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|------------------|--------------------------------|-------------------------------------|--|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Heaven Hill 2-06 HU (slot A) |
| Project: | Marshall County, West Virginia | TVD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Site: | Heaven Hill 2 | MD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Well: | Heaven Hill 2-06 HU (slot A) | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | Marshall County, West Virginia | | |
| 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 | Heaven Hill 2 | | | | |
| Site Position: | | Northing: | 14,457,660.30 usft | Latitude: | 39.80995400 |
| From: | Lat/Long | Easting: | 1,720,974.97 usft | Longitude: | -80.71313800 |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.18 " |

| | | | | | | |
|-----------------------------|------------------------------|-----------|----------------------------|--------------------|----------------------|---------------|
| Well | Heaven Hill 2-06 HU (slot A) | | | | | |
| Well Position | +N/-S | 0.00 usft | Northing: | 14,457,731.56 usft | Latitude: | 39.81014890 |
| | +E/-W | 0.00 usft | Easting: | 1,721,065.59 usft | Longitude: | -80.71281450 |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | usft | Ground Level: | 1,331.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Original Hole | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 7/18/2016 | -8.66 | 67.05 | 52,290.96280715 |
| | IGRF2015 | 4/7/2018 | -8.71 | 66.91 | 52,092.36037065 |

| | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| 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 | 150.00 | |

| | | | | | |
|-----------------------|------------------|--------------------------------|------------------|------------------------------|--|
| Survey Program | Date | 4/27/2018 | | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 100.00 | 898.00 | Gyro (Original Hole) | NS-GYRO-MS | North sensing gyrocompassing | |
| 903.00 | 10,358.00 | MWD TIP=898 MD (Original Hole) | MWD | MWD - Standard | |
| 10,459.00 | 20,287.00 | MWD lat (Original Hole) | MWD | MWD - Standard | |
| 20,332.00 | 20,332.00 | Projection (Original Hole) | MWD | MWD - Standard | |

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|------------------------------|---|--------------------|------------------------------|---------------------|---------------------|----------------------------|---------------------------|-----------------|------------------|--|
| Survey | WV Department of Environmental Protection | | | | | | | | | |
| 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 | 14,457,731.56 | 1,721,065.59 | 39.81014890 | -80.71281450 | |
| 100.00 | 0.55 | 42.48 | 100.00 | 0.35 | 0.32 | 14,457,731.92 | 1,721,065.91 | 39.81014987 | -80.71281334 | |
| Gyro | | | | | | | | | | |
| 200.00 | 0.51 | 58.47 | 199.99 | 0.94 | 1.03 | 14,457,732.50 | 1,721,066.62 | 39.81015148 | -80.71281083 | |
| 300.00 | 0.52 | 10.64 | 299.99 | 1.62 | 1.49 | 14,457,733.18 | 1,721,067.08 | 39.81015334 | -80.71280917 | |
| 400.00 | 0.63 | 58.25 | 399.99 | 2.35 | 2.04 | 14,457,733.92 | 1,721,067.63 | 39.81015535 | -80.71280720 | |
| 500.00 | 0.26 | 60.24 | 499.98 | 2.76 | 2.71 | 14,457,734.32 | 1,721,068.30 | 39.81015645 | -80.71280483 | |
| 600.00 | 0.30 | 36.97 | 599.98 | 3.08 | 3.06 | 14,457,734.64 | 1,721,068.65 | 39.81015733 | -80.71280357 | |



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| Well: | Heaven Hill 2-06 HU (slot A) | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

