WR-35
Rev. 8/23/13

pm

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 015 - 02893 County Clay District Union
Quad Elkhurst Pad Name _____ Field/Pool Name Rouzer
Farm name Bettie Bell Well Number 8
Operator (as registered with the OOG) Rouzer Oil Company
Address P. O. Box 987 City Spencer State WV Zip 25276

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,256,025.739 Easting 482,812.665
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing N/A Easting N/A

Elevation (ft) 1056 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal □ Horizontal 6A ■ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas ■ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL ■ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole ■ Air □ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)

_____

_____

Date permit issued 9/5/2013 Date drilling commenced 5/22/2014 Date drilling ceased 5/27/2014
Date completion activities began 7/3/2014 Date completion activities ceased 7/11/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft Not determined Open mine(s) (Y/N) depths N
Salt water depth(s) ft Not determined Void(s) encountered (Y/N) depths N
Coal depth(s) ft 120, 250, & 335 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

_____

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API 47- 015 - 02893 Farm name Bettie Bell Well number 8

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor		13"	10'	New			
Surface	12.25"	9-5/8"	378'	New	26 lb.	None	Y
Coal							
Intermediate 1	8.75"	7"	1,480'	New	17 lb.	None	Y
Intermediate 2							
Intermediate 3							
Production	6.5"	4.5"	2,034'	New	10.5 lb.	None	
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Type 1	145	15.6	1.18	171.1	Surface	8
Coal							
Intermediate 1	Type 1	225	14.8	1.4	315	Surface	8
Intermediate 2							
Intermediate 3							
Production	50/50 Poz Cement	65	14.2	1.29	83.9	1,325'	
Tubing							

Drillers TD (ft) 2,060 Loggers TD (ft) 2,063 (2,021 after cementing 4.5" string)

Deepest formation penetrated Big Injun Sand Plug back to (ft)

Plug back procedure

Kick off depth (ft)

Check all wireline logs run ☐ caliper ☐ density ☐ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Centralizer placed at each bottom four collars of 4.5" string.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 015 - 02893 Farm name Bettie Bell Well number 8

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	7/3/2014	1930	1944	56	Big Injun Sand

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	7/7/14	16.2	1,557	1,049	1,397	83,600	850	N/A

Please insert additional pages as applicable.

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API 47- 015 - 02893 Farm name Bettie Bell Well number 8

PRODUCING FORMATION(S)	DEPTHS			
Big Injun Sand	1,900'	TVD	1,900'	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown ■ Open Flow OIL TEST ■ Flow □ Pump

SHUT-IN PRESSURE Surface 85 psi Bottom Hole _____ psi DURATION OF TEST 48 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	20 mcfpd	0 bpd	0 bpd	0 bpd	■ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
see attached pg.	0		0		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Precision Energy Services
Address 500 Winscott Road City Fort Worth State TX Zip 76126

Cementing Company Universal Well Services
Address 5 Hall Run Road City Buckhannon State WV Zip 26201

Stimulating Company Universal Well Services
Address 2489 Baumen Road City Wooster State OH Zip 44691

Please insert additional pages as applicable.

Completed by J. B. Hildreth Telephone 304.927.4574
Signature _____ Title President Date October 15, 2014

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Formation	Depth (ft.)
Shale & sand	0 – 30
Sand	30 – 120
Coal	120 – 125
Shale	125 – 140
Sand	140 – 160
Shale	160 – 170
Sand	170 – 175
Shale	175 – 180
Sand	180 – 250
Coal	250 – 260
Shale	260 – 275
Sand	275 – 335
Coal	335 – 340
Sand	340 – 380
Shale	380 – 650
Sand	650 – 680
Shale	680 – 740
Sand	740 – 800
Shale	800 – 1100
Salt Sand	1100 – 1434
Shale	1434 – 1474
Red rock	1474 – 1494
Shale	1494– 1640
Maxon Sand	1640 – 1695
Little Lime	1695 – 1760
Big Lime	1760 – 1870
Keener Sand	1870 – 1900
Big Injun Sand	1900 – 1950
Red Rock	1950 – 2060

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Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 10/15/2014
API #: 47-033-05189

Farm name: Denzil W. McIntire Operator Well No.: McIntire 2187H

LOCATION: Elevation: 1,339' Quadrangle: Shinnston

District: Clay County: Harrison
Latitude: 8,600' Feet South of 39 Deg. 27 Min. 30 Sec.
Longitude 2,630' Feet West of 80 Deg. 17 Min. 30 Sec.

Company: XTO Energy Inc.

Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	20"	60'	60'	CTS
Agent: Gary Beall	13 3/8"	307'	307'	578
Inspector: Tim Bennett	Well plugged	Class A	Cement 307'	To Surface
Date Permit Issued: 12/26/2008				
Date Well Work Commenced: 5/9/2010				
Date Well Work Completed: 5/17/2010				
Verbal Plugging: Yes				
Date Permission granted on: 5/17/2010				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 307'				
Total Measured Depth (ft): 307'				
Fresh Water Depth (ft.): NA				
Salt Water Depth (ft.): NA				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): NA				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation NA Pay zone depth (ft) NA
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow ---- MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure ---- psig (surface pressure) after ---- Hours

Second producing formation ---- Pay zone depth (ft) ----
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow ---- MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure ---- psig (surface pressure) after ---- Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Signature Date 10-17-14

33-05189

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes_____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list NA

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

NA

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered: Top Depth / Bottom Depth

Surface:

Fill/Shale/Sand/Limestone 0' - 307'

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JL

WR-35

API #: 47-033-05195

State of West Virginia
Division of Environmental Protection
Section of Oil & Gas

Well Operator's Report of Well Work

Farm Name: **W. Brent Maxwell hrs.** Well Name: **MAXWELL #17** B- **289**

LOCATION: Elevation: **1021** Quadrangle: **West Milford 7.5**

District: **Union** County: **Harrison**

Latitude: **5645** Feet South of D,M,S: **39, 15, 00** Exact Lat/Lon: **39.234511**

Longitude: **1120** Feet West of D,M,S: **80, 22, 30** **80.378527**

Company: **Bowie, Inc.**
RR 1, Box 559
Clarksburg, WV 26301

Agent: **Casey Bowie**

Inspector: **Tim Bennett**

Permit Issued: **1/28/2009**

Spud Date: **3/11/2009**

TD Date: **3/17/2009**

Frac Date: **3/26/2009**

Rig Type: ◉ Rotary ○ Cable

Verbal Plugging:

Total Depth: **4611**

Fresh Water Depth: **65', 140'**

Salt Water Depth: **2167'**

Casing & Tubing	Used in Drilling	Left in Well	Cement in ft^3
9 5/8"	36'	36'	---
7"	1002	1002	165sks
4 1/2"	--	4487	270sks

Mining?: **No** Coal Depth: **none reported**

Producing Formations:

Benson/Riley	4197-4367
Bradford	3588-3669
Balltown	3108-3201
Speechley	2917-2981

Rock Pressure (psi): **880** After: **12** Hrs.

