

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

API 47 - 043 - 03590 County LINCOLN District DUVAL  
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, E.J. Field/Pool Name GRIFFITHSVILLE  
Farm name JUDY R. SMITH Well Number 148  
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 4,232,517 M Easting 415,520 M  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing 4,232,586 M Easting 415,696 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 11/28/18 Date drilling commenced 5/23/19 Date drilling ceased 5/31/19  
Date completion activities began 6/11/19 Date completion activities ceased 6/13/19  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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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 1050', 1080' 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

Reviewed by:  
Jeff Smith

Reviewed

API 47- 043 - 03590 Farm name JUDY R. SMITH Well number 148

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 3/4"	7"	463.1	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2576.96'	New	LS		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 30 sks to surface on 7" surface cement job. Circulated Est. 17 sks to surface on 4 1/2" cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	120	15.6	1.18	142	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	110/125	13.2/14.2	1.64/1.27	180/186	362'	8
Tubing							

Drillers TD (ft) 2636'      Loggers TD (ft) 2636'  
 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 88 from bottom on 4 1/2", Centralizer placed mid string on 7"

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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>	
<u>Berea</u>	<u>2330'- 2352'</u> TVD	<u>2444'- 2468'</u> 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

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, ETC)</u>
Sand/Shale	0	385	0	385	
Pittsburgh Coal	385	391	385	391	
Sand/Shale	391	1618	391	1672	
Big Lime	1618	1818	1672	1890	
Big Injun	1818	1923	1890	2004	
Shale	1923	2310	2004	2423	
Coffee Shale	2310	2330	2423	2444	
Berea	2330	2352	2444	2468	Drilled directional N 68.5° E a distance of 622'
Shale	2352	2512	2468	2636	
TD	2512		2636		

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 #148  
Lincoln County, WV

## Casing

OD: 4.5"  
ID: N/A  
Weight: 13.6 lb.  
TD: 2636 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: 2978 psi  
Breakdown: 2477 psi  
Max: 1666 psi  
Average: 1502 psi  
Displacement: 1546 psi

## Volumes:

Pad 7 BBL  
Treatment: 40 BBL  
0.15% Acid: 250 Gal  
Total: 122 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 #: 22211  
10 Sacks

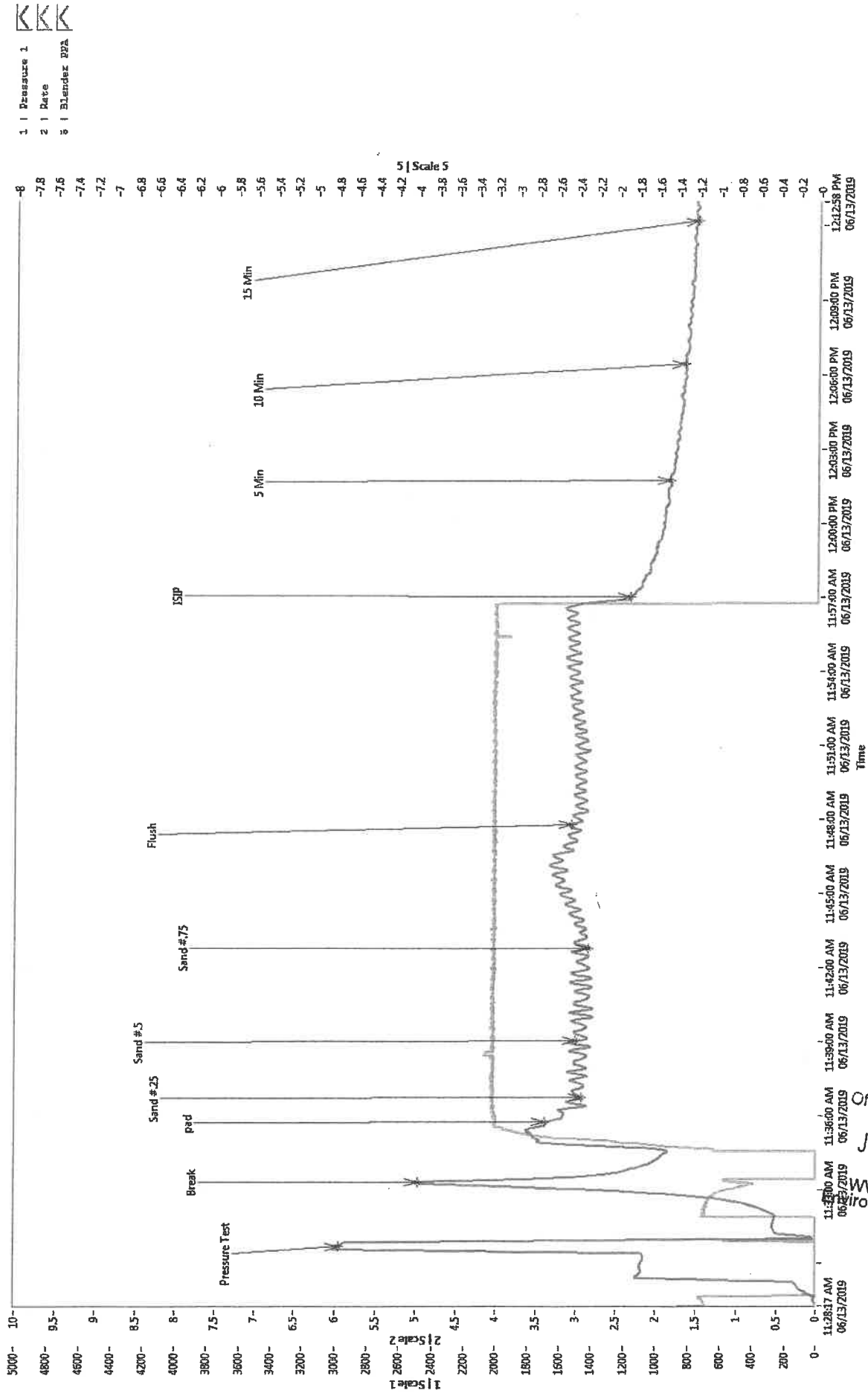
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Timestamp	Annotation	Pressure †	Rate	Stage Total (bbl)	Grand Total (bbl)
6/13/2019 11:30:41 AM	Pressure Test	2974.34	0.00	0.00	0.00
6/13/2019 11:33:24 AM	Break	2044.79	1.16	1.94	1.94
6/13/2019 11:35:43 AM	pad	1695.83	4.03	3.53	3.53
6/13/2019 11:36:43 AM	Sand #.25	1466.73	4.06	7.50	7.50
6/13/2019 11:39:01 AM	Sand #.5	1504.91	4.04	9.33	16.90
6/13/2019 11:42:46 AM	Sand #.75	1428.08	4.07	14.96	32.06
6/13/2019 11:47:46 AM	Flush	1530.77	4.04	20.03	52.15
6/13/2019 11:56:58 AM	ISIP	1168.36	0.00	35.96	88.25
6/13/2019 12:01:42 PM	5 Min	926.73	0.00	35.96	88.25
6/13/2019 12:06:25 PM	10 Min	844.49	0.00	35.96	88.25
6/13/2019 12:12:11 PM	15 Min	762.59	0.00	35.96	88.25

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