

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

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Office of Oil and Gas

JUL 23 2018

WV Department of
Environmental Protection

API 47 - 043 - 03577 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name W.S. MAY Field/Pool Name GRIFFITHSVILLE
Farm name ADKINS, DAVID Well Number 502
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 4,232,257 M Easting 416,390 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,232,372 M Easting 416,649 M

Elevation (ft) 987' 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 2/12/18 Date drilling commenced 6/21/18 Date drilling ceased 6/29/18
Date completion activities began 7/10/18 Date completion activities ceased 7/11/18
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 None Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1150' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 481'- 488' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

Reviewed by:
J. J. [Signature]
8-13-18

Reviewed by:
JJ.

API 47-043 - 03577 Farm name ADKINS, DAVID Well number 502

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"	17'	New	LS		Sand In
Surface	8 3/4"	7"	548.2'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2906.66'	New	J-55		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 45 sks to surface on 7" surface cement job. Did not circulate 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	140	15.6	1.18	165	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	140/125	13.2/14.2	1.64/1.27	230/186	530'	8
Tubing							

Drillers TD (ft) 2943' Loggers TD (ft) 2895'

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

Plug back procedure N/A

Kick off depth (ft) 650'

Check all wireline logs run caliper density deviate
 neutron resistivity gamma

Well cored Yes No Conventional Sidewall

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING
12 Centralizers every 88 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE Yes No DE

WAS WELL COMPLETED OPEN HOLE? Yes No DETA

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

FYI - WR-37 shows 2-3/8" J-55 tubing @ 2,627 ft. cement Parmaco packers @ 2,627 ft.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	7/10/18	2735'	2747'	48	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	7/11/18	4	957	1509	828	1,000	156	

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Berea	2465'- 2485'	TVD 2732'- 2760' MD

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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	481	0	481	
Pittsburgh Coal	481	488	481	488	
Sand/Shale	488	1860	488	1968	
Big Lime	1860	1965	1968	2100	
Big Injun	1965	2051	2100	2210	
Shale	2051	2444	2210	2706	
Coffee Shale	2444	2465	2706	2732	
Berea	2465	2485	2732	2760	Drilled directional N 66° E a distance of 932'
Shale	2485	2629	2760	2943	
TD	2629		2943		

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 Appalachian Well Surveys
Address 10291 Ohio Avenue City Cambridge State OH Zip 43725

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 7/17/18

Prepared for:

HG Energy

Dustin Hendershot



Prepared by:

Producers Service Corp

Daniel L Graham

109 S. Graham St.

Zanesville, OH 43702

740-454-6253

INVOICE #:	21313
WELL NAME:	W.S May #502
COUNTY/STATE:	Lincoln/WV
TOWNSHIP/FIELD:	Griffithsville
DATE of SERVICE:	7/11/2018
CUSTOMER PO#:	

Description	Notes	Amount	Units	Unit Cost	Total Cost
FLUID PUMP CHARGE 0-3000 PSI MIN CHARGE 4 HRS		1	EA		
BLENDER CHARGE 0-10 BPM		1	EA		
MILEAGE CHARGE PER UNIT ONE WAY	2 Units @ 200 miles	400	MI		
IC ACID 15%		250	GAL		
PRO HIB II		0.5	GAL		
ACID DELIVERY		2	HR		
PRO CLA FIRM LP		6	GAL		
PRO NE-21		6	GAL		
PRO GEL 4		150	LB		
BUFFER I		50	LB		
SAND 20/40 OTTAWA		10	CWT		
BIO CLEAR 750		1	LB		
IRONROL		50	LB		
DATA VAN		1	STAGE		
SAND DELIVERY / TON MILES		100	TMILE		

Customer Approval: _____

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

Frac HG

Company Rep: Dustin Hendershot
Treater: DANIEL L Graham
7/11/2018
Well: W.S May
Lincoln County, WV

Casing

OD: 4.5"
ID: N/A
Weight: 10.5 lb.
TD: 2895 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: 2500 psi
Breakdown: 1509 psi
Max: 1013 psi
Average: 958 psi
Displacement: 914 psi

Volumes:

Pad 25 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 156 BBL
Flush: 42 BBL

Open Hole

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

Perforations

of Shots: 48
Top Perf: 2735 ft.
Bottom Perf: 2747 ft.

Rates

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

Notes:

Invoice #: 21313

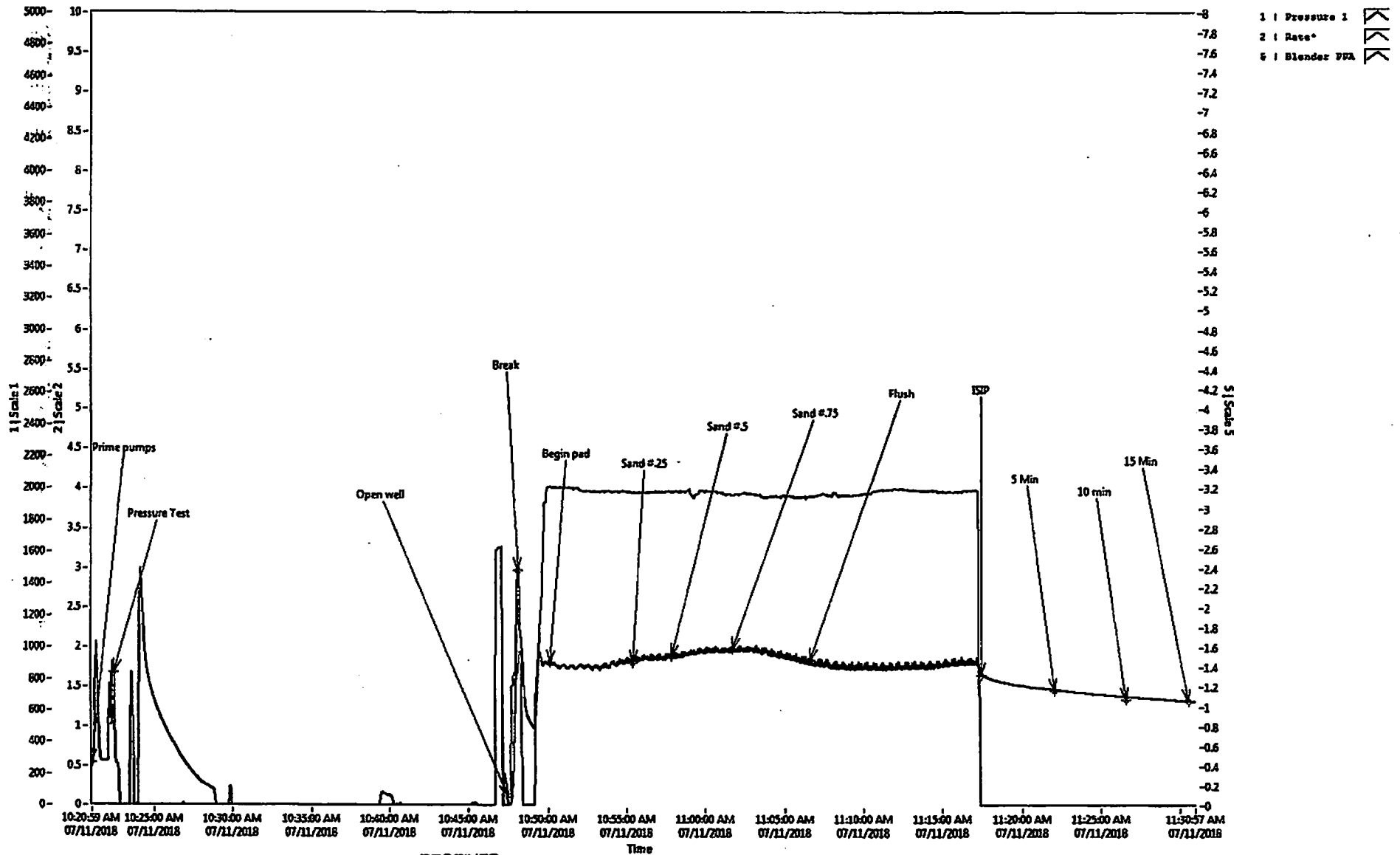


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HG W.S May #502



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HG W.S. May #502

Timestamp	Annotation	Pressure 1	Total	Stage Total (b)	Grand Total (b)
7/11/2018 10:20:59 AM	Prime pumps	272.08	0.00	0.38	0.38
7/11/2018 10:22:25 AM	Pressure Test	844.22	0.00	0.38	0.38
7/11/2018 10:47:25 AM	Open well	63.60	0.00	1.85	1.85
7/11/2018 10:48:32 AM	Break	679.59	0.00	1.18	1.18
7/11/2018 10:50:07 AM	Begin pad	908.49	4.01	4.03	4.03
7/11/2018 10:55:22 AM	Sand #.25	905.44	3.98	24.80	24.80
7/11/2018 10:57:52 AM	Sand #.5	945.75	3.95	9.75	34.72
7/11/2018 11:01:42 AM	Sand #.75	990.25	3.89	15.14	49.92
7/11/2018 11:06:38 AM	Flush	923.26	3.88	19.21	69.20
7/11/2018 11:17:25 AM	ISIP	826.40	0.00	41.82	111.22
7/11/2018 11:22:04 AM	5 Min	730.66	0.00	41.82	111.22
7/11/2018 11:28:56 AM	5 Min	684.73	0.00	41.82	111.22
7/11/2018 11:30:31 AM	15 Min	659.35	0.00	41.82	111.22

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PRODIRECTIONAL



WS May 502
Lincoln County, WV
Noah Horn 294 Rig

July 5, 2018

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Survey Certification Report



July 5, 2018

HG Energy

Operator Name: HG Energy
Well Name: WS May 502
County/Parish: Lincoln County
State: WV
Rig Name: Noah Horn 294
Job Number: LWW3110618

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:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	571'MD – 2,881'MD	2,943'MD	06/25/18 – 06/28/18	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