43 | 358.23 | 4,756.73 | 978.86 | 58.00 | 14,447,822.65 | 1,685,427.56 | 39.78318095 | -80.83978168 |
| 5,057.00 | 26.38 | 356.11 | 4,841.82 | 1,021.05 | 55.91 | 14,447,864.84 | 1,685,425.47 | 39.78329683 | -80.83978883 |
| 5,150.00 | 25.13 | 356.02 | 4,925.58 | 1,061.37 | 53.14 | 14,447,905.15 | 1,685,422.70 | 39.78340755 | -80.83979844 |
| 5,245.00 | 25.43 | 4.22 | 5,011.51 | 1,101.84 | 53.24 | 14,447,945.63 | 1,685,422.80 | 39.78351872 | -80.83979783 |
| 5,339.00 | 25.49 | 4.41 | 5,096.38 | 1,142.14 | 56.28 | 14,447,985.93 | 1,685,425.84 | 39.78362936 | -80.83978675 |
| 5,459.00 | 20.75 | 7.39 | 5,206.71 | 1,188.99 | 61.00 | 14,448,032.78 | 1,685,430.57 | 39.78375801 | -80.83976964 |
| 5,554.00 | 15.65 | 21.27 | 5,296.97 | 1,217.65 | 67.83 | 14,448,061.44 | 1,685,437.39 | 39.78383669 | -80.83974518 |
| 5,648.00 | 13.67 | 37.01 | 5,387.95 | 1,238.35 | 79.12 | 14,448,082.14 | 1,685,448.68 | 39.78389347 | -80.83970485 |
| 5,742.00 | 13.58 | 68.73 | 5,479.43 | 1,251.24 | 96.11 | 14,448,095.03 | 1,685,465.67 | 39.78392879 | -80.83964428 |
| 5,837.00 | 16.79 | 93.26 | 5,571.19 | 1,254.51 | 120.23 | 14,448,098.30 | 1,685,489.79 | 39.78393765 | -80.83955839 |
| 5,932.00 | 21.05 | 110.83 | 5,661.11 | 1,247.65 | 149.92 | 14,448,091.44 | 1,685,519.48 | 39.78391868 | -80.83945278 |
| 6,026.00 | 25.85 | 125.77 | 5,747.40 | 1,229.65 | 182.37 | 14,448,073.43 | 1,685,551.93 | 39.78386906 | -80.83933737 |
| 6,121.00 | 33.27 | 132.89 | 5,830.00 | 1,199.75 | 218.33 | 14,448,043.54 | 1,685,587.89 | 39.78378679 | -80.83920957 |
| 6,216.00 | 40.92 | 136.32 | 5,905.73 | 1,159.45 | 258.97 | 14,448,003.24 | 1,685,628.53 | 39.78367592 | -80.83906516 |
| 6,310.00 | 50.77 | 139.66 | 5,971.14 | 1,109.31 | 303.92 | 14,447,953.10 | 1,685,673.48 | 39.78353798 | -80.83890549 |
| 6,405.00 | 57.54 | 140.80 | 6,026.74 | 1,050.13 | 353.12 | 14,447,893.92 | 1,685,722.68 | 39.78337523 | -80.83873072 |



