

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

API 47-043-3581 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name FOWLER, ROBERT Field/Pool Name GRIFFITHSVILLE
Farm name MCCLURE, ANDY & REBECCA Well Number 506
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 4,231,560 M Easting 417,034 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,231,289 M Easting 416,610 M

Elevation (ft) 870' 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 2/13/18 Date drilling commenced 7/30/18 Date drilling ceased 8/3/18
Date completion activities began 8/10/18 Date completion activities ceased 8/14/18
Verbal plugging (Y/N) N Date permission granted _____ Granted by RECEIVED
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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 190' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1070' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 283'- 289' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

Reviewed by: _____
Reviewed
J. H. Smith 10-22-18

WR-35
Rev. 8/23/13

API 47- 043 - 3581 Farm name MCCLURE, ANDY & REBECCA Well number 506

| 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" | 13' | New | LS | | Sand In |
| Surface | 8 3/4" | 7" | 421.75' | New | LS | 64' | Y |
| Coal | | | | | | | |
| Intermediate 1 | | | | | | | |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 6 1/4" | 4 1/2" | 2641.81' | New | J-55 | | Y |
| Tubing | | | | | | | |
| Packer type and depth set | | | | | | | |

Comment Details Circulated Est. 45 sks to surface on 7" surface cement job. Circulated Est. 13 sks to surface on 4 1/2" cement job.

| CEMENT DATA | Class/Type of Cement | Number of Sacks | Shurry wt (ppg) | Yield (ft ³ /sks) | Volume (ft ³) | 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 | 125/125 | 13.2/14.2 | 1.64/1.27 | 205/186 | Surface | 8 |
| Tubing | | | | | | | |

Drillers TD (ft) 2704' Loggers TD (ft) 2891'

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

12 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>2338'- 2359'</u> TVD | <u>2516'- 2540'</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 _____ Oil _____ NGL _____ Water _____ GAS MEASURED BY
 mcfpd bpd bpd bpd 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 | 283 | 0 | 283 | |
| Pittsburgh Coal | 283 | 289 | 283 | 289 | |
| Sand/Shale | 289 | 1623 | 289 | 1700 | |
| Big Lime | 1623 | 1828 | 1700 | 1928 | |
| Big Injun | 1828 | 1927 | 1928 | 2044 | |
| Shale | 1927 | 2317 | 2044 | 2492 | |
| Coffee Shale | 2317 | 2338 | 2492 | 2516 | |
| Berea | 2338 | 2359 | 2516 | 2540 | Drilled directional S 180.32° a distance of 774' |
| Shale | 2359 | 2505 | 2540 | 2704 | |
| TD | 2505 | | 2704 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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 Baker Hughes
 Address 3415 Millennium Blvd SE City Massillon State OH Zip 44646

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 8/22/18

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

12/28/2018



**Robert Fowler 506
Lincoln County, WV
Noah Horn 294 Rig**

August 14, 2018

Survey Certification Report

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PRODIRECTIONAL

Survey Certification Letter

August 14, 2018

HG Energy, LLC

Operator Name: HG Energy, LLC
Well Name: Robert Fowler 506
County/Parish: Lincoln County
State: WV
Rig Name: Noah Horn 294
Job Number: LWW3111418

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

| <u>Surveyor</u> | <u>Surveyed Depths</u> | <u>Projection to Bit</u> | <u>Dates Performed</u> | <u>Type of Survey</u> |
|-----------------|------------------------|--------------------------|------------------------|-----------------------|
| ProDirectional | 450'MD – 2,639'MD | 2,704'MD | 07/31/18 – 08/01/18 | MWD-OWSG |

Sincerely,

John Jordan
Well Planning Analyst
Professional Directional

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850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

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

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Frac HG Energy

Company Rep: Dustin Hendershot
Treater: Daniel L Graham
8/14/2018
Well: R.Fowler #~~500~~ 506
Lincoln County, WV

Casing

OD: 4.5"
ID: N/A
Weight: 10.5 lb.
TD: 2704 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: 2800 psi
Breakdown: 1983 psi
Max: 960 psi
Average: 903 psi
Displacement: 864 psi

Volumes:

Pad 25 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 133 BBL
Flush: 39 BBL

Open Hole

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

Perforations

of Shots: 48
Top Perf: 2518 ft.
Bottom Perf: 2530 ft.

