

# **HG Energy, LLC**

Lincoln County, West Virginia

CC Griffith #210

CC Griffith #210

Wellbore #1

Design: Wellbore #1

## **Survey Report - Geographic**

15 October, 2014

Received  
Office of Oil & Gas

OCT 30 2014



11/07/2014

**DDC**  
Survey Report - Geographic



<b>Company:</b> HG Energy, LLC	<b>Local Co-ordinate Reference:</b> Well CC Griffith #210
<b>Project:</b> Lincoln County, West Virginia	<b>TVD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Site:</b> CC Griffith #210	<b>MD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Well:</b> CC Griffith #210	<b>North Reference:</b> Grid
<b>Wellbore:</b> Wellbore #1	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Wellbore #1	<b>Database:</b> EDM 5000.1 Single User Db

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

<b>Site</b> CC Griffith #210		
<b>Site Position:</b>	<b>Northing:</b> 13,880,790.71 usft	<b>Latitude:</b> 38° 13' 19.100 N
<b>From:</b> Lat/Long	<b>Easting:</b> 1,366,589.45 usft	<b>Longitude:</b> 81° 57' 12.600 W
<b>Position Uncertainty:</b> 0.0 usft	<b>Slot Radius:</b> 13-3/16 "	<b>Grid Convergence:</b> -0.59 °

<b>Well</b> CC Griffith #210		
<b>Well Position</b> +N/-S 0.0 usft	<b>Northing:</b> 13,880,790.69 usft	<b>Latitude:</b> 38° 13' 19.100 N
+E/-W 0.0 usft	<b>Easting:</b> 1,366,589.45 usft	<b>Longitude:</b> 81° 57' 12.600 W
<b>Position Uncertainty</b> 0.0 usft	<b>Wellhead Elevation:</b> 0.0 usft	<b>Ground Level:</b> 890.0 usft

<b>Wellbore</b> Wellbore #1					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/3/2014	-7.43	66.09	51,842

<b>Design</b> Wellbore #1				
<b>Audit Notes:</b>	<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	252.50

<b>Survey Program</b>	<b>Date</b> 9/15/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
650.0	2,660.0	MWD (Wellbore #1)	MWD default	MWD - Standard

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.0	0.00	0.00	0.0	0.0	0.0	13,880,790.69	1,366,589.45	38° 13' 19.100 N	81° 57' 12.600 W
650.0	0.00	0.00	650.0	0.0	0.0	13,880,790.69	1,366,589.45	38° 13' 19.100 N	81° 57' 12.600 W
<b>FIRST SURVEY @ 650' MD / 650' TVD</b>									
685.0	1.40	194.40	685.0	-0.4	-0.1	13,880,790.28	1,366,589.35	38° 13' 19.096 N	81° 57' 12.601 W
715.0	1.60	212.00	715.0	-1.1	-0.4	13,880,789.57	1,366,589.03	38° 13' 19.089 N	81° 57' 12.605 W
745.0	2.70	235.30	745.0	-1.9	-1.2	13,880,788.81	1,366,588.23	38° 13' 19.081 N	81° 57' 12.615 W
775.0	4.30	241.30	774.9	-2.8	-2.8	13,880,787.87	1,366,586.66	38° 13' 19.072 N	81° 57' 12.635 W
805.0	5.50	249.30	804.8	-3.9	-5.1	13,880,786.82	1,366,584.33	38° 13' 19.061 N	81° 57' 12.664 W
835.0	6.70	253.90	834.6	-4.9	-8.1	13,880,785.83	1,366,581.30	38° 13' 19.051 N	81° 57' 12.701 W
865.0	7.50	255.00	864.4	-5.9	-11.7	13,880,784.84	1,366,577.73	38° 13' 19.041 N	81° 57' 12.746 W
895.0	9.10	257.60	894.1	-6.9	-15.9	13,880,783.82	1,366,573.52	38° 13' 19.030 N	81° 57' 12.799 W
925.0	10.00	257.70	923.7	-7.9	-20.8	13,880,782.76	1,366,568.66	38° 13' 19.019 N	81° 57' 12.860 W

