

87-04762

**HG Energy, LLC**  
Roane County, West Virginia  
E. Smith #118  
E. Smith #118

Wellbore #1

Design: Wellbore #1

## Survey Report - Geographic

31 August, 2015

Received  
Office of Oil & Gas  
OCT 08 2015



10/30/2015

**HP**  
Survey Report - Geographic



87.04762

|   |  |
|---|--|
| <b>Company:</b> HG Energy, LLC              | <b>Local Co-ordinate Reference:</b> Well E. Smith #118 |
| <b>Project:</b> Roane County, West Virginia | <b>TVD Reference:</b> Well @ 1072.0usft (Decker #9)    |
| <b>Site:</b> E. Smith #118                  | <b>MD Reference:</b> Well @ 1072.0usft (Decker #9)     |
| <b>Well:</b> E. Smith #118                  | <b>North Reference:</b> Grid                           |
| <b>Wellbore:</b> Wellbore #1                | <b>Survey Calculation Method:</b> Minimum Curvature    |
| <b>Design:</b> Wellbore #1                  | <b>Database:</b> Compass                               |

|                    |                               |                      |                |
|--------------------|-------------------------------|----------------------|----------------|
| <b>Project</b>     | Roane County, West Virginia   |                      |                |
| <b>Map System:</b> | Universal Transverse Mercator | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | NAD83 West Virginia - HARN    |                      |                |
| <b>Map Zone:</b>   | Zone 17N (84 W to 78 W)       |                      |                |

**Site** E. Smith #118

**Site Position:** Northing: 14,057,681.74 usft Latitude: 38° 42' 42.300 N  
**From:** Lat/Long Easting: 1,640,416.66 usft Longitude: 81° 0' 0.000 W  
**Position Uncertainty:** 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.00 °

**Well** E. Smith #118

**Well Position** +N/-S 0.0 usft Northing: 14,057,810.71 usft Latitude: 38° 42' 42.300 N  
 +E/-W 0.0 usft Easting: 1,558,314.39 usft Longitude: 81° 17' 16.200 W  
**Position Uncertainty** 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 1,064.0 usft

**Wellbore** Wellbore #1

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2015          | 8/6/2015           | -8.00                  | 66.34                | 51,903                     |

**Design** Wellbore #1

**Audit Notes:**

**Version:** 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

|                          |                                |                     |                     |                      |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Direction (°)</b> |
|                          | 0.0                            | 0.0                 | 0.0                 | 135.56               |

|                       |                       |                          |                  |                    |
|-----------------------|-----------------------|--------------------------|------------------|--------------------|
| <b>Survey Program</b> | <b>Date</b> 8/31/2015 |                          |                  |                    |
| <b>From (usft)</b>    | <b>To (usft)</b>      | <b>Survey (Wellbore)</b> | <b>Tool Name</b> | <b>Description</b> |
| 558.0                 | 2,570.0               | MWD (Wellbore #1)        | MWD default      | MWD - Standard     |

**Survey**

| Measured Depth (usft)                        | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude         | Longitude        |
|--|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|------------------|------------------|
| 0.0  | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 14,057,810.71       | 1,558,314.39       | 38° 42' 42.300 N | 81° 17' 16.200 W |
| 558.0  | 0.31            | 94.06       | 558.0                 | -0.1         | 1.5          | 14,057,810.61       | 1,558,315.89       | 38° 42' 42.299 N | 81° 17' 16.181 W |
| <b>First MWD Survey @ 558' MD / 558' TVD</b> |                 |             |                       |              |              |                     |                    |                  |                  |
| 588.0  | 0.40            | 81.68       | 588.0                 | -0.1         | 1.7          | 14,057,810.62       | 1,558,316.08       | 38° 42' 42.299 N | 81° 17' 16.179 W |
| 618.0  | 0.49            | 97.37       | 618.0                 | -0.1         | 1.9          | 14,057,810.62       | 1,558,316.31       | 38° 42' 42.299 N | 81° 17' 16.176 W |
| 648.0  | 1.02            | 121.69      | 648.0                 | -0.3         | 2.3          | 14,057,810.46       | 1,558,316.66       | 38° 42' 42.298 N | 81° 17' 16.171 W |
| 678.0  | 1.68            | 127.29      | 678.0                 | -0.7         | 2.9          | 14,057,810.05       | 1,558,317.24       | 38° 42' 42.294 N | 81° 17' 16.164 W |
| 708.0  | 2.21            | 131.57      | 708.0                 | -1.3         | 3.6          | 14,057,809.40       | 1,558,318.02       | 38° 42' 42.287 N | 81° 17' 16.154 W |
| 738.0  | 2.70            | 131.96      | 737.9                 | -2.2         | 4.6          | 14,057,808.55       | 1,558,318.98       | 38° 42' 42.279 N | 81° 17' 16.142 W |
| 768.0  | 3.40            | 132.58      | 767.9                 | -3.2         | 5.8          | 14,057,807.47       | 1,558,320.16       | 38° 42' 42.268 N | 81° 17' 16.127 W |
| 798.0  | 3.89            | 132.98      | 797.8                 | -4.5         | 7.2          | 14,057,806.18       | 1,558,321.56       | 38° 42' 42.255 N | 81° 17' 16.109 W |
| 828.0  | 4.68            | 133.46      | 827.8                 | -6.1         | 8.8          | 14,057,804.64       | 1,558,323.19       | 38° 42' 42.240 N | 81° 17' 16.089 W |

