

87.04772

**HG Energy, LLC**  
Roane County, West Virginia  
A.J. Epling #215  
A.J. Epling #215

**Wellbore #1**

**Design: Wellbore #1**

## **Survey Report - Geographic**

22 May, 2015

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West Virginia Department of Environmental Protection  
**DDC**  
The DIRECTIONAL DRILLING COMPANY

10/23/2015

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Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well A.J. Epling #215
<b>Project:</b>	Roane County, West Virginia	<b>TVD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Site:</b>	A.J. Epling #215	<b>MD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Well:</b>	A.J. Epling #215	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass

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

<b>Site</b>	A.J. Epling #215				
<b>Site Position:</b>		<b>Northing:</b>	14,057,074.46 usft	<b>Latitude:</b>	38° 42' 35.100 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,560,942.75 usft	<b>Longitude:</b>	81° 16' 43.000 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.17 °

<b>Well</b>	A.J. Epling #215					
<b>Well Position</b>	+N/-S	0.0 usft	<b>Northing:</b>	14,057,074.46 usft	<b>Latitude:</b>	38° 42' 35.100 N
	+E/-W	0.0 usft	<b>Easting:</b>	1,560,942.75 usft	<b>Longitude:</b>	81° 16' 43.000 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	1,189.0 usft

<b>Wellbore</b>	Wellbore #1				
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<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/22/2015	-8.04	66.34	51,946

<b>Design</b>	Wellbore #1				
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<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	126.60

<b>Survey Program</b>	<b>Date</b>	5/22/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
500.0	2,572.0	MWD (Wellbore #1)	MWD default	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,057,074.46	1,560,942.75	38° 42' 35.100 N	81° 16' 43.000 W
500.0	0.00	0.00	500.0	0.0	0.0	14,057,074.46	1,560,942.75	38° 42' 35.100 N	81° 16' 43.000 W
<b>First Survey @ 500' MD / 500' TVD</b>									
618.0	0.49	126.14	618.0	-0.3	0.4	14,057,074.16	1,560,943.15	38° 42' 35.092 N	81° 16' 42.995 W
648.0	0.40	47.21	648.0	-0.3	0.6	14,057,074.16	1,560,943.33	38° 42' 35.097 N	81° 16' 42.993 W
678.0	0.80	95.42	678.0	-0.3	0.9	14,057,074.21	1,560,943.62	38° 42' 35.098 N	81° 16' 42.989 W
708.0	1.90	129.71	708.0	-0.6	1.5	14,057,073.87	1,560,944.21	38° 42' 35.094 N	81° 16' 42.981 W
738.0	3.31	130.02	738.0	-1.5	2.5	14,057,073.00	1,560,945.26	38° 42' 35.086 N	81° 16' 42.968 W
768.0	4.60	124.82	767.9	-2.7	4.2	14,057,071.75	1,560,946.91	38° 42' 35.073 N	81° 16' 42.947 W
798.0	5.79	124.64	797.8	-4.3	6.4	14,057,070.21	1,560,949.14	38° 42' 35.058 N	81° 16' 42.919 W
828.0	7.29	124.64	827.6	-6.2	9.2	14,057,068.27	1,560,951.95	38° 42' 35.039 N	81° 16' 42.884 W
858.0	8.31	121.91	857.3	-8.4	12.6	14,057,066.04	1,560,955.36	38° 42' 35.017 N	81° 16' 42.841 W

