

HG Energy, LLC
Lincoln County, West Virginia
Edna May #152
Edna May #152

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

02 November, 2015

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Office of Oil and Gas

NOV 30 2015

WV Department of
Environmental Protection



02/19/2016

HP
Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well Edna May #152
Project: Lincoln County, West Virginia	TVD Reference: WELL @ 968.0usft (Decker #9)
Site: Edna May #152	MD Reference: WELL @ 968.0usft (Decker #9)
Well: Edna May #152	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

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 Edna May #152

Site Position:	Northing: 13,885,071.65 usft	Latitude: 38° 14' 1.200 N
From: Lat/Long	Easting: 1,364,344.14 usft	Longitude: 81° 57' 41.300 W
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.60 °

Well Edna May #152

Well Position	+N/-S 0.0 usft	Northing: 13,885,071.65 usft	Latitude: 38° 14' 1.200 N
	+E/-W 0.0 usft	Easting: 1,364,344.14 usft	Longitude: 81° 57' 41.300 W
Position Uncertainty	0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 960.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/13/2015	-7.44	66.03	51,702

Design Wellbore #1

Audit Notes:

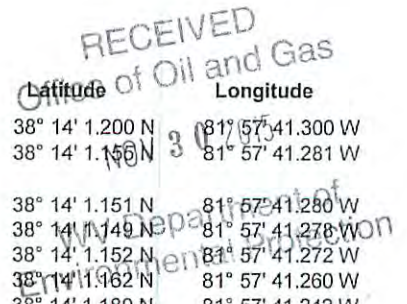
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	37.04

Survey Program	Date 11/2/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
679.0	2,752.0	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	13,885,071.65	1,364,344.14	38° 14' 1.200 N	81° 57' 41.300 W
679.0	0.80	162.38	679.0	-4.5	1.4	13,885,067.13	1,364,345.57	38° 14' 1.150 N	81° 57' 41.281 W
First Survey @ 679' MD / 679' TVD									
709.0	0.80	166.65	709.0	-4.9	1.5	13,885,066.73	1,364,345.69	38° 14' 1.151 N	81° 57' 41.280 W
739.0	0.49	113.24	739.0	-5.2	1.7	13,885,066.47	1,364,345.85	38° 14' 1.149 N	81° 57' 41.278 W
769.0	1.90	48.07	769.0	-4.9	2.2	13,885,066.75	1,364,346.34	38° 14' 1.152 N	81° 57' 41.272 W
799.0	3.58	40.84	798.9	-3.9	3.2	13,885,067.80	1,364,347.32	38° 14' 1.162 N	81° 57' 41.260 W
829.0	5.30	36.65	828.8	-2.0	4.6	13,885,069.62	1,364,348.76	38° 14' 1.180 N	81° 57' 41.242 W
859.0	6.89	35.24	858.7	0.5	6.5	13,885,072.20	1,364,350.63	38° 14' 1.206 N	81° 57' 41.219 W
889.0	8.62	33.97	888.4	3.9	8.8	13,885,075.53	1,364,352.92	38° 14' 1.239 N	81° 57' 41.190 W
919.0	9.90	31.67	918.0	7.9	11.4	13,885,079.59	1,364,355.53	38° 14' 1.280 N	81° 57' 41.158 W
949.0	11.40	31.67	947.5	12.7	14.3	13,885,084.31	1,364,358.44	38° 14' 1.327 N	81° 57' 41.122 W