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Site: E. Smith #118  
Well: E. Smith #118  
Wellbore: Wellbore #1  
Design: Wellbore #1

Local Co-ordinate Reference: Well E. Smith #118  
TVD Reference: Well @ 1072.0usft (Decker #9)  
MD Reference: Well @ 1072.0usft (Decker #9)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass

Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude         | Longitude        |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|------------------|------------------|
| 858.0                 | 5.30            | 134.17      | 857.6                 | -7.9         | 10.7         | 14,057,802.83       | 1,558,325.07       | 38° 42' 42.222 N | 81° 17' 16.065 W |
| 888.0                 | 6.19            | 134.30      | 887.5                 | -10.0        | 12.8         | 14,057,800.74       | 1,558,327.23       | 38° 42' 42.202 N | 81° 17' 16.038 W |
| 918.0                 | 7.20            | 133.77      | 917.3                 | -12.4        | 15.4         | 14,057,798.31       | 1,558,329.74       | 38° 42' 42.178 N | 81° 17' 16.006 W |
| 948.0                 | 8.09            | 133.77      | 947.0                 | -15.2        | 18.2         | 14,057,795.55       | 1,558,332.62       | 38° 42' 42.151 N | 81° 17' 15.969 W |
| 978.0                 | 9.19            | 134.08      | 976.7                 | -18.3        | 21.5         | 14,057,792.42       | 1,558,335.87       | 38° 42' 42.120 N | 81° 17' 15.928 W |
| 1,008.0               | 10.21           | 134.69      | 1,006.2               | -21.8        | 25.1         | 14,057,788.88       | 1,558,339.48       | 38° 42' 42.085 N | 81° 17' 15.882 W |
| 1,038.0               | 11.31           | 135.27      | 1,035.7               | -25.8        | 29.1         | 14,057,784.92       | 1,558,343.44       | 38° 42' 42.046 N | 81° 17' 15.832 W |
| 1,068.0               | 12.51           | 135.40      | 1,065.1               | -30.2        | 33.4         | 14,057,780.52       | 1,558,347.79       | 38° 42' 42.002 N | 81° 17' 15.777 W |
| 1,098.0               | 13.61           | 135.40      | 1,094.3               | -35.0        | 38.2         | 14,057,775.69       | 1,558,352.55       | 38° 42' 41.955 N | 81° 17' 15.717 W |
| 1,128.0               | 14.89           | 135.58      | 1,123.4               | -40.3        | 43.3         | 14,057,770.43       | 1,558,357.73       | 38° 42' 41.903 N | 81° 17' 15.651 W |
| 1,158.0               | 16.08           | 135.80      | 1,152.3               | -46.0        | 48.9         | 14,057,764.70       | 1,558,363.32       | 38° 42' 41.846 N | 81° 17' 15.581 W |
| 1,188.0               | 17.28           | 135.58      | 1,181.0               | -52.2        | 55.0         | 14,057,758.53       | 1,558,369.34       | 38° 42' 41.786 N | 81° 17' 15.504 W |
| 1,218.0               | 18.29           | 136.28      | 1,209.6               | -58.8        | 61.3         | 14,057,751.95       | 1,558,375.71       | 38° 42' 41.721 N | 81° 17' 15.424 W |
| 1,248.0               | 19.31           | 136.90      | 1,238.0               | -65.8        | 68.0         | 14,057,744.93       | 1,558,382.35       | 38° 42' 41.652 N | 81° 17' 15.340 W |
| 1,278.0               | 20.19           | 137.47      | 1,266.2               | -73.2        | 74.9         | 14,057,737.49       | 1,558,389.24       | 38° 42' 41.578 N | 81° 17' 15.252 W |
| 1,308.0               | 21.08           | 137.69      | 1,294.3               | -81.0        | 82.0         | 14,057,729.68       | 1,558,396.37       | 38° 42' 41.501 N | 81° 17' 15.162 W |
| 1,338.0               | 22.18           | 137.87      | 1,322.2               | -89.2        | 89.4         | 14,057,721.49       | 1,558,403.80       | 38° 42' 41.421 N | 81° 17' 15.068 W |
| 1,368.0               | 23.29           | 137.29      | 1,349.8               | -97.8        | 97.2         | 14,057,712.94       | 1,558,411.63       | 38° 42' 41.336 N | 81° 17' 14.969 W |
| 1,398.0               | 24.22           | 136.90      | 1,377.3               | -106.6       | 105.5        | 14,057,704.08       | 1,558,419.85       | 38° 42' 41.249 N | 81° 17' 14.865 W |
| 1,428.0               | 25.10           | 137.29      | 1,404.6               | -115.8       | 114.0        | 14,057,694.92       | 1,558,428.37       | 38° 42' 41.158 N | 81° 17' 14.757 W |
| 1,458.0               | 25.98           | 137.38      | 1,431.6               | -125.3       | 122.8        | 14,057,685.40       | 1,558,437.14       | 38° 42' 41.065 N | 81° 17' 14.646 W |
| 1,488.0               | 27.00           | 137.87      | 1,458.5               | -135.2       | 131.8        | 14,057,675.52       | 1,558,446.16       | 38° 42' 40.967 N | 81° 17' 14.532 W |
| 1,518.0               | 27.88           | 138.09      | 1,485.1               | -145.5       | 141.0        | 14,057,665.25       | 1,558,455.41       | 38° 42' 40.866 N | 81° 17' 14.414 W |
| 1,548.0               | 28.81           | 138.40      | 1,511.5               | -156.1       | 150.5        | 14,057,654.62       | 1,558,464.90       | 38° 42' 40.761 N | 81° 17' 14.294 W |
| 1,578.0               | 29.39           | 137.78      | 1,537.7               | -166.9       | 160.3        | 14,057,643.77       | 1,558,474.64       | 38° 42' 40.654 N | 81° 17' 14.171 W |