	Gas (MCF/d)	Oil (Bbl/d)
Open Flow at TD:	**show**	**N/A**
Final Open Flow:	**481**	**N/A**

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Environmental Protection

By: Clare Bowie

Date: **3/23/2009**

API #: **47-033-05195** Bowie #: B- **289** **MAXWELL 17**

Fracture Record:

Benson/Riley	**4197-4367**	**20 HOLES, 500 GAL HCL, 200 SKS SAND, 240 BBL X-LINK GEL, N2**
Bradford	**3588-3669**	**25 HOLES, 500 GAL HCL, 200 SKS SAND, 240 BBL X-LINK GEL, N2**
Balltown	**3108-3201**	**19 HOLES, 500 GAL HCL, 200 SKS SAND, 225 BBL X-LINK GEL, N2**
Speechley	**2917-2981**	**18 HOLES, 500 GAL HCL, 250 SKS SAND, 250 BBL X-LINK GEL, N2**

FORMATION	COMMENT
Fill 0-25	**45-656 1/2" H20 @ 65', 1/2" H20 @ 140, 2140 -2180 oil + H20 Show @ 2167.**
Red Rock & Shale 25-45	
Sand & Shale 45-1310	
Big Lime 1310-1390	
Big Injun 1390-1480	
Shale 1480-1850	
50' Sand 1850-2010	
Sand & Shale 2010-2140	
Gordon Sand 2140-2180	
Shale 2180-2280	
5th Sand 2280-2300	
Shale 2300-2910	
Speechley 2910-2990	
Shale 2990-3640	
Bradford 3640-3670	
Shale 3670-4300	
Benson 4300-4390	
Shale 4390-4611 DTD	

JK

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API #: 47-033-05196

State of West Virginia
Division of Environmental Protection
Section of Oil & Gas

Well Operator's Report of Well Work

Farm Name: **W. Brent Maxwell Hrs** Well Name: **MAXWELL #19** B- **309**

LOCATION: Elevation: **1186** Quadrangle: **West Milford**

District: **Union** County: **Harrison**

Latitude: **5230** Feet South of D,M,S: **39, 15, 00** Exact Lat/Lon: **39.235675**

Longitude: **185** Feet West of D,M,S: **80, 22, 30** **80.375231**

Company: **Bowie, Inc.**
RR 1, Box 559
Clarksburg, WV 26301

Agent: **Casey C. Bowie**

Inspector: **Tim Bennett**

Permit Issued: **1/28/09**

Spud Date: **3/2/2009**

TD Date: **3/10/2009**

Frac Date: **3/17/2009**

Rig Type: ◉ Rotary ○ Cable

Verbal Plugging:

Total Depth: **4760**

Fresh Water Depth: **47**

Salt Water Depth: **2370**

Casing & Tubing	Used in Drilling	Left in Well	Cement in ft^3
9 5/8	42'	42'	--
7"	1184'	1184'	205 sks
4 1/2	--	4614	260 sks

Mining?: **No** Coal Depth: **None Reported**

Producing Formations:

Benson/Riley	4298-4523
Bradford	3782-3840
Balltown	3284-3377
Speechley	2941-3152

Rock Pressure (psi): **725** After: **22** Hrs.

	Gas (MCF/d)	Oil (Bbl/d)
Open Flow at TD:	**SHOW**	**odor**
Final Open Flow:	**200**	**N/A**

By: Clem Bowie

Date: 10-31-2014

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Environmental Protection

API #: **47-033-05196** Bowie #: B- **309** **MAXWELL 19**

Fracture Record:

Benson/Riley	**4298-4523**	**500 GAL 15% HCL, 175 SKS SAND, 280 BBL X-LINK GEL, N2 Assist**
Bradford	**3782-3840**	**500 GAL 15% HCL, 200 SKS SAND, 310 BBL X-LINK GEL, N2 Assist**
Balltown	**3284-3377**	**500 GAL 15% HCL, 200 SKS SAND, 280 BBL X-LINK GEL, N2 Assist**
Speechley	**2941-3152**	**500 GAL 15% HCL, 225 SKS SAND, 310 BBL X-LINK GEL, N2 Assist**

FORMATION	COMMENT
FILL & GOB, 0-34 **SAND & SHALE, 34-199** **RED ROCK, 199-282** **SAND & SHALE, 282-1428** **MAXTON SAND, 1428-1480** **SHALE & LIME, 1480-1520** **BIG LIME, 1520-1590** **BIG INJUN, 1590-1684** **SHALE & SAND, 1684-2482** **5TH SAND, 2482-2512** **SHALE, 2512-3180** **SPEECHLEY, 3180-3200** **SHALE, 3200-3350** **BALLTOWN, 3350-3400** **SHALE, 3400-3820** **BRADFORD, 3820-3840** **SHALE, 3840-4490** **BENSON, 4490-4550** **SHALE & SAND 4550-4760 DTD**	**34-199 1/4" OF H20 @47, 2358-2388 1 1/4" SALTWATER @ 2370, 2482-2512 GAS SHOW, 3180-3200 GAS SHOW, 3820-3840 GAS SHOW.**

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Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 043 - 03442 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name AUSTIN GRIFFITH Field/Pool Name GRIFFITHSVILLE
Farm name ALLEN, TERRY & DAWNA Well Number 206
Operator (as registered with the OOG) H.G. ENERGY LLC
Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,231,413 M Easting 416,075 M
Landing Point of Curve Northing ____ Easting ____
Bottom Hole Northing ____ Easting ____

Elevation (ft) 900' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal □ Horizontal 6A ■ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework □ Stimulate

Well Type □ Brine Disposal □ CBM □ Gas □ Oil ■ Secondary Recovery □ Solution Mining □ Storage □ Other ____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL ■ Oil □ Other ____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air □ Mud □ Fresh Water ■ Brine
Mud Type(s) and Additive(s)
N/A

Date permit issued 5/31/2013 Date drilling commenced 7/1/14 Date drilling ceased 7/10/14
Date completion activities began 7/11/14 Date completion activities ceased 8/6/14
Verbal plugging (Y/N) N Date permission granted ____ Granted by ____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft N/A Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1070', 1460' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 481'-486' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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API 47- 043 - 03442 Farm name ALLEN, TERRY & DAWNA Well number 206

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	592'	New	LS	84'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2505.75'	New	J-55		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 45 sks to surface on 7" surface cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	140	15.6	1.18	165	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	150	14.2	1.27	193	910'	8
Tubing							

Drillers TD (ft) 2550' Loggers TD (ft) 2550'
Deepest formation penetrated Berea Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) N/A

Check all wireline logs run ■ caliper ■ density ■ deviated/directional ■ induction
■ neutron ■ resistivity ■ gamma ray ■ temperature □ sonic

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes □ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
6 Centralizers every 84 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 043 - 03442 Farm name ALLEN, TERRY & DAWNA Well number 206

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	8/6/14	2378'	2390'	72	Berea

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	8/6/14	5	897	1046	704		42	12 bbls HCL

Please insert additional pages as applicable.

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API 47- 043 - 03442 Farm name ALLEN, TERRY & DAWNA Well number 206

PRODUCING FORMATION(S)	DEPTHS			
Berea	2378'- 2390'	TVD		MD

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Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown □ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY □ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
Sand/Shale	0	481	0		
Pittsburgh Coal	481	486			
Sand/Shale	486	1656			
Big Lime	1656	1854			
Big Injun	1854	1962			
Shale	1962	2354			
Coffee Shale	2354	2374			
Berea	2374	2492			
Shale	2492	2550			
TD	2550				

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International
Address 777 North River Avenue City Weston State WV Zip 26452

Cementing Company Universal Services
Address 5252 Rt 1428 City Allen State KY Zip 41601

Stimulating Company Producers Service Corp.
Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304-420-1107
Signature _____ Title Operations Manager Date 10/15/14

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

PE file A Griffith 206

Prepared for:

H G Energy LLC.

Rodger Heldman

PRODUCERS SERVICE CORP.

Prepared by:

Producers Service Corp

Chris Bryan

109 S. Graham St.

Zanesville, OH 43702

740-454-6253

INVOICE #: 16765

WELL NAME: A Griffith #206

STATE & COUNTY: Lincoln,WV

TOWNSHIP/FIELD: Griffithsville

DATE of SERVICE: 8/6/2014

CUSTOMER PO#

Description	Notes	Amount	Units	Unit Cost	Total Cost
ACID PUMP CHARGE 1000-2000 PSI		1	EA	$	
MILEAGE CHARGE PER UNIT ONE WAY	1 Unit @ 200 Miles Split 3 We	67	MI	$	
ACID DELIVERY		4	HR	$	
IC ACID 15%		500	GAL	$	
PRO HIB II		0.5	GAL	$	
PRO CLA FIRM LP		0.5	GAL	$	
PRO PEN		0.5	GAL	$	
PRO NE-1		0.5	GAL	$	
DATA VAN		1	STAGE	$	

T

Customer Approval: _____

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 043 - 03446 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name C.C. GRIFFITH Field/Pool Name GRIFFITHSVILLE
Farm name MCCLURE, ANDY J. & REBECCA Well Number 210
Operator (as registered with the OOG) H.G. ENERGY LLC
Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,230,885 M Easting 416,551 M
Landing Point of Curve Northing ____ Easting ____
Bottom Hole Northing ____ Easting ____

Elevation (ft) 890' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type ☒ Deviated □ Horizontal □ Horizontal 6A ■ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework □ Stimulate

Well Type □ Brine Disposal □ CBM □ Gas □ Oil ■ Secondary Recovery □ Solution Mining □ Storage □ Other ____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL ■ Oil □ Other ____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air □ Mud □ Fresh Water ■ Brine
Mud Type(s) and Additive(s)
N/A

Date permit issued 6/17/2013 Date drilling commenced 9/5/14 Date drilling ceased 9/11/14
Date completion activities began 9/18/14 Date completion activities ceased 10/1/14
Verbal plugging (Y/N) N Date permission granted ____ Granted by ____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 370' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 950', 1070' Void(s) encountered (Y/N) depths N
Coal depth(s) ft ? Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
____

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WR-35
Rev. 8/23/13

API 47- 043 - 03446 Farm name MCCLURE, ANDY J. & REBECCA Well number 210

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	549'	New	LS	84'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2623.95'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Circulated Est. 10 sks to surface on 4 1/2" cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	150	15.6	1.18	177	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	95/125	13.2/14.2	1.64/1.27	156/159	140'	8
Tubing							

Drillers TD (ft) 2660' Loggers TD (ft) 2663'
Deepest formation penetrated Berea Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 650'

Check all wireline logs run ■ caliper ■ density ■ deviated/directional ■ induction
■ neutron ■ resistivity ■ gamma ray ■ temperature □ sonic

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes □ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
6 Centralizers evory 84 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

WR-35
Rev. 8/23/13

API 47- 043 - 03446 Farm name MCCLURE, ANDY J. & REBECCA Well number 210

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	9/19/14	2626'	2638'	72	Berea

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	10/1/14	4.3	883	1616	719		40	12 bbls HCL

Please insert additional pages as applicable.

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API 47- 043 - 03446 Farm name MCCLURE, ANDY J. & REBECCA Well number 210

PRODUCING FORMATION(S)	DEPTHS			
Berea	???	TVD	2626'- 2638'	MD

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Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ☐ Open Flow OIL TEST ☐ Flow ☐ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY ☐ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
Sand/Shale	0	460	0	460	
Pittsburgh Coal	460	467	460	467	
Sand/Shale	467	1644	467	1680	
Big Lime	1644	1846	1680	1888	
Big Injun	1846	1940	1888	1988	
Shale	1940	2343	1988	2402	
Coffee Shale	2343	2363	2402	2422	
Berea	2363	2382	2422	2444	
Shale	2382	2597	2444	2660	
TD	2597		2660		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International
Address 777 North River Avenue City Weston State WV Zip 26452

Cementing Company Universal Services
Address 5252 Rt 1428 City Allen State KY Zip 41601

Stimulating Company Producers Service Corp.
Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304-420-1107
Signature [signature] Title Operations Manger Date 10/15/14

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

HG Energy, LLC

Lincoln County, West Virgina
CC Griffith #210
CC Griffith #210

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

15 October, 2014

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OCT 30 2014

The APPALACHIAN DIRECTIONAL COMPANY

DDC

Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Project Lincoln County, West Virgina

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 CC Griffith #210

Site Position:		**Northing:**	13,880,790.71 usft	**Latitude:**	38° 13' 19.100 N
From:	Lat/Long	**Easting:**	1,366,589.45 usft	**Longitude:**	81° 57' 12.600 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.59 °

