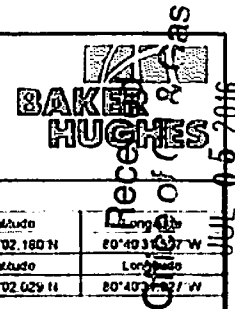


HG ENERGY

Location: Wetzel County, WV
 Field: Wetzel (UTM 17N NAD 27)
 Facility: Long 409 Pad

Slot: Slot #02
 Well: Long 409 S-2H
 Wellbore: Long 409 S-2H PWB



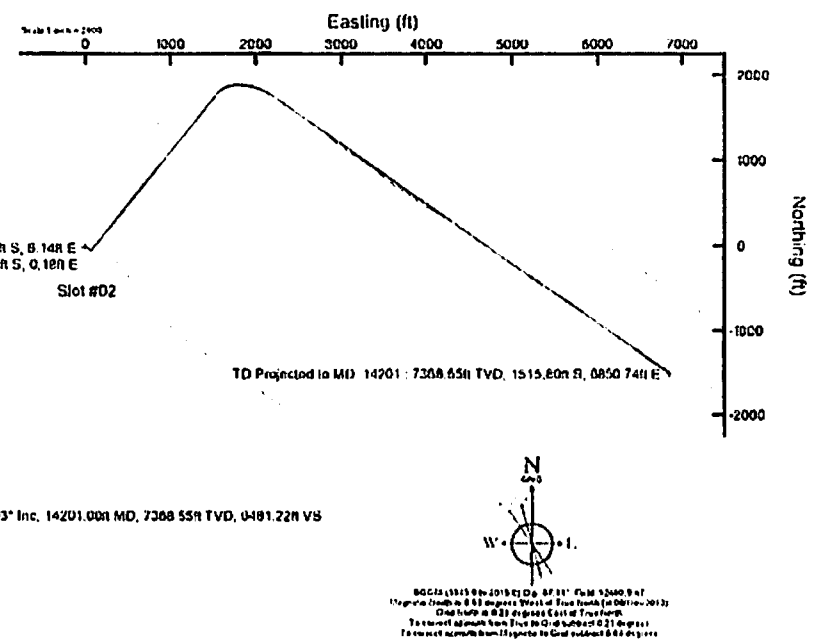
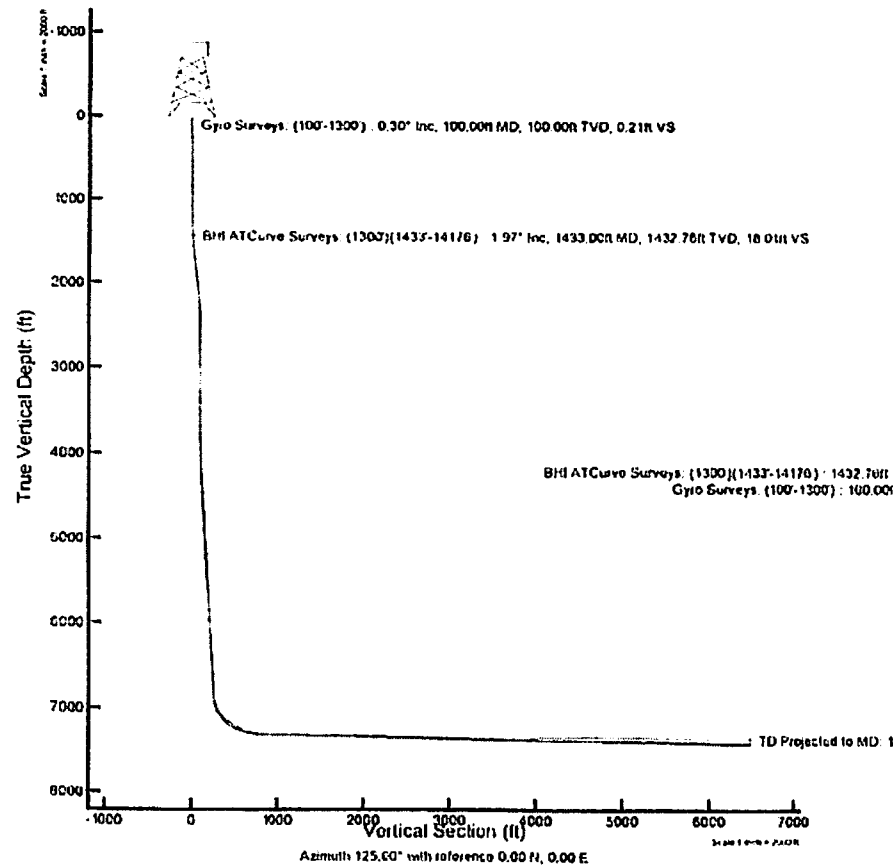
JUL 9 2013

| | |
|---|---|
| PMA reference wellbore is Long 409 S-2H PWP Rev. C.U | |
| True vertical depths are referenced to DM 24 (RT) | Grid System: NAD27 / UTM Zone 17 North, US foot |
| Measured depths are referenced to DM 24 (RT) | North Reference: Grid north |
| DM 24 (RT) to Mean Sea Level: 1358 feet | Scale: True distance |
| Mean Sea Level to Mud line (At Slot Slot #02): -1340 feet | Depths are in feet |
| Coordinates are in feet referenced to Slot | Created by: trujost on 11/Nov2013 |

| Location Information | | | | | |
|---|--------------|-------------------|--------------------|--------------------|----------------|
| Facility Name | | Grid East (US ft) | Grid North (US ft) | Latitude | Longitude |
| Long 409 Pad | | 1731850.700 | 14374712.500 | 39°35'02.180 N | 80°40'31.007 W |
| Slot | Local N (ft) | Local E (ft) | Grid East (US ft) | Grid North (US ft) | Latitude |
| Slot #02 | -15.31 | -25.81 | 1731834.900 | 14374697.600 | 39°35'02.029 N |
| DM 24 (RT) to Mud line (At Slot Slot #02) | | | | 18 ft | |
| Mean Sea Level to Mud line (At Slot Slot #02) | | | | -1340 ft | |
| DM 24 (RT) to Mean Sea Level | | | | 1358 ft | |

| Targets | | | | | | | |
|-------------------------|----------|----------|--------------|--------------|-------------------|--------------------|----------------------------------|
| Name | 142 (ft) | TVD (ft) | Local N (ft) | Local E (ft) | Grid East (US ft) | Grid North (US ft) | Remarks |
| Long 409 S-2H LP | | 7300.00 | 1722.28 | 2218.97 | 1732042.900 | 14374642.900 | 19 25 18 00 S 11 10 40 D 1 500 W |
| Long 409 S-2H LP Rev.2 | 8575.37 | 1350.00 | 1722.28 | 2218.97 | 1732042.900 | 14374642.900 | 19 25 18 00 S 11 10 40 D 1 500 W |
| Long 409 S-2H PWB | | 7268.28 | 1513.09 | 8653.79 | 1730638.000 | 14372163.100 | 35 34 48 527 N 85 28 04 456 W |
| Long 409 S-2H PWB Rev.2 | 14234.81 | 7428.00 | -1513.09 | 8653.79 | 1730638.000 | 14372163.100 | 35 34 48 527 N 85 28 04 456 W |

| Well Profile Data | | | | | | | | |
|-------------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Design Comment | MD (ft) | Inc (") | Az (") | TVD (ft) | Local N (ft) | Local E (ft) | DLS (*/100ft) | VS (ft) |
| Tie On | 1300.00 | 1.000 | 158.500 | 1299.81 | -19.54 | 4.62 | 0.31 | 14.99 |
| End of Tangent | 1424.00 | 1.000 | 158.500 | 1423.79 | -21.55 | 5.41 | 0.00 | 16.80 |
| End of 3D Arc | 1599.14 | 0.000 | 120.000 | 1598.58 | -27.50 | 13.91 | 3.00 | 27.20 |
| End of Tangent | 2199.14 | 0.000 | 120.000 | 2195.27 | -58.92 | 68.22 | 0.00 | 89.68 |
| End of Drop | 2399.14 | 0.000 | 38.855 | 2394.91 | -64.15 | 77.28 | 3.00 | 100.10 |
| End of Tangent | 3700.00 | 0.000 | 38.855 | 3095.70 | -64.15 | 77.28 | 0.00 | 100.10 |
| End of Build | 4093.05 | 38.305 | 38.855 | 4050.91 | 31.91 | 154.68 | 10.00 | 108.39 |
| End of Tangent | 7707.64 | 38.305 | 38.855 | 6895.19 | 1781.50 | 1564.14 | 0.00 | 259.44 |
| LP | 8575.07 | 89.008 | 125.000 | 7330.00 | 1732.28 | 2218.97 | 10.00 | 874.08 |
| PBHL | 14234.91 | 89.008 | 125.000 | 7428.00 | -1513.09 | 6853.79 | 0.00 | 8407.17 |



BGGE (10/15/2013) 09:00 AM Slot #02 Rev. 13/Nov/2013
 The profile is based on the 0.30 degree Well of True North (at 08/11/2013)
 The depth is 0.30 degree East of True North
 To convert azimuth from True to Grid subtract 0.31 degrees
 To convert azimuth from Grid to True add 0.31 degrees

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|-------------------------|----------|---------------------|
| Operator | IG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

REPORT SETUP INFORMATION

| | | | |
|---------------------|------------------------------------|----------------------|-------------------------------------|
| Projection System | NAD27 / UTM Zone 17 North, US feet | Software System | WellArchitect@ 4.0.1 |
| North Reference | Grid | User | Frisjesl |
| Scale | 0.99961 | Report Generated | 11/Nov/2013 at 13:45 |
| Convergence at slot | 0.21° East | Database/Source file | WA_EasternUS/Long_409_S-2H_AWB_.xml |

