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FEB 25 2015

WV Department of
Environmental Protection

HG Energy, LLC

Roane County, West Virginia

SB Kinkead #200

SB Kinkead #200

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

23 December, 2014



06/12/2015



Survey Report - Geographic

FEB 25 2015

Company: HG Energy, LLC	Local Co-ordinate Reference: Well SB Kinhead #200
Project: Roane County, West Virginia	TVD Reference: Well @ 1122.0usft (Dicker #9)
Site: SB Kinhead #200	MD Reference: Well @ 1122.0usft (Dicker #9)
Well: SB Kinhead #200	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

West Virginia Department of Environmental Protection

Project	Roane 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	SB Kinhead #200				
Site Position:	Northing:	14,059,882.42 usft	Latitude:	38° 43' 2.800 N	
From: Lat/Long	Easting:	1,558,772.50 usft	Longitude:	81° 17' 10.500 W	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.18 °

Well	SB Kinhead #200					
Well Position	+N/-S	0.0 usft	Northing:	14,059,882.42 usft	Latitude:	38° 43' 2.800 N
	+E/-W	0.0 usft	Easting:	1,558,772.50 usft	Longitude:	81° 17' 10.500 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,114.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/13/2014	-7.95	66.43	51,939

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	237.75	

Survey Program	Date 12/23/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
550.0	2,391.0	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	14,059,882.42	1,558,772.50	38° 43' 2.800 N	81° 17' 10.500 W	
550.0	0.00	0.00	550.0	0.0	0.0	14,059,882.42	1,558,772.50	38° 43' 2.800 N	81° 17' 10.500 W	
First MWD Survey										
592.0	1.70	164.70	592.0	-0.6	0.2	14,059,881.82	1,558,772.66	38° 43' 2.794 N	81° 17' 10.498 W	
622.0	1.60	154.90	622.0	-1.4	0.5	14,059,881.01	1,558,772.96	38° 43' 2.786 N	81° 17' 10.494 W	
652.0	1.30	171.30	652.0	-2.1	0.7	14,059,880.30	1,558,773.19	38° 43' 2.779 N	81° 17' 10.491 W	
682.0	1.40	212.50	682.0	-2.8	0.5	14,059,879.65	1,558,773.04	38° 43' 2.773 N	81° 17' 10.493 W	
712.0	2.20	247.40	712.0	-3.3	-0.2	14,059,879.12	1,558,772.31	38° 43' 2.767 N	81° 17' 10.502 W	
742.0	3.40	255.60	741.9	-3.7	-1.6	14,059,878.68	1,558,770.92	38° 43' 2.763 N	81° 17' 10.520 W	
772.0	4.40	258.80	771.8	-4.2	-3.6	14,059,878.24	1,558,768.93	38° 43' 2.758 N	81° 17' 10.545 W	
802.0	5.50	257.90	801.7	-4.7	-6.1	14,059,877.71	1,558,766.39	38° 43' 2.753 N	81° 17' 10.577 W	
832.0	6.50	258.30	831.6	-5.4	-9.2	14,059,877.06	1,558,763.33	38° 43' 2.747 N	81° 17' 10.616 W	