Well CC Griffith #210

Well Position	**+N/-S**	0.0 usft	**Northing:**	13,880,790.69 usfi	**Latitude:**	38° 13' 19.100 N
	+E/-W	0.0 usft	**Easting:**	1,366,589.45 usfi	**Longitude:**	81° 57' 12.600 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usfi	**Ground Level:**	890.0 usfi

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	9/3/2014	-7.43	66.09	51,842

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** 9/15/2014

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
650.0	2,660.0	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	13,880,790.69	1,366,589.45	38° 13' 19.100 N	81° 57' 12.600 W
650.0	0.00	0.00	650.0	0.0	0.0	13,880,790.69	1,366,589.45	38° 13' 19.100 N	81° 57' 12.600 W
FIRST SURVEY @ 650' MD / 650' TVD									
685.0	1.40	194.40	685.0	-0.4	-0.1	13,880,790.28	1,366,589.35	38° 13' 19.096 N	81° 57' 12.601 W
715.0	1.60	212.00	715.0	-1.1	-0.4	13,880,789.57	1,366,589.03	38° 13' 19.089 N	81° 57' 12.605 W
745.0	2.70	235.30	745.0	-1.9	-1.2	13,880,788.81	1,366,588.23	38° 13' 19.081 N	81° 57' 12.615 W
775.0	4.30	241.30	774.9	-2.8	-2.8	13,880,787.87	1,366,586.66	38° 13' 19.072 N	81° 57' 12.635 W
805.0	5.50	249.30	804.8	-3.9	-5.1	13,880,786.82	1,366,584.33	38° 13' 19.061 N	81° 57' 12.664 W
835.0	6.70	253.90	834.6	-4.9	-8.1	13,880,785.83	1,366,581.30	38° 13' 19.051 N	81° 57' 12.701 W
865.0	7.50	255.00	864.4	-5.9	-11.7	13,880,784.84	1,366,577.73	38° 13' 19.041 N	81° 57' 12.746 W
895.0	9.10	257.60	894.1	-6.9	-15.9	13,880,783.82	1,366,573.52	38° 13' 19.030 N	81° 57' 12.799 W
925.0	10.00	257.70	923.7	-7.9	-20.8	13,880,782.76	1,366,568.66	38° 13' 19.019 N	81° 57' 12.860 W

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Survey Report - Geographic

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Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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
955.0	10.60	259.90	953.2	-9.0	-26.1	13,880,781.72	1,366,563.40	38° 13' 19.008 N	81° 57' 12.925 W
985.0	12.00	259.10	982.6	-10.1	-31.8	13,880,780.64	1,366,557.62	38° 13' 18.997 N	81° 57' 12.998 W
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	13,880,779.44	1,366,551.03	38° 13' 18.985 N	81° 57' 13.080 W
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	13,880,778.17	1,366,543.55	38° 13' 18.971 N	81° 57' 13.174 W
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	13,880,776.91	1,366,535.23	38° 13' 18.958 N	81° 57' 13.278 W
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	13,880,775.56	1,366,526.21	38° 13' 18.944 N	81° 57' 13.391 W
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	13,880,773.90	1,366,516.74	38° 13' 18.926 N	81° 57' 13.509 W
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	13,880,771.82	1,366,506.97	38° 13' 18.905 N	81° 57' 13.631 W
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	13,880,769.20	1,366,497.05	38° 13' 18.878 N	81° 57' 13.755 W
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	13,880,765.99	1,366,487.23	38° 13' 18.845 N	81° 57' 13.878 W
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	13,880,762.30	1,366,477.85	38° 13' 18.808 N	81° 57' 13.995 W
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	13,880,758.45	1,366,469.00	38° 13' 18.769 N	81° 57' 14.106 W
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	13,880,754.75	1,366,460.42	38° 13' 18.731 N	81° 57' 14.213 W
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	13,880,751.33	1,366,451.75	38° 13' 18.697 N	81° 57' 14.321 W
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	13,880,748.13	1,366,442.74	38° 13' 18.664 N	81° 57' 14.433 W
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	13,880,744.96	1,366,433.55	38° 13' 18.632 N	81° 57' 14.548 W
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	13,880,741.89	1,366,424.51	38° 13' 18.601 N	81° 57' 14.661 W
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	13,880,739.04	1,366,415.80	38° 13' 18.571 N	81° 57' 14.770 W
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	13,880,736.34	1,366,407.48	38° 13' 18.544 N	81° 57' 14.874 W
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	13,880,733.75	1,366,399.39	38° 13' 18.517 N	81° 57' 14.975 W
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	13,880,731.16	1,366,391.40	38° 13' 18.491 N	81° 57' 15.075 W
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	13,880,728.53	1,366,383.25	38° 13' 18.464 N	81° 57' 15.177 W
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	13,880,720.36	1,366,358.79	38° 13' 18.381 N	81° 57' 15.482 W
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	13,880,717.49	1,366,351.01	38° 13' 18.352 N	81° 57' 15.579 W
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	13,880,714.53	1,366,343.48	38° 13' 18.322 N	81° 57' 15.673 W
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	13,880,711.48	1,366,336.04	38° 13' 18.291 N	81° 57' 15.766 W
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	13,880,708.39	1,366,328.56	38° 13' 18.259 N	81° 57' 15.859 W
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	13,880,705.53	1,366,320.86	38° 13' 18.230 N	81° 57' 15.956 W
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	13,880,703.06	1,366,312.92	38° 13' 18.205 N	81° 57' 16.055 W
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	13,880,700.81	1,366,304.83	38° 13' 18.182 N	81° 57' 16.156 W
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	13,880,698.56	1,366,296.69	38° 13' 18.159 N	81° 57' 16.258 W
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	13,880,696.07	1,366,288.75	38° 13' 18.134 N	81° 57' 16.357 W
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	13,880,693.28	1,366,281.03	38° 13' 18.105 N	81° 57' 16.453 W
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	13,880,690.28	1,366,273.56	38° 13' 18.075 N	81° 57' 16.546 W
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	13,880,687.37	1,366,266.45	38° 13' 18.045 N	81° 57' 16.635 W
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	13,880,684.63	1,366,259.70	38° 13' 18.018 N	81° 57' 16.719 W
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	13,880,682.05	1,366,253.19	38° 13' 17.991 N	81° 57' 16.801 W
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	13,880,679.71	1,366,246.57	38° 13' 17.967 N	81° 57' 16.883 W
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	13,880,677.56	1,366,239.74	38° 13' 17.946 N	81° 57' 16.969 W
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	13,880,675.40	1,366,232.92	38° 13' 17.924 N	81° 57' 17.054 W
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	13,880,673.12	1,366,226.11	38° 13' 17.900 N	81° 57' 17.139 W
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	13,880,670.76	1,366,219.43	38° 13' 17.876 N	81° 57' 17.222 W
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	13,880,668.29	1,366,213.46	38° 13' 17.851 N	81° 57' 17.297 W
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	13,880,665.72	1,366,208.15	38° 13' 17.825 N	81° 57' 17.363 W
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	13,880,663.03	1,366,202.86	38° 13' 17.798 N	81° 57' 17.429 W
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	13,880,660.18	1,366,197.03	38° 13' 17.769 N	81° 57' 17.502 W
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	13,880,657.21	1,366,190.46	38° 13' 17.739 N	81° 57' 17.584 W
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	13,880,654.13	1,366,183.04	38° 13' 17.708 N	81° 57' 17.676 W
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	13,880,651.01	1,366,175.06	38° 13' 17.676 N	81° 57' 17.776 W
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	13,880,647.99	1,366,167.33	38° 13' 17.646 N	81° 57' 17.872 W
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	13,880,645.19	1,366,160.25	38° 13' 17.617 N	81° 57' 17.961 W
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	13,880,642.50	1,366,153.70	38° 13' 17.590 N	81° 57' 18.043 W
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	13,880,639.82	1,366,147.40	38° 13' 17.563 N	81° 57' 18.121 W
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	13,880,637.21	1,366,141.54	38° 13' 17.537 N	81° 57' 18.194 W

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Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	13,880,632.53	1,366,131.41	38° 13' 17.489 N	81° 57' 18.321 W
TD @ 2660' MD / 2594' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD

Checked By: _____ Approved By: _____ Date: _____

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OCT 30 2014

HG Energy, LLC

Lincoln County, West Virgina
CC Griffith #210
CC Griffith #210

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

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The APPALACHIAN DIRECTIONAL COMPANY

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Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Project Lincoln County, West Virgina

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia South 4702		

Site CC Griffith #210

Site Position:		**Northing:**	446,361.63 usft	**Latitude:**	38° 13' 19.100 N
From:	Lat/Long	**Easting:**	1,726,084.45 usft	**Longitude:**	81° 57' 12.600 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.59 °

Well CC Griffith #210

Well Position	**+N/-S**	0.0 usft	**Northing:**	446,361.62 usft	**Latitude:**	38° 13' 19.100 N
	+E/-W	0.0 usft	**Easting:**	1,726,084.45 usft	**Longitude:**	81° 57' 12.600 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	890.0 usft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	9/3/2014	-7.44	66.09	51,842

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** 9/15/2014

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
650.0	2,660.0	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	446,361.62	1,726,084.45	38° 13' 19.100 N	81° 57' 12.600 W
650.0	0.00	0.00	650.0	0.0	0.0	446,361.62	1,726,084.45	38° 13' 19.100 N	81° 57' 12.600 W
FIRST SURVEY @ 650' MD / 650' TVD									
685.0	1.40	194.40	685.0	-0.4	-0.1	446,361.20	1,726,084.34	38° 13' 19.096 N	81° 57' 12.601 W
715.0	1.60	212.00	715.0	-1.1	-0.4	446,360.49	1,726,084.03	38° 13' 19.089 N	81° 57' 12.605 W
745.0	2.70	235.30	745.0	-1.9	-1.2	446,359.74	1,726,083.23	38° 13' 19.081 N	81° 57' 12.615 W
775.0	4.30	241.30	774.9	-2.8	-2.8	446,358.79	1,726,081.66	38° 13' 19.072 N	81° 57' 12.635 W
805.0	5.50	249.30	804.8	-3.9	-5.1	446,357.74	1,726,079.33	38° 13' 19.061 N	81° 57' 12.664 W
835.0	6.70	253.90	834.6	-4.9	-8.1	446,356.75	1,726,076.30	38° 13' 19.051 N	81° 57' 12.701 W
865.0	7.50	255.00	864.4	-5.9	-11.7	446,355.76	1,726,072.73	38° 13' 19.041 N	81° 57' 12.746 W
895.0	9.10	257.60	894.1	-6.9	-15.9	446,354.74	1,726,068.52	38° 13' 19.030 N	81° 57' 12.799 W
925.0	10.00	257.70	923.7	-7.9	-20.8	446,353.68	1,726,063.66	38° 13' 19.019 N	81° 57' 12.860 W