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| Survey | | | | | | | | | | WV Department of Environmental Protection | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|-------------|--------------|---|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | | |
| 700.00 | 1.19 | 190.11 | 699.98 | 2.27 | 3.04 | 14,457,733.83 | 1,721,068.63 | 39.81015510 | -80.71280366 | | |
| 800.00 | 1.39 | 175.45 | 799.95 | 0.03 | 2.95 | 14,457,731.60 | 1,721,068.54 | 39.81014897 | -80.71280400 | | |
| 898.00 | 0.87 | 154.89 | 897.93 | -1.82 | 3.36 | 14,457,729.74 | 1,721,068.95 | 39.81014386 | -80.71280256 | | |
| 903.00 | 1.31 | 154.57 | 902.93 | -1.91 | 3.40 | 14,457,729.65 | 1,721,068.99 | 39.81014362 | -80.71280241 | | |
| MWD surveys | | | | | | | | | | | |
| 935.00 | 1.03 | 157.51 | 934.92 | -2.51 | 3.67 | 14,457,729.06 | 1,721,069.26 | 39.81014199 | -80.71280147 | | |
| 966.00 | 0.91 | 158.19 | 965.92 | -2.99 | 3.87 | 14,457,728.57 | 1,721,069.46 | 39.81014065 | -80.71280077 | | |
| 988.00 | 1.04 | 162.00 | 987.92 | -3.34 | 3.99 | 14,457,728.22 | 1,721,069.58 | 39.81013968 | -80.71280032 | | |
| 998.00 | 1.09 | 175.38 | 997.91 | -3.53 | 4.03 | 14,457,728.04 | 1,721,069.62 | 39.81013918 | -80.71280020 | | |
| 1,030.00 | 1.04 | 160.11 | 1,029.91 | -4.10 | 4.15 | 14,457,727.46 | 1,721,069.74 | 39.81013760 | -80.71279976 | | |
| 1,061.00 | 1.08 | 159.37 | 1,060.90 | -4.64 | 4.35 | 14,457,726.92 | 1,721,069.94 | 39.81013612 | -80.71279906 | | |
| 1,093.00 | 1.23 | 157.44 | 1,092.90 | -5.24 | 4.59 | 14,457,726.32 | 1,721,070.18 | 39.81013447 | -80.71279822 | | |
| 1,124.00 | 1.37 | 154.85 | 1,123.89 | -5.88 | 4.87 | 14,457,725.68 | 1,721,070.46 | 39.81013270 | -80.71279721 | | |
| 1,190.00 | 0.91 | 192.46 | 1,189.88 | -7.11 | 5.10 | 14,457,724.45 | 1,721,070.69 | 39.81012934 | -80.71279644 | | |
| 1,222.00 | 1.23 | 229.74 | 1,221.87 | -7.58 | 4.78 | 14,457,723.98 | 1,721,070.37 | 39.81012805 | -80.71279757 | | |
| 1,253.00 | 1.73 | 250.44 | 1,252.86 | -7.95 | 4.08 | 14,457,723.61 | 1,721,069.67 | 39.81012703 | -80.71280005 | | |
| 1,285.00 | 2.41 | 262.94 | 1,284.84 | -8.19 | 2.96 | 14,457,723.37 | 1,721,068.55 | 39.81012637 | -80.71280405 | | |
| 1,316.00 | 2.72 | 268.17 | 1,315.81 | -8.30 | 1.58 | 14,457,723.26 | 1,721,067.17 | 39.81012610 | -80.71280897 | | |
| 1,348.00 | 3.20 | 273.36 | 1,347.77 | -8.27 | -0.07 | 14,457,723.29 | 1,721,065.52 | 39.81012619 | -80.71281485 | | |
| 1,379.00 | 3.26 | 277.22 | 1,378.72 | -8.11 | -1.81 | 14,457,723.45 | 1,721,063.78 | 39.81012665 | -80.71282104 | | |
| 1,410.00 | 3.01 | 295.74 | 1,409.67 | -7.64 | -3.42 | 14,457,723.92 | 1,721,062.17 | 39.81012794 | -80.71282676 | | |
| 1,442.00 | 2.87 | 305.73 | 1,441.63 | -6.81 | -4.82 | 14,457,724.75 | 1,721,060.76 | 39.81013024 | -80.71283176 | | |
| 1,474.00 | 2.83 | 318.08 | 1,473.59 | -5.76 | -6.00 | 14,457,725.81 | 1,721,059.59 | 39.81013315 | -80.71283594 | | |
| 1,505.00 | 2.49 | 334.80 | 1,504.56 | -4.58 | -6.80 | 14,457,726.99 | 1,721,058.79 | 39.81013639 | -80.71283877 | | |
| 1,537.00 | 2.31 | 1.33 | 1,536.53 | -3.30 | -7.08 | 14,457,728.26 | 1,721,058.51 | 39.81013989 | -80.71283976 | | |
| 1,568.00 | 2.55 | 15.45 | 1,567.50 | -2.01 | -6.88 | 14,457,729.55 | 1,721,058.71 | 39.81014343 | -80.71283904 | | |
| 1,662.00 | 2.91 | 36.75 | 1,661.40 | 1.91 | -4.90 | 14,457,733.48 | 1,721,060.69 | 39.81015420 | -80.71283192 | | |
| 1,757.00 | 2.34 | 63.68 | 1,756.30 | 4.71 | -1.72 | 14,457,736.27 | 1,721,063.87 | 39.81016184 | -80.71282056 | | |
| 1,852.00 | 1.52 | 100.14 | 1,851.25 | 5.34 | 1.26 | 14,457,736.91 | 1,721,066.85 | 39.81016357 | -80.71280995 | | |
| 1,946.00 | 1.63 | 115.71 | 1,945.22 | 4.54 | 3.69 | 14,457,736.11 | 1,721,069.28 | 39.81016135 | -80.71280130 | | |
| 2,041.00 | 1.34 | 129.87 | 2,040.18 | 3.25 | 5.76 | 14,457,734.81 | 1,721,071.35 | 39.81015776 | -80.71279394 | | |
| 2,136.00 | 1.08 | 175.59 | 2,135.16 | 1.64 | 6.68 | 14,457,733.20 | 1,721,072.27 | 39.81015335 | -80.71279068 | | |
| 2,230.00 | 1.64 | 176.83 | 2,229.14 | -0.59 | 6.83 | 14,457,730.98 | 1,721,072.42 | 39.81014723 | -80.71279020 | | |
| 2,321.00 | 1.48 | 190.23 | 2,320.10 | -3.04 | 6.69 | 14,457,728.52 | 1,721,072.28 | 39.81014049 | -80.71279071 | | |
| 2,416.00 | 2.15 | 196.11 | 2,415.06 | -5.96 | 5.98 | 14,457,725.60 | 1,721,071.57 | 39.81013248 | -80.71279328 | | |
| 2,511.00 | 2.73 | 203.62 | 2,509.97 | -9.75 | 4.58 | 14,457,721.82 | 1,721,070.17 | 39.81012210 | -80.71279831 | | |
| 2,605.00 | 2.76 | 227.25 | 2,603.87 | -13.33 | 2.02 | 14,457,718.23 | 1,721,067.61 | 39.81011227 | -80.71280747 | | |
| 2,700.00 | 3.89 | 308.12 | 2,698.75 | -12.90 | -2.20 | 14,457,718.67 | 1,721,063.39 | 39.81011350 | -80.71282248 | | |
| 2,829.00 | 5.75 | 325.15 | 2,827.29 | -4.89 | -9.33 | 14,457,726.67 | 1,721,056.25 | 39.81013555 | -80.71284780 | | |
| 2,892.00 | 5.65 | 323.41 | 2,889.98 | 0.19 | -12.99 | 14,457,731.75 | 1,721,052.60 | 39.81014953 | -80.71286074 | | |
| 2,987.00 | 3.94 | 331.43 | 2,984.65 | 6.81 | -17.34 | 14,457,738.37 | 1,721,048.25 | 39.81016776 | -80.71287615 | | |
| 3,081.00 | 3.53 | 345.41 | 3,078.45 | 12.45 | -19.61 | 14,457,744.01 | 1,721,045.98 | 39.81018326 | -80.71288418 | | |
| 3,176.00 | 4.06 | 359.98 | 3,173.24 | 18.64 | -20.35 | 14,457,750.20 | 1,721,045.24 | 39.81020027 | -80.71288674 | | |
| 3,271.00 | 4.87 | 10.04 | 3,267.95 | 25.97 | -19.65 | 14,457,757.54 | 1,721,045.94 | 39.81022041 | -80.71288416 | | |
| 3,365.00 | 5.84 | 18.42 | 3,361.54 | 34.44 | -17.44 | 14,457,766.00 | 1,721,048.15 | 39.81024364 | -80.71287620 | | |
| 3,460.00 | 7.36 | 23.96 | 3,455.91 | 44.59 | -13.44 | 14,457,776.15 | 1,721,052.15 | 39.81027147 | -80.71286185 | | |
| 3,554.00 | 8.44 | 23.12 | 3,549.02 | 56.43 | -8.29 | 14,457,788.00 | 1,721,057.30 | 39.81030396 | -80.71284336 | | |
| 3,649.00 | 9.44 | 20.51 | 3,642.86 | 70.14 | -2.82 | 14,457,801.71 | 1,721,062.77 | 39.81034156 | -80.71282374 | | |
| 3,743.00 | 9.92 | 21.70 | 3,735.53 | 84.89 | 2.88 | 14,457,816.45 | 1,721,068.47 | 39.81038200 | -80.71280329 | | |
| 3,838.00 | 10.22 | 24.37 | 3,829.06 | 100.17 | 9.38 | 14,457,831.73 | 1,721,074.97 | 39.81042390 | -80.71277996 | | |
| 3,933.00 | 10.49 | 24.78 | 3,922.51 | 115.70 | 16.48 | 14,457,847.26 | 1,721,082.07 | 39.81046649 | -80.71275449 | | |
| 4,027.00 | 10.41 | 25.11 | 4,014.96 | 131.15 | 23.67 | 14,457,862.72 | 1,721,089.26 | 39.81050888 | -80.71272871 | | |
| 4,122.00 | 9.81 | 26.99 | 4,108.48 | 146.14 | 30.99 | 14,457,877.70 | 1,721,096.58 | 39.81054996 | -80.71270249 | | |
| 4,217.00 | 10.10 | 25.15 | 4,202.05 | 160.89 | 38.20 | 14,457,892.45 | 1,721,103.79 | 39.81059041 | -80.71267663 | | |
| 4,311.00 | 10.05 | 24.00 | 4,294.60 | 175.84 | 45.04 | 14,457,907.41 | 1,721,110.63 | 39.81063142 | -80.71265211 | | |

