

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

API 47-043-03589 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, E.J. Field/Pool Name GRIFFITHSVILLE
Farm name JUDY R. SMITH Well Number 147
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 4,232,516 M Easting 415,5516 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,232,766 M Easting 415,519 M

Elevation (ft) 840' 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 11/27/18 Date drilling commenced 5/15/19 Date drilling ceased 5/24/19
Date completion activities began 6/11/19 Date completion activities ceased 6/13/19
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 125' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1080', 1130' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 315', 385' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

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Reviewed by:
Jeff Smith

Reviewed

API 47-043 - 03589 Farm name JUDY R. SMITH Well number 147

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"	25'	New	LS		Sand In
Surface	8 7/8"	7"	462.7'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2678.43'	New	LS		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 17 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	120	15.6	1.18	141.6	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	115/125	13.2/14.2	1.64/1.27	189/186	310'	8
Tubing							

Drillers TD (ft) 2726' Loggers TD (ft) 2706'

Deepest formation penetrated Berea Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 550'

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 _____

20 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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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Berea	2324'- 2346'	TVD 2536'- 2562' 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	385	0	385	
Pittsburgh Coal	385	391	385	391	
Sand/Shale	391	1610	391	1680	
Big Lime	1610	1806	1680	1918	
Big Injun	1806	1918	1918	2058	
Shale	1918	2304	2058	2514	
Coffee Shale	2304	2324	2514	2536	
Berea	2324	2346	2536	2562	Drilled directional N .7° E a distance of 820'
Shale	2346	2492	2562	2726	
TD	2492		2726		

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 6/14/19

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

Frac HG Energy

Company Rep: Roger
Treater: Daniel L Graham
6/13/2019
Well: E J May #147
Lincoln County, WV

Casing

OD: 4.5"
ID: N/A
Weight: 13.6 lb.
TD: 2726 ft.

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: 4336 psi
Breakdown: 2310 psi
Max: 1704 psi
Average: 1144 psi
Displacement: 1219 psi

Volumes:

Pad 5 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 110 BBL
Flush: 37 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 #: 22212
10 Sacks

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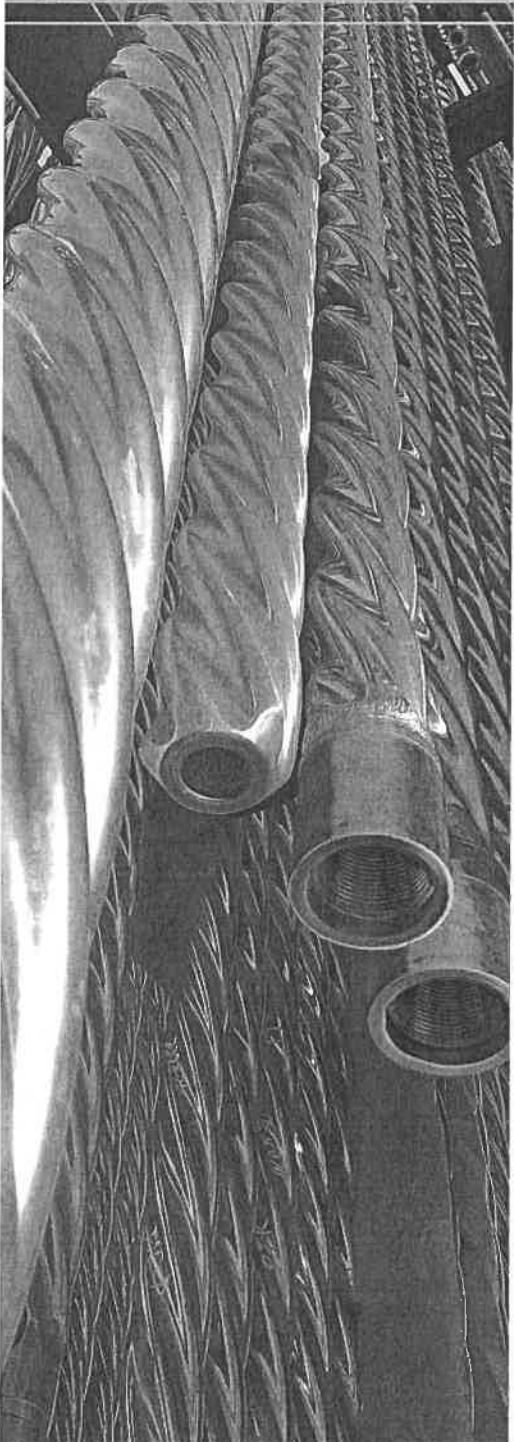
47-043-0 3889

HG EJ May #147

Timestamp	Annotation	Pressure 1	Rate	Gas Total (G)	Oil Total (G)
6/13/2019 12:48:00 PM	hole loaded	132.29	0.00	26.23	26.23
6/13/2019 12:48:09 PM	Pressure Test	4351.12	0.00	26.23	26.23
6/13/2019 12:50:59 PM	Break	1660.61	0.00	0.74	0.74
6/13/2019 12:53:05 PM	pad	1686.49	3.95	3.06	3.06
6/13/2019 12:53:37 PM	Sand #.25	1684.80	3.99	5.18	5.18
6/13/2019 12:56:05 PM	Sand #.5	1112.66	3.99	9.77	15.01
6/13/2019 12:59:47 PM	Sand #.75	1165.29	3.97	14.71	29.79
6/13/2019 1:04:44 PM	flush	1215.19	4.01	19.73	49.59
6/13/2019 1:14:12 PM	ISJP	1278.77	0.00	36.87	86.52
6/13/2019 1:19:28 PM	5 Min	969.99	0.00	36.87	86.52
6/13/2019 1:24:45 PM	10 Min	846.69	0.00	36.87	86.52
6/13/2019 1:29:15 PM	15 Min	758.42	0.00	36.87	86.52

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EJ May 147
Lincoln County, WV
Noah Horn 777 Rig

June 7, 2019

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Survey Certification Report

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