



TUG HILL
OPERATING

Well: Greer 1S-02M
Site: Greer Unit N
Project: Marshall County, West Virginia
Design: rev5

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | Vsect | Annotation |
|-----|----------|-------|--------|---------|----------|---------|-------|--------|---------|---------------------------------|
| 1 | 5767.00 | 20.36 | 250.26 | 5662.50 | -284.95 | -632.01 | 0.00 | 0.00 | 27.51 | Survey @ 5767.00 MD 5662.50 TVD |
| 2 | 5850.00 | 20.36 | 250.26 | 5740.31 | -294.70 | -659.19 | 0.00 | 0.00 | 26.38 | KOP Begin 8°/100' build/turn |
| 3 | 6110.00 | 28.79 | 202.75 | 5978.75 | -358.53 | -726.71 | 8.00 | -90.00 | 69.54 | Begin 8°/100' build/turn |
| 4 | 6844.29 | 65.63 | 170.95 | 6340.00 | -745.11 | -738.75 | 8.00 | -45.00 | 414.21 | Begin 10°/100' build/turn |
| 5 | 6953.62 | 89.00 | 150.00 | 6408.17 | -1025.01 | -636.79 | 10.00 | -44.07 | 711.92 | Begin 6°/100' turn |
| 6 | 7088.62 | 89.00 | 141.90 | 6410.53 | -1136.76 | -561.27 | 6.00 | -90.00 | 843.82 | Begin 89.00° lateral |
| 7 | 7643.62 | 89.00 | 141.90 | 6420.21 | -1573.44 | -218.87 | 0.00 | 0.00 | 1378.95 | Begin 2°/100' turn |
| 8 | 8047.48 | 89.00 | 149.98 | 6427.28 | -1907.68 | 7.10 | 2.00 | 90.09 | 1771.50 | Begin 89.00° lateral section |
| 9 | 13117.56 | 89.00 | 149.98 | 6516.00 | -6296.88 | 2543.41 | 0.00 | 0.00 | 6791.14 | PBHLTD 13117.56 MD/6516.00 TVD |

ANNOTATIONS

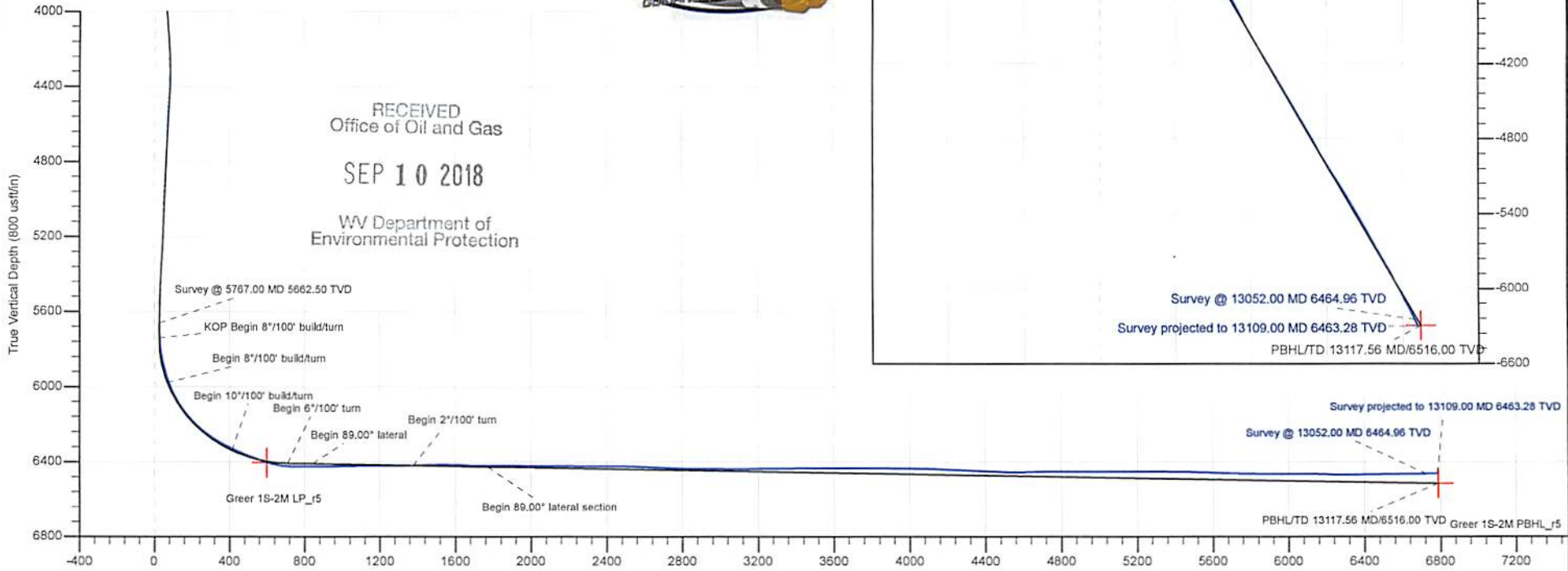
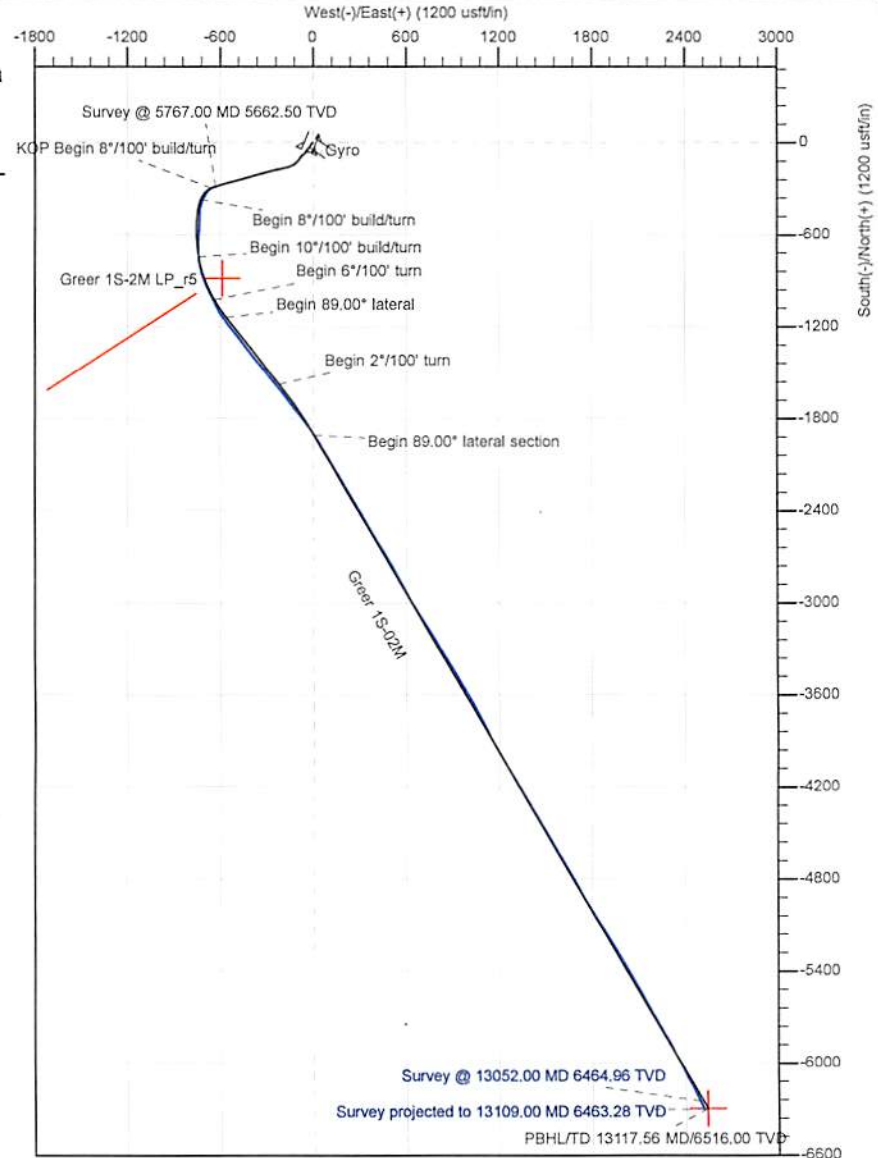
| MD | Inc | Azi | TVD | +N/-S | +E/-W | Vsect | Annotation |
|----------|-------|--------|---------|----------|---------|---------|---|
| 100.00 | 0.25 | 195.22 | 100.00 | -0.21 | -0.06 | 0.17 | Gyro |
| 5767.00 | 1.82 | 220.20 | 2671.89 | -55.18 | -43.85 | 34.74 | Gyro |
| 13052.00 | 91.69 | 155.06 | 6464.96 | -6247.49 | 2494.98 | 6727.21 | Survey @ 13052.00 MD 6464.96 TVD |
| 13109.00 | 91.69 | 155.06 | 6463.28 | -6299.15 | 2519.00 | 6784.11 | Survey projected to 13109.00 MD 6463.28 TVD |

Surface Location: RKB=1254+26 @ 1280.00usft (Nabors B28)
Universal Transverse Mercator (US Survey Feet)
Zone 17N (84 W to 78 W)
Northing Easting Latitude Longitude
14438288.21 1686407.56 39.75699174 -80.83635533



Azimuths to Grid North
True North: -0.10°
Magnetic North: -8.70°
Magnetic Field
Strength: 52154.2snT
Dip Angle: 66.94°
Date: 8/15/2017
Model: IGRF2015

Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Subtract 8.70°



RECEIVED
Office of Oil and Gas
SEP 10 2018
WV Department of
Environmental Protection

Survey Report

| | | | |
|------------------|----------------|-----------------------|--------------------|
| Service Company: | NZone Guidance | Location: | New Martinsville |
| Well: | Greer 1S-02HM | Rig: | Nabors B28 |
| API or UWI: | 47-051-01887 | Job Number: | THO-17-014 |
| State: | West Virginia | Operating Company: | Tug Hill Operating |
| County: | Marshall | Magnetic Declination: | 0 |
| Country: | USA | Proposed Azimuth: | 158.01 |
| Comment: | | North Reference: | GRID |
| | | Latitude: | 39.75699 |
| | | Longitude: | -80.8364 |

RECEIVED
 Office of Oil and Gas
SEP 10 2018
 WV Department of
 Environmental Protection

Tie-In Data

| MD | Inclination | Azimuth | TVD | NS | EW |
|----|-------------|---------|-----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 |