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| Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|---|--------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | WV Department of Environmental Protection | |
| | | | | | | | | Latitude | Longitude |
| 4,406.00 | 11.51 | 22.88 | 4,387.92 | 192.15 | 52.10 | 14,457,923.71 | 1,721,117.69 | 39.81067613 | -80.71262679 |
| 4,501.00 | 13.32 | 24.55 | 4,480.70 | 210.84 | 60.33 | 14,457,942.40 | 1,721,125.92 | 39.81072738 | -80.71259726 |
| 4,595.00 | 12.49 | 29.88 | 4,572.33 | 229.50 | 69.89 | 14,457,961.06 | 1,721,135.48 | 39.81077856 | -80.71256300 |
| 4,690.00 | 11.76 | 37.38 | 4,665.21 | 246.10 | 80.89 | 14,457,977.67 | 1,721,146.48 | 39.81082405 | -80.71252365 |
| 4,784.00 | 12.34 | 37.32 | 4,757.14 | 261.70 | 92.79 | 14,457,993.27 | 1,721,158.38 | 39.81086679 | -80.71248108 |
| 4,879.00 | 12.02 | 34.89 | 4,850.00 | 277.89 | 104.61 | 14,458,009.45 | 1,721,170.20 | 39.81091114 | -80.71243883 |
| 4,974.00 | 12.35 | 32.48 | 4,942.86 | 294.57 | 115.72 | 14,458,026.14 | 1,721,181.31 | 39.81095686 | -80.71239906 |
| 5,068.00 | 12.41 | 32.02 | 5,034.68 | 311.62 | 126.47 | 14,458,043.18 | 1,721,192.06 | 39.81100357 | -80.71236057 |
| 5,166.00 | 10.86 | 43.88 | 5,130.67 | 327.20 | 138.46 | 14,458,058.77 | 1,721,204.05 | 39.81104627 | -80.71231772 |
| 5,261.00 | 9.23 | 47.68 | 5,224.21 | 338.79 | 150.30 | 14,458,070.35 | 1,721,215.89 | 39.81107797 | -80.71227543 |
| 5,356.00 | 8.47 | 47.26 | 5,318.08 | 348.66 | 161.07 | 14,458,080.23 | 1,721,226.66 | 39.81110500 | -80.71223696 |
| 5,450.00 | 7.64 | 29.84 | 5,411.17 | 358.78 | 169.26 | 14,458,090.35 | 1,721,234.85 | 39.81113272 | -80.71220766 |
| 5,545.00 | 9.98 | 19.75 | 5,505.05 | 372.01 | 175.19 | 14,458,103.57 | 1,721,240.78 | 39.81116899 | -80.71218641 |
| 5,640.00 | 10.53 | 30.81 | 5,598.54 | 387.22 | 182.42 | 14,458,118.78 | 1,721,248.01 | 39.81121069 | -80.71216050 |
| 5,735.00 | 9.16 | 41.04 | 5,692.14 | 400.38 | 191.83 | 14,458,131.94 | 1,721,257.42 | 39.81124675 | -80.71212683 |
| 5,829.00 | 6.86 | 37.43 | 5,785.22 | 410.48 | 200.16 | 14,458,142.04 | 1,721,265.74 | 39.81127442 | -80.71209707 |
| 5,924.00 | 6.28 | 31.57 | 5,879.60 | 419.41 | 206.32 | 14,458,150.98 | 1,721,271.91 | 39.81129889 | -80.71207500 |
| 6,019.00 | 5.47 | 28.39 | 5,974.10 | 427.82 | 211.20 | 14,458,159.39 | 1,721,276.79 | 39.81132195 | -80.71205755 |
| 6,112.00 | 6.43 | 21.38 | 6,066.60 | 436.57 | 215.20 | 14,458,168.13 | 1,721,280.79 | 39.81134594 | -80.71204318 |
| 6,207.00 | 6.27 | 18.22 | 6,161.02 | 446.45 | 218.76 | 14,458,178.02 | 1,721,284.35 | 39.81137304 | -80.71203039 |
| 6,302.00 | 5.86 | 43.47 | 6,255.50 | 454.90 | 223.72 | 14,458,186.46 | 1,721,289.31 | 39.81139620 | -80.71201263 |
| 6,396.00 | 5.66 | 53.48 | 6,349.03 | 461.14 | 230.75 | 14,458,192.71 | 1,721,296.34 | 39.81141328 | -80.71198754 |
| 6,491.00 | 5.75 | 39.18 | 6,443.56 | 467.62 | 237.52 | 14,458,199.18 | 1,721,303.11 | 39.81143101 | -80.71196335 |
| 6,586.00 | 6.87 | 25.17 | 6,537.99 | 476.45 | 242.95 | 14,458,208.01 | 1,721,308.54 | 39.81145521 | -80.71194394 |
| 6,680.00 | 9.65 | 19.19 | 6,631.01 | 488.98 | 247.93 | 14,458,220.55 | 1,721,313.52 | 39.81148958 | -80.71192605 |
| 6,775.00 | 11.09 | 16.53 | 6,724.45 | 505.26 | 253.14 | 14,458,236.83 | 1,721,318.73 | 39.81153425 | -80.71190729 |
| 6,869.00 | 11.99 | 17.44 | 6,816.55 | 523.25 | 258.64 | 14,458,254.81 | 1,721,324.23 | 39.81158358 | -80.71188750 |
| 6,964.00 | 11.77 | 19.79 | 6,909.52 | 541.78 | 264.88 | 14,458,273.34 | 1,721,330.47 | 39.81163442 | -80.71186507 |
| 7,059.00 | 10.54 | 25.87 | 7,002.73 | 558.71 | 271.95 | 14,458,290.28 | 1,721,337.54 | 39.81168087 | -80.71183970 |
| 7,154.00 | 9.28 | 31.85 | 7,096.31 | 573.04 | 279.79 | 14,458,304.60 | 1,721,345.38 | 39.81172014 | -80.71181164 |
| 7,248.00 | 8.84 | 29.54 | 7,189.14 | 585.76 | 287.35 | 14,458,317.32 | 1,721,352.94 | 39.81175501 | -80.71178457 |
| 7,343.00 | 8.75 | 19.90 | 7,283.02 | 598.91 | 293.41 | 14,458,330.47 | 1,721,359.00 | 39.81179106 | -80.71176284 |
| 7,438.00 | 9.75 | 11.84 | 7,376.79 | 613.58 | 297.52 | 14,458,345.14 | 1,721,363.11 | 39.81183130 | -80.71174804 |
| 7,532.00 | 9.84 | 10.87 | 7,469.42 | 629.25 | 300.66 | 14,458,360.82 | 1,721,366.25 | 39.81187433 | -80.71173665 |
| 7,627.00 | 9.44 | 12.23 | 7,563.08 | 644.84 | 303.85 | 14,458,376.40 | 1,721,369.44 | 39.81191711 | -80.71172514 |
| 7,721.00 | 9.28 | 12.61 | 7,655.83 | 659.77 | 307.13 | 14,458,391.33 | 1,721,372.72 | 39.81195808 | -80.71171326 |
| 7,816.00 | 8.33 | 22.59 | 7,749.71 | 673.60 | 311.45 | 14,458,405.16 | 1,721,377.04 | 39.81199602 | -80.71169773 |
| 7,911.00 | 8.12 | 34.96 | 7,843.74 | 685.45 | 317.94 | 14,458,417.02 | 1,721,383.53 | 39.81202852 | -80.71167449 |
| 8,006.00 | 9.10 | 34.05 | 7,937.67 | 697.18 | 325.99 | 14,458,428.74 | 1,721,391.58 | 39.81206064 | -80.71164569 |
| 8,100.00 | 10.98 | 33.25 | 8,030.23 | 710.82 | 335.06 | 14,458,442.38 | 1,721,400.65 | 39.81209804 | -80.71161323 |
| 8,195.00 | 11.37 | 30.09 | 8,123.43 | 726.49 | 344.72 | 14,458,458.05 | 1,721,410.31 | 39.81214098 | -80.71157867 |
| 8,290.00 | 9.76 | 25.36 | 8,216.82 | 741.87 | 352.86 | 14,458,473.43 | 1,721,418.45 | 39.81218315 | -80.71154949 |
| 8,384.00 | 8.19 | 21.79 | 8,309.66 | 755.29 | 358.76 | 14,458,486.85 | 1,721,424.35 | 39.81221994 | -80.71152833 |
| 8,479.00 | 9.00 | 16.37 | 8,403.60 | 768.70 | 363.36 | 14,458,500.26 | 1,721,428.95 | 39.81225674 | -80.71151177 |
| 8,572.00 | 9.61 | 11.12 | 8,495.37 | 783.30 | 366.91 | 14,458,514.86 | 1,721,432.50 | 39.81229679 | -80.71149897 |
| 8,667.00 | 8.43 | 8.08 | 8,589.20 | 797.97 | 369.42 | 14,458,529.54 | 1,721,435.01 | 39.81233707 | -80.71148987 |
| 8,762.00 | 7.36 | 10.55 | 8,683.30 | 810.85 | 371.51 | 14,458,542.41 | 1,721,437.10 | 39.81237242 | -80.71148227 |
| 8,856.00 | 9.05 | 9.91 | 8,776.33 | 824.05 | 373.89 | 14,458,555.62 | 1,721,439.48 | 39.81240865 | -80.71147366 |
| 8,951.00 | 9.80 | 10.10 | 8,870.05 | 839.37 | 376.59 | 14,458,570.94 | 1,721,442.18 | 39.81245070 | -80.71146386 |
| 9,045.00 | 9.47 | 21.04 | 8,962.73 | 854.47 | 380.77 | 14,458,586.03 | 1,721,446.36 | 39.81249212 | -80.71144880 |
| 9,140.00 | 10.24 | 29.15 | 9,056.33 | 869.14 | 387.69 | 14,458,600.70 | 1,721,453.28 | 39.81253235 | -80.71142399 |
| 9,235.00 | 10.76 | 33.41 | 9,149.74 | 883.92 | 396.69 | 14,458,615.48 | 1,721,462.28 | 39.81257285 | -80.71139179 |
| 9,330.00 | 9.28 | 35.64 | 9,243.29 | 897.54 | 406.03 | 14,458,629.11 | 1,721,471.62 | 39.81261019 | -80.71135835 |
| 9,424.00 | 8.88 | 34.35 | 9,336.11 | 909.69 | 414.54 | 14,458,641.26 | 1,721,480.13 | 39.81264348 | -80.71132790 |
| 9,507.00 | 9.59 | 28.59 | 9,418.04 | 921.05 | 421.47 | 14,458,652.62 | 1,721,487.06 | 39.81267462 | -80.71130312 |

