

HG Energy, LLC
Roane County, West Virginia
A.J. Epling #211
A.J. Epling #211

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

22 May, 2015

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DDC 2015
The DIRECTIONAL DRILLING COMPANY
West Virginia Department of
Environmental Protection

09/04/2015

HP
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well A.J. Epling #211
Project:	Roane County, West Virginia	TVD Reference:	WELL @ 1197.0usft (Decker #9)
Site:	A.J. Epling #211	MD Reference:	WELL @ 1197.0usft (Decker #9)
Well:	A.J. Epling #211	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 #211				
Site Position:		Northing:	14,057,094.64 usft	Latitude:	38° 42' 35.300 N
From:	Lat/Long	Easting:	1,560,958.65 usft	Longitude:	81° 16' 42.800 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.17 °

Well	A.J. Epling #211					
Well Position	+N/-S	0.0 usft	Northing:	14,057,094.64 usft	Latitude:	38° 42' 35.300 N
	+E/-W	0.0 usft	Easting:	1,560,958.65 usft	Longitude:	81° 16' 42.800 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	1,189.0 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/18/2015	-7.99	66.36	51,926

Design	Wellbore #1				
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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	40.93

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	5/22/2015	550.0	2,602.0	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	14,057,094.64	1,560,958.65	38° 42' 35.300 N	81° 16' 42.800 W
550.0	0.00	0.00	550.0	0.0	0.0	14,057,094.64	1,560,958.65	38° 42' 35.300 N	81° 16' 42.800 W
First Survey @ 550' MD / 550' TVD									
618.0	1.59	123.45	618.0	-0.5	0.8	14,057,094.12	1,560,959.44	38° 42' 35.295 N	81° 16' 42.780 W
648.0	1.50	113.45	648.0	-0.9	1.5	14,057,093.73	1,560,960.15	38° 42' 35.291 N	81° 16' 42.781 W
678.0	1.68	96.75	678.0	-1.1	2.3	14,057,093.53	1,560,960.95	38° 42' 35.289 N	81° 16' 42.771 W
708.0	3.00	72.51	707.9	-0.9	3.5	14,057,093.71	1,560,962.13	38° 42' 35.291 N	81° 16' 42.756 W
738.0	4.42	64.05	737.9	-0.2	5.3	14,057,094.45	1,560,963.92	38° 42' 35.298 N	81° 16' 42.734 W
768.0	5.92	60.21	767.8	1.1	7.6	14,057,095.73	1,560,966.30	38° 42' 35.311 N	81° 16' 42.704 W
798.0	7.29	55.41	797.6	2.9	10.6	14,057,097.58	1,560,969.21	38° 42' 35.329 N	81° 16' 42.667 W
828.0	8.62	53.52	827.3	5.4	13.9	14,057,099.99	1,560,972.59	38° 42' 35.353 N	81° 16' 42.624 W
858.0	9.81	50.21	856.9	8.3	17.7	14,057,102.96	1,560,976.36	38° 42' 35.383 N	81° 16' 42.577 W



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Well:	A.J. Epling #211	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	
888.0	10.78	49.64	886.4	11.8	21.8	14,057,106.42	1,560,980.46	38° 42' 35.417 N	81° 16' 42.525 W	
918.0	11.71	48.32	915.8	15.6	26.2	14,057,110.26	1,560,984.87	38° 42' 35.455 N	81° 16' 42.470 W	
948.0	12.59	45.54	945.1	19.9	30.8	14,057,114.57	1,560,989.48	38° 42' 35.498 N	81° 16' 42.412 W	
978.0	13.70	42.63	974.4	24.8	35.6	14,057,119.48	1,560,994.22	38° 42' 35.547 N	81° 16' 42.352 W	
1,008.0	14.49	39.63	1,003.5	30.3	40.4	14,057,124.98	1,560,999.02	38° 42' 35.601 N	81° 16' 42.292 W	
1,038.0	15.11	37.65	1,032.5	36.3	45.1	14,057,130.97	1,561,003.80	38° 42' 35.661 N	81° 16' 42.232 W	
1,068.0	15.82	34.92	1,061.4	42.8	49.9	14,057,137.42	1,561,008.53	38° 42' 35.725 N	81° 16' 42.172 W	
1,098.0	16.79	34.43	1,090.2	49.7	54.7	14,057,144.34	1,561,013.32	38° 42' 35.793 N	81° 16' 42.112 W	
1,128.0	17.28	34.21	1,118.9	57.0	59.6	14,057,151.60	1,561,018.28	38° 42' 35.865 N	81° 16' 42.050 W	
1,158.0	17.28	33.51	1,147.5	64.4	64.6	14,057,159.00	1,561,023.24	38° 42' 35.938 N	81° 16' 41.987 W	
1,188.0	17.59	33.82	1,176.1	71.8	69.6	14,057,166.48	1,561,028.22	38° 42' 36.013 N	81° 16' 41.925 W	
1,218.0	18.21	33.73	1,204.7	79.5	74.7	14,057,174.15	1,561,033.35	38° 42' 36.088 N	81° 16' 41.860 W	
1,248.0	19.00	33.11	1,233.1	87.5	80.0	14,057,182.14	1,561,038.62	38° 42' 36.168 N	81° 16' 41.794 W	
1,278.0	19.89	33.24	1,261.4	95.9	85.4	14,057,190.50	1,561,044.09	38° 42' 36.250 N	81° 16' 41.725 W	
1,308.0	20.42	33.24	1,289.6	104.5	91.1	14,057,199.14	1,561,049.75	38° 42' 36.336 N	81° 16' 41.654 W	
1,338.0	21.21	34.74	1,317.6	113.3	97.1	14,057,207.98	1,561,055.71	38° 42' 36.424 N	81° 16' 41.579 W	
1,368.0	22.01	35.23	1,345.5	122.4	103.4	14,057,217.03	1,561,062.05	38° 42' 36.513 N	81° 16' 41.500 W	
1,398.0	22.80	35.14	1,373.2	131.7	110.0	14,057,226.38	1,561,068.64	38° 42' 36.606 N	81° 16' 41.417 W	
1,428.0	23.99	36.42	1,400.8	141.4	116.9	14,057,236.04	1,561,075.60	38° 42' 36.702 N	81° 16' 41.329 W	
1,458.0	25.01	37.43	1,428.1	151.3	124.4	14,057,245.98	1,561,083.08	38° 42' 36.800 N	81° 16' 41.236 W	
1,488.0	25.98	38.62	1,455.1	161.5	132.4	14,057,256.15	1,561,091.04	38° 42' 36.901 N	81° 16' 41.135 W	
1,518.0	26.91	40.25	1,482.0	171.8	140.9	14,057,266.47	1,561,099.52	38° 42' 37.003 N	81° 16' 41.029 W	
1,548.0	27.88	41.75	1,508.6	182.2	149.9	14,057,276.88	1,561,108.58	38° 42' 37.107 N	81° 16' 40.915 W	
1,578.0	28.59	42.63	1,535.1	192.8	159.5	14,057,287.40	1,561,118.11	38° 42' 37.211 N	81° 16' 40.795 W	
1,608.0	28.19	41.44	1,561.5	203.4	169.0	14,057,297.99	1,561,127.66	38° 42' 37.316 N	81° 16' 40.675 W	
1,638.0	27.49	40.43	1,588.0	213.9	178.2	14,057,308.57	1,561,136.84	38° 42' 37.421 N	81° 16' 40.559 W	
1,668.0	27.49	39.81	1,614.6	224.5	187.1	14,057,319.16	1,561,145.77	38° 42' 37.526 N	81° 16' 40.447 W	
1,698.0	27.80	40.25	1,641.2	235.2	196.1	14,057,329.82	1,561,154.72	38° 42' 37.631 N	81° 16' 40.335 W	
1,728.0	28.19	38.62	1,667.7	246.1	205.0	14,057,340.70	1,561,163.66	38° 42' 37.739 N	81° 16' 40.222 W	
1,758.0	28.68	38.44	1,694.0	257.2	213.9	14,057,351.87	1,561,172.56	38° 42' 37.850 N	81° 16' 40.110 W	
1,788.0	29.61	37.74	1,720.2	268.7	222.9	14,057,363.37	1,561,181.57	38° 42' 37.964 N	81° 16' 39.997 W	
1,818.0	31.02	38.31	1,746.1	280.7	232.2	14,057,375.30	1,561,190.90	38° 42' 38.082 N	81° 16' 39.880 W	
1,848.0	32.92	39.63	1,771.6	293.0	242.2	14,057,387.64	1,561,200.90	38° 42' 38.205 N	81° 16' 39.754 W	
1,878.0	34.38	40.25	1,796.6	305.7	252.9	14,057,400.39	1,561,211.57	38° 42' 38.331 N	81° 16' 39.620 W	
1,908.0	35.71	41.75	1,821.1	318.7	264.2	14,057,413.38	1,561,222.87	38° 42' 38.460 N	81° 16' 39.478 W	
1,938.0	36.10	41.62	1,845.4	331.9	275.9	14,057,426.52	1,561,234.57	38° 42' 38.590 N	81° 16' 39.331 W	
1,968.0	36.59	41.44	1,869.6	345.2	287.7	14,057,439.83	1,561,246.36	38° 42' 38.722 N	81° 16' 39.182 W	
1,998.0	36.10	40.91	1,893.7	358.6	299.4	14,057,453.21	1,561,258.07	38° 42' 38.855 N	81° 16' 39.035 W	
2,028.0	36.01	39.72	1,918.0	372.0	310.8	14,057,466.68	1,561,269.49	38° 42' 38.988 N	81° 16' 38.891 W	
2,058.0	36.19	39.24	1,942.2	385.7	322.1	14,057,480.32	1,561,280.73	38° 42' 39.123 N	81° 16' 38.750 W	
2,088.0	36.19	39.15	1,966.5	399.4	333.3	14,057,494.05	1,561,291.92	38° 42' 39.260 N	81° 16' 38.609 W	
2,118.0	36.59	38.44	1,990.6	413.3	344.4	14,057,507.92	1,561,303.07	38° 42' 39.397 N	81° 16' 38.469 W	
2,148.0	36.81	38.71	2,014.7	427.3	355.6	14,057,521.94	1,561,314.25	38° 42' 39.536 N	81° 16' 38.329 W	
2,178.0	35.31	38.14	2,038.9	441.1	366.6	14,057,535.77	1,561,325.23	38° 42' 39.673 N	81° 16' 38.191 W	
2,208.0	34.51	37.34	2,063.5	454.7	377.1	14,057,549.35	1,561,335.74	38° 42' 39.808 N	81° 16' 38.058 W	
2,238.0	34.38	38.05	2,088.2	468.1	387.5	14,057,562.77	1,561,346.11	38° 42' 39.941 N	81° 16' 37.928 W	
2,268.0	34.60	37.43	2,113.0	481.6	397.9	14,057,576.21	1,561,356.51	38° 42' 40.074 N	81° 16' 37.797 W	
2,298.0	34.82	36.95	2,137.6	495.2	408.2	14,057,589.82	1,561,366.84	38° 42' 40.209 N	81° 16' 37.668 W	
2,328.0	35.00	35.84	2,162.2	509.0	418.4	14,057,603.63	1,561,377.02	38° 42' 40.346 N	81° 16' 37.539 W	
2,358.0	35.09	35.62	2,186.8	523.0	428.4	14,057,617.62	1,561,387.08	38° 42' 40.484 N	81° 16' 37.413 W	
2,388.0	35.62	35.54	2,211.3	537.1	438.5	14,057,631.74	1,561,397.18	38° 42' 40.624 N	81° 16' 37.286 W	
2,418.0	34.69	34.52	2,235.8	551.2	448.4	14,057,645.88	1,561,407.10	38° 42' 40.764 N	81° 16' 37.162 W	
2,448.0	32.70	33.82	2,260.8	565.0	457.8	14,057,659.65	1,561,416.45	38° 42' 40.901 N	81° 16' 37.044 W	
2,478.0	30.89	33.95	2,286.3	578.1	466.6	14,057,672.77	1,561,425.26	38° 42' 41.031 N	81° 16' 36.938 W	
2,508.0	28.81	32.14	2,312.3	590.6	474.8	14,057,685.28	1,561,433.41	38° 42' 41.155 N	81° 16' 36.831 W	

WV Department of Environmental Protection
 COMPASS 5000.1 Build 74
 09/04/2015

HP
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well A.J. Epling #211
Project:	Roane County, West Virginia	TVD Reference:	WELL @ 1197.0usft (Decker #9)
Site:	A.J. Epling #211	MD Reference:	WELL @ 1197.0usft (Decker #9)
Well:	A.J. Epling #211	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
2,538.0	27.22	32.14	2,338.8	602.6	482.2	14,057,697.21	1,561,440.90	38° 42' 41.273 N	81° 16' 36.737 W
2,602.0	27.22	32.14	2,395.7	627.4	497.8	14,057,722.00	1,561,456.48	38° 42' 41.518 N	81° 16' 36.541 W
TD @ 2602' MD / 2396' TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N-S (usft)	+E-W (usft)		
550.0	550.0	0.0	0.0	First Survey @ 550' MD / 550' TVD	
2,602.0	2,395.7	627.4	497.8	TD @ 2602' MD / 2396' TVD	

Checked By: _____ Approved By: _____ Date: _____

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HG Energy, LLC

Roane County, West Virginia

A.J. Epling #211

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Wellbore #1

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Geo Datum: NAD83 West Virginia - HARN	
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Well A.J. Epling #211		
Well Position +N/-S 0.0 usft	Northing: 14,057,094.63 usft	Latitude: 38° 42' 35.300 N
+E/-W 0.0 usft	Easting: 1,560,958.65 usft	Longitude: 81° 16' 42.800 W
Position Uncertainty 0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 1,189.0 usft

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/18/2015	-7.99	66.36	51,926

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	40.93

Survey Program	Date 5/22/2015	
From (usft) 550.0	To (usft) 2,602.0	
Survey (Wellbore)	Tool Name	Description
MWD (Wellbore #1)	MWD default	MWD - Standard

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Survey											
MD (usft)	Inc (°)	Azl (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		
First Survey @ 550' MD / 550' TVD											
618.0	1.59	123.45	618.0	-0.5	0.8	0.1	2.34	0.9	123.45		
648.0	1.50	113.45	648.0	-0.9	1.5	0.3	0.95	1.7	121.21		
678.0	1.68	96.75	678.0	-1.1	2.3	0.7	1.65	2.5	115.92		
708.0	3.00	72.51	707.9	-0.9	3.5	1.6	5.41	3.6	104.96		
738.0	4.42	64.05	737.9	-0.2	5.3	3.3	5.06	5.3	92.04		
768.0	5.92	60.21	767.8	1.1	7.6	5.8	5.13	7.7	81.91		
798.0	7.29	55.41	797.6	2.9	10.6	9.1	4.92	11.0	74.46		
828.0	8.62	53.52	827.3	5.4	13.9	13.2	4.52	14.9	68.98		
858.0	9.81	50.21	856.9	8.3	17.7	17.9	4.34	19.6	64.81		
888.0	10.78	49.64	886.4	11.8	21.8	23.2	3.25	24.8	61.62		
918.0	11.71	48.32	915.8	15.6	26.2	29.0	3.22	30.5	59.21		
948.0	12.59	45.54	945.1	19.9	30.8	35.3	3.52	36.7	57.11		
978.0	13.70	42.63	974.4	24.8	35.6	42.1	4.31	43.4	55.07		
1,008.0	14.49	39.63	1,003.5	30.3	40.4	49.4	3.59	50.5	53.07		
1,038.0	15.11	37.65	1,032.5	36.3	45.1	57.0	2.67	57.9	51.18		
1,068.0	15.82	34.92	1,061.4	42.8	49.9	65.0	3.39	65.7	49.38		
1,098.0	16.79	34.43	1,090.2	49.7	54.7	73.4	3.27	73.9	47.72		
1,128.0	17.28	34.21	1,118.9	57.0	59.6	82.1	1.65	82.5	46.31		
1,158.0	17.28	33.51	1,147.5	64.4	64.6	90.9	0.69	91.2	45.10		
1,188.0	17.59	33.82	1,176.1	71.8	69.6	99.9	1.08	100.0	44.08		
1,218.0	18.27	33.73	1,204.7	79.5	74.7	109.0	2.07	109.1	43.21		
1,248.0	19.00	33.11	1,233.1	87.5	80.0	118.5	2.71	118.5	42.42		
1,278.0	19.89	33.24	1,261.4	95.9	85.4	128.4	2.97	128.4	41.71		
1,308.0	20.42	33.24	1,289.6	104.5	91.1	138.6	1.77	138.6	41.08		

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HP
HG Energy EOW Report



Company: HG Energy, LLC	Local Co-ordinate Reference: Well A.J. Epling #211
Project: Roane County, West Virginia	TVD Reference: WELL @ 1197.0usft (Decker #9)
Site: A.J. Epling #211	MD Reference: WELL @ 1197.0usft (Decker #9)
Well: A.J. Epling #211	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 (°)	
1,338.0	21.21	34.74	1,317.6	113.3	97.1	149.2	3.18	149.2	40.58	
1,368.0	22.01	35.23	1,345.5	122.4	103.4	160.2	2.73	160.2	40.19	
1,398.0	22.80	35.14	1,373.2	131.7	110.0	171.6	2.64	171.6	39.86	
1,428.0	23.99	36.42	1,400.8	141.4	116.9	183.4	4.31	183.5	39.59	
1,458.0	25.01	37.43	1,428.1	151.3	124.4	195.9	3.68	195.9	39.43	
1,488.0	25.98	38.62	1,455.1	161.5	132.4	208.8	3.66	208.8	39.34	
1,518.0	26.91	40.25	1,482.0	171.8	140.9	222.1	3.93	222.2	39.35	
1,548.0	27.88	41.75	1,508.6	182.2	149.9	235.9	3.97	236.0	39.44	
1,578.0	28.59	42.63	1,535.1	192.8	159.5	250.1	2.74	250.2	39.60	
1,608.0	28.19	41.44	1,561.5	203.4	169.0	264.4	2.31	264.4	39.73	
1,638.0	27.49	40.43	1,588.0	213.9	178.2	278.4	2.81	278.4	39.79	
1,668.0	27.49	39.81	1,614.6	224.5	187.1	292.2	0.95	292.3	39.81	
1,698.0	27.80	40.25	1,641.2	235.2	196.1	306.1	1.24	306.2	39.82	
1,728.0	28.19	38.62	1,667.7	246.1	205.0	320.2	2.86	320.3	39.80	
1,758.0	28.68	38.44	1,694.0	257.2	213.9	334.5	1.66	334.6	39.75	
1,788.0	29.61	37.74	1,720.2	268.7	222.9	349.1	3.30	349.2	39.68	
1,818.0	31.02	38.31	1,746.1	280.7	232.2	364.2	4.80	364.3	39.61	
1,848.0	32.92	39.63	1,771.6	293.0	242.2	380.1	6.75	380.2	39.58	
1,878.0	34.38	40.25	1,796.6	305.7	252.9	396.7	5.00	396.8	39.60	
1,908.0	35.71	41.75	1,821.1	318.7	264.2	413.9	5.28	414.0	39.66	
1,938.0	36.10	41.62	1,845.4	331.9	275.9	431.5	1.32	431.6	39.74	
1,968.0	36.59	41.44	1,869.6	345.2	287.7	449.3	1.67	449.4	39.81	
1,998.0	36.10	40.91	1,893.7	358.6	299.4	467.1	1.94	467.1	39.86	
2,028.0	36.64	39.72	1,918.0	372.0	310.8	484.7	2.35	484.8	39.88	
2,058.0	36.19	39.24	1,942.2	385.7	322.1	502.4	1.12	502.5	39.86	
2,088.0	36.19	39.15	1,966.5	399.4	333.3	520.1	0.18	520.2	39.84	
2,118.0	36.59	38.44	1,990.6	413.3	344.4	537.9	1.94	538.0	39.81	

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Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	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	36.81	38.71	2,014.7	427.3	355.6	555.8	0.91	555.9	39.77
2,178.0	35.31	38.14	2,038.9	441.1	366.6	573.4	5.12	573.6	39.73
2,208.0	34.51	37.34	2,063.5	454.7	377.1	590.6	3.07	590.7	39.67
2,238.0	34.38	38.05	2,088.2	468.1	387.5	607.5	1.41	607.7	39.61
2,268.0	34.60	37.43	2,113.0	481.6	397.9	624.5	1.38	624.7	39.56
2,298.0	34.82	36.95	2,137.6	495.2	408.2	641.5	1.17	641.7	39.50
2,328.0	35.00	35.84	2,162.2	509.0	418.4	658.6	2.20	658.9	39.42
2,358.0	35.09	35.62	2,186.8	523.0	428.4	675.8	0.52	676.1	39.32
<u>2,388.0</u>	35.62	35.54	2,211.3	537.1	438.5	693.1	1.77	<u>693.4</u>	<u>39.23</u>
2,418.0	34.69	34.52	2,235.8	551.2	448.4	710.3	3.67	710.6	39.13
2,448.0	32.70	33.82	2,260.8	565.0	457.8	726.8	6.76	727.2	39.02
2,478.0	30.89	33.95	2,286.3	578.1	466.6	742.5	6.04	742.9	38.91
2,508.0	28.81	32.14	2,312.3	590.6	474.8	757.3	7.56	757.8	38.79
2,538.0	27.22	32.14	2,338.8	602.6	482.2	771.2	5.30	771.8	38.67
2,602.0	27.22	32.14	2,395.7	627.4	497.8	800.1	0.00	800.9	38.43