| 1,608.0               | 30.40           | 138.00      | 1,563.7               | -178.0       | 170.3        | 14,057,632.67       | 1,558,484.67       | 38° 42' 40.545 N | 81° 17' 14.044 W |
| 1,638.0               | 31.60           | 137.16      | 1,589.5               | -189.4       | 180.7        | 14,057,621.27       | 1,558,495.09       | 38° 42' 40.432 N | 81° 17' 13.912 W |
| 1,668.0               | 32.48           | 136.06      | 1,614.9               | -201.0       | 191.6        | 14,057,609.70       | 1,558,506.03       | 38° 42' 40.318 N | 81° 17' 13.773 W |
| 1,698.0               | 33.72           | 135.97      | 1,640.0               | -212.8       | 203.0        | 14,057,597.92       | 1,558,517.40       | 38° 42' 40.202 N | 81° 17' 13.629 W |
| 1,728.0               | 34.82           | 136.68      | 1,664.8               | -225.0       | 214.7        | 14,057,585.70       | 1,558,529.07       | 38° 42' 40.082 N | 81° 17' 13.482 W |
| 1,758.0               | 36.50           | 137.07      | 1,689.2               | -237.8       | 226.6        | 14,057,572.93       | 1,558,541.02       | 38° 42' 39.956 N | 81° 17' 13.330 W |
| 1,788.0               | 38.09           | 139.19      | 1,713.0               | -251.3       | 238.8        | 14,057,559.40       | 1,558,553.15       | 38° 42' 39.822 N | 81° 17' 13.177 W |
| 1,818.0               | 39.51           | 137.16      | 1,736.4               | -265.3       | 251.3        | 14,057,545.39       | 1,558,565.68       | 38° 42' 39.684 N | 81° 17' 13.018 W |
| 1,848.0               | 41.01           | 136.77      | 1,759.3               | -279.5       | 264.5        | 14,057,531.22       | 1,558,578.92       | 38° 42' 39.544 N | 81° 17' 12.850 W |
| 1,878.0               | 41.71           | 136.50      | 1,781.8               | -293.9       | 278.1        | 14,057,516.81       | 1,558,592.53       | 38° 42' 39.402 N | 81° 17' 12.678 W |
| 1,908.0               | 43.08           | 136.19      | 1,804.0               | -308.5       | 292.1        | 14,057,502.18       | 1,558,606.49       | 38° 42' 39.258 N | 81° 17' 12.501 W |
| 1,938.0               | 43.08           | 135.49      | 1,825.9               | -323.2       | 306.4        | 14,057,487.48       | 1,558,620.77       | 38° 42' 39.113 N | 81° 17' 12.320 W |
| 1,968.0               | 44.19           | 134.78      | 1,847.6               | -337.9       | 321.0        | 14,057,472.81       | 1,558,635.37       | 38° 42' 38.969 N | 81° 17' 12.136 W |
| 1,998.0               | 45.21           | 134.30      | 1,868.9               | -352.7       | 336.0        | 14,057,458.01       | 1,558,650.41       | 38° 42' 38.823 N | 81° 17' 11.945 W |
| 2,028.0               | 46.89           | 132.89      | 1,889.8               | -367.6       | 351.7        | 14,057,443.12       | 1,558,666.06       | 38° 42' 38.676 N | 81° 17' 11.747 W |
| 2,118.0               | 46.31           | 131.39      | 1,951.6               | -411.5       | 400.2        | 14,057,399.24       | 1,558,714.54       | 38° 42' 38.244 N | 81° 17' 11.134 W |
| 2,148.0               | 46.31           | 131.39      | 1,972.3               | -425.8       | 416.4        | 14,057,384.90       | 1,558,730.81       | 38° 42' 38.102 N | 81° 17' 10.928 W |
| 2,178.0               | 47.02           | 131.08      | 1,992.9               | -440.2       | 432.8        | 14,057,370.52       | 1,558,747.22       | 38° 42' 37.961 N | 81° 17' 10.720 W |
| 2,208.0               | 47.42           | 130.60      | 2,013.3               | -454.6       | 449.5        | 14,057,356.12       | 1,558,763.88       | 38° 42' 37.819 N | 81° 17' 10.509 W |
| 2,238.0               | 47.81           | 130.68      | 2,033.5               | -469.0       | 466.3        | 14,057,341.69       | 1,558,780.69       | 38° 42' 37.677 N | 81° 17' 10.296 W |
| 2,268.0               | 48.21           | 130.38      | 2,053.6               | -483.5       | 483.3        | 14,057,327.20       | 1,558,797.64       | 38° 42' 37.534 N | 81° 17' 10.082 W |
| 2,298.0               | 48.39           | 130.68      | 2,073.5               | -498.1       | 500.3        | 14,057,312.64       | 1,558,814.67       | 38° 42' 37.390 N | 81° 17' 9.866 W  |
| 2,328.0               | 48.52           | 130.38      | 2,093.4               | -512.7       | 517.3        | 14,057,298.05       | 1,558,831.73       | 38° 42' 37.247 N | 81° 17' 9.651 W  |
| 2,358.0               | 48.52           | 130.29      | 2,113.3               | -527.2       | 534.5        | 14,057,283.50       | 1,558,848.87       | 38° 42' 37.103 N | 81° 17' 9.434 W  |
| 2,388.0               | 47.59           | 129.67      | 2,133.4               | -541.6       | 551.6        | 14,057,269.16       | 1,558,865.96       | 38° 42' 36.962 N | 81° 17' 9.217 W  |
| 2,448.0               | 44.59           | 128.39      | 2,175.0               | -568.8       | 585.1        | 14,057,241.94       | 1,558,899.53       | 38° 42' 36.694 N | 81° 17' 8.793 W  |
| 2,478.0               | 43.08           | 127.16      | 2,196.6               | -581.5       | 601.6        | 14,057,229.21       | 1,558,915.95       | 38° 42' 36.568 N | 81° 17' 8.585 W  |
| 2,570.0               | 43.08           | 127.16      | 2,263.8               | -619.5       | 651.6        | 14,057,191.25       | 1,558,966.03       | 38° 42' 36.195 N | 81° 17' 7.951 W  |

