

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

API 47 - 043 - 03586 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, E.J. Field/Pool Name GRIFFITHSVILLE
Farm name COOPER, JOHN AND TAMMIE ET AL Well Number 150
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 4,232,693 M Easting 416,089 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,232,919 M Easting 416,141 M

Elevation (ft) 804' 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 8/21/18 Date drilling commenced 8/31/18 Date drilling ceased 9/8/18
Date completion activities began 9/18/18 Date completion activities ceased 9/19/19
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 225' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1010' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 378'- 384' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

Reviewed by:

Reviewed JS
Jeffrey Smith 11-19-18

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API 47-043 - 03586 Farm name COOPER, JOHN AND TAMMIE ET Well number 150

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"	8'	New	LS		Sand In
Surface	8 3/4"	7"	465.47'	New	LS	42'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2648.62'	New	LS		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Circulated Est. 30 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	115	15.6	1.18	136	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	120/125	13.2/14.2	1.64/1.27	197/186	75'	8
Tubing							

Drillers TD (ft) 2677 Loggers TD (ft) 2674
 Deepest formation penetrated Berea Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 600

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 68 from bottom on 4 1/2", Centralizer placed mid string on 7", Basket @ 42' 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	2289'- 2312'	2475'- 2500'
	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
 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	378	0	378	
Pittsburgh Coal	378	384	378	384	
Sand/Shale	384	1570	384	1638	
Big Lime	1570	1770	1638	1883	
Big Injun	1770	1880	1883	2002	
Shale	1880	2269	2002	2452	
Coffee Shale	2269	2289	2452	2475	
Berea	2289	2312	2475	2500	Drilled directional N 12.95° E a distance of 760'
Shale	2312	2462	2500	2677	
TD	2462		2677		

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 C & J Energy Services
 Address 580 Hawthorn Dr City Norton State VA Zip 24273

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 *Roger Heldman* Title Operations Manager Date 9/20/18

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12/28/2018



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

Frac HG Energy

Company Rep: Dustin Hendershot
Treater: Daniel L Graham
9/19/2018
Well: E J May#150
Lincoln County, OH

Casing

OD: 4.5"
ID: N/A
Weight: 10.5 lb.
TD: 2677 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: 3224 psi
Breakdown: 2230 psi
Max: 1400 psi
Average: 1275 psi
Displacement: 1320 psi

Volumes:

Pad 25 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 143 BBL
Flush: 36 BBL

Open Hole

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

Perforations

of Shots: N/A
Top Perf: N/A
Bottom Perf: N/A

Rates

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

Notes:

