

HG Energy, LLC

Lincoln County, West Virginia

Austin Griffith #106

Austin Griffith #106

Wellbore #1

Design: Wellbore #1

HG Energy EOW Report

30 September, 2014



43-03454

HP
HG Energy EOW Report



43.03454

Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #106
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Project	Lincoln County, West Virginia		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia South 4702		

Site	Austin Griffith #106				
Site Position:	Northing:	446,977.49 usft	Latitude:	38° 13' 25.000 N	
From: Lat/Long	Easting:	1,724,239.38 usft	Longitude:	81° 57' 35.800 W	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 °

Well	Austin Griffith #106					
Well Position	+N/-S	0.0 usft	Northing:	446,977.49 usft	Latitude:	38° 13' 25.000 N
	+E/-W	0.0 usft	Easting:	1,724,239.38 usft	Longitude:	81° 57' 35.800 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	910.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/16/2014	-7.43	66.09	51,839

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	189.00	

Survey Program	Date 9/30/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
550.0	2,601.0	MWD (Wellbore #1)	MWD default	MWD - Standard

HP
HG Energy EOW Report



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Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #106
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00		
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.0	0.00		
596.0	0.70	175.50	596.0	-0.3	0.0	0.3	1.52	0.3	175.50		
First Survey @ 596' MD / 596' TVD											
626.0	0.90	179.30	626.0	-0.7	0.0	0.7	0.69	0.7	176.78		
656.0	1.40	188.90	656.0	-1.3	0.0	1.3	1.78	1.3	180.64		
686.0	2.70	193.80	686.0	-2.3	-0.2	2.4	4.37	2.4	185.84		
716.0	3.90	198.50	715.9	-4.0	-0.7	4.1	4.10	4.1	190.38		
746.0	5.40	203.10	745.8	-6.3	-1.6	6.4	5.15	6.5	194.41		
776.0	6.70	200.70	775.7	-9.2	-2.8	9.5	4.41	9.6	196.83		
806.0	8.10	202.00	805.4	-12.8	-4.2	13.3	4.70	13.5	198.14		
836.0	9.00	197.30	835.1	-17.0	-5.7	17.7	3.80	17.9	198.49		
866.0	10.00	196.80	864.7	-21.7	-7.1	22.6	3.34	22.9	198.17		
896.0	11.10	195.80	894.1	-27.0	-8.7	28.0	3.72	28.4	197.80		
926.0	12.30	193.70	923.5	-32.9	-10.2	34.1	4.24	34.4	197.26		
956.0	13.00	190.10	952.8	-39.3	-11.6	40.6	3.51	41.0	196.39		
986.0	13.70	191.60	982.0	-46.1	-12.9	47.6	2.60	47.9	195.59		
1,016.0	14.80	191.20	1,011.1	-53.4	-14.3	54.9	3.68	55.2	195.03		
1,046.0	15.50	191.10	1,040.0	-61.0	-15.8	62.8	2.33	63.1	194.55		
1,076.0	16.80	191.00	1,068.8	-69.2	-17.4	71.1	4.33	71.4	194.14		
1,106.0	18.00	192.00	1,097.5	-78.0	-19.2	80.1	4.12	80.4	193.85		
1,136.0	18.40	191.60	1,126.0	-87.2	-21.2	89.4	1.40	89.7	193.63		
1,166.0	18.90	191.40	1,154.4	-96.6	-23.1	99.0	1.68	99.3	193.43		
1,196.0	19.30	190.10	1,182.7	-106.2	-24.9	108.8	1.95	109.1	193.19		
1,226.0	19.20	188.30	1,211.1	-116.0	-26.5	118.7	2.01	119.0	192.86		
1,256.0	18.90	184.20	1,239.4	-125.7	-27.5	128.5	4.57	128.7	192.36		
1,286.0	19.00	185.50	1,267.8	-135.4	-28.4	138.2	1.45	138.4	191.83		

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HG Energy EOW Report



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Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

