

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: 2/19/2013  
API #: 47-017-06084

Farm name: Powell, Dennis H. and Mollie Operator Well No.: Leatherman Unit 1H

LOCATION: Elevation: 881' Quadrangle: Smithburg 7.5'

District: Grant County: Doddridge  
Latitude: 6.894 Feet South of 39 Deg. 17 Min. 30 Sec.  
Longitude 5.659 Feet West of 80 Deg. 40 Min. 00 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	353'	353'	490 Cu. Ft. Class A
Inspector: Sam Ward	9-5/8" 36#	2601'	2601'	1514 Cu. Ft. Class A
Date Permit Issued: 5/22/2012	5-1/2" 20#	13917'	13917'	3395 Cu. Ft. Class H
Date Well Work Commenced: 7/6/2012				
Date Well Work Completed: 12/13/2012	2-3/8" 4.7#	6677'		
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): 6,630' TVD				
Total Measured Depth (ft): 13,917' MD				
Fresh Water Depth (ft.): est. 103'				
Salt Water Depth (ft.): None available				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 154', 236', 273'				
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) 6,528' TVD (Top)

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow N/A Bbl/d

Final open flow 9,118 MCF/d Final open flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock Pressure 3550 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

RECEIVED

FEB 21 2013

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

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.

Lisa Bolu  
Signature

2/19/13  
Date

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. Antero only runs wireline logs on the first well on a multi-well pad (Neely Unit 1H AP#47-017-08088). Please reference the wireline logs submitted with Form WFR-35 for Neely 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: 6,666' - 13,851' MD (1452 holes)

Frac'd w/ 11,000 gals 15% HCL Acid, 150,915bbls Slick Water carrying 791,499# 100 mesh,  
2,947,320# 40/70 and 1,867,227# 20/40 sand.

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

<u>Formations Encountered:</u> <u>Surface:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
Big Lime est.	1,571'	2,321'
Fifty Foot Sandstone est.	2,322'	4,174'
Bradford est.	4,175'	4,640'
Benson est.	4,641'	4,897'
Alexander est.	4,898'	5,114'
Elk est.	5,115'	5,664'
Rhinestreet est.	5,665'	6,045'
Sycamore est.	6,046'	6,114'
Sonyea est.	6,115'	6,257'
Middlesex est.	6,258'	6,328'
West River est.	6,329'	6,370'
Genundewa est.	6,371'	6,416'
Burket est.	6,417'	6,446'
Tully est.	6,447'	6,510'
Hamilton est.	6,511'	6,527'
Marcellus est.	6,528'	6,630' TVD

RECEIVED

FEB 21 2013

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	12/8/2012
State:	West Virginia
County:	Doddridge
API Number:	47-017-06084
Operator Name:	Antero Resources
Well Name and Number:	Leatherman Unit 1H
Longitude:	-80.6910194
Latitude:	39.2761306
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	6,630
Total Water Volume (gal)*:	6,338,430

RECEIVED

FEB 21 2013

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

## 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%	89.21022%	
Hydrochloric Acid 10-15%	Reagent		Hydrochloric Acid	7647-01-0	15.00%	0.02795%	
100 Mesh	US Silica		Sand	14808-60-7	100.00%	1.49638%	
40/70 White	US Silica		Sand	14808-60-7	100.00%	5.57210%	
20/40 White	US Silica		Sand	14808-60-7	100.00%	3.53012%	
Sodium Persulfate	Chemplex		Sodium Persulfate	7775-27-1	100.00%	0.00134%	
Femplex 66	Chemplex		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		Cocamide Diethanolamine Salt	68603-42-9	10.00%	0.00006%	
			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	68.00%	0.00043%	
Plexhib 256	Chemplex		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%	
Plexaid 673	Chemplex		Methyl Alcohol	67-56-1	25.00%	0.00373%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00075%	
			Water	7732-18-5	85.00%	0.01267%	
Plexcide 15G	Chemplex		Water	7732-18-5	90.00%	0.02262%	
			Glutaraldehyde	111-30-8	14.00%	0.00352%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00075%	

		Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00%	0.00075%
		Ethanol	64-17-5	3.00%	0.00075%
Plexsick 921 E	Chemplex	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00437%
		Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.01639%
		Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.01749%
		Water	7732-18-5	35.00%	0.01913%
LGR-01	Magnablend	Solvent naphtha, heavy aliphatic	64742-96-7	55.00%	0.05648%
		Guar Powder	9000-30-0	45.00%	0.04621%
		Organophilic clay	mixture of 68953-58-2, 68911-87-5, 14808-60-7	3.00%	0.00308%
		Sorbitan sesquiolate	8007-43-0	4.00%	0.00411%
		Ethoxylated Alcohol	78330-21-9	2.00%	0.00205%

\* 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%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

RECEIVED

FEB 21 2013

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV