

33.05801

HG Energy, LLC

Harrison County, West Virginia

S.E. Adams #146

S.E. Adam #146

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

26 November, 2014

Received
Office of Oil & Gas
JAN 26 2015



02/06/2015

33-05801

Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well S.E. Adam #146
Project:	Harrison County, West Virginia	TVD Reference:	well @ 1275.0usft (Yost #2)
Site:	S.E. Adams #146	MD Reference:	well @ 1275.0usft (Yost #2)
Well:	S.E. Adam #146	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

Project	Harrison 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	S.E. Adams #146				
Site Position:		Northing:	14,261,888.71 usft	Latitude:	39° 16' 17.800 N
From:	Lat/Long	Easting:	1,778,908.04 usft	Longitude:	80° 30' 38.300 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well	S.E. Adam #146					
Well Position	+N/-S	0.0 usft	Northing:	14,261,888.71 usft	Latitude:	39° 16' 17.800 N
	+E/-W	0.0 usft	Easting:	1,778,908.04 usft	Longitude:	80° 30' 38.300 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,267.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/4/2014	-8.67	66.72	52,205

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	352.73	

Survey Program	Date 11/26/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
800.0	3,292.0	MWD Survey #1 (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	14,261,888.71	1,778,908.04	39° 16' 17.800 N	80° 30' 38.300 W	
800.0	0.00	0.00	800.0	0.0	0.0	14,261,888.71	1,778,908.04	39° 16' 17.800 N	80° 30' 38.300 W	
FIRST SURVEY @ 800' MD / 800' TVD										
804.0	1.00	86.70	804.0	0.0	0.0	14,261,888.71	1,778,908.07	39° 16' 17.800 N	80° 30' 38.300 W	
834.0	0.80	81.00	834.0	0.0	0.5	14,261,888.76	1,778,908.54	39° 16' 17.800 N	80° 30' 38.294 W	
864.0	1.20	28.50	864.0	0.4	0.9	14,261,889.07	1,778,908.90	39° 16' 17.803 N	80° 30' 38.289 W	
894.0	2.00	6.30	894.0	1.2	1.1	14,261,889.87	1,778,909.11	39° 16' 17.811 N	80° 30' 38.286 W	
924.0	3.00	3.70	924.0	2.5	1.2	14,261,891.17	1,778,909.21	39° 16' 17.824 N	80° 30' 38.285 W	
954.0	4.20	356.30	953.9	4.3	1.2	14,261,893.05	1,778,909.19	39° 16' 17.843 N	80° 30' 38.285 W	
984.0	5.20	357.20	983.8	6.8	1.0	14,261,895.51	1,778,909.06	39° 16' 17.867 N	80° 30' 38.287 W	
1,014.0	6.60	352.70	1,013.6	9.9	0.7	14,261,898.57	1,778,908.77	39° 16' 17.897 N	80° 30' 38.290 W	
1,044.0	7.60	350.40	1,043.4	13.5	0.2	14,261,902.24	1,778,908.22	39° 16' 17.934 N	80° 30' 38.297 W	