TD @ 2602' MD / 2396' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
550.0	550.0	0.0	0.0	First Survey @ 550' MD / 550' TVD
2,602.0	2,395.7	627.4	497.8	TD @ 2602' MD / 2396' TVD

Checked By: _____ Approved By: _____ Date: _____

Environmental Protection
 Department of
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Company Name: HG Energy, LLC
 A.J. Epling #211
 Roane County, West Virginia
 Rig: Decker #9
 Created By: Shane Robbins
 Date: 5/22/2015

A.J. Epling #211
 Roane County, West Virginia
 Q150434 & AM-150369
 Design #1

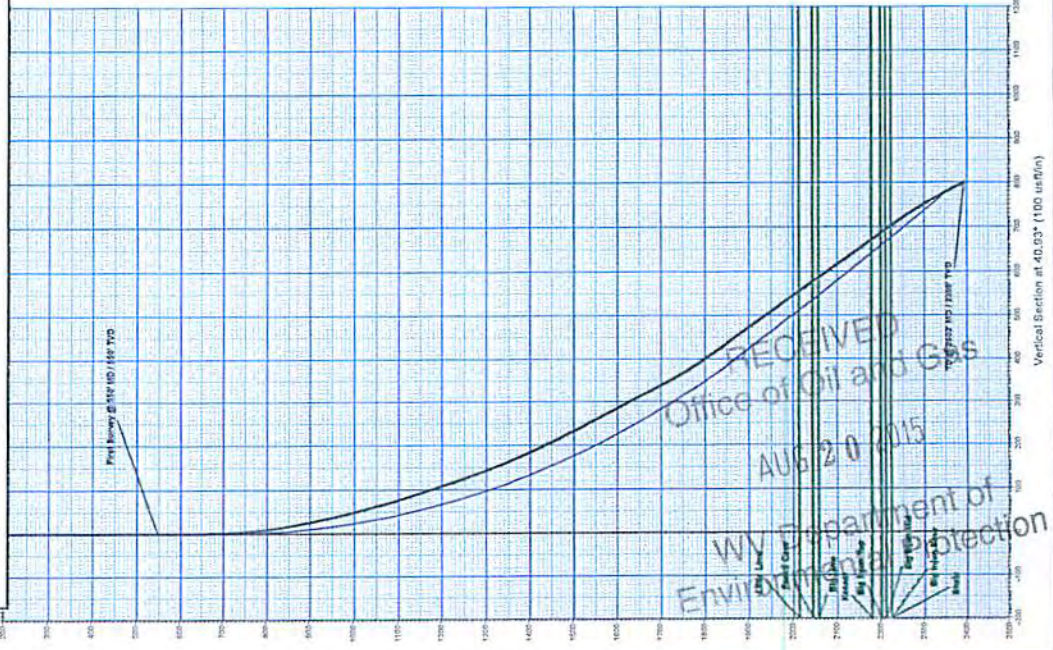
PROJECT DETAILS: Roane County, West Virginia
 Geodetic System: Universal Transverse Mercator
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 76 W)
 System Datum: Mean Sea Level

DESIGN TARGET DETAILS

Name	TVD	WGS 84 UTM Northing	WGS 84 UTM Easting	Latitude	Longitude
Topo A.J. Epling #211	2317.0	584.3	437.34607838.35	38° 42' 49.305" N	81° 16' 37.300" W
1st Ann Target Center					

ASSOCIATIONS

WGS 84 UTM Northing	WGS 84 UTM Easting	WGS 84 UTM Zone	WGS 84 UTM Datum	WGS 84 UTM Projection	WGS 84 UTM Spheroid	WGS 84 UTM Ellipsoid	WGS 84 UTM Prime Meridian
584.3	437.34607838.35	18	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84
2317.0	437.34607838.35	18	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84



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WELL DETAILS: A.J. Epling #211

WGS 84 UTM Northing	WGS 84 UTM Easting	WGS 84 UTM Zone	WGS 84 UTM Datum	WGS 84 UTM Projection	WGS 84 UTM Spheroid	WGS 84 UTM Ellipsoid	WGS 84 UTM Prime Meridian
584.3	437.34607838.35	18	WGS 84	WGS 84	WGS 84	WGS 84	WGS 84

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Azimuths to Grid North
 Correction: -7.82°

Magnetic Field
 Strength: 51925.6snT
 Dip Angle: 66.36°
 Date: 5/18/2015
 Model: IGRF2015