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Project: Roane County, West Virginia	TVD Reference: well @ 1122.0usft (Decker #9)
Site: SB Kinhead #200	MD Reference: well @ 1122.0usft (Decker #9)
Well: SB Kinhead #200	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	
862.0	7.60	259.90	861.3	-6.1	-12.8	14,059,876.37	1,558,759.71	38° 43' 2.740 N	81° 17' 10.661 W	
892.0	8.50	259.90	891.0	-6.8	-16.9	14,059,875.64	1,558,755.57	38° 43' 2.732 N	81° 17' 10.713 W	
922.0	9.70	259.40	920.7	-7.6	-21.6	14,059,874.78	1,558,750.91	38° 43' 2.724 N	81° 17' 10.772 W	
952.0	10.80	259.30	950.2	-8.6	-26.8	14,059,873.80	1,558,745.66	38° 43' 2.714 N	81° 17' 10.838 W	
982.0	11.90	257.30	979.6	-9.8	-32.6	14,059,872.59	1,558,739.88	38° 43' 2.702 N	81° 17' 10.911 W	
1,012.0	13.00	253.10	1,008.9	-11.5	-38.9	14,059,870.93	1,558,733.64	38° 43' 2.685 N	81° 17' 10.990 W	
1,042.0	14.20	250.30	1,038.1	-13.7	-45.6	14,059,868.71	1,558,726.94	38° 43' 2.663 N	81° 17' 11.074 W	
1,072.0	15.30	247.60	1,067.1	-16.5	-52.7	14,059,865.96	1,558,719.82	38° 43' 2.636 N	81° 17' 11.164 W	
1,102.0	16.40	244.90	1,095.9	-19.8	-60.2	14,059,862.66	1,558,712.32	38° 43' 2.603 N	81° 17' 11.259 W	
1,132.0	17.10	241.70	1,124.7	-23.7	-67.9	14,059,858.77	1,558,704.60	38° 43' 2.564 N	81° 17' 11.356 W	
1,162.0	17.70	238.00	1,153.3	-28.2	-75.6	14,059,854.26	1,558,696.85	38° 43' 2.519 N	81° 17' 11.454 W	
1,192.0	18.50	234.50	1,181.8	-33.3	-83.4	14,059,849.08	1,558,689.11	38° 43' 2.468 N	81° 17' 11.551 W	
1,222.0	18.90	233.00	1,210.2	-39.0	-91.1	14,059,843.39	1,558,681.35	38° 43' 2.411 N	81° 17' 11.649 W	
1,252.0	18.80	233.40	1,238.6	-44.8	-98.9	14,059,837.59	1,558,673.59	38° 43' 2.354 N	81° 17' 11.747 W	
1,282.0	18.50	232.20	1,267.0	-50.6	-106.5	14,059,831.79	1,558,665.95	38° 43' 2.296 N	81° 17' 11.843 W	
1,312.0	18.00	230.20	1,295.5	-56.5	-113.9	14,059,825.90	1,558,658.63	38° 43' 2.238 N	81° 17' 11.935 W	
1,342.0	17.80	228.00	1,324.1	-62.6	-120.8	14,059,819.87	1,558,651.66	38° 43' 2.178 N	81° 17' 12.023 W	
1,372.0	17.60	227.70	1,352.6	-68.7	-127.6	14,059,813.75	1,558,644.90	38° 43' 2.117 N	81° 17' 12.108 W	
1,402.0	17.40	229.10	1,381.3	-74.7	-134.3	14,059,807.76	1,558,638.15	38° 43' 2.058 N	81° 17' 12.193 W	
1,432.0	16.80	230.80	1,409.9	-80.3	-141.1	14,059,802.08	1,558,631.40	38° 43' 2.001 N	81° 17' 12.278 W	
1,462.0	16.50	231.70	1,438.7	-85.7	-147.8	14,059,796.70	1,558,624.70	38° 43' 1.948 N	81° 17' 12.362 W	
1,492.0	16.40	233.50	1,467.4	-90.9	-154.5	14,059,791.54	1,558,617.95	38° 43' 1.897 N	81° 17' 12.447 W	
1,522.0	16.60	236.20	1,496.2	-95.8	-161.5	14,059,786.64	1,558,610.99	38° 43' 1.848 N	81° 17' 12.535 W	
1,552.0	17.20	237.70	1,524.9	-100.5	-168.8	14,059,781.88	1,558,603.68	38° 43' 1.801 N	81° 17' 12.621 W	
