

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: 11/20/2013  
API #: 47-017-06102

Farm name: Erwin, John F. Operator Well No.: Hinterer Unit 1H

LOCATION: Elevation: 1,218' Quadrangle: New Milton 7.5

District: New Milton County: Doddridge  
Latitude: 8.287 Feet South of 39 Deg. 10 Min. 00 Sec.  
Longitude 3658' Feet West of 80 Deg. 40 Min. 00 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#	46'	46'	44 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	376'	376'	522 Cu. Ft. Class A
Inspector: Douglas Newlon	9 5/8" 36#	2,458'	2,458'	1000 Cu. Ft. Class A
Date Permit Issued: 7/23/2012	5 1/2" 20#	15,862'	15,862'	3967 Cu. Ft. Class H
Date Well Work Commenced: 1/17/2013				
Date Well Work Completed: 5/29/2013	2 3/8" 4.7#	7471'		
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): 7219' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 15862' MD, 7124' TVD (BHL)				
Fresh Water Depth (ft.): 171'				
Salt Water Depth (ft.): 762', 857', 1130'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 680', 1850'				
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) 7183' (TOP)  
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- Bbl/d  
Final open flow 5,634 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

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

2/10/2014  
Date

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Were core samples taken? Yes \_\_\_\_\_ No **X**

Were cuttings caught during drilling? Yes \_\_\_\_\_ No **X**

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 (Hinterer Unit 2H AP#47-017-06104). Please reference the wireline logs submitted with Form WR-35 for Hinterer Unit 2H.

**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: 7,298'- 15,805' (1860 Holes)

Frac'd w/ 17,000 gals 15% HCL Acid, 192,667 bbls Slick Water carrying 755,440# 100 mesh, 2,967,073# 40/70 sand and 1,514,742# 20/40 sand.

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

Formations Encountered: / Top Depth / Bottom Depth  
Surface:

Big Lime	est 2242'	2370'
Big Injun	est 2371'	2602'
Gantz Sand	est 2603'	2755'
Fifty Foot Sandstone	est 2756'	2947'
Gordon	est 2948'	3303'
Fifth Sandstone	est 3304'	3351'
Bayard	est 3352'	3941'
Speechley	est 3942'	4138'
Balltown	est 4139'	4779'
Bradford	est 4780'	5232'
Benson	est 5233'	5499'
Alexander	est 5500'	5707'
Elk	est 5708'	6247'
Rhinestreet	est 6248'	6749'
Sycamore	6750'	6928'
Middlesex	6929'	7071'
Burkett	7072'	7103'
Tully	7104'	7172'
Hamilton	7173'	7182'
Marcellus	7183'	

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

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## Hydraulic Fracturing Fluid Composition:

Component	Supplier	Product Name	Chemical Name	Product ID	Weight (lb)	Weight (%)	Volume (gallons)
Water	Antero Resources	Base Fluid	Water	7732-18-5	100.00000	92.72983	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	6.94113	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.08515	
			Hydrogen Chloride	7641-01-1	18.00000	0.02034	
WFR-405	U.S. Well Services, LLC	Fricition Reducor	Water	7732-18-5	40.00000	0.02665	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02665	
			Petroleum Distillates	84742-47-8	40.00000	0.02145	
			Crystalline Salt	12125-02-9	5.00000	0.00333	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00333	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.03084	
			Petroleum Distillates	84742-47-8	60.00000	0.02821	
			Suspending agent (solid)	14808-60-7	3.00000	0.00472	
			Surfactant	88439-51-0	3.00000	0.00185	

HI Flow 3NIE	U.S. Well Services, LLC	Surfactant						
		Propylene Glycol	57-55-6	30.00000		0.02782		
		Oxirane, methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	13.00000		0.01152		
		Propylene Glycol n-butyl ether	5131-86-8	5.00000		0.00394		
		D-Limonene	8028-48-6	5.00000		0.00376		
		Isopropyl Alcohol	67-63-0	5.00000		0.00354		
		1-Decanol	112-30-1	2.50000		0.00199		
		1-Octanol	111-87-5	2.50000		0.00186		
SI-1000	U.S. Well Services, LLC	Scale Inhibitor						
		Anionic Copolymer	Proprietary			0.00442		
		Ethylene Glycol	107-21-1	20.00000		0.00400		
		Water	7732-18-5	30.00000		0.00333		
Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent						
		2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000		0.00498		
		Deionized Water	7732-18-5	28.00000		0.00285		
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor						
		Ethylene Glycol	107-21-1	40.00000		0.00044		
		N,N-Dimethylformamide	68-12-2	20.00000		0.00013		
		Cinnamaldehyde	104-55-2	15.00000		0.00012		
		Fer bases, quinoline derts, benzyl chloride-quaternized	72480-70-7	15.00000		0.00012		
		2-Butoxyethanol	111-76-2	15.00000		0.00010		
		Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy, branched	1127087-87-0	5.00000		0.00004		
		1-Decanol	112-30-1	5.00000		0.00003		
		1-Octanol	111-87-5	3.00000		0.00002		
		Isopropyl Alcohol	67-63-0	2.50000		0.00002		
AP One	U.S. Well Services, LLC	Gel Breakers						
		Ammonium Persulfate	7727-54-0	100.00000		0.00099		

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\* 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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