Received

OCT 30 2014

11/07/2014



**DDC**  
Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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	
955.0	10.60	259.90	953.2	-9.0	-26.1	13,880,781.72	1,366,563.40	38° 13' 19.008 N	81° 57' 12.925 W	
985.0	12.00	259.10	982.6	-10.1	-31.8	13,880,780.64	1,366,557.62	38° 13' 18.997 N	81° 57' 12.998 W	
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	13,880,779.44	1,366,551.03	38° 13' 18.985 N	81° 57' 13.080 W	
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	13,880,778.17	1,366,543.55	38° 13' 18.971 N	81° 57' 13.174 W	
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	13,880,776.91	1,366,535.23	38° 13' 18.958 N	81° 57' 13.278 W	
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	13,880,775.56	1,366,526.21	38° 13' 18.944 N	81° 57' 13.391 W	
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	13,880,773.90	1,366,516.74	38° 13' 18.926 N	81° 57' 13.509 W	
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	13,880,771.82	1,366,506.97	38° 13' 18.905 N	81° 57' 13.631 W	
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	13,880,769.20	1,366,497.05	38° 13' 18.878 N	81° 57' 13.755 W	
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	13,880,765.99	1,366,487.23	38° 13' 18.845 N	81° 57' 13.878 W	
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	13,880,762.30	1,366,477.85	38° 13' 18.808 N	81° 57' 13.995 W	
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	13,880,758.45	1,366,469.00	38° 13' 18.769 N	81° 57' 14.106 W	
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	13,880,754.75	1,366,460.42	38° 13' 18.731 N	81° 57' 14.213 W	
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	13,880,751.33	1,366,451.75	38° 13' 18.697 N	81° 57' 14.321 W	
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	13,880,748.13	1,366,442.74	38° 13' 18.664 N	81° 57' 14.433 W	
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	13,880,744.96	1,366,433.55	38° 13' 18.632 N	81° 57' 14.548 W	
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	13,880,741.89	1,366,424.51	38° 13' 18.601 N	81° 57' 14.661 W	
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	13,880,739.04	1,366,415.80	38° 13' 18.571 N	81° 57' 14.770 W	
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	13,880,736.34	1,366,407.48	38° 13' 18.544 N	81° 57' 14.874 W	
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	13,880,733.75	1,366,399.39	38° 13' 18.517 N	81° 57' 14.975 W	
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	13,880,731.16	1,366,391.40	38° 13' 18.491 N	81° 57' 15.075 W	
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	13,880,728.53	1,366,383.25	38° 13' 18.464 N	81° 57' 15.177 W	
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	13,880,720.36	1,366,358.79	38° 13' 18.381 N	81° 57' 15.482 W	
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	13,880,717.49	1,366,351.01	38° 13' 18.352 N	81° 57' 15.579 W	
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	13,880,714.53	1,366,343.48	38° 13' 18.322 N	81° 57' 15.673 W	
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	13,880,711.48	1,366,336.04	38° 13' 18.291 N	81° 57' 15.766 W	
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	13,880,708.39	1,366,328.56	38° 13' 18.259 N	81° 57' 15.859 W	
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	13,880,705.53	1,366,320.86	38° 13' 18.230 N	81° 57' 15.956 W	
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	13,880,703.06	1,366,312.92	38° 13' 18.205 N	81° 57' 16.055 W	
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	13,880,700.81	1,366,304.83	38° 13' 18.182 N	81° 57' 16.156 W	
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	13,880,698.56	1,366,296.69	38° 13' 18.159 N	81° 57' 16.258 W	
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	13,880,696.07	1,366,288.75	38° 13' 18.134 N	81° 57' 16.357 W	
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	13,880,693.28	1,366,281.03	38° 13' 18.105 N	81° 57' 16.453 W	
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	13,880,690.28	1,366,273.56	38° 13' 18.075 N	81° 57' 16.546 W	
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	13,880,687.37	1,366,266.45	38° 13' 18.045 N	81° 57' 16.635 W	
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	13,880,684.63	1,366,259.70	38° 13' 18.018 N	81° 57' 16.719 W	
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	13,880,682.05	1,366,253.19	38° 13' 17.991 N	81° 57' 16.801 W	
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	13,880,679.71	1,366,246.57	38° 13' 17.967 N	81° 57' 16.883 W	
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	13,880,677.56	1,366,239.74	38° 13' 17.946 N	81° 57' 16.969 W	
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	13,880,675.40	1,366,232.92	38° 13' 17.924 N	81° 57' 17.054 W	
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	13,880,673.12	1,366,226.11	38° 13' 17.900 N	81° 57' 17.139 W	
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	13,880,670.76	1,366,219.43	38° 13' 17.876 N	81° 57' 17.222 W	
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	13,880,668.29	1,366,213.46	38° 13' 17.851 N	81° 57' 17.297 W	
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	13,880,665.72	1,366,208.15	38° 13' 17.825 N	81° 57' 17.363 W	
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	13,880,663.03	1,366,202.86	38° 13' 17.798 N	81° 57' 17.429 W	
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	13,880,660.18	1,366,197.03	38° 13' 17.769 N	81° 57' 17.502 W	
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	13,880,657.21	1,366,190.46	38° 13' 17.739 N	81° 57' 17.584 W	
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	13,880,654.13	1,366,183.04	38° 13' 17.708 N	81° 57' 17.676 W	
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	13,880,651.01	1,366,175.06	38° 13' 17.676 N	81° 57' 17.776 W	
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	13,880,647.99	1,366,167.33	38° 13' 17.646 N	81° 57' 17.872 W	
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	13,880,645.19	1,366,160.25	38° 13' 17.617 N	81° 57' 17.961 W	
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	13,880,642.50	1,366,153.70	38° 13' 17.590 N	81° 57' 18.043 W	
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	13,880,639.82	1,366,147.40	38° 13' 17.563 N	81° 57' 18.121 W	
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	13,880,637.21	1,366,141.54	38° 13' 17.537 N	81° 57' 18.194 W	



**DDC**  
Survey Report - Geographic



<b>Company:</b> HG Energy, LLC	<b>Local Co-ordinate Reference:</b> Well CC Griffith #210
<b>Project:</b> Lincoln County, West Virginia	<b>TVD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Site:</b> CC Griffith #210	<b>MD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Well:</b> CC Griffith #210	<b>North Reference:</b> Grid
<b>Wellbore:</b> Wellbore #1	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Wellbore #1	<b>Database:</b> 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
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	13,880,632.53	1,366,131.41	38° 13' 17.489 N	81° 57' 18.321 W
TD @ 2660' MD / 2594' TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

Received  
Office of Oil & Gas  
OCT 30 2014

# **HG Energy, LLC**

Lincoln County, West Virginia

CC Griffith #210

CC Griffith #210

Wellbore #1

Design: Wellbore #1

## **Survey Report - Geographic**

15 September, 2014

Received  
Office of Oil & Gas  
OCT 30 2014



11/07/2014



Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

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

<b>Site</b>	CC Griffith #210				
<b>Site Position:</b>		<b>Northing:</b>	446,361.63 usft	<b>Latitude:</b>	38° 13' 19.100 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,726,084.45 usft	<b>Longitude:</b>	81° 57' 12.600 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.59 °

<b>Well</b>	CC Griffith #210					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	446,361.62 usft	<b>Latitude:</b>	38° 13' 19.100 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,726,084.45 usft	<b>Longitude:</b>	81° 57' 12.600 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	890.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/3/2014	-7.44	66.09	51,842

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	252.50	

<b>Survey Program</b>	<b>Date</b>	9/15/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
650.0	2,660.0	MWD (Wellbore #1)	MWD default	MWD - Standard	

<b>Survey</b>											
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>		
0.0	0.00	0.00	0.0	0.0	0.0	446,361.62	1,726,084.45	38° 13' 19.100 N	81° 57' 12.600 W		
650.0	0.00	0.00	650.0	0.0	0.0	446,361.62	1,726,084.45	38° 13' 19.100 N	81° 57' 12.600 W		
<b>FIRST SURVEY @ 650' MD / 650' TVD</b>											
685.0	1.40	194.40	685.0	-0.4	-0.1	446,361.20	1,726,084.34	38° 13' 19.096 N	81° 57' 12.601 W		
715.0	1.60	212.00	715.0	-1.1	-0.4	446,360.49	1,726,084.03	38° 13' 19.089 N	81° 57' 12.605 W		
745.0	2.70	235.30	745.0	-1.9	-1.2	446,359.74	1,726,083.23	38° 13' 19.081 N	81° 57' 12.615 W		
775.0	4.30	241.30	774.9	-2.8	-2.8	446,358.79	1,726,081.66	38° 13' 19.072 N	81° 57' 12.635 W		
805.0	5.50	249.30	804.8	-3.9	-5.1	446,357.74	1,726,079.33	38° 13' 19.061 N	81° 57' 12.664 W		
835.0	6.70	253.90	834.6	-4.9	-8.1	446,356.75	1,726,076.30	38° 13' 19.051 N	81° 57' 12.701 W		
865.0	7.50	255.00	864.4	-5.9	-11.7	446,355.76	1,726,072.73	38° 13' 19.041 N	81° 57' 12.746 W		
895.0	9.10	257.60	894.1	-6.9	-15.9	446,354.74	1,726,068.52	38° 13' 19.030 N	81° 57' 12.799 W		
925.0	10.00	257.70	923.7	-7.9	-20.8	446,353.68	1,726,063.66	38° 13' 19.019 N	81° 57' 12.860 W		

Received

OCT 30 2014

11/07/2014



Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
955.0	10.60	259.90	953.2	-9.0	-26.1	446,352.64	1,726,058.40	38° 13' 19.008 N	81° 57' 12.925 W
985.0	12.00	259.10	982.6	-10.1	-31.8	446,351.57	1,726,052.62	38° 13' 18.997 N	81° 57' 12.998 W
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	446,350.37	1,726,046.03	38° 13' 18.985 N	81° 57' 13.080 W
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	446,349.10	1,726,038.55	38° 13' 18.971 N	81° 57' 13.174 W
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	446,347.83	1,726,030.23	38° 13' 18.958 N	81° 57' 13.278 W
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	446,346.49	1,726,021.21	38° 13' 18.944 N	81° 57' 13.391 W
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	446,344.82	1,726,011.73	38° 13' 18.926 N	81° 57' 13.509 W
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	446,342.74	1,726,001.97	38° 13' 18.905 N	81° 57' 13.631 W
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	446,340.13	1,725,992.05	38° 13' 18.878 N	81° 57' 13.755 W
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	446,336.91	1,725,982.23	38° 13' 18.845 N	81° 57' 13.878 W
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	446,333.22	1,725,972.85	38° 13' 18.808 N	81° 57' 13.995 W
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	446,329.38	1,725,964.00	38° 13' 18.769 N	81° 57' 14.105 W
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	446,325.67	1,725,955.42	38° 13' 18.731 N	81° 57' 14.212 W
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	446,322.26	1,725,946.75	38° 13' 18.697 N	81° 57' 14.320 W
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	446,319.05	1,725,937.74	38° 13' 18.664 N	81° 57' 14.433 W
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	446,315.88	1,725,928.55	38° 13' 18.632 N	81° 57' 14.548 W
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	446,312.82	1,725,919.51	38° 13' 18.601 N	81° 57' 14.660 W
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	446,309.96	1,725,910.80	38° 13' 18.572 N	81° 57' 14.769 W
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	446,307.26	1,725,902.48	38° 13' 18.544 N	81° 57' 14.873 W
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	446,304.67	1,725,894.39	38° 13' 18.518 N	81° 57' 14.974 W
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	446,302.09	1,725,886.40	38° 13' 18.491 N	81° 57' 15.074 W
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	446,299.45	1,725,878.25	38° 13' 18.464 N	81° 57' 15.176 W
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	446,291.28	1,725,853.79	38° 13' 18.381 N	81° 57' 15.481 W
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	446,288.41	1,725,846.01	38° 13' 18.352 N	81° 57' 15.578 W
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	446,285.45	1,725,838.48	38° 13' 18.322 N	81° 57' 15.672 W
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	446,282.40	1,725,831.04	38° 13' 18.291 N	81° 57' 15.765 W
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	446,279.31	1,725,823.56	38° 13' 18.260 N	81° 57' 15.859 W
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	446,276.45	1,725,815.86	38° 13' 18.231 N	81° 57' 15.955 W
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	446,273.98	1,725,807.92	38° 13' 18.205 N	81° 57' 16.054 W
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	446,271.73	1,725,799.83	38° 13' 18.182 N	81° 57' 16.155 W
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	446,269.48	1,725,791.69	38° 13' 18.159 N	81° 57' 16.257 W
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	446,266.99	1,725,783.75	38° 13' 18.134 N	81° 57' 16.356 W
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	446,264.20	1,725,776.03	38° 13' 18.105 N	81° 57' 16.452 W
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	446,261.21	1,725,768.56	38° 13' 18.075 N	81° 57' 16.545 W
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	446,258.29	1,725,761.45	38° 13' 18.046 N	81° 57' 16.634 W
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	446,255.56	1,725,754.70	38° 13' 18.018 N	81° 57' 16.718 W
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	446,252.97	1,725,748.19	38° 13' 17.992 N	81° 57' 16.800 W
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	446,250.63	1,725,741.56	38° 13' 17.968 N	81° 57' 16.882 W
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	446,248.48	1,725,734.74	38° 13' 17.946 N	81° 57' 16.968 W
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	446,246.33	1,725,727.92	38° 13' 17.924 N	81° 57' 17.053 W
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	446,244.04	1,725,721.11	38° 13' 17.901 N	81° 57' 17.138 W
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	446,241.68	1,725,714.43	38° 13' 17.877 N	81° 57' 17.221 W
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	446,239.21	1,725,708.46	38° 13' 17.852 N	81° 57' 17.296 W
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	446,236.65	1,725,703.15	38° 13' 17.826 N	81° 57' 17.362 W
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	446,233.95	1,725,697.86	38° 13' 17.798 N	81° 57' 17.428 W
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	446,231.10	1,725,692.03	38° 13' 17.770 N	81° 57' 17.500 W
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	446,228.14	1,725,685.46	38° 13' 17.740 N	81° 57' 17.582 W
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	446,225.05	1,725,678.04	38° 13' 17.708 N	81° 57' 17.675 W
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	446,221.93	1,725,670.06	38° 13' 17.677 N	81° 57' 17.775 W
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	446,218.92	1,725,662.33	38° 13' 17.646 N	81° 57' 17.871 W
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	446,216.11	1,725,655.25	38° 13' 17.618 N	81° 57' 17.959 W
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	446,213.42	1,725,648.70	38° 13' 17.590 N	81° 57' 18.041 W
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	446,210.74	1,725,642.40	38° 13' 17.563 N	81° 57' 18.120 W
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	446,208.13	1,725,636.54	38° 13' 17.537 N	81° 57' 18.193 W



Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	446,203.45	1,725,626.41	38° 13' 17.490 N	81° 57' 18.319 W
TD @ 2660' MD / 2594' TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
650.0	650.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD	
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD	

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

Received  
Office of Oil & Gas  
OCT 30 2014



# **HG Energy, LLC**

Lincoln County, West Virginia

CC Griffith #210

CC Griffith #210

Wellbore #1

Design: Wellbore #1

## **DDC Survey Report**

15 September, 2014

Received  
Office of Oil & Gas  
OCT 30 2014



11/07/2014

Survey Report



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

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

<b>Site</b>	CC Griffith #210				
<b>Site Position:</b>		<b>Northing:</b>	446,361.63 usft	<b>Latitude:</b>	38° 13' 19.100 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,726,084.45 usft	<b>Longitude:</b>	81° 57' 12.600 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.59 °

<b>Well</b>	CC Griffith #210					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	446,361.62 usft	<b>Latitude:</b>	38° 13' 19.100 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,726,084.45 usft	<b>Longitude:</b>	81° 57' 12.600 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	890.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/3/2014	-7.44	66.09	51,842

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	252.50

<b>Survey Program</b>	<b>Date</b>	9/15/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
650.0	2,660.0	MWD (Wellbore #1)	MWD default	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>FIRST SURVEY @ 650' MD / 650' TVD</b>										
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00	
685.0	1.40	194.40	685.0	-0.4	-0.1	0.2	4.00	4.00	0.00	
715.0	1.60	212.00	715.0	-1.1	-0.4	0.7	1.67	0.67	58.67	
745.0	2.70	235.30	745.0	-1.9	-1.2	1.7	4.61	3.67	77.67	
775.0	4.30	241.30	774.9	-2.8	-2.8	3.5	5.46	5.33	20.00	
805.0	5.50	249.30	804.8	-3.9	-5.1	6.0	4.59	4.00	26.67	
835.0	6.70	253.90	834.6	-4.9	-8.1	9.2	4.32	4.00	15.33	
865.0	7.50	255.00	864.4	-5.9	-11.7	12.9	2.70	2.67	3.67	
895.0	9.10	257.60	894.1	-6.9	-15.9	17.3	5.48	5.33	8.67	