TD @ 2570' MD / 2264' TVD

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Company: HG Energy, LLC  
Project: Roane County, West Virginia  
Site: E. Smith #118  
Well: E. Smith #118  
Wellbore: Wellbore #1  
Design: Wellbore #1

Local Co-ordinate Reference: Well E. Smith #118  
TVD Reference: Well @ 1072.0usft (Decker #9)  
MD Reference: Well @ 1072.0usft (Decker #9)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |             | Comment                               |
|-----------------------|-----------------------|-------------------|-------------|---------------------------------------|
|                       |                       | +N-S (usft)       | +E-W (usft) |                                       |
| 558.0                 | 558.0                 | -0.1              | 1.5         | First MWD Survey @ 558' MD / 558' TVD |
| 2,570.0               | 2,263.8               | -619.5            | 651.6       | TD @ 2570' MD / 2264' TVD             |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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Roane County, West Virginia  
E. Smith #118  
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Wellbore #1

Design: Wellbore #1

## **HG Energy EOW Report**

31 August, 2015

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**Company:** HG Energy, LLC  
**Project:** Roane County, West Virginia  
**Site:** E. Smith #118  
**Well:** E. Smith #118  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well E. Smith #118  
**TVD Reference:** Well @ 1072.0usft (Decker #9)  
**MD Reference:** Well @ 1072.0usft (Decker #8)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

**Project** Roane County, West Virginia  
**Map System:** Universal Transverse Mercator  
**Geo Datum:** NAD83 West Virginia - HARN  
**Map Zone:** Zone 17N (84 W to 78 W)  
**System Datum:** Mean Sea Level

**Site** E. Smith #118  
**Site Position:** Northing: 14,057,681.74 usft Latitude: 38° 42' 42.300 N  
 From: Easting: 1,640,416.67 usft Longitude: 81° 0' 0.000 W  
**Position Uncertainty:** Slot Radius: 13-3/16" Grid Convergence: 0.00°

**Well** E. Smith #118  
**Well Position** +N-S 0.0 usft Latitude: 38° 42' 42.300 N  
 +E-W 0.0 usft Longitude: 81° 17' 16.200 W  
**Position Uncertainty** 0.0 usft Ground Level: 1,064.0 usft

**Wellbore** Wellbore #1  
**Magnetics** Model Name IGRF2015 Sample Date 8/6/2015 Dip Angle (°) 66.34 Field Strength (nT) 51,903  
 Declination (°) -8.00

**Design** Wellbore #1  
**Audit Notes:**  
**Version:** 1.0 Phase: ACTUAL Tie On Depth: 0.0  
**Vertical Section:** Depth From (TVD) (usft) 0.0 +N-S (usft) 0.0 +E-W (usft) 0.0 Direction (°) 135.56

**Received**  
**Office of Oil & Gas**  
 OCT 08 2015

**Survey Program** Date 8/31/2015  
**From (usft)** 558.0 **To (usft)** 2,570.0 MWD (Wellbore #1)  
**Tool Name** MWD default  
**Description** MWD - Standard