| | | | |
|------------------|--------------------------------|-------------------------------------|--|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Heaven Hill 2-06 HU (slot A) |
| Project: | Marshall County, West Virginia | TVD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Site: | Heaven Hill 2 | MD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Well: | Heaven Hill 2-06 HU (slot A) | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

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| Survey | | | | | | | | | WV Department of Environmental Protection | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|-------------|---|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 9.601.00 | 10.69 | 28.41 | 9,510.57 | 935.60 | 429.36 | 14,458,667.16 | 1,721,494.95 | 39.81271449 | -80.71127484 | |
| 9.696.00 | 10.38 | 27.80 | 9,603.97 | 950.92 | 437.55 | 14,458,682.48 | 1,721,503.14 | 39.81275649 | -80.71124552 | |
| 9.790.00 | 9.81 | 29.69 | 9,696.51 | 965.37 | 445.46 | 14,458,696.93 | 1,721,511.05 | 39.81279610 | -80.71121716 | |
| 9.885.00 | 9.72 | 31.90 | 9,790.14 | 979.21 | 453.71 | 14,458,710.77 | 1,721,519.30 | 39.81283403 | -80.71118764 | |
| 9.979.00 | 9.59 | 28.19 | 9,882.81 | 992.84 | 461.60 | 14,458,724.41 | 1,721,527.19 | 39.81287142 | -80.71115938 | |
| 10.074.00 | 8.31 | 28.02 | 9,976.65 | 1,005.88 | 468.56 | 14,458,737.44 | 1,721,534.15 | 39.81290715 | -80.71113443 | |
| 10.169.00 | 8.31 | 24.62 | 10,070.65 | 1,018.18 | 474.65 | 14,458,749.74 | 1,721,540.24 | 39.81294088 | -80.71111262 | |
| 10.264.00 | 7.69 | 30.79 | 10,164.73 | 1,029.88 | 480.76 | 14,458,761.44 | 1,721,546.35 | 39.81297296 | -80.71109071 | |
| 10.358.00 | 8.00 | 36.52 | 10,257.85 | 1,040.54 | 487.88 | 14,458,772.10 | 1,721,553.47 | 39.81300217 | -80.71106526 | |
| 10.459.00 | 8.62 | 36.47 | 10,357.79 | 1,052.28 | 496.56 | 14,458,783.84 | 1,721,562.15 | 39.81303433 | -80.71103421 | |
| 10.553.00 | 8.62 | 36.73 | 10,450.73 | 1,063.59 | 504.96 | 14,458,795.15 | 1,721,570.55 | 39.81306531 | -80.71100417 | |
| 10.646.00 | 8.00 | 34.18 | 10,542.75 | 1,074.53 | 512.76 | 14,458,806.09 | 1,721,578.35 | 39.81309529 | -80.71097626 | |
| 10.740.00 | 8.31 | 45.25 | 10,635.80 | 1,084.72 | 521.26 | 14,458,816.28 | 1,721,586.85 | 39.81312321 | -80.71094587 | |
| 10.835.00 | 17.98 | 101.15 | 10,728.51 | 1,086.73 | 540.63 | 14,458,818.29 | 1,721,606.22 | 39.81312855 | -80.71087687 | |
| 10.929.00 | 20.97 | 117.85 | 10,817.19 | 1,076.06 | 569.77 | 14,458,807.62 | 1,721,635.36 | 39.81309898 | -80.71077324 | |
| 11.024.00 | 22.99 | 141.67 | 10,905.46 | 1,053.51 | 596.36 | 14,458,785.08 | 1,721,661.95 | 39.81303684 | -80.71067880 | |
| 11.118.00 | 21.76 | 147.30 | 10,992.39 | 1,024.45 | 617.16 | 14,458,756.01 | 1,721,682.75 | 39.81295683 | -80.71060506 | |
| 11.212.00 | 23.03 | 140.62 | 11,079.31 | 995.57 | 638.24 | 14,458,727.13 | 1,721,703.83 | 39.81287733 | -80.71053032 | |
| 11.307.00 | 27.43 | 136.84 | 11,165.24 | 965.23 | 665.02 | 14,458,696.79 | 1,721,730.61 | 39.81279376 | -80.71043533 | |
| 11.402.00 | 35.65 | 139.03 | 11,246.13 | 928.30 | 698.19 | 14,458,659.86 | 1,721,763.78 | 39.81269205 | -80.71031761 | |
| 11.496.00 | 38.07 | 137.89 | 11,321.34 | 886.11 | 735.59 | 14,458,617.67 | 1,721,801.18 | 39.81257586 | -80.71018491 | |
| 11.591.00 | 41.41 | 142.37 | 11,394.39 | 839.47 | 774.44 | 14,458,571.03 | 1,721,840.03 | 39.81244744 | -80.71004713 | |
| 11.686.00 | 49.93 | 141.32 | 11,460.72 | 786.11 | 816.41 | 14,458,517.68 | 1,721,882.00 | 39.81230053 | -80.70989826 | |
| 11.780.00 | 52.18 | 141.85 | 11,519.80 | 728.83 | 861.83 | 14,458,460.39 | 1,721,927.42 | 39.81214282 | -80.70973719 | |
| 11.875.00 | 61.01 | 140.97 | 11,572.05 | 666.93 | 911.27 | 14,458,398.49 | 1,721,976.86 | 39.81197237 | -80.70956184 | |