Survey Data

| MD | Inclination | Azimuth | TVD | NS | EW | CA | CD | VS | DLS |
|------|-------------|---------|---------|--------|--------|--------|-------|-------|------|
| 100 | 0.25 | 195.22 | 100 | -0.21 | -0.06 | 195.22 | 0.22 | 0.17 | 0.25 |
| 200 | 0.37 | 210.24 | 200 | -0.7 | -0.28 | 201.6 | 0.75 | 0.55 | 0.14 |
| 300 | 0.17 | 245.78 | 300 | -1.04 | -0.58 | 208.95 | 1.19 | 0.75 | 0.25 |
| 400 | 0.1 | 204.7 | 400 | -1.18 | -0.75 | 212.33 | 1.4 | 0.81 | 0.12 |
| 500 | 0.17 | 248.63 | 500 | -1.31 | -0.92 | 215.06 | 1.6 | 0.87 | 0.12 |
| 600 | 0.19 | 243.17 | 600 | -1.44 | -1.21 | 219.94 | 1.88 | 0.89 | 0.03 |
| 700 | 0.23 | 256.03 | 700 | -1.57 | -1.55 | 224.72 | 2.2 | 0.87 | 0.06 |
| 800 | 0.18 | 284.3 | 799.99 | -1.58 | -1.9 | 230.3 | 2.47 | 0.75 | 0.11 |
| 900 | 0.16 | 283.84 | 899.99 | -1.5 | -2.19 | 235.48 | 2.65 | 0.58 | 0.02 |
| 1000 | 0.47 | 303.95 | 999.99 | -1.24 | -2.66 | 245.01 | 2.94 | 0.15 | 0.32 |
| 1100 | 0.62 | 6.22 | 1099.99 | -0.47 | -2.94 | 260.86 | 2.98 | -0.66 | 0.58 |
| 1200 | 0.22 | 359.61 | 1199.99 | 0.26 | -2.89 | 275.08 | 2.9 | -1.32 | 0.4 |
| 1300 | 1.04 | 222.35 | 1299.98 | -0.22 | -3.5 | 266.36 | 3.5 | -1.1 | 1.21 |
| 1400 | 2.33 | 229.97 | 1399.94 | -2.2 | -5.67 | 248.77 | 6.08 | -0.08 | 1.31 |
| 1500 | 3.2 | 213.72 | 1499.82 | -5.83 | -8.77 | 236.39 | 10.53 | 2.12 | 1.16 |
| 1600 | 3.62 | 203.27 | 1599.64 | -11.05 | -11.57 | 226.31 | 16 | 5.92 | 0.75 |
| 1700 | 4.44 | 207.22 | 1699.4 | -17.39 | -14.59 | 219.98 | 22.7 | 10.67 | 0.87 |
| 1800 | 4.09 | 216.58 | 1799.12 | -23.7 | -18.48 | 217.95 | 30.05 | 15.06 | 0.78 |
| 1900 | 4.1 | 220.23 | 1898.86 | -29.29 | -22.92 | 218.04 | 37.19 | 18.58 | 0.26 |
| 2000 | 3.91 | 233.01 | 1998.62 | -34.07 | -27.95 | 219.36 | 44.07 | 21.13 | 0.91 |
| 2100 | 4.31 | 231.37 | 2098.37 | -38.47 | -33.61 | 221.14 | 51.08 | 23.09 | 0.42 |
| 2200 | 3.76 | 221.51 | 2198.12 | -43.27 | -38.72 | 221.82 | 58.06 | 25.63 | 0.88 |
| 2300 | 2.04 | 202.91 | 2297.99 | -47.37 | -41.58 | 221.28 | 63.03 | 28.35 | 1.94 |
| 2400 | 0.98 | 184.4 | 2397.95 | -49.86 | -42.34 | 220.34 | 65.41 | 30.38 | 1.15 |
| 2500 | 1.11 | 188.82 | 2497.94 | -51.67 | -42.55 | 219.47 | 66.94 | 31.98 | 0.15 |
| 2537 | 0.99 | 173.84 | 2534.93 | -52.34 | -42.58 | 219.13 | 67.47 | 32.59 | 0.81 |
| 2674 | 1.82 | 220.2 | 2671.89 | -55.18 | -43.85 | 218.47 | 70.48 | 34.74 | 0.98 |
| 2706 | 2.01 | 212.11 | 2703.87 | -56.04 | -44.48 | 218.44 | 71.55 | 35.31 | 1.03 |
| 2800 | 2.32 | 221.86 | 2797.81 | -58.86 | -46.62 | 218.39 | 75.09 | 37.12 | 0.51 |
| 2894 | 1.93 | 220.73 | 2891.74 | -61.47 | -48.93 | 218.52 | 78.57 | 38.68 | 0.42 |
| 2988 | 2.67 | 216.46 | 2985.67 | -64.43 | -51.26 | 218.5 | 82.34 | 40.55 | 0.81 |
| 3083 | 4.55 | 217.15 | 3080.47 | -69.22 | -54.85 | 218.4 | 88.32 | 43.64 | 1.98 |