10/30/2015

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**Well:** E. Smith #118  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well E. Smith #118  
**TVD Reference:** Well @ 1072.0usft (Decker #8)  
**MD Reference:** Well @ 1072.0usft (Decker #8)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

| MD (usft)                                    | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | D Leg (°/100usft) | Closure Distance (usft) | Closure Azimuth (°) |  |
|--|---------|-------------------|------------|------------|------------|---------------|-------------------|-------------------------|---------------------|--|
| 0.0  | 0.00    | 0.00              | 0.00       | 0.0        | 0.0        | 0.0           | 0.00              | 0.00                    | 0.00                |  |
| 558.0  | 0.31    | 94.06             | 558.0      | -0.1       | 1.5        | 1.1           | 0.06              | 1.5                     | 94.06               |  |
| <b>First MWD Survey @ 558' MD / 558' TVD</b> |         |                   |            |            |            |               |                   |                         |                     |  |
| 588.0  | 0.40    | 81.68             | 588.0      | -0.1       | 1.7        | 1.3           | 0.39              | 1.7                     | 93.30               |  |
| 618.0  | 0.49    | 97.37             | 618.0      | -0.1       | 1.9        | 1.4           | 0.50              | 1.9                     | 92.94               |  |
| 648.0  | 1.02    | 121.69            | 648.0      | -0.3       | 2.3        | 1.8           | 2.03              | 2.3                     | 96.41               |  |
| 678.0  | 1.68    | 127.29            | 678.0      | -0.7       | 2.9        | 2.5           | 2.24              | 2.9                     | 103.07              |  |
| 708.0  | 2.21    | 131.57            | 708.0      | -1.3       | 3.6        | 3.5           | 1.83              | 3.9                     | 109.85              |  |
| 738.0  | 2.70    | 131.96            | 737.9      | -2.2       | 4.6        | 4.8           | 1.63              | 5.1                     | 115.27              |  |
| 768.0  | 3.40    | 132.58            | 767.9      | -3.2       | 5.8        | 6.4           | 2.34              | 6.6                     | 119.32              |  |
| 798.0  | 3.89    | 132.98            | 797.8      | -4.5       | 7.2        | 8.3           | 1.64              | 8.5                     | 122.32              |  |
| 828.0  | 4.68    | 133.46            | 827.8      | -6.1       | 8.8        | 10.5          | 2.64              | 10.7                    | 124.60              |  |
| 858.0  | 5.30    | 134.17            | 857.6      | -7.9       | 10.7       | 13.1          | 2.08              | 13.3                    | 126.40              |  |
| 888.0  | 6.19    | 134.30            | 887.5      | -10.0      | 12.8       | 16.1          | 2.97              | 16.3                    | 127.85              |  |
| 918.0  | 7.20    | 133.77            | 917.3      | -12.4      | 15.4       | 19.6          | 3.37              | 19.7                    | 128.94              |  |
| 948.0  | 8.09    | 133.77            | 947.0      | -15.2      | 18.2       | 23.6          | 2.97              | 23.7                    | 129.75              |  |
| 978.0  | 9.19    | 134.08            | 976.7      | -18.3      | 21.5       | 28.1          | 3.67              | 28.2                    | 130.42              |  |
| 1,008.0                                      | 10.21   | 134.69            | 1,006.2    | -21.8      | 25.1       | 33.2          | 3.42              | 33.3                    | 131.02              |  |
| 1,038.0                                      | 11.31   | 135.27            | 1,035.7    | -25.8      | 29.1       | 38.8          | 3.68              | 38.9                    | 131.59              |  |
| 1,068.0                                      | 12.51   | 135.40            | 1,065.1    | -30.2      | 33.4       | 44.9          | 4.00              | 45.0                    | 132.11              |  |
| 1,098.0                                      | 13.61   | 135.40            | 1,094.3    | -35.0      | 38.2       | 51.7          | 3.67              | 51.8                    | 132.54              |  |
| 1,128.0                                      | 14.89   | 135.58            | 1,123.4    | -40.3      | 43.3       | 59.1          | 4.27              | 59.2                    | 132.91              |  |
| 1,158.0                                      | 16.08   | 135.80            | 1,152.3    | -46.0      | 48.9       | 67.1          | 3.97              | 67.2                    | 133.24              |  |
| 1,188.0                                      | 17.28   | 135.58            | 1,181.0    | -52.2      | 55.0       | 75.7          | 4.01              | 75.8                    | 133.52              |  |
| 1,218.0                                      | 18.29   | 136.28            | 1,209.6    | -58.8      | 61.3       | 84.9          | 3.44              | 84.9                    | 133.78              |  |
| 1,248.0                                      | 19.31   | 136.90            | 1,238.0    | -65.8      | 68.0       | 94.6          | 3.46              | 94.6                    | 134.07              |  |
| 1,278.0                                      | 20.19   | 137.47            | 1,266.2    | -73.2      | 74.9       | 104.7         | 3.00              | 104.7                   | 134.37              |  |



**HP**  
**Received Energy EOW Report**  
**Office of Oil & Gas**

87.04762

**Company:** HG Energy, LLC  
**Project:** Roane County, West Virginia  
**Site:** E. Smith #118  
**Well:** E. Smith #118  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