| 11.970.00 | 76.53 | 144.83 | 11,606.36 | 596.43 | 964.39 | 14,458,328.00 | 1,722,029.98 | 39.81177831 | -80.70937352 | |
| 12.064.00 | 85.19 | 147.47 | 11,621.28 | 519.43 | 1,016.01 | 14,458,250.99 | 1,722,081.60 | 39.81156636 | -80.70919059 | |
| 12.158.00 | 88.09 | 151.34 | 11,626.79 | 438.67 | 1,063.75 | 14,458,170.23 | 1,722,129.34 | 39.81134417 | -80.70902152 | |
| 12.253.00 | 87.82 | 151.43 | 11,630.18 | 355.33 | 1,109.22 | 14,458,086.89 | 1,722,174.81 | 39.81111488 | -80.70886057 | |
| 12.348.00 | 87.30 | 151.51 | 11,634.23 | 271.94 | 1,154.55 | 14,458,003.50 | 1,722,220.14 | 39.81088547 | -80.70870012 | |
| 12.443.00 | 88.84 | 151.69 | 11,637.43 | 188.42 | 1,199.71 | 14,457,919.99 | 1,722,265.30 | 39.81065571 | -80.70854028 | |
| 12.537.00 | 88.26 | 152.22 | 11,639.80 | 105.49 | 1,243.89 | 14,457,837.05 | 1,722,309.48 | 39.81042755 | -80.70838392 | |
| 12.632.00 | 89.54 | 149.67 | 11,641.63 | 22.47 | 1,290.01 | 14,457,754.03 | 1,722,355.60 | 39.81019915 | -80.70822064 | |
| 12.727.00 | 88.48 | 149.32 | 11,643.27 | -59.37 | 1,338.23 | 14,457,672.19 | 1,722,403.82 | 39.80997397 | -80.70804990 | |
| 12.822.00 | 90.95 | 149.93 | 11,643.74 | -141.32 | 1,386.26 | 14,457,590.24 | 1,722,451.85 | 39.80974848 | -80.70787982 | |
| 12.917.00 | 89.45 | 150.46 | 11,643.41 | -223.75 | 1,433.48 | 14,457,507.81 | 1,722,499.07 | 39.80952168 | -80.70771264 | |
| 13.012.00 | 88.66 | 151.16 | 11,644.98 | -306.67 | 1,479.81 | 14,457,424.89 | 1,722,545.39 | 39.80929354 | -80.70754864 | |
| 13.063.00 | 88.40 | 151.69 | 11,646.29 | -351.45 | 1,504.19 | 14,457,380.12 | 1,722,569.78 | 39.80917036 | -80.70746233 | |
| 13.158.00 | 89.93 | 151.08 | 11,647.67 | -434.83 | 1,549.68 | 14,457,296.73 | 1,722,615.27 | 39.80894096 | -80.70730132 | |
| 13.253.00 | 90.33 | 150.55 | 11,647.45 | -517.77 | 1,596.01 | 14,457,213.79 | 1,722,661.60 | 39.80871277 | -80.70713733 | |
| 13.348.00 | 90.37 | 150.55 | 11,646.87 | -600.49 | 1,642.71 | 14,457,131.07 | 1,722,708.30 | 39.80848517 | -80.70697198 | |
| 13.442.00 | 88.09 | 149.84 | 11,648.14 | -682.05 | 1,689.43 | 14,457,049.52 | 1,722,755.02 | 39.80826079 | -80.70680659 | |
| 13.537.00 | 87.74 | 149.93 | 11,651.59 | -764.17 | 1,737.06 | 14,456,967.39 | 1,722,802.65 | 39.80803483 | -80.70663793 | |
| 13.632.00 | 87.60 | 150.37 | 11,655.46 | -846.50 | 1,784.31 | 14,456,885.07 | 1,722,849.90 | 39.80780831 | -80.70647066 | |
| 13.727.00 | 88.09 | 150.99 | 11,659.03 | -929.27 | 1,830.79 | 14,456,802.29 | 1,722,896.38 | 39.80758058 | -80.70630610 | |
| 13.821.00 | 88.53 | 151.08 | 11,661.80 | -1,011.47 | 1,876.30 | 14,456,720.09 | 1,722,941.89 | 39.80735441 | -80.70614504 | |
| 13.916.00 | 89.10 | 149.41 | 11,663.76 | -1,093.93 | 1,923.43 | 14,456,637.63 | 1,722,989.02 | 39.80712755 | -80.70597817 | |
| 14.011.00 | 91.34 | 149.14 | 11,663.40 | -1,175.59 | 1,971.97 | 14,456,555.98 | 1,723,037.56 | 39.80690286 | -80.70580631 | |
| 14.106.00 | 90.11 | 147.91 | 11,662.20 | -1,256.60 | 2,021.56 | 14,456,474.96 | 1,723,087.15 | 39.80667993 | -80.70563066 | |
| 14.201.00 | 89.49 | 148.35 | 11,662.53 | -1,337.28 | 2,071.72 | 14,456,394.29 | 1,723,137.31 | 39.80645791 | -80.70545300 | |
| 14.295.00 | 89.41 | 148.61 | 11,663.43 | -1,417.40 | 2,120.86 | 14,456,314.16 | 1,723,186.45 | 39.80623742 | -80.70527897 | |
| 14.389.00 | 89.41 | 148.88 | 11,664.40 | -1,497.76 | 2,169.63 | 14,456,233.80 | 1,723,235.22 | 39.80601631 | -80.70510626 | |
| 14.484.00 | 89.27 | 148.79 | 11,665.49 | -1,579.04 | 2,218.79 | 14,456,152.52 | 1,723,284.38 | 39.80579264 | -80.70493217 | |
| 14.579.00 | 90.51 | 150.20 | 11,665.68 | -1,660.89 | 2,267.01 | 14,456,070.67 | 1,723,332.60 | 39.80556743 | -80.70476143 | |
| 14.674.00 | 90.86 | 150.20 | 11,664.54 | -1,743.32 | 2,314.22 | 14,455,988.24 | 1,723,379.81 | 39.80534062 | -80.70459431 | |