Survey Report - Geographic

RECEIVED
Office of Oil and Gas

SEP 11 2018



WV Department of
Environmental Protection

| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well: Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|-------------|--------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 6,500.00 | 62.55 | 138.34 | 6,074.16 | 987.54 | 406.51 | 14,447,831.33 | 1,685,776.07 | 39.78320306 | -80.83854108 | |
| 6,594.00 | 66.15 | 137.46 | 6,114.85 | 924.68 | 463.32 | 14,447,768.47 | 1,685,832.88 | 39.78303016 | -80.83833927 | |
| 6,689.00 | 70.55 | 141.51 | 6,149.90 | 857.56 | 520.62 | 14,447,701.35 | 1,685,890.18 | 39.78284553 | -80.83813575 | |
| 6,784.00 | 77.71 | 145.37 | 6,175.87 | 784.19 | 574.96 | 14,447,627.98 | 1,685,944.52 | 39.78264377 | -80.83794280 | |
| 6,879.00 | 83.03 | 148.45 | 6,191.76 | 705.75 | 626.05 | 14,447,549.54 | 1,685,995.61 | 39.78242809 | -80.83776144 | |
| 6,973.00 | 87.78 | 149.59 | 6,199.29 | 625.44 | 674.26 | 14,447,469.23 | 1,686,043.82 | 39.78220730 | -80.83759035 | |
| 7,067.00 | 90.55 | 150.21 | 6,200.66 | 544.13 | 721.39 | 14,447,387.92 | 1,686,090.96 | 39.78198377 | -80.83742311 | |
| 7,161.00 | 90.33 | 149.51 | 6,199.94 | 462.84 | 768.59 | 14,447,306.63 | 1,686,138.15 | 39.78176029 | -80.83725564 | |
| 7,255.00 | 91.08 | 148.27 | 6,198.78 | 382.37 | 817.16 | 14,447,226.16 | 1,686,186.72 | 39.78153905 | -80.83708330 | |
| 7,350.00 | 89.41 | 147.57 | 6,198.37 | 301.88 | 867.61 | 14,447,145.67 | 1,686,237.17 | 39.78131775 | -80.83690424 | |
| 7,445.00 | 87.21 | 147.31 | 6,201.18 | 221.85 | 918.71 | 14,447,065.64 | 1,686,288.27 | 39.78109771 | -80.83672286 | |
| 7,540.00 | 87.34 | 149.77 | 6,205.69 | 140.91 | 968.23 | 14,446,984.70 | 1,686,337.79 | 39.78087519 | -80.83654712 | |
| 7,635.00 | 88.62 | 149.51 | 6,209.04 | 58.99 | 1,016.22 | 14,446,902.78 | 1,686,385.78 | 39.78064997 | -80.83637686 | |
| 7,730.00 | 89.49 | 149.07 | 6,210.61 | -22.67 | 1,064.72 | 14,446,821.12 | 1,686,434.28 | 39.78042545 | -80.83620473 | |
| 7,825.00 | 90.68 | 148.10 | 6,210.47 | -103.74 | 1,114.24 | 14,446,740.04 | 1,686,483.80 | 39.78020256 | -80.83602901 | |
| 7,919.00 | 90.59 | 149.68 | 6,209.43 | -184.22 | 1,162.80 | 14,446,659.57 | 1,686,532.36 | 39.77998131 | -80.83585668 | |
| 8,014.00 | 89.27 | 149.59 | 6,209.54 | -266.18 | 1,210.83 | 14,446,577.61 | 1,686,580.39 | 39.77975596 | -80.83568629 | |
| 8,108.00 | 88.18 | 151.18 | 6,211.63 | -347.88 | 1,257.26 | 14,446,495.91 | 1,686,626.82 | 39.77953137 | -80.83552153 | |
| 8,202.00 | 88.57 | 150.56 | 6,214.30 | -429.96 | 1,303.00 | 14,446,413.83 | 1,686,672.56 | 39.77930573 | -80.83535926 | |
| 8,297.00 | 89.67 | 150.21 | 6,215.76 | -512.54 | 1,349.94 | 14,446,331.25 | 1,686,719.50 | 39.77907871 | -80.83519273 | |
| 8,392.00 | 90.86 | 150.12 | 6,215.32 | -594.94 | 1,397.20 | 14,446,248.85 | 1,686,766.76 | 39.77885216 | -80.83502505 | |
| 8,487.00 | 89.85 | 150.38 | 6,214.73 | -677.42 | 1,444.34 | 14,446,166.37 | 1,686,813.90 | 39.77862542 | -80.83485781 | |
| 8,582.00 | 90.51 | 150.30 | 6,214.43 | -759.97 | 1,491.35 | 14,446,083.82 | 1,686,860.91 | 39.77839847 | -80.83469103 | |
| 8,676.00 | 88.92 | 149.94 | 6,214.90 | -841.47 | 1,538.18 | 14,446,002.32 | 1,686,907.74 | 39.77817440 | -80.83452489 | |
| 8,771.00 | 87.38 | 150.56 | 6,217.97 | -923.90 | 1,585.30 | 14,445,919.89 | 1,686,954.86 | 39.77794778 | -80.83435774 | |
| 8,866.00 | 88.04 | 150.03 | 6,221.76 | -1,006.35 | 1,632.33 | 14,445,837.44 | 1,687,001.89 | 39.77772111 | -80.83419087 | |
| 8,961.00 | 89.19 | 149.59 | 6,224.06 | -1,088.44 | 1,680.09 | 14,445,755.35 | 1,687,049.65 | 39.77749543 | -80.83402143 | |
