

HG Energy, LLC

Lincoln County, West Virginia

Austin Griffith #101

Austin Griffith #101

Wellbore #1

Design: Wellbore #1

HG Energy EOW Report

17 October, 2014



43.3449

HG Energy EOW Report



43-03449

Company: HG Energy, LLC	Local Co-ordinate Reference: Well Austin Griffith #101
Project: Lincoln County, West Virginia	TVD Reference: Well @ 918.0usft (Decker #9)
Site: Austin Griffith #101	MD Reference: Well @ 918.0usft (Decker #9)
Well: Austin Griffith #101	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: EDM Compass

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

Site Austin Griffith #101	Site Position:	Northing: 13,881,416.65 usft	Latitude: 38° 13' 25.100 N
	From: Lat/Long	Easting: 1,364,737.00 usft	Longitude: 81° 57' 35.900 W
	Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.59 °

Well Austin Griffith #101	Well Position	Northing: 13,881,416.65 usft	Latitude: 38° 13' 25.100 N
	+N/-S 0.0 usft	Easting: 1,364,737.00 usft	Longitude: 81° 57' 35.900 W
	+E/-W 0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 910.0 usft
	Position Uncertainty 0.0 usft		

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/17/2014	-7.43	66.09	51,839

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	252.50

Survey Program	Date 10/17/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
550.0	2,566.0	MWD (Wellbore #1)	MWD default	MWD - Standard

HG Energy EOW Report



Company: HG Energy, LLC
 Project: Lincoln County, West Virginia
 Site: Austin Griffith #101
 Well: Austin Griffith #101
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Austin Griffith #101
 TVD Reference: Well @ 918.0usft (Decker #9)
 MD Reference: Well @ 918.0usft (Decker #9)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM Compass

43-03449

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	0.0		
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.0	0.0		
FIRST SURVEY @ 550' MD / 550' TVD											
596.0	0.80	169.50	596.0	-0.3	0.1	0.0	1.74	0.3	169.50		
626.0	0.70	162.90	626.0	-0.7	0.2	0.1	0.44	0.7	167.81		
656.0	0.90	205.30	656.0	-1.1	0.1	0.2	2.03	1.1	174.54		
686.0	1.90	251.20	686.0	-1.5	-0.5	0.9	4.76	1.5	197.78		
716.0	3.30	258.70	716.0	-1.8	-1.8	2.2	4.79	2.5	224.96		
746.0	4.40	268.10	745.9	-2.0	-3.8	4.2	4.22	4.3	242.19		
776.0	5.60	271.00	775.8	-2.0	-6.4	6.7	4.09	6.7	252.57		
806.0	6.50	267.00	805.6	-2.1	-9.6	9.7	3.31	9.8	257.77		
836.0	7.40	265.40	835.4	-2.3	-13.2	13.3	3.07	13.4	260.04		
866.0	8.20	264.70	865.1	-2.7	-17.2	17.2	2.69	17.4	261.20		
896.0	9.10	266.20	894.8	-3.0	-21.7	21.6	3.09	21.9	262.08		
926.0	10.20	264.30	924.3	-3.4	-26.7	26.5	3.82	27.0	262.66		
956.0	11.10	264.90	953.8	-4.0	-32.3	32.0	3.02	32.5	263.00		
986.0	12.10	264.40	983.2	-4.5	-38.3	37.9	3.35	38.5	263.25		
1,016.0	13.10	263.80	1,012.5	-5.2	-44.8	44.3	3.36	45.1	263.37		
1,046.0	14.30	265.10	1,041.6	-5.9	-51.8	51.2	4.13	52.2	263.52		
1,076.0	15.90	266.30	1,070.6	-6.5	-59.6	58.8	5.43	60.0	263.81		
1,106.0	17.20	266.50	1,099.4	-7.0	-68.2	67.1	4.34	68.5	264.13		
1,136.0	18.70	265.70	1,127.9	-7.6	-77.4	76.1	5.07	77.8	264.37		
1,166.0	20.10	266.20	1,156.2	-8.3	-87.3	85.8	4.70	87.7	264.55		
1,196.0	21.00	265.00	1,184.3	-9.1	-97.8	96.1	3.31	98.3	264.66		
1,226.0	21.60	264.20	1,212.2	-10.2	-108.7	106.7	2.22	109.2	264.65		
1,256.0	22.50	262.20	1,240.0	-11.5	-119.9	117.8	3.91	120.4	264.51		
1,286.0	23.20	260.90	1,267.7	-13.2	-131.4	129.3	2.88	132.0	264.25		