| | | | |
|------------------|--------------------------------|-------------------------------------|--|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Heaven Hill 2-06 HU (slot A) |
| Project: | Marshall County, West Virginia | TVD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Site: | Heaven Hill 2 | MD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Well: | Heaven Hill 2-06 HU (slot A) | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

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| Survey | | | | | | | | | WV Department of Environmental Protection | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|--|---|--------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | | Latitude | Longitude |
| 14,768.00 | 89.63 | 150.37 | 11,664.14 | -1,824.96 | 2,360.81 | 14,455,906.61 | 1,723,426.40 | | 39.80511601 | -80.70442937 |
| 14,863.00 | 89.23 | 151.43 | 11,665.08 | -1,907.96 | 2,407.01 | 14,455,823.60 | 1,723,472.60 | | 39.80488764 | -80.70426585 |
| 14,958.00 | 88.18 | 150.55 | 11,667.23 | -1,991.02 | 2,453.07 | 14,455,740.54 | 1,723,518.66 | | 39.80465912 | -80.70410283 |
| 15,053.00 | 87.96 | 151.16 | 11,670.43 | -2,073.94 | 2,499.31 | 14,455,657.62 | 1,723,564.90 | | 39.80443097 | -80.70393916 |
| 15,147.00 | 88.31 | 151.08 | 11,673.49 | -2,156.21 | 2,544.69 | 14,455,575.35 | 1,723,610.28 | | 39.80420464 | -80.70377856 |
| 15,242.00 | 88.92 | 151.78 | 11,675.79 | -2,239.62 | 2,590.11 | 14,455,491.95 | 1,723,655.69 | | 39.80397517 | -80.70361783 |
| 15,336.00 | 89.27 | 152.22 | 11,677.27 | -2,322.60 | 2,634.23 | 14,455,408.96 | 1,723,699.82 | | 39.80374687 | -80.70346170 |
| 15,431.00 | 89.54 | 150.81 | 11,678.26 | -2,406.09 | 2,679.53 | 14,455,325.47 | 1,723,745.12 | | 39.80351716 | -80.70330138 |
| 15,526.00 | 89.45 | 151.87 | 11,679.09 | -2,489.45 | 2,725.10 | 14,455,242.11 | 1,723,790.68 | | 39.80328783 | -80.70314014 |
| 15,621.00 | 90.24 | 150.99 | 11,679.35 | -2,572.88 | 2,770.53 | 14,455,158.68 | 1,723,836.12 | | 39.80305830 | -80.70297937 |
| 15,715.00 | 89.98 | 151.34 | 11,679.17 | -2,655.23 | 2,815.86 | 14,455,076.34 | 1,723,881.45 | | 39.80283174 | -80.70281893 |
| 15,810.00 | 88.40 | 151.51 | 11,680.51 | -2,738.64 | 2,861.29 | 14,454,992.92 | 1,723,926.88 | | 39.80260224 | -80.70265815 |
| 15,905.00 | 88.44 | 151.60 | 11,683.13 | -2,822.14 | 2,906.53 | 14,454,909.42 | 1,723,972.12 | | 39.80237252 | -80.70249808 |
| 15,999.00 | 88.13 | 150.81 | 11,685.95 | -2,904.48 | 2,951.78 | 14,454,827.08 | 1,724,017.37 | | 39.80214598 | -80.70233792 |
| 16,094.00 | 88.40 | 150.64 | 11,688.82 | -2,987.31 | 2,998.22 | 14,454,744.25 | 1,724,063.81 | | 39.80191809 | -80.70217358 |
| 16,189.00 | 87.69 | 150.46 | 11,692.06 | -3,069.99 | 3,044.90 | 14,454,661.58 | 1,724,110.49 | | 39.80169062 | -80.70200835 |
| 16,282.00 | 87.21 | 151.16 | 11,696.20 | -3,151.09 | 3,090.21 | 14,454,580.47 | 1,724,155.80 | | 39.80146746 | -80.70184798 |
| 16,377.00 | 88.79 | 151.25 | 11,699.52 | -3,234.29 | 3,135.94 | 14,454,497.27 | 1,724,201.53 | | 39.80123855 | -80.70168615 |
| 16,472.00 | 90.46 | 150.55 | 11,700.14 | -3,317.30 | 3,182.14 | 14,454,414.27 | 1,724,247.73 | | 39.80101018 | -80.70152265 |
| 16,569.00 | 90.15 | 151.78 | 11,699.62 | -3,402.27 | 3,228.92 | 14,454,329.29 | 1,724,294.51 | | 39.80077640 | -80.70135710 |
| 16,664.00 | 90.51 | 149.67 | 11,699.08 | -3,485.13 | 3,275.37 | 14,454,246.43 | 1,724,340.96 | | 39.80054842 | -80.70119270 |
| 16,759.00 | 90.59 | 149.93 | 11,698.16 | -3,567.23 | 3,323.16 | 14,454,164.33 | 1,724,388.75 | | 39.80032251 | -80.70102354 |
| 16,853.00 | 88.84 | 146.86 | 11,698.63 | -3,647.28 | 3,372.41 | 14,454,084.29 | 1,724,438.00 | | 39.80010224 | -80.70084914 |
| 16,948.00 | 87.82 | 146.94 | 11,701.40 | -3,726.82 | 3,424.27 | 14,454,004.74 | 1,724,489.86 | | 39.79988330 | -80.70068545 |
| 17,042.00 | 86.29 | 147.30 | 11,706.23 | -3,805.66 | 3,475.23 | 14,453,925.90 | 1,724,540.82 | | 39.79966633 | -80.70048495 |
