

HG Energy, LLC

Roane County, West Virginia

A.J. Epling #214

A.J. Epling #214

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

21 July, 2015



WV Department of
Environmental Protection
09/04/2015

HP
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well A.J. Epling #214
Project:	Roane County, West Virginia	TVD Reference:	WELL @ 1185.0usft (Decker #9)
Site:	A.J. Epling #214	MD Reference:	WELL @ 1185.0usft (Decker #9)
Well:	A.J. Epling #214	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Project	Roane 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	A.J. Epling #214				
Site Position:		Northing:	14,055,894.25 usft	Latitude:	38° 42' 23.400 N
From:	Lat/Long	Easting:	1,559,964.50 usft	Longitude:	81° 16' 55.300 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.18 °

Well	A.J. Epling #214					
Well Position	+N/-S	0.0 usft	Northing:	14,055,894.25 usft	Latitude:	38° 42' 23.400 N
	+E/-W	0.0 usft	Easting:	1,559,964.50 usft	Longitude:	81° 16' 55.300 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,178.0 usft	

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/9/2015	-8.00	66.34	51,908

Design	Wellbore #1				
Audit Notes:		Phase:	ACTUAL	Tie On Depth:	0.0
Version:	1.0				

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	32.63

Survey Program	Date 7/21/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
500.0	2,664.0	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	14,055,894.25	1,559,964.50	38° 42' 23.400 N	81° 16' 55.300 W
500.0	0.00	0.00	500.0	0.0	0.0	14,055,894.25	1,559,964.50	38° 42' 23.400 N	81° 16' 55.300 W
First Survey @ 500' MD / 500' TVD									
589.0	0.62	128.79	589.0	-0.3	0.4	14,055,893.95	1,559,964.87	38° 42' 23.397 N	81° 16' 55.295 W
619.0	0.40	160.39	619.0	-0.5	0.5	14,055,893.75	1,559,965.03	38° 42' 23.395 N	81° 16' 55.293 W
649.0	0.49	73.79	649.0	-0.6	0.7	14,055,893.68	1,559,965.19	38° 42' 23.394 N	81° 16' 55.291 W
679.0	1.81	42.46	679.0	-0.2	1.1	14,055,894.07	1,559,965.63	38° 42' 23.398 N	81° 16' 55.286 W
709.0	3.09	34.48	709.0	0.8	1.9	14,055,895.08	1,559,966.41	38° 42' 23.408 N	81° 16' 55.276 W
739.0	4.51	34.26	738.9	2.5	3.0	14,055,896.73	1,559,967.53	38° 42' 23.425 N	81° 16' 55.262 W
769.0	5.92	29.59	768.8	4.8	4.5	14,055,899.05	1,559,968.96	38° 42' 23.448 N	81° 16' 55.244 W
799.0	6.89	28.36	798.6	7.7	6.1	14,055,901.97	1,559,970.58	38° 42' 23.477 N	81° 16' 55.224 W
829.0	8.09	28.36	828.3	11.2	7.9	14,055,905.42	1,559,972.44	38° 42' 23.511 N	81° 16' 55.200 W

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Well: A.J. Epling #214	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
859.0	9.28	28.09	858.0	15.2	10.1	14,055,909.41	1,559,974.58	38° 42' 23.550 N	81° 16' 55.173 W
889.0	10.52	28.09	887.5	19.7	12.5	14,055,913.96	1,559,977.01	38° 42' 23.595 N	81° 16' 55.143 W
919.0	11.80	28.09	917.0	24.8	15.2	14,055,919.08	1,559,979.74	38° 42' 23.646 N	81° 16' 55.109 W
949.0	12.90	27.87	946.3	30.5	18.3	14,055,924.75	1,559,982.75	38° 42' 23.702 N	81° 16' 55.071 W
979.0	13.70	27.39	975.5	36.6	21.5	14,055,930.86	1,559,985.95	38° 42' 23.763 N	81° 16' 55.031 W
1,009.0	14.98	27.48	1,004.5	43.2	24.9	14,055,937.46	1,559,989.38	38° 42' 23.828 N	81° 16' 54.988 W
1,039.0	15.82	28.27	1,033.5	50.2	28.6	14,055,944.50	1,559,993.10	38° 42' 23.898 N	81° 16' 54.941 W
1,069.0	17.01	27.79	1,062.2	57.7	32.6	14,055,951.98	1,559,997.08	38° 42' 23.972 N	81° 16' 54.891 W
1,099.0	17.90	29.37	1,090.8	65.6	36.9	14,055,959.88	1,560,001.39	38° 42' 24.050 N	81° 16' 54.837 W
1,129.0	18.60	30.30	1,119.3	73.8	41.6	14,055,968.03	1,560,006.07	38° 42' 24.131 N	81° 16' 54.778 W
1,159.0	18.91	31.27	1,147.7	82.1	46.5	14,055,976.32	1,560,011.00	38° 42' 24.213 N	81° 16' 54.716 W
1,189.0	19.31	31.58	1,176.1	90.4	51.6	14,055,984.70	1,560,016.13	38° 42' 24.296 N	81° 16' 54.652 W
1,219.0	20.02	32.06	1,204.3	99.0	57.0	14,055,993.27	1,560,021.45	38° 42' 24.381 N	81° 16' 54.585 W
1,249.0	20.59	31.66	1,232.5	107.9	62.4	14,056,002.12	1,560,026.94	38° 42' 24.469 N	81° 16' 54.516 W
1,279.0	20.99	31.66	1,260.5	116.9	68.0	14,056,011.18	1,560,032.53	38° 42' 24.558 N	81° 16' 54.446 W
1,309.0	21.39	31.18	1,288.5	126.2	73.7	14,056,020.43	1,560,038.18	38° 42' 24.650 N	81° 16' 54.375 W
1,339.0	22.18	30.30	1,316.4	135.8	79.4	14,056,030.00	1,560,043.87	38° 42' 24.745 N	81° 16' 54.304 W
1,369.0	22.49	30.08	1,344.1	145.6	85.1	14,056,039.86	1,560,049.61	38° 42' 24.842 N	81° 16' 54.232 W
1,399.0	22.98	30.96	1,371.8	155.6	91.0	14,056,049.85	1,560,055.50	38° 42' 24.941 N	81° 16' 54.158 W
1,429.0	23.82	31.88	1,399.3	165.8	97.2	14,056,060.01	1,560,061.71	38° 42' 25.042 N	81° 16' 54.080 W
1,459.0	24.30	32.77	1,426.7	176.1	103.8	14,056,070.35	1,560,068.25	38° 42' 25.144 N	81° 16' 53.997 W
1,489.0	24.70	33.29	1,454.0	186.5	110.5	14,056,080.78	1,560,075.03	38° 42' 25.248 N	81° 16' 53.912 W
1,519.0	25.59	33.87	1,481.2	197.1	117.6	14,056,091.39	1,560,082.08	38° 42' 25.353 N	81° 16' 53.824 W
1,549.0	26.38	34.48	1,508.1	208.0	125.0	14,056,102.27	1,560,089.47	38° 42' 25.461 N	81° 16' 53.731 W
1,579.0	27.49	35.10	1,534.9	219.2	132.7	14,056,113.43	1,560,097.22	38° 42' 25.571 N	81° 16' 53.634 W
1,609.0	28.81	34.97	1,561.3	230.8	140.8	14,056,125.02	1,560,105.34	38° 42' 25.686 N	81° 16' 53.531 W
1,639.0	29.92	35.19	1,587.5	242.8	149.3	14,056,137.05	1,560,113.80	38° 42' 25.806 N	81° 16' 53.425 W
1,669.0	30.31	33.78	1,613.4	255.2	157.8	14,056,149.46	1,560,122.32	38° 42' 25.928 N	81° 16' 53.318 W
1,699.0	30.58	31.80	1,639.3	268.0	166.1	14,056,162.24	1,560,130.55	38° 42' 26.055 N	81° 16' 53.215 W
1,729.0	30.40	30.69	1,665.1	281.0	174.0	14,056,175.25	1,560,138.45	38° 42' 26.184 N	81° 16' 53.116 W
1,759.0	30.49	30.30	1,691.0	294.1	181.7	14,056,188.35	1,560,146.16	38° 42' 26.314 N	81° 16' 53.019 W
1,789.0	31.42	31.58	1,716.7	307.3	189.6	14,056,201.58	1,560,154.10	38° 42' 26.445 N	81° 16' 52.919 W
1,819.0	32.70	31.80	1,742.1	320.9	198.0	14,056,215.13	1,560,162.46	38° 42' 26.579 N	81° 16' 52.814 W
1,849.0	35.22	33.47	1,767.0	335.0	207.0	14,056,229.24	1,560,171.50	38° 42' 26.719 N	81° 16' 52.701 W
1,879.0	37.61	34.26	1,791.2	349.8	216.9	14,056,244.02	1,560,181.43	38° 42' 26.865 N	81° 16' 52.576 W
1,909.0	39.90	35.37	1,814.6	365.2	227.7	14,056,259.44	1,560,192.15	38° 42' 27.018 N	81° 16' 52.441 W
1,939.0	41.58	35.37	1,837.3	381.2	239.0	14,056,275.40	1,560,203.49	38° 42' 27.176 N	81° 16' 52.299 W
1,969.0	42.29	36.07	1,859.6	397.4	250.7	14,056,291.68	1,560,215.19	38° 42' 27.338 N	81° 16' 52.152 W
1,999.0	43.39	36.16	1,881.6	413.9	262.7	14,056,308.16	1,560,227.22	38° 42' 27.501 N	81° 16' 52.001 W
2,029.0	44.01	36.07	1,903.3	430.7	274.9	14,056,324.90	1,560,239.43	38° 42' 27.667 N	81° 16' 51.847 W
2,059.0	44.72	35.98	1,924.7	447.6	287.3	14,056,341.87	1,560,251.77	38° 42' 27.835 N	81° 16' 51.692 W
2,089.0	45.91	35.98	1,945.8	464.9	299.8	14,056,359.13	1,560,264.30	38° 42' 28.006 N	81° 16' 51.535 W
2,119.0	47.11	35.19	1,966.5	482.6	312.5	14,056,376.83	1,560,276.96	38° 42' 28.181 N	81° 16' 51.375 W
2,149.0	48.39	34.57	1,986.7	500.8	325.2	14,056,395.04	1,560,289.66	38° 42' 28.362 N	81° 16' 51.216 W
2,179.0	49.09	33.87	2,006.4	519.4	337.8	14,056,413.69	1,560,302.34	38° 42' 28.547 N	81° 16' 51.057 W
2,209.0	48.52	33.38	2,026.2	538.2	350.3	14,056,432.49	1,560,314.84	38° 42' 28.733 N	81° 16' 50.900 W
2,239.0	47.90	32.06	2,046.2	557.1	362.4	14,056,451.31	1,560,326.93	38° 42' 28.919 N	81° 16' 50.748 W
2,269.0	47.90	31.49	2,066.3	576.0	374.2	14,056,470.23	1,560,338.66	38° 42' 29.107 N	81° 16' 50.600 W
2,299.0	47.99	31.80	2,086.4	594.9	385.8	14,056,489.19	1,560,350.34	38° 42' 29.295 N	81° 16' 50.454 W
2,329.0	48.52	31.09	2,106.4	614.0	397.5	14,056,508.29	1,560,362.02	38° 42' 29.484 N	81° 16' 50.307 W
2,359.0	48.79	30.56	2,126.2	633.4	409.1	14,056,527.63	1,560,373.56	38° 42' 29.676 N	81° 16' 50.162 W
2,389.0	48.79	30.47	2,146.0	652.8	420.5	14,056,547.07	1,560,385.02	38° 42' 29.868 N	81° 16' 50.018 W
2,419.0	48.92	29.90	2,165.7	672.4	431.9	14,056,566.60	1,560,396.38	38° 42' 30.062 N	81° 16' 49.876 W
2,449.0	49.49	28.98	2,185.3	692.1	443.0	14,056,586.38	1,560,407.54	38° 42' 30.258 N	81° 16' 49.736 W
2,479.0	49.89	28.67	2,204.7	712.2	454.1	14,056,606.42	1,560,418.57	38° 42' 30.456 N	81° 16' 49.597 W

COMPASS 5000.1 Build 74
WV Department of Environmental Protection
Office: 29384 N
0 2015

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Project: Roane County, West Virginia	TVD Reference: WELL @ 1185.0usft (Decker #9)
Site: A.J. Epling #214	MD Reference: WELL @ 1185.0usft (Decker #9)
Well: A.J. Epling #214	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,509.0	48.92	27.70	2,224.2	732.3	464.8	14,056,626.50	1,560,429.33	38° 42' 30.655 N	81° 16' 49.462 W
2,539.0	47.19	26.68	2,244.3	752.1	475.0	14,056,646.34	1,560,439.53	38° 42' 30.851 N	81° 16' 49.334 W
2,569.0	45.52	25.49	2,265.0	771.6	484.6	14,056,665.84	1,560,449.08	38° 42' 31.044 N	81° 16' 49.215 W
2,599.0	43.81	27.17	2,286.3	790.5	493.9	14,056,684.74	1,560,458.42	38° 42' 31.232 N	81° 16' 49.097 W
2,664.0	43.81	27.17	2,333.2	830.5	514.5	14,056,724.77	1,560,478.97	38° 42' 31.628 N	81° 16' 48.839 W
TD @ 2664' MD / 2333' 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
2,664.0	2,333.2	830.5	514.5	TD @ 2664' MD / 2333' TVD

Checked By: _____ Approved By: _____ Date: _____

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Wellbore #1

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	+E/-W	0.0 usft	Easting:	1,559,964.49 usft	Longitude:	81° 16' 55.300 W
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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	32.63	

Survey Program	Date 7/21/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
500.0	2,664.0	MWD (Wellbore #1)	MWD default	MWD - Standard

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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	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.0	0.00	
First Survey @ 500' MD / 500' TVD										
589.0	0.62	128.79	589.0	-0.3	0.4	-0.1	0.70	0.5	128.79	
619.0	0.40	160.39	619.0	-0.5	0.5	-0.1	1.16	0.7	133.07	
649.0	0.49	73.79	649.0	-0.6	0.7	-0.1	2.05	0.9	129.09	
679.0	1.81	42.46	679.0	-0.2	1.1	0.5	4.72	1.2	98.96	
709.0	3.09	34.48	709.0	0.8	1.9	1.7	4.41	2.1	66.41	
739.0	4.51	34.26	738.9	2.5	3.0	3.7	4.73	3.9	50.79	
769.0	5.92	29.59	768.8	4.8	4.5	6.4	4.90	6.6	42.94	
799.0	6.89	28.36	798.6	7.7	6.1	9.8	3.27	9.8	38.22	
829.0	8.09	28.36	828.3	11.2	7.9	13.7	4.00	13.7	35.42	
859.0	9.28	28.09	858.0	15.2	10.1	18.2	3.97	18.2	33.63	
889.0	10.52	28.09	887.5	19.7	12.5	23.3	4.13	23.3	32.41	
919.0	11.80	28.09	917.0	24.8	15.2	29.1	4.27	29.1	31.55	
949.0	12.90	27.87	946.3	30.5	18.3	35.5	3.67	35.5	30.90	
979.0	13.70	27.39	975.5	36.6	21.5	42.4	2.69	42.4	30.37	
1,009.0	14.98	27.48	1,004.5	43.2	24.9	49.8	4.27	49.9	29.93	
1,039.0	15.82	28.27	1,033.5	50.2	28.6	57.7	2.89	57.8	29.65	
1,069.0	17.01	27.79	1,062.2	57.7	32.6	66.2	3.99	66.3	29.44	
1,099.0	17.90	29.37	1,090.8	65.6	36.9	75.2	3.36	75.3	29.34	
1,129.0	18.60	30.30	1,119.3	73.8	41.6	84.6	2.53	84.7	29.40	
1,159.0	18.91	31.27	1,147.7	82.1	46.5	94.2	1.47	94.3	29.54	
1,189.0	19.31	31.58	1,176.1	90.4	51.6	104.0	1.38	104.1	29.72	
1,219.0	20.02	32.06	1,204.3	99.0	57.0	114.1	2.43	114.2	29.90	
1,249.0	20.59	31.66	1,232.5	107.9	62.4	124.5	1.96	124.6	30.07	
1,279.0	20.99	31.66	1,260.5	116.9	68.0	135.2	1.33	135.3	30.19	

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HG Energy EOW Report



Company: HG Energy, LLC	Local Co-ordinate Reference: Well A.J. Epling #214
Project: Roane County, West Virginia	TVD Reference: WELL @ 1185.0usft (Decker #9)
Site: A.J. Epling #214	MD Reference: WELL @ 1185.0usft (Decker #9)
Well: A.J. Epling #214	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 (")	
1,309.0	21.39	31.18	31.18	1,288.5	126.2	73.7	146.0	1.45	146.1	30.28	
1,339.0	22.18	30.30	30.30	1,316.4	135.8	79.4	157.1	2.85	157.3	30.32	
1,369.0	22.49	30.08	30.08	1,344.1	145.6	85.1	168.5	1.07	168.7	30.31	
1,399.0	22.98	30.96	30.96	1,371.8	155.6	91.0	180.1	1.99	180.3	30.32	
1,429.0	23.82	31.88	31.88	1,399.3	165.8	97.2	192.0	3.05	192.2	30.39	
1,459.0	24.30	32.77	32.77	1,426.7	176.1	103.8	204.2	2.01	204.4	30.51	
1,489.0	24.70	33.29	33.29	1,454.0	186.5	110.5	216.7	1.51	216.8	30.65	
1,519.0	25.59	33.87	33.87	1,481.2	197.1	117.6	229.4	3.08	229.6	30.81	
1,549.0	26.38	34.48	34.48	1,508.1	208.0	125.0	242.6	2.78	242.7	31.00	
1,579.0	27.49	35.10	35.10	1,534.9	219.2	132.7	256.2	3.82	256.2	31.20	
1,609.0	28.81	34.97	34.97	1,561.3	230.8	140.8	270.3	4.40	270.4	31.40	
1,639.0	29.92	35.19	35.19	1,587.5	242.8	149.3	285.0	3.72	285.0	31.59	
1,669.0	30.31	33.78	33.78	1,613.4	255.2	157.8	300.0	2.69	300.1	31.73	
1,699.0	30.58	31.80	31.80	1,639.3	268.0	166.1	315.2	3.46	315.3	31.78	
1,729.0	30.40	30.69	30.69	1,665.1	281.0	174.0	330.5	1.97	330.5	31.76	
1,759.0	30.49	30.30	30.30	1,691.0	294.1	181.7	345.6	0.72	345.7	31.70	
1,789.0	31.42	31.58	31.58	1,716.7	307.3	189.6	361.1	3.80	361.1	31.67	
1,819.0	32.70	31.80	31.80	1,742.1	320.9	198.0	377.0	4.28	377.0	31.67	
1,849.0	35.22	33.47	33.47	1,767.0	335.0	207.0	393.7	8.96	393.8	31.71	
1,879.0	37.61	34.26	34.26	1,791.2	349.8	216.9	411.5	8.12	411.6	31.81	
1,909.0	39.90	35.37	35.37	1,814.6	365.2	227.7	430.3	7.98	430.3	31.94	
1,939.0	41.58	35.37	35.37	1,837.3	381.2	239.0	449.9	5.60	449.9	32.09	
1,969.0	42.29	36.07	36.07	1,859.6	397.4	250.7	469.9	2.83	469.9	32.24	
1,999.0	43.39	36.16	36.16	1,881.6	413.9	262.7	490.2	3.67	490.2	32.40	
2,029.0	44.01	36.07	36.07	1,903.3	430.7	274.9	510.9	2.08	510.9	32.55	
2,059.0	44.72	35.98	35.98	1,924.7	447.6	287.3	531.9	2.38	531.9	32.69	
2,089.0	45.91	35.98	35.98	1,945.8	464.9	299.8	553.2	3.97	553.2	32.82	

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HG Energy EOW Report



Company: HG Energy, LLC	Local Co-ordinate Reference: Well A.J. Epling #214
Project: Roane County, West Virginia	TVD Reference: WELL @ 1185.0usft (Decker #9)
Site: A.J. Epling #214	MD Reference: WELL @ 1185.0usft (Decker #9)
Well: A.J. Epling #214	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)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,119.0	47.11	35.19	1,966.5	482.6	312.5	574.9	4.43	574.9	32.92
2,149.0	48.39	34.57	1,986.7	500.8	325.2	597.1	4.53	597.1	33.00
2,179.0	49.09	33.87	2,006.4	519.4	337.8	619.6	2.92	619.6	33.04
2,209.0	48.52	33.38	2,026.2	538.2	350.3	642.2	2.26	642.2	33.06
2,239.0	47.90	32.06	2,046.2	557.1	362.4	664.6	3.88	664.6	33.05
2,269.0	47.90	31.49	2,066.3	576.0	374.2	686.8	1.41	686.8	33.01
2,299.0	47.99	31.80	2,086.4	594.9	385.8	709.1	0.82	709.1	32.97
2,329.0	48.52	31.09	2,106.4	614.0	397.5	731.5	2.50	731.5	32.92
2,359.0	48.79	30.56	2,126.2	633.4	409.1	754.0	1.60	754.0	32.86
2,389.0	48.79	30.47	2,146.0	652.8	420.5	776.5	0.23	776.5	32.79
2,419.0	48.92	29.90	2,165.7	672.4	431.9	799.1	1.49	799.1	32.71
2,449.0	49.49	28.98	2,185.3	692.1	443.0	821.8	3.00	821.8	32.62
2,479.0	49.89	28.67	2,204.7	712.2	454.1	844.6	1.55	844.6	32.52
2,509.0	48.92	27.70	2,224.2	732.3	464.8	867.3	4.06	867.3	32.41
2,539.0	47.19	26.68	2,244.3	752.1	475.0	889.5	6.30	889.6	32.28
2,569.0	45.52	25.49	2,265.0	771.6	484.6	911.1	6.26	911.1	32.13
2,599.0	43.81	27.17	2,286.3	790.5	493.9	932.1	6.93	932.1	32.00
2,664.0	43.81	27.17	2,333.2	830.5	514.5	976.9	0.00	977.0	31.78

TD @ 2664' MD / 2333' 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
2,664.0	2,333.2	830.5	514.5	TD @ 2664' MD / 2333' TVD

Company Name: HG Energy, LLC
 A.J. Epling #214
 Roane County, West Virginia
 Rig: Decker #9
 Created By: Shane Robbins
 Date: 7/21/2015

A.J. Epling #214
 Roane County, West Virginia
 Q150558 & AM-150488
 Design #1



DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Target A.J. Epling #214 - plan hills target center	2295.0	695.4	445.9	1405699.56	1560410.37	39° 42' 30.300 N	81° 16' 49.700 W

PROJECT DETAILS: Roane County, West Virginia

Geodetic System: Universal Transverse Mercator
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level

WELL DETAILS: A.J. Epling #214

+N-S	+E-W	Northing	Easting	Ground Level	Latitude	Longitude
0.0	0.0	14055994.74	1559964.49	1178.0	39° 42' 23.400 N	81° 16' 55.300 W

ANNOTATIONS

MD	Inc	Asl	TVD	+N-S	+E-W	Vsect	Departure	Annotation
500.0	0.00	6.50	500.0	0.0	0.0	0.0	0.0	First Survey @ 500' MD / 500' TVD
2654.0	43.91	27.17	2333.2	930.5	614.5	976.9	979.4	TD @ 2654' MD / 2333' TVD

G

M ↑ T

Azimuths to Grid North

Correction: -7.82°

Magnetic Field
 Strength: 51907.8snT
 Dip Angle: 66.34°
 Date: 7/9/2015
 Model: IGRF2015

HG Energy