Rates

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

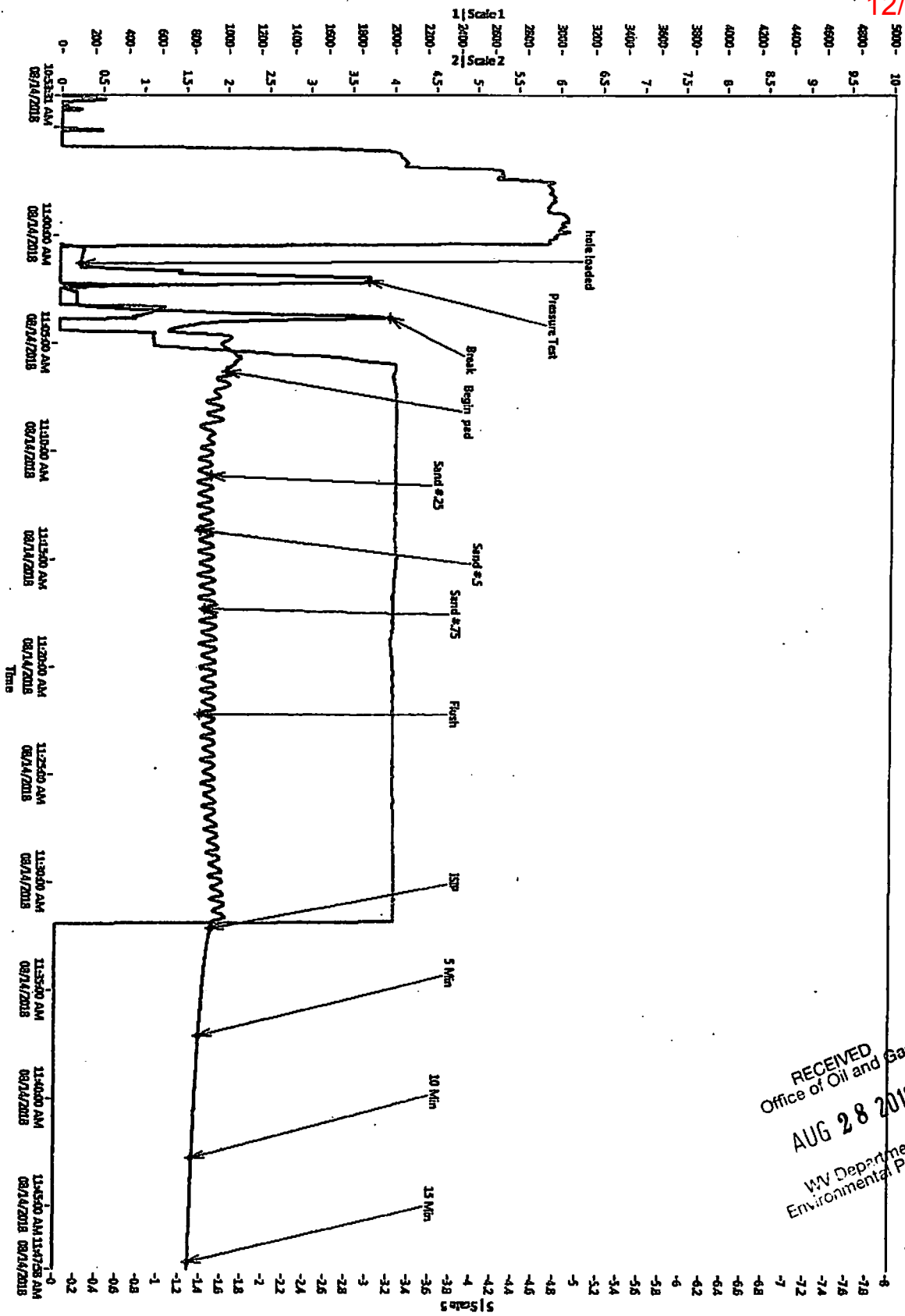
Notes:

Invoice #: 20827



12/28/2018

HG Energy R.Fowler#506 INV#20827



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1 | Pressure 1
2 | 52 Bar
5 | Alarm
KKK





HG Energy R.Fowler#508 IN#20827

| Timestamp | Annotation | Pressure 1 | Rate | Stage Total (bbl) | Grand Total (bbl) |
|-----------------------|---------------|------------|------|-------------------|-------------------|
| 8/14/2018 10:58:24 AM | Prime pumps | -26.83 | 6.03 | 18.54 | 18.54 |
| 8/14/2018 11:01:18 AM | hole loaded | 126.27 | 0.00 | 24.55 | 24.55 |
| 8/14/2018 11:02:04 AM | Pressure Test | 1854.95 | 0.00 | 24.55 | 24.55 |
| 8/14/2018 11:04:48 AM | Break | 1017.24 | 1.13 | 1.32 | 25.78 |
| 8/14/2018 11:08:16 AM | Begin pad | 1005.05 | 4.03 | 5.17 | 29.84 |
| 8/14/2018 11:11:08 AM | Sand #.25 | 914.86 | 4.08 | 24.73 | 48.40 |
| 8/14/2018 11:13:37 AM | Sand #.5 | 853.44 | 4.03 | 10.13 | 59.59 |
| 8/14/2018 11:17:15 AM | Sand #.75 | 861.00 | 4.05 | 14.64 | 74.30 |
| 8/14/2018 11:22:11 AM | Flush | 861.86 | 4.01 | 19.74 | 94.11 |
| 8/14/2018 11:32:06 AM | ISIP | 933.09 | 0.00 | 39.07 | 133.25 |
| 8/14/2018 11:37:04 AM | 5 Min | 883.71 | 0.00 | 39.07 | 133.25 |
| 8/14/2018 11:42:43 AM | 10 Min | 827.78 | 0.00 | 39.07 | 133.25 |
| 8/14/2018 11:47:38 AM | 15 Min | 807.12 | 0.00 | 39.07 | 133.25 |

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