

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: 11/19/2013  
API #: 47-017-06173

✓ JK

Farm name: Robinson, Richard G. Operator Well No.: Right Hand Unit 1H

LOCATION: Elevation: 1,156' Quadrangle: New Milton 7.5'

District: New Milton County: Doddridge  
Latitude: 1.719' Feet South of 39 Deg. 12 Min. 30 Sec.  
Longitude 6.846' Feet West of 80 Deg. 42 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" 51#	40'	40'	38 Cu. Ft. Class A
Agent: Ct Corporation System	13 3/8" 48#	420'	420'	583 Cu. Ft. Class A
Inspector: <b>Douglas Newlon</b>	9 5/8" 36	2,497'	2,497'	1017 Cu. Ft. Class A
Date Permit Issued: 1/31/2013	5 1/2" 20#	13,400'	13,400'	3278 Cu. Ft. Class H
Date Well Work Commenced: 4/10/2013				
Date Well Work Completed: 7/31/2013	2 3/8" 4.7#	7213'		
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):* 7054' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 13,400' MD, 7017' TVD (BHL)				
Fresh Water Depth (ft.): 210'				
Salt Water Depth (ft.): 1820'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 879', 1210'				
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) 7020'  
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- Bbl/d  
Final open flow 4,622 MCF/d Final open flow --- Bbl/d  
Time of open flow between initial and final tests --- Hours  
Static rock Pressure 3950 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.

Kaitlin Buck  
Signature

2-14-2014  
Date

05/23/2014

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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 (Johnson Unit 1H, API# 47-017-06156). Please reference the wireline logs submitted with Form WR-35 for Johnson 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: 7,465'- 13,345' (2400 Holes)

Frac'd w/ 22,750 gals 15% HCL Acid, 165,783 bbls Slick Water carrying 389,554# 100 mesh, 3,310,913# 40/70 sand and 1,749,417# 20/40 sand.

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

Formations Encountered: \_\_\_\_\_ Top Depth \_\_\_\_\_ / \_\_\_\_\_ Bottom Depth \_\_\_\_\_  
Surface:

Big Lime	est 2151'	2245'
Big Injun	est 2246'	2487'
Gantz Sand	est 2488'	2664'
Fifty Foot Sandstone	est 2665'	2872'
Gordon	est 2873'	3197'
Fifth Sandstone	est 3198'	3263'
Bayard	est 3264'	3856'
Speechley	est 3857'	4055'
Baltown	est 4056'	4697'
Bradford	est 4698'	5147'
Benson	est 5148'	5416'
Alexander	est 5417'	5615'
Elk	est 5616'	6134'
Rhinestreet	est 6135'	6627'
Sycamore	6628'	6781'
Middlesex	6782'	6913'
Burket	6914'	6948'
Tully	6949'	7011'
Hamilton	7012'	7019'
Marcellus	7020'	7054' TVD

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/21/2013
Job End Date:	7/31/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06173-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Right Hand Unit 1H
Longitude:	-80.71440000
Latitude:	39.18953610
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,054
Total Base Water Volume (gal):	7,191,324
Total Base Non Water Volume:	35,789



## 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	90.70635	
40/70 White	US Silica	Proppant					
			Sand	14808-60-7	100.00000	5.51712	
20/40 White	US Silica	Proppant					
			Sand	14808-60-7	100.00000	2.91513	
100 Mesh	US Silica	Proppant					
			Sand	14808-60-7	100.00000	0.64913	
Beta M-4.0	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.05480	
			Guar Gum	9000-30-0	50.00000	0.04981	
			Clay	1302-78-9	5.00000	0.00498	
			Surfactant	154518-36-2	1.00000	0.00100	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.01954	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01787	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01675	
			Alcohol Ethoxylate Surfactants	Trade Secret	8.00000	0.00447	

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Hydrochloric Acid 10-15%	Reagent	Acid					
			Hydrochloric Acid	7647-01-0	15.00000	0.04927	
Plexicide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02346	
			Glutaraldehyde	111-30-8	14.00000	0.00365	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00078	
			Ethanol	64-17-5	3.00000	0.00078	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00078	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01157	
			Methyl Alcohol	67-56-1	25.00000	0.00340	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00000	0.00068	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00153	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00038	
			Water	7732-18-5	35.00000	0.00026	
			Citric Acid	77-92-9	30.00000	0.00023	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00039	
			Alcohol Ethoxylate Surfactants	Trade Secret	30.00000	0.00017	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00017	
			n-olefins	Trade Secret	10.00000	0.00006	
			Propargyl Alcohol	107-19-7	8.00000	0.00004	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00041	
			Methyl Alcohol	67-56-1	15.00000	0.00009	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00009	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00006	
			Diethanolamine	111-42-2	5.00000	0.00003	

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)

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