HG Energy EOW Report



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #101
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #101	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #101	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

43.03449

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)	
1,316.0	24.10	258.00	1,295.2	-15.4	-143.2	141.2	4.90	144.0	263.85	
1,346.0	25.10	255.80	1,322.4	-18.3	-155.4	153.7	4.52	156.4	263.29	
1,376.0	25.80	252.70	1,349.5	-21.8	-167.8	166.6	5.02	169.2	262.61	
1,406.0	25.90	249.70	1,376.5	-26.0	-180.2	179.6	4.37	182.0	261.79	
1,436.0	26.40	247.50	1,403.5	-30.8	-192.5	192.8	3.64	194.9	260.91	
1,466.0	26.90	247.20	1,430.3	-36.0	-204.9	206.2	1.73	208.0	260.04	
1,496.0	26.80	246.80	1,457.0	-41.3	-217.3	219.7	0.69	221.2	259.24	
1,526.0	25.80	245.70	1,483.9	-46.6	-229.5	232.9	3.71	234.2	258.51	
1,556.0	24.70	245.40	1,511.1	-51.9	-241.2	245.6	3.69	246.7	257.85	
1,586.0	23.30	245.70	1,538.5	-57.0	-252.3	257.7	4.68	258.6	257.27	
1,616.0	23.00	245.70	1,566.1	-61.8	-263.0	269.4	1.00	270.2	256.77	
1,646.0	23.20	245.40	1,593.6	-66.7	-273.7	281.1	0.77	281.7	256.30	
1,676.0	22.30	244.30	1,621.3	-71.6	-284.2	292.6	3.32	293.1	255.85	
1,706.0	21.20	243.50	1,649.2	-76.5	-294.2	303.6	3.80	304.0	255.42	
1,736.0	20.70	242.80	1,677.2	-81.4	-303.8	314.2	1.86	314.5	255.01	
1,766.0	20.60	245.10	1,705.3	-86.0	-313.3	324.7	2.72	324.9	254.65	
1,796.0	20.80	246.50	1,733.3	-90.4	-323.0	335.2	1.78	335.4	254.37	
1,826.0	21.70	247.90	1,761.3	-94.6	-333.0	346.0	3.44	346.2	254.14	
1,856.0	22.40	250.60	1,789.1	-98.6	-343.5	357.3	4.11	357.4	253.99	
1,886.0	23.20	252.10	1,816.8	-102.3	-354.5	368.9	3.30	369.0	253.91	
1,916.0	24.10	255.10	1,844.2	-105.7	-366.1	380.9	5.01	381.0	253.90	
1,946.0	24.80	256.40	1,871.5	-108.7	-378.1	393.3	2.94	393.4	253.96	
1,976.0	23.80	254.50	1,898.9	-111.8	-390.1	405.6	4.23	405.8	254.00	
2,006.0	23.50	254.00	1,926.4	-115.1	-401.6	417.7	1.20	417.8	254.01	
2,036.0	23.30	253.30	1,953.9	-118.4	-413.1	429.6	1.14	429.7	254.00	
2,066.0	22.70	252.30	1,981.5	-121.9	-424.3	441.3	2.39	441.4	253.97	
2,096.0	22.00	251.20	2,009.3	-125.5	-435.1	452.7	2.72	452.8	253.91	

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 Well: Austin Griffith #101
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Austin Griffith #101
 TVD Reference: Well @ 918.0usft (Decker #9)
 MD Reference: Well @ 918.0usft (Decker #9)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM Compass

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,126.0	21.60	252.40	2,037.1	-129.0	-445.7	463.8	2.00	464.0	253.86
2,216.0	21.30	254.00	2,120.9	-138.5	-477.2	496.7	0.73	496.9	253.82
2,246.0	20.00	250.50	2,149.0	-141.7	-487.3	507.3	5.97	507.5	253.79
2,276.0	18.90	249.80	2,177.2	-145.1	-496.7	517.3	3.75	517.4	253.72
2,306.0	18.50	250.25	2,205.7	-148.4	-505.7	526.9	1.42	527.0	253.65
2,336.0	18.00	251.60	2,234.2	-151.4	-514.6	536.3	2.18	536.4	253.60
2,366.0	18.10	255.00	2,262.7	-154.1	-523.5	545.6	3.53	545.7	253.60
2,396.0	19.20	255.10	2,291.1	-156.6	-532.8	555.2	3.67	555.3	253.62
2,426.0	21.00	252.10	2,319.3	-159.5	-542.6	565.5	6.91	565.6	253.62
2,456.0	21.80	250.90	2,347.2	-163.0	-553.0	576.4	3.04	576.5	253.58
<u>2,486.0</u>	20.70	248.20	2,375.2	-166.8	-563.2	587.3	4.91	587.4	253.51
2,516.0	19.90	247.50	2,403.3	-170.7	-572.8	597.7	2.79	597.7	253.41
2,536.0	18.70	245.60	2,422.2	-173.3	-578.9	604.2	6.77	604.3	253.33
2,566.0	17.20	244.30	2,450.7	-177.2	-587.3	613.4	5.17	613.4	253.21

TD @ 2566' MD / 2451' TVD

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
550.0	550.0	0.0	0.0	FIRST SURVEY @ 550' MD / 550' TVD
2,566.0	2,450.7	-177.2	-587.3	TD @ 2566' MD / 2451' TVD

Checked By: _____ Approved By: _____ Date: _____

43.03449

HG Energy, LLC

Lincoln County, West Virginia

Austin Griffith #101

Austin Griffith #101

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

17 October, 2014



12/05/2014

43-03449

Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #101
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #101	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #101	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 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	Austin Griffith #101				
Site Position:		Northing:	13,881,416.65 usft	Latitude:	38° 13' 25.100 N
From:	Lat/Long	Easting:	1,364,737.00 usft	Longitude:	81° 57' 35.900 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 °

Well	Austin Griffith #101					
Well Position	+N/-S	0.0 usft	Northing:	13,881,416.65 usft	Latitude:	38° 13' 25.100 N
	+E/-W	0.0 usft	Easting:	1,364,737.00 usft	Longitude:	81° 57' 35.900 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	910.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/17/2014	-7.43	66.09	51,839

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	252.50

Survey Program	Date	10/17/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
550.0	2,566.0	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	13,881,416.65	1,364,737.00	38° 13' 25.100 N	81° 57' 35.900 W
550.0	0.00	0.00	550.0	0.0	0.0	13,881,416.65	1,364,737.00	38° 13' 25.100 N	81° 57' 35.900 W
FIRST SURVEY @ 550' MD / 550' TVD									
596.0	0.80	169.50	596.0	-0.3	0.1	13,881,416.33	1,364,737.06	38° 13' 25.097 N	81° 57' 35.899 W
626.0	0.70	162.90	626.0	-0.7	0.2	13,881,415.95	1,364,737.15	38° 13' 25.093 N	81° 57' 35.898 W
656.0	0.90	205.30	656.0	-1.1	0.1	13,881,415.56	1,364,737.10	38° 13' 25.089 N	81° 57' 35.899 W
686.0	1.90	251.20	686.0	-1.5	-0.5	13,881,415.19	1,364,736.53	38° 13' 25.085 N	81° 57' 35.906 W
716.0	3.30	258.70	716.0	-1.8	-1.8	13,881,414.86	1,364,735.22	38° 13' 25.082 N	81° 57' 35.922 W
746.0	4.40	268.10	745.9	-2.0	-3.8	13,881,414.65	1,364,733.22	38° 13' 25.080 N	81° 57' 35.947 W
776.0	5.60	271.00	775.8	-2.0	-6.4	13,881,414.64	1,364,730.60	38° 13' 25.079 N	81° 57' 35.980 W
806.0	6.50	267.00	805.6	-2.1	-9.6	13,881,414.57	1,364,727.45	38° 13' 25.078 N	81° 57' 36.019 W
836.0	7.40	265.40	835.4	-2.3	-13.2	13,881,414.33	1,364,723.82	38° 13' 25.076 N	81° 57' 36.065 W

