

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: 10/9/2013  
API #: 47-085-10023

Farm name: O'Neil Family Trust, et al Operator Well No.: Constable Unit 1H

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LOCATION: Elevation: 1,142' Quadrangle: Pullman 7.5'

DEC 26 2013

District: Union County: Ritchie  
Latitude: 4.355' Feet South of 39 Deg. 12 Min. 30 Sec.  
Longitude 6.280' Feet West of 80 Deg. 52 Min. 30 Sec.

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

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'	62 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	490'	490'	681 Cu. Ft. Class A
Inspector: David Cowan	9 5/8" 36#	2,571'	2,571'	1,047 Cu. Ft. Class A
Date Permit Issued: 2/5/2013	5 1/2" 20#	15,010'	15,010'	3698 Cu. Ft. Class H
Date Well Work Commenced: 3/9/2013				
Date Well Work Completed: 7/22/2013	2 3/8" 4.7#	6,839'		
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): 7249' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 15,014' MD, 7221' TVD (BHL)				
Fresh Water Depth (ft.): 44', 60'				
Salt Water Depth (ft.): 1934', 1988'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): None Available				
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) 6551' (TOP)

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

Final open flow 12,507 MCF/d Final open flow --- Bbl/d

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

Static rock Pressure 3,000 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

12/23/2013  
Date

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MORGANTOWN, WV

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.

**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: 6,922'- 14,95' (3,024 Holes)

Frac'd w/ 22,500 gals HCL Acid, 235,227 bbls Slick Water carrying 1,034,944# 100 mesh, 3,797,002# 40/70 sand and 1,768,164# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A-- There is no plug in this well; however, during the drilling of the lateral, a decision was made to sidetrack due to the hole being too tight during drilling. This is an open-hole sidetrack in the horizontal lateral. WVDEP Inspector was notified on 5/19/2013.

Formations Encountered:	Top Depth	Bottom Depth
<u>Surface:</u>		
Fifth Sandstone	est. 3058'	3176'
Bayard	est. 3177'	4042'
Speechley	est. 4043'	4268'
Balltown	4269'	6711'
Bradford	4712'	5001'
Benson	5002'	5231'
Alexander	5233'	5399'
Elk	5400'	5839'
Rhinestreet	5840'	6224'
Sycamore	6225'	6390'
Middlesex	6391'	6498'
Burkett	6499'	6530'
Tully	6531'	6550'
Marcellus	6551'	7249' TVD



# Hydraulic Fracturing Fluid Product Component Information Disclosure

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WV GEOLOGICAL SURVEY  
MORGANTOWN, WV



Job Start Date:	3/8/2013
Job End Date:	7/22/2013
State:	West Virginia
County:	Richie
API Number:	47-085-10023-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Constable Unit 1H
Longitude:	-80.89036390
Latitude:	39.19109170
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,588
Total Base Water Volume (gal):	10,561,932
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
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100.00000	92.66914	Density = 8.330
Proppant - Premium White	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	5.90182	
100m Premium White	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	1.09355	
FE ACID - >10% HCL	Halliburton	Solvent	Hydrochloric acid	7647-01-0	30.00000	0.06356	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00000	0.02904	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01910	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic anhydride	108-24-7	100.00000	0.00212	
			Acetic acid	64-19-7	60.00000	0.00127	
Scalechek LP-65	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00000	0.00156	



GBW-30 BREAKER	Halliburton	Breaker	Carbohydrates	Confidential	100.00000	0.00118	
			Hemicellulase enzyme	9012-54-8	30.00000	0.00035	
FE-2A	Halliburton	Additive	Citric acid	77-92-9	60.00000	0.00147	
BE-9	Halliburton	Bicide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00093	
HAL-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00000	0.00011	
			Propargyl alcohol	107-19-7	10.00000	0.00002	
Ingredients shown above are subject to 29 CFR (1910.1200(f)) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
		Other Ingredient(s)	Water	7732-18-5		0.27026	
		Other Ingredient(s)	Polyacrylamide copolymer	Confidential		0.01910	
		Other Ingredient(s)	Organic phosphonate	Confidential		0.00936	
		Other Ingredient(s)	Alcohols, C12-16, ethoxylated	68551-12-2		0.00318	
		Other Ingredient(s)	Fatty acid tall oil amide	Confidential		0.00318	
		Other Ingredient(s)	Ammonium chloride	12125-02-9		0.00318	
		Other Ingredient(s)	Sodium chloride	7647-14-5		0.00318	
		Other Ingredient(s)	Acetic anhydride	108-24-7		0.00212	
		Other Ingredient(s)	Citric acid	77-92-9		0.00212	
		Other Ingredient(s)	Acetic acid	64-19-7		0.00212	
		Other Ingredient(s)	Bentonite, benzyli(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		0.00145	
		Other Ingredient(s)	Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8		0.00064	
		Other Ingredient(s)	Sorbitan monooleate polyoxyethylene derivative	9005-65-6		0.00064	
		Other Ingredient(s)	Surfactant mixture	Confidential		0.00029	
		Other Ingredient(s)	Surfactant mixture	Confidential		0.00029	
		Other Ingredient(s)	Surfactant mixture	Confidential		0.00029	

	Other Ingredient(s)	Silica gel	112926-00-8		0.00029	
	Other Ingredient(s)	Formaldehyde	50-00-0		0.00016	
	Other Ingredient(s)	Alcohols, C14-C15, ethoxylated	68951-67-7		0.00005	
	Other Ingredient(s)	Fatty acids, tall oil	Confidential		0.00005	
	Other Ingredient(s)	Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1		0.00005	
	Other Ingredient(s)	Crystalline Silica, Quartz	14808-60-7		0.00003	
	Other Ingredient(s)	Other Ingredient(s)	Confidential		0.00001	
	Other Ingredient(s)	Other Ingredient(s)	Confidential		0.00001	
	Other Ingredient(s)	Other Ingredient(s)	Confidential		0.00000	
	Other Ingredient(s)	Other Ingredient(s)	Confidential		0.00000	
	Other Ingredient(s)	Other Ingredient(s)	Confidential		0.00000	

\* 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)