| 17,137.00 | 87.74 | 148.17 | 11,711.18 | -3,885.88 | 3,525.87 | 14,453,845.68 | 1,724,591.46 | | 39.79944556 | -80.70030560 |
| 17,232.00 | 87.52 | 148.35 | 11,715.10 | -3,966.60 | 3,575.80 | 14,453,764.96 | 1,724,641.39 | | 39.79922342 | -80.70012878 |
| 17,327.00 | 89.85 | 149.67 | 11,717.28 | -4,048.01 | 3,624.70 | 14,453,683.55 | 1,724,690.29 | | 39.79899939 | -80.69995567 |
| 17,421.00 | 89.54 | 149.14 | 11,717.78 | -4,128.92 | 3,672.54 | 14,453,602.64 | 1,724,738.13 | | 39.79877675 | -80.69978630 |
| 17,516.00 | 89.41 | 149.14 | 11,718.66 | -4,210.47 | 3,721.27 | 14,453,521.09 | 1,724,786.86 | | 39.79855235 | -80.69961379 |
| 17,611.00 | 88.57 | 149.41 | 11,720.33 | -4,292.12 | 3,769.80 | 14,453,439.44 | 1,724,835.39 | | 39.79832767 | -80.69944199 |
| 17,705.00 | 90.77 | 149.58 | 11,720.87 | -4,373.11 | 3,817.51 | 14,453,358.46 | 1,724,883.10 | | 39.79810483 | -80.69927309 |
| 17,800.00 | 89.36 | 149.41 | 11,720.76 | -4,454.95 | 3,865.73 | 14,453,276.61 | 1,724,931.32 | | 39.79787961 | -80.69910238 |
| 17,895.00 | 88.75 | 149.49 | 11,722.33 | -4,536.75 | 3,914.01 | 14,453,194.81 | 1,724,979.60 | | 39.79765451 | -80.69893147 |
| 17,989.00 | 89.49 | 149.67 | 11,723.77 | -4,617.80 | 3,961.60 | 14,453,113.76 | 1,725,027.19 | | 39.79743149 | -80.69876301 |
| 18,084.00 | 89.45 | 150.28 | 11,724.65 | -4,700.05 | 4,009.14 | 14,453,031.51 | 1,725,074.73 | | 39.79720518 | -80.69859477 |
| 18,179.00 | 89.67 | 150.64 | 11,725.38 | -4,782.70 | 4,055.97 | 14,452,948.86 | 1,725,121.56 | | 39.79697777 | -80.69842901 |
| 18,273.00 | 90.29 | 150.55 | 11,725.41 | -4,864.59 | 4,102.13 | 14,452,866.97 | 1,725,167.72 | | 39.79675246 | -80.69826568 |
| 18,368.00 | 89.14 | 151.87 | 11,725.89 | -4,947.84 | 4,147.88 | 14,452,783.72 | 1,725,213.47 | | 39.79652340 | -80.69810381 |
| 18,463.00 | 89.63 | 152.04 | 11,726.91 | -5,031.68 | 4,192.54 | 14,452,699.88 | 1,725,258.13 | | 39.79629274 | -80.69794580 |
| 18,557.00 | 89.98 | 152.39 | 11,727.23 | -5,114.84 | 4,236.36 | 14,452,616.72 | 1,725,301.95 | | 39.79606395 | -80.69779080 |
| 18,652.00 | 91.30 | 151.69 | 11,726.17 | -5,198.75 | 4,280.89 | 14,452,532.82 | 1,725,346.48 | | 39.79583312 | -80.69763325 |
| 18,747.00 | 91.03 | 149.84 | 11,724.23 | -5,281.63 | 4,327.28 | 14,452,449.94 | 1,725,392.87 | | 39.79560508 | -80.69746911 |
| 18,841.00 | 88.75 | 148.53 | 11,724.41 | -5,362.35 | 4,375.43 | 14,452,369.21 | 1,725,441.02 | | 39.79538295 | -80.69729867 |
| 18,936.00 | 88.79 | 148.53 | 11,726.45 | -5,443.36 | 4,425.01 | 14,452,288.21 | 1,725,490.60 | | 39.79516002 | -80.69712312 |
| 19,030.00 | 89.01 | 148.70 | 11,728.26 | -5,523.59 | 4,473.96 | 14,452,207.97 | 1,725,539.55 | | 39.79493923 | -80.69694984 |
| 19,125.00 | 89.67 | 147.03 | 11,729.35 | -5,604.03 | 4,524.48 | 14,452,127.54 | 1,725,590.07 | | 39.79471786 | -80.69677093 |
| 19,221.00 | 89.19 | 148.09 | 11,730.31 | -5,685.04 | 4,575.98 | 14,452,046.52 | 1,725,641.57 | | 39.79449490 | -80.69658859 |
| 19,315.00 | 88.44 | 148.79 | 11,732.25 | -5,765.12 | 4,625.16 | 14,451,966.44 | 1,725,690.75 | | 39.79427452 | -80.69641444 |
| 19,410.00 | 88.18 | 148.70 | 11,735.05 | -5,846.29 | 4,674.43 | 14,451,885.27 | 1,725,740.02 | | 39.79405113 | -80.69624002 |
| 19,504.00 | 87.87 | 148.61 | 11,738.29 | -5,926.53 | 4,723.30 | 14,451,805.03 | 1,725,788.89 | | 39.79383034 | -80.69606701 |
| 19,599.00 | 87.69 | 148.70 | 11,741.97 | -6,007.60 | 4,772.68 | 14,451,723.96 | 1,725,838.27 | | 39.79360723 | -80.69589220 |
| 19,694.00 | 88.13 | 148.61 | 11,745.44 | -6,088.68 | 4,822.07 | 14,451,642.88 | 1,725,887.66 | | 39.79338410 | -80.69571736 |
| 19,789.00 | 88.62 | 149.58 | 11,748.13 | -6,170.16 | 4,870.84 | 14,451,561.40 | 1,725,936.43 | | 39.79315988 | -80.69554472 |
| 19,883.00 | 88.53 | 150.20 | 11,750.47 | -6,251.45 | 4,917.98 | 14,451,480.11 | 1,725,983.57 | | 39.79293620 | -80.69537788 |

