

87-04770

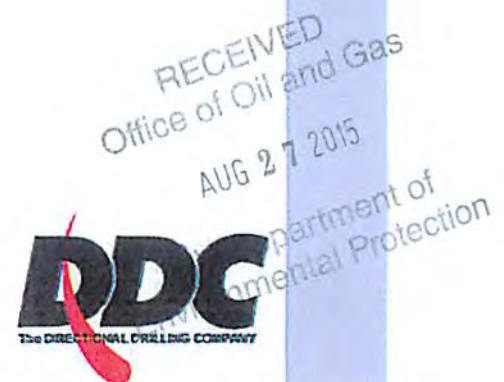
HG Energy, LLC
Roane County, West Virginia
P.A. Bays #209
P.A. Bays #209

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

28 April, 2015



10/23/2015

87.04770

HP
Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well P.A. Bays #209
Project: Roane County, West Virginia	TVD Reference: well @ 1170.0usft (Decker #9)
Site: P.A. Bays #209	MD Reference: well @ 1170.0usft (Decker #9)
Well: P.A. Bays #209	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

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	P.A. Bays #209				
Site Position:		Northing:	14,057,451.67 usft	Latitude:	38° 42' 38.800 N
From:	Lat/Long	Easting:	1,559,953.44 usft	Longitude:	81° 16' 55.500 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.18 °

Well	P.A. Bays #209					
Well Position	+N/-S	0.0 usft	Northing:	14,057,451.67 usft	Latitude:	38° 42' 38.800 N
	+E/-W	0.0 usft	Easting:	1,559,953.44 usft	Longitude:	81° 16' 55.500 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,162.0 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/14/2015	-8.04	66.34	51,950

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	296.19

Survey Program	Date 4/28/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
600.0	2,510.0	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	14,057,451.67	1,559,953.44	38° 42' 38.800 N	81° 16' 55.500 W
600.0	0.00	0.00	600.0	0.0	0.0	14,057,451.67	1,559,953.44	38° 42' 38.800 N	81° 16' 55.500 W
First Survey @ 600' MD / 600' TVD									
618.0	0.80	206.35	618.0	-0.1	-0.1	14,057,451.55	1,559,953.39	38° 42' 38.799 N	81° 16' 55.501 W
678.0	1.02	244.16	678.0	-0.7	-0.7	14,057,450.94	1,559,952.72	38° 42' 38.793 N	81° 16' 55.509 W
708.0	1.90	274.04	708.0	-0.8	-1.5	14,057,450.86	1,559,951.98	38° 42' 38.792 N	81° 16' 55.518 W
738.0	2.21	278.36	738.0	-0.7	-2.5	14,057,450.98	1,559,950.92	38° 42' 38.793 N	81° 16' 55.532 W
768.0	3.40	292.86	767.9	-0.3	-3.9	14,057,451.41	1,559,949.52	38° 42' 38.797 N	81° 16' 55.549 W
798.0	4.82	299.64	797.8	0.7	-5.8	14,057,452.38	1,559,947.61	38° 42' 38.807 N	81° 16' 55.574 W
828.0	6.01	302.55	827.7	2.2	-8.3	14,057,453.85	1,559,945.19	38° 42' 38.821 N	81° 16' 55.604 W
858.0	7.11	305.64	857.5	4.1	-11.1	14,057,455.78	1,559,942.36	38° 42' 38.840 N	81° 16' 55.640 W
888.0	8.31	306.83	887.2	6.5	-14.3	14,057,458.16	1,559,939.11	38° 42' 38.864 N	81° 16' 55.681 W

87.04770

HP
Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well P.A. Bays #209
Project: Roane County, West Virginia	TVD Reference: well @ 1170.0usft (Decker #9)
Site: P.A. Bays #209	MD Reference: well @ 1170.0usft (Decker #9)
Well: P.A. Bays #209	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: Compass