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Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well A.J. Epling #215
<b>Project:</b>	Roane County, West Virginia	<b>TVD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Site:</b>	A.J. Epling #215	<b>MD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Well:</b>	A.J. Epling #215	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
888.0	9.10	120.94	886.9	-10.8	16.5	14,057,063.67	1,560,959.23	38° 42' 34.994 N	81° 16' 42.792 W
918.0	9.59	121.03	916.5	-13.3	20.7	14,057,061.16	1,560,963.41	38° 42' 34.969 N	81° 16' 42.739 W
948.0	10.21	120.94	946.1	-16.0	25.1	14,057,058.51	1,560,967.83	38° 42' 34.943 N	81° 16' 42.683 W
978.0	11.09	120.85	975.6	-18.8	29.8	14,057,055.66	1,560,972.59	38° 42' 34.915 N	81° 16' 42.623 W
1,008.0	11.80	121.12	1,005.0	-21.9	34.9	14,057,052.60	1,560,977.69	38° 42' 34.885 N	81° 16' 42.558 W
1,038.0	12.99	122.92	1,034.3	-25.3	40.4	14,057,049.18	1,560,983.15	38° 42' 34.851 N	81° 16' 42.489 W
1,068.0	14.18	122.83	1,063.4	-29.1	46.3	14,057,045.35	1,560,989.07	38° 42' 34.814 N	81° 16' 42.414 W
1,098.0	15.29	124.73	1,092.5	-33.4	52.7	14,057,041.11	1,560,995.40	38° 42' 34.772 N	81° 16' 42.334 W
1,128.0	16.39	125.52	1,121.3	-38.1	59.4	14,057,036.40	1,561,002.10	38° 42' 34.725 N	81° 16' 42.249 W
1,158.0	17.41	126.93	1,150.0	-43.2	66.4	14,057,031.24	1,561,009.13	38° 42' 34.675 N	81° 16' 42.161 W
1,188.0	18.21	127.42	1,178.6	-48.8	73.7	14,057,025.69	1,561,016.44	38° 42' 34.620 N	81° 16' 42.068 W
1,218.0	18.69	126.71	1,207.0	-54.5	81.3	14,057,019.97	1,561,024.02	38° 42' 34.564 N	81° 16' 41.972 W
1,248.0	19.71	127.42	1,235.4	-60.4	89.1	14,057,014.03	1,561,031.89	38° 42' 34.505 N	81° 16' 41.873 W
1,278.0	20.59	129.44	1,263.5	-66.9	97.2	14,057,007.60	1,561,039.98	38° 42' 34.442 N	81° 16' 41.770 W
1,308.0	21.08	127.81	1,291.6	-73.5	105.6	14,057,000.94	1,561,048.32	38° 42' 34.376 N	81° 16' 41.665 W
1,338.0	21.08	128.65	1,319.6	-80.2	114.1	14,056,994.26	1,561,056.80	38° 42' 34.310 N	81° 16' 41.558 W
1,368.0	21.30	127.81	1,347.5	-86.9	122.6	14,056,987.55	1,561,065.31	38° 42' 34.244 N	81° 16' 41.450 W
1,398.0	21.79	127.02	1,375.4	-93.6	131.3	14,056,980.86	1,561,074.06	38° 42' 34.178 N	81° 16' 41.339 W
1,428.0	22.71	127.42	1,403.2	-100.5	140.4	14,056,973.99	1,561,083.11	38° 42' 34.111 N	81° 16' 41.225 W
1,458.0	22.98	125.83	1,430.9	-107.4	149.7	14,056,967.04	1,561,092.46	38° 42' 34.042 N	81° 16' 41.106 W
1,488.0	23.51	125.43	1,458.4	-114.3	159.3	14,056,960.15	1,561,102.08	38° 42' 33.974 N	81° 16' 40.985 W
1,518.0	24.30	126.32	1,485.8	-121.4	169.2	14,056,953.02	1,561,111.93	38° 42' 33.904 N	81° 16' 40.860 W
1,548.0	24.79	125.61	1,513.1	-128.8	179.3	14,056,945.70	1,561,122.02	38° 42' 33.832 N	81° 16' 40.733 W
1,578.0	25.41	125.21	1,540.3	-136.1	189.6	14,056,938.33	1,561,132.39	38° 42' 33.760 N	81° 16' 40.601 W
1,608.0	25.81	125.83	1,567.4	-143.7	200.2	14,056,930.80	1,561,142.94	38° 42' 33.685 N	81° 16' 40.468 W