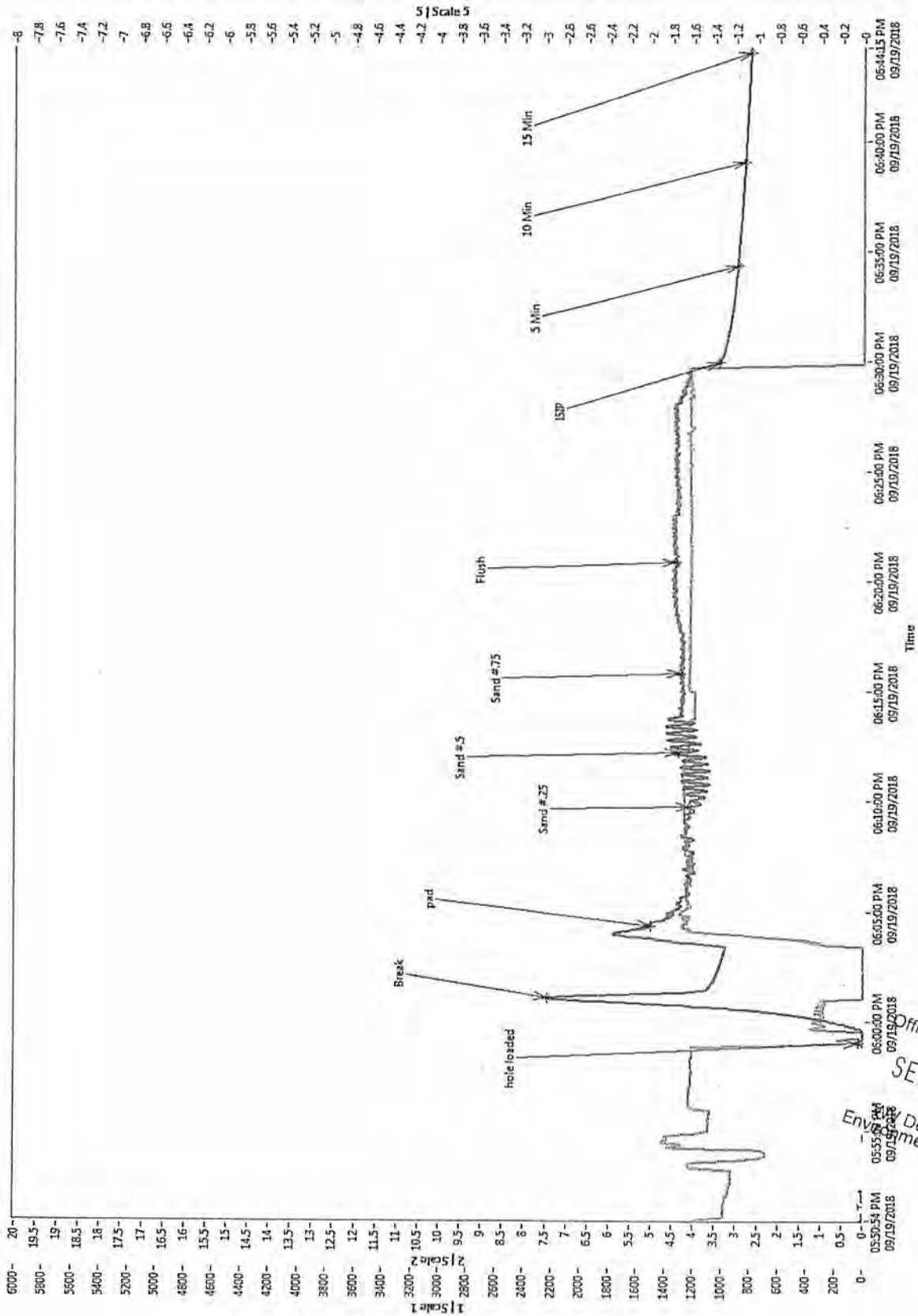
Invoice #: 21903



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HG Energy EJ May#160 Inv#21903

- 1 | Pressure 1
- 2 | Rate*
- 5 | Blender PPA



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Timestamp	Annotation	Pressure 1	Rate	Stage Total (bb)	Grand Total (bb)
9/19/2018 5:50:54 PM	Pressure Test	-13.88	3.93	3.30	3.30
9/19/2018 5:59:00 PM	hole loaded	33.63	0.41	32.84	32.64
9/19/2018 6:01:17 PM	Break	1578.70	0.00	0.49	0.49
9/19/2018 6:04:21 PM	pad	1507.04	4.12	3.02	3.02
9/19/2018 6:09:45 PM	Sand #.25	1230.14	4.21	25.51	25.51
9/19/2018 6:12:14 PM	Sand #.5	1307.03	4.12	10.40	35.97
9/19/2018 6:15:48 PM	Sand #.75	1295.22	4.11	14.32	50.43
9/19/2018 6:20:51 PM	Flush	1328.29	4.07	20.31	71.01
9/19/2018 6:29:56 PM	ISIP	1026.14	0.00	35.83	107.18
9/19/2018 6:34:18 PM	5 Min	892.04	0.00	35.83	107.18
9/19/2018 6:39:04 PM	10 Min	839.83	0.00	35.83	107.18
9/19/2018 6:44:02 PM	15 Min	801.16	0.00	35.83	107.18



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