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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: 05/21/2012  
API #: 47-033-05551

Farm name: Edgar H. Williams Estate Operator Well No.: Hardman Unit 2H

LOCATION: Elevation: 1190' Quadrangle: Wolf Summit

District: Coal County: Harrison  
Latitude: 7463' Feet South of 39 Deg. 20 Min. 00 Sec.  
Longitude: 9136' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	41'	41'	38 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 54.5#	488'	488'	678 Cu. Ft. Class A
Inspector: <u>Tristan Jenkins</u>	9-5/8", 36#	2652'	2652'	1086 Cu. Ft. Class A
Date Permit Issued: <u>5/24/2011 &amp; 12/28/2011</u>	5-1/2" 20#	14,890'	14,890'	3644 Cu. Ft. Class H
Date Well Work Commenced: <u>6/3/2011</u>				
Date Well Work Completed: <u>4/16/2012</u>	2-3/8" 4.7#	7154'		
Verbal Plugging: <u>N/A</u>				
Date Permission granted on: <u>N/A</u>				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7013' TVD (deepest point drilled)</u>				
Total Measured Depth (ft): <u>14,890' MD, 7013' TVD (BHL)</u>				
Fresh Water Depth (ft.): <u>*None available</u>				
Salt Water Depth (ft.): <u>*None available</u>	<u>*Due to air drilling, Antero was unable to identify accurate fresh water, salt water and/or coal depths for reporting.</u>			
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>*None available</u>				
Void(s) encountered (N/Y) Depth(s) <u>N, N/A</u>				

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

Producing formation Marcellus Pay zone depth (ft) 6971' TVD (Top)

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

Final open flow 8,039 MCF/d Final open flow N/A Bbl/d

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

Static rock Pressure 3300 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.

Debra Mikalau  
Signature

5-21-12  
Date

08/24/2012

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- Cement Bond Log/Gamma Ray/CCL Log

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Marsh Unit 1H API# 47-033-05361). Please reference wireline logs submitted with Form WR-35 for Marsh 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.**

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Perforated Intervals, Fracturing, or Stimulating:

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Perforations: 7200'- 14,827' (1584 holes)

Frac'd w/ 12,000 gals 15% HCL Acid, 169,836 bbls Slick Water carrying 782,900# 100 mesh,

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3,595,900# 40/70 and 2,431,700# 20/40 sand.

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

Formations Encountered: \_\_\_\_\_ Top Depth \_\_\_\_\_ / \_\_\_\_\_ Bottom Depth  
Surface: \_\_\_\_\_

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
**Burkett	6,723'	6,748'
Tully	6,749'	6,879'
Hamilton	6,880'	6,970'
Marcellus	6,971'	7,013' TVD

\*\*Antero only runs wireline logs on the first well on a multi-well pad (Marsh Unit 1H). Since this is a subsequent well, our logging started at the top of the Burkett.

Therefore, we are unable to accurately identify formation tops from surface. Please reference the additional formation tops submitted on Form WR-35 for the Marsh Unit 1H (API# 47-033-05361).

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WELL NAME: Hardman Unit 2H

API #: 47-033-05551

**Antero Resources Appalachian Corporation**  
**Addendum to Form WR-35 - List of Additives Actually Used for**  
**Fracturing Or Stimulating Well**

ADDITIVES	CHEMICAL ABSTRACT SERVICE NUMBER (CAS #)
AI-2	Mixture
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol)	111-76-2
Propargyl Alcohol	107-19-7
Isopropanol (Isopropyl Alcohol)	67-63-0
Proprietary Blend	Proprietary
EB-4L (Ethylene Glycol)	107-21-1
Hydrochloric Acid	7647-01-0
KR-153-SL	Unknown/Unavailable
LSG-100	Unknown/Unavailable
OB-2	Unknown/Unavailable
PH-15L	Unknown/Unavailable
Super TSC LT	Unknown/Unavailable
WFR-3B	Mixture
Petroleum distillate hydrotreated	64742-47-8
Mineral Spirits	8052-41-3
Propylene Glycol	57-55-6
Ethoxylated Alcohols	68551-12-2