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
918.0	9.41	305.55	916.9	9.2	-18.1	14,057,460.88	1,559,935.38	38° 42' 38.891 N	81° 16' 55.728 W
948.0	10.52	304.53	946.4	12.2	-22.3	14,057,463.86	1,559,931.13	38° 42' 38.920 N	81° 16' 55.782 W
978.0	11.18	304.14	975.9	15.4	-27.0	14,057,467.05	1,559,926.47	38° 42' 38.951 N	81° 16' 55.841 W
1,008.0	11.62	302.95	1,005.3	18.7	-31.9	14,057,470.32	1,559,921.52	38° 42' 38.984 N	81° 16' 55.904 W
1,038.0	12.20	302.86	1,034.7	22.0	-37.1	14,057,473.69	1,559,916.33	38° 42' 39.017 N	81° 16' 55.969 W
1,068.0	12.90	301.85	1,063.9	25.5	-42.6	14,057,477.17	1,559,910.82	38° 42' 39.051 N	81° 16' 56.039 W
1,098.0	13.61	299.55	1,093.1	29.0	-48.5	14,057,480.68	1,559,904.90	38° 42' 39.085 N	81° 16' 56.114 W
1,128.0	14.72	298.76	1,122.2	32.6	-55.0	14,057,484.26	1,559,898.49	38° 42' 39.121 N	81° 16' 56.195 W
1,158.0	15.51	295.15	1,151.2	36.1	-61.9	14,057,487.79	1,559,891.52	38° 42' 39.155 N	81° 16' 56.283 W
1,188.0	16.31	293.34	1,180.0	39.5	-69.4	14,057,491.17	1,559,884.02	38° 42' 39.188 N	81° 16' 56.378 W
1,218.0	17.01	293.96	1,208.8	43.0	-77.3	14,057,494.62	1,559,876.14	38° 42' 39.222 N	81° 16' 56.477 W
1,248.0	17.72	293.25	1,237.4	46.5	-85.5	14,057,498.20	1,559,867.94	38° 42' 39.258 N	81° 16' 56.581 W
1,278.0	18.21	294.62	1,266.0	50.3	-94.0	14,057,501.96	1,559,859.48	38° 42' 39.294 N	81° 16' 56.688 W
1,308.0	18.21	293.12	1,294.5	54.1	-102.5	14,057,505.75	1,559,850.91	38° 42' 39.332 N	81° 16' 56.796 W
1,338.0	17.99	292.94	1,323.0	57.7	-111.1	14,057,509.40	1,559,842.33	38° 42' 39.367 N	81° 16' 56.905 W
1,368.0	17.90	290.96	1,351.5	61.2	-119.7	14,057,512.85	1,559,833.76	38° 42' 39.401 N	81° 16' 57.013 W
1,398.0	18.21	290.12	1,380.0	64.4	-128.4	14,057,516.11	1,559,825.05	38° 42' 39.433 N	81° 16' 57.123 W
1,428.0	18.78	291.45	1,408.5	67.8	-137.3	14,057,519.49	1,559,816.16	38° 42' 39.467 N	81° 16' 57.235 W
1,458.0	19.31	291.93	1,436.8	71.4	-146.4	14,057,523.11	1,559,807.06	38° 42' 39.502 N	81° 16' 57.350 W
1,488.0	20.19	293.03	1,465.1	75.3	-155.7	14,057,526.99	1,559,797.70	38° 42' 39.540 N	81° 16' 57.469 W
1,518.0	20.90	293.25	1,493.2	79.5	-165.4	14,057,531.13	1,559,788.01	38° 42' 39.581 N	81° 16' 57.591 W
1,548.0	21.79	293.65	1,521.1	83.8	-175.4	14,057,535.47	1,559,778.00	38° 42' 39.623 N	81° 16' 57.717 W
1,578.0	22.89	294.84	1,548.9	88.5	-185.8	14,057,540.16	1,559,767.60	38° 42' 39.669 N	81° 16' 57.849 W
1,608.0	23.69	294.93	1,576.4	93.5	-196.6	14,057,545.15	1,559,756.84	38° 42' 39.718 N	81° 16' 57.985 W
1,638.0	24.48	295.32	1,603.8	98.7	-207.7	14,057,550.35	1,559,745.76	38° 42' 39.769 N	81° 16' 58.125 W
1,668.0	25.50	296.82	1,631.0	104.3	-219.1	14,057,555.92	1,559,734.38	38° 42' 39.824 N	81° 16' 58.269 W