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Project: Lincoln County, West Virginia
Site: Edna May #152
Well: Edna May #152
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Edna May #152
TVD Reference: WELL @ 968.0usft (Decker #9)
MD Reference: WELL @ 968.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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
979.0	12.90	32.16	976.8	18.0	17.6	13,885,089.67	1,364,361.78	38° 14' 1.380 N	81° 57' 41.081 W
1,009.0	14.72	33.48	1,005.9	24.0	21.5	13,885,095.68	1,364,365.67	38° 14' 1.440 N	81° 57' 41.033 W
1,039.0	16.08	32.95	1,034.9	30.7	25.9	13,885,102.35	1,364,370.03	38° 14' 1.506 N	81° 57' 40.979 W
1,069.0	17.41	33.35	1,063.6	37.9	30.6	13,885,109.58	1,364,374.76	38° 14' 1.578 N	81° 57' 40.921 W
1,099.0	18.38	33.75	1,092.1	45.6	35.7	13,885,117.27	1,364,379.85	38° 14' 1.655 N	81° 57' 40.858 W
1,129.0	19.18	36.96	1,120.5	53.5	41.3	13,885,125.14	1,364,385.44	38° 14' 1.733 N	81° 57' 40.789 W
1,159.0	20.02	41.15	1,148.8	61.3	47.6	13,885,132.94	1,364,391.79	38° 14' 1.811 N	81° 57' 40.711 W
1,189.0	21.39	45.56	1,176.9	69.0	54.9	13,885,140.64	1,364,399.07	38° 14' 1.888 N	81° 57' 40.620 W
1,219.0	23.69	48.38	1,204.6	76.8	63.3	13,885,148.48	1,364,407.49	38° 14' 1.966 N	81° 57' 40.516 W
1,249.0	25.19	49.65	1,231.9	85.0	72.7	13,885,156.61	1,364,416.86	38° 14' 2.048 N	81° 57' 40.399 W
1,279.0	25.41	49.96	1,259.0	93.2	82.5	13,885,164.89	1,364,426.65	38° 14' 2.130 N	81° 57' 40.278 W
1,309.0	25.50	49.74	1,286.1	101.6	92.4	13,885,173.20	1,364,436.51	38° 14' 2.214 N	81° 57' 40.155 W
1,339.0	25.41	50.05	1,313.2	109.9	102.2	13,885,181.51	1,364,446.37	38° 14' 2.297 N	81° 57' 40.033 W
1,369.0	25.98	50.27	1,340.2	118.2	112.2	13,885,189.84	1,364,456.36	38° 14' 2.380 N	81° 57' 39.909 W
1,399.0	27.09	51.68	1,367.1	126.6	122.6	13,885,198.28	1,364,466.77	38° 14' 2.465 N	81° 57' 39.779 W
1,429.0	28.19	52.08	1,393.6	135.2	133.6	13,885,206.87	1,364,477.72	38° 14' 2.551 N	81° 57' 39.643 W
1,459.0	29.61	53.58	1,419.9	144.0	145.1	13,885,215.62	1,364,489.27	38° 14' 2.638 N	81° 57' 39.499 W
1,489.0	30.09	53.44	1,445.9	152.9	157.1	13,885,224.50	1,364,501.28	38° 14' 2.728 N	81° 57' 39.350 W
1,519.0	30.71	53.97	1,471.8	161.8	169.4	13,885,233.49	1,364,513.51	38° 14' 2.818 N	81° 57' 39.198 W
1,549.0	31.20	53.27	1,497.5	171.0	181.8	13,885,242.64	1,364,525.94	38° 14' 2.909 N	81° 57' 39.043 W
1,579.0	31.90	49.48	1,523.1	180.8	194.1	13,885,252.44	1,364,538.19	38° 14' 3.008 N	81° 57' 38.891 W
1,609.0	32.61	46.75	1,548.5	191.5	206.0	13,885,263.13	1,364,550.11	38° 14' 3.114 N	81° 57' 38.743 W
1,639.0	32.48	43.75	1,573.8	202.8	217.4	13,885,274.49	1,364,561.56	38° 14' 3.228 N	81° 57' 38.601 W
1,669.0	32.08	42.07	1,599.1	214.6	228.3	13,885,286.22	1,364,572.47	38° 14' 3.345 N	81° 57' 38.466 W
1,699.0	31.02	38.55	1,624.7	226.5	238.5	13,885,298.18	1,364,582.63	38° 14' 3.464 N	81° 57' 38.340 W
1,729.0	29.92	36.17	1,650.5	238.6	247.7	13,885,310.27	1,364,591.86	38° 14' 3.585 N	81° 57' 38.226 W
1,759.0	29.92	36.08	1,676.5	250.7	256.5	13,885,322.35	1,364,600.68	38° 14' 3.705 N	81° 57' 38.117 W
1,789.0	30.09	32.95	1,702.5	263.1	265.0	13,885,334.71	1,364,609.18	38° 14' 3.828 N	81° 57' 38.012 W
1,819.0	30.00	34.14	1,728.5	275.6	273.3	13,885,347.23	1,364,617.48	38° 14' 3.953 N	81° 57' 37.909 W
1,849.0	29.39	33.57	1,754.6	287.9	281.6	13,885,359.57	1,364,625.76	38° 14' 4.076 N	81° 57' 37.807 W
1,879.0	28.81	33.26	1,780.8	300.1	289.7	13,885,371.75	1,364,633.80	38° 14' 4.197 N	81° 57' 37.708 W
1,909.0	28.81	33.26	1,807.1	312.2	297.6	13,885,383.84	1,364,641.73	38° 14' 4.317 N	81° 57' 37.610 W
1,939.0	28.90	32.86	1,833.3	324.3	305.5	13,885,395.97	1,364,649.62	38° 14' 4.438 N	81° 57' 37.513 W
1,969.0	28.99	33.35	1,859.6	336.5	313.4	13,885,408.13	1,364,657.55	38° 14' 4.559 N	81° 57' 37.415 W
1,999.0	29.30	33.88	1,885.8	348.7	321.5	13,885,420.30	1,364,665.64	38° 14' 4.680 N	81° 57' 37.315 W
2,029.0	29.39	33.66	1,911.9	360.9	329.7	13,885,432.52	1,364,673.81	38° 14' 4.802 N	81° 57' 37.214 W
2,059.0	29.61	33.57	1,938.0	373.2	337.9	13,885,444.82	1,364,681.99	38° 14' 4.925 N	81° 57' 37.113 W
2,089.0	28.68	32.86	1,964.2	385.4	345.9	13,885,457.05	1,364,690.00	38° 14' 5.046 N	81° 57' 37.014 W
2,119.0	28.41	33.66	1,990.6	397.4	353.7	13,885,469.03	1,364,697.86	38° 14' 5.166 N	81° 57' 36.917 W
2,149.0	28.10	33.48	2,017.0	409.2	361.6	13,885,480.87	1,364,705.71	38° 14' 5.283 N	81° 57' 36.821 W
2,179.0	26.60	31.76	2,043.7	420.8	369.0	13,885,492.47	1,364,713.14	38° 14' 5.399 N	81° 57' 36.729 W
2,209.0	24.61	30.66	2,070.7	431.9	375.7	13,885,503.56	1,364,719.87	38° 14' 5.509 N	81° 57' 36.646 W
2,239.0	23.20	29.78	2,098.1	442.4	381.8	13,885,514.06	1,364,725.99	38° 14' 5.619 N	81° 57' 36.571 W
2,269.0	22.01	29.47	2,125.8	452.4	387.5	13,885,524.08	1,364,731.69	38° 14' 5.713 N	81° 57' 36.501 W
2,299.0	19.80	27.75	2,153.9	461.8	392.7	13,885,533.47	1,364,736.82	38° 14' 5.807 N	81° 57' 36.426 W
2,329.0	18.29	25.37	2,182.2	470.6	397.1	13,885,542.22	1,364,741.20	38° 14' 5.894 N	81° 57' 36.384 W
2,359.0	15.11	22.55	2,211.0	478.4	400.6	13,885,550.09	1,364,744.72	38° 14' 5.972 N	81° 57' 36.341 W
2,389.0	11.62	20.48	2,240.1	484.9	403.1	13,885,556.53	1,364,747.28	38° 14' 6.038 N	81° 57' 36.309 W
2,419.0	9.81	16.08	2,269.6	490.2	404.9	13,885,561.82	1,364,749.04	38° 14' 6.088 N	81° 57' 36.288 W
2,449.0	7.38	11.67	2,299.3	494.5	406.0	13,885,566.16	1,364,750.14	38° 14' 6.131 N	81° 57' 36.275 W
2,479.0	5.39	6.56	2,329.1	497.8	406.6	13,885,569.45	1,364,750.69	38° 14' 6.164 N	81° 57' 36.268 W
2,509.0	3.58	353.95	2,359.0	500.1	406.6	13,885,571.78	1,364,750.75	38° 14' 6.187 N	81° 57' 36.268 W
2,539.0	2.39	339.27	2,389.0	501.7	406.3	13,885,573.30	1,364,750.43	38° 14' 6.202 N	81° 57' 36.272 W
2,569.0	2.30	342.04	2,418.9	502.8	405.9	13,885,574.46	1,364,750.03	38° 14' 6.213 N	81° 57' 36.277 W
2,599.0	1.99	342.44	2,448.9	503.9	405.5	13,885,575.53	1,364,749.68	38° 14' 6.224 N	81° 57' 36.282 W

