

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: 8/29/2013  
API #: 47-033-05646

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

LOCATION: Elevation: 1,089' Quadrangle: West Milford

District: Union County: Harrison  
Latitude: 6,207 Feet South of 39 Deg. 12 Min. 30 Sec.  
Longitude 4386' 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" 51#	78'	78'	75 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	633'	633'	814 Cu. Ft. Class A
Inspector: <b>Sam Ward</b>	9-5/8" 36#	2,568'	2,568'	1,033 Cu. Ft. Class A
Date Permit Issued: 9/11/2012	5-1/2" 20#	14,351'	14,351'	3,524 Cu. Ft. Class H
Date Well Work Commenced: 11/7/2012				
Date Well Work Completed: 4/4/2013	2-3/8" 4.7#	7,042'		
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): 6903' TVD (deepest point drilled)				
Total Measured Depth (ft): 14,351' MD, 6899' TVD (BHL)				
Fresh Water Depth (ft.): 196'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 125', 500'				
Void(s) encountered (N/Y) Depth(s) N, N/A				

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

Producing formation Marcellus Pay zone depth (ft) 6,788' TVD (Top)

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

Final open flow 6,552 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.

Ashtu Mahalein  
Signature

8-29-13  
Date

11/08/2013

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 (Thrash Unit 1H AP#47-033-05647). Please reference the wireline logs submitted with Form WR-35 for Thrash 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: 7,138' - 14,284' MD (1,296 holes)

Frac'd w/ 10,250 gals 15% HCL Acid, 191,834 bbls Slick Water carrying 1,021,503# 100 mesh, 4,171,506# 40/70 sand and 2,422,397# 20/40 sand.

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

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<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'	6142'
Sycamore SS	6143'	6577'
Burket Shale	6578'	6604'
Tully	6605'	6787'
Marcellus	6788'	6903' TVD

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/27/2013
Job End Date:	4/4/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05666-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Caynor Unit 1H
Longitude:	-80.48006940
Latitude:	39.19616390
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	8,088,780
Total Base Non Water Volume:	27,510



## 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	Carrier	Water	7732-18-5	100.00000	88.51307	
40/70 White	US Silica	Proppant	Sand	14808-60-7	100.00000	6.17993	
20/40 White	US Silica	Proppant	Sand	14808-60-7	100.00000	3.58869	
100 Mesh	US Silica	Proppant	Sand	14808-60-7	100.00000	1.51332	
Beta M-4.0	PIP	Guar Gel	Petroleum Distillate	64742-47-8	55.00000	0.06244	
			Guar Gum	9000-30-0	50.00000	0.05677	
			Clay	1302-78-9	5.00000	0.00568	
			Surfactant	154518-36-2	1.00000	0.00114	
Plexsijek 953	Chemplex	Friction Reducer	Water	7732-18-5	35.00000	0.02310	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.02112	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01980	
Plexicide 15G	Chemplex	Biocide	Alcohol Ethoxylate Surfactants	Trade Secret	8.00000	0.00528	
			Water	7732-18-5	90.00000	0.02175	



33.05646

			Glutaraldehyde	111-30-8	14.00000	0.00338
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00073
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00073
			Ethanol	64-17-5	3.00000	0.00073
Hydrochloric Acid 10-15%	Reagent	Acid				
Plexaid 673	Chemplex	Scale Inhibitor	Hydrochloric Acid	7647-01-0	15.00000	0.02041
			Water	7732-18-5	85.00000	0.01230
			Methyl Alcohol	67-56-1	25.00000	0.00362
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00000	0.00072
Sodium Persulfate	Chemplex	Breaker				
			Sodium Persulfate	7775-27-1	100.00000	0.00147
Plexhib 256	Chemplex	Corrosion				
			Methyl Alcohol	67-56-1	70.00000	0.00027
			Thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00012
			Alcohol Ethoxylate Surfactants	Trade Secret	30.00000	0.00012
			n-olefins	Trade Secret	10.00000	0.00004
			Propargyl Alcohol	107-19-7	8.00000	0.00003
Plexbreak 145	Chemplex	Non-emulsifier				
			Water	732-18-5	66.00000	0.00029
			Methyl Alcohol	67-56-1	15.00000	0.00007
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00007
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00004
			Diethanolamine	111-42-2	5.00000	0.00002
Ferriplex 66	Chemplex	Iron Control				
			Acetic Acid	64-19-7	50.00000	0.00013
			Water	7732-18-5	35.00000	0.00009
			Citric Acid	77-92-9	30.00000	0.00008

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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