

HG Energy, LLC

Harrison County, West Virginia

J.M. Fultz #244 NEW SHL

J.M. Fultz #244

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

29 April, 2014

Received

JUN 18 2014

Office of Oil and Gas
WV Dept. of Environmental Protection



DDC
 Survey Report - Geographic

Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1350.0usft (Decker #6)
Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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	J.M. Fultz #244 NEW SHL				
Site Position:		Northing:	14,261,413.20 usft	Latitude:	39° 16' 13.054 N
From:	Map	Easting:	1,779,730.58 usft	Longitude:	80° 30' 27.870 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well	J.M. Fultz #244					
Well Position	+N/-S	0.0 usft	Northing:	14,261,413.20 usft	Latitude:	39° 16' 13.054 N
	+E/-W	0.0 usft	Easting:	1,779,730.58 usft	Longitude:	80° 30' 27.870 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	1,342.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/22/2014	-8.65	66.78	52,269

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	133.00	

Survey Program	Date	4/29/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
850.0	3,228.0	MWD (Wellbore #1)	MWD default	MWD - Standard	

Survey										
Measured	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	14,261,413.20	1,779,730.58	39° 16' 13.054 N	80° 30' 27.870 W	
850.0	0.00	0.00	850.0	0.0	0.0	14,261,413.20	1,779,730.58	39° 16' 13.054 N	80° 30' 27.870 W	
FIRST MWD SURVEY @ 850' MD / 850' TVD										
863.0	1.30	99.10	863.0	0.0	0.1	14,261,413.18	1,779,730.73	39° 16' 13.054 N	80° 30' 27.868 W	
893.0	1.70	98.60	893.0	-0.1	0.9	14,261,413.06	1,779,731.50	39° 16' 13.053 N	80° 30' 27.858 W	
923.0	2.10	102.80	923.0	-0.3	1.9	14,261,412.87	1,779,732.48	39° 16' 13.051 N	80° 30' 27.846 W	
953.0	2.80	106.10	952.9	-0.7	3.1	14,261,412.54	1,779,733.72	39° 16' 13.048 N	80° 30' 27.830 W	
983.0	3.50	108.70	982.9	-1.2	4.7	14,261,412.04	1,779,735.29	39° 16' 13.043 N	80° 30' 27.810 W	
1,013.0	4.30	112.40	1,012.8	-1.9	6.6	14,261,411.32	1,779,737.20	39° 16' 13.036 N	80° 30' 27.786 W	
1,043.0	5.10	114.00	1,042.7	-2.8	8.9	14,261,410.35	1,779,739.45	39° 16' 13.026 N	80° 30' 27.757 W	
1,073.0	5.90	116.70	1,072.6	-4.1	11.5	14,261,409.12	1,779,742.05	39° 16' 13.013 N	80° 30' 27.724 W	
1,103.0	6.60	119.10	1,102.4	-5.6	14.4	14,261,407.59	1,779,744.93	39° 16' 12.998 N	80° 30' 27.688 W	