1,582.0	17.20	237.50	1,553.6	-105.3	-176.3	14,059,777.13	1,558,596.19	38° 43' 1.753 N	81° 17' 12.727 W	
1,612.0	17.00	237.10	1,582.2	-110.1	-183.7	14,059,772.36	1,558,588.76	38° 43' 1.706 N	81° 17' 12.815 W	
1,642.0	16.70	237.50	1,611.0	-114.8	-191.1	14,059,767.67	1,558,581.45	38° 43' 1.659 N	81° 17' 12.907 W	
1,672.0	16.70	236.60	1,639.7	-119.4	-198.3	14,059,762.98	1,558,574.21	38° 43' 1.613 N	81° 17' 12.998 W	
1,702.0	16.80	236.70	1,668.4	-124.2	-205.5	14,059,758.22	1,558,566.99	38° 43' 1.566 N	81° 17' 13.089 W	
1,732.0	17.20	236.50	1,697.1	-129.0	-212.8	14,059,753.40	1,558,559.67	38° 43' 1.518 N	81° 17' 13.181 W	
1,762.0	17.20	236.90	1,725.8	-133.9	-220.2	14,059,748.52	1,558,552.25	38° 43' 1.469 N	81° 17' 13.275 W	
1,792.0	17.30	236.90	1,754.4	-138.8	-227.7	14,059,743.67	1,558,544.80	38° 43' 1.421 N	81° 17' 13.368 W	
1,822.0	17.60	236.60	1,783.0	-143.7	-235.2	14,059,738.73	1,558,537.28	38° 43' 1.372 N	81° 17' 13.463 W	
1,852.0	18.00	236.60	1,811.6	-148.7	-242.9	14,059,733.69	1,558,529.62	38° 43' 1.322 N	81° 17' 13.560 W	
1,882.0	18.10	235.80	1,840.1	-153.9	-250.6	14,059,728.51	1,558,521.90	38° 43' 1.270 N	81° 17' 13.657 W	
1,912.0	18.30	236.00	1,868.6	-159.2	-258.4	14,059,723.26	1,558,514.14	38° 43' 1.218 N	81° 17' 13.755 W	
1,942.0	18.30	236.00	1,897.1	-164.4	-266.2	14,059,717.99	1,558,506.33	38° 43' 1.166 N	81° 17' 13.853 W	
1,972.0	18.40	235.10	1,925.6	-169.8	-274.0	14,059,712.65	1,558,498.54	38° 43' 1.113 N	81° 17' 13.951 W	
2,002.0	18.60	234.90	1,954.0	-175.2	-281.8	14,059,707.19	1,558,490.74	38° 43' 1.059 N	81° 17' 14.049 W	
2,032.0	18.80	233.90	1,982.4	-180.8	-289.6	14,059,701.59	1,558,482.92	38° 43' 1.003 N	81° 17' 14.148 W	
2,062.0	18.60	233.90	2,010.9	-186.5	-297.3	14,059,695.92	1,558,475.15	38° 43' 0.947 N	81° 17' 14.246 W	
2,092.0	18.10	233.00	2,039.3	-192.1	-304.9	14,059,690.30	1,558,467.56	38° 43' 0.891 N	81° 17' 14.341 W	
2,122.0	18.10	232.50	2,067.9	-197.8	-312.4	14,059,684.66	1,558,460.14	38° 43' 0.835 N	81° 17' 14.435 W	
2,152.0	18.30	233.20	2,096.4	-203.4	-319.8	14,059,679.00	1,558,452.68	38° 43' 0.779 N	81° 17' 14.529 W	
2,182.0	18.60	232.80	2,124.8	-209.1	-327.4	14,059,673.29	1,558,445.09	38° 43' 0.722 N	81° 17' 14.624 W	
2,212.0	18.50	232.50	2,153.3	-214.9	-335.0	14,059,667.50	1,558,437.51	38° 43' 0.664 N	81° 17' 14.720 W	
2,242.0	18.80	232.40	2,181.7	-220.8	-342.6	14,059,661.65	1,558,429.90	38° 43' 0.606 N	81° 17' 14.815 W	
2,272.0	18.30	231.70	2,210.1	-226.6	-350.1	14,059,655.78	1,558,422.37	38° 43' 0.548 N	81° 17' 14.910 W	
2,302.0	17.70	230.00	2,238.7	-232.5	-357.3	14,059,649.93	1,558,415.18	38° 43' 0.490 N	81° 17' 15.001 W	
2,332.0	17.00	228.80	2,267.3	-238.3	-364.1	14,059,644.11	1,558,408.39	38° 43' 0.432 N	81° 17' 15.086 W	
2,391.0	17.00	228.80	2,323.7	-249.7	-377.1	14,059,632.75	1,558,395.41	38° 43' 0.319 N	81° 17' 15.250 W	