Survey Report



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC Griffith #210
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Site:</b>	CC Griffith #210	<b>MD Reference:</b>	Well @ 898.0usft (Decker #9)
<b>Well:</b>	CC Griffith #210	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
925.0	10.00	257.70	923.7	-7.9	-20.8	22.2	3.00	3.00	0.33	
955.0	10.60	259.90	953.2	-9.0	-26.1	27.5	2.39	2.00	7.33	
985.0	12.00	259.10	982.6	-10.1	-31.8	33.4	4.70	4.67	-2.67	
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	40.0	6.06	6.00	3.67	
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	47.5	5.67	5.67	1.00	
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	55.9	5.54	5.33	5.33	
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	64.9	4.15	4.00	-3.67	
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	74.4	3.35	2.67	-6.33	
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	84.3	3.38	2.33	-7.33	
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	94.6	3.99	1.33	-11.00	
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	104.9	4.03	-0.33	-11.67	
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	115.0	4.68	-3.00	-10.67	
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	124.6	3.12	-3.00	-2.67	
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	133.9	1.52	-1.00	3.67	
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	143.2	2.77	0.67	8.67	
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	152.7	2.96	2.67	4.00	
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	162.4	0.68	-0.67	-0.33	
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	172.0	1.87	-1.67	2.67	
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	181.1	3.35	-3.33	1.00	
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	189.9	2.34	-2.33	0.33	
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	198.4	1.04	-1.00	1.00	
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	206.8	0.73	-0.33	-2.33	
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	215.4	2.77	2.67	2.67	
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	241.1	1.01	-0.78	-2.22	
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	249.4	2.17	-1.67	-5.00	
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	257.5	1.34	-1.00	-3.33	
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	265.5	0.56	0.33	-1.67	
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	273.6	0.35	0.33	0.33	
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	281.8	3.89	1.33	13.33	
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	290.1	2.03	0.00	7.33	
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	298.5	1.57	1.00	4.33	
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	306.9	1.08	-0.33	-3.67	
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	315.2	2.91	-1.33	-9.33	
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	323.4	2.01	0.00	-7.33	
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	331.5	2.78	-2.33	-5.67	
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	339.1	2.46	-2.33	3.00	
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	346.4	3.04	-3.00	-2.00	
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	353.4	1.34	-0.67	5.00	
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	360.4	2.40	1.00	9.33	
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	367.5	1.23	0.67	4.33	
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	374.7	1.37	-0.67	-5.00	
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	381.9	1.08	1.00	-1.67	
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	389.0	2.58	-2.33	-4.67	

Survey Report



<b>Company:</b> HG Energy, LLC	<b>Local Co-ordinate Reference:</b> Well CC Griffith #210
<b>Project:</b> Lincoln County, West Virginia	<b>TVD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Site:</b> CC Griffith #210	<b>MD Reference:</b> Well @ 898.0usft (Decker #9)
<b>Well:</b> CC Griffith #210	<b>North Reference:</b> Grid
<b>Wellbore:</b> Wellbore #1	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Wellbore #1	<b>Database:</b> EDM Compass

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	395.4	6.63	-5.67	-16.00
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	401.2	1.97	-1.67	-5.33
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	407.1	2.07	2.00	-2.67
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	413.5	5.65	5.33	8.67
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	420.7	4.06	4.00	3.00
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	428.7	7.35	7.00	8.33
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	437.2	0.10	0.00	0.33
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	445.5	3.67	-3.67	0.00
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	453.1	5.37	-5.33	-2.33
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	460.1	1.76	-1.67	-2.33
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	467.0	1.41	-1.33	-2.00
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	473.3	4.46	-4.33	-5.00
<b>TD @ 2660' MD / 2594' TVD</b>									
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	484.4	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
650.0	650.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD

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

Received  
Office of Oil & Gas  
OCT 30 2014



CC Griffith #210  
 Lincoln County, West Virginia  
 Q140944 & AM-140903  
 Design #1