| | | | |
|------------------|--------------------------------|-------------------------------------|--|
| Company: | Tug Hill Operating LLC | Local Co-ordinate Reference: | Well Heaven Hill 2-06 HU (slot A) |
| Project: | Marshall County, West Virginia | TVD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Site: | Heaven Hill 2 | MD Reference: | RKB=1331+33 @ 1364.00usft (Nabors X08) |
| Well: | Heaven Hill 2-06 HU (slot A) | North Reference: | Grid |
| Wellbore: | Original Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Surveys Original Hole | Database: | DB_Jul2216dt_v14 |

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 Office of Oil and Gas

| Survey | | | | | | | | | JUL 10 2020 | |
|---|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|---|--------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | WV Department of Environmental Protection | | |
| | | | | | | | | Latitude | Longitude | |
| 19,978.00 | 89.23 | 151.69 | 11,752.33 | -6,334.48 | 4,964.11 | 14,451,397.09 | 1,726,029.70 | 39.79270776 | -80.69521468 | |
| 20,072.00 | 89.14 | 151.69 | 11,753.66 | -6,417.23 | 5,008.68 | 14,451,314.34 | 1,726,074.27 | 39.79248009 | -80.69505700 | |
| 20,166.00 | 89.05 | 151.69 | 11,755.15 | -6,499.97 | 5,053.26 | 14,451,231.59 | 1,726,118.85 | 39.79225243 | -80.69489932 | |
| 20,261.00 | 88.35 | 150.37 | 11,757.30 | -6,583.06 | 5,099.26 | 14,451,148.50 | 1,726,164.85 | 39.79202382 | -80.69473657 | |
| 20,287.00 | 88.44 | 150.28 | 11,758.03 | -6,605.64 | 5,112.12 | 14,451,125.92 | 1,726,177.71 | 39.79196168 | -80.69469104 | |
| Survey @ 20287.00 MD 11758.03 TVD | | | | | | | | | | |
| 20,332.00 | 88.44 | 150.28 | 11,759.26 | -6,644.71 | 5,134.42 | 14,451,086.85 | 1,726,200.01 | 39.79185419 | -80.69461212 | |
| Survey projected to 20332.00 MD 11759.26 TVD | | | | | | | | | | |

| Design Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|--|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment | |
| | | +N/-S (usft) | +E/-W (usft) | | |
| 100.00 | 100.00 | 0.35 | 0.32 | Gyro | |
| 903.00 | 902.93 | -1.91 | 3.40 | MWD surveys | |
| 20,287.00 | 11,758.03 | -6,605.64 | 5,112.12 | Survey @ 20287.00 MD 11758.03 TVD | |
| 20,332.00 | 11,759.26 | -6,644.71 | 5,134.42 | Survey projected to 20332.00 MD 11759.26 TVD | |