OCT 08 2015

**Local Co-ordinate Reference:** Well E. Smith #118  
**TVD Reference:** Well @ 1072.0usft (Decker #9)  
**MD Reference:** Well @ 1072.0usft (Decker #8)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | Closure Distance (usft) | Closure Azimuth (°) |
|-----------|---------|-------------------|------------|------------|------------|---------------|------------------|-------------------------|---------------------|
| 1,308.0   | 21.08   | 137.69            | 1,294.3    | -81.0      | 82.0       | 115.3         | 2.98             | 115.3                   | 134.66              |
| 1,338.0   | 22.18   | 137.87            | 1,322.2    | -89.2      | 89.4       | 126.3         | 3.67             | 126.3                   | 134.94              |
| 1,368.0   | 23.29   | 137.29            | 1,349.8    | -97.8      | 97.2       | 137.9         | 3.77             | 137.9                   | 135.16              |
| 1,398.0   | 24.22   | 136.90            | 1,377.3    | -106.6     | 105.5      | 150.0         | 3.14             | 150.0                   | 135.31              |
| 1,428.0   | 25.10   | 137.29            | 1,404.6    | -115.8     | 114.0      | 162.5         | 2.98             | 162.5                   | 135.45              |
| 1,458.0   | 25.98   | 137.38            | 1,431.6    | -125.3     | 122.8      | 175.4         | 2.94             | 175.4                   | 135.59              |
| 1,488.0   | 27.00   | 137.87            | 1,458.5    | -135.2     | 131.8      | 188.8         | 3.48             | 188.8                   | 135.73              |
| 1,518.0   | 27.88   | 138.09            | 1,485.1    | -145.5     | 141.0      | 202.6         | 2.95             | 202.6                   | 135.89              |
| 1,548.0   | 28.81   | 138.40            | 1,511.5    | -156.1     | 150.5      | 216.8         | 3.14             | 216.8                   | 136.04              |
| 1,578.0   | 29.39   | 137.78            | 1,537.7    | -166.9     | 160.3      | 231.4         | 2.18             | 231.4                   | 136.17              |
| 1,608.0   | 30.40   | 138.00            | 1,563.7    | -178.0     | 170.3      | 246.3         | 3.39             | 246.4                   | 136.28              |
| 1,638.0   | 31.60   | 137.16            | 1,589.5    | -189.4     | 180.7      | 261.8         | 4.25             | 261.8                   | 136.35              |
| 1,668.0   | 32.48   | 136.06            | 1,614.9    | -201.0     | 191.6      | 277.7         | 3.52             | 277.7                   | 136.37              |
| 1,698.0   | 33.72   | 135.97            | 1,640.0    | -212.8     | 203.0      | 294.1         | 4.14             | 294.1                   | 136.35              |
| 1,728.0   | 34.82   | 136.68            | 1,664.8    | -225.0     | 214.7      | 311.0         | 3.90             | 311.0                   | 136.35              |
| 1,758.0   | 36.50   | 137.07            | 1,689.2    | -237.8     | 226.6      | 328.5         | 5.65             | 328.5                   | 136.37              |
| 1,788.0   | 38.09   | 139.19            | 1,713.0    | -251.3     | 238.8      | 346.6         | 6.81             | 346.7                   | 136.47              |
| 1,818.0   | 39.51   | 137.16            | 1,736.4    | -265.3     | 251.3      | 365.4         | 6.35             | 365.4                   | 136.55              |
| 1,848.0   | 41.01   | 136.77            | 1,759.3    | -279.5     | 264.5      | 384.8         | 5.07             | 384.8                   | 136.58              |
| 1,878.0   | 41.71   | 136.50            | 1,781.8    | -293.9     | 278.1      | 404.6         | 2.41             | 404.7                   | 136.58              |
| 1,908.0   | 43.08   | 136.18            | 1,804.0    | -308.5     | 292.1      | 424.8         | 4.62             | 424.9                   | 136.57              |
| 1,938.0   | 43.08   | 135.49            | 1,825.9    | -323.2     | 306.4      | 445.3         | 1.59             | 445.4                   | 136.53              |
| 1,968.0   | 44.19   | 134.78            | 1,847.6    | -337.9     | 321.0      | 466.0         | 4.04             | 466.1                   | 136.47              |
| 1,998.0   | 45.21   | 134.30            | 1,868.9    | -352.7     | 336.0      | 487.1         | 3.58             | 487.2                   | 136.39              |
| 2,028.0   | 46.89   | 132.89            | 1,889.8    | -367.6     | 351.7      | 508.7         | 6.54             | 508.7                   | 136.27              |
| 2,118.0   | 46.31   | 131.39            | 1,951.6    | -411.5     | 400.2      | 574.0         | 1.37             | 574.0                   | 135.80              |
| 2,148.0   | 46.31   | 131.39            | 1,972.3    | -425.8     | 416.4      | 595.6         | 0.00             | 595.6                   | 135.64              |





HP  
HG Energy EOW Report

87.04762

Local Co-ordinate Reference: Well E. Smith #118  
 TVD Reference: Well @ 1072.0usft (Decker #9)  
 MD Reference: Well @ 1072.0usft (Decker #9)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Compass

