

# HG Energy, LLC

Lincoln County, West Virginia

Edna May #153

Edna May #153

Wellbore #1

Design: Wellbore #1

## Survey Report - Geographic

17 November, 2015

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02/12/2016

**HP**  
Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well Edna May #153
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	WELL @ 978.0usft (Decker #9)
<b>Site:</b>	Edna May #153	<b>MD Reference:</b>	WELL @ 978.0usft (Decker #9)
<b>Well:</b>	Edna May #153	<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>	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>	Edna May #153				
<b>Site Position:</b>		<b>Northing:</b>	13,885,426.26 usft	<b>Latitude:</b>	38° 14' 4.800 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,365,257.19 usft	<b>Longitude:</b>	81° 57' 29.900 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.59 °

<b>Well</b>	Edna May #153					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	13,885,426.26 usft	<b>Latitude:</b>	38° 14' 4.800 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,365,257.19 usft	<b>Longitude:</b>	81° 57' 29.900 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	970.0 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>
	IGRF2015	10/27/2015	-7.44	66.03	51,698

<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	327.09

<b>Survey Program</b>	Date 11/17/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
680.0	2,780.0	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	13,885,426.26	1,365,257.19	38° 14' 4.800 N	81° 57' 29.900 W
680.0	0.80	159.24	680.0	-4.4	1.7	13,885,421.82	1,365,258.87	38° 14' 4.756 N	81° 57' 29.878 W
<b>First Survey @ 680' MD / 680' TVD</b>									
710.0	0.71	157.35	710.0	-4.8	1.8	13,885,421.46	1,365,259.02	38° 14' 4.753 N	81° 57' 29.876 W
740.0	0.22	88.07	740.0	-5.0	2.0	13,885,421.29	1,365,259.15	38° 14' 4.755 N	81° 57' 29.875 W
770.0	1.68	354.74	770.0	-4.5	2.0	13,885,421.73	1,365,259.16	38° 14' 4.755 N	81° 57' 29.875 W
800.0	3.49	345.03	799.9	-3.2	1.7	13,885,423.05	1,365,258.89	38° 14' 4.790 N	81° 57' 29.887 W
830.0	5.08	342.43	829.9	-1.1	1.1	13,885,425.19	1,365,258.25	38° 14' 4.790 N	81° 57' 29.887 W
860.0	6.98	343.13	859.7	1.9	0.1	13,885,428.21	1,365,257.32	38° 14' 4.819 N	81° 57' 29.899 W
890.0	8.48	341.37	889.4	5.8	-1.1	13,885,432.05	1,365,256.09	38° 14' 4.855 N	81° 57' 29.915 W
920.0	10.30	341.06	919.0	10.4	-2.7	13,885,436.68	1,365,254.51	38° 14' 4.903 N	81° 57' 29.935 W
950.0	11.89	338.77	948.4	15.8	-4.7	13,885,442.10	1,365,252.52	38° 14' 4.956 N	81° 57' 29.961 W

