

WR-35
Rev (9-11)

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

DATE: 11/21/2013
API #: 47-033-05653

Farm name: Consolidation Coal Co. Operator Well No.: Brutus Unit 1H

LOCATION: Elevation: 1089' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 6.178' Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 4.359' Feet West of 80 Deg. 27 Min. 30 Sec.

Company: Antero Resources Corporation

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	40'	40'	38 Cu Ft Class A
Agent: CT Corporation System	13 3/8" 48#	630'	630'	875 Cu Ft Class A
Inspector: Sam Ward	9 5/8" 36#	2,512'	2,512'	1023 Cu Ft Class A
Date Permit Issued: 9/24/2012	5 1/2" 20#	13,550'	13,550'	3315 Cu Ft Class H
Date Well Work Commenced: 5/22/2013				
Date Well Work Completed: 9/29/2013	2 3/8" 4.7#	6,979'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6858' TVD				
Total Measured Depth (ft): 13,550' MD				
Fresh Water Depth (ft.): 81', 196'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 125', 500'				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6770' (TOP)

Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d

Final open flow 7,083 MCF/d Final open flow ---- Bbl/d

Time of open flow between initial and final tests ---- Hours

Static rock Pressure 3600 psig (surface pressure) after ---- Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Karleen Buck
Signature

1/16/2014
Date

04/04/2014

33.05653

Were core samples taken? Yes _____ No

Were cuttings caught during drilling? Yes _____ No

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes- CBL

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Trash Unit 1H API#47-033-05647). Please reference the wireline logs submitted with Form WR-35 for Trash Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7,053'-13,484' (1,920 Holes)

Frac'd w/ 21,000 gals 15% HCL Acid, 170,972 bbls Slick Water carrying 452,788# 100 mesh, 3,990,440# 40/70 sand and 2,302,155# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered:	Top Depth	/	Bottom Depth
<u>Surface:</u>			
Big Lime	est. 1517'		1625'
Big Injun	est. 1626'		1995'
Fifty Foot Sandstone	est. 1996'		2072'
Gordon	est. 2073'		2327'
Fifth Sandstone	est. 2328'		2392'
Bayard	est. 2393'		3076'
Speechley	est. 3077'		3342'
Balltown	est. 3343'		3856'
Bradford	est. 3857'		4423'
Benson	est. 4424'		4639'
Alexander	est. 4640'		4776'
Elk	est. 4777'		5361'
Rhinestreet	est. 5362'		6160'
Sycamore	est. 6161'		6429'
Middlesex Shale	est. 6430'		6562'
Burkett Shale	6563'		6583'
Tully	6584'		6687'
Hamilton	6688'		6769'
Marcellus	6770'		6858' TVD

04/04/2014

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	9/23/2013
Job End Date:	9/29/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05653-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Brutus Unit 1H
Longitude:	-80.47996670
Latitude:	39.19618330
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,858
Total Base Water Volume (gal):	0
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Freshwater	Antero Resources	Water	Water	7732-18-5	100.00000	90.70898	
40/70 White	US Silica	Proppant	Sand	14808-60-7	100.00000	4.91440	
20/40 White	US Silica	Proppant	Sand	14808-60-7	100.00000	2.92370	
100 Mesh	US Silica	Proppant	Sand	14808-60-7	100.00000	1.26770	
CFS40	PQS	Guar Gel	Petroleum Distillate	64742-47-8	55.00000	0.04677	
			Guar Gum	9000-30-0	50.00000	0.04252	
			Clay	1302-78-9	5.00000	0.00425	
			Surfactant	154518-36-2	1.00000	0.00085	
Plexslick 953	Chemplex	Friction Reducer	Water	7732-18-5	35.00000	0.02152	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01967	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01844	
			Alcohol Ethoxylate Surfactants	Proprietary	8.00000	0.00492	

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Hydrochloric Acid 10-15%	Reagent	Acid					
			Hydrochloric Acid	7647-01-0	15.00000	0.03424	
Plexicide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02285	
			Glutaraldehyde	111-30-8	14.00000	0.00355	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00076	
			Ethanol	64-17-5	3.00000	0.00076	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00076	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01335	
			Methyl Alcohol	67-56-1	25.00000	0.00393	
			Sodium Salt of Phosphonodimethylated Diamine	Proprietary	5.00000	0.00079	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00123	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00049	
			Alcohol Ethoxylate Surfactants	Proprietary	30.00000	0.00021	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00021	
			n-olefins	Proprietary	10.00000	0.00007	
			Propargyl Alcohol	107-19-7	8.00000	0.00006	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00052	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00012	
			Methyl Alcohol	67-56-1	15.00000	0.00012	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00008	
			Diethanolamine	111-42-2	5.00000	0.00004	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00022	
			Water	7732-18-5	35.00000	0.00016	
			Citric Acid	77-92-9	30.00000	0.00013	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)