WR-35 Rev. 8/23/13

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

API 47 - 021	05765 Cou	nty Gilmer	District	Glenville	
Quad Glenville 7.5'		Name na	Field/Po	ool Name na	
Farm name Ernest L. A	arbuckle Family		Well N	umber Rine	hart S-1
Operator (as registered v	with the OOG) Energy	Corporation of Am	erica		
Address 501 56th St.		City Charleston	Sta	wv WV	Zip 25304
As Drilled location N	AD 83/UTM Atta op hole Northing	ch an as-drilled plat, pr 4310660.6	ofile view, and deviati Easting 486		
Landing Point			Easting na		
Botto	om Hole Northing	na	Easting na		
Elevation (ft) 760  Permit Type   Devi		ype of Well ■New □ □ Horizontal 6A		pe of Report	□Interim ■Final  □ Deep ■ Shallow
Type of Operation   C	onvert   Deepen	■ Drill □ Plug Ba	ck 🗆 Redrilling	□ Rework	□ Stimulate
Well Type □ Brine Dis	nosal □ CRM ■ Gas	□ Oil □ Secondary R	ecovery = Solution N	Aining □ Sto	rage □ Other
					age g onler
Type of Completion	Single   ☐ Multiple	Fluids Produced   B	rine ■Gas □ NG	L 🗆 Oil	□ Other
Drilled with   Cable	■ Rotary				
Drilling Media Surface Production hole Air Mud Type(s) and Addit	□ Mud □ Fresh W		Intermediate hole	Air □ Mud	□ Fresh Water □ Brine
Date permit issued		drilling commenced_		Date drilling co	
Date completion activities	es began Well was comple	eted as a natural Date c	ompletion activities ce	ased	na
Verbal plugging (Y/N)	na Date perm	ission granted	na Grar	ited by	na
Please note: Operator is	required to submit a pl	ugging application with	nin 5 days of verbal pe	rmission to pl	ug (1)
Freshwater depth(s) ft	360-388 ft., 466-483 ft.,	552-574 ft. Open m	ine(s) (Y/N) depths		NEP 25
Salt water depth(s) ft	NA	Void(s)	encountered (Y/N) de	epths	N
Coal depth(s) ft	NA	Cavern	s) encountered (Y/N)	depths	WV Department of
Is coal being mined in a	rea (Y/N)	N		En	wironmental Protection
- Control of the Control of the Control	and a serve				Reviewed by:

Rev. 8/23/13 Well number\_Rinehart S-1 Farm name\_Ernest L. Arbuckle Family API 47-021 -05765 Did cement circulate (Y/N) Grade Basket New or **CASING** Hole Casing \* Provide details below\* Depth Used wt/ft Depth(s) **STRINGS** Size Size Driven Conductor 43.6#/ft 17 1/2" 13 3/8" 40 N na Υ Surface N 16#/ft 40' 7" 675 8 7/8" Coal Intermediate 1 Intermediate 2 Intermediate 3 Production 6 3/8" 2091' NA **Tubing** 764' Ν 4.6#/ft J-55 na 6 3/8" 2 3/8" Packer type and depth set 4 1/2" X 5 7/8" Hydropac Mechanical Set Open Hole Packer set @ 764' Drilled well to a TD of 2091' w/ 6.3/8" Bit, Logged well, well producing enough gas naturally to complete open hole, production casing was not run. Comment Details WOC Yield Volume Cement Slurry CEMENT Class/Type Number (ft 3) Top (MD) (ft 3/sks) (hrs) of Cement of Sacks wt (ppg) DATA Conductor Driven Surface 1.20 186 Surface 8 155 15.6 Class A Coal Intermediate 1 Intermediate 2 Intermediate 3 Production Tubing Loggers TD (ft) 2069 Drillers TD (ft) 2091' Deepest formation penetrated Berea Sandstone Plug back to (ft) na Plug back procedure na Kick off depth (ft) na □ deviated/directional **■** induction **■** density **■** caliper Check all wireline logs run ■ temperature ■ neutron ■ resistivity 뤔 gamma ray □sonic Were cuttings collected ■ Yes □ No Conventional Sidewall Well cored 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** DETAILS Drilled well to a TD of 2091' w/ 6.3/8" Bit, Logged well, well producing enough gas naturally to complete WAS WELL COMPLETED OPEN HOLE? ■ Yes □ No openhole, production casing was not run. TYPE OF TRACER(S) USED WERE TRACERS USED 

Yes No

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API	47- 021 -	05765	Farm name Ernest L. Arbuckle Family	Well number Rinehart S-1
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## PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
na	na	na	na	na	na
	<u> </u>				
<u></u>					
	:				
<u> </u>					
-					
			<u> </u>		

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)
na	na	na	na	na	na	na	na	na
<b></b>								
							<u> </u>	
-								
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			<del></del>					
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Please insert additional pages as applicable.