Received
Office of Oil & Gas
OCT 30 2014

Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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
955.0	10.60	259.90	953.2	-9.0	-26.1	446,352.64	1,726,058.40	38° 13' 19.008 N	81° 57' 12.925 W
985.0	12.00	259.10	982.6	-10.1	-31.8	446,351.57	1,726,052.62	38° 13' 18.997 N	81° 57' 12.998 W
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	446,350.37	1,726,046.03	38° 13' 18.985 N	81° 57' 13.080 W
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	446,349.10	1,726,038.55	38° 13' 18.971 N	81° 57' 13.174 W
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	446,347.83	1,726,030.23	38° 13' 18.958 N	81° 57' 13.278 W
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	446,346.49	1,726,021.21	38° 13' 18.944 N	81° 57' 13.391 W
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	446,344.82	1,726,011.73	38° 13' 18.926 N	81° 57' 13.509 W
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	446,342.74	1,726,001.97	38° 13' 18.905 N	81° 57' 13.631 W
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	446,340.13	1,725,992.05	38° 13' 18.878 N	81° 57' 13.755 W
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	446,336.91	1,725,982.23	38° 13' 18.845 N	81° 57' 13.878 W
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	446,333.22	1,725,972.85	38° 13' 18.808 N	81° 57' 13.995 W
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	446,329.38	1,725,964.00	38° 13' 18.769 N	81° 57' 14.105 W
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	446,325.67	1,725,955.42	38° 13' 18.731 N	81° 57' 14.212 W
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	446,322.26	1,725,946.75	38° 13' 18.697 N	81° 57' 14.320 W
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	446,319.05	1,725,937.74	38° 13' 18.664 N	81° 57' 14.433 W
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	446,315.88	1,725,928.55	38° 13' 18.632 N	81° 57' 14.548 W
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	446,312.82	1,725,919.51	38° 13' 18.601 N	81° 57' 14.660 W
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	446,309.96	1,725,910.80	38° 13' 18.572 N	81° 57' 14.769 W
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	446,307.26	1,725,902.48	38° 13' 18.544 N	81° 57' 14.873 W
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	446,304.67	1,725,894.39	38° 13' 18.518 N	81° 57' 14.974 W
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	446,302.09	1,725,886.40	38° 13' 18.491 N	81° 57' 15.074 W
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	446,299.45	1,725,878.25	38° 13' 18.464 N	81° 57' 15.176 W
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	446,291.28	1,725,853.79	38° 13' 18.381 N	81° 57' 15.481 W
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	446,288.41	1,725,846.01	38° 13' 18.352 N	81° 57' 15.578 W
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	446,285.45	1,725,838.48	38° 13' 18.322 N	81° 57' 15.672 W
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	446,282.40	1,725,831.04	38° 13' 18.291 N	81° 57' 15.765 W
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	446,279.31	1,725,823.56	38° 13' 18.260 N	81° 57' 15.859 W
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	446,276.45	1,725,815.86	38° 13' 18.231 N	81° 57' 15.955 W
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	446,273.98	1,725,807.92	38° 13' 18.205 N	81° 57' 16.054 W
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	446,271.73	1,725,799.83	38° 13' 18.182 N	81° 57' 16.155 W
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	446,269.48	1,725,791.69	38° 13' 18.159 N	81° 57' 16.257 W
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	446,266.99	1,725,783.75	38° 13' 18.134 N	81° 57' 16.356 W
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	446,264.20	1,725,776.03	38° 13' 18.105 N	81° 57' 16.452 W
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	446,261.21	1,725,768.56	38° 13' 18.075 N	81° 57' 16.545 W
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	446,258.29	1,725,761.45	38° 13' 18.046 N	81° 57' 16.634 W
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	446,255.56	1,725,754.70	38° 13' 18.018 N	81° 57' 16.718 W
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	446,252.97	1,725,748.19	38° 13' 17.992 N	81° 57' 16.800 W
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	446,250.63	1,725,741.56	38° 13' 17.968 N	81° 57' 16.882 W
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	446,248.48	1,725,734.74	38° 13' 17.946 N	81° 57' 16.968 W
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	446,246.33	1,725,727.92	38° 13' 17.924 N	81° 57' 17.053 W
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	446,244.04	1,725,721.11	38° 13' 17.901 N	81° 57' 17.138 W
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	446,241.68	1,725,714.43	38° 13' 17.877 N	81° 57' 17.221 W
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	446,239.21	1,725,708.46	38° 13' 17.852 N	81° 57' 17.296 W
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	446,236.65	1,725,703.15	38° 13' 17.826 N	81° 57' 17.362 W
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	446,233.95	1,725,697.86	38° 13' 17.798 N	81° 57' 17.428 W
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	446,231.10	1,725,692.03	38° 13' 17.770 N	81° 57' 17.500 W
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	446,228.14	1,725,685.46	38° 13' 17.740 N	81° 57' 17.582 W
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	446,225.05	1,725,678.04	38° 13' 17.708 N	81° 57' 17.675 W
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	446,221.93	1,725,670.06	38° 13' 17.677 N	81° 57' 17.775 W
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	446,218.92	1,725,662.33	38° 13' 17.646 N	81° 57' 17.871 W
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	446,216.11	1,725,655.25	38° 13' 17.618 N	81° 57' 17.959 W
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	446,213.42	1,725,648.70	38° 13' 17.590 N	81° 57' 18.041 W
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	446,210.74	1,725,642.40	38° 13' 17.563 N	81° 57' 18.120 W
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	446,208.13	1,725,636.54	38° 13' 17.537 N	81° 57' 18.193 W

Received
Office of Oil & Gas
OCT 30 2014

Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	446,203.45	1,725,626.41	38° 13' 17.490 N	81° 57' 18.319 W
TD @ 2660' MD / 2594' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
650.0	650.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD

Checked By: _____ Approved By: _____ Date: _____

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HG Energy, LLC

Lincoln County, West Virgina
CC Griffith #210
CC Griffith #210

Wellbore #1

Design: Wellbore #1

DDC Survey Report

15 September, 2014

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Office of Oil & Gas
OCT 30 2014

ADC
The APPALACHIAN DIRECTIONAL COMPANY

Survey Report

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Project Lincoln County, West Virgina

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia South 4702		

Site CC Griffith #210

Site Position:		**Northing:**	446,361.63 usft	**Latitude:**	38° 13' 19.100 N
From:	Lat/Long	**Easting:**	1,726,084.45 usft	**Longitude:**	81° 57' 12.600 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.59 °

Well CC Griffith #210

Well Position	**+N/-S**	0.0 usft	**Northing:**	446,361.62 usft	**Latitude:**	38° 13' 19.100 N
	+E/-W	0.0 usft	**Easting:**	1,726,084.45 usft	**Longitude:**	81° 57' 12.600 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	890.0 usft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	9/3/2014	-7.44	66.09	51,842

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** 9/15/2014

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
650.0	2,660.0	MWD (Wellbore #1)	MWD default	MWD - Standard

Survey

Measured Depth (usft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Vertical Section (usft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
FIRST SURVEY @ 650' MD / 650' TVD									
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
685.0	1.40	194.40	685.0	-0.4	-0.1	0.2	4.00	4.00	0.00
715.0	1.60	212.00	715.0	-1.1	-0.4	0.7	1.67	0.67	58.67
745.0	2.70	235.30	745.0	-1.9	-1.2	1.7	4.61	3.67	77.67
775.0	4.30	241.30	774.9	-2.8	-2.8	3.5	5.46	5.33	20.00
805.0	5.50	249.30	804.8	-3.9	-5.1	6.0	4.59	4.00	26.67
835.0	6.70	253.90	834.6	-4.9	-8.1	9.2	4.32	4.00	15.33
865.0	7.50	255.00	864.4	-5.9	-11.7	12.9	2.70	2.67	3.67
895.0	9.10	257.60	894.1	-6.9	-15.9	17.3	5.48	5.33	8.67

