

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

API 47-043-03521 County LINCOLN District DUVAL  
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, EDNA Field/Pool Name GRIFFITHSVILLE  
Farm name COOPER, JOHNNY ET AL Well Number 228  
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 4,232,685 M Easting 416,085 M  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

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 8/5/15 Date drilling commenced 12/5/16 Date drilling ceased 12/10/16  
Date completion activities began 12/22/16 Date completion activities ceased 12/22/16  
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

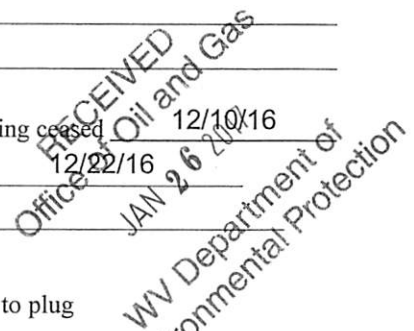
Freshwater depth(s) ft None Open mine(s) (Y/N) depths None  
Salt water depth(s) ft 990', 1220' Void(s) encountered (Y/N) depths None  
Coal depth(s) ft 380'- 387' Cavern(s) encountered (Y/N) depths None  
Is coal being mined in area (Y/N) N

**APPROVED**

NAME: Jeffrey Smith  
DATE: 4-28-17

Reviewed by:

05/26/2017



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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	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	422'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2416'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 50 sks to surface on 7" surface cement job. Circulated Est. 40 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	105	15.6	1.18	124	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	50'	8
Tubing							

Drillers TD (ft) 2460'      Loggers TD (ft) 2455'  
 Deepest formation penetrated Berea      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) N/A

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 \_\_\_\_\_  
6 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 \_\_\_\_\_

RECEIVED  
 Office of Oil and Gas  
 JAN 26 2017  
 U.S. Department of  
 Environmental Protection

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft	Perforated to MD ft	Number of Perforations	Formation(s)
1	12/22/16	2296'	2304'	32	Berea

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

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	12/22/16	4	1230	2116	1173	1,000	140	

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>
Berea	2292'- 2314' 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 <sub>2</sub> S, ETC)
Sand/Shale	0	380	0		
Pittsburgh Coal	380	387			
Sand/Shale	387	1580			
Big Lime	1580	1778			
Big Injun	1778	1872			
Shale	1872	2272			
Coffee Shale	2272	2292			
Berea	2292	2314			
Shale	2314	2460			
TD	2460				

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling  
 Address 11565 State Route 676 City Vincent State OH Zip 45784

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

Cementing Company Baker Hughes  
 Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

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 1/24/17