

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

API 47-043-03595 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name HILL, OLIVER Field/Pool Name GRIFFITHSVILLE
Farm name D. ARTHUR RAYBOURN Well Number 510
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 4,232,949 M Easting 416,572 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 984' 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

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Date permit issued 3/22/19 Date drilling commenced 6/6/19 Date drilling ceased 6/11/19
Date completion activities began 6/25/19 Date completion activities ceased 6/27/19
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 None Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1160' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 285, 425', 530' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

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Reviewed by:
J.S.

Reviewed
WV Department of
Environmental Protection
[Signature]

API 47-043 - 03595

Farm name D. ARTHUR RAYBOURN

Well number 510

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	15"	13 3/8"	15'	New	LS		Sand In
Surface	8 7/8"	7"	609.9	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2601.8'	New	LS		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est.50 sks to surface on 7" surface cement job. Did not circulate cement 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	155	15.6	1.18	183	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	100/125	13.2/14.2	1.64/1.27	164/186	1150'	8
Tubing							

Drillers TD (ft) 2640'

Loggers TD (ft) 2640'

Deepest formation penetrated Berea

Plug back to (ft) N/A

Plug back procedure N/A

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Kick off depth (ft) N/A

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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

12 Centralizers every 88 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 _____

API 47-043 - 03595 Farm name D. ARTHUR RAYBOURN Well number 510

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	6/25/19	2454'	2468'	56	Berea
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Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

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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	6/27/19	4	1117	1700	1050	1,000	143	

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS
Berea	2450'- 2472' TVD _____ MD _____
_____	_____
_____	_____
_____	_____

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
 Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME 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 ₂ S, ETC)
Sand/Shale	0	530	0		
Pittsburgh Coal	530	536			
Sand/Shale	536	1732			
Big Lime	1732	1938			
Big Injun	1938	2040			
Shale	2040	2430			
Coffee Shale	2430	2450			
Berea	2450	2472			
Shale	2472	2640			
TD	2640				
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Please insert additional pages as applicable.

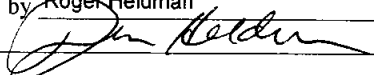
Drilling Contractor Noah Horn Well Drilling
 Address 1070 Sandy Valley Lane City Vansant State VA Zip 24656

Logging Company Weatherford International
 Address 13211 Old Hwy 50 City Flora State IL Zip 62839

Cementing Company Boss Services
 Address 108 N Linn St City Olney State IL Zip 62450

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 6/28/19