| 9,056.00 | 89.05 | 151.61 | 6,225.52 | -1,171.19 | 1,726.72 | 14,445,672.60 | 1,687,096.28 | 39.77726793 | -80.83385601 | |
| 9,151.00 | 90.42 | 151.61 | 6,225.96 | -1,254.76 | 1,771.89 | 14,445,589.02 | 1,687,141.45 | 39.77703819 | -80.83369580 | |
| 9,244.00 | 89.67 | 151.26 | 6,225.88 | -1,336.44 | 1,816.36 | 14,445,507.35 | 1,687,185.92 | 39.77681365 | -80.83353807 | |
| 9,339.00 | 90.77 | 151.53 | 6,225.52 | -1,419.85 | 1,861.84 | 14,445,423.94 | 1,687,231.40 | 39.77658437 | -80.83337674 | |
| 9,434.00 | 89.23 | 151.18 | 6,225.52 | -1,503.22 | 1,907.38 | 14,445,340.57 | 1,687,276.94 | 39.77635518 | -80.83321521 | |
| 9,528.00 | 88.35 | 150.74 | 6,227.50 | -1,585.38 | 1,953.00 | 14,445,258.41 | 1,687,322.56 | 39.77612930 | -80.83305339 | |
| 9,623.00 | 89.32 | 150.82 | 6,229.44 | -1,668.27 | 1,999.36 | 14,445,175.52 | 1,687,368.92 | 39.77590142 | -80.83288892 | |
| 9,717.00 | 88.53 | 150.47 | 6,231.20 | -1,750.19 | 2,045.43 | 14,445,093.60 | 1,687,414.99 | 39.77567622 | -80.83272549 | |
| 9,812.00 | 88.44 | 152.23 | 6,233.71 | -1,833.52 | 2,090.96 | 14,445,010.27 | 1,687,460.52 | 39.77544712 | -80.83256399 | |
| 9,907.00 | 89.89 | 152.41 | 6,235.10 | -1,917.64 | 2,135.09 | 14,444,926.15 | 1,687,504.65 | 39.77521589 | -80.83240750 | |
| 10,000.00 | 91.08 | 152.58 | 6,234.31 | -2,000.12 | 2,178.04 | 14,444,843.66 | 1,687,547.60 | 39.77498914 | -80.83225520 | |
| 10,095.00 | 91.82 | 150.30 | 6,231.90 | -2,083.53 | 2,223.44 | 14,444,760.26 | 1,687,593.00 | 39.77475985 | -80.83209417 | |
| 10,190.00 | 90.15 | 149.42 | 6,230.27 | -2,165.67 | 2,271.13 | 14,444,678.12 | 1,687,640.69 | 39.77453402 | -80.83192498 | |
| 10,284.00 | 89.23 | 148.36 | 6,230.78 | -2,246.15 | 2,319.69 | 14,444,597.64 | 1,687,689.25 | 39.77431275 | -80.83175267 | |
| 10,378.00 | 88.04 | 148.80 | 6,233.02 | -2,326.34 | 2,368.68 | 14,444,517.45 | 1,687,738.24 | 39.77409227 | -80.83157885 | |
| 10,472.00 | 88.04 | 148.54 | 6,236.23 | -2,406.59 | 2,417.53 | 14,444,437.20 | 1,687,787.09 | 39.77387164 | -80.83140554 | |
| 10,567.00 | 88.18 | 150.12 | 6,239.37 | -2,488.25 | 2,465.96 | 14,444,355.54 | 1,687,835.52 | 39.77364711 | -80.83123372 | |
| 10,662.00 | 89.27 | 150.47 | 6,241.48 | -2,570.75 | 2,513.02 | 14,444,273.04 | 1,687,882.58 | 39.77342032 | -80.83106677 | |
| 10,757.00 | 89.49 | 149.33 | 6,242.51 | -2,652.93 | 2,560.66 | 14,444,190.86 | 1,687,930.22 | 39.77319437 | -80.83089777 | |
| 10,851.00 | 88.53 | 150.03 | 6,244.13 | -2,734.06 | 2,608.11 | 14,444,109.73 | 1,687,977.67 | 39.77297132 | -80.83072946 | |
| 10,945.00 | 89.98 | 151.26 | 6,245.36 | -2,815.98 | 2,654.18 | 14,444,027.81 | 1,688,023.75 | 39.77274611 | -80.83056603 | |
| 11,038.00 | 91.16 | 150.91 | 6,244.43 | -2,897.38 | 2,699.15 | 14,443,946.41 | 1,688,068.71 | 39.77252232 | -80.83040655 | |
| 11,133.00 | 90.29 | 150.82 | 6,243.23 | -2,980.35 | 2,745.40 | 14,443,863.44 | 1,688,114.96 | 39.77229422 | -80.83024252 | |
| 11,227.00 | 91.43 | 150.91 | 6,241.82 | -3,062.45 | 2,791.16 | 14,443,781.34 | 1,688,160.72 | 39.77206852 | -80.83008021 | |
| 11,321.00 | 89.45 | 149.68 | 6,241.10 | -3,144.09 | 2,837.73 | 14,443,699.70 | 1,688,207.29 | 39.77184407 | -80.82991500 | |
| 11,416.00 | 89.23 | 148.71 | 6,242.19 | -3,225.68 | 2,886.38 | 14,443,618.11 | 1,688,255.94 | 39.77161975 | -80.82974242 | |
| 11,511.00 | 89.85 | 148.45 | 6,242.95 | -3,306.74 | 2,935.90 | 14,443,537.04 | 1,688,305.46 | 39.77139685 | -80.82956672 | |
| 11,606.00 | 91.16 | 148.54 | 6,242.12 | -3,387.74 | 2,985.54 | 14,443,456.05 | 1,688,355.10 | 39.77117417 | -80.82939060 | |