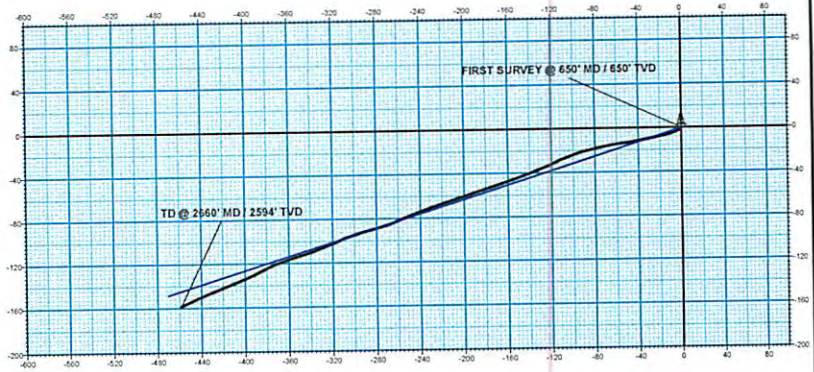
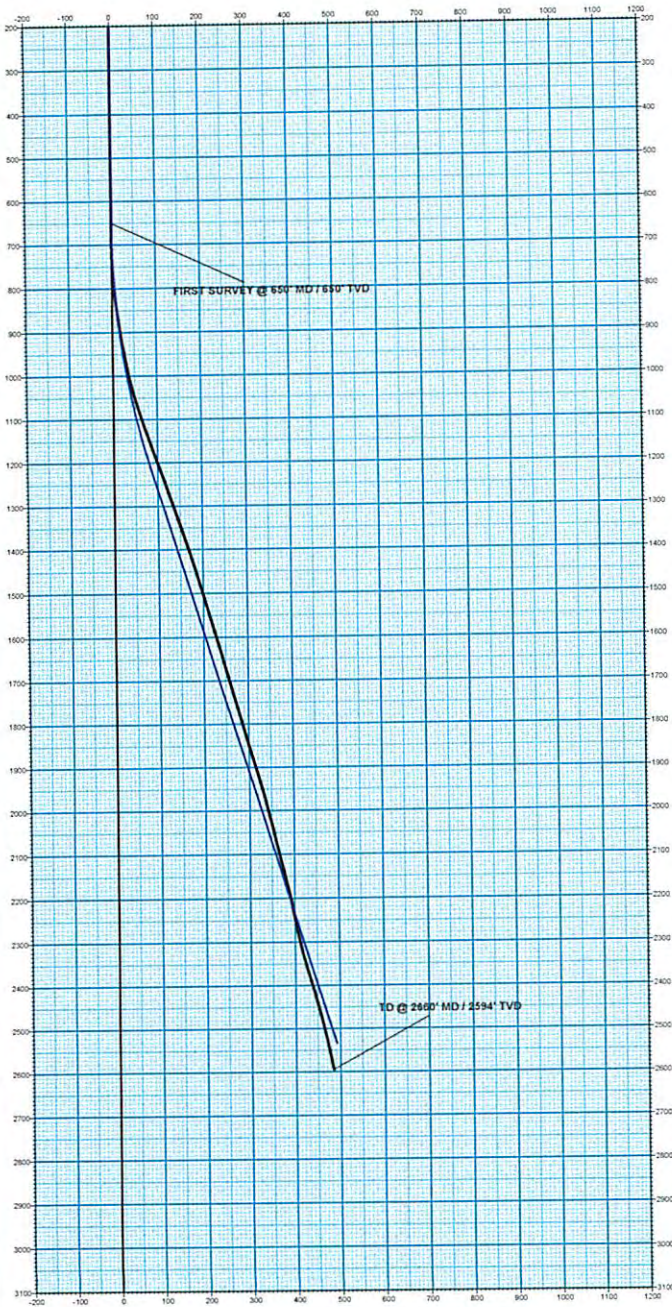
Company Name: HG Energy, LLC  
 CC Griffith #210  
 Lincoln County, West Virginia  
 Rig: Decker #9  
 Created By: Jerry Arsenault  
 Date: 9/15/2014

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:  $-6.85^\circ$   
 Magnetic Field Strength: 51842.3snT  
 Dip Angle:  $66.09^\circ$   
 Date: 9/3/2014  
 Model: IGRF2010



Received  
 Office of Oil & Gas

OCT 30 2014

WELL DETAILS: CC Griffith #210						
		Ground Level:				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	446361.62	1726084.45	38° 13' 19.100 N	81° 57' 12.500 W	

DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude Longitude
Target CC Griffith #210 -plan hits target center	2399.0	-133.8	-424.4	446327.81	1725660.05	38° 13' 17.734 N 81° 57' 17.901 W

ANNOTATIONS								
TVD	MD	Inc	Azi	+N/-S	+E/-W	V/Sect	Departure	Annotation
650.0	650.0	0.00	0.00	0.0	0.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD
2593.9	2660.0	11.70	245.20	-158.2	-458.0	454.4	486.7	TD @ 2660' MD / 2594' TVD

11/07/2014