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

API 47-021-05766 County Gilmer District Glenville
Quad Glenville 7.5' Pad Name na Field/Pool Name na
Farm name Ernest L. Arbuckle Family Well Number Rinehart S-2
Operator (as registered with the OOG) Energy Corporation of America
Address 501 56th St. City Charleston State WV Zip 25304

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4311039.5 Easting 486708.9
Landing Point of Curve Northing na Easting na
Bottom Hole Northing na Easting na

Elevation (ft) 872 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)

Date permit issued 5/5/14 Date drilling commenced 6/2/14 Date drilling ceased na
Date completion activities began Well was completed as a natural Date completion activities ceased na
Verbal plugging (Y/N) na Date permission granted na Granted by na
RECEIVED
Office of Oil and Gas
SEP 25 2014

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

Freshwater depth(s) ft NA Open mine(s) (Y/N) depths N
Salt water depth(s) ft NA Void(s) encountered (Y/N) depths N
Coal depth(s) ft NA Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
10/31/2014

API 47-021 - 05766 Farm name Ernest L. Arbuckle Family Well number Rinehart S-2

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	17 1/2"	13 3/8"	40	N	43.6#/ft	na	Driven
Surface	8 7/8"	7"	762'	N	16#/ft	40'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 3/8"		2150'				
Tubing	6 3/8"	2 3/8"	860'	N	4.6 #/ft J-55	na	na
Packer type and depth set		4 1/2" X 5 7/8" Hydropac Mechanical Set Open Hole Packer set @ 860'					

Comment Details Drilled well to a TD of 2150' w/ 6.3/8" Bit, Logged well, well producing enough gas naturally to complete open hole, production casing was not run.

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	Driven						
Surface	Class A	180	15.6	1.20	216	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) 2150' Loggers TD (ft) 2139'
 Deepest formation penetrated Berea Sandstone Plug back to (ft) na
 Plug back procedure na

Kick off depth (ft) na

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 Centralizers placed on Shoe and every 200' to surface on surface casing. Production casing was not run.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS Drilled well to a TD of 2150' w/ 6.3/8" Bit, Logged well, well producing enough gas naturally to complete openhole, production casing was not run.

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

API 47- 021 - 05766 Farm name Ernest L. Arbuckle Family Well number Rinehart S-2

PRODUCING FORMATION(S)	DEPTHS	
Keener	1632' - 1640'	TVD 1632' - 1640' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 435 psi Bottom Hole na psi DURATION OF TEST 24 hrs
 OPEN FLOW Gas 84 mcfpd Oil na bpd NGL na bpd Water na 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	
Siltstone / Shale	0	460	0	460	Interbedded Siltstone and Shale
Sandstone	460	508	460	508	Sandstone
Shale	508	628	508	628	Shale
Sandstone	628	720	628	720	Sandstone
Sandstone / Shale	720	840	720	840	Interbedded Sandstone and Shale
Sandstone	840	947	840	947	Sandstone
Sandstone / Shale	947	1162	947	1162	Interbedded Sandstone and Shale
Salt Sand	1162	1246	1162	1246	Sandstone
Siltstone	1246	1253	1246	1253	Siltstone
Salt Sand	1253	1272	1253	1272	Sandstone
Shale	1272	1350	1272	1350	Shale
Maxton Sandstone	1350	1368	1350	1368	Sandstone
Shale	1368	1518	1368	1518	Shale
Big Lime	1518	1632	1518	1632	Limestone

Please insert additional pages as applicable.

Drilling Contractor Waco Oil and Gas Co
 Address 1595 U.S. 33 City Glenville State WV Zip 26351

Logging Company Weatherford International
 Address 584 Hackers Creek Rd. City Jane Lew State WV Zip 26378

Cementing Company Universal Well Services
 Address RT. 5 Hall Road City Buckhannon State WV Zip 26201

Stimulating Company NA
 Address City State Zip

Please insert additional pages as applicable.

Completed by Lowell Warden Telephone 304-925-6100
 Signature *Tara White* Title Manager, Land Admin. Date 09-23-2014
 Tara White

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	0		0		
Keener	1632	1640	1632	1640	Sandstone with 84 mcf/d Gas
Big Injun	1640	1728	1640	1728	Limey Sandstone
Sandstone	1728	1825	1728	1825	Sandstone
Weir	1825	1908	1825	1908	Sandstone
Shale	1908	2025	1908	2025	Shale
Berea	2025	2029	2025	2029	Sandstone
Shale	2029	2150	2029	2150	Shale

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 Signature Tara White Title Manager, Land Admin. Date 09-23-2014

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