HP
Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well Edna May #152
Project: Lincoln County, West Virginia	TVD Reference: WELL @ 968.0usft (Decker #9)
Site: Edna May #152	MD Reference: WELL @ 968.0usft (Decker #9)
Well: Edna May #152	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
2,629.0	1.90	335.45	2,478.9	504.8	405.2	13,885,576.48	1,364,749.32	38° 14' 6.233 N	81° 57' 36.286 W
2,659.0	1.90	334.64	2,508.9	505.7	404.8	13,885,577.38	1,364,748.90	38° 14' 6.242 N	81° 57' 36.292 W
2,752.0	1.90	334.64	2,601.8	508.5	403.4	13,885,580.16	1,364,747.58	38° 14' 6.270 N	81° 57' 36.309 W

TD @ 2752' MD / 2602' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
679.0	679.0	-4.5	1.4	First Survey @ 679' MD / 679' TVD
2,752.0	2,601.8	508.5	403.4	TD @ 2752' MD / 2602' TVD

Checked By: _____	Approved By: _____	Date: _____
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HG Energy, LLC

Lincoln County, West Virginia

Edna May #152

Edna May #152

Wellbore #1

Design: Wellbore #1

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Survey Calculation Method: Minimum Curvature
Database: Compass

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Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Edna May #152		
Site Position:		Northing:	13,885,071.65 usft
From:	Lat/Long	Easting:	1,364,344.14 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	38° 14' 1.200 N
		Longitude:	81° 57' 41.300 W
		Grid Convergence:	-0.60 °

Well	Edna May #152			
Well Position	+N-S	0.0 usft	Northing:	13,885,071.65 usft
	+E-W	0.0 usft	Easting:	1,364,344.14 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft
			Latitude:	38° 14' 1.200 N
			Longitude:	81° 57' 41.300 W
			Ground Level:	960.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/13/2015	-7.44	66.03	51,702

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	37.04
Survey Program	Date	Tool Name	Description	
Survey (Wellbore)	11/2/2015	MWD default	MWD - Standard	
File (usft)	To (usft)			
9.0	2,752.0			

