

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

API 47 - 011 - 01002 County Cabell District Grant  
Quad Milton 7.5' Pad Name n/a Field/Pool Name n/a  
Farm name Cox 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 4,249,150.679 Easting 392,240.338  
Landing Point of Curve Northing n/a Easting n/a  
Bottom Hole Northing same as top hole Easting same as top hole

Elevation (ft) 690' 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

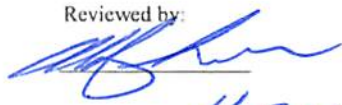
Mud Type(s) and Additive(s)  
Produced water with KCL

Date permit issued 7/16/2018 Date drilling commenced 9/24/2018 Date drilling ceased 9/30/2018  
Date completion activities began 10/16/2018 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 250'. 640' Open mine(s) (Y/N) depths n/a  
Salt water depth(s) ft 1,280'. 1,330' Void(s) encountered (Y/N) depths None  
Coal depth(s) ft No coal encountered Cavern(s) encountered (Y/N) depths None  
Is coal being mined in area (Y/N) No

Reviewed

Reviewed by:  
  
11/20/18

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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"	9&5/8"	32'	New			Sanded in
Surface	8&3/4"	7"	675'	New			Yes
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6&3/8"	4&1/2"	2,560'	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	125 sks	15.6	1.20	126.2	0	8 hours
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	Class A	170 sks	10.5	1.26	214.2	1,230'	n/a
Tubing							

Drillers TD (ft) 2,580' Loggers TD (ft) 2,575'  
 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 2,336 - 2,350'

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

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



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PRODUCING FORMATION(S)	DEPTHS
<u>Berea</u>	<u>TVD 2,336-2,350' 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 <sub>2</sub> S, ETC)
Shale	0	230	0	230	Predominantly soft gray shale Minor red shale
Sand	230	260	230	260	White sand, water show at base
Sand and Shale	260	910	260	910	Thin bedded sand and shale
Shale	910	1120	910	1120	Gray Shale
Sand	1120	1426	1120	1426	Sand Salt Sand top at 1,325 Salt water at 2,380' & 1,330'
Shale	1426	1520	1426	1520	Gray Shale
Little Lime	1520	1550	1520	1550	Limestone
Shale	1550	1560	1550	1560	Gray Shale
Big Lime	1560	1700	1560	1700	Limestone
Shale	1700	1780	1700	1780	Dark Gray Shale
Injun Sand	1780	1880	1780	1880	Hard Sand
Shale	1880	2336	1880	2336	Dark Gray Shale Sunbury top at 2,321'
Berea	2336	2350	2336	2350	Sandstone Oil and Gas show
Shale	2350	TD	2350	TD	Black Shale

Please insert additional pages as applicable.

Drilling Contractor Cheyenne Drilling Inc.  
Address 60 Bosco Tipple Rd. City Huevsville 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 Eric State PA Zip 16505

Please insert additional pages as applicable.

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