43.03449

Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #101
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #101	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #101	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	
866.0	8.20	264.70	865.1	-2.7	-17.2	13,881,413.98	1,364,719.77	38° 13' 25.072 N	81° 57' 36.116 W	
896.0	9.10	266.20	894.8	-3.0	-21.7	13,881,413.62	1,364,715.27	38° 13' 25.068 N	81° 57' 36.172 W	
926.0	10.20	264.30	924.3	-3.4	-26.7	13,881,413.20	1,364,710.26	38° 13' 25.063 N	81° 57' 36.235 W	
956.0	11.10	264.90	953.8	-4.0	-32.3	13,881,412.68	1,364,704.74	38° 13' 25.057 N	81° 57' 36.304 W	
986.0	12.10	264.40	983.2	-4.5	-38.3	13,881,412.12	1,364,698.73	38° 13' 25.051 N	81° 57' 36.379 W	
1,016.0	13.10	263.80	1,012.5	-5.2	-44.8	13,881,411.44	1,364,692.22	38° 13' 25.044 N	81° 57' 36.461 W	
1,046.0	14.30	265.10	1,041.6	-5.9	-51.8	13,881,410.76	1,364,685.15	38° 13' 25.036 N	81° 57' 36.549 W	
1,076.0	15.90	266.30	1,070.6	-6.5	-59.6	13,881,410.18	1,364,677.36	38° 13' 25.030 N	81° 57' 36.647 W	
1,106.0	17.20	266.50	1,099.4	-7.0	-68.2	13,881,409.64	1,364,668.83	38° 13' 25.024 N	81° 57' 36.754 W	
1,136.0	18.70	265.70	1,127.9	-7.6	-77.4	13,881,409.01	1,364,659.61	38° 13' 25.017 N	81° 57' 36.869 W	
1,166.0	20.10	266.20	1,156.2	-8.3	-87.3	13,881,408.31	1,364,649.67	38° 13' 25.009 N	81° 57' 36.994 W	
1,196.0	21.00	265.00	1,184.3	-9.1	-97.8	13,881,407.50	1,364,639.17	38° 13' 24.999 N	81° 57' 37.125 W	
1,226.0	21.60	264.20	1,212.2	-10.2	-108.7	13,881,406.47	1,364,628.32	38° 13' 24.988 N	81° 57' 37.261 W	
1,256.0	22.50	262.20	1,240.0	-11.5	-119.9	13,881,405.14	1,364,617.14	38° 13' 24.974 N	81° 57' 37.401 W	
1,286.0	23.20	260.90	1,267.7	-13.2	-131.4	13,881,403.42	1,364,605.62	38° 13' 24.956 N	81° 57' 37.545 W	
1,316.0	24.10	258.00	1,295.2	-15.4	-143.2	13,881,401.21	1,364,593.79	38° 13' 24.933 N	81° 57' 37.693 W	
1,346.0	25.10	255.80	1,322.4	-18.3	-155.4	13,881,398.38	1,364,581.63	38° 13' 24.903 N	81° 57' 37.845 W	
1,376.0	25.80	252.70	1,349.5	-21.8	-167.8	13,881,394.88	1,364,569.23	38° 13' 24.867 N	81° 57' 38.000 W	
1,406.0	25.90	249.70	1,376.5	-26.0	-180.2	13,881,390.66	1,364,556.85	38° 13' 24.825 N	81° 57' 38.155 W	
1,436.0	26.40	247.50	1,403.5	-30.8	-192.5	13,881,385.84	1,364,544.54	38° 13' 24.776 N	81° 57' 38.308 W	
1,466.0	26.90	247.20	1,430.3	-36.0	-204.9	13,881,380.65	1,364,532.12	38° 13' 24.723 N	81° 57' 38.463 W	
1,496.0	26.80	246.80	1,457.0	-41.3	-217.3	13,881,375.36	1,364,519.65	38° 13' 24.669 N	81° 57' 38.619 W	
1,526.0	25.80	245.70	1,483.9	-46.6	-229.5	13,881,370.01	1,364,507.49	38° 13' 24.615 N	81° 57' 38.771 W	
1,556.0	24.70	245.40	1,511.1	-51.9	-241.2	13,881,364.71	1,364,495.84	38° 13' 24.562 N	81° 57' 38.916 W	
1,586.0	23.30	245.70	1,538.5	-57.0	-252.3	13,881,359.66	1,364,484.73	38° 13' 24.511 N	81° 57' 39.055 W	
1,616.0	23.00	245.70	1,566.1	-61.8	-263.0	13,881,354.81	1,364,473.98	38° 13' 24.462 N	81° 57' 39.189 W	
1,646.0	23.20	245.40	1,593.6	-66.7	-273.7	13,881,349.94	1,364,463.26	38° 13' 24.412 N	81° 57' 39.322 W	
1,676.0	22.30	244.30	1,621.3	-71.6	-284.2	13,881,345.01	1,364,452.76	38° 13' 24.362 N	81° 57' 39.453 W	
1,706.0	21.20	243.50	1,649.2	-76.5	-294.2	13,881,340.12	1,364,442.78	38° 13' 24.313 N	81° 57' 39.578 W	
1,736.0	20.70	242.80	1,677.2	-81.4	-303.8	13,881,335.28	1,364,433.21	38° 13' 24.264 N	81° 57' 39.697 W	
1,766.0	20.60	245.10	1,705.3	-86.0	-313.3	13,881,330.63	1,364,423.71	38° 13' 24.217 N	81° 57' 39.816 W	
1,796.0	20.80	246.50	1,733.3	-90.4	-323.0	13,881,326.28	1,364,414.03	38° 13' 24.173 N	81° 57' 39.936 W	
1,826.0	21.70	247.90	1,761.3	-94.6	-333.0	13,881,322.07	1,364,404.01	38° 13' 24.131 N	81° 57' 40.061 W	
1,856.0	22.40	250.60	1,789.1	-98.6	-343.5	13,881,318.09	1,364,393.48	38° 13' 24.090 N	81° 57' 40.193 W	
1,886.0	23.20	252.10	1,816.8	-102.3	-354.5	13,881,314.37	1,364,382.46	38° 13' 24.052 N	81° 57' 40.331 W	
1,916.0	24.10	255.10	1,844.2	-105.7	-366.1	13,881,310.98	1,364,370.92	38° 13' 24.018 N	81° 57' 40.475 W	
1,946.0	24.80	256.40	1,871.5	-108.7	-378.1	13,881,307.93	1,364,358.89	38° 13' 23.986 N	81° 57' 40.625 W	
1,976.0	23.80	254.50	1,898.9	-111.8	-390.1	13,881,304.83	1,364,346.94	38° 13' 23.954 N	81° 57' 40.775 W	
2,006.0	23.50	254.00	1,926.4	-115.1	-401.6	13,881,301.56	1,364,335.36	38° 13' 23.921 N	81° 57' 40.919 W	
2,036.0	23.30	253.30	1,953.9	-118.4	-413.1	13,881,298.21	1,364,323.92	38° 13' 23.886 N	81° 57' 41.062 W	
2,066.0	22.70	252.30	1,981.5	-121.9	-424.3	13,881,294.74	1,364,312.73	38° 13' 23.851 N	81° 57' 41.202 W	
2,096.0	22.00	251.20	2,009.3	-125.5	-435.1	13,881,291.17	1,364,301.89	38° 13' 23.815 N	81° 57' 41.337 W	
2,126.0	21.60	252.40	2,037.1	-129.0	-445.7	13,881,287.69	1,364,291.31	38° 13' 23.779 N	81° 57' 41.470 W	
2,216.0	21.30	254.00	2,120.9	-138.5	-477.2	13,881,278.18	1,364,259.81	38° 13' 23.682 N	81° 57' 41.863 W	
2,246.0	20.00	250.50	2,149.0	-141.7	-487.3	13,881,274.96	1,364,249.73	38° 13' 23.649 N	81° 57' 41.989 W	
2,276.0	18.90	249.80	2,177.2	-145.1	-496.7	13,881,271.57	1,364,240.33	38° 13' 23.615 N	81° 57' 42.106 W	
2,306.0	18.50	250.25	2,205.7	-148.4	-505.7	13,881,268.29	1,364,231.29	38° 13' 23.581 N	81° 57' 42.219 W	
2,336.0	18.00	251.60	2,234.2	-151.4	-514.6	13,881,265.22	1,364,222.42	38° 13' 23.550 N	81° 57' 42.330 W	
2,366.0	18.10	255.00	2,262.7	-154.1	-523.5	13,881,262.55	1,364,213.52	38° 13' 23.523 N	81° 57' 42.441 W	
2,396.0	19.20	255.10	2,291.1	-156.6	-532.8	13,881,260.07	1,364,204.25	38° 13' 23.497 N	81° 57' 42.557 W	
2,426.0	21.00	252.10	2,319.3	-159.5	-542.6	13,881,257.15	1,364,194.36	38° 13' 23.467 N	81° 57' 42.681 W	
2,456.0	21.80	250.90	2,347.2	-163.0	-553.0	13,881,253.68	1,364,183.99	38° 13' 23.432 N	81° 57' 42.810 W	
2,486.0	20.70	248.20	2,375.2	-166.8	-563.2	13,881,249.88	1,364,173.80	38° 13' 23.393 N	81° 57' 42.938 W	
2,516.0	19.90	247.50	2,403.3	-170.7	-572.8	13,881,245.96	1,364,164.16	38° 13' 23.353 N	81° 57' 43.058 W	
2,536.0	18.70	245.60	2,422.2	-173.3	-578.9	13,881,243.33	1,364,158.09	38° 13' 23.327 N	81° 57' 43.134 W	