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<b>Project:</b> Lincoln County, West Virginia	<b>TVD Reference:</b> WELL @ 978.0usft (Decker #9)	
<b>Site:</b> Edna May #153	<b>MD Reference:</b> WELL @ 978.0usft (Decker #9)	
<b>Well:</b> Edna May #153	<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
980.0	13.70	338.95	977.7	22.0	-7.1	13,885,448.29	1,365,250.12	38° 14' 5.017 N	81° 57' 29.991 W
1,010.0	15.11	337.93	1,006.8	29.0	-9.8	13,885,455.23	1,365,247.38	38° 14' 5.085 N	81° 57' 30.027 W
1,040.0	16.62	337.93	1,035.6	36.6	-12.9	13,885,462.83	1,365,244.30	38° 14' 5.160 N	81° 57' 30.066 W
1,070.0	18.12	337.23	1,064.2	44.8	-16.3	13,885,471.11	1,365,240.88	38° 14' 5.242 N	81° 57' 30.110 W
1,100.0	19.89	337.05	1,092.6	53.9	-20.1	13,885,480.11	1,365,237.08	38° 14' 5.330 N	81° 57' 30.159 W
1,130.0	21.08	335.55	1,120.7	63.5	-24.3	13,885,489.72	1,365,232.86	38° 14' 5.425 N	81° 57' 30.213 W
1,160.0	22.71	334.23	1,148.5	73.6	-29.1	13,885,499.85	1,365,228.11	38° 14' 5.525 N	81° 57' 30.274 W
1,190.0	24.48	333.44	1,176.0	84.4	-34.4	13,885,510.63	1,365,222.81	38° 14' 5.631 N	81° 57' 30.342 W
1,220.0	26.20	332.03	1,203.2	95.8	-40.3	13,885,522.04	1,365,216.93	38° 14' 5.743 N	81° 57' 30.417 W
1,250.0	27.71	330.75	1,229.9	107.7	-46.8	13,885,533.97	1,365,210.41	38° 14' 5.860 N	81° 57' 30.500 W
1,280.0	28.59	328.06	1,256.3	119.9	-54.0	13,885,546.15	1,365,203.21	38° 14' 5.980 N	81° 57' 30.592 W
1,310.0	29.12	326.04	1,282.6	132.0	-61.9	13,885,558.30	1,365,195.33	38° 14' 6.099 N	81° 57' 30.693 W
1,340.0	28.90	325.64	1,308.9	144.1	-70.0	13,885,570.33	1,365,187.16	38° 14' 6.217 N	81° 57' 30.797 W
1,370.0	28.81	325.46	1,335.1	156.0	-78.2	13,885,582.27	1,365,178.97	38° 14' 6.335 N	81° 57' 30.901 W
1,400.0	28.81	325.77	1,361.4	167.9	-86.4	13,885,594.20	1,365,170.81	38° 14' 6.452 N	81° 57' 31.005 W
1,430.0	28.99	326.34	1,387.7	180.0	-94.5	13,885,606.23	1,365,162.71	38° 14' 6.570 N	81° 57' 31.108 W
1,460.0	29.21	326.65	1,413.9	192.1	-102.5	13,885,618.40	1,365,154.66	38° 14' 6.689 N	81° 57' 31.210 W
1,490.0	28.90	326.17	1,440.1	204.3	-110.6	13,885,630.53	1,365,146.60	38° 14' 6.809 N	81° 57' 31.313 W
1,520.0	27.31	326.26	1,466.6	216.0	-118.5	13,885,642.28	1,365,138.74	38° 14' 6.924 N	81° 57' 31.413 W
1,550.0	26.38	325.95	1,493.3	227.3	-126.0	13,885,653.53	1,365,131.18	38° 14' 7.034 N	81° 57' 31.509 W
1,580.0	26.51	326.74	1,520.2	238.4	-133.4	13,885,664.65	1,365,123.78	38° 14' 7.143 N	81° 57' 31.603 W
1,610.0	26.51	327.36	1,547.1	249.6	-140.7	13,885,675.88	1,365,116.50	38° 14' 7.254 N	81° 57' 31.696 W
1,640.0	26.29	327.67	1,573.9	260.9	-147.9	13,885,687.13	1,365,109.33	38° 14' 7.364 N	81° 57' 31.787 W
1,670.0	26.12	327.14	1,600.8	272.0	-155.0	13,885,698.30	1,365,102.20	38° 14' 7.474 N	81° 57' 31.878 W
1,700.0	26.20	327.36	1,627.8	283.2	-162.1	13,885,709.42	1,365,095.04	38° 14' 7.583 N	81° 57' 31.969 W
1,730.0	26.38	328.06	1,654.7	294.4	-169.2	13,885,720.65	1,365,087.94	38° 14' 7.694 N	81° 57' 32.060 W
1,760.0	26.29	327.84	1,681.6	305.7	-176.3	13,885,731.93	1,365,080.88	38° 14' 7.804 N	81° 57' 32.150 W
1,790.0	26.51	328.46	1,708.4	317.0	-183.3	13,885,743.26	1,365,073.84	38° 14' 7.916 N	81° 57' 32.240 W
1,820.0	26.51	327.84	1,735.3	328.4	-190.4	13,885,754.64	1,365,066.78	38° 14' 8.027 N	81° 57' 32.330 W
1,850.0	26.29	328.94	1,762.1	339.7	-197.4	13,885,766.00	1,365,059.78	38° 14' 8.139 N	81° 57' 32.419 W
1,880.0	25.90	328.55	1,789.1	351.0	-204.3	13,885,777.28	1,365,052.94	38° 14' 8.250 N	81° 57' 32.506 W
1,910.0	25.81	328.77	1,816.1	362.2	-211.1	13,885,788.45	1,365,046.13	38° 14' 8.360 N	81° 57' 32.593 W
1,940.0	25.81	328.24	1,843.1	373.3	-217.9	13,885,799.59	1,365,039.31	38° 14' 8.469 N	81° 57' 32.680 W
1,970.0	25.90	328.63	1,870.1	384.5	-224.7	13,885,810.74	1,365,032.46	38° 14' 8.579 N	81° 57' 32.767 W
2,000.0	26.12	329.16	1,897.0	395.7	-231.5	13,885,822.00	1,365,025.67	38° 14' 8.689 N	81° 57' 32.854 W
2,030.0	26.12	328.63	1,924.0	407.0	-238.3	13,885,833.31	1,365,018.84	38° 14' 8.800 N	81° 57' 32.941 W
2,060.0	26.20	328.94	1,950.9	418.4	-245.2	13,885,844.62	1,365,011.99	38° 14' 8.912 N	81° 57' 33.028 W
2,090.0	25.72	329.96	1,977.9	429.7	-251.9	13,885,855.93	1,365,005.31	38° 14' 9.023 N	81° 57' 33.113 W
2,120.0	25.41	329.96	2,004.9	440.9	-258.4	13,885,867.14	1,364,998.83	38° 14' 9.133 N	81° 57' 33.196 W
2,150.0	25.10	329.96	2,032.1	452.0	-264.8	13,885,878.22	1,364,992.42	38° 14' 9.242 N	81° 57' 33.278 W
2,210.0	23.51	329.25	2,086.8	473.3	-277.3	13,885,899.52	1,364,979.93	38° 14' 9.451 N	81° 57' 33.437 W
2,240.0	22.71	328.86	2,114.4	483.4	-283.3	13,885,909.62	1,364,973.88	38° 14' 9.550 N	81° 57' 33.514 W
2,270.0	21.92	327.75	2,142.1	493.0	-289.3	13,885,919.31	1,364,967.90	38° 14' 9.646 N	81° 57' 33.591 W
2,300.0	21.30	328.06	2,170.0	502.4	-295.2	13,885,928.67	1,364,962.03	38° 14' 9.738 N	81° 57' 33.666 W
2,330.0	20.11	326.34	2,198.1	511.3	-300.9	13,885,937.59	1,364,956.28	38° 14' 9.825 N	81° 57' 33.739 W
2,360.0	18.91	325.46	2,226.3	519.6	-306.5	13,885,945.88	1,364,950.67	38° 14' 9.907 N	81° 57' 33.810 W
2,390.0	17.72	325.15	2,254.8	527.4	-311.9	13,885,953.64	1,364,945.30	38° 14' 9.988 N	81° 57' 33.878 W
2,420.0	16.70	325.15	2,283.5	534.7	-317.0	13,885,960.92	1,364,940.23	38° 14' 10.054 N	81° 57' 33.943 W
2,450.0	15.69	324.05	2,312.3	541.5	-321.8	13,885,967.74	1,364,935.39	38° 14' 10.119 N	81° 57' 34.008 W
2,480.0	14.89	324.45	2,341.2	547.9	-326.4	13,885,974.16	1,364,930.77	38° 14' 10.184 N	81° 57' 34.063 W
2,510.0	14.01	325.46	2,370.3	554.0	-330.7	13,885,980.29	1,364,926.47	38° 14' 10.244 N	81° 57' 34.118 W
2,540.0	12.90	323.83	2,399.4	559.7	-334.8	13,885,985.98	1,364,922.43	38° 14' 10.300 N	81° 57' 34.169 W
2,570.0	12.02	322.95	2,428.7	564.9	-338.6	13,885,991.18	1,364,918.57	38° 14' 10.351 N	81° 57' 34.218 W
2,600.0	11.49	324.36	2,458.1	569.8	-342.2	13,885,996.10	1,364,914.95	38° 14' 10.399 N	81° 57' 34.264 W
2,630.0	11.18	323.35	2,487.5	574.6	-345.7	13,886,000.86	1,364,911.47	38° 14' 10.446 N	81° 57' 34.309 W

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Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well Edna May #153
<b>Project:</b>	Lincoln County, West Virginia	<b>TVD Reference:</b>	WELL @ 978.0usft (Decker #9)
<b>Site:</b>	Edna May #153	<b>MD Reference:</b>	WELL @ 978.0usft (Decker #9)
<b>Well:</b>	Edna May #153	<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

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,690.0	9.81	320.44	2,546.5	583.2	-352.4	13,886,009.47	1,364,904.74	38° 14' 10.531 N	81° 57' 34.394 W
2,720.0	9.01	319.95	2,576.1	587.0	-355.6	13,886,013.24	1,364,901.60	38° 14' 10.568 N	81° 57' 34.434 W
2,780.0	9.01	319.95	2,635.4	594.2	-361.6	13,886,020.43	1,364,895.56	38° 14' 10.638 N	81° 57' 34.511 W

TD @ 2780' MD / 2635' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
680.0	680.0	-4.4	1.7	First Survey @ 680' MD / 680' TVD
2,780.0	2,635.4	594.2	-361.6	TD @ 2780' MD / 2635' TVD

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

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<b>Design:</b> Wellbore #1	<b>Database:</b> Compass

<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> Edna May #153		
<b>Site Position:</b>	<b>Northing:</b> 13,885,426.26 usft	<b>Latitude:</b> 38° 14' 4.800 N
<b>From:</b> Lat/Long	<b>Easting:</b> 1,365,257.19 usft	<b>Longitude:</b> 81° 57' 29.900 W
<b>Position Uncertainty:</b> 0.0 usft	<b>Slot Radius:</b> 13-3/16 "	<b>Grid Convergence:</b> -0.59 °

<b>Well</b> Edna May #153		
<b>Well Position</b> +N/-S 0.0 usft	<b>Northing:</b> 13,885,426.26 usft	<b>Latitude:</b> 38° 14' 4.800 N
+E/-W 0.0 usft	<b>Easting:</b> 1,365,257.19 usft	<b>Longitude:</b> 81° 57' 29.900 W
<b>Position Uncertainty</b> 0.0 usft	<b>Wellhead Elevation:</b> 0.0 usft	<b>Ground Level:</b> 970.0 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>
	IGRF2015	10/27/2015	-7.44	66.03	51,698

<b>Design</b> Wellbore #1			
<b>Vertical Section:</b>	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.0	
<b>From (usft)</b>	<b>Depth From (TVD) (usft)</b>	<b>Direction (°)</b>	
680.0	0.0	327.09	
<b>Survey Program</b>	<b>Date</b> 11/17/2015		
<b>From (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
680.0	2,780.0 MWD (Wellbore #1)	MWD default	MWD - Standard

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<b>Project:</b> Lincoln County, West Virginia	<b>TVD Reference:</b> WELL @ 978.0usft (Decker #9)
<b>Site:</b> Edna May #153	<b>MD Reference:</b> WELL @ 978.0usft (Decker #9)
<b>Well:</b> Edna May #153	<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

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	
680.0	0.80	159.24	680.0	-4.4	1.7	-4.6	0.12	4.7	159.24	
<b>First Survey @ 680' MD / 680' TVD</b>										
710.0	0.71	157.35	710.0	-4.8	1.8	-5.0	0.31	5.1	159.17	
740.0	0.22	88.07	740.0	-5.0	2.0	-5.2	2.22	5.3	158.52	
770.0	1.68	354.74	770.0	-4.5	2.0	-4.9	5.69	4.9	156.47	
800.0	3.49	345.03	799.9	-3.2	1.7	-3.6	6.19	3.6	152.16	
830.0	5.08	342.43	829.9	-1.1	1.1	-1.5	5.34	1.5	135.15	
860.0	6.98	343.13	859.7	1.9	0.1	1.6	6.34	1.9	3.88	
890.0	8.48	341.37	889.4	5.8	-1.1	5.5	5.06	5.9	349.20	
920.0	10.30	341.06	919.0	10.4	-2.7	10.2	6.07	10.8	345.57	
950.0	11.89	338.77	948.4	15.8	-4.7	15.8	5.50	16.5	343.57	
980.0	13.70	338.95	977.7	22.0	-7.1	22.3	6.03	23.1	342.22	
1,010.0	15.11	337.93	1,006.8	29.0	-9.8	29.7	4.78	30.6	341.29	
1,040.0	16.62	337.93	1,035.6	36.6	-12.9	37.7	5.03	38.8	340.58	
1,070.0	18.12	337.23	1,064.2	44.8	-16.3	46.5	5.05	47.7	340.01	
1,100.0	19.89	337.05	1,092.6	53.9	-20.1	56.1	5.90	57.5	339.53	
1,130.0	21.08	335.55	1,120.7	63.5	-24.3	66.5	4.34	68.0	339.02	
1,160.0	22.71	334.23	1,148.5	73.6	-29.1	77.6	5.68	79.1	338.44	
1,190.0	24.48	333.44	1,176.0	84.4	-34.4	89.5	5.99	91.1	337.83	
1,220.0	26.20	332.03	1,203.2	95.8	-40.3	102.3	6.08	103.9	337.20	
1,250.0	27.71	330.75	1,229.9	107.7	-46.8	115.8	5.39	117.4	336.52	
1,280.0	28.59	328.06	1,256.3	119.9	-54.0	130.0	5.15	131.5	335.76	
1,310.0	29.12	326.04	1,282.6	132.0	-61.9	144.5	3.70	145.8	334.90	
1,340.0	28.90	325.64	1,308.9	144.1	-70.0	159.0	0.98	160.2	334.08	
1,370.0	28.81	325.46	1,335.1	156.0	-78.2	173.5	0.42	174.5	333.37	
1,400.0	28.81	325.77	1,361.4	167.9	-86.4	187.9	0.50	188.9	332.78	

