

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

API 47-043-03584 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, E.J. Field/Pool Name GRIFFITHSVILLE
Farm name COOPER, JOHN & TAMMIE ET AL Well Number 149
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 4,232,689 M Easting 416,087 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,232,720 M Easting 415,814 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

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Date permit issued 8/21/18 Date drilling commenced 8/30/18 Date drilling ceased 9/10/18
Date completion activities began 9/18/18 Date completion activities ceased 9/19/18
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 225' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1025', 1035' 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: JS
Reviewed
Jeffrey Smith 11-19-18

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Rev. 8/23/13

API 47-043 - 03584 Farm name COOPER, JOHN & TAMMIE ET AL Well number 149

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"	10'	New	LS		Sand In
Surface	8 3/4"	7"	465.46'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2699.01'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Circulated Est. 35 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	130/125	13.2/14.2	1.64/1.27	213/186	124'	8
Tubing							

Drillers TD (ft) 2782' Loggers TD (ft) 2754'

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

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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"

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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API 47- 043 - 03584 Farm name COOPER, JOHN & TAMMIE ET AL Well number 149

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Berea</u>	<u>2288'- 2312'</u> TVD	<u>2558'- 2588'</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

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	1635	
Big Lime	1570	1792	1635	1894	
Big Injun	1792	1880	1894	1998	
Shale	1880	2269	1998	2534	
Coffee Shale	2269	2288	2534	2558	
Berea	2288	2312	2558	2588	Drilled directional N 83.4° E a distance of 902'
Shale	2312	2448	2588	2762	
TD	2448		2762		

Please insert additional pages as applicable.

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

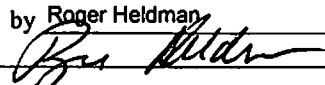
Logging Company Weatherford International
Address 13211 Old Hwy 50 City Flora State IL Zip 62839

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Cementing Company C&J Energy Services
Address 580 Hawthorn Dr City Norton State VA Zip 24273
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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 9/20/18

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

12/28/2018



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

Frac HG Energy

Company Rep: Dustin Hendershot
Treater: Daniel L Graham
9/19/2018
Well: E J May#149
Lincoln County, OH

Casing

OD: 4.5"
ID: N/A
Weight: 10.5 lb.
TD: 2762 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: 2866 psi
Breakdown: 2873 psi
Max: 1860 psi
Average: 1706 psi
Displacement: 1651 psi

Volumes:

Pad 25 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 153 BBL
Flush: 40 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:

