

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

 ORIGINAL

API 47 - 15 - 02887 County CLAY District UNION
Quad ELKHURST 7.5' Pad Name _____ Field/Pool Name _____
Farm name WILLIAM C. MITCHELL Well Number KING #9
Operator (as registered with the OOG) RAVEN RIDGE ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing N/A Easting N/A
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing N/A Easting N/A

Elevation (ft) 1,208' 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)
SOAP

Date permit issued 6/26/2013 Date drilling commenced 10/3/2013 Date drilling ceased 10/22/2013
Date completion activities began 12/18/2013 Date completion activities ceased 1/5/2014
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 200' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1150' - 1650' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NONE OF RECORD Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

06/27/2017

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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	14 1/4"	13 3/8"	30'	NEW	J-55 - 42 LBS	NONE	SAND -IN BY RIG
Surface	12 1/4"	9 5/8"	380'	NEW	J-55 - 29 LBS	120'	YES
Coal							
Intermediate 1	8 3/4"	7"	1899'	NEW	J-55 - 17LBS	335'	YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2275'	NEW	J-55 - 10.5 LBS	NONE	N/A
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	CLASS I	10 - RIG				GROUND LEVEL	8
Surface	CLASS I	120	15.6	1.18	141.6	GROUND LEVEL	8
Coal							
Intermediate 1	CLASS I	300	15.6	1.18	354	GROUND LEVEL	8
Intermediate 2							
Intermediate 3							
Production	CLASS I	80	15.6	1.18	94.4	1575'	8
Tubing							

Drillers TD (ft) ^{2520'} _____

Loggers TD (ft) ^{2523'} _____

Deepest formation penetrated WEIR

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
SHOE ON BOTTOM WITH LATCH DOWN BAFFLE IN SHOE

4 CENTRALIZERS RUN ON 4 1/2" ON JOINTS 1,3,5,7

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JUN 16 2014

WV Department of
Environmental Protection

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)
1	12/18/2013	2190'	2074'	16	WEIR
2	12/18/2013	2094'	2070'	20	SQUAW
3	12/18/2013	2051'	2031'	18	INJUN

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	12/19/13	35	2410	2800	1552	20,000	550	0
2	12/19/13	31	2196	2415	1526	18,000	419	0
3	12/19/13	28	3254	2170	1732	12,000	311	0

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>WEIR</u>	<u>2074' - 2190'</u>	<u>TVD</u>	<u>MD</u>
<u>SQUAW</u>	<u>2070' - 2094'</u>		
<u>INJUN</u>	<u>2051' - 2031'</u>		

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 220 psi Bottom Hole _____ psi DURATION OF TEST 12 hrs

OPEN FLOW Gas 20 mcfpd Oil 5 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	1590'	0		
SALT SANDS	1590'	1680'			
SAND/SHALE	1680'	1838'			
LITTLE LIME	1838'	1892'			
PENCIL CAVE	1892'	1906'			
BIG LIME	1906'	2024'			
INJUN	2024'	2078'			
SQUAW	2078'	2102'			
SAND/SHALE	2102'	2142'			
WEIR	2142'	2200'			
SAND/SHALE	2200'	2491'			
BEREA	2491'	2523'			

Please insert additional pages as applicable.

Drilling Contractor CUNNINGHAM ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

Logging Company NABORS COMPLETION & PRODUCTION, CO.
Address 82 ELKINS ROAD City BUCKHANNON State WV Zip 26201

Cementing Company ALLIED OIL AND GAS SERVICES, LLC
Address 100 HOPE ROAD City CLARKSBURG State WV Zip 26301

Stimulating Company PRODUCERS SERVICE CORPORATION
Address 109 SOUTH GRAHAM STREET City ZANESVILLE State OH Zip 43701

Please insert additional pages as applicable.

Completed by DANIELLE N. BOGGS Telephone 304-344-9291
Signature *Danielle N. Boggs* Title OPERATIONS MANAGER Date 5/30/2014

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

06/27/2017