43.03454

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)	
1,316.0	19.30	185.70	1,296.1	-145.2	-29.3	148.0	1.02	148.2	191.42	
1,346.0	19.60	185.80	1,324.4	-155.2	-30.3	158.0	1.01	158.1	191.06	
1,376.0	19.90	185.30	1,352.7	-165.3	-31.3	168.1	1.15	168.2	190.73	
1,406.0	19.50	185.80	1,380.9	-175.3	-32.3	178.2	1.45	178.3	190.43	
1,436.0	19.40	186.00	1,409.2	-185.3	-33.3	188.2	0.40	188.2	190.19	
1,466.0	19.30	186.60	1,437.5	-195.1	-34.4	198.1	0.74	198.2	190.00	
1,496.0	19.00	184.70	1,465.8	-204.9	-35.4	207.9	2.31	208.0	189.79	
1,526.0	19.00	184.00	1,494.2	-214.7	-36.1	217.7	0.76	217.7	189.55	
1,556.0	19.10	185.40	1,522.6	-224.4	-36.9	227.4	1.56	227.5	189.34	
1,586.0	19.20	187.90	1,550.9	-234.2	-38.1	237.3	2.75	237.3	189.23	
1,616.0	19.00	189.60	1,579.2	-243.9	-39.5	247.1	1.97	247.1	189.21	
1,646.0	18.20	191.60	1,607.7	-253.3	-41.3	256.7	3.41	256.7	189.26	
1,676.0	16.90	190.30	1,636.3	-262.2	-43.0	265.7	4.53	265.7	189.32	
1,706.0	16.80	189.60	1,665.0	-270.8	-44.5	274.4	0.75	274.4	189.34	
1,736.0	17.80	189.90	1,693.6	-279.6	-46.0	283.3	3.35	283.3	189.35	
1,766.0	18.70	191.60	1,722.1	-288.8	-47.8	292.7	3.49	292.7	189.40	
1,796.0	18.80	190.40	1,750.5	-298.2	-49.6	302.3	1.33	302.3	189.45	
1,826.0	18.70	191.50	1,778.9	-307.7	-51.5	312.0	1.22	312.0	189.50	
1,856.0	19.10	191.80	1,807.3	-317.2	-53.4	321.7	1.37	321.7	189.56	
1,886.0	19.20	190.90	1,835.7	-326.9	-55.4	331.5	1.04	331.5	189.61	
1,916.0	19.30	192.10	1,864.0	-336.6	-57.3	341.4	1.36	341.4	189.67	
1,946.0	18.50	190.30	1,892.4	-346.1	-59.2	351.1	3.30	351.1	189.71	
1,976.0	18.30	190.90	1,920.8	-355.4	-61.0	360.6	0.92	360.6	189.73	
2,006.0	17.80	191.10	1,949.4	-364.5	-62.7	369.9	1.68	369.9	189.77	
2,036.0	17.20	189.40	1,978.0	-373.4	-64.4	378.9	2.63	378.9	189.78	
2,066.0	15.90	189.20	2,006.7	-381.8	-65.7	387.4	4.34	387.5	189.77	
2,096.0	16.00	188.20	2,035.6	-390.0	-67.0	395.7	0.97	395.7	189.75	

HP
HG Energy EOW Report



Company: HG Energy, LLC
Project: Lincoln County, West Virginia
Site: Austin Griffith #106
Well: Austin Griffith #106
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Austin Griffith #106
TVD Reference: Well @ 918.0usft (Decker #9)
MD Reference: Well @ 918.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass

43.03454

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,126.0	17.00	189.60	2,064.3	-398.4	-68.3	404.2	3.59	404.2	189.73
2,156.0	18.20	190.80	2,092.9	-407.3	-69.9	413.3	4.18	413.3	189.74
2,186.0	18.10	191.60	2,121.4	-416.5	-71.7	422.6	0.90	422.6	189.77
2,216.0	17.00	189.60	2,150.0	-425.4	-73.4	431.6	4.18	431.7	189.79
2,246.0	15.70	186.30	2,178.8	-433.7	-74.6	440.1	5.32	440.1	189.75
2,276.0	14.10	185.50	2,207.8	-441.4	-75.4	447.8	5.38	447.8	189.69
2,306.0	13.90	185.60	2,236.9	-448.6	-76.1	455.0	0.67	455.0	189.62
2,336.0	15.40	185.10	2,266.0	-456.2	-76.8	462.6	5.02	462.6	189.55
2,366.0	15.10	185.90	2,294.9	-464.1	-77.5	470.5	1.22	470.5	189.48
2,396.0	15.70	185.20	2,323.8	-472.0	-78.3	478.4	2.09	478.4	189.42
2,412.1	15.05	184.12	2,339.3	-476.2	-78.6	482.7	4.40	482.7	189.38
Target - Austin Griffith #106									
2,426.0	14.50	183.10	2,352.8	-479.8	-78.9	486.2	4.40	486.2	189.34
2,456.0	13.90	182.10	2,381.9	-487.1	-79.2	493.5	2.16	493.5	189.24
2,486.0	13.10	180.40	2,411.0	-494.1	-79.4	500.5	2.98	500.5	189.12
2,516.0	12.00	179.10	2,440.3	-500.6	-79.3	506.9	3.79	506.9	189.00
2,546.0	11.10	177.80	2,469.7	-506.7	-79.2	512.8	3.12	512.8	188.88
2,601.0	11.10	177.80	2,523.7	-517.2	-78.8	523.2	0.00	523.2	188.66
TD @ 2601' MD / 2524' TVD									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
596.0	596.0	-0.3	0.0	First Survey @ 596' MD / 596' TVD
2,601.0	2,523.7	-517.2	-78.8	TD @ 2601' MD / 2524' TVD

HP
HG Energy EOW Report



Company: HG Energy, LLC	Local Co-ordinate Reference: Well Austin Griffith #106
Project: Lincoln County, West Virginia	TVD Reference: Well @ 918.0usft (Decker #9)
Site: Austin Griffith #106	MD Reference: Well @ 918.0usft (Decker #9)
Well: Austin Griffith #106	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

43.03454

Checked By: _____ Approved By: _____ Date: _____

43-03454

Austin Griffith #106
Lincoln County, West Virginia
Q141004 & AM-140962
Design #1

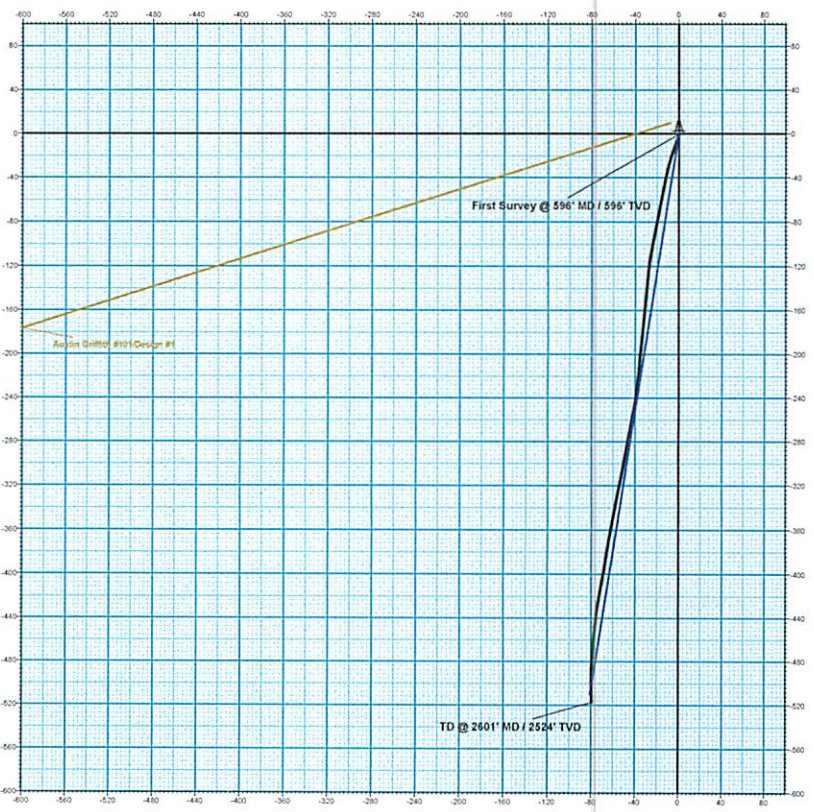
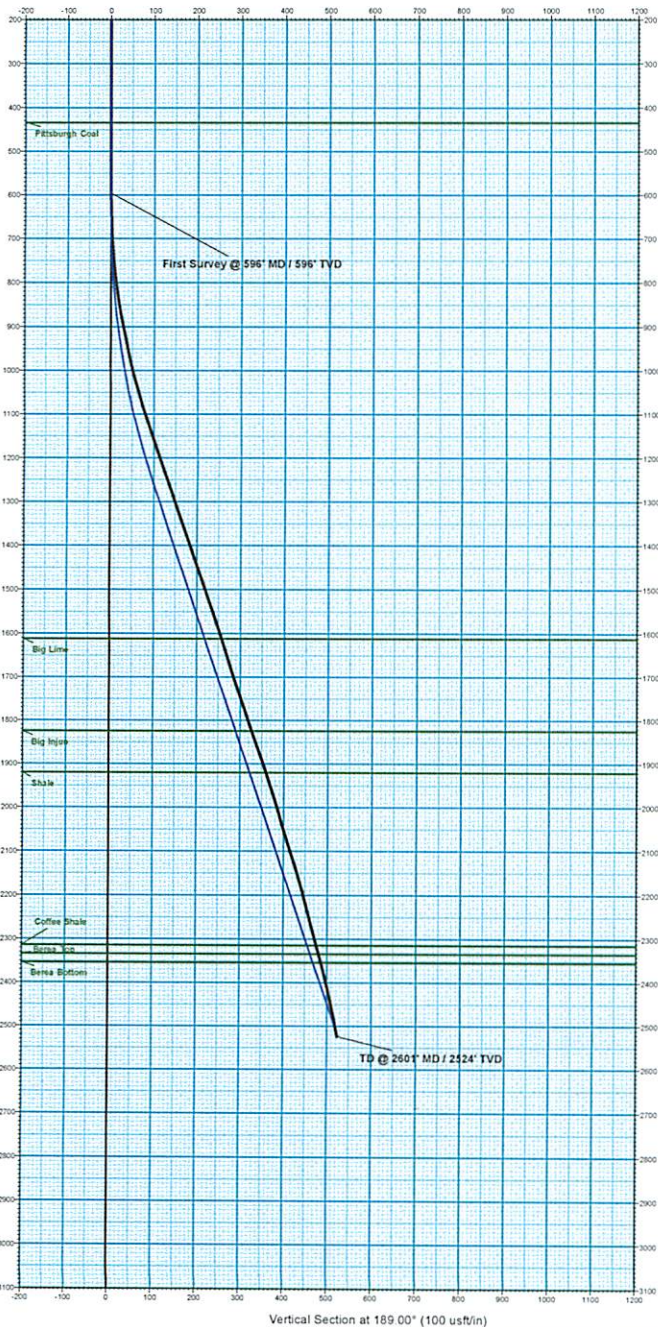
Company Name: HG Energy, LLC
Austin Griffith #106
Lincoln County, West Virginia
Rig: Decker #9
Created By: Kris Ray
Date: 9/30/2014

PROJECT DETAILS: Lincoln County, West Virginia
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia South 4702
System Datum: Mean Sea Level



HG Energy

Azimuths to Grid North
Correction: -6.84°
Magnetic Field
Strength: 51839.2snT
Dip Angle: 66.09°
Date: 9/16/2014
Model: IGRF2010



WELL DETAILS: Austin Griffith #106					
Ground Level:		910.0			
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.0	0.0	446977.49	1724229.38	38° 13' 25.00 N	81° 57' 36.90 W

DESIGN TARGET DETAILS						
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude
Target - Austin Griffith #106	2344.0	-459.3	-72.7	446518.21	1724166.64	38° 13' 20.452 N
- plan hits target center						

ANNOTATIONS							
TVD	MD	Inc	Azi	+N-S	+E-W	Vsect	Departure
596.0	596.0	0.70	175.50	-6.3	0.0	0.3	0.3
2523.7	2601.0	11.10	177.80	-51.2	-78.8	623.2	524.6
TD @ 2601' MD / 2524' TVD							

Vertical Section at 189.00° (100 usf/in)

12/05/2014

43.03454

HG Energy, LLC
Lincoln County, West Virginia
Austin Griffith #106
Austin Griffith #106

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

15 October, 2014



12/05/2014

43-03454

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #106
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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

Site	Austin Griffith #106				
Site Position:		Northing:	13,881,406.46 usft	Latitude:	38° 13' 25.000 N
From:	Lat/Long	Easting:	1,364,744.87 usft	Longitude:	81° 57' 35.800 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 °