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OCT 30 2014

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
925.0	10.00	257.70	923.7	-7.9	-20.8	22.2	3.00	3.00	0.33
955.0	10.60	259.90	953.2	-9.0	-26.1	27.5	2.39	2.00	7.33
985.0	12.00	259.10	982.6	-10.1	-31.8	33.4	4.70	4.67	-2.67
1,015.0	13.80	260.20	1,011.8	-11.3	-38.4	40.0	6.06	6.00	3.67
1,045.0	15.50	260.50	1,040.9	-12.5	-45.9	47.5	5.67	5.67	1.00
1,075.0	17.10	262.10	1,069.7	-13.8	-54.2	55.9	5.54	5.33	5.33
1,105.0	18.30	261.00	1,098.2	-15.1	-63.2	64.9	4.15	4.00	-3.67
1,135.0	19.10	259.10	1,126.7	-16.8	-72.7	74.4	3.35	2.67	-6.33
1,165.0	19.80	256.90	1,154.9	-18.9	-82.5	84.3	3.38	2.33	-7.33
1,195.0	20.20	253.60	1,183.1	-21.5	-92.4	94.6	3.99	1.33	-11.00
1,225.0	20.10	250.10	1,211.3	-24.7	-102.2	104.9	4.03	-0.33	-11.67
1,255.0	19.20	246.90	1,239.6	-28.4	-111.6	115.0	4.68	-3.00	-10.67
1,285.0	18.30	246.10	1,268.0	-32.2	-120.4	124.6	3.12	-3.00	-2.67
1,315.0	18.00	247.20	1,296.5	-35.9	-129.0	133.9	1.52	-1.00	3.67
1,345.0	18.20	249.80	1,325.0	-39.4	-137.7	143.2	2.77	0.67	8.67
1,375.0	19.00	251.00	1,353.4	-42.6	-146.7	152.7	2.96	2.67	4.00
1,405.0	18.80	250.90	1,381.8	-45.7	-155.9	162.4	0.68	-0.67	-0.33
1,435.0	18.30	251.70	1,410.2	-48.8	-164.9	172.0	1.87	-1.67	2.67
1,465.0	17.30	252.00	1,438.8	-51.7	-173.7	181.1	3.35	-3.33	1.00
1,495.0	16.60	252.10	1,467.5	-54.4	-182.0	189.9	2.34	-2.33	0.33
1,525.0	16.30	252.40	1,496.3	-56.9	-190.1	198.4	1.04	-1.00	1.00
1,555.0	16.20	251.70	1,525.1	-59.5	-198.0	206.8	0.73	-0.33	-2.33
1,585.0	17.00	252.50	1,553.8	-62.2	-206.2	215.4	2.77	2.67	2.67
1,675.0	16.30	250.50	1,640.1	-70.3	-230.7	241.1	1.01	-0.78	-2.22
1,705.0	15.80	249.00	1,668.9	-73.2	-238.4	249.4	2.17	-1.67	-5.00
1,735.0	15.50	248.00	1,697.8	-76.2	-246.0	257.5	1.34	-1.00	-3.33
1,765.0	15.60	247.50	1,726.7	-79.2	-253.4	265.5	0.56	0.33	-1.67
1,795.0	15.70	247.60	1,755.6	-82.3	-260.9	273.6	0.35	0.33	0.33
1,825.0	16.10	251.60	1,784.4	-85.2	-268.6	281.8	3.89	1.33	13.33
1,855.0	16.10	253.80	1,813.2	-87.6	-276.5	290.1	2.03	0.00	7.33
1,885.0	16.40	255.10	1,842.0	-89.9	-284.6	298.5	1.57	1.00	4.33
1,915.0	16.30	254.00	1,870.8	-92.1	-292.8	306.9	1.08	-0.33	-3.67
1,945.0	15.90	251.20	1,899.6	-94.6	-300.7	315.2	2.91	-1.33	-9.33
1,975.0	15.90	249.00	1,928.5	-97.4	-308.4	323.4	2.01	0.00	-7.33
2,005.0	15.20	247.30	1,957.4	-100.4	-315.9	331.5	2.78	-2.33	-5.67
2,035.0	14.50	248.20	1,986.4	-103.3	-323.0	339.1	2.46	-2.33	3.00
2,065.0	13.60	247.60	2,015.5	-106.1	-329.8	346.4	3.04	-3.00	-2.00
2,095.0	13.40	249.10	2,044.7	-108.6	-336.3	353.4	1.34	-0.67	5.00
2,125.0	13.70	251.90	2,073.8	-111.0	-342.9	360.4	2.40	1.00	9.33
2,155.0	13.90	253.20	2,103.0	-113.1	-349.7	367.5	1.23	0.67	4.33
2,185.0	13.70	251.70	2,132.1	-115.3	-356.5	374.7	1.37	-0.67	-5.00
2,215.0	14.00	251.20	2,161.2	-117.6	-363.3	381.9	1.08	1.00	-1.67
2,245.0	13.30	249.80	2,190.4	-119.9	-370.0	389.0	2.58	-2.33	-4.67

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Survey Report

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well CC Griffith #210
Project:	Lincoln County, West Virgina	**TVD Reference:**	Well @ 898.0usft (Decker #9)
Site:	CC Griffith #210	**MD Reference:**	Well @ 898.0usft (Decker #9)
Well:	CC Griffith #210	**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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,275.0	11.60	245.00	2,219.7	-122.4	-376.0	395.4	6.63	-5.67	-16.00
2,305.0	11.10	243.40	2,249.1	-125.0	-381.3	401.2	1.97	-1.67	-5.33
2,335.0	11.70	242.60	2,278.5	-127.7	-386.6	407.1	2.07	2.00	-2.67
2,365.0	13.30	245.20	2,307.8	-130.5	-392.4	413.5	5.65	5.33	8.67
2,395.0	14.50	246.10	2,336.9	-133.5	-399.0	420.7	4.06	4.00	3.00
2,425.0	16.60	248.60	2,365.8	-136.6	-406.4	428.7	7.35	7.00	8.33
2,455.0	16.60	248.70	2,394.6	-139.7	-414.4	437.2	0.10	0.00	0.33
2,485.0	15.50	248.70	2,423.4	-142.7	-422.1	445.5	3.67	-3.67	0.00
2,515.0	13.90	248.00	2,452.4	-145.5	-429.2	453.1	5.37	-5.33	-2.33
2,545.0	13.40	247.30	2,481.6	-148.2	-435.7	460.1	1.76	-1.67	-2.33
2,575.0	13.00	246.70	2,510.8	-150.9	-442.1	467.0	1.41	-1.33	-2.00
2,605.0	11.70	245.20	2,540.1	-153.5	-447.9	473.3	4.46	-4.33	-5.00
TD @ 2660' MD / 2594' TVD									
2,660.0	11.70	245.20	2,593.9	-158.2	-458.0	484.4	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
650.0	650.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD
2,660.0	2,593.9	-158.2	-458.0	TD @ 2660' MD / 2594' TVD