WELLPATH LOCATION

| | Local coordinates | | Grid coordinates | | Geographic coordinates | |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|----------------|
| | North[ft] | East[ft] | Easting[US ft] | Northing[US ft] | Latitude | Longitude |
| Slot Location | -15.31 | -25.81 | 1731834.90 | 14374697.60 | 39°35'02.029"N | 80°40'31.927"W |
| Facility Reference Pt | | | 1731860.70 | 14374712.90 | 39°35'02.180"N | 80°40'31.597"W |
| Field Reference Pt | | | 1731860.70 | 14374712.90 | 39°35'02.180"N | 80°40'31.597"W |

WELLPATH DATUM

| | | | |
|--------------------------|-------------------|---|-------------------|
| Calculation method | Minimum curvature | DM 24 (RT) to Facility Vertical Datum | 18.00ft |
| Horizontal Reference Pt | Slot | DM 24 (RT) to Mean Sea Level | 1358.00ft |
| Vertical Reference Pt | DM 24 (RT) | DM 24 (RT) to Mud Line at Slot (Slot #02) | 18.00ft |
| MD Reference Pt | DM 24 (RT) | Section Origin | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level | Section Azimuth | 125.00° |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|-------------------------|----------|---------------------|
| Operator | IG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations) † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
|---------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 0.00† | 0.000 | 125.100 | 0.00 | 0.00 | 0.00 | 0.00 | 1731834.90 | 14374697.60 | 39°35'02.029"N | 80°40'31.927"W | 0.00 | 0.000 | 0.00 |
| 18.00 | 0.000 | 125.100 | 18.00 | 0.00 | 0.00 | 0.00 | 1731834.90 | 14374697.60 | 39°35'02.029"N | 80°40'31.927"W | 0.00 | 0.000 | 0.00 |
| 100.00 | 0.300 | 125.100 | 100.00 | 0.21 | -0.12 | 0.18 | 1731835.08 | 14374697.48 | 39°35'02.028"N | 80°40'31.925"W | 0.21 | 125.100 | 0.37 |
| 200.00 | 1.070 | 123.300 | 199.99 | 1.41 | -0.79 | 1.17 | 1731836.07 | 14374696.81 | 39°35'02.021"N | 80°40'31.912"W | 1.41 | 123.908 | 0.77 |
| 300.00 | 0.840 | 175.500 | 299.98 | 2.81 | -2.03 | 2.01 | 1731836.91 | 14374695.57 | 39°35'02.009"N | 80°40'31.902"W | 2.86 | 135.310 | 0.87 |
| 400.00 | 0.670 | 154.900 | 399.97 | 3.78 | -3.29 | 2.31 | 1731837.21 | 14374694.31 | 39°35'01.997"N | 80°40'31.898"W | 4.02 | 144.885 | 0.32 |
| 500.00 | 1.140 | 144.700 | 499.96 | 5.23 | -4.63 | 3.14 | 1731838.04 | 14374692.97 | 39°35'01.983"N | 80°40'31.887"W | 5.59 | 145.894 | 0.50 |
| 600.00 | 1.320 | 191.000 | 599.94 | 6.63 | -6.57 | 3.49 | 1731838.39 | 14374691.03 | 39°35'01.964"N | 80°40'31.883"W | 7.44 | 152.027 | 0.98 |
| 700.00 | 0.710 | 201.200 | 699.92 | 7.25 | -8.28 | 3.05 | 1731837.95 | 14374689.32 | 39°35'01.947"N | 80°40'31.889"W | 8.83 | 159.797 | 0.63 |
| 800.00 | 1.300 | 190.000 | 799.91 | 7.87 | -9.98 | 2.63 | 1731837.53 | 14374687.63 | 39°35'01.931"N | 80°40'31.894"W | 10.32 | 165.250 | 0.62 |
| 900.00 | 1.200 | 156.500 | 899.88 | 9.25 | -12.05 | 2.85 | 1731837.75 | 14374685.55 | 39°35'01.910"N | 80°40'31.892"W | 12.39 | 166.710 | 0.73 |
| 1000.00 | 1.270 | 158.000 | 999.86 | 11.07 | -14.04 | 3.68 | 1731838.58 | 14374683.56 | 39°35'01.890"N | 80°40'31.881"W | 14.52 | 165.315 | 0.08 |
| 1100.00 | 0.880 | 191.700 | 1099.84 | 12.30 | -15.82 | 3.94 | 1731838.84 | 14374681.78 | 39°35'01.873"N | 80°40'31.878"W | 16.30 | 166.019 | 0.73 |
| 1200.00 | 1.270 | 166.500 | 1199.83 | 13.44 | -17.65 | 4.04 | 1731838.94 | 14374679.96 | 39°35'01.855"N | 80°40'31.876"W | 18.11 | 167.101 | 0.60 |
| 1300.00 | 1.000 | 158.500 | 1299.81 | 14.99 | -19.54 | 4.62 | 1731839.52 | 14374678.07 | 39°35'01.836"N | 80°40'31.869"W | 20.08 | 166.696 | 0.31 |
| 1433.00 | 1.970 | 151.300 | 1432.76 | 18.01 | -22.63 | 6.14 | 1731841.01 | 14374674.98 | 39°35'01.805"N | 80°40'31.850"W | 23.45 | 164.808 | 0.74 |
| 1496.00 | 3.860 | 143.060 | 1495.68 | 21.00 | -25.27 | 7.94 | 1731842.84 | 14374672.34 | 39°35'01.779"N | 80°40'31.827"W | 26.49 | 162.560 | 3.07 |
| 1559.00 | 5.620 | 139.490 | 1558.46 | 26.00 | -29.31 | 11.22 | 1731846.11 | 14374668.30 | 39°35'01.739"N | 80°40'31.785"W | 31.38 | 159.059 | 2.83 |
| 1622.00 | 6.060 | 132.640 | 1621.13 | 32.28 | -33.91 | 15.67 | 1731850.56 | 14374663.70 | 39°35'01.694"N | 80°40'31.729"W | 37.35 | 155.202 | 1.31 |
| 1684.00 | 6.020 | 130.970 | 1682.79 | 38.76 | -38.26 | 20.53 | 1731855.42 | 14374659.36 | 39°35'01.650"N | 80°40'31.667"W | 43.42 | 151.782 | 0.29 |
| 1747.00 | 6.350 | 123.340 | 1745.42 | 45.53 | -42.34 | 25.93 | 1731860.82 | 14374655.28 | 39°35'01.610"N | 80°40'31.598"W | 49.65 | 148.511 | 1.40 |
| 1810.00 | 6.540 | 117.380 | 1808.02 | 52.57 | -45.90 | 32.03 | 1731866.92 | 14374651.71 | 39°35'01.574"N | 80°40'31.520"W | 55.97 | 145.093 | 1.10 |
| 1873.00 | 6.350 | 112.850 | 1870.63 | 59.53 | -48.91 | 38.43 | 1731873.31 | 14374648.71 | 39°35'01.544"N | 80°40'31.439"W | 62.20 | 141.842 | 0.86 |
| 1937.00 | 6.440 | 110.480 | 1934.23 | 66.46 | -51.54 | 45.05 | 1731879.93 | 14374646.08 | 39°35'01.518"N | 80°40'31.354"W | 68.45 | 138.841 | 0.44 |
| 2000.00 | 5.740 | 109.300 | 1996.87 | 72.92 | -53.81 | 51.33 | 1731886.21 | 14374643.81 | 39°35'01.496"N | 80°40'31.274"W | 74.37 | 136.351 | 1.13 |
| 2064.00 | 4.490 | 96.910 | 2060.62 | 78.21 | -55.17 | 56.84 | 1731891.72 | 14374642.45 | 39°35'01.482"N | 80°40'31.204"W | 79.22 | 134.146 | 2.60 |
| 2127.00 | 3.730 | 80.460 | 2123.46 | 81.85 | -55.13 | 61.31 | 1731896.19 | 14374642.49 | 39°35'01.482"N | 80°40'31.147"W | 82.45 | 131.961 | 2.21 |
| 2190.00 | 2.630 | 72.120 | 2186.36 | 84.18 | -54.35 | 64.71 | 1731899.58 | 14374643.27 | 39°35'01.490"N | 80°40'31.103"W | 84.50 | 130.026 | 1.89 |
| 2253.00 | 1.870 | 55.810 | 2249.31 | 85.42 | -53.33 | 66.93 | 1731901.81 | 14374644.30 | 39°35'01.500"N | 80°40'31.075"W | 85.58 | 128.544 | 1.57 |
| 2316.00 | 1.920 | 51.670 | 2312.28 | 86.08 | -52.09 | 68.61 | 1731903.49 | 14374645.53 | 39°35'01.512"N | 80°40'31.053"W | 86.15 | 127.207 | 0.23 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|-------------------------|----------|---------------------|
| Operator | HG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
|---------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 2378.00 | 1.630 | 64.460 | 2374.25 | 86.82 | -51.07 | 70.22 | 1731905.10 | 14374646.55 | 39°35'01.522"N | 80°40'31.033"W | 86.83 | 126.026 | 0.79 |
| 2442.00 | 1.580 | 65.140 | 2438.22 | 87.71 | -50.31 | 71.84 | 1731906.72 | 14374647.31 | 39°35'01.529"N | 80°40'31.012"W | 87.71 | 125.000 | 0.08 |
| 2505.00 | 1.720 | 70.380 | 2501.20 | 88.69 | -49.62 | 73.52 | 1731908.39 | 14374648.00 | 39°35'01.536"N | 80°40'30.991"W | 88.70 | 124.017 | 0.33 |
| 2568.00 | 2.100 | 65.010 | 2564.16 | 89.81 | -48.82 | 75.46 | 1731910.33 | 14374648.80 | 39°35'01.544"N | 80°40'30.966"W | 89.87 | 122.900 | 0.67 |
| 2632.00 | 1.920 | 81.610 | 2628.12 | 91.18 | -48.17 | 77.58 | 1731912.45 | 14374649.45 | 39°35'01.550"N | 80°40'30.939"W | 91.32 | 121.833 | 0.95 |
| 2694.00 | 1.840 | 78.520 | 2690.09 | 92.62 | -47.82 | 79.59 | 1731914.46 | 14374649.80 | 39°35'01.554"N | 80°40'30.913"W | 92.85 | 120.998 | 0.21 |
| 2757.00 | 1.720 | 86.990 | 2753.06 | 94.06 | -47.57 | 81.52 | 1731916.39 | 14374650.05 | 39°35'01.556"N | 80°40'30.888"W | 94.38 | 120.262 | 0.46 |
| 2821.00 | 1.250 | 93.870 | 2817.04 | 95.42 | -47.56 | 83.18 | 1731918.05 | 14374650.06 | 39°35'01.556"N | 80°40'30.867"W | 95.82 | 119.762 | 0.78 |
| 2885.00 | 1.060 | 82.790 | 2881.02 | 96.45 | -47.54 | 84.46 | 1731919.33 | 14374650.08 | 39°35'01.556"N | 80°40'30.851"W | 96.92 | 119.371 | 0.46 |
| 2948.00 | 1.050 | 94.400 | 2944.01 | 97.38 | -47.51 | 85.62 | 1731920.48 | 14374650.11 | 39°35'01.557"N | 80°40'30.836"W | 97.91 | 119.025 | 0.34 |
| 3011.00 | 1.090 | 84.680 | 3007.00 | 98.33 | -47.50 | 86.79 | 1731921.65 | 14374650.12 | 39°35'01.557"N | 80°40'30.821"W | 98.93 | 118.690 | 0.29 |
| 3074.00 | 0.940 | 88.150 | 3069.99 | 99.20 | -47.42 | 87.90 | 1731922.77 | 14374650.20 | 39°35'01.557"N | 80°40'30.807"W | 99.88 | 118.347 | 0.26 |
| 3137.00 | 1.010 | 86.340 | 3132.98 | 100.05 | -47.37 | 88.97 | 1731923.84 | 14374650.25 | 39°35'01.558"N | 80°40'30.793"W | 100.80 | 118.032 | 0.12 |
| 3200.00 | 1.050 | 82.300 | 3195.97 | 100.91 | -47.26 | 90.10 | 1731924.96 | 14374650.36 | 39°35'01.559"N | 80°40'30.779"W | 101.74 | 117.678 | 0.13 |
| 3263.00 | 1.210 | 81.780 | 3258.96 | 101.82 | -47.09 | 91.33 | 1731926.19 | 14374650.53 | 39°35'01.561"N | 80°40'30.763"W | 102.75 | 117.274 | 0.25 |
| 3326.00 | 1.380 | 86.710 | 3321.95 | 102.90 | -46.95 | 92.74 | 1731927.61 | 14374650.67 | 39°35'01.562"N | 80°40'30.745"W | 103.95 | 116.849 | 0.32 |
| 3388.00 | 1.370 | 83.470 | 3383.93 | 104.04 | -46.82 | 94.23 | 1731929.09 | 14374650.80 | 39°35'01.563"N | 80°40'30.726"W | 105.22 | 116.423 | 0.13 |
| 3463.00 | 0.730 | 74.200 | 3458.91 | 105.01 | -46.59 | 95.58 | 1731930.44 | 14374651.03 | 39°35'01.565"N | 80°40'30.709"W | 106.33 | 115.987 | 0.88 |
| 3526.00 | 0.040 | 201.560 | 3521.91 | 105.27 | -46.50 | 95.95 | 1731930.82 | 14374651.12 | 39°35'01.566"N | 80°40'30.704"W | 106.63 | 115.855 | 1.20 |
| 3589.00 | 0.060 | 140.340 | 3584.91 | 105.31 | -46.54 | 95.97 | 1731930.83 | 14374651.07 | 39°35'01.566"N | 80°40'30.704"W | 106.66 | 115.874 | 0.09 |
| 3653.00 | 0.040 | 181.680 | 3648.91 | 105.35 | -46.59 | 95.99 | 1731930.85 | 14374651.03 | 39°35'01.566"N | 80°40'30.704"W | 106.70 | 115.892 | 0.06 |
| 3716.00 | 0.900 | 44.080 | 3711.91 | 105.44 | -46.26 | 96.33 | 1731931.19 | 14374651.36 | 39°35'01.569"N | 80°40'30.699"W | 106.86 | 115.651 | 1.48 |
| 3747.00 | 3.980 | 44.520 | 3742.88 | 105.66 | -45.32 | 97.25 | 1731932.12 | 14374652.30 | 39°35'01.578"N | 80°40'30.687"W | 107.29 | 114.984 | 9.94 |
| 3779.00 | 6.890 | 44.440 | 3774.73 | 106.16 | -43.15 | 99.38 | 1731934.24 | 14374654.46 | 39°35'01.599"N | 80°40'30.660"W | 108.34 | 113.473 | 9.09 |
| 3810.00 | 9.950 | 44.160 | 3805.39 | 106.89 | -39.90 | 102.55 | 1731937.41 | 14374657.71 | 39°35'01.631"N | 80°40'30.619"W | 110.04 | 111.263 | 9.87 |
| 3841.00 | 12.490 | 42.150 | 3835.80 | 107.73 | -35.50 | 106.66 | 1731941.52 | 14374662.12 | 39°35'01.675"N | 80°40'30.567"W | 112.41 | 108.408 | 8.29 |
| 3873.00 | 15.260 | 39.170 | 3866.86 | 108.47 | -29.67 | 111.65 | 1731946.50 | 14374667.95 | 39°35'01.732"N | 80°40'30.503"W | 115.52 | 104.881 | 8.94 |
| 3905.00 | 17.780 | 37.520 | 3897.54 | 108.99 | -22.52 | 117.28 | 1731952.14 | 14374675.08 | 39°35'01.802"N | 80°40'30.430"W | 119.43 | 100.872 | 8.01 |
| 3936.00 | 19.930 | 37.830 | 3926.87 | 109.46 | -14.60 | 123.41 | 1731958.26 | 14374683.01 | 39°35'01.881"N | 80°40'30.352"W | 124.27 | 96.746 | 6.94 |
| 3968.00 | 21.850 | 38.950 | 3956.77 | 110.14 | -5.66 | 130.49 | 1731965.34 | 14374691.95 | 39°35'01.969"N | 80°40'30.261"W | 130.62 | 92.482 | 6.13 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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Office

| REFERENCE WELL NAME IDENTIFICATION | | | |
|------------------------------------|-------------------------|----------|---------------------|
| Operator | IG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [°/100ft] |
|---------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 3999.00 | 24.010 | 40.040 | 3985.32 | 111.09 | 3.66 | 138.18 | 1731973.03 | 14374701.26 | 39°35'02.060"N | 80°40'30.162"W | 138.23 | 88.483 | 7.10 |
| 4030.00 | 26.500 | 40.090 | 4013.35 | 112.26 | 13.78 | 146.69 | 1731981.53 | 14374711.37 | 39°35'02.160"N | 80°40'30.053"W | 147.34 | 84.633 | 8.03 |
| 4062.00 | 29.310 | 39.330 | 4041.63 | 113.48 | 25.30 | 156.26 | 1731991.09 | 14374722.89 | 39°35'02.274"N | 80°40'29.930"W | 158.29 | 80.802 | 8.85 |
| 4093.00 | 32.400 | 37.970 | 4068.24 | 114.49 | 37.72 | 166.18 | 1732001.01 | 14374735.31 | 39°35'02.396"N | 80°40'29.803"W | 170.41 | 77.211 | 10.22 |
| 4125.00 | 36.170 | 36.370 | 4094.67 | 115.16 | 52.09 | 177.06 | 1732011.89 | 14374749.67 | 39°35'02.538"N | 80°40'29.664"W | 184.56 | 73.606 | 12.11 |
| 4156.00 | 38.790 | 34.300 | 4119.27 | 115.26 | 67.48 | 187.95 | 1732022.78 | 14374765.05 | 39°35'02.689"N | 80°40'29.524"W | 199.70 | 70.251 | 9.38 |
| 4188.00 | 39.510 | 34.440 | 4144.09 | 115.04 | 84.16 | 199.36 | 1732034.18 | 14374781.72 | 39°35'02.854"N | 80°40'29.377"W | 216.40 | 67.114 | 2.27 |
| 4219.00 | 39.620 | 33.710 | 4167.99 | 114.72 | 100.51 | 210.42 | 1732045.24 | 14374798.07 | 39°35'03.015"N | 80°40'29.235"W | 233.20 | 64.468 | 1.54 |
| 4282.00 | 39.540 | 35.620 | 4216.55 | 114.48 | 133.52 | 233.25 | 1732068.06 | 14374831.07 | 39°35'03.341"N | 80°40'28.942"W | 268.77 | 60.211 | 1.94 |
| 4345.00 | 39.320 | 36.440 | 4265.21 | 115.20 | 165.88 | 256.79 | 1732091.59 | 14374863.42 | 39°35'03.659"N | 80°40'28.640"W | 305.71 | 57.138 | 0.90 |
| 4408.00 | 39.780 | 37.830 | 4313.79 | 116.70 | 197.86 | 281.00 | 1732115.79 | 14374895.38 | 39°35'03.975"N | 80°40'28.329"W | 343.67 | 54.850 | 1.58 |
| 4470.00 | 39.350 | 38.350 | 4361.58 | 118.83 | 228.94 | 305.37 | 1732140.15 | 14374926.45 | 39°35'04.281"N | 80°40'28.017"W | 381.66 | 53.140 | 0.88 |
| 4534.00 | 38.400 | 38.770 | 4411.41 | 121.32 | 260.35 | 330.40 | 1732165.17 | 14374957.85 | 39°35'04.591"N | 80°40'27.695"W | 420.65 | 51.762 | 1.54 |
| 4597.00 | 37.410 | 38.190 | 4461.11 | 123.67 | 290.65 | 354.49 | 1732189.25 | 14374988.13 | 39°35'04.889"N | 80°40'27.386"W | 458.41 | 50.651 | 1.67 |
| 4660.00 | 37.520 | 38.210 | 4511.12 | 125.81 | 320.76 | 378.19 | 1732212.94 | 14375018.24 | 39°35'05.186"N | 80°40'27.082"W | 495.90 | 49.697 | 0.18 |
| 4723.00 | 38.510 | 37.500 | 4560.75 | 127.74 | 351.40 | 401.99 | 1732236.73 | 14375048.86 | 39°35'05.488"N | 80°40'26.777"W | 533.93 | 48.842 | 1.72 |
| 4786.00 | 38.580 | 38.640 | 4610.03 | 129.84 | 382.30 | 426.20 | 1732260.93 | 14375079.75 | 39°35'05.792"N | 80°40'26.466"W | 572.54 | 48.108 | 1.13 |
| 4849.00 | 38.630 | 39.320 | 4659.26 | 132.57 | 412.86 | 450.93 | 1732285.65 | 14375110.30 | 39°35'06.093"N | 80°40'26.149"W | 611.38 | 47.523 | 0.68 |
| 4913.00 | 38.630 | 39.910 | 4709.26 | 135.78 | 443.64 | 476.40 | 1732311.11 | 14375141.06 | 39°35'06.397"N | 80°40'25.822"W | 650.98 | 47.039 | 0.58 |
| 4976.00 | 38.930 | 38.810 | 4758.37 | 138.78 | 474.15 | 501.42 | 1732336.13 | 14375171.56 | 39°35'06.697"N | 80°40'25.501"W | 690.10 | 46.602 | 1.19 |
| 5039.00 | 39.360 | 39.050 | 4807.23 | 141.51 | 505.09 | 526.41 | 1732361.11 | 14375202.49 | 39°35'07.002"N | 80°40'25.181"W | 729.54 | 46.185 | 0.72 |
| 5102.00 | 38.760 | 37.540 | 4856.15 | 143.79 | 536.24 | 551.02 | 1732385.70 | 14375233.63 | 39°35'07.309"N | 80°40'24.865"W | 768.88 | 45.779 | 1.79 |
| 5165.00 | 38.630 | 35.640 | 4905.32 | 144.89 | 567.86 | 574.49 | 1732409.17 | 14375265.23 | 39°35'07.621"N | 80°40'24.564"W | 807.78 | 45.333 | 1.90 |
| 5229.00 | 38.010 | 36.390 | 4955.53 | 145.59 | 599.96 | 597.82 | 1732432.49 | 14375297.32 | 39°35'07.937"N | 80°40'24.264"W | 846.96 | 44.898 | 1.21 |
| 5292.00 | 37.520 | 39.430 | 5005.34 | 147.54 | 630.39 | 621.52 | 1732456.18 | 14375327.75 | 39°35'08.237"N | 80°40'23.960"W | 885.26 | 44.594 | 3.06 |
| 5354.00 | 37.940 | 41.230 | 5054.38 | 151.07 | 659.31 | 646.07 | 1732480.72 | 14375356.65 | 39°35'08.522"N | 80°40'23.645"W | 923.09 | 44.419 | 1.90 |
| 5419.00 | 38.620 | 41.920 | 5105.40 | 155.68 | 689.43 | 672.80 | 1732507.43 | 14375386.76 | 39°35'08.819"N | 80°40'23.302"W | 963.31 | 44.300 | 1.24 |
| 5481.00 | 39.100 | 38.830 | 5153.69 | 159.32 | 719.06 | 697.99 | 1732532.61 | 14375416.38 | 39°35'09.111"N | 80°40'22.979"W | 1002.12 | 44.148 | 3.22 |
| 5544.00 | 38.570 | 36.420 | 5202.76 | 161.13 | 750.35 | 722.10 | 1732556.72 | 14375447.65 | 39°35'09.419"N | 80°40'22.670"W | 1041.37 | 43.901 | 2.54 |
| 5607.00 | 38.550 | 40.170 | 5252.03 | 163.39 | 781.15 | 746.43 | 1732581.04 | 14375478.45 | 39°35'09.723"N | 80°40'22.358"W | 1080.44 | 43.698 | 3.71 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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JUL 05 2016

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|-------------------------|----------|---------------------|
| Operator | IIG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
|---------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 5670.00 | 38.410 | 40.880 | 5301.35 | 167.16 | 810.95 | 771.90 | 1732606.50 | 14375508.23 | 39°35'10.016"N | 80°40'22.031"W | 1119.59 | -43.587 | 0.74 |
| 5734.00 | 38.880 | 38.970 | 5351.34 | 170.59 | 841.60 | 797.55 | 1732632.13 | 14375538.87 | 39°35'10.318"N | 80°40'21.702"W | 1159.47 | -43.460 | 2.00 |
| 5796.00 | 38.480 | 37.510 | 5399.74 | 172.78 | 872.03 | 821.53 | 1732656.11 | 14375569.29 | 39°35'10.618"N | 80°40'21.394"W | 1198.06 | -43.292 | 1.61 |
| 5860.00 | 38.800 | 37.540 | 5449.73 | 174.54 | 903.73 | 845.87 | 1732680.44 | 14375600.97 | 39°35'10.931"N | 80°40'21.082"W | 1237.83 | -43.106 | 0.50 |
| 5923.00 | 38.420 | 39.530 | 5498.96 | 176.96 | 934.48 | 870.36 | 1732704.92 | 14375631.71 | 39°35'11.234"N | 80°40'20.768"W | 1277.01 | -42.965 | 2.06 |
| 5986.00 | 38.360 | 42.770 | 5548.34 | 181.15 | 963.93 | 896.09 | 1732730.64 | 14375661.15 | 39°35'11.524"N | 80°40'20.438"W | 1316.11 | -42.911 | 3.19 |
| 6050.00 | 39.110 | 44.740 | 5598.27 | 187.25 | 992.84 | 923.79 | 1732758.33 | 14375690.06 | 39°35'11.809"N | 80°40'20.082"W | 1356.15 | -42.937 | 2.25 |
| 6112.00 | 39.020 | 42.270 | 5646.41 | 193.03 | 1021.18 | 950.68 | 1732785.21 | 14375718.38 | 39°35'12.088"N | 80°40'19.738"W | 1395.21 | -42.953 | 2.51 |
| 6175.00 | 38.230 | 38.670 | 5695.63 | 196.79 | 1051.08 | 976.21 | 1732810.72 | 14375748.27 | 39°35'12.382"N | 80°40'19.410"W | 1434.48 | -42.885 | 3.78 |
| 6239.00 | 38.340 | 38.590 | 5745.87 | 199.30 | 1082.05 | 1000.96 | 1732835.47 | 14375779.23 | 39°35'12.687"N | 80°40'19.093"W | 1474.03 | -42.771 | 0.19 |
| 6302.00 | 38.380 | 40.090 | 5795.27 | 202.26 | 1112.29 | 1025.75 | 1732860.24 | 14375809.45 | 39°35'12.985"N | 80°40'18.775"W | 1513.06 | -42.682 | 1.48 |
| 6365.00 | 38.120 | 40.770 | 5844.75 | 205.95 | 1141.98 | 1051.04 | 1732885.53 | 14375839.13 | 39°35'13.278"N | 80°40'18.450"W | 1552.03 | -42.625 | 0.79 |
| 6428.00 | 38.240 | 39.420 | 5894.27 | 209.41 | 1171.77 | 1076.12 | 1732910.60 | 14375868.91 | 39°35'13.571"N | 80°40'18.128"W | 1590.93 | -42.563 | 1.34 |
| 6492.00 | 38.070 | 37.390 | 5944.60 | 211.76 | 1202.75 | 1100.68 | 1732935.15 | 14375899.88 | 39°35'13.877"N | 80°40'17.813"W | 1630.37 | -42.463 | 1.98 |
| 6555.00 | 37.730 | 35.490 | 5994.31 | 212.73 | 1233.88 | 1123.67 | 1732958.12 | 14375930.99 | 39°35'14.183"N | 80°40'17.518"W | 1668.85 | -42.323 | 1.93 |
| 6618.00 | 37.790 | 36.310 | 6044.12 | 213.34 | 1265.13 | 1146.29 | 1732980.74 | 14375962.23 | 39°35'14.492"N | 80°40'17.228"W | 1707.20 | -42.179 | 0.80 |
| 6681.00 | 37.740 | 38.030 | 6093.92 | 214.80 | 1295.87 | 1169.60 | 1733004.04 | 14375992.96 | 39°35'14.794"N | 80°40'16.929"W | 1745.63 | -42.068 | 1.67 |
| 6743.00 | 38.040 | 39.780 | 6142.86 | 217.39 | 1325.50 | 1193.51 | 1733027.94 | 14376022.58 | 39°35'15.086"N | 80°40'16.622"W | 1783.65 | -42.001 | 1.80 |
| 6806.00 | 38.400 | 41.240 | 6192.35 | 221.14 | 1355.13 | 1218.83 | 1733053.25 | 14376052.19 | 39°35'15.378"N | 80°40'16.297"W | 1822.61 | -41.969 | 1.54 |
| 6869.00 | 38.520 | 42.160 | 6241.68 | 225.71 | 1384.38 | 1244.89 | 1733079.30 | 14376081.44 | 39°35'15.667"N | 80°40'15.963"W | 1861.79 | -41.963 | 0.93 |
| 6933.00 | 38.360 | 41.660 | 6291.81 | 230.49 | 1413.99 | 1271.47 | 1733105.87 | 14376111.04 | 39°35'15.958"N | 80°40'15.622"W | 1901.58 | -41.962 | 0.55 |
| 6997.00 | 38.190 | 41.880 | 6342.06 | 235.17 | 1443.56 | 1297.88 | 1733132.27 | 14376140.59 | 39°35'16.250"N | 80°40'15.283"W | 1941.22 | -41.958 | 0.34 |
| 7060.00 | 37.700 | 40.250 | 6391.74 | 239.26 | 1472.76 | 1323.33 | 1733157.71 | 14376169.78 | 39°35'16.537"N | 80°40'14.957"W | 1979.96 | -41.941 | 1.77 |
| 7122.00 | 37.980 | 39.160 | 6440.70 | 242.38 | 1502.02 | 1347.62 | 1733181.99 | 14376199.03 | 39°35'16.826"N | 80°40'14.645"W | 2017.96 | -41.899 | 1.17 |
| 7185.00 | 37.840 | 38.960 | 6490.41 | 245.12 | 1532.08 | 1372.01 | 1733206.38 | 14376229.08 | 39°35'17.122"N | 80°40'14.332"W | 2056.62 | -41.845 | 0.30 |
| 7248.00 | 37.720 | 37.720 | 6540.20 | 247.37 | 1562.35 | 1395.96 | 1733230.31 | 14376259.34 | 39°35'17.420"N | 80°40'14.025"W | 2095.15 | -41.781 | 1.22 |
| 7310.00 | 38.260 | 37.080 | 6589.06 | 248.97 | 1592.67 | 1419.13 | 1733253.48 | 14376289.64 | 39°35'17.719"N | 80°40'13.728"W | 2133.20 | -41.702 | 1.08 |
| 7374.00 | 38.150 | 37.730 | 6639.36 | 250.63 | 1624.11 | 1443.18 | 1733277.51 | 14376321.07 | 39°35'18.029"N | 80°40'13.419"W | 2172.67 | -41.624 | 0.65 |
| 7437.00 | 37.880 | 38.280 | 6688.99 | 252.66 | 1654.68 | 1467.07 | 1733301.39 | 14376351.63 | 39°35'18.330"N | 80°40'13.112"W | 2211.39 | -41.561 | 0.69 |
| 7499.00 | 37.650 | 38.630 | 6738.00 | 254.95 | 1684.42 | 1490.68 | 1733325.00 | 14376381.36 | 39°35'18.623"N | 80°40'12.809"W | 2249.31 | -41.508 | 0.51 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-------------------------|----------|---------------------|
| Operator | HG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | IVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [°/100ft] |
|---------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 7563.00 | 37.410 | 38.160 | 6788.76 | 257.26 | 1714.97 | 1514.89 | 1733349.20 | 14376411.90 | 39°35'18.924"N | 80°40'12.499"W | 2288.24 | 41.455 | 0.58 |
| 7626.00 | 38.620 | 37.860 | 6838.39 | 259.30 | 1745.54 | 1538.79 | 1733373.08 | 14376442.46 | 39°35'19.225"N | 80°40'12.192"W | 2326.97 | 41.398 | 1.94 |
| 7689.00 | 37.880 | 43.220 | 6887.88 | 263.04 | 1775.17 | 1564.10 | 1733398.39 | 14376472.07 | 39°35'19.517"N | 80°40'11.867"W | 2365.94 | 41.383 | 5.40 |
| 7721.00 | 37.020 | 49.190 | 6913.29 | 266.81 | 1788.63 | 1578.13 | 1733412.41 | 14376485.53 | 39°35'19.650"N | 80°40'11.688"W | 2385.31 | 41.422 | 11.65 |
| 7752.00 | 35.980 | 55.610 | 6938.22 | 272.31 | 1799.88 | 1592.71 | 1733426.99 | 14376496.77 | 39°35'19.760"N | 80°40'11.501"W | 2403.39 | 41.506 | 12.76 |
| 7784.00 | 37.410 | 59.950 | 6963.88 | 279.72 | 1810.06 | 1608.89 | 1733443.16 | 14376506.95 | 39°35'19.860"N | 80°40'11.294"W | 2421.74 | 41.633 | 9.25 |
| 7815.00 | 39.830 | 61.820 | 6988.10 | 288.17 | 1819.46 | 1625.79 | 1733460.05 | 14376516.35 | 39°35'19.953"N | 80°40'11.077"W | 2440.01 | 41.783 | 8.67 |
| 7846.00 | 42.280 | 65.710 | 7011.48 | 297.98 | 1828.44 | 1644.05 | 1733478.31 | 14376525.32 | 39°35'20.041"N | 80°40'10.844"W | 2458.88 | 41.960 | 11.42 |
| 7878.00 | 45.200 | 69.670 | 7034.60 | 309.94 | 1836.82 | 1664.52 | 1733498.77 | 14376533.70 | 39°35'20.123"N | 80°40'10.582"W | 2478.81 | 42.183 | 12.51 |
| 7910.00 | 48.850 | 72.830 | 7056.42 | 323.79 | 1844.32 | 1686.69 | 1733520.92 | 14376541.20 | 39°35'20.196"N | 80°40'10.298"W | 2499.29 | 42.444 | 13.50 |
| 7941.00 | 51.340 | 77.090 | 7076.31 | 339.07 | 1850.47 | 1709.64 | 1733543.87 | 14376547.35 | 39°35'20.256"N | 80°40'10.005"W | 2519.35 | 42.735 | 13.25 |
| 7973.00 | 53.040 | 81.680 | 7095.93 | 356.75 | 1855.12 | 1734.48 | 1733568.70 | 14376551.99 | 39°35'20.301"N | 80°40'09.687"W | 2539.66 | 43.075 | 12.51 |
| 8004.00 | 54.810 | 85.920 | 7114.19 | 375.60 | 1857.81 | 1759.38 | 1733593.59 | 14376554.68 | 39°35'20.327"N | 80°40'09.369"W | 2558.69 | 43.441 | 12.44 |
| 8036.00 | 57.720 | 87.540 | 7131.96 | 396.50 | 1859.32 | 1785.95 | 1733620.15 | 14376556.19 | 39°35'20.341"N | 80°40'09.030"W | 2578.12 | 43.847 | 10.02 |
| 8068.00 | 57.970 | 92.290 | 7149.00 | 418.66 | 1859.36 | 1813.03 | 1733647.22 | 14376556.23 | 39°35'20.340"N | 80°40'08.684"W | 2596.98 | 44.277 | 12.59 |
| 8099.00 | 58.120 | 92.730 | 7165.40 | 440.84 | 1858.21 | 1839.30 | 1733673.48 | 14376555.08 | 39°35'20.328"N | 80°40'08.348"W | 2614.57 | 44.707 | 1.30 |
| 8131.00 | 57.690 | 94.130 | 7182.41 | 463.94 | 1856.59 | 1866.36 | 1733700.53 | 14376553.46 | 39°35'20.311"N | 80°40'08.003"W | 2632.53 | 45.150 | 3.94 |
| 8162.00 | 59.160 | 96.880 | 7198.64 | 486.93 | 1854.05 | 1892.65 | 1733726.80 | 14376550.92 | 39°35'20.285"N | 80°40'07.667"W | 2649.46 | 45.590 | 8.92 |
| 8194.00 | 61.620 | 99.450 | 7214.45 | 511.75 | 1850.09 | 1920.18 | 1733754.33 | 14376546.97 | 39°35'20.245"N | 80°40'07.316"W | 2666.45 | 46.065 | 10.38 |
| 8226.00 | 61.930 | 101.600 | 7229.59 | 537.41 | 1844.94 | 1947.90 | 1733782.03 | 14376541.82 | 39°35'20.193"N | 80°40'06.962"W | 2682.93 | 46.555 | 6.00 |
| 8257.00 | 61.540 | 103.190 | 7244.27 | 562.61 | 1839.08 | 1974.56 | 1733808.69 | 14376535.96 | 39°35'20.134"N | 80°40'06.622"W | 2698.36 | 47.035 | 4.69 |
| 8288.00 | 63.410 | 106.770 | 7258.60 | 588.44 | 1831.97 | 2001.11 | 1733835.23 | 14376528.85 | 39°35'20.063"N | 80°40'06.283"W | 2713.04 | 47.527 | 11.88 |
| 8320.00 | 67.750 | 108.320 | 7271.82 | 616.23 | 1823.18 | 2028.88 | 1733862.99 | 14376520.07 | 39°35'19.975"N | 80°40'05.928"W | 2727.70 | 48.057 | 14.26 |
| 8352.00 | 71.530 | 110.720 | 7282.95 | 645.14 | 1813.16 | 2057.15 | 1733891.24 | 14376510.04 | 39°35'19.875"N | 80°40'05.568"W | 2742.15 | 48.607 | 13.75 |
| 8383.00 | 74.370 | 112.920 | 7292.05 | 673.99 | 1802.14 | 2084.66 | 1733918.74 | 14376499.03 | 39°35'19.765"N | 80°40'05.217"W | 2755.63 | 49.157 | 11.40 |
| 8414.00 | 78.400 | 115.010 | 7299.34 | 703.55 | 1789.90 | 2112.18 | 1733946.25 | 14376486.80 | 39°35'19.643"N | 80°40'04.866"W | 2768.58 | 49.721 | 14.56 |
| 8446.00 | 81.630 | 117.430 | 7304.89 | 734.69 | 1775.97 | 2140.44 | 1733974.50 | 14376472.88 | 39°35'19.504"N | 80°40'04.506"W | 2781.29 | 50.317 | 12.54 |
| 8477.00 | 83.720 | 120.010 | 7308.84 | 765.25 | 1761.20 | 2167.40 | 1734001.45 | 14376458.11 | 39°35'19.357"N | 80°40'04.162"W | 2792.75 | 50.903 | 10.66 |
| 8508.00 | 85.870 | 120.990 | 7311.66 | 796.03 | 1745.53 | 2194.00 | 1734028.04 | 14376442.45 | 39°35'19.201"N | 80°40'03.823"W | 2803.66 | 51.495 | 7.62 |
| 8539.00 | 84.980 | 121.380 | 7314.13 | 826.86 | 1729.53 | 2220.44 | 1734054.47 | 14376426.45 | 39°35'19.042"N | 80°40'03.486"W | 2814.54 | 52.084 | 3.13 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-------------------------|----------|---------------------|
| Operator | HG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
|----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 8570.00 | 86.790 | 120.740 | 7316.35 | 857.70 | 1713.58 | 2246.92 | 1734080.94 | 14376410.51 | 39°35'18.984"N | 80°40'03.149"W | 2825.78 | 52.670 | 6.19 |
| 8602.00 | 85.530 | 121.330 | 7318.50 | 889.55 | 1697.12 | 2274.28 | 1734108.29 | 14376394.05 | 39°35'18.720"N | 80°40'02.800"W | 2837.71 | 53.269 | 4.35 |
| 8634.00 | 85.380 | 121.710 | 7321.05 | 921.40 | 1680.44 | 2301.47 | 1734135.47 | 14376377.38 | 39°35'18.554"N | 80°40'02.453"W | 2849.68 | 53.865 | 1.27 |
| 8666.00 | 86.030 | 123.070 | 7323.43 | 953.27 | 1663.35 | 2328.42 | 1734162.41 | 14376360.30 | 39°35'18.384"N | 80°40'02.110"W | 2861.51 | 54.459 | 4.70 |
| 8698.00 | 88.830 | 125.630 | 7324.86 | 985.23 | 1645.31 | 2354.81 | 1734188.78 | 14376342.27 | 39°35'18.205"N | 80°40'01.774"W | 2872.66 | 55.058 | 11.85 |
| 8761.00 | 90.620 | 128.200 | 7325.17 | 1048.19 | 1607.48 | 2405.17 | 1734239.13 | 14376304.45 | 39°35'17.829"N | 80°40'01.132"W | 2892.89 | 56.243 | 4.97 |
| 8824.00 | 89.010 | 127.630 | 7325.37 | 1111.10 | 1568.77 | 2454.87 | 1734288.81 | 14376265.75 | 39°35'17.445"N | 80°40'00.499"W | 2913.32 | 57.420 | 2.71 |
| 8887.00 | 89.080 | 125.230 | 7326.42 | 1174.07 | 1531.36 | 2505.55 | 1734339.46 | 14376228.36 | 39°35'17.073"N | 80°39'59.854"W | 2936.47 | 58.567 | 3.81 |
| 8951.00 | 89.570 | 123.160 | 7327.17 | 1238.06 | 1495.40 | 2558.48 | 1734392.37 | 14376192.41 | 39°35'16.716"N | 80°39'59.180"W | 2963.45 | 59.694 | 3.32 |
| 9014.00 | 89.450 | 122.690 | 7327.71 | 1301.01 | 1461.16 | 2611.36 | 1734445.23 | 14376158.19 | 39°35'16.376"N | 80°39'58.506"W | 2992.35 | 60.771 | 0.77 |
| 9077.00 | 89.080 | 125.170 | 7328.52 | 1363.99 | 1426.00 | 2663.62 | 1734497.48 | 14376123.04 | 39°35'16.026"N | 80°39'57.840"W | 3021.32 | 61.837 | 3.98 |
| 9140.00 | 88.980 | 127.480 | 7329.59 | 1426.96 | 1388.69 | 2714.37 | 1734548.20 | 14376085.74 | 39°35'15.656"N | 80°39'57.193"W | 3048.97 | 62.905 | 3.67 |
| 9204.00 | 89.020 | 130.330 | 7330.71 | 1490.80 | 1348.50 | 2764.16 | 1734597.97 | 14376045.58 | 39°35'15.257"N | 80°39'56.559"W | 3075.55 | 63.994 | 4.45 |
| 9267.00 | 89.970 | 133.620 | 7331.26 | 1553.32 | 1306.38 | 2810.99 | 1734644.78 | 14376003.46 | 39°35'14.839"N | 80°39'55.963"W | 3099.72 | 65.074 | 5.44 |
| 9329.00 | 90.000 | 131.030 | 7331.28 | 1614.81 | 1264.63 | 2856.82 | 1734690.60 | 14375961.74 | 39°35'14.424"N | 80°39'55.380"W | 3124.22 | 66.122 | 4.18 |
| 9393.00 | 90.090 | 129.660 | 7331.23 | 1678.53 | 1223.20 | 2905.60 | 1734739.36 | 14375920.32 | 39°35'14.013"N | 80°39'54.759"W | 3152.57 | 67.170 | 2.15 |
| 9456.00 | 90.000 | 128.130 | 7331.18 | 1741.38 | 1183.65 | 2954.63 | 1734788.37 | 14375880.78 | 39°35'13.620"N | 80°39'54.134"W | 3182.90 | 68.169 | 2.43 |
| 9519.00 | 89.720 | 125.530 | 7331.33 | 1804.34 | 1145.88 | 3005.05 | 1734838.77 | 14375843.03 | 39°35'13.245"N | 80°39'53.492"W | 3216.11 | 69.127 | 4.15 |
| 9582.00 | 89.750 | 125.080 | 7331.62 | 1867.34 | 1109.48 | 3056.46 | 1734890.16 | 14375806.64 | 39°35'12.883"N | 80°39'52.837"W | 3251.60 | 70.049 | 0.72 |
| 9644.00 | 89.350 | 121.260 | 7332.11 | 1929.29 | 1075.56 | 3108.35 | 1734942.03 | 14375772.74 | 39°35'12.546"N | 80°39'52.176"W | 3289.17 | 70.913 | 6.19 |
| 9707.00 | 90.090 | 122.050 | 7332.42 | 1992.19 | 1042.50 | 3161.98 | 1734995.63 | 14375739.69 | 39°35'12.218"N | 80°39'51.493"W | 3329.40 | 71.753 | 1.72 |
| 9770.00 | 89.940 | 123.420 | 7332.40 | 2055.13 | 1008.43 | 3214.97 | 1735048.61 | 14375705.61 | 39°35'11.879"N | 80°39'50.818"W | 3369.42 | 72.585 | 2.19 |
| 9834.00 | 89.480 | 124.570 | 7332.73 | 2119.12 | 972.65 | 3268.03 | 1735101.65 | 14375669.87 | 39°35'11.523"N | 80°39'50.142"W | 3409.70 | 73.426 | 1.94 |
| 9897.00 | 88.980 | 125.700 | 7333.57 | 2182.12 | 936.40 | 3319.54 | 1735153.14 | 14375633.63 | 39°35'11.163"N | 80°39'49.185"W | 3449.09 | 74.247 | 1.96 |
| 9960.00 | 89.630 | 127.110 | 7334.34 | 2245.09 | 899.01 | 3370.24 | 1735203.82 | 14375596.26 | 39°35'10.792"N | 80°39'48.840"W | 3488.09 | 75.064 | 2.46 |
| 10022.00 | 89.010 | 127.530 | 7335.07 | 2307.03 | 861.43 | 3419.55 | 1735253.10 | 14375558.69 | 39°35'10.419"N | 80°39'48.212"W | 3526.38 | 75.861 | 1.21 |
| 10085.00 | 89.230 | 127.450 | 7336.04 | 2369.97 | 823.09 | 3469.53 | 1735303.07 | 14375520.36 | 39°35'10.038"N | 80°39'47.575"W | 3565.82 | 76.654 | 0.37 |
| 10147.00 | 90.000 | 129.360 | 7336.46 | 2431.85 | 784.57 | 3518.11 | 1735351.63 | 14375481.87 | 39°35'09.655"N | 80°39'46.956"W | 3604.53 | 77.428 | 3.32 |
| 10210.00 | 89.510 | 127.550 | 7336.73 | 2494.74 | 745.40 | 3567.44 | 1735400.94 | 14375442.70 | 39°35'09.266"N | 80°39'46.328"W | 3644.48 | 78.198 | 2.98 |
| 10274.00 | 89.850 | 126.890 | 7337.07 | 2558.69 | 706.69 | 3618.41 | 1735451.89 | 14375404.01 | 39°35'08.882"N | 80°39'45.679"W | 3686.77 | 78.949 | 1.18 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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Records Office

| INDUSTRY WELLPATH IDENTIFICATION | | | |
|----------------------------------|-------------------------|----------|---------------------|
| Operator | HG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [°/100ft] |
|----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 10337.00 | 89.450 | 123.060 | 7337.43 | 2621.67 | 670.58 | 3670.02 | 1735503.48 | 14375367.92 | 39°35'08.523"N | 80°39'45.022"W | 3730.78 | 79.645 | 6.12 |
| 10400.00 | 89.540 | 121.340 | 7337.99 | 2684.59 | 637.01 | 3723.32 | 1735556.76 | 14375334.36 | 39°35'08.189"N | 80°39'44.342"W | 3777.42 | 80.291 | 2.73 |
| 10464.00 | 89.570 | 122.640 | 7338.49 | 2748.50 | 603.11 | 3777.60 | 1735611.02 | 14375300.47 | 39°35'07.852"N | 80°39'43.651"W | 3825.44 | 80.929 | 2.03 |
| 10528.00 | 89.750 | 125.680 | 7338.87 | 2812.49 | 567.18 | 3830.55 | 1735663.95 | 14375264.55 | 39°35'07.495"N | 80°39'42.976"W | 3872.32 | 81.578 | 4.76 |
| 10591.00 | 90.650 | 128.170 | 7338.65 | 2875.44 | 529.33 | 3880.91 | 1735714.29 | 14375226.72 | 39°35'07.119"N | 80°39'42.335"W | 3916.84 | 82.233 | 4.20 |
| 10654.00 | 89.410 | 125.920 | 7338.61 | 2938.40 | 491.38 | 3931.19 | 1735764.55 | 14375188.79 | 39°35'06.742"N | 80°39'41.694"W | 3961.78 | 82.875 | 4.08 |
| 10717.00 | 89.230 | 123.390 | 7339.36 | 3001.39 | 455.56 | 3983.01 | 1735816.34 | 14375152.98 | 39°35'06.386"N | 80°39'41.034"W | 4008.98 | 83.475 | 4.03 |
| 10780.00 | 89.230 | 120.990 | 7340.21 | 3064.30 | 422.01 | 4036.31 | 1735869.63 | 14375119.44 | 39°35'06.053"N | 80°39'40.355"W | 4058.32 | 84.031 | 3.81 |
| 10843.00 | 89.450 | 118.760 | 7340.93 | 3127.04 | 390.63 | 4090.94 | 1735924.23 | 14375088.08 | 39°35'05.741"N | 80°39'39.659"W | 4109.54 | 84.546 | 3.56 |
| 10906.00 | 89.380 | 118.380 | 7341.58 | 3189.64 | 360.50 | 4146.26 | 1735979.53 | 14375057.96 | 39°35'05.441"N | 80°39'38.954"W | 4161.90 | 85.031 | 0.61 |
| 10969.00 | 89.350 | 118.260 | 7342.28 | 3252.21 | 330.62 | 4201.72 | 1736034.97 | 14375028.09 | 39°35'05.143"N | 80°39'38.247"W | 4214.71 | 85.501 | 0.20 |
| 11033.00 | 89.230 | 120.010 | 7343.07 | 3315.87 | 299.46 | 4257.61 | 1736090.84 | 14374996.94 | 39°35'04.833"N | 80°39'37.535"W | 4268.13 | 85.977 | 2.74 |
| 11096.00 | 89.420 | 121.310 | 7343.81 | 3378.68 | 267.34 | 4311.80 | 1736145.01 | 14374964.83 | 39°35'04.514"N | 80°39'36.844"W | 4320.08 | 86.452 | 2.09 |
| 11159.00 | 89.750 | 122.100 | 7344.27 | 3441.58 | 234.23 | 4365.40 | 1736198.58 | 14374931.74 | 39°35'04.185"N | 80°39'36.161"W | 4371.68 | 86.929 | 1.36 |
| 11222.00 | 89.780 | 124.010 | 7344.53 | 3504.54 | 199.87 | 4418.20 | 1736251.36 | 14374897.39 | 39°35'03.843"N | 80°39'35.488"W | 4422.72 | 87.410 | 3.03 |
| 11285.00 | 89.200 | 125.050 | 7345.09 | 3567.53 | 164.16 | 4470.10 | 1736303.24 | 14374861.70 | 39°35'03.488"N | 80°39'34.827"W | 4473.11 | 87.897 | 1.89 |
| 11348.00 | 89.200 | 125.640 | 7345.97 | 3630.52 | 127.72 | 4521.48 | 1736354.61 | 14374825.27 | 39°35'03.126"N | 80°39'34.173"W | 4523.28 | 88.382 | 0.94 |
| 11411.00 | 89.140 | 126.450 | 7346.88 | 3693.51 | 90.65 | 4572.41 | 1736405.52 | 14374788.22 | 39°35'02.758"N | 80°39'33.524"W | 4573.31 | 88.864 | 1.29 |
| 11474.00 | 89.290 | 124.540 | 7347.74 | 3756.49 | 54.08 | 4623.70 | 1736456.78 | 14374751.66 | 39°35'02.395"N | 80°39'32.871"W | 4624.01 | 89.330 | 3.04 |
| 11537.00 | 89.720 | 124.430 | 7348.29 | 3819.49 | 18.41 | 4675.63 | 1736508.69 | 14374716.00 | 39°35'02.040"N | 80°39'32.209"W | 4675.66 | 89.774 | 0.70 |
| 11601.00 | 89.910 | 126.430 | 7348.49 | 3883.48 | -18.69 | 4727.77 | 1736560.82 | 14374678.92 | 39°35'01.672"N | 80°39'31.545"W | 4727.81 | 90.227 | 3.14 |
| 11663.00 | 89.850 | 128.440 | 7348.62 | 3945.42 | -56.38 | 4777.00 | 1736610.02 | 14374641.25 | 39°35'01.297"N | 80°39'30.918"W | 4777.35 | 90.676 | 3.24 |
| 11726.00 | 89.880 | 125.440 | 7348.77 | 4008.38 | -94.23 | 4827.35 | 1736660.35 | 14374603.40 | 39°35'00.921"N | 80°39'30.277"W | 4828.27 | 91.118 | 4.76 |
| 11789.00 | 89.880 | 125.400 | 7348.90 | 4071.38 | -130.75 | 4878.69 | 1736711.67 | 14374566.91 | 39°35'00.538"N | 80°39'29.623"W | 4880.44 | 91.535 | 0.06 |
| 11852.00 | 89.720 | 127.730 | 7349.12 | 4134.35 | -168.27 | 4929.28 | 1736762.25 | 14374529.39 | 39°35'00.186"N | 80°39'28.979"W | 4932.16 | 91.955 | 3.71 |
| 11915.00 | 89.750 | 127.370 | 7349.41 | 4197.29 | -206.67 | 4979.23 | 1736812.18 | 14374491.01 | 39°34'59.804"N | 80°39'28.343"W | 4983.52 | 92.377 | 0.57 |
| 11979.00 | 89.750 | 123.900 | 7349.69 | 4261.27 | -243.95 | 5031.24 | 1736864.16 | 14374453.74 | 39°34'59.434"N | 80°39'27.680"W | 5037.15 | 92.776 | 5.42 |
| 12042.00 | 89.780 | 122.070 | 7349.95 | 4324.23 | -278.25 | 5084.08 | 1736916.99 | 14374419.46 | 39°34'59.093"N | 80°39'27.007"W | 5091.69 | 93.133 | 2.91 |
| 12105.00 | 89.690 | 123.860 | 7350.24 | 4387.19 | -312.53 | 5136.94 | 1736969.82 | 14374385.20 | 39°34'58.752"N | 80°39'26.334"W | 5146.43 | 93.482 | 2.84 |
| 12168.00 | 89.780 | 127.800 | 7350.54 | 4450.17 | -349.40 | 5188.00 | 1737020.87 | 14374348.34 | 39°34'58.386"N | 80°39'25.683"W | 5199.75 | 93.853 | 6.26 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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| | | | |
|--------------------------------------|-------------------------|----------|---------------------|
| NON-DRILLING WELLPATH IDENTIFICATION | | | |
| Operator | HG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

WELLPATH DATA (243 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
|----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| 12230.00 | 89.820 | 128.320 | 7350.75 | 4512.08 | -387.62 | 5236.82 | 1737069.66 | 14374310.13 | 39°34'58.006"N | 80°39'25.061"W | 5251.14 | 94.233 | 0.84 |
| 12294.00 | 89.720 | 124.590 | 7351.01 | 4576.05 | -425.64 | 5288.29 | 1737121.11 | 14374272.13 | 39°34'57.629"N | 80°39'24.406"W | 5305.39 | 94.602 | 5.83 |
| 12357.00 | 89.720 | 121.810 | 7351.32 | 4639.01 | -460.13 | 5341.00 | 1737173.80 | 14374237.65 | 39°34'57.286"N | 80°39'23.734"W | 5360.78 | 94.924 | 4.41 |
| 12420.00 | 89.750 | 121.060 | 7351.61 | 4701.89 | -492.99 | 5394.75 | 1737227.53 | 14374204.80 | 39°34'56.959"N | 80°39'23.050"W | 5417.23 | 95.221 | 1.19 |
| 12483.00 | 89.750 | 120.840 | 7351.88 | 4764.73 | -525.39 | 5448.78 | 1737281.54 | 14374172.42 | 39°34'56.637"N | 80°39'22.361"W | 5474.05 | 95.508 | 0.35 |
| 12547.00 | 88.950 | 120.640 | 7352.61 | 4828.55 | -558.10 | 5503.78 | 1737336.52 | 14374139.72 | 39°34'56.311"N | 80°39'21.660"W | 5532.01 | 95.790 | 1.29 |
| 12610.00 | 88.950 | 121.990 | 7353.76 | 4891.40 | -590.84 | 5557.59 | 1737390.31 | 14374106.99 | 39°34'55.986"N | 80°39'20.975"W | 5588.91 | 96.068 | 2.14 |
| 12673.00 | 89.200 | 123.560 | 7354.78 | 4954.35 | -624.94 | 5610.56 | 1737443.25 | 14374072.91 | 39°34'55.647"N | 80°39'20.300"W | 5645.25 | 96.356 | 2.52 |
| 12736.00 | 89.170 | 125.940 | 7355.68 | 5017.34 | -660.84 | 5662.31 | 1737494.99 | 14374037.02 | 39°34'55.290"N | 80°39'19.641"W | 5700.74 | 96.657 | 3.78 |
| 12799.00 | 89.170 | 128.770 | 7356.59 | 5080.27 | -699.06 | 5712.38 | 1737545.04 | 14373998.82 | 39°34'54.910"N | 80°39'19.003"W | 5754.99 | 96.977 | 4.49 |
| 12862.00 | 89.510 | 129.790 | 7357.32 | 5143.09 | -738.94 | 5761.14 | 1737593.78 | 14373958.95 | 39°34'54.514"N | 80°39'18.382"W | 5808.34 | 97.309 | 1.71 |
| 12925.00 | 89.540 | 126.790 | 7357.84 | 5205.97 | -777.97 | 5810.58 | 1737643.20 | 14373919.93 | 39°34'54.127"N | 80°39'17.753"W | 5862.43 | 97.626 | 4.76 |
| 12989.00 | 89.480 | 126.060 | 7358.38 | 5269.95 | -815.97 | 5862.07 | 1737694.67 | 14373881.95 | 39°34'53.749"N | 80°39'17.097"W | 5918.59 | 97.924 | 1.14 |
| 13051.00 | 89.260 | 125.560 | 7359.07 | 5331.94 | -852.24 | 5912.35 | 1737744.93 | 14373845.69 | 39°34'53.389"N | 80°39'16.456"W | 5973.46 | 98.202 | 0.88 |
| 13114.00 | 89.230 | 124.690 | 7359.90 | 5394.94 | -888.49 | 5963.87 | 1737796.43 | 14373809.46 | 39°34'53.029"N | 80°39'15.800"W | 6029.69 | 98.474 | 1.38 |
| 13177.00 | 89.170 | 124.540 | 7360.78 | 5457.93 | -924.27 | 6015.72 | 1737848.26 | 14373773.69 | 39°34'52.673"N | 80°39'15.140"W | 6086.31 | 98.735 | 0.26 |
| 13240.00 | 89.200 | 124.220 | 7361.67 | 5520.92 | -959.84 | 6067.71 | 1737900.23 | 14373738.13 | 39°34'52.319"N | 80°39'14.478"W | 6143.16 | 98.989 | 0.51 |
| 13303.00 | 89.140 | 126.960 | 7362.59 | 5583.90 | -996.50 | 6118.93 | 1737951.43 | 14373701.49 | 39°34'51.955"N | 80°39'13.825"W | 6199.54 | 99.250 | 4.35 |
| 13367.00 | 89.170 | 125.130 | 7363.53 | 5647.88 | -1034.16 | 6170.67 | 1738003.15 | 14373663.85 | 39°34'51.581"N | 80°39'13.166"W | 6256.73 | 99.514 | 2.86 |
| 13429.00 | 89.290 | 123.760 | 7364.36 | 5709.87 | -1069.22 | 6221.79 | 1738054.25 | 14373628.80 | 39°34'51.233"N | 80°39'12.515"W | 6313.00 | 99.751 | 2.22 |
| 13493.00 | 89.320 | 124.210 | 7365.14 | 5773.86 | -1104.99 | 6274.85 | 1738107.29 | 14373593.04 | 39°34'50.877"N | 80°39'11.839"W | 6371.41 | 99.987 | 0.70 |
| 13556.00 | 89.570 | 125.480 | 7365.75 | 5836.85 | -1140.98 | 6326.56 | 1738158.97 | 14373557.06 | 39°34'50.519"N | 80°39'11.181"W | 6428.62 | 100.223 | 2.05 |
| 13619.00 | 89.350 | 128.100 | 7366.34 | 5899.81 | -1178.71 | 6377.00 | 1738209.40 | 14373519.35 | 39°34'50.145"N | 80°39'10.538"W | 6485.02 | 100.472 | 4.17 |
| 13682.00 | 89.540 | 129.690 | 7366.95 | 5962.66 | -1218.26 | 6426.03 | 1738258.41 | 14373479.81 | 39°34'49.752"N | 80°39'09.914"W | 6540.49 | 100.735 | 2.54 |
| 13745.00 | 89.630 | 128.640 | 7367.41 | 6025.49 | -1258.05 | 6474.87 | 1738307.23 | 14373440.04 | 39°34'49.357"N | 80°39'09.292"W | 6595.96 | 100.995 | 1.67 |
| 13808.00 | 89.780 | 125.630 | 7367.73 | 6088.44 | -1296.08 | 6525.09 | 1738357.43 | 14373402.03 | 39°34'48.979"N | 80°39'08.653"W | 6652.57 | 101.234 | 4.78 |
| 13872.00 | 89.850 | 125.730 | 7367.94 | 6152.44 | -1333.41 | 6577.08 | 1738409.40 | 14373364.72 | 39°34'48.608"N | 80°39'07.991"W | 6710.88 | 101.461 | 0.19 |
| 13935.00 | 89.820 | 126.020 | 7368.12 | 6215.43 | -1370.32 | 6628.13 | 1738460.43 | 14373327.81 | 39°34'48.241"N | 80°39'07.341"W | 6768.30 | 101.681 | 0.46 |
| 13998.00 | 89.880 | 124.330 | 7368.29 | 6278.43 | -1406.62 | 6679.62 | 1738511.90 | 14373291.54 | 39°34'47.881"N | 80°39'06.685"W | 6826.12 | 101.892 | 2.68 |
| 14060.00 | 89.820 | 122.690 | 7368.45 | 6340.40 | -1440.84 | 6731.31 | 1738563.57 | 14373257.32 | 39°34'47.540"N | 80°39'06.026"W | 6883.79 | 102.082 | 2.65 |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj:14201

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 Officer
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| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|-------------------------|----------|---------------------|
| Operator | IG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

| WELLPATH DATA (243 stations) | | | | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|----------------|-------------------|-----------------|---------------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Closure Dist [ft] | Closure Dir [°] | DLS [%/100ft] |
| 14124.00 | 89.970 | 121.860 | 7368.57 | 6404.33 | -1475.02 | 6785.42 | 1738617.66 | 14373223.16 | 39°34'47.200"N | 80°39'05.337"W | 6943.89 | 102.264 | 1.32 |
| 14176.00 | 90.030 | 122.040 | 7368.57 | 6456.26 | -1502.54 | 6829.55 | 1738661.77 | 14373195.65 | 39°34'46.927"N | 80°39'04.775"W | 6992.88 | 102.408 | 0.36 |
| 14201.00 | 90.030 | 122.040 | 7368.55 | 6481.22 | -1515.80 | 6850.74 | 1738682.95 | 14373182.40 | 39°34'46.795"N | 80°39'04.505"W | 7016.43 | 102.476 | 0.00 |

| TARGETS | | | | | | | | | | |
|--------------------------|---------|----------|------------|-----------|-------------------|--------------------|----------------|----------------|-------|--|
| Name | MD [ft] | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape | |
| Long 409 S-2H LP | | 7300.00 | 1732.28 | 2218.97 | 1734053.00 | 14376429.20 | 39°35'19.069"N | 80°40'03.505"W | point | |
| Long 409 S-2H LP:Rev-2 | | 7330.00 | 1732.28 | 2218.97 | 1734053.00 | 14376429.20 | 39°35'19.069"N | 80°40'03.505"W | point | |
| Long 409 S-2H PBHL | | 7398.78 | -1513.09 | 6853.79 | 1738686.00 | 14373185.10 | 39°34'46.822"N | 80°39'04.466"W | point | |
| Long 409 S-2H PBHL:Rev-3 | | 7428.00 | -1513.09 | 6853.79 | 1738686.00 | 14373185.10 | 39°34'46.822"N | 80°39'04.466"W | point | |

| WELLPATH COMPOSITION - Ref Wellbore: Long 409 S-2H (AWB) Ref Wellpath: Long 409 S-2H (AWP) Proj:14201 | | | | |
|---|-------------|---------------------------------------|---|---------------------|
| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
| 18.00 | 1300.00 | Generic gyro - northscking (Standard) | Gyro Surveys (100'-1300') | Long 409 S-2H (AWB) |
| 1300.00 | 3716.00 | ISCWSA MWD, Rev. 2 (Standard) | BHI 12 1/4 APS Surveys (1300')(1433'-3716') | Long 409 S-2H (AWB) |
| 3716.00 | 14176.00 | NaviTrak (MagCorr) | BHI ATCurve 8 3/4" Section (3717'-14176') | Long 409 S-2H (AWB) |
| 14176.00 | 14201.00 | Blind Drilling (std) | Projection to bit | Long 409 S-2H (AWB) |

Actual Wellpath Report

Long 409 S-2H (AWP) Proj: 14201

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Revised: 7/11/16
Office: [illegible]

| REFERENCE WELL PATH IDENTIFICATION | | | |
|------------------------------------|-------------------------|----------|---------------------|
| Operator | HIG ENERGY | Slot | Slot #02 |
| Area | Wetzel County, WV | Well | Long 409 S-2H |
| Field | Wetzel (UTM 17N NAD 27) | Wellbore | Long 409 S-2H (AWB) |
| Facility | Long 409 Pad | | |

| COMMENTS |
|--|
| Wellpath general comments Gyro Surveys: (100'-1300') BH AT Curve Surveys: (1300')(1433'-14176') TD Projected to MD: 14201 |