API 47- 021	_ 05765	Farm	name_Ernest L	Arbuckle F	amily Well	number	Rineh	art S-1	
PRODUCING Salt Sands	FORMATION(	<u>S)</u>	<u>DEPTHS</u> 1052-1194 ft.	_TVD _10	52-1194 ft. MD				
-									
Please insert ad	ditional pages a	s applicable.							
GAS TEST	□ Build up □	Drawdown	■ Open Flow	OI	L TEST - Flow	Pump			
SHUT-IN PRE	SSURE Surf	ace 188	psi Botto	m Hole na	psi DURA	TION O	F TES	r 24	hrs
OPEN FLOW	Gas	Oil pd na	NGL bpd na		ater GAS N	MEASU nated	RED B	Y	ilot
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 TY TYPE OF FLUID (FRE				
Sandy Shale	0	510	0	510				and Shale	
Sandstone	510	550	510	550	Sandstone with s	- 10		La company and an extendit	freshwater
Shale	550	592	550	592	Sh	ale with a		shwater	
Sandstone	592	792	592	792		144.0	ndstone		
Shale/Sandstone	792	1052	792	1052	Interbe	edded Sa	andstone	and Shale	
Salt Sands	1052	1194	1052	1194	Sandstone with 169 mcf/d Gas				
Shale	1194	1264	1194	1264	Shale				
Maxton	1264	1288	1264	1288	Sandstone				
Shale	1288	1388	1288	1388	Shale				
Sandstone/Lime	1388	1470	1388	1470	Interbedded Sandstone and Limestone				9
Big Lime	1470	1560	1470	1560		Lin	nestone		
Big Injun	1560	1628	1560	1628	Limey Sandstone				
Shale	1628	1726	1628	1726			Shale		
Weir	1726	1810	1726	1810		Sar	ndstone		
	Iditional pages a ctor Waco Oil a J.S. 33		City	Glenville	State	wv	Zip	26351	
Logging Comp Address Rt. 4 B	any Baker Hugh ox 640	nes	City	Buckhannon	State	WV	Zip	26201	
Cementing Cor	npany Universa	Well Services							
Address RT. 5 H	Hall Road		City	Buckhannon	State	WV	_Zip	26201	
Stimulating Co Address Please insert ad	mpany NA	as applicable.	City		State	4	Zip		
Completed W	Lowell Warden				Telephone 304-925	-6100			
Completed by	Tyl A	1 11	T:11.	and the second			20.00	2017	
Signature Ta	ra White	Nte	Title M	lanager, L	and Admin.	Date_	09-23	-2014	

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GAS TEST	
Please insert additional pages as applicable.  GAS TEST	
GAS TEST  Build up  Drawdown  Gopen Flow  OIL TEST  Drow  Pump  SHUT-IN PRESSURE  Surface  175	
SHUT-IN PRESSURE Surface 175 psi Bottom Hole na psi DURATION OF TEST 24  OPEN FLOW Gas Oil NGL Water GAS MEASURED BY 169 mefpd na bpd n	
GAS TEST  Build up  Drawdown  Gopen Flow  OIL TEST  Drow  Pump  SHUT-IN PRESSURE  Surface  175	
GAS TEST	
SHUT-IN PRESSURE Surface 175 psi Bottom Hole na psi DURATION OF TEST 24  OPEN FLOW Gas Oil NGL Water GAS MEASURED BY 169 mefpd na bpd lestimated orifice of Pi  LITHOLOGY/ FORMATION DEPTH IN FT DEPTH IN FT DEPTH IN FT DEPTH IN FT DESCRIBE ROCK TYPE AND RECORD QUANTITY NAME TVD TVD MD MD TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS 1801 1801 2010 1801 2010 Shale  Berea 2010 2016 2010 2016 2010 Sandstone  Shale 2016 2091 2016 2091 Shale	
OPEN FLOW         Gas         Oil         NGL         Water         GAS MEASURED BY           169         mcfpd         na         bpd         na         bpd         ■ Estimated         □ Orifice         □ Pi           LITHOLOGY/FORMATION         TOP         BOTTOM         TOP         BOTTOM         DEPTH IN FT         DEPTH IN FT <td< td=""><td></td></td<>	
169 mcfpd na bpd na bpd na bpd na bpd lestimated confice lestimated lestima	_ hrs
FORMATION         DEPTH IN FT NAME TVD         DEPTH IN FT TVD         DEPTH IN FT TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS           Shale         2010         2016         2016         2016         Sandstone         Sandstone           Shale         2016         2091         2016         2091         Shale           Shale         2016         2091         2016         2091         Shale	lot
Shale         1801         2010         1801         2010         Shale           Berea         2010         2016         2010         2016         Sandstone           Shale         2016         2091         2016         2091         Shale	
Berea 2010 2016 2010 2016 Sandstone  Shale 2016 2091 2016 2091 Shale	
Shale 2016 2091 2016 2091 Shale	
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         Baker Hughes           Address         Rt. 4 Box 640         City         Buckhannon         State         WV         Zip         26201	
Cementing Company Universal Well Services  Address RT. 5 Hall Road City Buckhannon State WV Zip 26201	
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 Will Manager, Land Admin. Date 09-23-2014	
Tara White Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry	