

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: 8/5/2013  
API #: 47-033-05648

Farm name: Coffman, Thelma Operator Well No.: Messenger Unit 1H

LOCATION: Elevation: 1,169' Quadrangle: Wolf Summit

District: Union County: Harrison  
Latitude: 6,686' Feet South of 39 Deg. 17 Min. 30 Sec.  
Longitude 14,654' Feet West of 80 Deg. 25 Min. 00 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#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 40#	545'	545'	757 Cu. Ft. Class A
Inspector: <b>Sam Ward</b>	9-5/8" 36#	2,605'	2,605'	1061 Cu. Ft. Class A
Date Permit Issued: 9/7/2012	5-1/2" 20#	16,716'	16,716'	4152 Cu. Ft. Class H
Date Well Work Commenced: 9/26/2012				
Date Well Work Completed: 2/8/2013	2-3/8" 4.7#	6,962'		
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): 7010' TVD (deepest point drilled)				
Total Measured Depth (ft): 16,716' MD, 6998' TVD (BHL)				
Fresh Water Depth (ft.): 279'				
Salt Water Depth (ft.): None Available				
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) 6,814' (TOP)  
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- Bbl/d  
Final open flow 10,209 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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Environmental Protection

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.

Kaiten Buck  
Signature

12/4/2013  
Date

01/17/2014

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 (Yates Unit 1H API#47-033-05484). Please reference the wireline logs submitted with Form WR-35 for Yates 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: 7,032' - 16,650' MD (2,016 holes)

Frac'd w/ 14,500 gals 15% HCL Acid, 203,278 bbls Slick Water carrying 1,026,000# 100 mesh, 3,804,030# 40/70 sand and 2,397,340# 20/40 sand.

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

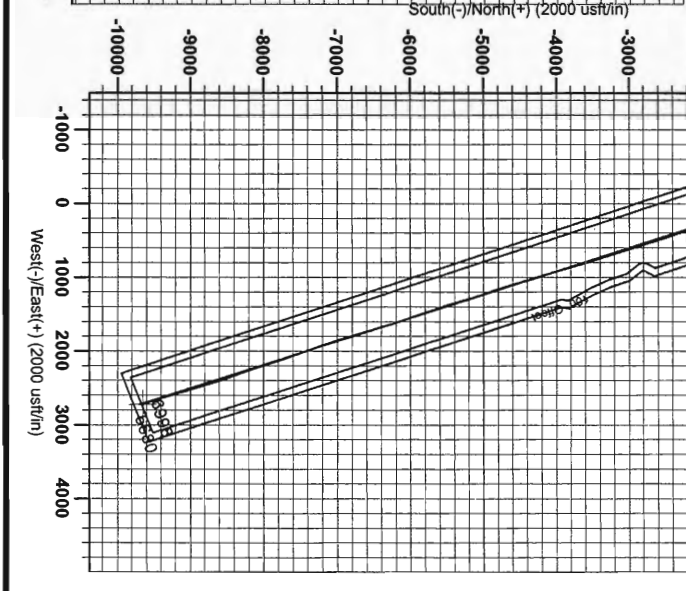
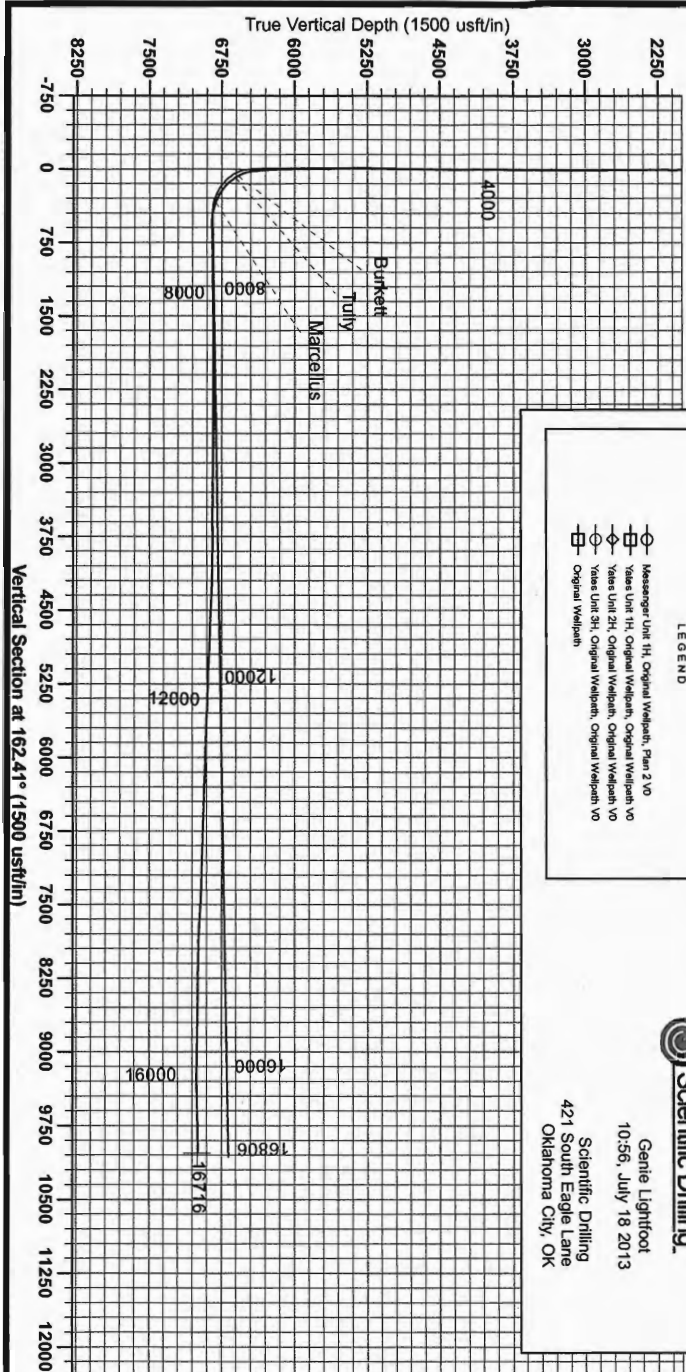
<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Big Lime	est. 1367'	1486'
Big Injun	est. 1487'	1893'
Fifty Foot Sandstone	est. 1894'	2036'
Gordon	est. 2037'	2299'
Fifth Sandstone	est. 2300'	2349'
Bayard	est. 2350'	3000'
Speechley	est. 3001'	3218'
Balltown	est. 3219'	3770'
Bradford	est. 3771'	4369'
Benson	est. 4370'	4676'
Alexander	est. 4677'	4899'
Elk	est. 4900'	6124'
Sycamore	est. 6125'	6403'
Sonyea	6404'	6481'
West River Shale	6482'	6578'
Burkett	6579'	6608'
Tully	6609'	6734'
Hamilton	6735'	6813'
Marcellus	6814'	7010' TVD