Survey Report - Geographic

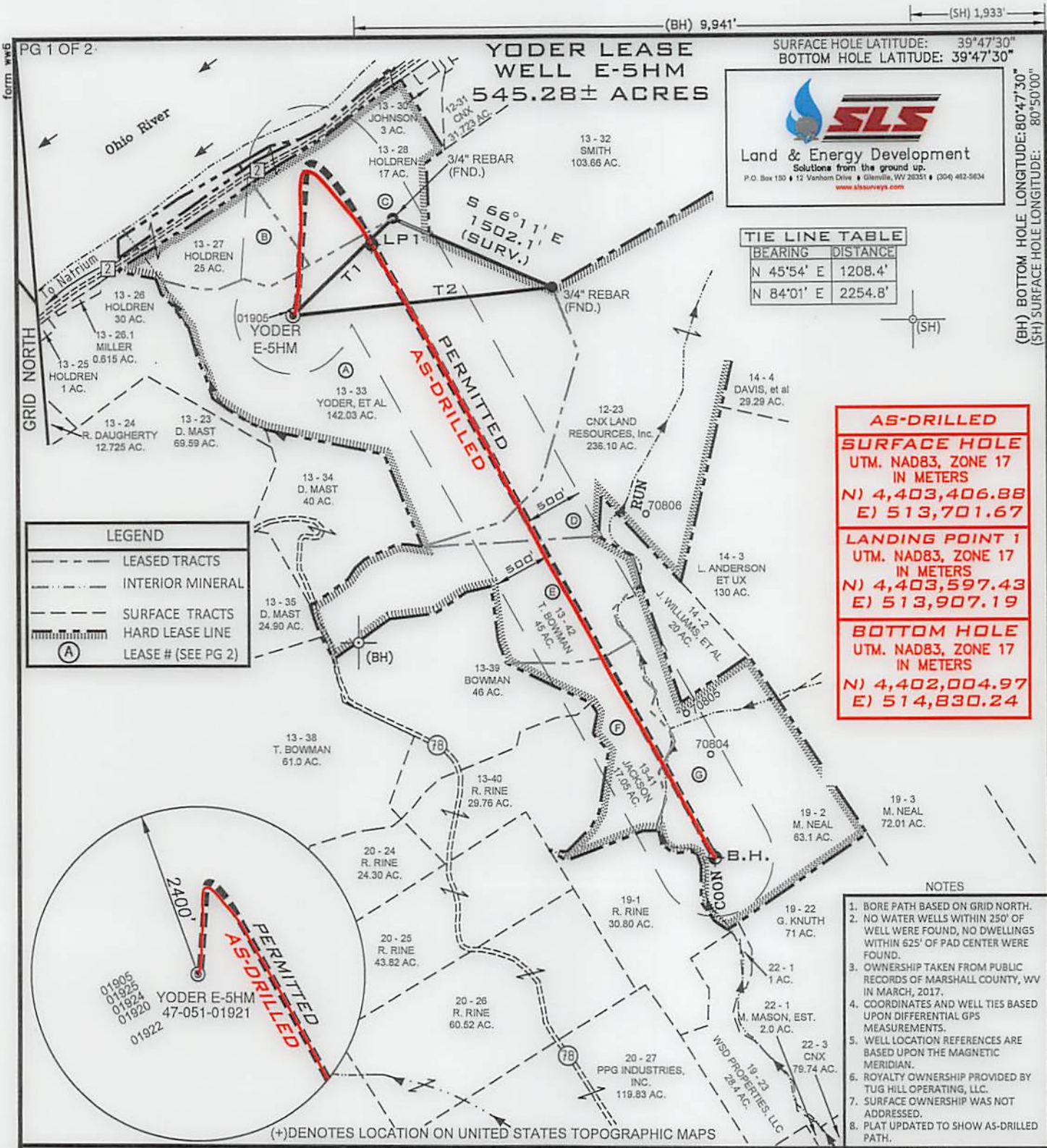


| | | | |
|------------------|--|-------------------------------------|---|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Yoder E-5HM |
| Project: | Wetzel County, West Virginia (UTM17 NAD83) | TVD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Site: | Yoder | MD Reference: | RKB=1083+26 @ 1109.00usft (Nabors B 28) |
| Well: | Yoder E-5HM | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|--|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|-------------|--------------|
| 11,701.00 | 89.27 | 148.98 | 6,241.76 | -3,468.96 | 3,034.81 | 14,443,374.83 | 1,688,404.37 | 39.77095085 | -80.82921582 |
| 11,796.00 | 89.85 | 148.45 | 6,242.49 | -3,550.14 | 3,084.14 | 14,443,293.65 | 1,688,453.70 | 39.77072764 | -80.82904080 |
| 11,891.00 | 88.26 | 148.71 | 6,244.06 | -3,631.20 | 3,133.66 | 14,443,212.59 | 1,688,503.22 | 39.77050478 | -80.82886513 |
| 11,985.00 | 89.01 | 148.63 | 6,246.29 | -3,711.47 | 3,182.52 | 14,443,132.32 | 1,688,552.08 | 39.77028408 | -80.82869178 |
| 12,080.00 | 88.88 | 150.38 | 6,248.04 | -3,793.31 | 3,230.72 | 14,443,050.48 | 1,688,600.28 | 39.77005906 | -80.82852081 |
| 12,175.00 | 89.32 | 150.21 | 6,249.54 | -3,875.81 | 3,277.79 | 14,442,967.97 | 1,688,647.35 | 39.76983223 | -80.82835386 |