Company: HG Energy, LLC  
 Project: Roane County, West Virginia  
 Site: E. Smith #118  
 Well: E. Smith #118  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | EW (usft) | V. Sec (usft) | DLeg (°/100usft) | Closure Distance (usft) | Closure Azimuth (°) |
|-----------|---------|-------------------|------------|------------|-----------|---------------|------------------|-------------------------|---------------------|
| 2,178.0   | 47.02   | 131.08            | 1,992.9    | -440.2     | 432.8     | 617.3         | 2.48             | 617.4                   | 135.48              |
| 2,208.0   | 47.42   | 130.60            | 2,013.3    | -454.6     | 449.5     | 639.3         | 1.78             | 639.3                   | 135.32              |
| 2,238.0   | 47.81   | 130.68            | 2,033.5    | -469.0     | 466.3     | 661.4         | 1.31             | 661.4                   | 135.17              |
| 2,268.0   | 48.21   | 130.38            | 2,053.6    | -483.5     | 483.3     | 683.6         | 1.53             | 683.6                   | 135.02              |
| 2,298.0   | 48.39   | 130.68            | 2,073.5    | -498.1     | 500.3     | 705.9         | 0.96             | 705.9                   | 134.87              |
| 2,328.0   | 48.52   | 130.38            | 2,093.4    | -512.7     | 517.3     | 728.3         | 0.86             | 728.3                   | 134.74              |
| 2,358.0   | 48.52   | 130.29            | 2,113.3    | -527.2     | 534.5     | 750.6         | 0.22             | 750.7                   | 134.61              |
| 2,388.0   | 47.59   | 129.67            | 2,133.4    | -541.6     | 551.6     | 772.9         | 3.46             | 773.0                   | 134.47              |
| 2,448.0   | 44.59   | 128.39            | 2,175.0    | -568.8     | 585.1     | 815.8         | 5.23             | 816.0                   | 134.19              |
| 2,478.0   | 43.08   | 127.16            | 2,196.6    | -581.5     | 601.6     | 836.4         | 5.78             | 836.7                   | 134.03              |
| 2,570.0   | 43.08   | 127.16            | 2,263.8    | -619.5     | 651.6     | 898.5         | 0.00             | 899.1                   | 133.55              |

TD @ 2570' MD / 2264' TVD

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment  |
|-----------------------|-----------------------|--------------------------------|--------------------------------|--|
| 558.0                 | 558.0                 | -0.1                           |                                |  |
| 2,570.0               | 2,263.8               | -619.5                         | 651.6                          | 1.5 First MWD Survey @ 558' MD / 558' TVD<br>TD @ 2570' MD / 2264' TVD |

Checked By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

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OCT 08 2015

87-04762

Company Name: HG Energy, LLC  
 E. Smith West Virginia  
 Roane County, West Virginia  
 Rig: Deck #  
 Created By: Shane Robbins  
 Date: 8/31/2015

E. Smith #118  
 Roane County, West Virginia  
 Q150660 & AM-150569  
 Design #1

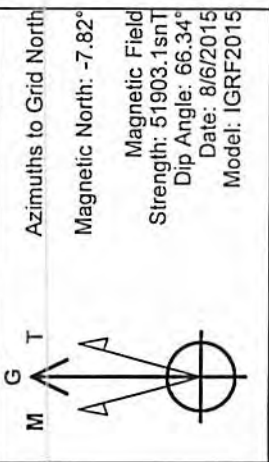


|                         |                               |
|-------------------------|-------------------------------|
| <b>PROJECT DETAILS:</b> | Roane County, West Virginia   |
| <b>Geodetic System:</b> | Universal Transverse Mercator |
| <b>Datum:</b>           | NAD83 West Virginia - HARN    |
| <b>Ellipsoid:</b>       | GRS 1980                      |
| <b>Zone:</b>            | Zone 17N (64 W to 78 W)       |
| <b>System Datum:</b>    | Mean Sea Level                |

