

HG Energy, LLC
Lincoln County, West Virginia
MA Bays #231
MA Bays #231

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

20 October, 2015

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WV Department of
Environmental Protection



02/12/2016

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Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well MA Bays #231	
Project: Lincoln County, West Virginia	TVD Reference: WELL @ 953.0usft (Decker #9)	
Site: MA Bays #231	MD Reference: WELL @ 953.0usft (Decker #9)	
Well: MA Bays #231	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 MA Bays #231		
Site Position:	Northing: 13,885,075.06 usft	Latitude: 38° 14' 1.300 N
From: Lat/Long	Easting: 1,364,990.31 usft	Longitude: 81° 57' 33.200 W
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.59 °

Well MA Bays #231			
Well Position +N/-S	0.0 usft	Northing: 13,885,075.06 usft	Latitude: 38° 14' 1.300 N
+E/-W	0.0 usft	Easting: 1,364,990.31 usft	Longitude: 81° 57' 33.200 W
Position Uncertainty	0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 945.0 usft

Wellbore Wellbore #1	
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/27/2015	-7.43	66.04	51,717

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	147.04

Survey Program		Date 10/20/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
618.0	2,705.0	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	13,885,075.06	1,364,990.31	38° 14' 1.300 N	81° 57' 33.200 W
618.0	0.71	217.95	618.0	-3.0	-2.4	13,885,072.04	1,364,987.96	38° 14' 1.267 N	81° 57' 33.234 W
First MWD Survey @ 618' MD / 618' TVD									
648.0	0.62	225.44	648.0	-3.3	-2.6	13,885,071.78	1,364,987.73	38° 14' 1.263 N	81° 57' 33.232 W
678.0	1.10	195.56	678.0	-3.7	-2.8	13,885,071.39	1,364,987.54	38° 14' 1.255 N	81° 57' 33.234 W
708.0	2.30	173.66	708.0	-4.5	-2.8	13,885,070.51	1,364,987.52	38° 14' 1.240 N	81° 57' 33.231 W
738.0	3.58	168.24	737.9	-6.1	-2.5	13,885,069.00	1,364,987.78	38° 14' 1.218 N	81° 57' 33.224 W
768.0	4.99	165.46	767.8	-8.2	-2.0	13,885,066.82	1,364,988.30	38° 14' 1.191 N	81° 57' 33.213 W
798.0	6.19	160.66	797.7	-11.0	-1.1	13,885,064.03	1,364,989.16	38° 14' 1.158 N	81° 57' 33.197 W
828.0	7.38	158.28	827.5	-14.3	0.1	13,885,060.71	1,364,990.41	38° 14' 1.120 N	81° 57' 33.175 W
858.0	8.71	154.76	857.2	-18.2	1.8	13,885,056.87	1,364,992.09	38° 14' 1.078 N	81° 57' 33.148 W
888.0	9.59	151.76	886.8	-22.4	3.9	13,885,052.61	1,364,994.25		