SEP 10 2018

WV Department of
Environmental Protection

| | | | | | | | | | |
|------|-------|--------|---------|----------|---------|--------|---------|---------|-------|
| 3180 | 3.86 | 236.46 | 3177.22 | -74.09 | -59.9 | 218.95 | 95.27 | 46.27 | 1.61 |
| 3274 | 3.39 | 237.66 | 3271.03 | -77.32 | -64.88 | 220 | 100.94 | 47.4 | 0.51 |
| 3369 | 2.95 | 230.69 | 3365.88 | -80.37 | -69.15 | 220.71 | 106.02 | 48.63 | 0.61 |
| 3463 | 2.79 | 224.33 | 3459.76 | -83.54 | -72.62 | 221 | 110.69 | 50.27 | 0.38 |
| 3558 | 2.48 | 221.84 | 3554.66 | -86.73 | -75.6 | 221.08 | 115.06 | 52.11 | 0.35 |
| 3653 | 2.16 | 217.07 | 3649.59 | -89.69 | -78.05 | 221.03 | 118.9 | 53.94 | 0.39 |
| 3747 | 3.46 | 221.49 | 3743.47 | -93.23 | -81 | 220.99 | 123.5 | 56.11 | 1.4 |
| 3842 | 3.63 | 213.29 | 3838.29 | -97.89 | -84.55 | 220.82 | 129.35 | 59.11 | 0.56 |
| 3937 | 4.83 | 214.28 | 3933.03 | -103.71 | -88.45 | 220.46 | 136.31 | 63.04 | 1.27 |
| 4030 | 7.29 | 216.23 | 4025.5 | -111.7 | -94.15 | 220.13 | 146.09 | 68.32 | 2.65 |
| 4123 | 10.94 | 221.79 | 4117.31 | -123.05 | -103.52 | 220.07 | 160.8 | 75.33 | 4.03 |
| 4218 | 13.45 | 231.49 | 4210.17 | -136.65 | -118.18 | 220.85 | 180.66 | 82.46 | 3.4 |
| 4312 | 15.95 | 244.35 | 4301.11 | -149.05 | -138.38 | 222.87 | 203.39 | 86.39 | 4.36 |
| 4407 | 20.18 | 256.25 | 4391.44 | -158.61 | -166.09 | 226.32 | 229.65 | 84.88 | 5.89 |
| 4502 | 18.82 | 257.89 | 4480.99 | -165.71 | -196.99 | 229.93 | 257.42 | 79.9 | 1.54 |
| 4596 | 18.99 | 258.52 | 4569.92 | -171.94 | -226.8 | 232.83 | 284.61 | 74.51 | 0.28 |
| 4691 | 20.31 | 254.55 | 4659.39 | -179.41 | -257.84 | 235.17 | 314.12 | 69.81 | 1.98 |
| 4785 | 21.23 | 254.28 | 4747.28 | -188.37 | -289.95 | 236.99 | 345.76 | 66.09 | 0.98 |
| 4880 | 22.36 | 254.64 | 4835.49 | -197.81 | -323.93 | 238.59 | 379.56 | 62.13 | 1.2 |
| 4975 | 23.4 | 255.16 | 4923.01 | -207.43 | -359.59 | 240.02 | 415.13 | 57.69 | 1.12 |
| 5069 | 21.65 | 253.16 | 5009.84 | -217.24 | -394.24 | 241.14 | 450.13 | 53.81 | 2.03 |
| 5164 | 21.24 | 253.64 | 5098.26 | -227.16 | -427.52 | 242.02 | 484.12 | 50.55 | 0.47 |
| 5259 | 21.27 | 253.13 | 5186.8 | -237.01 | -460.52 | 242.77 | 517.93 | 47.33 | 0.2 |
| 5354 | 21.39 | 254.79 | 5275.29 | -246.55 | -493.73 | 243.46 | 551.87 | 43.74 | 0.65 |
| 5449 | 21.22 | 257.02 | 5363.8 | -254.96 | -527.2 | 244.19 | 585.61 | 39 | 0.87 |
| 5544 | 20.11 | 255.12 | 5452.69 | -263.02 | -559.74 | 244.83 | 618.45 | 34.29 | 1.36 |
| 5638 | 19.29 | 254.22 | 5541.19 | -271.39 | -590.3 | 245.31 | 649.7 | 30.61 | 0.93 |
| 5731 | 20.18 | 250.93 | 5628.73 | -280.81 | -620.24 | 245.64 | 680.85 | 28.13 | 1.53 |
| 5767 | 20.36 | 250.26 | 5662.5 | -284.95 | -632.01 | 245.73 | 693.27 | 27.57 | 0.82 |
| 5809 | 19.6 | 248.05 | 5701.97 | -290.05 | -645.42 | 245.8 | 707.6 | 27.28 | 2.55 |
| 5904 | 19.82 | 229.51 | 5791.49 | -306.48 | -672.47 | 245.5 | 739.02 | 32.38 | 6.56 |
| 5999 | 21.76 | 208.15 | 5880.43 | -332.51 | -693.06 | 244.37 | 768.69 | 48.8 | 8.19 |
| 6094 | 27.21 | 205.16 | 5966.86 | -367.72 | -710.62 | 242.64 | 800.12 | 74.88 | 5.88 |
| 6188 | 31.34 | 194.09 | 6048.9 | -410.93 | -725.72 | 240.48 | 833.99 | 109.29 | 7.23 |
| 6283 | 38.79 | 179.94 | 6126.73 | -464.82 | -731.72 | 237.57 | 866.87 | 157.01 | 11.56 |
| 6378 | 46.24 | 180.55 | 6196.7 | -528.97 | -732.02 | 234.15 | 903.14 | 216.39 | 7.85 |
| 6472 | 57.8 | 186.7 | 6254.49 | -602.71 | -737.01 | 230.72 | 952.07 | 282.89 | 13.33 |
| 6567 | 63.74 | 181.69 | 6300.88 | -685.32 | -742.96 | 227.31 | 1010.77 | 357.26 | 7.76 |
| 6661 | 65.45 | 170.36 | 6341.31 | -769.83 | -737.03 | 223.75 | 1065.76 | 437.85 | 11.03 |
| 6756 | 70.07 | 162.53 | 6377.3 | -855.18 | -716.35 | 219.95 | 1115.57 | 524.73 | 9.04 |
| 6851 | 72.97 | 155.96 | 6407.44 | -939.35 | -684.4 | 216.08 | 1162.24 | 614.74 | 7.23 |
| 6946 | 86.29 | 154.54 | 6424.51 | -1024.02 | -645.35 | 212.22 | 1210.4 | 707.87 | 14.1 |
| 7040 | 91.03 | 150.67 | 6426.7 | -1107.41 | -602.12 | 208.53 | 1260.52 | 801.38 | 6.51 |
| 7135 | 88.57 | 139.51 | 6427.04 | -1185.19 | -547.85 | 204.81 | 1305.68 | 893.82 | 12.03 |
| 7230 | 92.22 | 143.02 | 6426.38 | -1259.26 | -488.43 | 201.2 | 1350.67 | 984.76 | 5.33 |
| 7323 | 91.56 | 142.93 | 6423.32 | -1333.47 | -432.45 | 197.97 | 1401.84 | 1074.53 | 0.72 |
| 7418 | 90.86 | 142.32 | 6421.31 | -1408.95 | -374.8 | 194.9 | 1457.95 | 1166.1 | 0.98 |