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Design:	Wellbore #1	Database:	EDM Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,074.0	8.40	351.10	1,073.1	17.6	-0.5	14,261,906.36	1,778,907.55	39° 16' 17.975 N	80° 30' 38.305 W
1,104.0	9.00	349.80	1,102.8	22.1	-1.2	14,261,910.83	1,778,906.80	39° 16' 18.019 N	80° 30' 38.314 W
1,134.0	9.80	349.50	1,132.4	26.9	-2.1	14,261,915.65	1,778,905.92	39° 16' 18.066 N	80° 30' 38.325 W
1,164.0	10.90	348.30	1,161.9	32.2	-3.2	14,261,920.94	1,778,904.87	39° 16' 18.119 N	80° 30' 38.338 W
1,194.0	11.90	348.70	1,191.3	38.0	-4.3	14,261,926.75	1,778,903.69	39° 16' 18.176 N	80° 30' 38.353 W
1,224.0	13.10	348.40	1,220.6	44.4	-5.6	14,261,933.12	1,778,902.40	39° 16' 18.239 N	80° 30' 38.369 W
1,254.0	14.20	347.40	1,249.7	51.3	-7.1	14,261,940.04	1,778,900.92	39° 16' 18.308 N	80° 30' 38.387 W
1,284.0	15.50	348.20	1,278.7	58.8	-8.7	14,261,947.55	1,778,899.30	39° 16' 18.382 N	80° 30' 38.407 W
1,314.0	16.80	349.00	1,307.5	67.0	-10.4	14,261,955.73	1,778,897.65	39° 16' 18.463 N	80° 30' 38.428 W
1,344.0	17.90	349.60	1,336.2	75.8	-12.0	14,261,964.52	1,778,895.99	39° 16' 18.550 N	80° 30' 38.448 W
1,374.0	19.20	349.50	1,364.6	85.2	-13.8	14,261,973.91	1,778,894.26	39° 16' 18.643 N	80° 30' 38.469 W
1,404.0	20.30	349.40	1,392.8	95.2	-15.6	14,261,983.88	1,778,892.40	39° 16' 18.742 N	80° 30' 38.492 W
1,434.0	22.10	349.20	1,420.8	105.8	-17.7	14,261,994.54	1,778,890.39	39° 16' 18.847 N	80° 30' 38.517 W
1,464.0	23.10	350.20	1,448.5	117.2	-19.7	14,262,005.88	1,778,888.33	39° 16' 18.959 N	80° 30' 38.543 W
1,494.0	24.00	351.20	1,476.0	129.0	-21.6	14,262,017.71	1,778,886.39	39° 16' 19.077 N	80° 30' 38.566 W
1,524.0	25.00	351.40	1,503.3	141.3	-23.5	14,262,030.00	1,778,884.51	39° 16' 19.198 N	80° 30' 38.590 W
1,554.0	25.30	351.90	1,530.5	153.9	-25.4	14,262,042.62	1,778,882.66	39° 16' 19.323 N	80° 30' 38.612 W
1,584.0	24.50	352.00	1,557.7	166.4	-27.1	14,262,055.13	1,778,880.89	39° 16' 19.447 N	80° 30' 38.634 W
1,614.0	24.50	352.50	1,585.0	178.7	-28.8	14,262,067.45	1,778,879.21	39° 16' 19.569 N	80° 30' 38.654 W
1,644.0	24.40	351.60	1,612.3	191.0	-30.5	14,262,079.75	1,778,877.50	39° 16' 19.690 N	80° 30' 38.675 W
1,674.0	23.90	350.80	1,639.7	203.2	-32.4	14,262,091.88	1,778,875.62	39° 16' 19.810 N	80° 30' 38.698 W
1,704.0	24.10	352.00	1,667.1	215.2	-34.2	14,262,103.94	1,778,873.79	39° 16' 19.930 N	80° 30' 38.721 W
1,734.0	24.70	353.20	1,694.4	227.5	-35.8	14,262,116.23	1,778,872.20	39° 16' 20.051 N	80° 30' 38.740 W
1,764.0	24.80	354.40	1,721.6	240.0	-37.2	14,262,128.72	1,778,870.84	39° 16' 20.175 N	80° 30' 38.757 W
1,794.0	24.20	353.60	1,748.9	252.4	-38.5	14,262,141.09	1,778,869.54	39° 16' 20.297 N	80° 30' 38.772 W
1,824.0	23.70	352.60	1,776.3	264.5	-40.0	14,262,153.18	1,778,868.08	39° 16' 20.417 N	80° 30' 38.790 W
1,854.0	24.00	352.90	1,803.8	276.5	-41.5	14,262,165.21	1,778,866.55	39° 16' 20.536 N	80° 30' 38.809 W
1,884.0	25.00	353.70	1,831.1	288.9	-42.9	14,262,177.57	1,778,865.10	39° 16' 20.658 N	80° 30' 38.826 W
1,914.0	26.20	354.30	1,858.1	301.7	-44.3	14,262,190.46	1,778,863.75	39° 16' 20.786 N	80° 30' 38.843 W
1,944.0	26.90	354.60	1,885.0	315.1	-45.6	14,262,203.81	1,778,862.45	39° 16' 20.918 N	80° 30' 38.858 W
1,974.0	28.10	354.70	1,911.6	328.9	-46.9	14,262,217.60	1,778,861.16	39° 16' 21.054 N	80° 30' 38.874 W
2,004.0	28.80	355.00	1,938.0	343.1	-48.2	14,262,231.83	1,778,859.88	39° 16' 21.195 N	80° 30' 38.889 W
2,034.0	29.30	355.30	1,964.2	357.6	-49.4	14,262,246.35	1,778,858.65	39° 16' 21.339 N	80° 30' 38.904 W
2,064.0	29.30	354.60	1,990.3	372.3	-50.7	14,262,260.97	1,778,857.35	39° 16' 21.483 N	80° 30' 38.919 W
2,094.0	28.60	354.00	2,016.6	386.7	-52.1	14,262,275.42	1,778,855.91	39° 16' 21.626 N	80° 30' 38.936 W
2,124.0	28.80	353.50	2,042.9	401.0	-53.7	14,262,289.74	1,778,854.34	39° 16' 21.768 N	80° 30' 38.955 W
2,154.0	29.00	353.10	2,069.2	415.4	-55.4	14,262,304.14	1,778,852.65	39° 16' 21.910 N	80° 30' 38.976 W
2,184.0	29.40	352.10	2,095.4	429.9	-57.3	14,262,318.66	1,778,850.77	39° 16' 22.054 N	80° 30' 38.999 W
2,214.0	29.00	352.40	2,121.6	444.4	-59.2	14,262,333.16	1,778,848.79	39° 16' 22.197 N	80° 30' 39.023 W
2,244.0	28.60	352.30	2,147.8	458.8	-61.2	14,262,347.48	1,778,846.87	39° 16' 22.339 N	80° 30' 39.047 W
2,274.0	26.30	350.50	2,174.5	472.4	-63.2	14,262,361.15	1,778,844.81	39° 16' 22.474 N	80° 30' 39.072 W
2,304.0	24.40	349.60	2,201.6	485.1	-65.4	14,262,373.81	1,778,842.59	39° 16' 22.600 N	80° 30' 39.099 W
2,334.0	23.50	348.70	2,229.0	497.1	-67.7	14,262,385.77	1,778,840.30	39° 16' 22.718 N	80° 30' 39.127 W
2,364.0	23.60	348.00	2,256.5	508.8	-70.2	14,262,397.50	1,778,837.88	39° 16' 22.834 N	80° 30' 39.157 W
2,394.0	24.50	348.40	2,283.9	520.8	-72.7	14,262,409.47	1,778,835.38	39° 16' 22.953 N	80° 30' 39.188 W
2,424.0	24.50	348.70	2,311.2	533.0	-75.1	14,262,421.67	1,778,832.91	39° 16' 23.073 N	80° 30' 39.219 W
2,454.0	24.20	347.50	2,338.5	545.1	-77.7	14,262,433.77	1,778,830.36	39° 16' 23.193 N	80° 30' 39.251 W
2,484.0	24.80	347.10	2,365.8	557.2	-80.4	14,262,445.90	1,778,827.63	39° 16' 23.313 N	80° 30' 39.285 W
2,514.0	25.10	347.10	2,393.0	569.5	-83.2	14,262,458.24	1,778,824.80	39° 16' 23.435 N	80° 30' 39.320 W
2,544.0	25.50	346.40	2,420.1	582.0	-86.2	14,262,470.72	1,778,821.86	39° 16' 23.559 N	80° 30' 39.356 W
2,574.0	25.40	346.70	2,447.2	594.5	-89.2	14,262,483.26	1,778,818.87	39° 16' 23.683 N	80° 30' 39.393 W
2,600.0	25.20	347.40	2,470.7	605.4	-91.7	14,262,494.09	1,778,816.38	39° 16' 23.790 N	80° 30' 39.424 W
2,630.0	24.20	344.20	2,498.0	617.5	-94.7	14,262,506.24	1,778,813.31	39° 16' 23.911 N	80° 30' 39.463 W
2,660.0	22.80	339.60	2,525.5	628.9	-98.4	14,262,517.60	1,778,809.61	39° 16' 24.023 N	80° 30' 39.509 W
2,690.0	21.50	335.00	2,553.3	639.3	-102.8	14,262,528.03	1,778,805.26	39° 16' 24.127 N	80° 30' 39.563 W



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well S.E. Adam #146
Project:	Harrison County, West Virginia	TVD Reference:	well @ 1275.0usft (Yost #2)
Site:	S.E. Adams #146	MD Reference:	well @ 1275.0usft (Yost #2)
Well:	S.E. Adam #146	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,720.0	20.10	331.40	2,581.3	648.8	-107.6	14,262,537.54	1,778,800.47	39° 16' 24.221 N	80° 30' 39.624 W
2,750.0	17.20	325.70	2,609.8	657.0	-112.5	14,262,545.74	1,778,795.50	39° 16' 24.302 N	80° 30' 39.686 W
2,780.0	15.20	321.30	2,638.6	663.8	-117.5	14,262,552.47	1,778,790.54	39° 16' 24.369 N	80° 30' 39.749 W
2,810.0	14.00	318.40	2,667.6	669.5	-122.4	14,262,558.25	1,778,785.67	39° 16' 24.426 N	80° 30' 39.811 W
2,840.0	13.00	312.20	2,696.8	674.5	-127.3	14,262,563.23	1,778,780.76	39° 16' 24.476 N	80° 30' 39.873 W
2,870.0	12.50	310.50	2,726.0	678.9	-132.2	14,262,567.61	1,778,775.79	39° 16' 24.519 N	80° 30' 39.936 W
2,900.0	11.80	309.00	2,755.4	682.9	-137.1	14,262,571.65	1,778,770.94	39° 16' 24.560 N	80° 30' 39.997 W
2,930.0	11.50	308.20	2,784.7	686.7	-141.8	14,262,575.43	1,778,766.21	39° 16' 24.597 N	80° 30' 40.057 W
2,960.0	10.90	305.00	2,814.2	690.2	-146.5	14,262,578.90	1,778,761.53	39° 16' 24.632 N	80° 30' 40.116 W
2,990.0	9.80	296.00	2,843.7	692.9	-151.1	14,262,581.65	1,778,756.91	39° 16' 24.659 N	80° 30' 40.175 W
3,020.0	9.00	287.70	2,873.3	694.8	-155.7	14,262,583.48	1,778,752.38	39° 16' 24.678 N	80° 30' 40.232 W
3,050.0	8.00	279.70	2,903.0	695.8	-159.9	14,262,584.55	1,778,748.09	39° 16' 24.688 N	80° 30' 40.287 W
3,080.0	7.00	269.60	2,932.7	696.2	-163.8	14,262,584.89	1,778,744.20	39° 16' 24.692 N	80° 30' 40.336 W
3,110.0	6.30	259.70	2,962.5	695.9	-167.3	14,262,584.58	1,778,740.76	39° 16' 24.689 N	80° 30' 40.380 W
3,140.0	5.90	251.30	2,992.3	695.1	-170.4	14,262,583.79	1,778,737.68	39° 16' 24.681 N	80° 30' 40.419 W
3,170.0	5.00	242.00	3,022.2	694.0	-173.0	14,262,582.68	1,778,735.06	39° 16' 24.671 N	80° 30' 40.453 W
3,200.0	4.50	231.30	3,052.1	692.6	-175.1	14,262,581.33	1,778,732.99	39° 16' 24.657 N	80° 30' 40.479 W
3,230.0	4.30	218.60	3,082.0	691.0	-176.7	14,262,579.72	1,778,731.37	39° 16' 24.642 N	80° 30' 40.500 W
3,260.0	4.50	211.60	3,111.9	689.1	-178.0	14,262,577.84	1,778,730.05	39° 16' 24.623 N	80° 30' 40.517 W
3,292.0	4.50	211.60	3,143.8	687.0	-179.3	14,262,575.70	1,778,728.73	39° 16' 24.602 N	80° 30' 40.534 W

TD @ 3292' MD / 3144' TVD

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
800.0	800.0	0.0	0.0	FIRST SURVEY @ 800' MD / 800' TVD	
3,292.0	3,143.8	687.0	-179.3	TD @ 3292' MD / 3144' TVD	

Checked By: _____ Approved By: _____ Date: _____

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Geo Datum:	NAD83 West Virginia - HARN		
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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	352.73	

Survey Program	Date	11/26/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
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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	0.0	0.00	0.0	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.0	0.00	0.0	0.00
FIRST SURVEY @ 800' MD / 800' TVD											
804.0	1.00	86.70	804.0	0.0	0.0	0.0	25.00	0.0	86.70		
834.0	0.80	81.00	834.0	0.0	0.5	0.0	0.73	0.5	84.34		
864.0	1.20	28.50	864.0	0.4	0.9	0.2	3.18	0.9	67.36		
894.0	2.00	6.30	894.0	1.2	1.1	1.0	3.33	1.6	42.73		
924.0	3.00	3.70	924.0	2.5	1.2	2.3	3.35	2.7	25.55		
954.0	4.20	356.30	953.9	4.3	1.2	4.2	4.28	4.5	14.91		
984.0	5.20	357.20	983.8	6.8	1.0	6.6	3.34	6.9	8.52		
1,014.0	6.60	352.70	1,013.6	9.9	0.7	9.7	4.91	9.9	4.25		
1,044.0	7.60	350.40	1,043.4	13.5	0.2	13.4	3.46	13.5	0.77		
1,074.0	8.40	351.10	1,073.1	17.6	-0.5	17.6	2.69	17.7	358.42		
1,104.0	9.00	349.80	1,102.8	22.1	-1.2	22.1	2.10	22.2	356.79		
1,134.0	9.80	349.50	1,132.4	26.9	-2.1	27.0	2.67	27.0	355.49		
1,164.0	10.90	348.30	1,161.9	32.2	-3.2	32.4	3.74	32.4	354.39		
1,194.0	11.90	348.70	1,191.3	38.0	-4.3	38.3	3.34	38.3	353.48		
1,224.0	13.10	348.40	1,220.6	44.4	-5.6	44.8	4.01	44.8	352.77		
1,254.0	14.20	347.40	1,249.7	51.3	-7.1	51.8	3.75	51.8	352.10		
1,284.0	15.50	348.20	1,278.7	58.8	-8.7	59.5	4.39	59.5	351.55		
1,314.0	16.80	349.00	1,307.5	67.0	-10.4	67.8	4.40	67.8	351.19		
1,344.0	17.90	349.60	1,336.2	75.8	-12.0	76.7	3.71	76.8	350.97		
1,374.0	19.20	349.50	1,364.6	85.2	-13.8	86.3	4.33	86.3	350.81		
1,404.0	20.30	349.40	1,392.8	95.2	-15.6	96.4	3.67	96.4	350.67		
1,434.0	22.10	349.20	1,420.8	105.8	-17.7	107.2	6.00	107.3	350.53		
1,464.0	23.10	350.20	1,448.5	117.2	-19.7	118.7	3.57	118.8	350.45		
1,494.0	24.00	351.20	1,476.0	129.0	-21.6	130.7	3.28	130.8	350.47		

JAN 26 2015

HG Energy EOW Report



33-05801

Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well S.E. Adam #146
Project:	Harrison County, West Virginia	TVD Reference:	well @ 1275.0usft (Yost #2)
Site:	S.E. Adams #146	MD Reference:	well @ 1275.0usft (Yost #2)
Well:	S.E. Adam #146	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 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 (°)	
1,524.0	25.00	351.40	1,503.3	141.3	-23.5	143.1	3.34	143.2	350.55	
1,554.0	25.30	351.90	1,530.5	153.9	-25.4	155.9	1.23	156.0	350.64	
1,584.0	24.50	352.00	1,557.7	166.4	-27.1	168.5	2.67	168.6	350.73	
1,614.0	24.50	352.50	1,585.0	178.7	-28.8	181.0	0.69	181.0	350.84	
1,644.0	24.40	351.60	1,612.3	191.0	-30.5	193.4	1.29	193.5	350.92	
1,674.0	23.90	350.80	1,639.7	203.2	-32.4	205.6	1.99	205.7	350.93	
1,704.0	24.10	352.00	1,667.1	215.2	-34.2	217.8	1.76	217.9	350.96	
1,734.0	24.70	353.20	1,694.4	227.5	-35.8	230.2	2.59	230.3	351.05	
1,764.0	24.80	354.40	1,721.6	240.0	-37.2	242.8	1.71	242.9	351.19	
1,794.0	24.20	353.60	1,748.9	252.4	-38.5	255.2	2.29	255.3	351.33	
1,824.0	23.70	352.60	1,776.3	264.5	-40.0	267.4	2.15	267.5	351.41	
1,854.0	24.00	352.90	1,803.8	276.5	-41.5	279.5	1.08	279.6	351.47	
1,884.0	25.00	353.70	1,831.1	288.9	-42.9	292.0	3.51	292.0	351.55	
1,914.0	26.20	354.30	1,858.1	301.7	-44.3	304.9	4.09	305.0	351.65	
1,944.0	26.90	354.60	1,885.0	315.1	-45.6	318.3	2.38	318.4	351.77	
1,974.0	28.10	354.70	1,911.6	328.9	-46.9	332.2	4.00	332.2	351.89	
2,004.0	28.80	355.00	1,938.0	343.1	-48.2	346.5	2.38	346.5	352.01	
2,034.0	29.30	355.30	1,964.2	357.6	-49.4	361.0	1.74	361.0	352.14	
2,064.0	29.30	354.60	1,990.3	372.3	-50.7	375.7	1.14	375.7	352.25	
2,094.0	28.60	354.00	2,016.6	386.7	-52.1	390.2	2.53	390.2	352.32	
2,124.0	28.80	353.50	2,042.9	401.0	-53.7	404.6	1.04	404.6	352.37	
2,154.0	29.00	353.10	2,069.2	415.4	-55.4	419.1	0.93	419.1	352.41	
2,184.0	29.40	352.10	2,095.4	429.9	-57.3	433.7	2.10	433.7	352.41	
2,214.0	29.00	352.40	2,121.6	444.4	-59.2	448.4	1.42	448.4	352.41	
2,244.0	28.60	352.30	2,147.8	458.8	-61.2	462.8	1.34	462.8	352.41	
2,274.0	26.30	350.50	2,174.5	472.4	-63.2	476.6	8.15	476.7	352.38	
2,304.0	24.40	349.60	2,201.6	485.1	-65.4	489.5	6.46	489.5	352.32	

JAN 26 2015



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well S.E. Adam #146
Project:	Harrison County, West Virginia	TVD Reference:	well @ 1275.0usft (Yost #2)
Site:	S.E. Adams #146	MD Reference:	well @ 1275.0usft (Yost #2)
Well:	S.E. Adam #146	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

33.05801

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)	
2,334.0	23.50	348.70	2,229.0	497.1	-67.7	501.6	3.24	501.6	352.24	
2,364.0	23.60	348.00	2,256.5	508.8	-70.2	513.6	0.99	513.6	352.15	
2,394.0	24.50	348.40	2,283.9	520.8	-72.7	525.8	3.05	525.8	352.06	
2,424.0	24.50	348.70	2,311.2	533.0	-75.1	538.2	0.41	538.2	351.98	
2,454.0	24.20	347.50	2,338.5	545.1	-77.7	550.5	1.93	550.6	351.89	
2,484.0	24.80	347.10	2,365.8	557.2	-80.4	562.9	2.08	563.0	351.79	
2,514.0	25.10	347.10	2,393.0	569.5	-83.2	575.5	1.00	575.6	351.69	
2,544.0	25.50	346.40	2,420.1	582.0	-86.2	588.2	1.66	588.4	351.58	
2,574.0	25.40	346.70	2,447.2	594.5	-89.2	601.0	0.54	601.2	351.47	
2,600.0	25.20	347.40	2,470.7	605.4	-91.7	612.1	1.38	612.3	351.39	
2,630.0	24.20	344.20	2,498.0	617.5	-94.7	624.5	5.56	624.7	351.28	
2,660.0	22.80	339.60	2,525.5	628.9	-98.4	636.3	7.69	636.5	351.10	
2,690.0	21.50	335.00	2,553.3	639.3	-102.8	647.2	7.22	647.5	350.87	
2,720.0	20.10	331.40	2,581.3	648.8	-107.6	657.2	6.32	657.7	350.59	
2,750.0	17.20	325.70	2,609.8	657.0	-112.5	666.0	11.41	666.6	350.28	
2,780.0	15.20	321.30	2,638.6	663.8	-117.5	673.3	7.82	674.1	349.96	
2,810.0	14.00	318.40	2,667.6	669.5	-122.4	679.6	4.68	680.6	349.64	
2,840.0	13.00	312.20	2,696.8	674.5	-127.3	685.2	5.86	686.4	349.31	
2,870.0	12.50	310.50	2,726.0	678.9	-132.2	690.2	2.08	691.7	348.98	
2,900.0	11.80	309.00	2,755.4	682.9	-137.1	694.8	2.56	696.6	348.65	
2,930.0	11.50	308.20	2,784.7	686.7	-141.8	699.1	1.14	701.2	348.33	
2,960.0	10.90	305.00	2,814.2	690.2	-146.5	703.2	2.88	705.6	348.02	
2,990.0	9.80	296.00	2,843.7	692.9	-151.1	706.5	6.51	709.2	347.70	
3,020.0	9.00	287.70	2,873.3	694.8	-155.7	708.9	5.24	712.0	347.37	
3,050.0	8.00	279.70	2,903.0	695.8	-159.9	710.5	5.15	714.0	347.05	
3,080.0	7.00	269.60	2,932.7	696.2	-163.8	711.3	5.50	715.2	346.76	
3,110.0	6.30	259.70	2,962.5	695.9	-167.3	711.4	4.47	715.7	346.48	

HG Energy EOW Report



33-05801

Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well S.E. Adam #146
Project:	Harrison County, West Virginia	TVD Reference:	well @ 1275.0usft (Yost #2)
Site:	S.E. Adams #146	MD Reference:	well @ 1275.0usft (Yost #2)
Well:	S.E. Adam #146	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
3,140.0	5.90	251.30	2,992.3	695.1	-170.4	711.1	3.26	715.7	346.23
3,170.0	5.00	242.00	3,022.2	694.0	-173.0	710.3	4.19	715.2	346.00
3,200.0	4.50	231.30	3,052.1	692.6	-175.1	709.2	3.38	714.4	345.82
3,230.0	4.30	218.60	3,082.0	691.0	-176.7	707.8	3.31	713.2	345.66
3,260.0	4.50	211.60	3,111.9	689.1	-178.0	706.1	1.91	711.7	345.52
3,292.0	4.50	211.60	3,143.8	687.0	-179.3	704.2	0.00	710.0	345.37

TD @ 3292' MD / 3144' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
800.0	800.0	0.0	0.0	FIRST SURVEY @ 800' MD / 800' TVD
3,292.0	3,143.8	687.0	-179.3	TD @ 3292' MD / 3144' TVD

Checked By: _____ Approved By: _____ Date: _____

Received
Office of Oil & Gas
JAN 26 2015

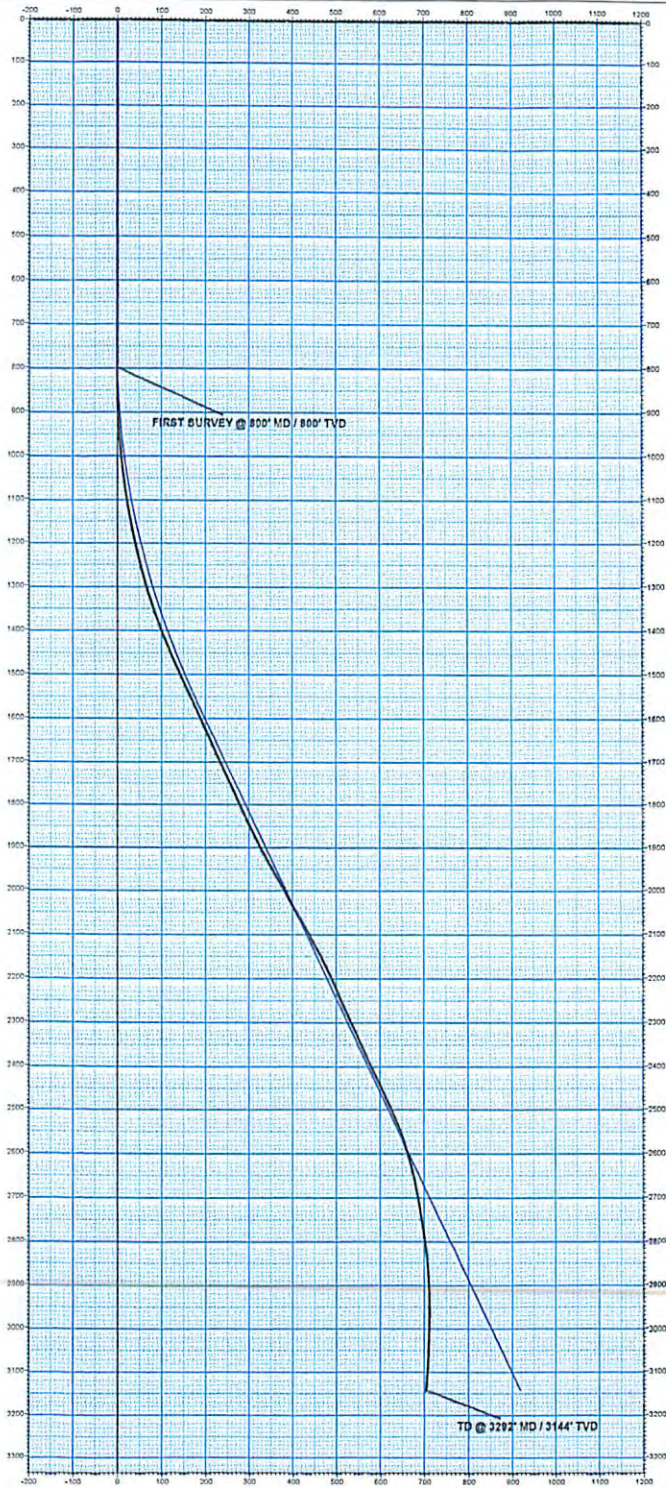
Company Name: HG Energy, LLC
 S.E. Adam #146
 Harrison County, West Virginia
 Rig: Yost #2
 Created By: Jerry Arsenault
 Date: 11/26/2014

S.E. Adam #146
 Harrison County, West Virginia
 Q141183 & AM-141143
 Design #1

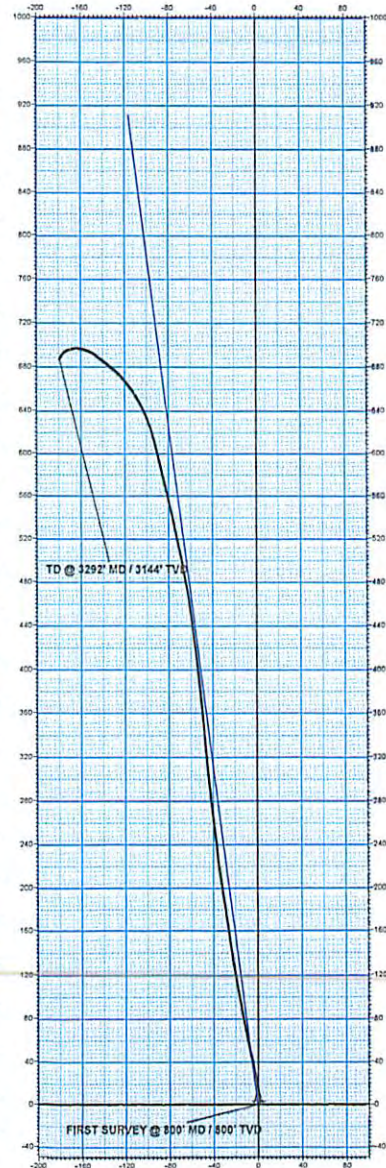
HG Energy



33-05801



Vertical Section at 352.73° (100 usf/in)

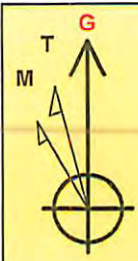


PROJECT DETAILS:		Harrison County, West Virginia	
Geodetic System:	Universal Transverse Mercator		
Datum:	NAD83 West Virginia - HARN		
Ellipsoid:	GRS 1980		
Zone:	Zone 17N (84 W to 78 W)		
System Datum:	Mean Sea Level		

DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
S.E. Adams #146	2860.0	827.3	-105.5	14262716.01	1778052.50	39° 16' 25.905 N	80° 30' 33.596 W
- plan hits target center							

ANNOTATIONS							
MD	Inc	Azi	TVD	+N-S	+E-W	VSec/Departure	Annotation
800.0	0.00	0.00	800.0	0.0	0.0	0.0	FIRST SURVEY @ 800' MD / 800' TVD
3292.0	4.50	211.00	3143.8	827.0	-173.3	704.2	755.4 TD @ 3292' MD / 3144' TVD

WELL DETAILS:		S.E. Adam #146	
Ground Level:		1267.0	
+N-S	+E-W	Northing	Easting
0.0	0.0	14261888.71	1778908.04
		39° 16' 17.800 N 80° 30' 28.300 W	



Azimuths to Grid North

Correction: -8.98°

Magnetic Field Strength: 52205.2snT

Dip Angle: 66.72°

Date: 11/4/2014

Model: IGRF2010

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 JAN 26 2015