1,698.0	26.12	296.34	1,658.0	110.1	-230.7	14,057,561.76	1,559,722.69	38° 42' 39.882 N	81° 16' 58.416 W
1,728.0	26.78	296.95	1,684.9	116.1	-242.7	14,057,567.76	1,559,710.75	38° 42' 39.941 N	81° 16' 58.567 W
1,758.0	27.80	296.65	1,711.5	122.3	-255.0	14,057,573.96	1,559,698.47	38° 42' 40.001 N	81° 16' 58.723 W
1,788.0	29.21	298.23	1,737.9	128.9	-267.7	14,057,580.56	1,559,685.77	38° 42' 40.066 N	81° 16' 58.883 W
1,818.0	31.02	299.16	1,763.8	136.1	-280.9	14,057,587.79	1,559,672.57	38° 42' 40.137 N	81° 16' 59.050 W
1,848.0	33.32	301.14	1,789.2	144.2	-294.7	14,057,595.82	1,559,658.76	38° 42' 40.216 N	81° 16' 59.225 W
1,878.0	35.62	302.15	1,814.0	153.1	-309.1	14,057,604.73	1,559,644.31	38° 42' 40.304 N	81° 16' 59.407 W
1,908.0	36.50	300.74	1,838.2	162.3	-324.2	14,057,613.94	1,559,629.25	38° 42' 40.395 N	81° 16' 59.598 W
1,938.0	36.19	299.95	1,862.4	171.3	-339.5	14,057,622.92	1,559,613.90	38° 42' 40.483 N	81° 16' 59.792 W
1,968.0	35.79	299.64	1,886.6	180.0	-354.8	14,057,631.68	1,559,598.61	38° 42' 40.569 N	81° 16' 59.985 W
1,998.0	36.01	298.85	1,910.9	188.6	-370.2	14,057,640.27	1,559,583.26	38° 42' 40.654 N	81° 17' 0.179 W
2,028.0	36.10	298.85	1,935.2	197.1	-385.7	14,057,648.79	1,559,567.79	38° 42' 40.738 N	81° 17' 0.375 W
2,058.0	36.28	298.54	1,959.4	205.6	-401.2	14,057,657.30	1,559,552.25	38° 42' 40.821 N	81° 17' 0.571 W
2,088.0	36.99	296.82	1,983.5	213.9	-417.0	14,057,665.61	1,559,536.40	38° 42' 40.903 N	81° 17' 0.772 W
2,118.0	37.52	295.24	2,007.4	221.9	-433.4	14,057,673.58	1,559,520.08	38° 42' 40.981 N	81° 17' 0.978 W
2,148.0	37.69	294.62	2,031.1	229.6	-450.0	14,057,681.30	1,559,503.48	38° 42' 41.057 N	81° 17' 1.188 W
2,178.0	36.81	294.75	2,055.0	237.2	-466.5	14,057,688.88	1,559,486.98	38° 42' 41.131 N	81° 17' 1.396 W
2,208.0	36.81	294.22	2,079.0	244.7	-482.8	14,057,696.33	1,559,470.62	38° 42' 41.205 N	81° 17' 1.603 W
2,238.0	37.12	294.75	2,103.0	252.1	-499.2	14,057,703.81	1,559,454.21	38° 42' 41.278 N	81° 17' 1.810 W
2,268.0	37.38	294.50	2,126.9	259.7	-515.7	14,057,711.37	1,559,437.70	38° 42' 41.352 N	81° 17' 2.019 W
2,298.0	37.69	295.24	2,150.7	267.4	-532.3	14,057,719.06	1,559,421.12	38° 42' 41.428 N	81° 17' 2.229 W
2,328.0	37.52	294.44	2,174.4	275.1	-548.9	14,057,726.75	1,559,404.51	38° 42' 41.503 N	81° 17' 2.439 W
2,358.0	37.61	294.62	2,198.2	282.7	-565.6	14,057,734.34	1,559,387.87	38° 42' 41.578 N	81° 17' 2.649 W
2,388.0	37.38	294.05	2,222.0	290.2	-582.2	14,057,741.87	1,559,371.23	38° 42' 41.652 N	81° 17' 2.859 W
2,418.0	36.10	294.35	2,246.1	297.6	-598.6	14,057,749.22	1,559,354.86	38° 42' 41.724 N	81° 17' 3.066 W
2,448.0	34.69	292.86	2,270.5	304.5	-614.5	14,057,756.18	1,559,338.94	38° 42' 41.792 N	81° 17' 3.267 W
2,510.0	34.69	292.86	2,321.5	318.2	-647.0	14,057,769.89	1,559,306.43	38° 42' 41.927 N	81° 17' 3.678 W