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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	
679.0	0.80	162.38	679.0	-4.5	1.4	-2.7	0.12	4.7	162.38	
First Survey @ 679' MD / 679' TVD										
709.0	0.80	166.65	709.0	-4.9	1.5	-3.0	0.20	5.2	162.55	
739.0	0.49	113.24	739.0	-5.2	1.7	-3.1	2.14	5.5	161.69	
769.0	1.90	48.07	769.0	-4.9	2.2	-2.6	5.84	5.4	155.79	
799.0	3.58	40.84	798.9	-3.9	3.2	-1.2	5.71	5.0	140.44	
829.0	5.30	36.65	828.8	-2.0	4.6	1.2	5.83	5.1	113.73	
859.0	6.89	35.24	858.7	0.5	6.5	4.3	5.32	6.5	85.16	
889.0	8.62	33.97	888.4	3.9	8.8	8.4	5.79	9.6	66.15	
919.0	9.90	31.67	918.0	7.9	11.4	13.2	4.44	13.9	55.12	
949.0	11.40	31.67	947.5	12.7	14.3	18.7	5.00	19.1	48.49	
979.0	12.90	32.16	976.8	18.0	17.6	25.0	5.01	25.2	44.40	
1,009.0	14.72	33.48	1,005.9	24.0	21.5	32.2	6.16	32.3	41.85	
1,039.0	16.08	32.95	1,034.9	30.7	25.9	40.1	4.56	40.2	40.14	
1,069.0	17.41	33.35	1,063.6	37.9	30.6	48.7	4.45	48.8	38.91	
1,099.0	18.38	33.75	1,092.1	45.6	35.7	57.9	3.26	57.9	38.06	
1,129.0	19.18	36.96	1,120.5	53.5	41.3	67.6	4.36	67.6	37.68	
1,159.0	20.02	41.15	1,148.8	61.3	47.6	77.6	5.46	77.6	37.86	
1,189.0	21.39	45.56	1,176.9	69.0	54.9	88.2	6.92	88.2	38.53	
1,219.0	23.69	48.38	1,204.6	76.8	63.3	99.5	8.47	99.6	39.51	
1,249.0	25.19	49.65	1,231.9	85.0	72.7	111.6	5.30	111.8	40.58	
1,279.0	25.41	49.96	1,259.0	93.2	82.5	124.1	0.86	124.5	41.51	
1,309.0	25.58	49.74	1,286.1	101.6	92.4	136.7	0.44	137.3	42.29	
1,339.0	25.58	50.05	1,313.2	109.9	102.2	149.3	0.54	150.1	42.94	
1,369.0	25.58	50.27	1,340.2	118.2	112.2	161.9	1.93	163.0	43.51	
1,399.0	25.58	51.68	1,367.1	126.6	122.6	174.9	4.25	176.3	44.08	

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HP
HG Energy EOW Report



Company: HG Energy, LLC
Project: Lincoln County, West Virginia
Site: Edna May #152
Well: Edna May #152
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Edna May #152
TVD Reference: WELL @ 968.0usft (Decker #9)
MD Reference: WELL @ 968.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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 (°)
1,429.0	28.19	52.08	1,393.6	135.2	133.6	188.4	3.72	190.1	44.65
1,459.0	29.61	53.58	1,419.9	144.0	145.1	202.3	5.31	204.4	45.23
1,489.0	30.09	53.44	1,445.9	152.9	157.1	216.7	1.62	219.2	45.79
1,519.0	30.71	53.97	1,471.8	161.8	169.4	231.2	2.25	234.3	46.30
1,549.0	31.20	53.27	1,497.5	171.0	181.8	246.0	2.03	249.6	46.75
1,579.0	31.90	49.48	1,523.1	180.8	194.1	261.2	7.01	265.2	47.03
1,609.0	32.61	46.75	1,548.5	191.5	206.0	276.9	5.40	281.2	47.09
1,639.0	32.48	43.75	1,573.8	202.8	217.4	292.9	5.40	297.3	46.99
1,669.0	32.08	42.07	1,599.1	214.6	228.3	308.8	3.27	313.3	46.78
1,699.0	31.02	38.55	1,624.7	226.5	238.5	324.5	7.08	328.9	46.47
1,729.0	29.92	36.17	1,650.5	238.6	247.7	339.7	5.44	344.0	46.07
1,759.0	29.92	36.08	1,676.5	250.7	256.5	354.7	0.15	358.7	45.66
1,789.0	30.09	32.95	1,702.5	263.1	265.0	369.6	5.25	373.4	45.21
1,819.0	30.00	34.14	1,728.5	275.6	273.3	384.6	2.01	388.1	44.77
1,849.0	29.39	33.57	1,754.6	287.9	281.6	399.5	2.24	402.8	44.37
1,879.0	28.81	33.26	1,780.8	300.1	289.7	414.0	2.00	417.1	43.99
1,909.0	28.81	33.26	1,807.1	312.2	297.6	428.5	0.00	431.3	43.63
1,939.0	28.90	32.86	1,833.3	324.3	305.5	442.9	0.71	445.5	43.29
1,969.0	28.99	33.35	1,859.6	336.5	313.4	457.4	0.85	459.8	42.97
1,999.0	29.30	33.88	1,885.8	348.7	321.5	472.0	1.34	474.3	42.68
2,029.0	29.39	33.66	1,911.9	360.9	329.7	486.6	0.47	488.8	42.41
2,059.0	29.61	33.57	1,938.0	373.2	337.9	501.4	0.75	503.4	42.16
2,089.0	29.68	32.86	1,964.2	385.4	345.9	516.0	3.31	517.8	41.90
2,119.0	28.41	33.66	1,990.6	397.4	353.7	530.3	1.56	532.0	41.67
2,149.0	28.19	33.48	2,017.0	409.2	361.6	544.4	1.07	546.1	41.46
2,179.0	28.66	31.76	2,043.7	420.8	369.0	558.2	5.65	559.7	41.25
2,209.0	30.66	30.66	2,070.7	431.9	375.7	571.1	6.82	572.5	41.02

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 Department of Environmental Protection
 Lincoln County, West Virginia

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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 (°)
2,239.0	23.20	29.78	2,098.1	442.4	381.8	583.2	4.85	584.4	40.80
2,269.0	22.01	29.47	2,125.8	452.4	387.5	594.6	3.99	595.7	40.58
2,299.0	19.80	27.75	2,153.9	461.8	392.7	605.2	7.64	606.2	40.37
2,329.0	18.29	25.37	2,182.2	470.6	397.1	614.8	5.66	615.7	40.16
2,359.0	15.11	22.55	2,211.0	478.4	400.6	623.2	10.94	624.0	39.94
2,389.0	11.62	20.48	2,240.1	484.9	403.1	629.9	11.74	630.6	39.74
2,419.0	9.81	16.08	2,269.6	490.2	404.9	635.2	6.62	635.8	39.56
2,449.0	7.38	11.67	2,299.3	494.5	406.0	639.3	8.39	639.8	39.39
2,479.0	5.39	6.56	2,329.1	497.8	406.6	642.2	6.89	642.7	39.24
2,509.0	3.58	353.95	2,359.0	500.1	406.6	644.1	6.84	644.6	39.11
2,539.0	2.39	339.27	2,389.0	501.7	406.3	645.2	4.68	645.5	39.00
2,569.0	2.30	342.04	2,418.9	502.8	405.9	645.8	0.48	646.2	38.91
<u>2,599.0</u>	1.99	342.44	2,448.9	503.9	405.5	646.5	1.03	646.8	38.83
2,629.0	1.90	335.45	2,478.9	504.8	405.2	647.0	0.85	647.3	38.75
2,659.0	1.90	334.64	2,508.9	505.7	404.8	647.5	0.09	647.8	38.67
2,752.0	1.90	334.64	2,601.8	508.5	403.4	648.9	0.00	649.1	38.43

TD @ 2752' MD / 2602' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
679.0	679.0	-4.5	1.4	First Survey @ 679' MD / 679' TVD
2,752.0	2,602.0	508.5	403.4	TD @ 2752' MD / 2602' TVD

Checked By: _____ Approved By: _____ Date: _____

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 Office of Oil and Gas
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 WV Department of Environmental Protection

Company Name: HG Energy, LLC
 Edna May #152
 Lincoln County, West Virginia
 Rig: Decker #9
 Created By: Shane Robbins
 Date: 11/2/2015

Edna May #152
 Lincoln County, West Virginia
 Q150763 & AM-150660
 Design #1



DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Target Edna May #152 - plan hills target center	2491.0	471.6	355.9	13886643.28	1364700.02	38° 14' 8.800 N	81° 57' 36.900 W

PROJECT DETAILS:		Lincoln 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:						Edna May #152
		Ground Level:		950.8		
+N-S	+E-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	13885071.85	1364344.14	38° 14' 1.200 N	81° 57' 41.200 W	

ANNOTATIONS							
MD	Inc	Azi	TVD	+N-S	+E-W	VSec/Departure	Annotation
679.0	0.80	162.38	679.0	-4.5	1.4	-2.7	First Survey @ 67° MD / 67° TVD
2752.0	1.90	334.84	2601.9	508.5	403.4	648.9	671.1 TD @ 2752° MD / 2602° TVD

HG Energy



Azimuths to Grid North

Correction: -6.84°

Magnetic Field
 Strength: 51702.0snT
 Dip Angle: 66.03°
 Date: 10/13/2015
 Model: IGRF2015

