

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

pm

DATE: 3/27/2014
API #: 47-017-06167

JK

Farm name: Clarence Trent Jr. et al Operator Well No.: Bowen Unit 2H

LOCATION: Elevation: 1,410' Quadrangle: New Milton 7.5'

District: Greenbrier County: Doddridge
Latitude: 1.238 Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 14.870 Feet West of 80 Deg. 37 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#	67'	67'	86 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	330'	330'	458 Cu. Ft. Class A
Inspector: Douglas Newlon	9 5/8" 36#	2530'	2530'	1,030 Cu. Ft. Class A
Date Permit Issued: 1/29/2013	5 1/2" 20#	14,376'	14,376'	3,537 Cu. Ft. Class H
Date Well Work Commenced: 6/28/2013				
Date Well Work Completed: 12/19/2013	2 3/8" 4.7#	7,543'		
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): ^{7468'} TVD (Deepest Point Drilled)				
Total Measured Depth (ft): ^{14,376'} MD, ^{7381'} TVD (BHL)				
Fresh Water Depth (ft.): 100', 135'				
Salt Water Depth (ft.): 2126'				
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) ^{7424'} (TOP)

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

Final open flow 3,946 MCF/d Final open flow --- Bbl/d

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

Static rock Pressure 3950 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
Office of Oil and Gas

APR 03 2014

WV Department of
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 Bush

Signature

4/2/2014

Date

05/30/2014

17-06167

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,Photo Density/ Compensated Neutron, Dual Laterolog/ Gamma Ray

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: 7,545'-14,326' (1800 Holes)

Frac'd w/ 9,250 gals 15% HCL Acid, 199,866 bbls Slick Water carrying 719,440# 100 mesh,
4,662,160# 40/70 sand and 2,316,850# 20/40 sand.

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

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			
Big Lime	2416'		2530'
Big Injun	2531'		2761'
Gantz Sand	2762'		2972'
Fifty Foot Sandstone	2973'		3138'
Gordon	3139'		3503'
Fifth Sandstone	3504'		3567'
Bayard	3569'		4089'
Speechley	4090'		4292'
Balltown	4293'		4928'
Bradford	4929'		5401'
Benson	5402'		5648'
Alexander	5649'		5885'
Elk	5886'		6424'
Rhinestreet	6425'		6963'
Sycamore	6964'		7127'
Middlesex	7128'		7279'
Burkett	7280'		7306'
Tully	7307'		7386'
Hamilton	7387'		7423'
Marcellus	7424'		7468' TVD

05/30/2014

17-06167

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/11/2013
Job End Date:	12/19/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06167-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Bowen Unit 2H
Longitude:	-80.62932220
Latitude:	39.20924720
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,460
Total Base Water Volume (gal):	8,394,372
Total Base Non Water Volume:	380,071



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
Water	Antero Resources	Base Fluid					
			Water	7732-18-5	100.00000	89.85399	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	9.88067	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.08889	
			Hydrogen Chloride	7641-01-1	18.00000	0.02123	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02321	
			Anionic Polyacrylamide	Proprietary		0.02321	
			Petroleum Distillates	64742-47-8	22.00000	0.01868	
			Crystalline Salt	12125-02-9	5.00000	0.00290	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00290	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.03007	
			Petroleum Distillates	64742-47-8	60.00000	0.02848	
			Suspending agent (solid)	14808-60-7	3.00000	0.00460	

17-06167

			Surfactant	68439-51-0	3.00000	0.00180
SI-1000	U.S. Well Services, LLC	Scale Inhibitor				
			Anionic Copolymer	Proprietary		0.00410
			Ethylene Glycol	107-21-1	20.00000	0.00371
			Water	7732-18-5	30.00000	0.00309
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00424
			Deionized Water	7732-18-5	28.00000	0.00242
AP One	U.S. Well Services, LLC	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00126
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Ethylene Glycol	107-21-1	31.00000	0.00023
			N,N-Dimethylformamide	68-12-2	15.00000	0.00007
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	13.00000	0.00006
			Cinnamaldehyde	104-55-2	5.00000	0.00006
			2-Butoxyethanol	111-76-2	7.00000	0.00005
			Water	7732-18-5	20.00000	0.00002
			Ethoxylated Nonylphenol	68412-54-4	5.00000	0.00002
			Triethyl Phosphate	78-40-0	3.00000	0.00001
			Isopropyl Alcohol	67-63-0	3.00000	0.00001

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* 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)