SEP 10 2018

WV Department of
Environmental Protection

| | | | | | | | | | |
|-------|-------|--------|---------|----------|---------|--------|---------|---------|------|
| 7513 | 88.53 | 140.3 | 6421.81 | -1483.09 | -315.42 | 192.01 | 1516.26 | 1257.09 | 3.25 |
| 7607 | 91.87 | 141 | 6421.49 | -1555.77 | -255.83 | 189.34 | 1576.66 | 1346.79 | 3.63 |
| 7702 | 91.91 | 143.46 | 6418.35 | -1630.82 | -197.68 | 186.91 | 1642.75 | 1438.15 | 2.59 |
| 7797 | 90.59 | 143.02 | 6416.28 | -1706.91 | -140.84 | 184.72 | 1712.71 | 1529.99 | 1.46 |
| 7891 | 87.03 | 140.03 | 6418.23 | -1780.46 | -82.39 | 182.65 | 1782.37 | 1620.08 | 4.95 |
| 7985 | 88.92 | 144.16 | 6421.56 | -1854.57 | -24.69 | 180.76 | 1854.73 | 1710.4 | 4.83 |
| 8080 | 89.41 | 149.88 | 6422.94 | -1934.22 | 26.99 | 179.2 | 1934.4 | 1803.61 | 6.04 |
| 8174 | 90.11 | 151.02 | 6423.34 | -2015.99 | 73.35 | 177.92 | 2017.32 | 1896.79 | 1.42 |
| 8269 | 90.59 | 149.44 | 6422.75 | -2098.44 | 120.52 | 176.71 | 2101.9 | 1990.91 | 1.74 |
| 8364 | 88.88 | 149.17 | 6423.19 | -2180.13 | 169.01 | 175.57 | 2186.67 | 2084.81 | 1.82 |
| 8458 | 89.36 | 149.26 | 6424.64 | -2260.88 | 217.12 | 174.51 | 2271.28 | 2177.69 | 0.52 |
| 8552 | 90.02 | 150.23 | 6425.15 | -2342.07 | 264.48 | 173.56 | 2356.95 | 2270.71 | 1.25 |
| 8646 | 90.55 | 150.32 | 6424.68 | -2423.7 | 311.08 | 172.69 | 2443.58 | 2363.86 | 0.57 |
| 8741 | 89.45 | 150.49 | 6424.68 | -2506.3 | 358 | 171.87 | 2531.74 | 2458.02 | 1.17 |
| 8836 | 88.04 | 149.35 | 6426.76 | -2588.49 | 405.6 | 171.09 | 2620.07 | 2552.05 | 1.91 |
| 8931 | 87.56 | 149.35 | 6430.41 | -2670.15 | 454 | 170.35 | 2708.48 | 2645.9 | 0.51 |
| 9026 | 87.16 | 150.05 | 6434.78 | -2752.09 | 501.88 | 169.67 | 2797.48 | 2739.8 | 0.85 |
| 9120 | 89.14 | 152.16 | 6437.82 | -2834.34 | 547.27 | 169.07 | 2886.69 | 2833.06 | 3.08 |
| 9214 | 90.51 | 151.46 | 6438.1 | -2917.18 | 591.67 | 168.53 | 2976.58 | 2926.5 | 1.64 |
| 9308 | 89.01 | 148.73 | 6438.5 | -2998.66 | 638.53 | 167.98 | 3065.89 | 3019.6 | 3.31 |
| 9404 | 90.11 | 148.38 | 6439.24 | -3080.55 | 688.61 | 167.4 | 3156.58 | 3114.29 | 1.2 |
| 9498 | 92.26 | 147.24 | 6437.29 | -3160.08 | 738.67 | 166.84 | 3245.27 | 3206.78 | 2.59 |
| 9592 | 89.98 | 150.32 | 6435.45 | -3240.44 | 787.37 | 166.34 | 3334.73 | 3299.52 | 4.08 |