TD @ 2510' MD / 2322' TVD

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Department of Environmental Protection

87-04770

HP
Survey Report - Geographic



Company: HG Energy, LLC	Local Co-ordinate Reference: Well P.A. Bays #209
Project: Roane County, West Virginia	TVD Reference: well @ 1170.0usft (Decker #9)
Site: P.A. Bays #209	MD Reference: well @ 1170.0usft (Decker #9)
Well: P.A. Bays #209	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)	
600.0	600.0	0.0	0.0	First Survey @ 600' MD / 600' TVD
2,510.0	2,321.5	318.2	-647.0	TD @ 2510' MD / 2322' TVD

Checked By: _____ Approved By: _____ Date: _____

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97-04770

HG Energy, LLC

Roane County, West Virginia

P.A. Bays #209

P.A. Bays #209

Wellbore #1

Design: Wellbore #1

HG Energy EOW Report

28 April, 2015



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HG Energy EOW Report



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Well: P.A. Bays #209	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: EDM Compass

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 P.A. Bays #209		
Site Position:	Northing: 14,057,451.66 usft	Latitude: 38° 42' 38.800 N
From: Lat/Long	Easting: 1,559,953.44 usft	Longitude: 81° 16' 55.500 W
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.18 "

Well P.A. Bays #209		
Well Position +N/-S 0.0 usft	Northing: 14,057,451.66 usft	Latitude: 38° 42' 38.800 N
+E/-W 0.0 usft	Easting: 1,559,953.44 usft	Longitude: 81° 16' 55.500 W
Position Uncertainty 0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 1,162.0 usft

Wellbore Wellbore #1					
Magnetics	Model Name IGRF2010	Sample Date 4/14/2015	Declination (°) -8.04	Dip Angle (°) 66.34	Field Strength (nT) 51,950

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 (°) 296.19

Survey Program	Date 4/28/2015	
From (usft) 600.0	To (usft) 2,510.0	
Survey (Wellbore) MWD (Wellbore #1)	Tool Name MWD default	Description MWD - Standard

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 WV Department of Environmental Protection
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HG Energy EOW Report



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Site: P.A. Bays #209	MD Reference: well @ 1170.0usft (Decker #9)
Well: P.A. Bays #209	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 (°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.0	0.00	
First Survey @ 600' MD / 600' TVD										
618.0	0.80	206.35	618.0	-0.1	-0.1	0.0	4.44	0.1	206.35	
678.0	1.02	244.16	678.0	-0.7	-0.7	0.3	1.04	1.0	225.06	
708.0	1.90	274.04	708.0	-0.8	-1.5	1.0	3.79	1.7	241.20	
738.0	2.21	278.36	738.0	-0.7	-2.5	2.0	1.15	2.6	254.88	
768.0	3.40	292.86	767.9	-0.3	-3.9	3.4	4.59	3.9	266.30	
798.0	4.82	299.64	797.8	0.7	-5.8	5.6	4.99	5.9	276.99	
828.0	6.01	302.55	827.7	2.2	-8.3	8.4	4.07	8.5	284.82	
858.0	7.11	305.64	857.5	4.1	-11.1	11.8	3.85	11.8	290.35	
888.0	8.31	306.83	887.2	6.5	-14.3	15.7	4.04	15.7	294.37	
918.0	9.41	305.55	916.9	9.2	-18.1	20.3	3.72	20.3	297.04	
948.0	10.52	304.53	946.4	12.2	-22.3	25.4	3.75	25.4	298.66	
978.0	11.18	304.14	975.9	15.4	-27.0	31.0	2.21	31.1	299.69	
1,008.0	11.62	302.95	1,005.3	18.7	-31.9	36.9	1.66	37.0	300.31	
1,038.0	12.20	302.86	1,034.7	22.0	-37.1	43.0	1.93	43.2	300.68	
1,068.0	12.90	301.85	1,063.9	25.5	-42.6	49.5	2.45	49.7	300.90	
1,098.0	13.61	299.55	1,093.1	29.0	-48.5	56.4	2.95	56.6	300.87	
1,128.0	14.72	298.76	1,122.2	32.6	-55.0	63.7	3.76	63.9	300.67	
1,158.0	15.51	295.15	1,151.2	36.1	-61.9	71.5	4.10	71.7	300.26	
1,188.0	16.31	293.34	1,180.0	39.5	-69.4	79.7	3.14	79.9	299.64	
1,218.0	17.01	293.96	1,208.8	43.0	-77.3	88.3	2.41	88.4	299.06	
1,248.0	17.72	293.25	1,237.4	46.5	-85.5	97.3	2.47	97.3	298.56	
1,278.0	18.21	294.62	1,266.0	50.3	-94.0	106.5	2.16	106.6	298.16	
1,308.0	18.21	293.12	1,294.5	54.1	-102.5	115.9	1.56	115.9	297.81	
1,338.0	17.99	292.94	1,323.0	57.7	-111.1	125.2	0.76	125.2	297.46	

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HG Energy EOW Report



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 Project: Reane County, West Virginia
 Site: P.A. Bays #209
 Well: P.A. Bays #209
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well P.A. Bays #209
 TVD Reference: well @ 1170.0usft (Decker #9)
 MD Reference: well @ 1170.0usft (Decker #9)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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 (°)
1,368.0	17.90	290.96	1,351.5	61.2	-119.7	134.4	2.06	134.4	297.08
1,398.0	18.21	290.12	1,380.0	64.4	-128.4	143.7	1.35	143.7	296.66
1,428.0	18.78	291.45	1,408.5	67.8	-137.3	153.1	2.36	153.1	296.29
1,458.0	19.31	291.93	1,436.8	71.4	-146.4	162.9	1.84	162.9	296.02
1,488.0	20.19	293.03	1,465.1	75.3	-155.7	173.0	3.18	173.0	295.81
1,518.0	20.90	293.25	1,493.2	79.5	-165.4	183.5	2.38	183.5	295.66
1,548.0	21.79	293.65	1,521.1	83.8	-175.4	194.4	3.01	194.4	295.53
1,578.0	22.89	294.84	1,548.9	88.5	-185.8	205.8	3.96	205.8	295.46
1,608.0	23.69	294.93	1,576.4	93.5	-196.6	217.7	2.67	217.7	295.43
1,638.0	24.48	295.32	1,603.8	98.7	-207.7	229.9	2.69	229.9	295.41
1,668.0	25.50	296.82	1,631.0	104.3	-219.1	242.6	4.00	242.6	295.45
1,698.0	26.12	296.34	1,658.0	110.1	-230.7	255.7	2.18	255.7	295.51
1,728.0	26.78	296.95	1,684.9	116.1	-242.7	269.0	2.38	269.0	295.56
1,758.0	27.80	296.65	1,711.5	122.3	-255.0	282.8	3.43	282.8	295.62
1,788.0	29.21	298.23	1,737.9	128.9	-267.7	297.1	5.33	297.1	295.71
1,818.0	31.02	299.16	1,763.8	136.1	-280.9	312.1	6.23	312.1	295.86
1,848.0	33.32	301.14	1,789.2	144.2	-294.7	328.0	8.43	328.0	296.07
1,878.0	35.62	302.15	1,814.0	153.1	-309.1	344.9	7.90	344.9	296.34
1,908.0	36.50	300.74	1,838.2	162.3	-324.2	362.5	4.03	362.5	296.59
1,938.0	36.19	299.95	1,862.4	171.3	-339.5	380.3	1.87	380.3	296.77
1,968.0	35.79	299.64	1,886.6	180.0	-354.8	397.9	1.47	397.9	296.90
1,998.0	36.01	298.85	1,910.9	188.6	-370.2	415.4	1.71	415.5	297.00
2,028.0	36.10	298.85	1,935.2	197.1	-385.7	433.1	0.30	433.1	297.07
2,058.0	36.28	298.54	1,959.4	205.6	-401.2	450.8	0.86	450.8	297.14
2,088.0	36.99	296.82	1,983.5	213.9	-417.0	468.7	4.16	468.7	297.16
2,118.0	37.52	295.24	2,007.4	221.9	-433.4	486.8	3.64	486.9	297.12
2,148.0	37.69	294.62	2,031.1	229.6	-450.0	505.1	1.38	505.2	297.04

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HG Energy EOW Report



871-047770

Company: HG Energy, LLC	Local Co-ordinate Reference: Well P.A. Bays #209
Project: Roane County, West Virginia	TVD Reference: well @ 1170.0usft (Decker #9)
Site: P.A. Bays #209	MD Reference: well @ 1170.0usft (Decker #9)
Well: P.A. Bays #209	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 (°)
2,178.0	36.81	294.75	2,055.0	237.2	-466.5	523.3	2.95	523.3	296.96
2,208.0	36.81	294.22	2,079.0	244.7	-482.8	541.2	1.06	541.3	296.87
2,238.0	37.12	294.75	2,103.0	252.1	-499.2	559.3	1.48	559.3	296.80
2,268.0	37.38	294.50	2,126.9	259.7	-515.7	577.4	1.00	577.4	296.73
2,298.0	37.69	295.24	2,150.7	267.4	-532.3	595.7	1.82	595.7	296.67
2,328.0	37.52	294.44	2,174.4	275.1	-548.9	614.0	1.72	614.0	296.62
2,358.0	37.61	294.62	2,198.2	282.7	-565.6	632.3	0.47	632.3	296.56
2,388.0	37.38	294.05	2,222.0	290.2	-582.2	650.5	1.39	650.5	296.49
2,418.0	36.10	294.35	2,246.1	297.6	-598.6	668.5	4.31	668.5	296.43
2,448.0	34.69	292.86	2,270.5	304.5	-614.5	685.8	5.51	685.8	296.36
2,510.0	34.69	292.86	2,321.5	318.2	-647.0	721.0	0.00	721.0	296.19

TD @ 2510' MD / 2322' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.0	600.0	0.0	0.0	First Survey @ 600' MD / 600' TVD
2,510.0	2,321.5	318.2	-647.0	TD @ 2510' MD / 2322' TVD

Checked By: _____ Approved By: _____ Date: _____

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87.04770



Company Name: HG Energy, LLC
 P.A. Bays #209
 Roane County, West Virginia
 Rig: Decker 9
 Created By: Shane Robbins
 Date: 4/28/2015

Company Name: HG Energy, LLC
 P.A. Bays #209
 Roane County, West Virginia
 Rig: Decker 9
 Created By: Shane Robbins
 Date: 4/28/2015

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

DESIGN TARGET DETAILS

Name	TVD	WGS 84 Northing	WGS 84 Easting	Longitude
PRBL - PA Bays Target	3169.0	425814627.1123	1509452.6	81° 17' 23.00 W
- plan this target center				

ANNOTATIONS

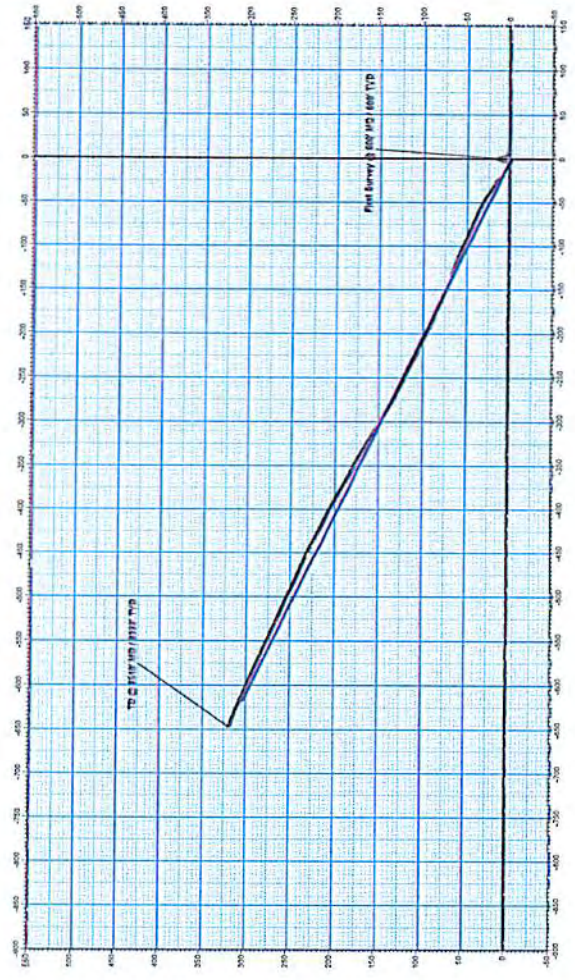
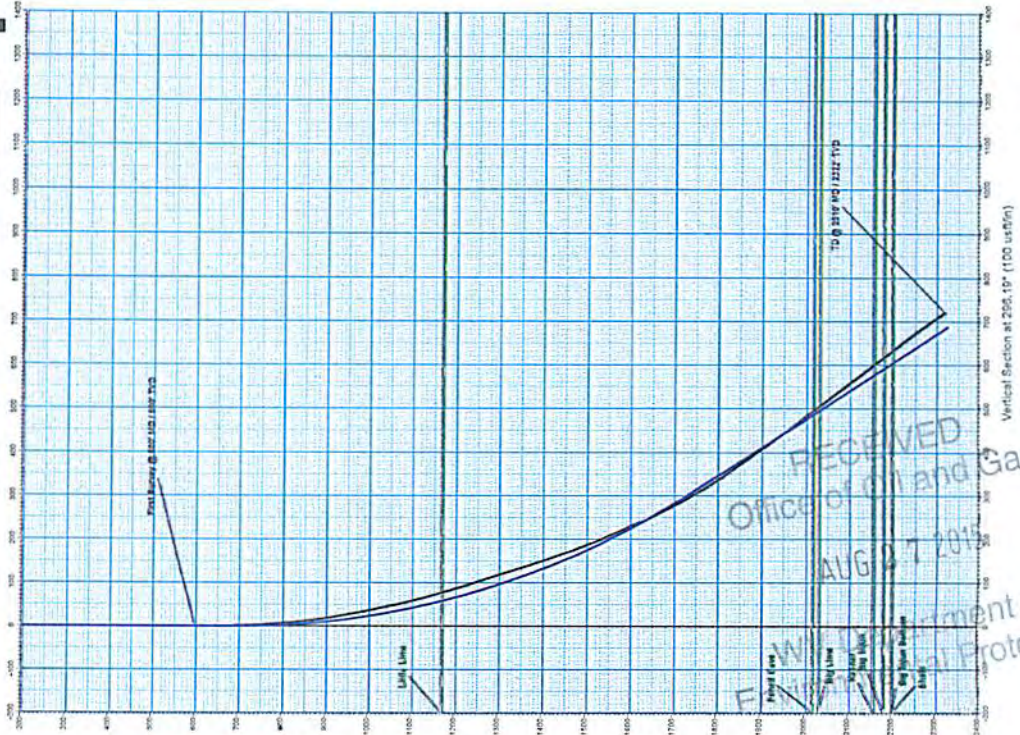
MD	Inc	Alt	TVD	+WGS 84 Northing	+WGS 84 Easting	Longitude
800.0	0.00	0.00	0.00	0.0	0.0	0.0
2510.0	54.69	392.88	2311.5	3182.2	447.0	711.0

M G T

Azimuths to Grid North
 Correction: -7.86°

Magnetic Field
 Strength: 51949.6snT
 Dip Angle: 66.34°
 Date: 4/14/2015
 Model: IGRF2010

HG Energy



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