Well	Austin Griffith #106					
Well Position	+N/-S	0.0 usft	Northing:	13,881,406.45 usft	Latitude:	38° 13' 25.000 N
	+E/-W	0.0 usft	Easting:	1,364,744.87 usft	Longitude:	81° 57' 35.800 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	910.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/16/2014	-7.43	66.09	51,839

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	189.00	

Survey Program	Date	9/30/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
550.0	2,601.0	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	13,881,406.45	1,364,744.87	38° 13' 25.000 N	81° 57' 35.800 W
550.0	0.00	0.00	550.0	0.0	0.0	13,881,406.45	1,364,744.87	38° 13' 25.000 N	81° 57' 35.800 W
596.0	0.70	175.50	596.0	-0.3	0.0	13,881,406.17	1,364,744.90	38° 13' 24.997 N	81° 57' 35.800 W
First Survey @ 596' MD / 596' TVD									
626.0	0.90	179.30	626.0	-0.7	0.0	13,881,405.75	1,364,744.91	38° 13' 24.993 N	81° 57' 35.799 W
656.0	1.40	188.90	656.0	-1.3	0.0	13,881,405.15	1,364,744.86	38° 13' 24.987 N	81° 57' 35.800 W
686.0	2.70	193.80	686.0	-2.3	-0.2	13,881,404.10	1,364,744.63	38° 13' 24.977 N	81° 57' 35.803 W
716.0	3.90	198.50	715.9	-4.0	-0.7	13,881,402.45	1,364,744.14	38° 13' 24.960 N	81° 57' 35.809 W
746.0	5.40	203.10	745.8	-6.3	-1.6	13,881,400.18	1,364,743.26	38° 13' 24.938 N	81° 57' 35.819 W
776.0	6.70	200.70	775.7	-9.2	-2.8	13,881,397.25	1,364,742.09	38° 13' 24.909 N	81° 57' 35.834 W
806.0	8.10	202.00	805.4	-12.8	-4.2	13,881,393.65	1,364,740.68	38° 13' 24.873 N	81° 57' 35.851 W
836.0	9.00	197.30	835.1	-17.0	-5.7	13,881,389.45	1,364,739.19	38° 13' 24.831 N	81° 57' 35.869 W