| 9687 | 90.07 | 149.17 | 6435.41 | -3322.5 | 835.24 | 165.89 | 3425.88 | 3393.54 | 1.21 |
| 9781 | 90.33 | 147.59 | 6435.08 | -3402.54 | 884.52 | 165.43 | 3515.63 | 3486.21 | 1.7 |
| 9876 | 89.89 | 150.32 | 6434.9 | -3483.93 | 933.51 | 165 | 3606.82 | 3580.01 | 2.91 |
| 9971 | 90.15 | 149.7 | 6434.87 | -3566.21 | 980.99 | 164.62 | 3698.67 | 3674.09 | 0.71 |
| 10066 | 89.71 | 151.55 | 6434.98 | -3648.99 | 1027.59 | 164.27 | 3790.92 | 3768.3 | 2 |
| 10160 | 88.84 | 152.43 | 6436.17 | -3731.97 | 1071.73 | 163.98 | 3882.81 | 3861.77 | 1.32 |
| 10255 | 89.23 | 152.87 | 6437.77 | -3816.34 | 1115.37 | 163.71 | 3975.99 | 3956.34 | 0.62 |
| 10349 | 90.11 | 153.39 | 6438.32 | -3900.19 | 1157.85 | 163.47 | 4068.42 | 4050 | 1.09 |
| 10444 | 87.25 | 148.91 | 6440.5 | -3983.34 | 1203.66 | 163.19 | 4161.23 | 4144.26 | 5.59 |
| 10538 | 87.38 | 148.56 | 6444.91 | -4063.6 | 1252.39 | 162.87 | 4252.22 | 4236.93 | 0.4 |
| 10634 | 87.78 | 148.65 | 6448.96 | -4145.48 | 1302.36 | 162.56 | 4345.24 | 4331.55 | 0.43 |
| 10728 | 87.47 | 149.7 | 6452.86 | -4226.13 | 1350.48 | 162.28 | 4436.66 | 4424.35 | 1.16 |
| 10822 | 88.26 | 150.23 | 6456.36 | -4307.45 | 1397.5 | 162.02 | 4528.48 | 4517.36 | 1.01 |
| 10917 | 91.16 | 150.05 | 6456.84 | -4389.83 | 1444.79 | 161.78 | 4621.47 | 4611.46 | 3.06 |
| 11011 | 91.03 | 149.35 | 6455.04 | -4470.97 | 1492.21 | 161.54 | 4713.41 | 4704.45 | 0.76 |
| 11106 | 91.16 | 149.61 | 6453.23 | -4552.79 | 1540.45 | 161.31 | 4806.34 | 4798.39 | 0.31 |
| 11201 | 89.58 | 149.44 | 6452.61 | -4634.66 | 1588.62 | 161.08 | 4899.37 | 4892.34 | 1.67 |
| 11296 | 89.54 | 150.14 | 6453.34 | -4716.76 | 1636.42 | 160.87 | 4992.56 | 4986.36 | 0.74 |
| 11391 | 90.11 | 151.37 | 6453.63 | -4799.65 | 1682.83 | 160.68 | 5086.11 | 5080.6 | 1.43 |
| 11485 | 90.64 | 150.93 | 6453.02 | -4881.98 | 1728.19 | 160.51 | 5178.84 | 5173.92 | 0.73 |
| 11580 | 89.63 | 149.44 | 6452.79 | -4964.4 | 1775.42 | 160.32 | 5272.32 | 5268.03 | 1.89 |
| 11675 | 89.23 | 148.21 | 6453.74 | -5045.68 | 1824.6 | 160.12 | 5365.44 | 5361.81 | 1.36 |
| 11770 | 89.45 | 148.29 | 6454.83 | -5126.45 | 1874.58 | 159.91 | 5458.44 | 5455.43 | 0.25 |
| 11865 | 87.56 | 149.09 | 6457.31 | -5207.59 | 1923.93 | 159.72 | 5551.62 | 5549.14 | 2.16 |

