

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

API 47-011-00998 County Cabell District Grant
Quad Milton 7.5' Pad Name n/a Field/Pool Name n/a
Farm name Mohr 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 _____ Easting _____
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 655.5' 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 w/ KCl

Date permit issued 01/09/2018 Date drilling commenced 03/21/2018 Date drilling ceased 04/04/2018
Date completion activities began _____ Date completion activities ceased _____
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 80', 130', 660' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1,323' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 719-721' & 735-737' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) No

Reviewed

Reviewed by:

11-26-18

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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							
Surface	12 1/4"	9 5/8"	300'	New	40 lbs/ft	40'	Yes
Coal	8 3/4"	7"	1,592'	New	20 lbs/ft	40'	Yes
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2,526'	New	10.5 lbs/ft	n/a	Yes
Tubing							
Packer type and depth set							

Comment Details _____

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	Class A	120 sks	15.6	1.2	144 ft3	0	8 hours
Coal	Class A	195 sks	15.6	1.2	234 ft3	0	8 hours
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	Class A	92 sks	14.2	1.31	120 ft3	1,500'	8 hours
Tubing							

Drillers TD (ft) 2,564' Loggers TD (ft) 2,569'
 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 _____
2,521.8', 2,434', 2,367', 2,260', 2,173' on 4 1/2" only

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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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

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)

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD
Berea		

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	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
Fill	0	17	0		Dirt/Gravel
Sand	17	23			Brown, soft
Sand & Shale	23	719			Gray, soft. Fresh Water shows at 80', 310', 660'
Coal	719	721			Black, soft
Shale	721	735			Gray, medium hard
Coal	735	738			Black, soft
Sand & Shale	738	1175			Dark gray and white, medium hard
Salt Sand	1175	1390			White, medium hard. Salt water show at 1,323
Shale & Sand	1390	1480			Gray shale with thin sands
Little Lime	1480	1500			Gray, medium hard
Shale	1500	1515			Gray, medium hard
Big Lime	1515	1706			Gray, hard. Oil show at 1,620'
Shale	1706	1770			Samples not collected. Depths from log
Sand	1770	1850			Samples not collected. Depths from log

Please insert additional pages as applicable.

Drilling Contractor Mitchell Drilling
Address 2529 Sycamore Rd City Clarksburg State WV Zip 26301

Logging Company Appalachian Well Surveys
Address P O Box 1058 City Cambridge State OH Zip 43725

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

Stimulating Company _____
Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by Morgan Pate Telephone 423-276-1116
Signature _____ Title Geologist Date _____