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**HP**  
HG Energy EOW Report



Company: HG Energy, LLC  
 Project: Lincoln County, West Virginia  
 Site: Edna May #153  
 Well: Edna May #153  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Edna May #153  
 TVD Reference: WELL @ 978.0usft (Decker #9)  
 MD Reference: WELL @ 978.0usft (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 (°)
1,430.0	28.99	326.34	1,387.7	180.0	-94.5	202.4	1.10	203.3	332.30
1,460.0	29.21	326.65	1,413.9	192.1	-102.5	217.0	0.89	217.8	331.91
1,490.0	28.90	326.17	1,440.1	204.3	-110.6	231.6	1.29	232.3	331.57
1,520.0	27.31	326.26	1,466.6	216.0	-118.5	245.7	5.30	246.4	331.26
1,550.0	26.38	325.95	1,493.3	227.3	-126.0	259.3	3.13	259.9	330.99
1,580.0	26.51	326.74	1,520.2	238.4	-133.4	272.6	1.25	273.2	330.77
1,610.0	26.51	327.36	1,547.1	249.6	-140.7	286.0	0.92	286.5	330.59
1,640.0	26.29	327.67	1,573.9	260.9	-147.9	299.3	0.87	299.9	330.46
1,670.0	26.12	327.14	1,600.8	272.0	-155.0	312.6	0.96	313.1	330.33
1,700.0	26.20	327.36	1,627.8	283.2	-162.1	325.8	0.42	326.3	330.20
1,730.0	26.38	328.06	1,654.7	294.4	-169.2	339.1	1.20	339.6	330.11
1,760.0	26.29	327.84	1,681.6	305.7	-176.3	352.4	0.44	352.9	330.02
1,790.0	26.51	328.46	1,708.4	317.0	-183.3	365.7	1.18	366.2	329.96
1,820.0	26.51	327.84	1,735.3	328.4	-190.4	379.1	0.92	379.6	329.89
1,850.0	26.29	328.94	1,762.1	339.7	-197.4	392.5	1.79	392.9	329.84
1,880.0	25.90	328.55	1,789.1	351.0	-204.3	405.7	1.42	406.1	329.81
1,910.0	25.81	328.77	1,816.1	362.2	-211.1	418.7	0.44	419.2	329.77
1,940.0	25.81	328.24	1,843.1	373.3	-217.9	431.8	0.77	432.3	329.73
1,970.0	25.90	328.63	1,870.1	384.5	-224.7	444.9	0.64	445.3	329.69
2,000.0	26.12	329.16	1,897.0	395.7	-231.5	458.0	1.07	458.5	329.67
2,030.0	26.12	328.63	1,924.0	407.0	-238.3	471.2	0.78	471.7	329.65
2,060.0	26.20	328.94	1,950.9	418.4	-245.2	484.4	0.53	484.9	329.63
2,090.0	25.72	329.96	1,977.9	429.7	-251.9	497.6	2.19	498.1	329.62
2,120.0	25.41	329.96	2,004.9	440.9	-258.4	510.5	1.03	511.0	329.63
2,150.0	25.10	329.96	2,032.1	452.0	-264.8	523.3	1.03	523.8	329.64
2,180.0	23.51	329.25	2,086.8	473.3	-277.3	547.9	2.69	548.5	329.64
2,240.0	22.71	328.86	2,114.4	483.4	-283.3	559.7	2.72	560.3	329.62

