

WR-35  
Rev. 8/23/13Page 1 of 4

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

API 47-011-01006 County Cabell District Grant  
 Quad Milton 7.5' Pad Name n/a Field/Pool Name n/a  
 Farm name Spencer Well Number 1  
 Operator (as registered with the OOG) Keyrock Energy LLC  
 Address P O Box 2223 City Johnson City State TN Zip 37605

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
 Top hole Northing 4,251,000.994 Easting 395,072.000  
 Landing Point of Curve Northing n/a Easting n/a  
 Bottom Hole Northing same as top hole Easting same as top hole

Elevation (ft) 601 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)  
Produced water with KCL

Date permit issued 9/25/2018 Date drilling commenced 9/30/2018 Date drilling ceased 10/7/2018  
 Date completion activities began 10/15/2018 Date completion activities ceased flowing back  
 Verbal plugging (Y/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 35', 95', 250', 440', 490', 540' Open mine(s) (Y/N) depths n/a  
 Salt water depth(s) ft 800', 1160', 1730' Void(s) encountered (Y/N) depths None  
 Coal depth(s) ft none Cavern(s) encountered (Y/N) depths None  
 Is coal being mined in area (Y/N) No

Reviewed

Reviewed by:

  
 11-26-18

WR-35  
Rev. 8/23/13

API 47- 011 - 01006 Farm name Spencer Well number 1

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	12"	9&5/8"	32'	New			Sanded In
Surface	8&3/4"	7"	575 9'	New			Yes
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6&3/8"	4&1/2"	2,435'	New			Did not circulate
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

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	Class A	108 sks	15.6	1.2	129.6	0	8 hours
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	Class A	130 sks	14.2	1.31	170.3	1050'	n/a
Tubing							

Drillers TD (ft) 2,455' Loggers TD (ft) 2,462'

Deepest formation penetrated Devonian Shale Plug back to (ft) \_\_\_\_\_

Plug back procedure \_\_\_\_\_

Kick off depth (ft) \_\_\_\_\_

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: \_\_\_\_\_

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS 20 shots evenly spaced from 2,236 - 2,250'

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

WR-35  
Rev. 8/23/13

API 47- 011 - 01006 Farm name Spencer Well number s

PERFORATION RECORD

Stage No	Perforation date	Perforated from MD ft	Perforated to MD ft	Number of Perforations	Formation(s)
1	10/12/2018	2,236	2,250	20	Berea Sandstone

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	10/15/2018	50 bpm	2,145 psi	1,187 psi	5 min ISIP 1,674 psi	60,246 lbs	304 bbls	6,474 scf

Please insert additional pages as applicable.

WR-35  
Rev. 8/23/13

API 47- 011 - 01006 Farm name Spencer Well number 1

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Berea</u>	<u>2,236'</u>	<u>TVD</u>	<u>2,250'</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

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.S. ETC)
Shale & thin sands	0	430	0	430	Thin sands throughout, numerous fresh water shows
Sand and Shale	430	650	430	650	Water shows in sands at 440, 490, 540
Shale and Sand	650	810	650	810	Shale with sand stringers Salt water show at 800'
Shale	810	1050	810	1050	Gray Sand
Sand	1050	1090	1050	1090	Soft Sand
Shale	1090	1156	1090	1156	Gray Shale
Salt Sand	1156	1320	1156	1320	Sandstone Salt water show
Shale	1320	1474	1320	1474	Gray Shale
Big Lime	1474	1630	1474	1630	Limestone Oil show at 1,550
Shale	1630	1700	1630	1700	Gray Shale
Injun Sand	1700	1794	1700	1794	Hard Sand Show salt water 1,730-1,776'
Shale	1794	2236	1794	2236	Gray Shale Sunbury Top at 2,218'
Berea	2236	2250	2236	2250	Sandstone Show oil and gas
Shale	2250	TD	2250	TD	Black Devonian Shale

Please insert additional pages as applicable.

Drilling Contractor Cheyenne Drilling Inc  
Address 60 Bosco Tipple Rd City Hueysville State KY Zip 41640

Logging Company Keystone Wireline  
Address 344 High Street City Bradford State PA Zip 16701

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

Stimulating Company Reliance Well Services  
Address 1250 Tower Lane City Etz State PA Zip 16505

Please insert additional pages as applicable.

Completed by Morgan Pace Telephone 423-276-1116  
Signature [Signature] Title Geologist Date 10/26/18

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