43-03449

Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Austin Griffith #101
Project:	Lincoln County, West Virginia	TVD Reference:	Well @ 918.0usft (Decker #9)
Site:	Austin Griffith #101	MD Reference:	Well @ 918.0usft (Decker #9)
Well:	Austin Griffith #101	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
2,566.0	17.20	244.30	2,450.7	-177.2	-587.3	13,881,239.42	1,364,149.72	38° 13' 23.287 N	81° 57' 43.238 W
TD @ 2566' MD / 2451' TVD									

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 SURVEY @ 550' MD / 550' TVD	
2,566.0	2,450.7	-177.2	-587.3	TD @ 2566' MD / 2451' TVD	

Checked By: _____ Approved By: _____ Date: _____

Austin Griffith #101
 Lincoln County, West Virginia
 Q141007 & AM-140987
 Design #1

Company Name: HG Energy, LLC
 Austin Griffith #101
 Lincoln County, West Virginia
 Rig: Decker #9
 Created By: Jerry Arsenault
 Date: 10/17/2014

HG Energy

DESIGN TARGET DETAILS
 Name: Austin Griffith #101
 Target Austin Griffith #101
 - Plan file target center

TVD	+154	NSW	Northing	Easting	Latitude	Longitude
2345.0	-1744	453.078832228	154418.39	38° 13' 23.19" N	81° 57' 42.09" W	

WELL DETAILS: Austin griffin #101

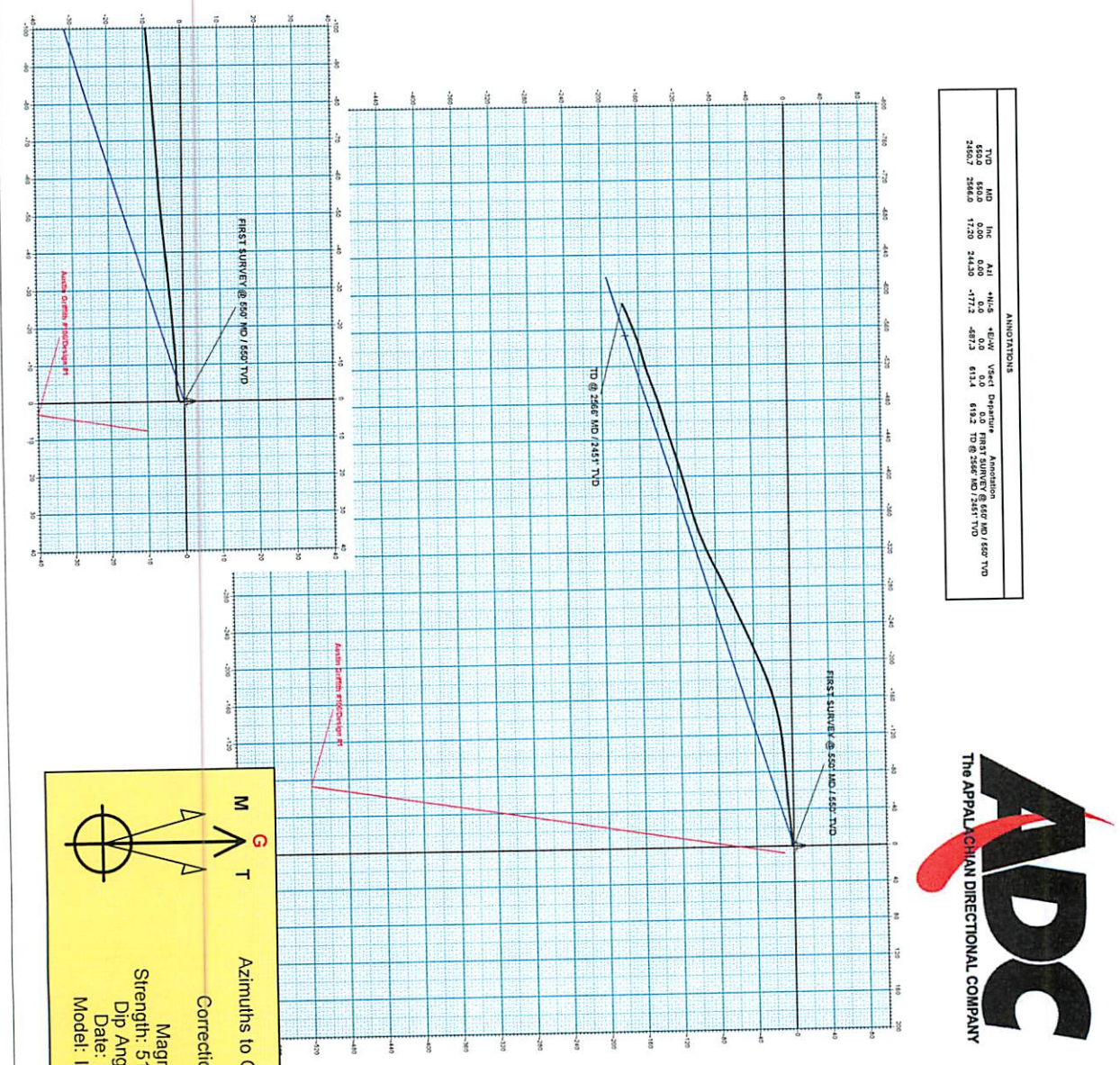
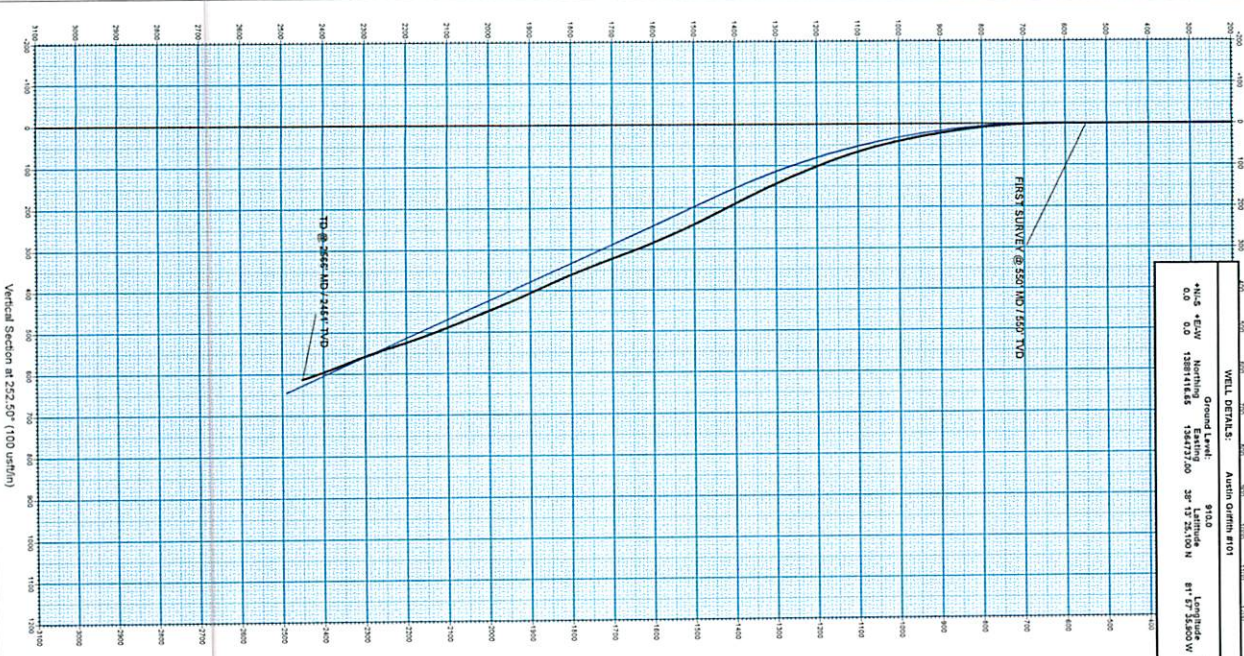
*NLS *Elev	Northing	*E1D	Latitude
0.0	1588714.5	28° 13' 23.100" N	81° 57' 45.500" W

ANNOTATIONS

TVD	MD	Inc	RAI	*NLS	*Elev	Vertical	Departure	Annotation
2502.7	2584.0	17.20	244.30	-177.2	-487.3	613.4	619.2	TD @ 2584 MD / 2502.7 TD



12/05/2014
 43.03449



Magnetic Field
 Strength: 51838.9nT
 Dip Angle: 66.09°
 Date: 9/17/2014
 Model: IGRF2010

Correction: -6.84°

Azimuths to Grid North