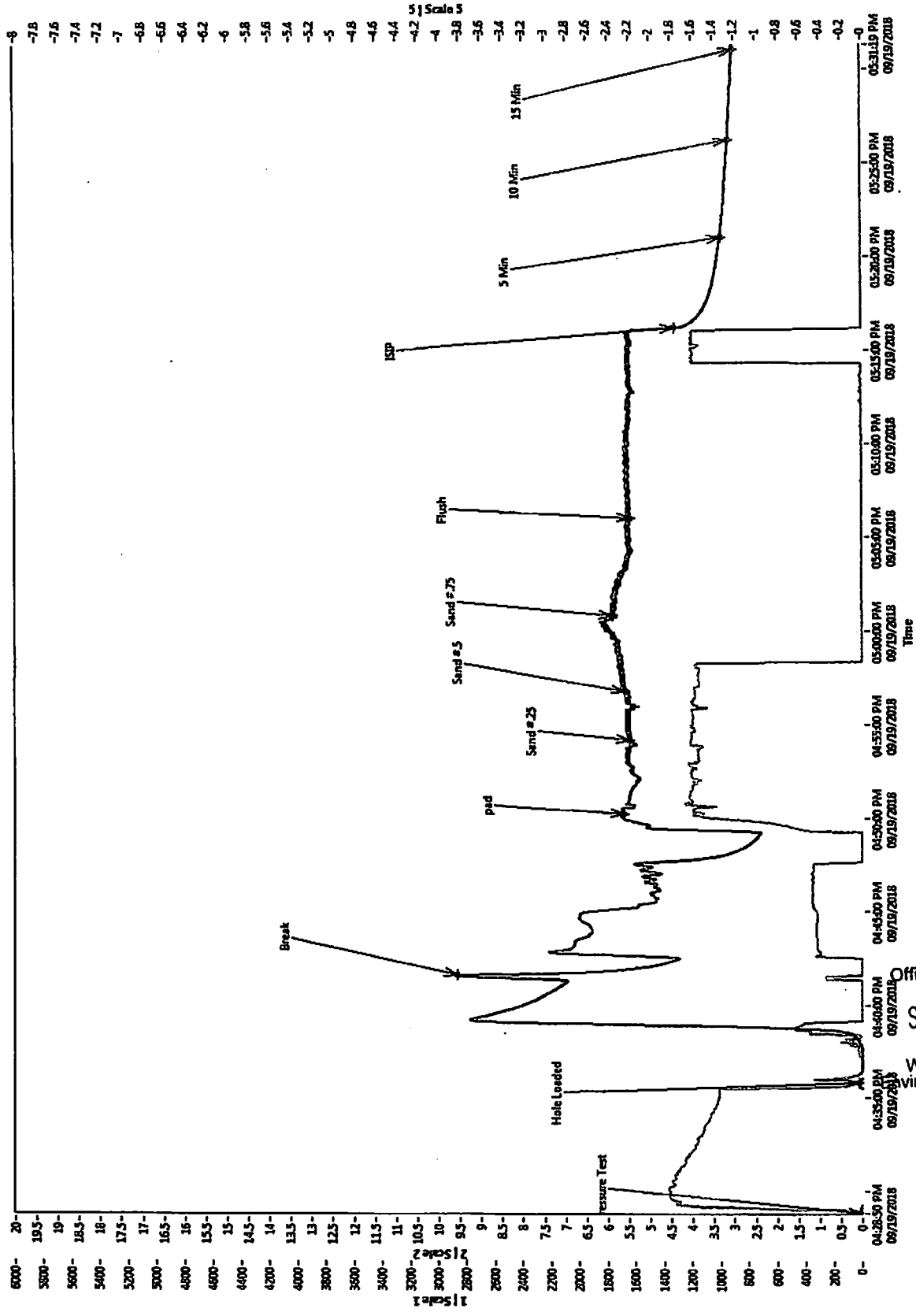
Invoice #: 21902

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HG Energy E.J May #149 Inv#21802

- 1 | Pressure 1
- 2 | Rate*
- 3 | Blender D7A



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HG Energy EJ May #149 Inv#21902

Timestamp	Annotation	Pressure 1	Rate	Stage Total (bbt)	Grand Total (bbt)
9/19/2018 4:28:50 PM	Pressure Test	5.60	0.00	1.04	1.04
9/19/2018 4:35:49 PM	Hole Loaded	24.19	0.00	26.75	26.75
9/19/2018 4:41:54 PM	Break	1744.94	0.00	1.28	1.28
9/19/2018 4:50:15 PM	pad	1688.45	3.89	9.42	9.42
9/19/2018 4:54:14 PM	Sand #.25	1647.52	4.02	25.22	25.22
9/19/2018 4:58:47 PM	Sand #.5	1685.27	3.95	10.01	35.37
9/19/2018 5:00:50 PM	Sand #.75	1770.19	0.00	5.90	41.33
9/19/2018 5:08:03 PM	Flush	1644.63	0.00	5.90	41.33
9/19/2018 5:18:13 PM	ISIP	1331.18	0.00	13.10	48.53
9/19/2018 5:21:02 PM	5 Min	998.08	0.00	13.10	48.53
9/19/2018 5:28:14 PM	10 Min	940.99	0.00	13.10	48.53
9/19/2018 5:31:04 PM	15 Min	908.09	0.00	13.10	48.53

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