TD @ 2391' MD / 2324' TVD

Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well SB Kinkead #200
Project:	Roane County, West Virginia	TVD Reference:	well @ 1122.0usft (Decker #9)
Site:	SB Kinkead #200	MD Reference:	well @ 1122.0usft (Decker #9)
Well:	SB Kinkead #200	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)	
550.0	550.0	0.0	0.0	First MWD Survey
2,391.0	2,323.7	-249.7	-377.1	TD @ 2391' MD / 2324' TVD

Checked By: _____ Approved By: _____ Date: _____

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Wellbore #1

Design: Wellbore #1

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Well: SB Kinkead #200
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well SB Kinkead #200
TVD Reference: well @ 1122.0usft (Decker #9)
MD Reference: well @ 1122.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project: Roane County, West Virginia
Map System: Universal Transverse Mercator
Geo Datum: NAD83 West Virginia - HARN
Map Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

Site: SB Kinkead #200
Site Position: Northing: 14,059,882.42 usft Latitude: 38° 43' 2.800 N
 Easting: 1,558,772.49 usft Longitude: 81° 17' 10.500 W
Position Uncertainty: Slot Radius: 13-3/16 " Grid Convergence: -0.18 °

Well: SB Kinkead #200
Well Position: +N/-S 0.0 usft Northing: 14,059,882.42 usft Latitude: 38° 43' 2.800 N
 +E/-W 0.0 usft Easting: 1,558,772.49 usft Longitude: 81° 17' 10.500 W
Position Uncertainty: Wellhead Elevation: 0.0 usft Ground Level: 1,114.0 usft

Wellbore: Wellbore #1
Magnetics: Model Name IGRF200510 Sample Date 12/13/2014 Declination (°) -7.95 Dip Angle (°) 66.43 Field Strength (nT) 51,939

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 0.0 237.75

Survey Program: Date 12/23/2014
From (usft): 550.0
To (usft): 2,391.0
Survey (Wellbore): MWD (Wellbore #1)
Tool Name: MWD default
Description: MWD - Standard

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 Well: SB Kinkead #200
 Wellbore: Wellbore #1
 Design: Wellbore #1

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
	550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.0	0.00
First MWD Survey										
	592.0	1.70	164.70	592.0	-0.6	0.2	0.2	4.05	0.6	164.70
	622.0	1.60	154.90	622.0	-1.4	0.5	0.4	1.00	1.5	161.94
	652.0	1.30	171.30	652.0	-2.1	0.7	0.6	1.70	2.2	162.05
	682.0	1.40	212.50	682.0	-2.8	0.5	1.0	3.18	2.8	168.91
	712.0	2.20	247.40	712.0	-3.3	-0.2	1.9	4.41	3.3	183.21
	742.0	3.40	255.60	741.9	-3.7	-1.6	3.3	4.21	4.1	202.87
	772.0	4.40	258.80	771.8	-4.2	-3.6	5.3	3.41	5.5	220.44
	802.0	5.50	257.90	801.7	-4.7	-6.1	7.7	3.68	7.7	232.33
	832.0	6.50	258.30	831.6	-5.4	-9.2	10.6	3.34	10.6	239.70
	862.0	7.60	259.90	861.3	-6.1	-12.8	14.0	3.72	14.1	244.68
	892.0	8.50	259.90	891.0	-6.8	-16.9	17.9	3.00	18.2	248.15
	922.0	9.70	259.40	920.7	-7.6	-21.6	22.3	4.01	22.9	250.51
	952.0	10.80	259.30	950.2	-8.6	-26.8	27.3	3.67	28.2	252.18
	982.0	11.90	257.30	979.6	-9.8	-32.6	32.8	3.89	34.1	253.23
	1,012.0	13.00	253.10	1,008.9	-11.5	-38.9	39.0	4.75	40.5	253.53
	1,042.0	14.20	250.30	1,038.1	-13.7	-45.6	45.8	4.56	47.6	253.25
	1,072.0	15.30	247.60	1,067.1	-16.5	-52.7	53.3	4.32	55.2	252.65
	1,102.0	16.40	244.90	1,095.9	-19.8	-60.2	61.4	4.41	63.3	251.82
	1,132.0	17.10	241.70	1,124.7	-23.7	-67.9	70.0	3.86	71.9	250.79
	1,162.0	17.70	238.00	1,153.3	-28.2	-75.6	79.0	4.19	80.7	249.58
	1,192.0	18.50	234.50	1,181.8	-33.3	-83.4	88.3	4.50	89.8	248.21
	1,222.0	18.90	233.00	1,210.2	-39.0	-91.1	97.9	2.08	99.1	246.82
	1,252.0	18.80	233.40	1,238.6	-44.8	-98.9	107.6	0.54	108.6	245.61
	1,282.0	18.50	232.20	1,267.0	-50.6	-106.5	117.1	1.62	118.0	244.58