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Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
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Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,133.0	6.90	122.00	1,132.2	-7.4	17.4	14,261,405.79	1,779,747.97	39° 16' 12.980 N	80° 30' 27.649 W
1,163.0	7.20	123.30	1,162.0	-9.4	20.5	14,261,403.80	1,779,751.07	39° 16' 12.960 N	80° 30' 27.610 W
1,193.0	7.90	123.60	1,191.7	-11.6	23.8	14,261,401.63	1,779,754.36	39° 16' 12.939 N	80° 30' 27.568 W
1,223.0	8.90	125.20	1,221.4	-14.0	27.4	14,261,399.15	1,779,757.97	39° 16' 12.914 N	80° 30' 27.523 W
1,253.0	10.10	126.50	1,251.0	-16.9	31.4	14,261,396.25	1,779,761.98	39° 16' 12.885 N	80° 30' 27.472 W
1,283.0	11.30	128.60	1,280.5	-20.3	35.8	14,261,392.85	1,779,766.39	39° 16' 12.851 N	80° 30' 27.416 W
1,313.0	11.90	131.40	1,309.8	-24.2	40.4	14,261,388.97	1,779,771.01	39° 16' 12.813 N	80° 30' 27.357 W
1,343.0	12.20	133.20	1,339.2	-28.4	45.1	14,261,384.76	1,779,775.64	39° 16' 12.771 N	80° 30' 27.299 W
1,373.0	12.10	131.80	1,368.5	-32.7	49.7	14,261,380.49	1,779,780.30	39° 16' 12.728 N	80° 30' 27.240 W
1,403.0	11.70	131.10	1,397.9	-36.8	54.4	14,261,376.40	1,779,784.93	39° 16' 12.688 N	80° 30' 27.181 W
1,433.0	11.40	132.50	1,427.3	-40.8	58.8	14,261,372.39	1,779,789.41	39° 16' 12.648 N	80° 30' 27.124 W
1,463.0	11.70	137.30	1,456.7	-45.0	63.1	14,261,368.16	1,779,793.66	39° 16' 12.606 N	80° 30' 27.071 W
1,493.0	12.30	139.30	1,486.0	-49.7	67.2	14,261,363.50	1,779,797.81	39° 16' 12.559 N	80° 30' 27.018 W
1,523.0	12.50	140.00	1,515.3	-54.6	71.4	14,261,358.59	1,779,801.98	39° 16' 12.511 N	80° 30' 26.966 W
1,553.0	12.20	140.10	1,544.6	-59.5	75.5	14,261,353.67	1,779,806.10	39° 16' 12.462 N	80° 30' 26.914 W
1,583.0	12.00	138.50	1,573.9	-64.3	79.6	14,261,348.90	1,779,810.20	39° 16' 12.414 N	80° 30' 26.862 W
1,613.0	11.60	137.00	1,603.3	-68.8	83.7	14,261,344.36	1,779,814.32	39° 16' 12.369 N	80° 30' 26.810 W
1,643.0	11.50	135.40	1,632.7	-73.2	87.9	14,261,340.02	1,779,818.48	39° 16' 12.326 N	80° 30' 26.757 W
1,673.0	11.70	135.90	1,662.1	-77.5	92.1	14,261,335.71	1,779,822.69	39° 16' 12.283 N	80° 30' 26.704 W
1,703.0	11.50	134.90	1,691.5	-81.8	96.3	14,261,331.41	1,779,826.93	39° 16' 12.241 N	80° 30' 26.650 W
1,733.0	11.30	136.50	1,720.9	-86.0	100.5	14,261,327.17	1,779,831.07	39° 16' 12.198 N	80° 30' 26.598 W
1,763.0	11.80	137.30	1,750.3	-90.4	104.6	14,261,322.79	1,779,835.17	39° 16' 12.155 N	80° 30' 26.546 W
1,793.0	12.10	137.30	1,779.6	-95.0	108.8	14,261,318.22	1,779,839.39	39° 16' 12.109 N	80° 30' 26.493 W
1,823.0	12.00	134.00	1,809.0	-99.5	113.2	14,261,313.74	1,779,843.76	39° 16' 12.065 N	80° 30' 26.437 W
1,853.0	11.80	133.50	1,838.3	-103.7	117.7	14,261,309.47	1,779,848.23	39° 16' 12.022 N	80° 30' 26.381 W
1,883.0	11.80	134.70	1,867.7	-108.0	122.1	14,261,305.20	1,779,852.64	39° 16' 11.980 N	80° 30' 26.325 W
1,913.0	12.10	137.10	1,897.0	-112.5	126.4	14,261,300.74	1,779,856.96	39° 16' 11.936 N	80° 30' 26.270 W
1,943.0	12.40	141.00	1,926.4	-117.3	130.5	14,261,295.93	1,779,861.12	39° 16' 11.888 N	80° 30' 26.218 W
1,973.0	12.80	143.90	1,955.6	-122.5	134.5	14,261,290.74	1,779,865.11	39° 16' 11.836 N	80° 30' 26.167 W
2,003.0	13.40	143.80	1,984.8	-127.9	138.5	14,261,285.25	1,779,869.12	39° 16' 11.782 N	80° 30' 26.117 W
2,033.0	13.50	143.60	2,014.0	-133.6	142.7	14,261,279.63	1,779,873.25	39° 16' 11.726 N	80° 30' 26.064 W
2,063.0	13.00	143.80	2,043.2	-139.1	146.7	14,261,274.08	1,779,877.32	39° 16' 11.671 N	80° 30' 26.013 W
2,093.0	12.90	142.00	2,072.5	-144.5	150.8	14,261,268.72	1,779,881.38	39° 16' 11.618 N	80° 30' 25.962 W
2,123.0	13.20	141.20	2,101.7	-149.8	155.0	14,261,263.41	1,779,885.58	39° 16' 11.565 N	80° 30' 25.909 W
2,153.0	13.60	142.00	2,130.9	-155.2	159.3	14,261,257.97	1,779,889.90	39° 16' 11.511 N	80° 30' 25.854 W
2,183.0	13.90	143.90	2,160.0	-160.9	163.6	14,261,252.27	1,779,894.20	39° 16' 11.455 N	80° 30' 25.800 W
2,213.0	13.90	140.80	2,189.1	-166.6	168.0	14,261,246.57	1,779,898.60	39° 16' 11.398 N	80° 30' 25.744 W
2,243.0	13.30	135.50	2,218.3	-171.9	172.7	14,261,241.32	1,779,903.29	39° 16' 11.346 N	80° 30' 25.685 W
2,273.0	13.00	130.00	2,247.5	-176.5	177.7	14,261,236.69	1,779,908.30	39° 16' 11.300 N	80° 30' 25.622 W
2,303.0	12.40	126.20	2,276.8	-180.6	182.9	14,261,232.62	1,779,913.48	39° 16' 11.259 N	80° 30' 25.556 W
2,333.0	12.00	122.40	2,306.1	-184.2	188.1	14,261,229.04	1,779,918.71	39° 16' 11.223 N	80° 30' 25.490 W
2,363.0	11.70	123.40	2,335.5	-187.5	193.3	14,261,225.70	1,779,923.89	39° 16' 11.190 N	80° 30' 25.424 W
2,393.0	11.60	125.80	2,364.8	-190.9	198.3	14,261,222.26	1,779,928.87	39° 16' 11.156 N	80° 30' 25.361 W
2,423.0	11.70	128.40	2,394.2	-194.6	203.1	14,261,218.60	1,779,933.70	39° 16' 11.119 N	80° 30' 25.300 W
2,453.0	11.90	131.20	2,423.6	-198.5	207.8	14,261,214.68	1,779,938.41	39° 16' 11.080 N	80° 30' 25.240 W
2,483.0	11.40	133.40	2,453.0	-202.6	212.3	14,261,210.60	1,779,942.90	39° 16' 11.040 N	80° 30' 25.183 W
2,513.0	10.80	134.90	2,482.4	-206.6	216.5	14,261,206.58	1,779,947.04	39° 16' 11.000 N	80° 30' 25.131 W
2,543.0	10.40	135.50	2,511.9	-210.5	220.4	14,261,202.67	1,779,950.93	39° 16' 10.961 N	80° 30' 25.082 W
2,573.0	10.00	134.70	2,541.4	-214.3	224.1	14,261,198.90	1,779,954.68	39° 16' 10.924 N	80° 30' 25.034 W
2,603.0	9.70	131.70	2,571.0	-217.8	227.8	14,261,195.39	1,779,958.42	39° 16' 10.889 N	80° 30' 24.987 W
2,633.0	9.40	130.00	2,600.6	-221.1	231.6	14,261,192.13	1,779,962.18	39° 16' 10.856 N	80° 30' 24.939 W
2,663.0	9.10	128.30	2,630.2	-224.1	235.3	14,261,189.09	1,779,965.92	39° 16' 10.826 N	80° 30' 24.892 W
2,693.0	9.00	131.70	2,659.8	-227.1	239.0	14,261,186.06	1,779,969.53	39° 16' 10.796 N	80° 30' 24.846 W
2,723.0	9.10	133.40	2,689.4	-230.3	242.4	14,261,182.87	1,779,973.01	39° 16' 10.764 N	80° 30' 24.802 W
2,753.0	9.30	133.50	2,719.0	-233.6	245.9	14,261,179.57	1,779,976.49	39° 16' 10.731 N	80° 30' 24.758 W

33-05784

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1350.0usft (Decker #6)
Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,783.0	9.50	133.30	2,748.6	-237.0	249.5	14,261,176.20	1,779,980.05	39° 16' 10.698 N	80° 30' 24.713 W
2,813.0	9.60	132.30	2,778.2	-240.4	253.1	14,261,172.82	1,779,983.70	39° 16' 10.664 N	80° 30' 24.667 W
2,843.0	9.60	131.50	2,807.8	-243.7	256.8	14,261,169.48	1,779,987.43	39° 16' 10.631 N	80° 30' 24.620 W
2,873.0	9.50	130.90	2,837.4	-247.0	260.6	14,261,166.20	1,779,991.17	39° 16' 10.598 N	80° 30' 24.572 W
2,903.0	9.20	128.10	2,867.0	-250.1	264.4	14,261,163.10	1,779,994.93	39° 16' 10.567 N	80° 30' 24.525 W
2,933.0	8.60	125.60	2,896.6	-252.9	268.1	14,261,160.31	1,779,998.64	39° 16' 10.540 N	80° 30' 24.478 W
2,963.0	8.00	123.40	2,926.3	-255.3	271.6	14,261,157.86	1,780,002.21	39° 16' 10.515 N	80° 30' 24.433 W
2,993.0	7.80	123.90	2,956.0	-257.6	275.1	14,261,155.57	1,780,005.64	39° 16' 10.492 N	80° 30' 24.389 W
3,023.0	8.30	126.70	2,985.7	-260.1	278.5	14,261,153.14	1,780,009.07	39° 16' 10.468 N	80° 30' 24.346 W
3,053.0	9.00	130.00	3,015.4	-262.9	282.0	14,261,150.34	1,780,012.60	39° 16' 10.440 N	80° 30' 24.301 W
3,083.0	9.40	129.70	3,045.0	-265.9	285.7	14,261,147.27	1,780,016.28	39° 16' 10.410 N	80° 30' 24.254 W
3,113.0	9.30	129.70	3,074.6	-269.0	289.5	14,261,144.15	1,780,020.03	39° 16' 10.379 N	80° 30' 24.207 W
3,143.0	9.30	129.50	3,104.2	-272.1	293.2	14,261,141.06	1,780,023.77	39° 16' 10.348 N	80° 30' 24.160 W
3,173.0	8.80	124.10	3,133.8	-275.0	297.0	14,261,138.24	1,780,027.54	39° 16' 10.320 N	80° 30' 24.112 W
3,228.0	8.80	124.10	3,188.2	-279.7	303.9	14,261,133.52	1,780,034.51	39° 16' 10.273 N	80° 30' 24.023 W

TD @ 3188' MD / 3188' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
850.0	850.0	0.0	0.0	FIRST MWD SURVEY @ 850' MD / 850' TVD
3,228.0	3,188.2	-279.7	303.9	TD @ 3188' MD / 3188' TVD

Checked By: _____ Approved By: _____ Date: _____

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JUN 18 2014

Office of Oil and Gas
West Virginia Department of Environmental Protection

33.05784

J.M. Fultz #244
 Harrison County, West Virginia
 Q131084 & AM-140382
 Design #2

Company Name: HG Energy, LLC
 J.M. Fultz #244
 Harrison County, West Virginia
 Rig: Decker #6
 Created By: James Dawson
 Date: 4/29/2014

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

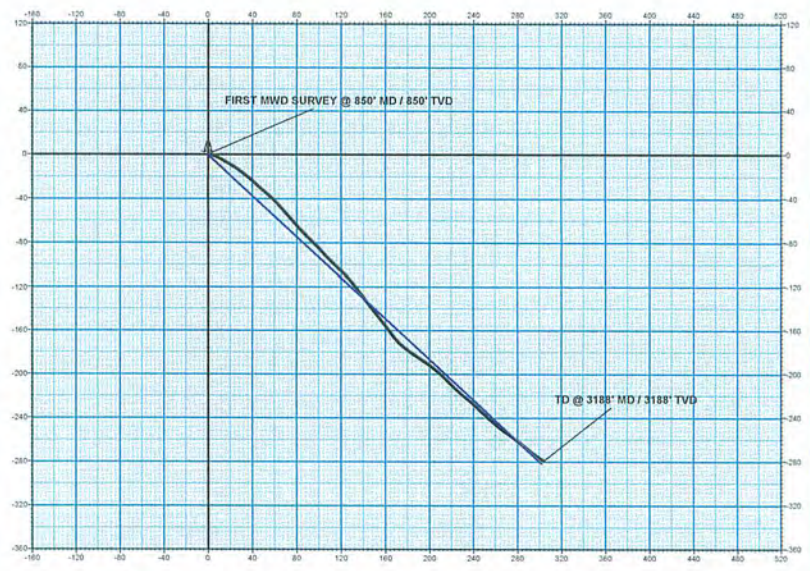
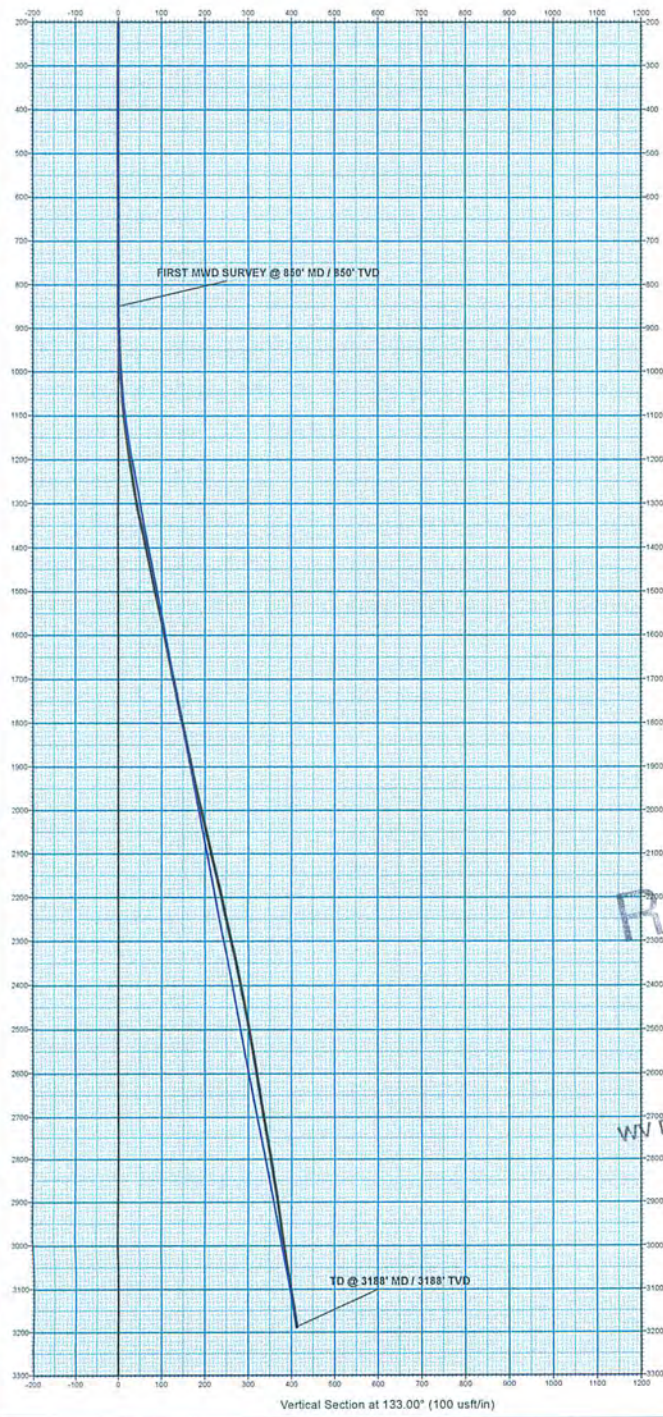


HG Energy

Azimuths to Grid North

Correction: -8.97°

Magnetic Field
 Strength: 52269.1snT
 Dip Angle: 66.78°
 Date: 4/22/2014
 Model: IGRF2010



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 JUN 18 2014

Office of Oil and Gas
 WV Dept. of Environmental Protection

WELL DETAILS:		J.M. Fultz #244			
Ground Level:		1342.0			
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14261413.20	1779730.58	39° 16' 13.054 N	80° 30' 27.870 W

DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Target J.M. Fultz #244 D#2	2981.0	-255.7	274.3	14261157.45	1780004.84	39° 16' 10.511 N	80° 30' 24.359 W
- plan hits target center							

ANNOTATIONS								
MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.0	FIRST MWD SURVEY @ 850' MD / 850' TVD
3228.0	9.80	124.10	3188.2	-279.7	303.9	413.0	416.5	TD @ 3188' MD / 3188' TVD

Vertical Section at 133.00° (100 usft/in)

06/27/2017

HG Energy, LLC

Harrison County, West Virginia

J.M. Fultz #244 NEW SHL

J.M. Fultz #244

Wellbore #1

Design: Wellbore #1

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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	J.M. Fultz #244 NEW SHL		
Site Position:		Northing:	14,261,413.20 usft
From:	Map	Easting:	1,779,730.58 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 16' 13.054 N
		Longitude:	80° 30' 27.870 W
		Grid Convergence:	0.31 °

Well	J.M. Fultz #244			
Well Position	+N/-S	0.0 usft	Northing:	14,261,413.20 usft
	+E/-W	0.0 usft	Easting:	1,779,730.58 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft
			Latitude:	39° 16' 13.054 N
			Longitude:	80° 30' 27.870 W
			Ground Level:	1,342.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/22/2014	-8.65	66.78	52,269

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	133.00	

Survey Program	Date 4/29/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
850.0	3,228.0	MWD (Wellbore #1)	MWD default	MWD - Standard

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HG Energy EOW Report



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1350.0usft (Decker #6)
Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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	
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.0	0.00	
FIRST MWD SURVEY @ 850' MD / 850' TVD										
863.0	1.30	99.10	863.0	0.0	0.1	0.1	10.00	0.1	99.10	
893.0	1.70	98.60	893.0	-0.1	0.9	0.8	1.33	0.9	98.86	
923.0	2.10	102.80	923.0	-0.3	1.9	1.6	1.41	1.9	99.92	
953.0	2.80	106.10	952.9	-0.7	3.1	2.7	2.38	3.2	101.83	
983.0	3.50	108.70	982.9	-1.2	4.7	4.2	2.38	4.8	103.77	
1,013.0	4.30	112.40	1,012.8	-1.9	6.6	6.1	2.79	6.9	105.83	
1,043.0	5.10	114.00	1,042.7	-2.8	8.9	8.4	2.70	9.3	107.79	
1,073.0	5.90	116.70	1,072.6	-4.1	11.5	11.2	2.80	12.2	109.59	
1,103.0	6.60	119.10	1,102.4	-5.6	14.4	14.3	2.49	15.4	111.36	
1,133.0	6.90	122.00	1,132.2	-7.4	17.4	17.8	1.51	18.9	113.07	
1,163.0	7.20	123.30	1,162.0	-9.4	20.5	21.4	1.13	22.5	114.63	
1,193.0	7.90	123.60	1,191.7	-11.6	23.8	25.3	2.34	26.4	115.94	
1,223.0	8.90	125.20	1,221.4	-14.0	27.4	29.6	3.42	30.8	117.15	
1,253.0	10.10	126.50	1,251.0	-16.9	31.4	34.5	4.06	35.7	118.36	
1,283.0	11.30	128.60	1,280.5	-20.3	35.8	40.1	4.21	41.2	119.60	
1,313.0	11.90	131.40	1,309.8	-24.2	40.4	46.1	2.74	47.1	120.93	
1,343.0	12.20	133.20	1,339.2	-28.4	45.1	52.4	1.60	53.3	122.26	
1,373.0	12.10	131.80	1,368.5	-32.7	49.7	58.7	1.04	59.5	123.34	
1,403.0	11.70	131.10	1,397.9	-36.8	54.4	64.8	1.42	65.6	124.10	
1,433.0	11.40	132.50	1,427.3	-40.8	58.8	70.9	1.37	71.6	124.75	
1,463.0	11.70	137.30	1,456.7	-45.0	63.1	76.9	3.35	77.5	125.53	
1,493.0	12.30	139.30	1,486.0	-49.7	67.2	83.1	2.43	83.6	126.48	
1,523.0	12.50	140.00	1,515.3	-54.6	71.4	89.5	0.83	89.9	127.41	
1,553.0	12.20	140.10	1,544.6	-59.5	75.5	95.8	1.00	96.2	128.25	

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HG Energy EOW Report



WV Dept. of Environmental Protection
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Company: HG Energy, LLC
Project: Harrison County, West Virginia
Site: J.M. Fultz #244 NEW SHL
Well: J.M. Fultz #244
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well J.M. Fultz #244
TVD Reference: WELL @ 1350.0usft (Decker #6)
MD Reference: WELL @ 1350.0usft (Decker #6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
1,583.0	12.00	138.50	1,573.9	-64.3	79.6	102.1	1.30	102.3	128.92
1,613.0	11.60	137.00	1,603.3	-68.8	83.7	108.2	1.68	108.4	129.42
1,643.0	11.50	135.40	1,632.7	-73.2	87.9	114.2	1.12	114.4	129.78
1,673.0	11.70	135.90	1,662.1	-77.5	92.1	120.2	0.75	120.4	130.07
1,703.0	11.50	134.90	1,691.5	-81.8	96.3	126.2	0.95	126.4	130.33
1,733.0	11.30	136.50	1,720.9	-86.0	100.5	132.2	1.25	132.3	130.57
1,763.0	11.80	137.30	1,750.3	-90.4	104.6	138.2	1.75	138.3	130.84
1,793.0	12.10	137.30	1,779.6	-95.0	108.8	144.4	1.00	144.4	131.12
1,823.0	12.00	134.00	1,809.0	-99.5	113.2	150.6	2.32	150.7	131.31
1,853.0	11.80	133.50	1,838.3	-103.7	117.7	156.8	0.75	156.9	131.40
1,883.0	11.80	134.70	1,867.7	-108.0	122.1	162.9	0.82	163.0	131.50
1,913.0	12.10	137.10	1,897.0	-112.5	126.4	169.1	1.93	169.2	131.67
1,943.0	12.40	141.00	1,926.4	-117.3	130.5	175.5	2.93	175.5	131.93
1,973.0	12.80	143.90	1,955.6	-122.5	134.5	181.9	2.49	181.9	132.31
2,003.0	13.40	143.80	1,984.8	-127.9	138.5	188.6	2.00	188.6	132.72
2,033.0	13.50	143.60	2,014.0	-133.6	142.7	195.4	0.37	195.4	133.11
2,063.0	13.00	143.80	2,043.2	-139.1	146.7	202.2	1.67	202.2	133.47
2,093.0	12.90	142.00	2,072.5	-144.5	150.8	208.8	1.39	208.8	133.77
2,123.0	13.20	141.20	2,101.7	-149.8	155.0	215.5	1.17	215.5	134.02
2,153.0	13.60	142.00	2,130.9	-155.2	159.3	222.4	1.47	222.4	134.26
2,183.0	13.90	143.90	2,160.0	-160.9	163.6	229.4	1.81	229.5	134.52
2,213.0	13.90	140.80	2,189.1	-166.6	168.0	236.5	2.48	236.6	134.76
2,243.0	13.30	135.50	2,218.3	-171.9	172.7	243.5	4.61	243.7	134.86
2,273.0	13.00	130.00	2,247.5	-176.5	177.7	250.4	4.29	250.5	134.80
2,303.0	12.40	126.20	2,276.8	-180.6	182.9	256.9	3.43	257.0	134.63
2,333.0	12.00	122.40	2,306.1	-184.2	188.1	263.2	2.99	263.3	134.39
2,363.0	11.70	123.40	2,335.5	-187.5	193.3	269.3	1.21	269.3	134.13

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Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1350.0usft (Decker #6)
Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,393.0	11.60	125.80	2,364.8	-190.9	198.3	275.2	1.65	275.3	133.92
2,423.0	11.70	128.40	2,394.2	-194.6	203.1	281.3	1.78	281.3	133.77
2,453.0	11.90	131.20	2,423.6	-198.5	207.8	287.4	2.02	287.4	133.69
2,483.0	11.40	133.40	2,453.0	-202.6	212.3	293.4	2.23	293.5	133.66
2,513.0	10.80	134.90	2,482.4	-206.6	216.5	299.2	2.22	299.2	133.67
2,543.0	10.40	135.50	2,511.9	-210.5	220.4	304.7	1.38	304.8	133.69
2,573.0	10.00	134.70	2,541.4	-214.3	224.1	310.0	1.41	310.1	133.72
2,603.0	9.70	131.70	2,571.0	-217.8	227.8	315.2	1.98	315.2	133.71
2,633.0	9.40	130.00	2,600.6	-221.1	231.6	320.1	1.37	320.2	133.67
2,663.0	9.10	128.30	2,630.2	-224.1	235.3	325.0	1.35	325.0	133.60
2,693.0	9.00	131.70	2,659.8	-227.1	239.0	329.7	1.81	329.7	133.55
2,723.0	9.10	133.40	2,689.4	-230.3	242.4	334.4	0.95	334.4	133.53
2,753.0	9.30	133.50	2,719.0	-233.6	245.9	339.2	0.67	339.2	133.53
2,783.0	9.50	133.30	2,748.6	-237.0	249.5	344.1	0.68	344.1	133.53
2,813.0	9.60	132.30	2,778.2	-240.4	253.1	349.1	0.65	349.1	133.52
2,843.0	9.60	131.50	2,807.8	-243.7	256.8	354.1	0.44	354.1	133.50
2,873.0	9.50	130.90	2,837.4	-247.0	260.6	359.0	0.47	359.1	133.47
2,903.0	9.20	128.10	2,867.0	-250.1	264.4	363.9	1.82	363.9	133.41
2,933.0	8.60	125.60	2,896.6	-252.9	268.1	368.5	2.38	368.5	133.33
2,963.0	8.00	123.40	2,926.3	-255.3	271.6	372.8	2.26	372.8	133.23
2,993.0	7.80	123.90	2,956.0	-257.6	275.1	376.9	0.70	376.9	133.13
3,023.0	8.30	126.70	2,985.7	-260.1	278.5	381.0	2.12	381.0	133.04
3,053.0	9.00	130.00	3,015.4	-262.9	282.0	385.5	2.86	385.5	132.99
3,083.0	9.40	129.70	3,045.0	-265.9	285.7	390.3	1.34	390.3	132.95
3,113.0	9.30	129.70	3,074.6	-269.0	289.5	395.2	0.33	395.2	132.91
3,143.0	9.30	129.50	3,104.2	-272.1	293.2	400.0	0.11	400.0	132.87
3,173.0	8.80	124.10	3,133.8	-275.0	297.0	404.7	3.28	404.7	132.80

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Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well J.M. Fultz #244
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1350.0usft (Decker #6)
Site:	J.M. Fultz #244 NEW SHL	MD Reference:	WELL @ 1350.0usft (Decker #6)
Well:	J.M. Fultz #244	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
3,228.0	8.80	124.10	3,188.2	-279.7	303.9	413.0	0.00	413.0	132.62
TD @ 3188' MD / 3188' TVD									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
850.0	850.0	0.0	0.0	FIRST MWD SURVEY @ 850' MD / 850' TVD
3,228.0	3,188.2	-279.7	303.9	TD @ 3188' MD / 3188' TVD

Checked By: _____ Approved By: _____ Date: _____

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