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**HP**  
HG Energy EOW Report



**Company:** HG Energy, LLC  
**Project:** Lincoln County, West Virginia  
**Site:** Edna May #153  
**Well:** Edna May #153  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Edna May #153  
**TVD Reference:** WELL @ 978.0usft (Decker #9)  
**MD Reference:** WELL @ 978.0usft (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 (°)
2,270.0	21.92	327.75	2,142.1	493.0	-289.3	571.1	2.98	571.7	329.60
2,300.0	21.30	328.06	2,170.0	502.4	-295.2	582.2	2.10	582.7	329.57
2,330.0	20.11	326.34	2,198.1	511.3	-300.9	592.8	4.45	593.3	329.52
2,360.0	18.91	325.46	2,226.3	519.6	-306.5	602.8	4.12	603.3	329.46
2,390.0	17.72	325.15	2,254.8	527.4	-311.9	612.2	3.98	612.7	329.40
2,420.0	16.70	325.15	2,283.5	534.7	-317.0	621.1	3.40	621.5	329.34
2,450.0	15.69	324.05	2,312.3	541.5	-321.8	629.4	3.52	629.9	329.28
2,480.0	14.89	324.45	2,341.2	547.9	-326.4	637.3	2.69	637.8	329.21
2,510.0	14.01	325.46	2,370.3	554.0	-330.7	644.8	3.05	645.2	329.16
2,540.0	12.90	323.83	2,399.4	559.7	-334.8	651.8	3.91	652.2	329.12
2,570.0	12.02	322.95	2,428.7	564.9	-338.6	658.2	3.00	658.6	329.06
2,600.0	11.49	324.36	2,458.1	569.8	-342.2	664.3	2.01	664.7	329.01
2,630.0	11.18	323.35	2,487.5	574.6	-345.7	670.2	1.23	670.6	328.97
2,690.0	9.81	320.44	2,546.5	583.2	-352.4	681.1	2.45	681.4	328.85
2,720.0	9.01	319.95	2,576.1	587.0	-355.6	686.0	2.68	686.3	328.79
2,780.0	9.01	319.95	2,635.4	594.2	-361.6	695.3	0.00	695.6	328.67

TD @ 2780' MD / 2635' TVD

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
680.0	680.0	-4.4	1.7	First Survey @ 680' MD / 680' TVD
2,780.0	2,635.4	594.2	-361.6	TD @ 2780' MD / 2635' TVD

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

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Company Name: HG Energy, LLC  
 Edna May #153  
 Lincoln County, West Virginia  
 Rig: Decker #9  
 Created By: Shane Robbins  
 Date: 11/17/2015

Edna May #153  
 Lincoln County, West Virginia  
**Q150787 & AM-150680**  
 Design #1



DESIGN TARGET DETAILS							
Name	TVD	+NI-S	+EI-W	Northing	Easting	Latitude	Longitude
Target Edna May #153 - plan hits target center	2471.0	570.2	-369.0	133853986.43	1364885.19	38° 14' 10.400 N	81° 57' 34.600 W

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

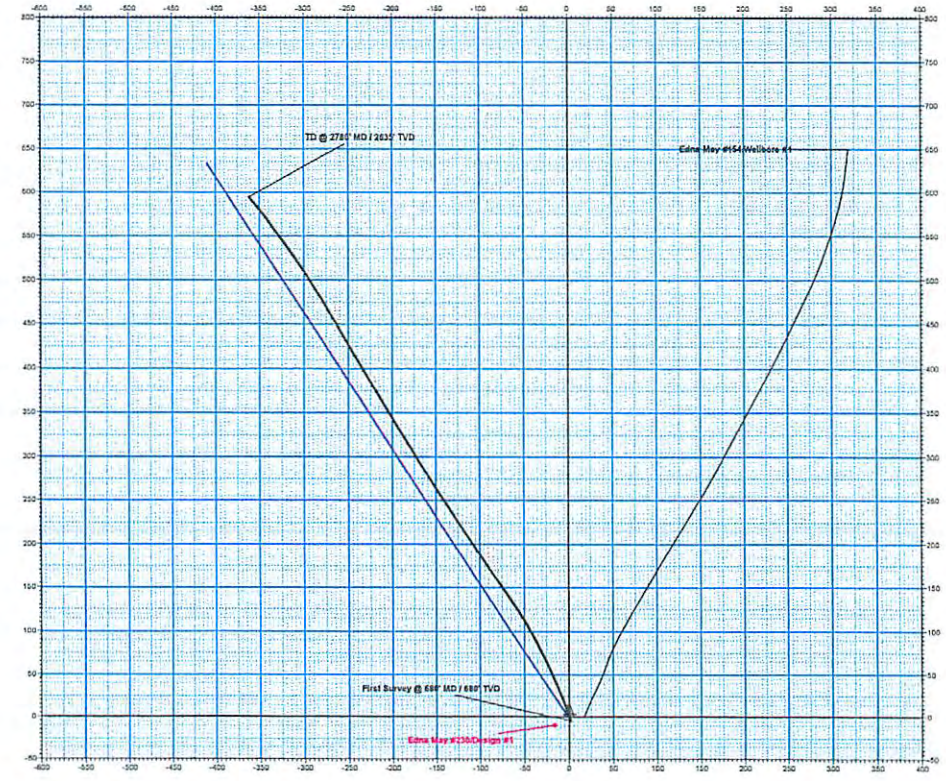
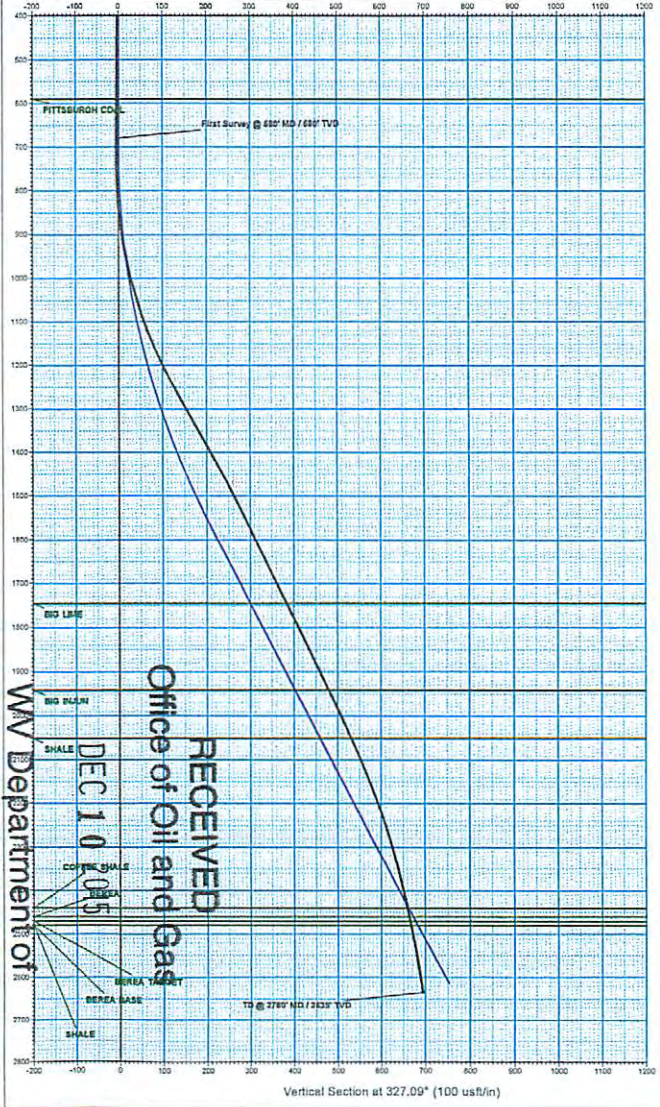
WELL DETAILS:						Edna May #153
+NI-S	+EI-W	Northing	Easting	Latitude	Longitude	Ground Level:
0.0	0.0	13895426.25	1355267.19	38° 14' 4.800 N	81° 57' 29.900 W	970.0

ANNOTATIONS							
MD	Inc	Azi	TVD	+NI-S	+EI-W	Vsect/Departure	Annotation
680.0	0.80	159.24	650.0	-4.4	1.7	-4.6	4.7 First Survey @ 680' MD / 680' TVD
2760.0	0.01	310.95	2535.4	894.2	-351.6	695.3	708.4 TD @ 2760' MD / 2525' TVD

**M G T**

**Azimuths to Grid North**  
 Correction: -6.85°  
 Magnetic Field Strength: 51697.6snT  
 Dip Angle: 66.03°  
 Date: 10/27/2015  
 Model: IGRF2015

# HG Energy



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