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 Design: Wellbore #1

MD (usft)	Inc (°)	Azi (azimuth)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
1,312.0	18.00	230.20	1,295.5	-56.5	-113.9	126.5	2.67	127.1	243.60
1,342.0	17.80	228.00	1,324.1	-62.6	-120.8	135.6	2.35	136.1	242.63
1,372.0	17.60	227.70	1,352.6	-68.7	-127.6	144.6	0.73	144.9	241.71
1,402.0	17.40	229.10	1,381.3	-74.7	-134.3	153.5	1.55	153.7	240.94
1,432.0	16.80	230.80	1,409.9	-80.3	-141.1	162.2	2.60	162.4	240.34
1,462.0	16.50	231.70	1,438.7	-85.7	-147.8	170.7	1.32	170.9	239.89
1,492.0	16.40	233.50	1,467.4	-90.9	-154.5	179.2	1.73	179.3	239.54
1,522.0	16.60	236.20	1,496.2	-95.8	-161.5	187.7	2.64	187.8	239.33
1,552.0	17.20	237.70	1,524.9	-100.5	-166.8	196.4	2.47	196.5	239.22
1,582.0	17.20	237.50	1,553.6	-105.3	-176.3	205.3	0.20	205.4	239.15
1,612.0	17.00	237.10	1,582.2	-110.1	-183.7	214.1	0.77	214.2	239.08
1,642.0	16.70	237.50	1,611.0	-114.8	-191.1	222.8	1.07	222.9	239.01
1,672.0	16.70	236.60	1,639.7	-119.4	-198.3	231.4	0.86	231.5	238.94
1,702.0	16.80	236.70	1,668.4	-124.2	-205.5	240.1	0.35	240.1	238.85
1,732.0	17.20	236.50	1,697.1	-129.0	-212.8	248.8	1.35	248.9	238.77
1,762.0	17.20	236.90	1,725.8	-133.9	-220.2	257.7	0.39	257.8	238.70
1,792.0	17.30	236.90	1,754.4	-138.8	-227.7	266.6	0.33	266.6	238.64
1,822.0	17.60	236.60	1,783.0	-143.7	-235.2	275.6	1.04	275.6	238.58
1,852.0	18.00	236.60	1,811.6	-148.7	-242.9	284.8	1.33	284.8	238.52
1,882.0	18.10	235.80	1,840.1	-153.9	-250.6	294.1	0.89	294.1	238.44
1,912.0	18.30	236.00	1,868.6	-159.2	-258.4	303.4	0.70	303.5	238.37
1,942.0	18.30	236.00	1,897.1	-164.4	-266.2	312.9	0.00	312.9	238.29
1,972.0	18.40	235.10	1,925.6	-169.8	-274.0	322.3	1.00	322.3	238.21
2,002.0	18.60	234.90	1,954.0	-175.2	-281.8	331.8	0.70	331.8	238.12
2,032.0	18.80	233.90	1,982.4	-180.8	-289.6	341.4	1.26	341.4	238.02
2,062.0	18.60	233.90	2,010.9	-186.5	-297.3	351.0	0.67	351.0	237.90
2,092.0	18.10	233.00	2,039.3	-192.1	-304.9	360.4	1.92	360.4	237.79

06/12/2015



DDC
RECEIVED HG Energy EOW Report
Office of Oil and Gas

Local Co-ordinate Reference: Well SB Kinhead #200
TVD Reference: well @ 1122.0usft (Decker #9)
MD Reference: well @ 1122.0usft (Decker #9)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Company: HG Energy, LLC
Project: Roane County, West Virginia
Site: SB Kinhead #200
Well: SB Kinhead #200
Wellbore: Wellbore #1
Design: Wellbore #1

FEB 25 2015

WV Department of
 Environmental Protection

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,122.0	18.10	232.50	2,067.9	-197.8	-312.4	369.7	0.52	369.7	237.66
2,152.0	18.30	233.20	2,096.4	-203.4	-319.8	379.0	0.99	379.0	237.54
2,182.0	18.60	232.80	2,124.8	-209.1	-327.4	388.5	1.09	388.5	237.43
2,212.0	18.50	232.50	2,153.3	-214.9	-335.0	398.0	0.46	398.0	237.32
2,242.0	18.80	232.40	2,181.7	-220.8	-342.6	407.6	1.01	407.6	237.20
2,272.0	18.30	231.70	2,210.1	-226.6	-350.1	417.0	1.82	417.1	237.08
2,302.0	17.70	230.00	2,238.7	-232.5	-357.3	426.3	2.66	426.3	236.95
2,332.0	17.00	228.80	2,267.3	-238.3	-364.1	435.1	2.62	435.2	236.79
2,391.0	17.00	228.80	2,323.7	-249.7	-377.1	452.1	0.00	452.3	236.49

