

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 #: 47-033-05666

Farm name: Consolidation Coal Co. Operator Well No.: Thrash Unit 2H

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

District: Union County: Harrison  
Latitude: 6217 Feet South of 39 Deg. 12 Min. 30 Sec.  
Longitude 4368' 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#	55'	55'	53 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	592'	592'	822 Cu. Ft. Class A
Inspector: Sam Ward	9-5/8" 36#	2,584'	2,584'	1052 Cu. Ft. Class A
Date Permit Issued: 9/25/2012	5-1/2" 20#	13,979'	13,979'	3408 Cu. Ft. Class H
Date Well Work Commenced: 11/5/2012				
Date Well Work Completed: 3/26/2013	2-3/8" 4.7#	6,909'		
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): 6894' TVD				
Total Measured Depth (ft): 13,979' MD				
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) 6,800' TVD (Top)

Gas: Initial open flow      MCF/d Oil: Initial open flow      Bt  
Final open flow 6,948 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 Mahalan  
Signature

8/29/13  
Date

11/08/2013

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

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

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

This is a subsequent well. Artero only runs wireline logs on the first well on a multi-well pad (Thraash Unit 1H AP#47-033-05647). Please reference the wireline logs submitted with Form WR-35 for Thraash 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: 6,931' - 13,914' MD (1,440 holes)

Frac'd w/ 10,500 gals 15% HCL Acid, 147,041 bbls Slick Water carrying 780,870# 100 mesh, 2,897,920# 40/70 sand and 1,810,230# 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'	6160'
Sycamore	est. 6161'	6429'
Middlesex Shale	est. 6430'	6596'
Burket Shale	6597'	6618'
Tully LS	6619'	6726'
Hamilton Shale	6727'	6799'
Marcellus	6800'	6894'

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**Hydraulic Fracturing Fluid Product Component Information Disclosure**

Fracture Date	3/12/2013
State	West Virginia
County	Harrison
API Number	47-033-05647
Operator Name	Antero Resources
Well Name and Number	Thrash Unit 1H
Longitude	-80.4801361
Latitude	39.19615
Long/Lat Projection	NAD27
Production Type	Gas
True Vertical Depth (TVD)	6,908
Total Water Volume (gal)*	6,167,280

**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	7732-18-5	100.00%	89.55064%	
Hydrochloric Acid 10-15%	Reagent	Acid	Hydrochloric Acid	7647-01-0	15.00%	0.02873%	
100 Mesh	US Silica	Proppant	Sand	14808-60-7	100.00%	1.47843%	
40/70 White	US Silica	Proppant	Sand	14808-60-7	100.00%	5.54073%	
20/40 White	US Silica	Proppant	Sand	14808-60-7	100.00%	3.24284%	
Sodium Persulfate	Chemplex	Breaker	Sodium Persulfate	7775-27-1	100.00%	0.00131%	
Ferriplex 66	Chemplex	Iron Control	Acetic Acid	64-19-7	50.00%	0.00019%	
			Citric Acid	77-92-9	30.00%	0.00011%	
			Water	7732-18-5	35.00%	0.00013%	
Plexbreak 145	Chemplex	Non-emulsifier	Cocamide Diethanolamine Salt	68603-42-9	10.00%	0.00007%	
			Diethanolamine	111-42-2	5.00%	0.00003%	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00%	0.00010%	
			Methyl Alcohol	67-56-1	15.00%	0.00010%	
			Water	732-18-5	66.00%	0.00043%	
Plexhib 256	Chemplex	Corrosion Inhibitor	Alcohol Ethoxylate Surfactants	Trade Secret	30.00%	0.00017%	
			Methyl Alcohol	67-56-1	70.00%	0.00041%	
			n-olefins	Trade Secret	10.00%	0.00006%	
			Propargyl Alcohol	107-19-7	8.00%	0.00005%	
			thiourea-formaldehyde copolymer	68527-49-1	30.00%	0.00017%	
			Methyl Alcohol	67-56-1	25.00%	0.00374%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00075%	
			Water	7732-18-5	85.00%	0.01271%	
			Water	7732-18-5	90.00%	0.02211%	
			Glutaraldehyde	111-30-8	14.00%	0.00344%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00074%	

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