| | | | | | | | | | |
|-------|-------|--------|---------|----------|---------|--------|---------|---------|------|
| 11960 | 88.09 | 149.61 | 6460.92 | -5289.26 | 1972.33 | 159.55 | 5645.02 | 5642.99 | 0.78 |
| 12055 | 88.66 | 149.61 | 6463.61 | -5371.17 | 2020.37 | 159.39 | 5738.58 | 5736.93 | 0.6 |
| 12149 | 89.36 | 150.14 | 6465.24 | -5452.46 | 2067.54 | 159.23 | 5831.3 | 5829.97 | 0.93 |
| 12244 | 90.46 | 151.55 | 6465.39 | -5535.42 | 2113.82 | 159.1 | 5925.29 | 5924.22 | 1.88 |
| 12338 | 90.11 | 151.99 | 6464.92 | -5618.24 | 2158.28 | 158.99 | 6018.54 | 6017.66 | 0.6 |
| 12433 | 88.53 | 149.88 | 6466.05 | -5701.26 | 2204.42 | 158.86 | 6112.6 | 6111.92 | 2.77 |
| 12527 | 88.13 | 149.79 | 6468.79 | -5782.5 | 2251.64 | 158.72 | 6205.41 | 6204.93 | 0.44 |
| 12622 | 89.93 | 151.63 | 6470.39 | -5865.33 | 2298.1 | 158.6 | 6299.48 | 6299.14 | 2.71 |
| 12717 | 90.59 | 152.25 | 6469.96 | -5949.17 | 2342.79 | 158.51 | 6393.84 | 6393.6 | 0.95 |
| 12811 | 91.74 | 152.16 | 6468.05 | -6032.3 | 2386.61 | 158.41 | 6487.26 | 6487.1 | 1.23 |
| 12906 | 89.85 | 152.51 | 6466.73 | -6116.43 | 2430.71 | 158.33 | 6581.72 | 6581.62 | 2.02 |
| 13001 | 90.9 | 154.36 | 6466.11 | -6201.39 | 2473.2 | 158.26 | 6676.37 | 6676.31 | 2.24 |
| 13052 | 91.69 | 155.06 | 6464.96 | -6247.49 | 2494.98 | 158.23 | 6727.26 | 6727.21 | 2.07 |

Projected Survey

| MD | Inclination | Azimuth | TVD | NS | EW | CA | CD | VS | DLS |
|-------|-------------|---------|---------|----------|------|-------|---------|---------|-----|
| 13109 | 91.69 | 155.06 | 6463.28 | -6299.15 | 2519 | 158.2 | 6784.15 | 6784.11 | 0 |

DigiDrill DataLogger 1-Jan www.digidrill.com

RECEIVED
Office of Oil and Gas

SEP 10 2018

WV Department of
Environmental Protection