TD @ 2391' MD / 2324' TVD

Design Annotations	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
	550.0	550.0	0.0	0.0	First MWD Survey
	2,391.0	2,323.7	-249.7	-377.1	TD @ 2391' MD / 2324' TVD

Checked By: _____ Approved By: _____ Date: _____

06/12/2015

Company Name: HG Energy, LLC
 SB Kinkead #200
 Roane County, West Virginia
 Rig: Decker #9
 Created By: Raleigh DeCordova
 Date: 12/23/2014

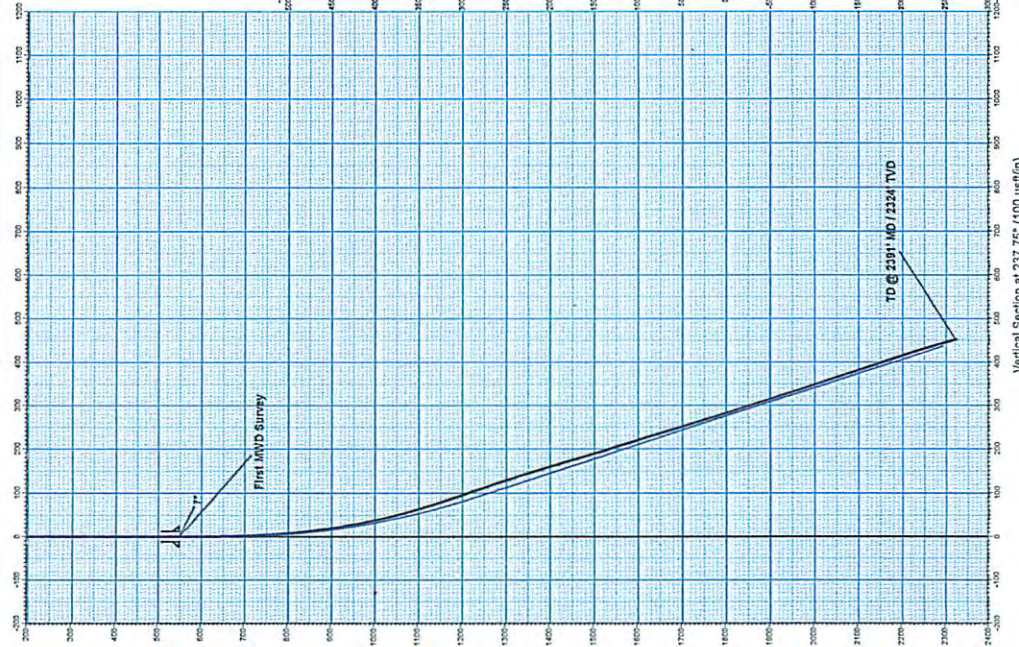
SB Kinkead #200
 Roane County, West Virginia
 Q141364 & AM-141297
 Design #1

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 Office of Oil and Gas

FEB 25 2015

DESIGN TARGET DETAILS						
Name	TVD	+N+S	+E+W	Northing	Eastng	Longitude
PB14, SB Kinkead #200 -plan thru target center	215.0	-208.1	-379.81	1659874.31	1588442.66	81° 17' 14.656 W

ANNOTATIONS								
MD	Inc	Adj	TVD	+N+S	+E+W	Vsect	Departure	Annotation
659.0	0.0	0.0	659.0	0.0	0.0	0.0	0.0	First MWD Survey
2319.0	17.20	218.09	2337.7	-349.7	-371.1	452.1	459.5	TD @ 2391' MD / 2334' TVD



PROJECT DETAILS:	
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:	
Well Name:	SB Kinkead #200
Ground Level:	1114.0
Northng	1659872.4
Eastng	1588772.8
Longitude	81° 17' 16.00 W
+N+S	0.0
+E+W	0.0

Azimuths to Grid North
 Corrections: -7.77°
 Magnetic Field
 Strength: 51939.3snT
 Dip Angle: 66.43°
 Date: 12/13/2014
 Model: IGRF200510