1,638.0	26.51	126.45	1,594.3	-151.5	210.9	14,056,922.99	1,561,153.62	38° 42' 33.609 N	81° 16' 40.333 W
1,668.0	27.31	127.02	1,621.0	-159.6	221.8	14,056,914.87	1,561,164.50	38° 42' 33.529 N	81° 16' 40.195 W
1,698.0	27.62	127.55	1,647.7	-168.0	232.8	14,056,906.49	1,561,175.51	38° 42' 33.446 N	81° 16' 40.056 W
1,728.0	27.88	126.84	1,674.2	-176.4	243.9	14,056,898.05	1,561,186.64	38° 42' 33.363 N	81° 16' 39.915 W
1,758.0	28.28	125.92	1,700.7	-184.8	255.3	14,056,889.67	1,561,198.01	38° 42' 33.280 N	81° 16' 39.771 W
1,788.0	29.30	126.23	1,727.0	-193.3	266.9	14,056,881.16	1,561,209.69	38° 42' 33.197 N	81° 16' 39.624 W
1,818.0	30.49	127.02	1,753.0	-202.2	278.9	14,056,872.24	1,561,221.68	38° 42' 33.109 N	81° 16' 39.472 W
1,848.0	32.21	130.24	1,778.6	-212.0	291.1	14,056,862.49	1,561,233.87	38° 42' 33.013 N	81° 16' 39.318 W
1,878.0	33.80	130.94	1,803.7	-222.6	303.5	14,056,851.86	1,561,246.27	38° 42' 32.908 N	81° 16' 39.161 W
1,908.0	34.51	131.65	1,828.6	-233.7	316.2	14,056,840.74	1,561,258.93	38° 42' 32.798 N	81° 16' 39.001 W
1,938.0	34.69	131.03	1,853.3	-245.0	329.0	14,056,829.49	1,561,271.72	38° 42' 32.688 N	81° 16' 38.839 W
1,968.0	34.38	129.34	1,878.0	-255.9	342.0	14,056,818.52	1,561,284.71	38° 42' 32.579 N	81° 16' 38.675 W
1,998.0	34.69	130.55	1,902.7	-266.9	355.0	14,056,807.60	1,561,297.75	38° 42' 32.472 N	81° 16' 38.510 W
2,028.0	34.82	130.33	1,927.3	-278.0	368.0	14,056,796.51	1,561,310.76	38° 42' 32.363 N	81° 16' 38.345 W
2,058.0	34.60	128.92	1,952.0	-288.8	381.2	14,056,785.61	1,561,323.92	38° 42' 32.255 N	81° 16' 38.178 W
2,088.0	34.91	129.93	1,976.7	-299.7	394.4	14,056,774.75	1,561,337.13	38° 42' 32.148 N	81° 16' 38.011 W
2,118.0	34.82	129.14	2,001.3	-310.6	407.6	14,056,763.83	1,561,350.35	38° 42' 32.041 N	81° 16' 37.844 W
2,148.0	34.91	129.53	2,025.9	-321.5	420.9	14,056,752.96	1,561,363.62	38° 42' 31.934 N	81° 16' 37.676 W
2,178.0	33.80	127.55	2,050.7	-332.0	434.1	14,056,742.41	1,561,376.86	38° 42' 31.830 N	81° 16' 37.509 W
2,208.0	33.89	127.55	2,075.6	-342.2	447.4	14,056,732.23	1,561,390.10	38° 42' 31.729 N	81° 16' 37.341 W
2,238.0	33.89	126.93	2,100.5	-352.4	460.7	14,056,722.11	1,561,403.42	38° 42' 31.630 N	81° 16' 37.173 W
2,268.0	34.11	127.55	2,125.3	-362.5	474.0	14,056,711.96	1,561,416.77	38° 42' 31.536 N	81° 16' 37.004 W
2,298.0	34.20	127.42	2,150.2	-372.8	487.4	14,056,701.71	1,561,430.14	38° 42' 31.429 N	81° 16' 36.835 W
2,328.0	34.11	126.54	2,175.0	-382.9	500.8	14,056,691.57	1,561,443.59	38° 42' 31.329 N	81° 16' 36.665 W
2,388.0	33.89	126.45	2,224.7	-402.8	527.8	14,056,671.62	1,561,470.57	38° 42' 31.132 N	81° 16' 36.323 W
2,418.0	32.48	125.83	2,249.8	-412.5	541.1	14,056,661.93	1,561,483.83	38° 42' 31.037 N	81° 16' 36.156 W
2,448.0	30.58	122.61	2,275.4	-421.4	554.0	14,056,653.11	1,561,496.79	38° 42' 30.950 N	81° 16' 35.992 W
2,478.0	29.12	121.12	2,301.4	-429.2	566.7	14,056,645.22	1,561,509.47	38° 42' 30.872 N	81° 16' 35.831 W
2,508.0	27.62	120.72	2,327.8	-436.6	578.9	14,056,637.89	1,561,521.69	38° 42' 30.800 N	81° 16' 35.677 W

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Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well A.J. Epling #215
<b>Project:</b>	Roane County West Virginia	<b>TVD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Site:</b>	A.J. Epling #215	<b>MD Reference:</b>	WELL @ 1197.0usft (Decker #9)
<b>Well:</b>	A.J. Epling #215	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,572.0	27.62	120.72	2,384.5	-451.7	604.5	14,056,622.74	1,561,547.20	38° 42' 30.651 N	81° 16' 35.354 W
TD @ 2572' MD / 2385' TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N-S (usft)	+E-W (usft)		
500.0	500.0	0.0	0.0	First Survey @ 500' MD / 500' TVD	
2,572.0	2,384.5	-451.7	604.5	TD @ 2572' MD / 2385' TVD	

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

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**HG Energy, LLC**  
Roane County, West Virginia  
A.J. Epling #215  
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Wellbore #1

Design: Wellbore #1

## HG Energy EOW Report

22 May, 2015

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HG Energy EOW Report

**Company:** HG Energy, LLC  
**Project:** Roane County, West Virginia  
**Site:** A.J. Epling #215  
**Well:** A.J. Epling #215  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well A.J. Epling #215  
**TVD Reference:** WELL @ 1197.0usft (Decker #9)  
**MD Reference:** WELL @ 1197.0usft (Decker #9)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

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

**System Datum:** Mean Sea Level

**Site:** A.J. Epling #215

**Site Position:** Northing: 14,057,074.46 usft Latitude: 38° 42' 35.100 N  
 From: Easting: 1,560,942.74 usft Longitude: 81° 16' 43.000 W  
**Position Uncertainty:** Slot Radius: 13-3/16 " Grid Convergence: -0.17°

**Well:** A.J. Epling #215

**Wall Position:** Northing: 14,057,074.46 usft Latitude: 38° 42' 35.100 N  
 +N/S 0.0 usft  
 +E/W 0.0 usft Longitude: 81° 16' 43.000 W  
**Position Uncertainty:** Wellhead Elevation: 0.0 usft Ground Level: 1,189.0 usft

**Wellbore:** Wellbore #1

**Magnetics:** Model Name: IGRF2010 Sample Date: 4/22/2015  
 Declination (°): -8.04 Dip Angle (°): 66.34 Field Strength (nT): 51,946

**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 0.0 126.60

**Survey Program:** Date 5/22/2015

**From (usft):** 500.0  
**To (usft):** 2,572.0 MWD (Wellbore #1)  
**Survey (Wellbore):** MWD default  
**Tool Name:** MWD - Standard  
**Description:** MWD - Standard

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**MD Reference:** WELL @ 1197.0usft (Decker #9)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.0	0.0	0.00	
<b>First Survey @ 500' MD / 500' TVD</b>										
618.0	0.49	126.14	618.0	-0.3	0.4	0.5	0.42	0.5	126.14	
648.0	0.40	47.21	648.0	-0.3	0.6	0.7	1.90	0.7	117.20	
678.0	0.80	95.42	678.0	-0.3	0.9	0.9	2.04	0.9	106.02	
708.0	1.90	129.71	708.0	-0.6	1.5	1.5	4.39	1.5	111.89	
738.0	3.31	130.02	738.0	-1.5	2.5	2.9	4.70	2.9	120.23	
768.0	4.60	124.82	767.9	-2.7	4.2	5.0	4.46	5.0	123.04	
798.0	5.79	124.64	797.8	-4.3	6.4	7.7	3.97	7.7	123.64	
828.0	7.29	124.64	827.6	-6.2	9.2	11.1	5.00	11.1	123.95	
858.0	8.31	121.91	857.3	-8.4	12.6	15.1	3.62	15.2	123.74	
888.0	9.10	120.94	886.9	-10.8	16.5	19.7	2.68	19.7	123.20	
918.0	9.59	121.03	916.5	-13.3	20.7	24.5	1.63	24.6	122.76	
948.0	10.21	120.94	946.1	-16.0	25.1	29.6	2.07	29.7	122.45	
978.0	11.09	120.85	975.6	-18.8	29.8	35.2	2.93	35.3	122.21	
1,008.0	11.80	121.12	1,005.0	-21.9	34.9	41.1	2.37	41.2	122.03	
1,038.0	12.99	122.92	1,034.3	-25.3	40.4	47.5	4.17	47.7	122.04	
1,068.0	14.18	122.83	1,063.4	-29.1	46.3	54.5	3.97	54.7	122.14	
1,098.0	15.29	124.73	1,092.5	-33.4	52.7	62.2	4.03	62.3	122.35	
1,128.0	16.39	125.52	1,121.3	-38.1	59.4	70.3	3.74	70.5	122.67	
1,158.0	17.41	126.93	1,150.0	-43.2	66.4	79.1	3.66	79.2	123.07	
1,188.0	18.21	127.42	1,178.6	-48.8	73.7	88.2	2.71	88.4	123.49	
1,218.0	18.69	126.71	1,207.0	-54.5	81.3	97.7	1.77	97.8	123.84	
1,248.0	19.71	127.42	1,235.4	-60.4	89.1	107.6	3.49	107.7	124.14	
1,278.0	20.39	129.44	1,263.5	-66.9	97.2	117.9	3.74	118.0	124.51	
1,308.0	21.06	127.81	1,291.6	-73.5	105.6	128.6	2.53	128.7	124.85	

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HP  
HG Energy EOW Report

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:

Well A.J. Epling #215  
WELL @ 1197.0usft (Decker #9)  
WELL @ 1197.0usft (Decker #9)  
Grid  
Minimum Curvature  
Compass

Company: HG Energy, LLC  
Project: Roane County, West Virginia  
Site: A.J. Epling #215  
Well: A.J. Epling #215  
Wellbore: Wellbore #1  
Design: Wellbore #1

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
1,338.0	21.08	128.65	1,319.6	-80.2	114.1	139.4	1.01	139.4	125.11
1,368.0	21.30	127.81	1,347.5	-86.9	122.6	150.2	1.25	150.3	125.34
1,398.0	21.79	127.02	1,375.4	-93.6	131.3	161.2	1.90	161.3	125.48
1,428.0	22.71	127.42	1,403.2	-100.5	140.4	172.6	3.11	172.6	125.59
1,458.0	22.98	125.83	1,430.9	-107.4	149.7	184.2	2.25	184.3	125.66
1,488.0	23.51	125.43	1,458.4	-114.3	159.3	196.1	1.84	196.1	125.66
1,518.0	24.30	126.32	1,485.8	-121.4	169.2	208.2	2.89	208.3	125.67
1,548.0	24.79	125.61	1,513.1	-128.8	179.3	220.7	1.91	220.7	125.69
1,578.0	25.41	125.21	1,540.3	-136.1	189.6	233.4	2.14	233.4	125.67
1,608.0	25.81	125.83	1,567.4	-143.7	200.2	246.4	1.60	246.4	125.66
1,638.0	26.51	126.45	1,594.3	-151.5	210.9	259.6	2.50	259.6	125.69
1,668.0	27.31	127.02	1,621.0	-159.6	221.8	273.2	2.80	273.2	125.74
1,698.0	27.62	127.55	1,647.7	-168.0	232.8	287.0	1.32	287.0	125.82
1,728.0	27.88	126.84	1,674.2	-176.4	243.9	301.0	1.40	301.0	125.88
1,758.0	28.28	125.92	1,700.7	-184.8	255.3	315.1	1.97	315.1	125.90
1,788.0	29.30	126.23	1,727.0	-193.3	266.9	329.6	3.44	329.6	125.91
1,818.0	30.49	127.02	1,753.0	-202.2	278.9	344.5	4.18	344.5	125.94
1,848.0	32.21	130.24	1,778.6	-212.0	291.1	360.1	8.00	360.1	126.06
1,878.0	33.80	130.94	1,803.7	-222.6	303.5	376.4	5.45	376.4	126.26
1,908.0	34.51	131.65	1,828.6	-233.7	316.2	393.2	2.71	393.2	126.47
1,938.0	34.69	131.03	1,853.3	-245.0	329.0	410.2	1.32	410.2	126.67
1,968.0	34.38	129.34	1,878.0	-255.9	342.0	427.1	3.36	427.1	126.81
1,998.0	34.69	130.65	1,902.7	-266.9	355.0	444.1	2.51	444.1	126.93
2,028.0	34.82	130.33	1,927.3	-278.0	368.0	461.2	0.60	461.2	127.06
2,058.0	34.60	128.92	1,952.0	-288.8	381.2	478.2	2.77	478.3	127.15
2,088.0	34.91	129.93	1,976.7	-299.7	394.4	495.3	2.18	495.3	127.23
2,118.0	34.82	129.14	2,001.3	-310.6	407.6	512.4	1.53	512.5	127.31

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HP  
HG Energy EOW Report

**Company:** HG Energy, LLC  
**Project:** Roane County, West Virginia  
**Site:** A.J. Epling #215  
**Well:** A.J. Epling #215  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well A.J. Epling #215  
**TVD Reference:** WELL @ 1197.0ustf (Decker #9)  
**MD Reference:** WELL @ 1197.0ustf (Decker #9)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,148.0	34.91	129.53	2,025.9	-321.5	420.9	529.6	0.80	529.6	127.38
2,178.0	33.80	127.55	2,050.7	-332.0	434.1	546.5	5.25	546.5	127.41
2,208.0	33.89	127.55	2,075.6	-342.2	447.4	563.2	0.30	563.2	127.42
2,238.0	33.89	126.93	2,100.5	-352.4	460.7	579.9	1.15	580.0	127.41
2,268.0	34.11	127.55	2,125.3	-362.5	474.0	596.7	1.37	596.8	127.41
2,298.0	34.20	127.42	2,150.2	-372.8	487.4	613.5	0.39	613.6	127.41
2,328.0	34.11	126.54	2,175.0	-382.9	500.8	630.4	1.67	630.4	127.40
2,388.0	33.89	126.45	2,224.7	-402.8	527.8	663.9	0.38	664.0	127.35
2,418.0	32.48	125.83	2,249.8	-412.5	541.1	680.3	4.83	680.4	127.32
2,448.0	30.58	122.61	2,275.4	-421.4	554.0	696.0	8.46	696.1	127.25
2,478.0	29.12	121.12	2,301.4	-429.2	566.7	710.9	5.46	710.9	127.14
2,508.0	27.62	120.72	2,327.8	-436.6	578.9	725.1	5.04	725.1	127.02
2,572.0	27.62	120.72	2,384.5	-451.7	604.5	754.6	0.00	754.6	126.77

TD @ 2572' MD / 2385' TVD

Design Annotations	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
	500.0	500.0	0.0	0.0	First Survey @ 500' MD / 500' TVD
	2,572.0	2,384.5	-451.7	604.5	TD @ 2572' MD / 2385' TVD

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

10/23/2015

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**A.J. Epling #215**  
 Roane County, West Virginia  
**Q150406 & AM-150352**  
 Design #1

Company Name: HG Energy, LLC  
 A.J. Epling #215  
 Roane County, West Virginia  
 Rig: Decker #9  
 Created By: Shane Robbins  
 Date: 5/22/2015

**PROJECT DETAILS:** Roane County, West Virginia  
 Geodetic System: Universal Transverse Mercator  
 NAD83 West Virginia - HARRY  
 Ellipsoid: GRS 1980  
 Zone: 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**DESIGN TARGET DETAILS**

Name	TVD	+E/W	Northing	Eastng	Latitude	Longitude
Target A.J. Epling #215 -plan this target center	2211.0	-278.7	558.0	44056689.75	16514443.72	33° 47' 31.00" N 81° 16' 26.00" W

**ANNOTATIONS**

MD	INC	AS	TVD	+E/W	Vsct Depth	Amplitude
500.0	0.0	0.0	200.0	0.0	0.0	0.0
572.0	27.87	125.72	238.45	-451.7	654.8	755.7 TD @ 2017 MD / 2387 TVD

**Azimuths to Grid North**  
 Correction: -7.87°  
 Magnetic Field  
 Strength: 51945.8nT  
 Dip Angle: 66.34°  
 Date: 4/22/2015  
 Model: IGRF2010

# HG Energy