Checked By: _____ Approved By: _____ Date: _____

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CC Griffith #210 Lincoln County, West Virgina Q140944 & AM-140903 Design #1	Company Name: HG Energy, LLC CC Griffith #210 Lincoln County, West Virgina Rig: Decker #9 Created By: Jerry Arsenault Date: 9/15/2014	PROJECT DETAILS: Lincoln County, West Virgina Geodetic System: US State Plane 1927 (Exact solution) Datum: NAD 1927 (NADCON CONUS) Ellipsoid: Clarke 1866 Zone: West Virginia South 4702 System Datum: Mean Sea Level

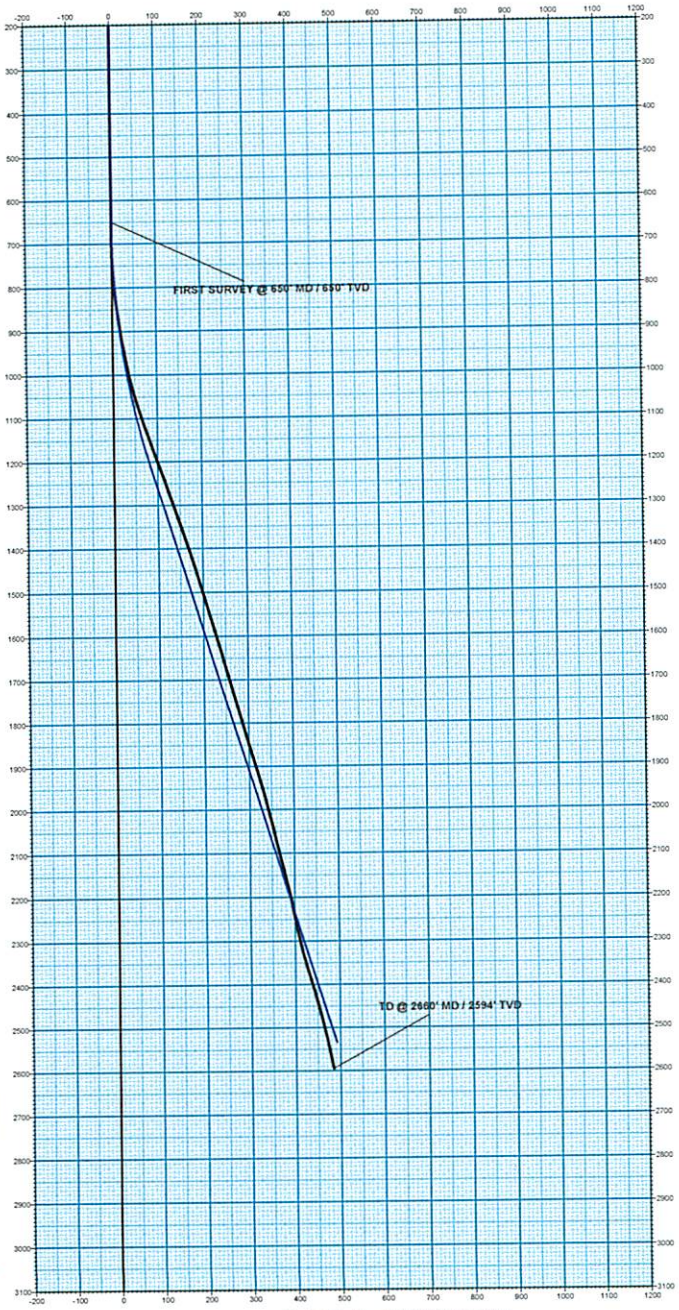
The APPALACHIAN DIRECTIONAL COMPANY

HG Energy

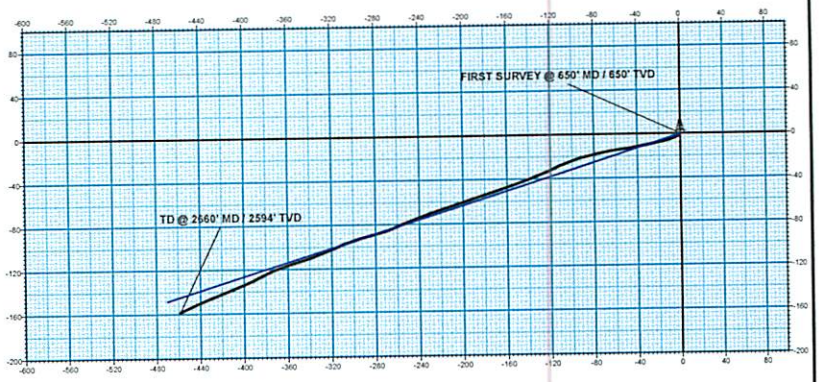
Azimuths to Grid North

Correction: -6.85°

Magnetic Field
Strength: 51842.3snT
Dip Angle: 66.09°
Date: 9/3/2014
Model: IGRF2010



Vertical Section at 252.50° (100 usft/in)



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WELL DETAILS: CC Griffith #210

+N/-S	+E/-W	Ground Level: 890.0 Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	446361.62	1726084.45	38° 13' 19.100 N	81° 57' 12.500 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Target CC Griffith #210 - plan hits target center	2380.0	-133.8	-424.4	446227.81	1725660.05	38° 13' 17.734 N	81° 57' 17.901 W

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
650.0	650.0	0.00	0.00	0.0	0.0	0.0	0.0	FIRST SURVEY @ 650' MD / 650' TVD
2593.9	2660.0	11.70	245.20	-158.2	-458.0	484.4	486.7	TD @ 2660' MD / 2594' TVD

Prepared for:
HG Energy
Dustin Hendershot
304 481 7342

PRODUCERS SERVICE CORP.

Prepared by:
Producers Service Corp
Chris Bryan
109 S. Graham St.
Zanesville, OH 43702
740-454-6253

INVOICE #:	16799
WELL NAME:	CC Griffith #210
STATE & COUNTY:	Lincoln,WV
TOWNSHIP/FIELD:	Griffthsville
DATE of SERVICE:	10/1/2014
CUSTOMER PO#	

Description	Notes	Amount	Units	Unit Cost	Total Cost
ACID PUMP CHARGE 1000-2000 PSI		1	EA	$	
MILEAGE CHARGE PER UNIT ONE WAY	1 Unit @ 50 Miles	50	MI	$	
IC ACID 15%		500	GAL	$	
ACID DELIVERY		2	HR	$	
PRO HIB II		0.5	GAL	$	
PRO CLA FIRM LP		0.5	GAL	$	
PRO NE-1		0.5	GAL	$	
PRO PEN		1	GAL	$	
DATA VAN		1	STAGE	$	
				T(	

Customer Approval: _____

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