| 12,270.00 | 89.45 | 150.30 | 6,250.56 | -3,958.29 | 3,324.92 | 14,442,885.50 | 1,688,694.48 | 39.76960547 | -80.82818669 |
| 12,362.00 | 90.37 | 150.03 | 6,250.70 | -4,038.10 | 3,370.69 | 14,442,805.69 | 1,688,740.25 | 39.76938606 | -80.82802435 |
| 12,456.00 | 90.86 | 149.77 | 6,249.69 | -4,119.42 | 3,417.83 | 14,442,724.37 | 1,688,787.39 | 39.76916249 | -80.82785714 |
| 12,551.00 | 90.07 | 149.86 | 6,248.92 | -4,201.53 | 3,465.59 | 14,442,642.26 | 1,688,835.15 | 39.76893672 | -80.82768773 |
| 12,645.00 | 91.34 | 150.03 | 6,247.76 | -4,282.89 | 3,512.67 | 14,442,560.90 | 1,688,882.23 | 39.76871305 | -80.82752076 |
| 12,740.00 | 89.89 | 149.51 | 6,246.74 | -4,364.96 | 3,560.49 | 14,442,478.83 | 1,688,930.05 | 39.76848740 | -80.82735112 |
| 12,835.00 | 90.24 | 148.71 | 6,246.64 | -4,446.48 | 3,609.26 | 14,442,397.31 | 1,688,978.82 | 39.76826326 | -80.82717811 |
| 12,930.00 | 91.34 | 148.63 | 6,245.33 | -4,527.62 | 3,658.65 | 14,442,316.17 | 1,689,028.21 | 39.76804016 | -80.82700290 |
| 12,965.00 | 91.69 | 148.36 | 6,244.40 | -4,557.45 | 3,676.94 | 14,442,286.34 | 1,689,046.50 | 39.76795814 | -80.82693804 |
| Survey @ 12965.00 MD 6244.40 TVD | | | | | | | | | |
| 13,014.00 | 91.69 | 148.36 | 6,242.96 | -4,599.15 | 3,702.63 | 14,442,244.64 | 1,689,072.19 | 39.76784349 | -80.82684689 |
| Survey projected to 13014.00 MD 6242.96 TVD | | | | | | | | | |

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------|-----------------------|-------------------|--------------|---|
| | | +N/-S (usft) | +E/-W (usft) | |
| 268.00 | 268.00 | 0.08 | -0.48 | MWD surveys |
| 12,965.00 | 6,244.40 | -4,557.45 | 3,676.94 | Survey @ 12965.00 MD 6244.40 TVD |
| 13,014.00 | 6,242.96 | -4,599.15 | 3,702.63 | Survey projected to 13014.00 MD 6242.96 TVD |

RECEIVED
Office of Oil and Gas
SEP 11 2018
WV Department of
Environmental Protection



(BH) 9,941' (SH) 1,933'

YODER LEASE WELL E-5HM
545.28± ACRES

SURFACE HOLE LATITUDE: 39°47'30"
BOTTOM HOLE LATITUDE: 39°47'30"

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 100 • 12 Venham Drive • Glenville, WV 26031 • (304) 482-5834
www.slsurveys.com

TIE LINE TABLE

| BEARING | DISTANCE |
|------------|----------|
| N 45°54' E | 1208.4' |
| N 84°01' E | 2254.8' |

| |
|--|
| AS-DRILLED SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,403,406.88 E) 513,701.67 |
| LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS N) 4,403,597.43 E) 513,907.19 |
| BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,402,004.97 E) 514,830.24 |

LEGEND

- LEASED TRACTS
- INTERIOR MINERAL
- SURFACE TRACTS
- HARD LEASE LINE
- (A) LEASE # (SEE PG 2)

- NOTES**
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017.
 - COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - ROYALTY OWNERSHIP PROVIDED BY TUG HILL OPERATING, LLC.
 - SURFACE OWNERSHIP WAS NOT ADDRESSED.
 - PLAT UPDATED TO SHOW AS-DRILLED PATH.

FILE NUMBER 8836

DRAWING NUMBER 8836ADE5HM.dwg

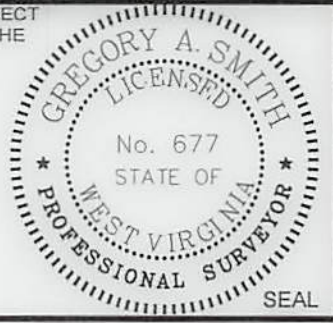
SCALE 1" = 1200'

MINIMUM DEGREE OF ACCURACY 1/2500

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 677
Gregory A. Smith



WVDEP
OFFICE OF OIL & GAS
601 57TH STREET, SE
CHARLESTON, WV 25304



DATE: JULY 17, 2018

OPERATORS WELL NO. YODER E-5HM (AS-DRILLED)

API WELL NO. 47-051-01921

STATE COUNTY PERMIT STATE COUNTY PERMIT

LOCATION ELEVATION 1084' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE ATTACHED PG 2 OF 2

SURFACE OWNER NATHAN D. YODER, et al ACREAGE 142.03

OIL & GAS ROYALTY OWNER NATHAN D. YODER, et al - SEE PG 2 LEASE ACREAGE 545.28

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION

PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____

PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 6,243' TMD:13,014'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER CT CORPORATION SYSTEM

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME
PERMIT

WELL OPERATOR TUG HILL OPERATING, LLC
 DESIGNATED AGENT DIANNA STAMPER
 CT CORPORATION SYSTEM
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76107
 CHARLESTON, WV 25313
 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH TVD 6,243', TMD:13,014'
 PLUG & ABANDON CLEAN OUT & REPLUG

PERMIT

PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION _____
 OIL & GAS ROYALTY OWNER NATHAN D. YODER, et al - SEE PG 2
 LEASE ACRES 242.28
 SURFACE OWNER NATHAN D. YODER, et al
 ACRES 142.03

QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER _____ SEE ATTACHED PG 2 OF 2
 DISTRICT FRANKLIN COUNTY MARSHALL

LOCATION ELEVATION 1084' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL

API WELL NO. _____
 OPERATORS WELL NO. YODER E-5HM (AS-DRILLED)
 DATE: JULY 17, 2018

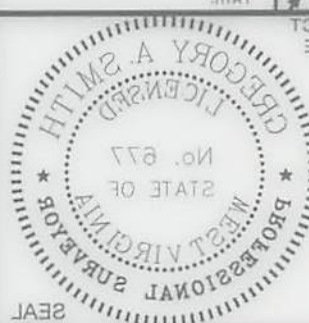
WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET, SE
 CHARLESTON, WV 25304

GRADE GPS
 SUBMETER MAPPING
 PROVEN SOURCE
 OF ELEVATION

OF ACCURACY 1/2500
 MINIMUM DEGREE
 SCALE 1" = 1200'
 DRAWING NUMBER 8836ADE5HM.dwg
 FILE NUMBER 8836



Gregory A. Smith
 P.S. 677



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

- NOTES
1. BORE PATH BASED ON GRID NORTH.
 2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017.
 4. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 5. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 6. ROYALTY OWNERSHIP PROVIDED BY TUG HILL OPERATING, LLC.
 7. SURFACE OWNERSHIP WAS NOT ADDRESSED.
 8. PLAN UPDATED TO SHOW AS-DRILLED PATH.

AS-DRILLED SURFACE HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 (N) 4,403,406.88
 (E) 213,701.67

LANDING POINT 1
 UTM. NAD83, ZONE 17
 IN METERS
 (N) 4,403,527.43
 (E) 213,907.19

BOTTOM HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 (N) 4,402,004.92
 (E) 214,830.24