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Antero Resources  
 Messenger Unit 1H  
 Harrison County West Virginia  
 Northing: 14253905.69  
 Easting: 1799020.97  
 Original Wellpath



**WELL DETAILS:** Messenger Unit 1H

Name	Messenger Unit 1H
Ground Level	1180.0
Easting	1799020.97
Latitude	39° 15' 4.482" N 80° 28' 23.088" W
Longitude	
Slot	

**PROJECT DETAIL S:** Harrison County West Virginia

Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1983 (NAD83 CONUS)  
 Ellipsoid: GRS 1980  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**REFERENCE INFORMATION**

Coordinate Reference: Well Messenger Unit 1H (241000)  
 Vertical (VD) Reference: 2004 USGS (2004)  
 Station (VS) Reference: 2004 USGS (2004)  
 Method: Minimum Curvature  
 Calculation Method: Minimum Curvature

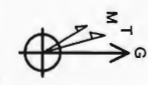
**Well Location Coordinates (NAD 83)**

Name	TVD	North	East	Latitude	Longitude
SHL Messenger Unit 1H	0.0	0.0	0.0	39° 15' 4.482" N	80° 28' 23.088" W
Actual BH, Messenger Unit 1H	6998.4	-9558.3	2721.1	14244247.40	1801742.0539° 13' 28.819" N 80° 25' 40.259" W
SHL (UTM meters)		4,344,832.696m	546,302.322m		
BH (UTM meters)		4,341,895.817	546,189.206m		

**LEGEND**

- Messenger Unit 1H, Original Wellpath, Plan 2 VO
- Vases Unit 1H, Original Wellpath, Original Wellpath VO
- Vases Unit 2H, Original Wellpath, Original Wellpath VO
- Vases Unit 3H, Original Wellpath, Original Wellpath VO
- Original Wellpath

**Scientific Drilling,**  
 Gentle Lightfoot  
 10-56, July 18 2013  
 421 South Eagle Lane  
 Oklahoma City, OK



To convert Magnetic North to Grid North  
 True North = Magnetic North + Dip Angle  
 Dip Angle: 66.90°  
 Date: 10/15/2012  
 Model: GNM2010

01/17/2014

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/29/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05648
Operator Name:	Antero Resources
Well Name and Number:	Messenger Unit 1H
Longitude:	-90.4397466
Latitude:	39.2512444
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	6,998
Total Water Volume (gal)*:	8,537,676

## 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%	89.58301%	
Hydrochloric Acid 10-15%	Reagent		Hydrochloric Acid	7647-01-0	15.00%	0.02735%	
100 Mesh	US Silica		Sand	14808-60-7	100.00%	1.43901%	
40/70 White	US Silica		Sand	14808-60-7	100.00%	5.33908%	
20/40 White	US Silica		Sand	14808-60-7	100.00%	3.36624%	
Sodium Persulfate	Chemplex		Sodium Persulfate	7775-27-1	100.00%		
Fertplex 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	66.00%	0.00042%	
Plexhib 256	Chemplex		Alcohol Ethoxyate Surfactants	Trade Secret	30.00%	0.00017%	
			Methyl Alcohol	67-56-1	70.00%	0.00040%	
			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%	0.00371%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00074%	
			Water	7732-18-5	85.00%	0.01261%	
Plexcide 15G	Chemplex		Water	7732-18-5	90.00%	0.00257%	
			Glutaraldehyde	111-30-8	14.00%	0.00040%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00009%	