43-03454

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #106
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
866.0	10.00	196.80	864.7	-21.7	-7.1	13,881,384.71	1,364,737.74	38° 13' 24.784 N	81° 57' 35.887 W	
896.0	11.10	195.80	894.1	-27.0	-8.7	13,881,379.44	1,364,736.20	38° 13' 24.732 N	81° 57' 35.905 W	
926.0	12.30	193.70	923.5	-32.9	-10.2	13,881,373.56	1,364,734.66	38° 13' 24.674 N	81° 57' 35.924 W	
956.0	13.00	190.10	952.8	-39.3	-11.6	13,881,367.13	1,364,733.31	38° 13' 24.610 N	81° 57' 35.940 W	
986.0	13.70	191.60	982.0	-46.1	-12.9	13,881,360.33	1,364,732.00	38° 13' 24.543 N	81° 57' 35.955 W	
1,016.0	14.80	191.20	1,011.1	-53.4	-14.3	13,881,353.09	1,364,730.54	38° 13' 24.471 N	81° 57' 35.973 W	
1,046.0	15.50	191.10	1,040.0	-61.0	-15.8	13,881,345.40	1,364,729.03	38° 13' 24.395 N	81° 57' 35.991 W	
1,076.0	16.80	191.00	1,068.8	-69.2	-17.4	13,881,337.21	1,364,727.43	38° 13' 24.314 N	81° 57' 36.010 W	
1,106.0	18.00	192.00	1,097.5	-78.0	-19.2	13,881,328.42	1,364,725.64	38° 13' 24.226 N	81° 57' 36.031 W	
1,136.0	18.40	191.60	1,126.0	-87.2	-21.2	13,881,319.25	1,364,723.72	38° 13' 24.136 N	81° 57' 36.054 W	
1,166.0	18.90	191.40	1,154.4	-96.6	-23.1	13,881,309.85	1,364,721.81	38° 13' 24.042 N	81° 57' 36.077 W	
1,196.0	19.30	190.10	1,182.7	-106.2	-24.9	13,881,300.20	1,364,719.98	38° 13' 23.947 N	81° 57' 36.098 W	
1,226.0	19.20	188.30	1,211.1	-116.0	-26.5	13,881,290.44	1,364,718.40	38° 13' 23.850 N	81° 57' 36.117 W	
1,256.0	18.90	184.20	1,239.4	-125.7	-27.5	13,881,280.71	1,364,717.33	38° 13' 23.754 N	81° 57' 36.129 W	
1,286.0	19.00	185.50	1,267.8	-135.4	-28.4	13,881,271.00	1,364,716.51	38° 13' 23.658 N	81° 57' 36.138 W	
1,316.0	19.30	185.70	1,296.1	-145.2	-29.3	13,881,261.21	1,364,715.55	38° 13' 23.561 N	81° 57' 36.149 W	
1,346.0	19.60	185.80	1,324.4	-155.2	-30.3	13,881,251.27	1,364,714.55	38° 13' 23.462 N	81° 57' 36.160 W	
1,376.0	19.90	185.30	1,352.7	-165.3	-31.3	13,881,241.18	1,364,713.57	38° 13' 23.363 N	81° 57' 36.171 W	
1,406.0	19.50	185.80	1,380.9	-175.3	-32.3	13,881,231.12	1,364,712.59	38° 13' 23.263 N	81° 57' 36.182 W	
1,436.0	19.40	186.00	1,409.2	-185.3	-33.3	13,881,221.18	1,364,711.56	38° 13' 23.165 N	81° 57' 36.193 W	
1,466.0	19.30	186.60	1,437.5	-195.1	-34.4	13,881,211.30	1,364,710.47	38° 13' 23.067 N	81° 57' 36.206 W	
1,496.0	19.00	184.70	1,465.8	-204.9	-35.4	13,881,201.51	1,364,709.50	38° 13' 22.970 N	81° 57' 36.217 W	
1,526.0	19.00	184.00	1,494.2	-214.7	-36.1	13,881,191.77	1,364,708.76	38° 13' 22.873 N	81° 57' 36.225 W	
1,556.0	19.10	185.40	1,522.6	-224.4	-36.9	13,881,182.01	1,364,707.96	38° 13' 22.777 N	81° 57' 36.234 W	
1,586.0	19.20	187.90	1,550.9	-234.2	-38.1	13,881,172.24	1,364,706.82	38° 13' 22.680 N	81° 57' 36.247 W	
1,616.0	19.00	189.60	1,579.2	-243.9	-39.5	13,881,162.54	1,364,705.32	38° 13' 22.584 N	81° 57' 36.264 W	
1,646.0	18.20	191.60	1,607.7	-253.3	-41.3	13,881,153.13	1,364,703.57	38° 13' 22.491 N	81° 57' 36.285 W	
1,676.0	16.90	190.30	1,636.3	-262.2	-43.0	13,881,144.25	1,364,701.85	38° 13' 22.403 N	81° 57' 36.305 W	
1,706.0	16.80	189.60	1,665.0	-270.8	-44.5	13,881,135.69	1,364,700.34	38° 13' 22.318 N	81° 57' 36.323 W	
1,736.0	17.80	189.90	1,693.6	-279.6	-46.0	13,881,126.89	1,364,698.83	38° 13' 22.231 N	81° 57' 36.341 W	
1,766.0	18.70	191.60	1,722.1	-288.8	-47.8	13,881,117.67	1,364,697.08	38° 13' 22.140 N	81° 57' 36.362 W	
1,796.0	18.80	190.40	1,750.5	-298.2	-49.6	13,881,108.20	1,364,695.24	38° 13' 22.046 N	81° 57' 36.383 W	
1,826.0	18.70	191.50	1,778.9	-307.7	-51.5	13,881,098.73	1,364,693.41	38° 13' 21.952 N	81° 57' 36.405 W	
1,856.0	19.10	191.80	1,807.3	-317.2	-53.4	13,881,089.22	1,364,691.44	38° 13' 21.858 N	81° 57' 36.428 W	
1,886.0	19.20	190.90	1,835.7	-326.9	-55.4	13,881,079.57	1,364,689.51	38° 13' 21.762 N	81° 57' 36.451 W	
1,916.0	19.30	192.10	1,864.0	-336.6	-57.3	13,881,069.88	1,364,687.53	38° 13' 21.666 N	81° 57' 36.475 W	
1,946.0	18.50	190.30	1,892.4	-346.1	-59.2	13,881,060.35	1,364,685.64	38° 13' 21.572 N	81° 57' 36.497 W	
1,976.0	18.30	190.90	1,920.8	-355.4	-61.0	13,881,051.04	1,364,683.90	38° 13' 21.479 N	81° 57' 36.518 W	
2,006.0	17.80	191.10	1,949.4	-364.5	-62.7	13,881,041.91	1,364,682.13	38° 13' 21.389 N	81° 57' 36.539 W	
2,036.0	17.20	189.40	1,978.0	-373.4	-64.4	13,881,033.04	1,364,680.52	38° 13' 21.301 N	81° 57' 36.558 W	
2,066.0	15.90	189.20	2,006.7	-381.8	-65.7	13,881,024.60	1,364,679.14	38° 13' 21.218 N	81° 57' 36.574 W	
2,096.0	16.00	188.20	2,035.6	-390.0	-67.0	13,881,016.46	1,364,677.89	38° 13' 21.137 N	81° 57' 36.589 W	
2,126.0	17.00	189.60	2,064.3	-398.4	-68.3	13,881,008.04	1,364,676.57	38° 13' 21.053 N	81° 57' 36.604 W	
2,156.0	18.20	190.80	2,092.9	-407.3	-69.9	13,880,999.11	1,364,674.96	38° 13' 20.965 N	81° 57' 36.623 W	
2,186.0	18.10	191.60	2,121.4	-416.5	-71.7	13,880,989.94	1,364,673.15	38° 13' 20.874 N	81° 57' 36.645 W	
2,216.0	17.00	189.60	2,150.0	-425.4	-73.4	13,880,981.06	1,364,671.48	38° 13' 20.786 N	81° 57' 36.665 W	
2,246.0	15.70	186.30	2,178.8	-433.7	-74.6	13,880,972.70	1,364,670.30	38° 13' 20.703 N	81° 57' 36.678 W	
2,276.0	14.10	185.50	2,207.8	-441.4	-75.4	13,880,965.02	1,364,669.51	38° 13' 20.627 N	81° 57' 36.687 W	
2,306.0	13.90	185.60	2,236.9	-448.6	-76.1	13,880,957.80	1,364,668.81	38° 13' 20.556 N	81° 57' 36.695 W	
2,336.0	15.40	185.10	2,266.0	-456.2	-76.8	13,880,950.25	1,364,668.10	38° 13' 20.481 N	81° 57' 36.703 W	
2,366.0	15.10	185.90	2,294.9	-464.1	-77.5	13,880,942.39	1,364,667.34	38° 13' 20.403 N	81° 57' 36.711 W	
2,396.0	15.70	185.20	2,323.8	-472.0	-78.3	13,880,934.46	1,364,666.57	38° 13' 20.325 N	81° 57' 36.720 W	
2,426.0	14.50	183.10	2,352.8	-479.8	-78.9	13,880,926.67	1,364,666.00	38° 13' 20.248 N	81° 57' 36.726 W	
2,456.0	13.90	182.10	2,381.9	-487.1	-79.2	13,880,919.32	1,364,665.67	38° 13' 20.175 N	81° 57' 36.729 W	
2,486.0	13.10	180.40	2,411.0	-494.1	-79.4	13,880,912.32	1,364,665.51	38° 13' 20.106 N	81° 57' 36.731 W	

43.03454

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #106
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #106	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #106	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,516.0	12.00	179.10	2,440.3	-500.6	-79.3	13,880,905.80	1,364,665.54	38° 13' 20.041 N	81° 57' 36.729 W
2,546.0	11.10	177.80	2,469.7	-506.7	-79.2	13,880,899.79	1,364,665.70	38° 13' 19.982 N	81° 57' 36.727 W
2,601.0	11.10	177.80	2,523.7	-517.2	-78.8	13,880,889.21	1,364,666.10	38° 13' 19.877 N	81° 57' 36.720 W

TD @ 2601' MD / 2524' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
596.0	596.0	-0.3	0.0	First Survey @ 596' MD / 596' TVD
2,601.0	2,523.7	-517.2	-78.8	TD @ 2601' MD / 2524' TVD

Checked By: _____ Approved By: _____ Date: _____