LEGEND

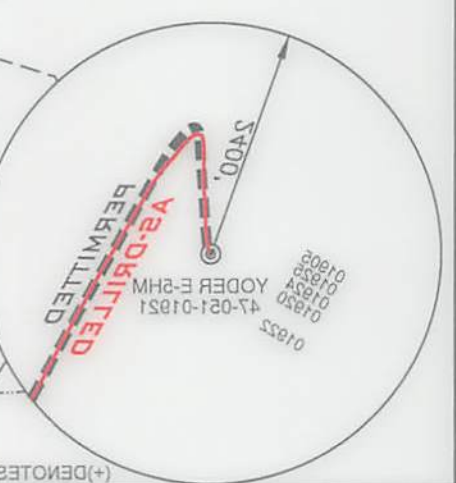
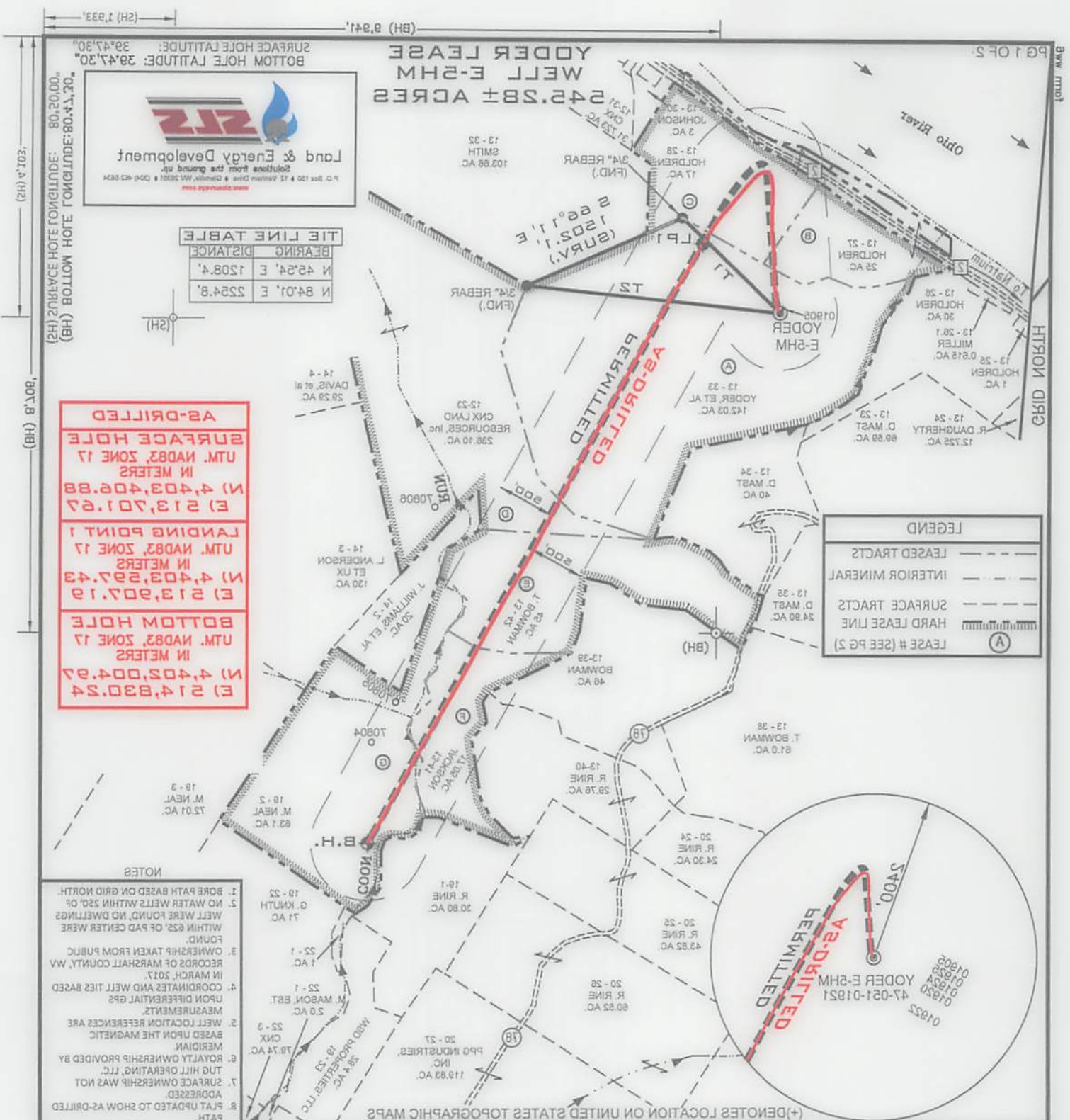
| |
|------------------------|
| --- LEASED TRACTS |
| --- INTERIOR MINERAL |
| --- SURFACE TRACTS |
| --- HARD LEASE LINE |
| (A) LEASE # (SEE PG 2) |

THE LINE TABLE

| BEARING | DISTANCE |
|------------|----------|
| N 42°24' E | 1208.4' |
| N 84°01' E | 2254.8' |



YODER LEASE
 WELL E-5HM
 242.28± ACRES



(2H) SURFACE HOLE LONGITUDE: 80°20'00.00"
 (2H) SURFACE HOLE LATITUDE: 39°47'30.00"
 (2H) BOTTOM HOLE LONGITUDE: 80°20'00.00"
 (2H) BOTTOM HOLE LATITUDE: 39°47'30.00"

GRID NORTH
 PG 1 OF 2