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Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well MA Bays #231	
Project: Lincoln County, West Virginia	TVD Reference: WELL @ 953.0usft (Decker #9)	
Site: MA Bays #231	MD Reference: WELL @ 953.0usft (Decker #9)	
Well: MA Bays #231	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
918.0	10.38	149.56	916.4	-27.0	6.5	13,885,048.08	1,364,996.80	38° 14' 1.034 N	81° 57' 33.115 W
948.0	11.31	148.85	945.8	-31.8	9.4	13,885,043.23	1,364,999.69	38° 14' 0.986 N	81° 57' 33.078 W
978.0	12.42	148.67	975.2	-37.1	12.6	13,885,037.96	1,365,002.89	38° 14' 0.934 N	81° 57' 33.038 W
1,008.0	13.39	149.64	1,004.4	-42.9	16.0	13,885,032.20	1,365,006.32	38° 14' 0.878 N	81° 57' 32.994 W
1,038.0	14.41	149.16	1,033.5	-49.1	19.7	13,885,026.00	1,365,009.99	38° 14' 0.817 N	81° 57' 32.947 W
1,068.0	15.82	147.88	1,062.5	-55.7	23.8	13,885,019.33	1,365,014.08	38° 14' 0.751 N	81° 57' 32.895 W
1,098.0	17.10	148.14	1,091.3	-62.9	28.3	13,885,012.12	1,365,018.58	38° 14' 0.681 N	81° 57' 32.837 W
1,128.0	18.38	149.56	1,119.8	-70.8	33.0	13,885,004.30	1,365,023.31	38° 14' 0.604 N	81° 57' 32.777 W
1,158.0	19.71	151.14	1,148.2	-79.3	37.8	13,884,995.79	1,365,028.14	38° 14' 0.520 N	81° 57' 32.715 W
1,188.0	20.90	154.67	1,176.3	-88.5	42.6	13,884,986.52	1,365,032.88	38° 14' 0.429 N	81° 57' 32.655 W
1,218.0	20.81	153.96	1,204.4	-98.2	47.2	13,884,976.90	1,365,037.50	38° 14' 0.334 N	81° 57' 32.596 W
1,248.0	20.90	157.58	1,232.4	-107.9	51.6	13,884,967.16	1,365,041.88	38° 14' 0.238 N	81° 57' 32.539 W
1,278.0	20.68	157.36	1,260.5	-117.7	55.7	13,884,957.33	1,365,045.96	38° 14' 0.142 N	81° 57' 32.487 W
1,308.0	20.81	156.87	1,288.5	-127.5	59.8	13,884,947.54	1,365,050.10	38° 14' 0.045 N	81° 57' 32.434 W
1,338.0	20.28	156.65	1,316.6	-137.2	63.9	13,884,937.86	1,365,054.25	38° 13' 59.950 N	81° 57' 32.381 W
1,398.0	20.42	156.25	1,372.9	-156.3	72.3	13,884,918.74	1,365,062.59	38° 13' 59.762 N	81° 57' 32.274 W
1,428.0	20.59	156.08	1,401.0	-165.9	76.5	13,884,909.12	1,365,066.83	38° 13' 59.667 N	81° 57' 32.219 W
1,458.0	21.70	157.84	1,428.9	-175.9	80.8	13,884,899.16	1,365,071.07	38° 13' 59.569 N	81° 57' 32.165 W
1,488.0	22.58	155.86	1,456.7	-186.3	85.2	13,884,888.77	1,365,075.51	38° 13' 59.467 N	81° 57' 32.108 W
1,518.0	22.71	155.68	1,484.4	-196.8	89.9	13,884,878.24	1,365,080.25	38° 13' 59.363 N	81° 57' 32.047 W
1,578.0	22.89	154.76	1,539.7	-217.9	99.7	13,884,857.13	1,365,090.00	38° 13' 59.155 N	81° 57' 31.922 W
1,608.0	22.71	153.96	1,567.4	-228.4	104.7	13,884,846.65	1,365,095.03	38° 13' 59.052 N	81° 57' 31.858 W
1,638.0	22.98	153.57	1,595.0	-238.9	109.9	13,884,836.20	1,365,100.18	38° 13' 58.949 N	81° 57' 31.792 W
1,668.0	23.42	154.14	1,622.6	-249.5	115.1	13,884,825.59	1,365,105.39	38° 13' 58.845 N	81° 57' 31.725 W
1,728.0	24.08	153.34	1,677.5	-271.1	125.8	13,884,803.92	1,365,116.08	38° 13' 58.632 N	81° 57' 31.588 W
1,758.0	23.82	151.85	1,704.9	-281.9	131.4	13,884,793.11	1,365,121.68	38° 13' 58.526 N	81° 57' 31.517 W
1,818.0	22.80	149.86	1,760.0	-302.7	142.9	13,884,772.37	1,365,133.24	38° 13' 58.322 N	81° 57' 31.369 W
1,848.0	22.80	149.16	1,787.7	-312.7	148.8	13,884,762.36	1,365,139.14	38° 13' 58.223 N	81° 57' 31.294 W
1,908.0	23.60	149.07	1,842.8	-333.0	161.0	13,884,742.07	1,365,151.27	38° 13' 58.024 N	81° 57' 31.139 W
1,938.0	23.91	147.18	1,870.3	-343.2	167.3	13,884,731.81	1,365,157.65	38° 13' 57.923 N	81° 57' 31.058 W
1,998.0	24.48	146.25	1,925.0	-363.8	180.8	13,884,711.26	1,365,171.15	38° 13' 57.721 N	81° 57' 30.886 W
2,028.0	23.20	147.04	1,952.5	-373.9	187.5	13,884,701.13	1,365,177.82	38° 13' 57.622 N	81° 57' 30.801 W
2,058.0	22.40	145.37	1,980.1	-383.6	194.0	13,884,691.47	1,365,184.28	38° 13' 57.527 N	81° 57' 30.719 W
2,118.0	19.18	145.68	2,036.2	-401.1	206.0	13,884,673.92	1,365,196.34	38° 13' 57.355 N	81° 57' 30.565 W
2,148.0	16.62	145.15	2,064.8	-408.7	211.3	13,884,666.32	1,365,201.57	38° 13' 57.280 N	81° 57' 30.499 W
2,178.0	14.72	144.44	2,093.6	-415.4	215.9	13,884,659.70	1,365,206.24	38° 13' 57.215 N	81° 57' 30.439 W
2,208.0	13.30	144.27	2,122.7	-421.3	220.2	13,884,653.80	1,365,210.47	38° 13' 57.157 N	81° 57' 30.385 W
2,238.0	11.89	142.77	2,152.0	-426.5	224.0	13,884,648.54	1,365,214.35	38° 13' 57.106 N	81° 57' 30.336 W
2,268.0	11.00	136.64	2,181.4	-431.1	227.9	13,884,644.00	1,365,218.19	38° 13' 57.061 N	81° 57' 30.287 W
2,298.0	9.81	133.16	2,210.9	-434.9	231.7	13,884,640.17	1,365,222.02	38° 13' 57.024 N	81° 57' 30.239 W
2,328.0	9.10	131.75	2,240.5	-438.2	235.3	13,884,636.84	1,365,225.65	38° 13' 56.991 N	81° 57' 30.193 W
2,358.0	8.22	128.76	2,270.2	-441.1	238.8	13,884,633.92	1,365,229.09	38° 13' 56.962 N	81° 57' 30.149 W
2,388.0	7.29	128.05	2,299.9	-443.7	242.0	13,884,631.40	1,365,232.26	38° 13' 56.938 N	81° 57' 30.109 W
2,448.0	6.01	122.37	2,359.5	-447.7	247.6	13,884,627.37	1,365,237.92	38° 13' 56.899 N	81° 57' 30.038 W
2,478.0	5.39	119.15	2,389.4	-449.2	250.2	13,884,625.85	1,365,240.47	38° 13' 56.884 N	81° 57' 30.006 W
2,508.0	4.99	114.17	2,419.2	-450.4	252.6	13,884,624.62	1,365,242.89	38° 13' 56.872 N	81° 57' 29.975 W
2,538.0	4.82	113.38	2,449.1	-451.5	254.9	13,884,623.59	1,365,245.24	38° 13' 56.862 N	81° 57' 29.946 W
2,568.0	4.51	111.97	2,479.0	-452.4	257.2	13,884,622.65	1,365,247.49	38° 13' 56.853 N	81° 57' 29.917 W
2,628.0	3.89	106.46	2,538.9	-453.9	261.3	13,884,621.19	1,365,251.63	38° 13' 56.839 N	81° 57' 29.865 W
2,705.0	3.89	106.46	2,615.7	-455.3	266.3	13,884,619.71	1,365,256.64	38° 13' 56.825 N	81° 57' 29.802 W

TD @ 2705' MD / 2616' TVD

HP
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well MA Bays #231
Project:	Lincoln County, West Virginia	TVD Reference:	WELL @ 953.0usft (Decker #9)
Site:	MA Bays #231	MD Reference:	WELL @ 953.0usft (Decker #9)
Well:	MA Bays #231	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
618.0	618.0	-3.0	-2.4	First MWD Survey @ 618' MD / 618' TVD
2,705.0	2,615.7	-455.3	266.3	TD @ 2705' MD / 2616' TVD

Checked By: _____ Approved By: _____ Date: _____

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HG Energy, LLC

Lincoln County, West Virginia

MA Bays #231

MA Bays #231

Wellbore #1

Design: Wellbore #1

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Design: Wellbore #1	Database: Compass

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

Site MA Bays #231		
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From: Lat/Long	Easting: 1,364,990.31 usft	Longitude: 81° 57' 33.200 W
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.59 °

Well MA Bays #231		
Well Position +N/-S 0.0 usft	Northing: 13,885,075.06 usft	Latitude: 38° 14' 1.300 N
+E/-W 0.0 usft	Easting: 1,364,990.31 usft	Longitude: 81° 57' 33.200 W
Position Uncertainty 0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 945.0 usft

Wellbore Wellbore #1					
Magnetics	Model Name IGRF2015	Sample Date 8/27/2015	Declination (°) -7.43	Dip Angle (°) 66.04	Field Strength (nT) 51,717

Design Wellbore #1				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (usft) 0.0	+N/-S (usft) 0.0	+E/-W (usft) 0.0	Direction (°) 147.04

Survey Program	Date 10/20/2015	Survey (Wellbore) MWD (Wellbore #1)	Tool Name MWD default	Description MWD - Standard
From (usft) 618.0				

