

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

API 47 - 043 - 03579 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name FOWLER, THOMAS Field/Pool Name GRIFFITHSVILLE
Farm name MCCLURE, ANDY & REBECCA Well Number 504
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 4,231,726 M Easting 416,504 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,231,729 M Easting 416,731 M

Elevation (ft) 1,003' 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 2/13/18 Date drilling commenced 6/28/18 Date drilling ceased 7/2/18
Date completion activities began 7/10/18 Date completion activities ceased 7/11/18
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 1150' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 489'- 495' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

Reviewed
Duffy Smith 8-13-18

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Reviewed by:
JS

API 47-043 - 03579 Farm name MCCLURE, ANDY & REBECCA Well number 504

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"	34'	New	LS		Sand In
Surface	8 3/4"	7"	550.15'	New	LS	42'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2745.37'	New	J-55		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Did not circulate 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	140	15.6	1.18	165	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	140/125	13.2/14.2	1.64/1.27	230/186	1,050'	8
Tubing							

Drillers TD (ft) 2824' Loggers TD (ft) 2817'
 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 _____

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 _____

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PRODUCING FORMATION(S)	DEPTHS	
Berea	2474'- 2494'	TVD 2636'- 2660' 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 GAS MEASURED BY 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	489	0	489	
Pittsburgh Coal	489	495	489	495	
Sand/Shale	495	1756	495	1832	
Big Lime	1756	1978	1832	2082	
Big Injun	1978	2062	2082	2178	
Shale	2062	2454	2178	2614	
Coffee Shale	2454	2474	2614	2636	
Berea	2474	2494	2636	2660	Drilled directional N 89.3° E a distance of 744'
Shale	2494	2645	2660	2824	
TD	2645		2824		

Please insert additional pages as applicable.

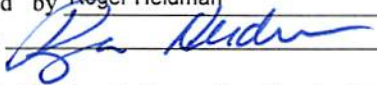
Drilling Contractor Noah Horn Well Drilling
Address 1070 Sandy Valley Lane City Vansant State VA Zip 24656

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

Cementing Company Petroset Services
Address P.O. Box 1076 City Wooster State OH Zip 44691

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 7/19/18

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

JUL 23 2018



Producers Service Corporation
109 South Graham Street
Zanesville, OH 43701
(740) 454-6253
www.producersservicecorp.com

Frac HG

Company Rep: Dustin Hendershot
Treater: DANIEL L Graham
7/11/2018
Well: Thomas Folwer #504
Lincoln County, WV

Casing

OD: 4.5"
ID: N/A
Weight: 10.5 lb.
TD: 2720 ft.

OD: N/A
Weight: N/A
From: N/A
To: N/A

Tubing

Size: N/A
Depth: N/A

Packers

Upper Make: N/A
Upper Depth: N/A
Lower Make: N/A
Lower Depth: N/A

Pressures

PSI Test: 3792 psi
Breakdown: 1375 psi
Max: 722 psi
Average: 704 psi
Displacement: 715 psi

Volumes:

Pad 25 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 146 BBL
Flush: 40 BBL

Open Hole

Size: N/A
From: N/A
To: N/A

Perforations

of Shots: 48
Top Perf: 2640 ft.
Bottom Perf: 2652 ft.

Rates

Average: 4 bbl/min
Max: 4 bbl/min

Notes:

Invoice #: 21314



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HG Thomas Folwer #504

Timestamp	Annotation	Pressure 1	Rate	Stage Total (bbf)	Grand Total (bbf)
7/11/2018 12:47:51 PM	load hole	-26.02	7.54	21.26	21.26
7/11/2018 12:51:50 PM	Pressure Test	3789.02	0.00	0.00	0.00
7/11/2018 12:53:51 PM	Break	823.84	0.00	1.15	1.15
7/11/2018 12:54:29 PM	Begin pad	758.11	2.92	1.71	1.71
7/11/2018 1:00:22 PM	Sand #.25	695.89	3.99	25.04	25.04
7/11/2018 1:03:07 PM	Sand #.5	698.88	3.99	9.73	35.98
7/11/2018 1:06:42 PM	Sand #.75	707.95	4.01	13.44	50.28
7/11/2018 1:11:38 PM	Flush	712.15	3.88	19.36	69.71
7/11/2018 1:21:58 PM	ISIP	678.92	0.00	39.40	109.17
7/11/2018 1:26:29 PM	5 Min	605.08	0.00	39.40	109.17
7/11/2018 1:31:34 PM	10 Min	552.65	0.00	39.40	109.17
7/11/2018 1:36:42 PM	15 Min	506.12	0.00	39.40	109.17

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PRODIRECTIONAL



**Thomas Fowler 504
Lincoln County, WV
Noah Horn 294 Rig**

July 5, 2018

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Survey Certification Report



Survey Certification Letter

July 5, 2018

HG Energy

Operator Name: HG Energy
Well Name: Thomas Fowler 504
County/Parish: Lincoln County
State: WV
Rig Name: Noah Horn 294
Job Number: LWW3107017

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	600'MD – 2,760'MD	2,824'MD	06/29/18 – 07/1/18	MWD-OWSG

Sincerely,

John Jordan
Well Planning Analyst
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com