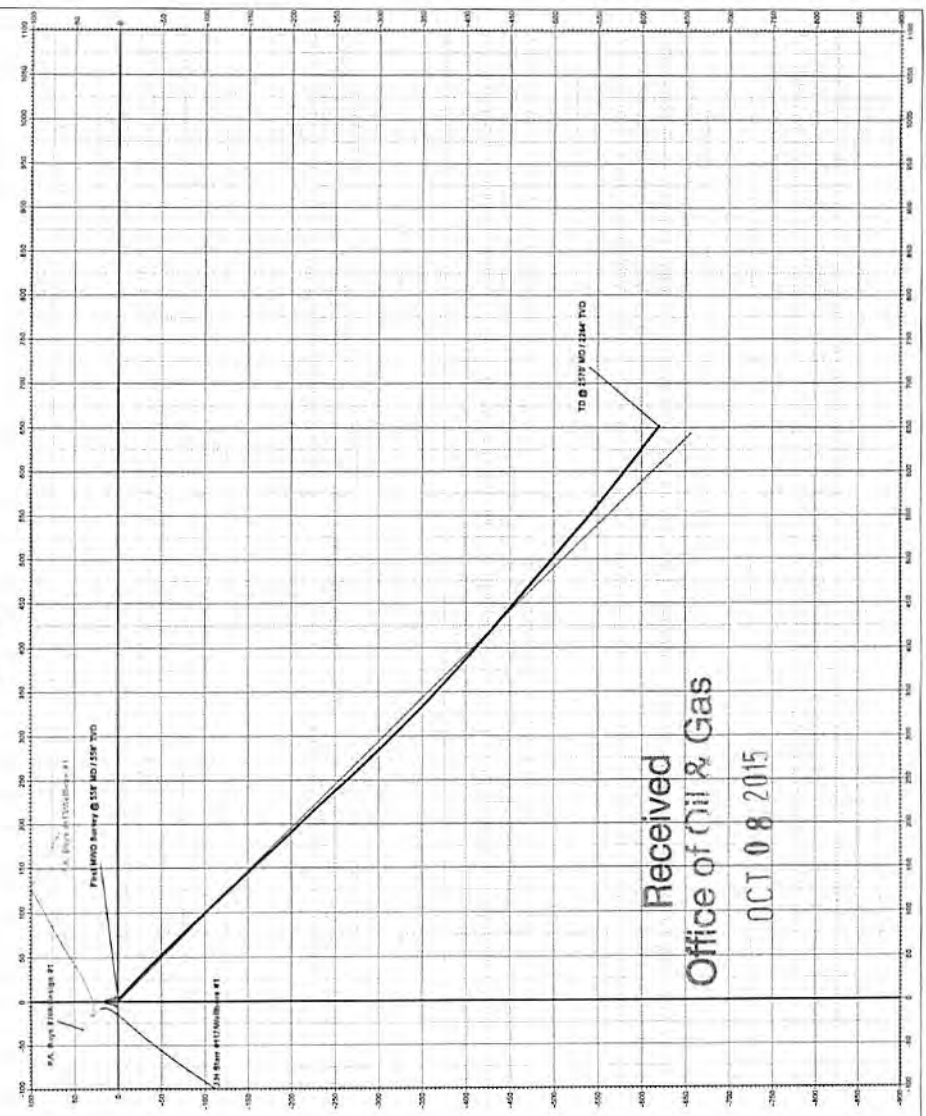
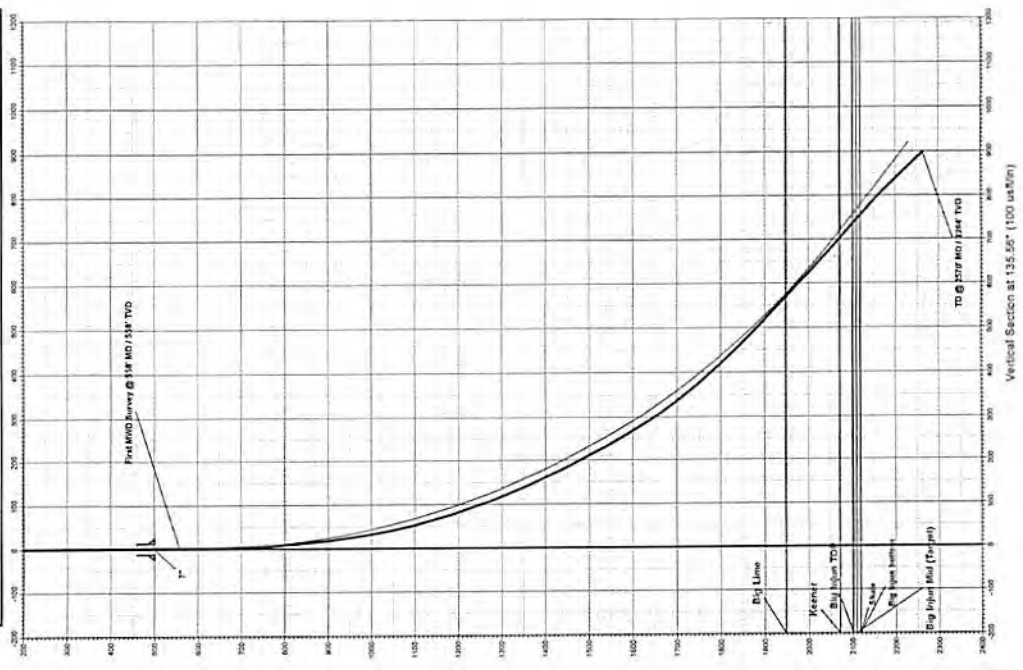
|                      |                      |
|----------------------|----------------------|
| <b>WELL DETAILS:</b> | <b>E. Smith #118</b> |
| <b>North:</b>        | 1044.0               |
| <b>East:</b>         | 158814.3             |
| <b>Longitude:</b>    | 81° 17' 16.200 W     |
| <b>Latitude:</b>     | 39° 47' 42.300 N     |
| <b>Ground Level:</b> | 158814.3             |
| <b>Northing:</b>     | 14628762.1           |
| <b>Easting:</b>      | 158814.3             |

|                              |        |        |      |            |           |                  |                 |
|------------------------------|--------|--------|------|------------|-----------|------------------|-----------------|
| <b>DESIGN TARGET DETAILS</b> |        |        |      |            |           |                  |                 |
| <b>Name:</b>                 | TVD    | +NCS   | +EAW | Northing   | Easting   | Latitude         | Longitude       |
| <b>Target Elevation:</b>     | 2105.0 | -547.8 | 57.1 | 14657282.3 | 158881.47 | 39° 47' 36.500 N | 81° 17' 8.400 W |
| - plan has target center     |        |        |      |            |           |                  |                 |

|                         |       |        |        |        |                    |            |
|-------------------------|-------|--------|--------|--------|--------------------|------------|
| <b>ANNOTATIONS</b>      |       |        |        |        |                    |            |
| <b>MD</b>               | Inc   | ALI    | +NCS   | +EAW   | Vertical/Departure | Annulation |
| 4573.5                  | 61.0  | 43.28  | 137.15 | 2353.3 | -419.5             | 451.5      |
| 2573.5                  | 43.28 | 137.15 | 2353.3 | -419.5 | 451.5              | W1.3       |
| TO @ 2379 MD / 2264 TVD |       |        |        |        |                    |            |



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