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 Well: MA Bays #231
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well MA Bays #231
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 MD Reference: WELL @ 953.0usft (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 (°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00	
618.0	0.71	217.95	618.0	-3.0	-2.4	1.3	0.11	3.8	217.95	
First MWD Survey @ 618' MD / 618' TVD										
648.0	0.62	225.44	648.0	-3.3	-2.6	1.3	0.42	4.2	218.24	
678.0	1.10	195.56	678.0	-3.7	-2.8	1.6	2.14	4.6	217.11	
708.0	2.30	173.66	708.0	-4.5	-2.8	2.3	4.48	5.3	211.52	
738.0	3.58	168.24	737.9	-6.1	-2.5	3.7	4.36	6.6	202.66	
768.0	4.99	165.46	767.8	-8.2	-2.0	5.8	4.75	8.5	193.72	
798.0	6.19	160.66	797.7	-11.0	-1.1	8.6	4.29	11.1	185.95	
828.0	7.38	158.28	827.5	-14.3	0.1	12.1	4.08	14.3	179.60	
858.0	8.71	154.76	857.2	-18.2	1.8	16.2	4.73	18.3	174.41	
888.0	9.59	151.76	886.8	-22.4	3.9	21.0	3.34	22.8	170.06	
918.0	10.38	149.56	916.4	-27.0	6.5	26.2	2.92	27.7	166.49	
948.0	11.31	148.85	945.8	-31.8	9.4	31.8	3.13	33.2	163.59	
978.0	12.42	148.67	975.2	-37.1	12.6	38.0	3.70	39.2	161.28	
1,008.0	13.39	149.64	1,004.4	-42.9	16.0	44.7	3.31	45.7	159.52	
1,038.0	14.41	149.16	1,033.5	-49.1	19.7	51.9	3.42	52.9	158.14	
1,068.0	15.82	147.88	1,062.5	-55.7	23.8	59.7	4.83	60.6	156.90	
1,098.0	17.10	148.14	1,091.3	-62.9	28.3	68.2	4.27	69.0	155.81	
1,128.0	18.38	149.56	1,119.8	-70.8	33.0	77.3	4.50	78.1	155.00	
1,158.0	19.71	151.14	1,148.2	-79.3	37.8	87.1	4.75	87.8	154.49	
1,188.0	20.90	154.67	1,176.3	-88.5	42.6	97.4	5.69	98.2	154.33	
1,218.0	22.81	153.96	1,204.4	-98.2	47.2	108.0	0.89	108.9	154.32	
1,248.0	24.90	157.58	1,232.4	-107.9	51.6	118.6	4.31	119.6	154.45	
1,278.0	26.88	157.36	1,260.5	-117.7	55.7	129.1	0.78	130.2	154.70	
1,308.0	28.81	156.87	1,288.5	-127.5	59.8	139.5	0.72	140.8	154.88	
1,338.0	20.28	156.65	1,316.6	-137.2	63.9	149.9	1.79	151.4	155.01	

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Wellbore: Wellbore #1
Design: Wellbore #1

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MD Reference: WELL @ 953.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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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 (°)
1,398.0	20.42	156.25	1,372.9	-156.3	72.3	170.5	0.33	172.2	155.19
1,428.0	20.59	156.08	1,401.0	-165.9	76.5	180.9	0.60	182.7	155.24
1,458.0	21.70	157.84	1,428.9	-175.9	80.8	191.5	4.26	193.5	155.34
1,488.0	22.58	155.86	1,456.7	-186.3	85.2	202.7	3.85	204.8	155.42
1,518.0	22.71	155.68	1,484.4	-196.8	89.9	214.1	0.49	216.4	155.44
1,578.0	22.89	154.76	1,539.7	-217.9	99.7	237.1	0.67	239.6	155.42
1,608.0	22.71	153.96	1,567.4	-228.4	104.7	248.6	1.19	251.3	155.37
1,638.0	22.98	153.57	1,595.0	-238.9	109.9	260.2	1.03	262.9	155.30
1,668.0	23.42	154.14	1,622.6	-249.5	115.1	271.9	1.65	274.7	155.24
1,728.0	24.08	153.34	1,677.5	-271.1	125.8	295.9	1.22	298.9	155.12
1,758.0	23.82	151.85	1,704.9	-281.9	131.4	308.0	2.19	311.1	155.02
1,818.0	22.80	149.86	1,760.0	-302.7	142.9	331.7	2.15	334.7	154.72
1,848.0	22.80	149.16	1,787.7	-312.7	148.8	343.3	0.90	346.3	154.55
1,908.0	23.60	149.07	1,842.8	-333.0	161.0	367.0	1.33	369.8	154.20
1,938.0	23.91	147.18	1,870.3	-343.2	167.3	379.0	2.74	381.9	154.01
1,998.0	24.48	146.25	1,925.0	-363.8	180.8	403.6	1.14	406.3	153.57
2,028.0	23.20	147.04	1,952.5	-373.9	187.5	415.8	4.40	418.3	153.37
2,058.0	22.40	145.37	1,980.1	-383.6	194.0	427.4	3.43	429.8	153.18
2,118.0	19.18	145.68	2,036.2	-401.1	206.0	448.7	5.37	451.0	152.82
2,148.0	16.62	145.15	2,064.8	-408.7	211.3	457.9	8.55	460.1	152.67
2,178.0	14.40	144.44	2,093.6	-415.4	215.9	466.0	6.37	468.1	152.53
2,208.0	13.40	144.27	2,122.7	-421.3	220.2	473.2	4.74	475.3	152.41
2,238.0	11.80	142.77	2,152.0	-426.5	224.0	479.8	4.82	481.8	152.29
2,268.0	11.00	146.64	2,181.4	-431.1	227.9	485.7	5.02	487.6	152.14
2,298.0	9.81	143.16	2,210.9	-434.9	231.7	491.0	4.48	492.8	151.95
2,328.0	9.10	131.75	2,240.5	-438.2	235.3	495.7	2.49	497.4	151.76
2,358.0	8.22	128.76	2,270.2	-441.1	238.8	500.0	3.29	501.6	151.57

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HP
HG Energy EOW Report



Company: HG Energy, LLC	Local Co-ordinate Reference: Well MA Bays #231
Project: Lincoln County, West Virginia	TVD Reference: WELL @ 953.0usft (Decker #9)
Site: MA Bays #231	MD Reference: WELL @ 953.0usft (Decker #9)
Well: MA Bays #231	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 (°)
2,388.0	7.29	128.05	2,299.9	-443.7	242.0	503.9	3.12	505.3	151.39
2,448.0	6.01	122.37	2,359.5	-447.7	247.6	510.3	2.40	511.6	151.05
2,478.0	5.39	119.15	2,389.4	-449.2	250.2	513.0	2.32	514.2	150.89
2,508.0	4.99	114.17	2,419.2	-450.4	252.6	515.4	2.01	516.4	150.72
<u>2,538.0</u>	4.82	113.38	2,449.1	-451.5	254.9	517.5	0.61	518.5	150.55
2,568.0	4.51	111.97	2,479.0	-452.4	257.2	519.5	1.10	520.4	150.38
2,628.0	3.89	106.46	2,538.9	-453.9	261.3	523.0	1.23	523.7	150.07
2,705.0	3.89	106.46	2,615.7	-455.3	266.3	527.0	0.00	527.5	149.68

TD @ 2705' MD / 2616' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
618.0	618.0	-3.0	-2.4	First MWD Survey @ 618' MD / 618' TVD
2,705.0	2,615.7	-455.3	266.3	TD @ 2705' MD / 2616' TVD

Checked By: _____ Approved By: _____ Date: _____

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 Environmental Protection

Company Name: HG Energy, LLC
 MA Bays #231
 Lincoln County, West Virginia
 Rig: Decker 9
 Created By: Shane Robbins
 Date: 10/20/2015

MA Bays #231
 Lincoln County, West Virginia
Q150747 & AM-150646
 Design #1



DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E/W	Northing	Easting	Latitude	Longitude
Target MA Bays #231 - plan hits target center	2455.0	-448.0	290.5	13884627.06	1365280.82	38° 13' 66.500 N	81° 57' 29.600 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:		MA Bays #231			
+N-S	+E/W	Ground Level:	845.0	Latitude	Longitude
0.0	0.0	Northing	13885076.06	38° 14' 1.000 N	81° 57' 33.200 W

ANNOTATIONS								
MD	Inc	Azi	TVD	+N-S	+E/W	V.Sect	Departure	Annotation
619.0	0.71	217.85	619.0	+3.0	-2.4	1.3	3.8	First MWD Survey @ 618' MD / 618' TVD
2705.0	3.69	106.46	2616.7	-465.3	266.3	627.0	638.2	TD @ 2705' MD / 2616' TVD

M G T
 Azimuths to Grid North
 Correction: -6.84°
 Magnetic Field
 Strength: 51717.0snT
 Dip Angle: 66.04°
 Date: 8/27/2015
 Model: IGRF2015

HG Energy

