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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

	7/5/2013	
API#:	47-017-06166	

District: Grant         County: Doddridge           Latitude: 9.443′ Feet South of 39 Deg. 20 Min. 00 Sec.         Longitude 5.624′ Feet West of 80 Deg. 40 Min. 00 Sec.           Company:           Antero Resources Corporation           Address:         1625 17th Street         Casing & Used in Tubing drilling         Left in well up Cu. Ft.         Cement fill up Cu. Ft.           Denver, CO 80202         20" 94# 44′ 44′ 42′ 42 Cu Ft. Clas         42 Cu Ft. Clas         Agent: CT Corporation System         13 3/8" 48# 402′ 402′ 559 Cu Ft. Clas         13 3/8" 48# 402′ 402′ 559 Cu Ft. Clas         13 38 Cu Ft. Clas           Inspector:         Douglas Newlon         9 5/8" 36# 2,550′ 2,550′ 2,550′ 1038 Cu Ft. Clas         13 3/913′ 13,913′ 3404 Cu Ft. Clas           Date Permit Issued:         1/28/2013         5 1/2" 20# 13,913′ 13,913′ 3404 Cu Ft. Clas         13 3/913′ 3404 Cu Ft. Clas           Date Well Work Completed:         5/25/2013         2 3/8" 4.7# 7,380′         7,380′           Verbal Plugging:         N/A         N/A         N/A           Date Permission granted on:         N/A         N/A           Total Vertical Depth (ft):         7114′ TVD         Total Vertical Depth (ft):
Latitude: 9,443'       Feet South of 39 Deg. 20 Min. 00 Sec.         Longitude 5,624'       Feet West of 80 Deg. 40 Min. 00 Sec.         Company:         Antero Resources Corporation         Company:       Antero Resources Corporation         Left in well Up Cu. Ft. 10 Up Cu.
Longitude 5.624'         Feet West of 80         Deg. 40         Min. 00         Sec.            Antero Resources Corporation           Address:         1625 17th Street         Casing & Used in drilling         Left in well up Cu. Ft.           Denver, CO 80202         20" 94#         44'         44'         42 Cu Ft. Class           Agent:         CT Corporation System         13 3/8" 48#         402'         402'         559 Cu Ft. Class           Inspector:         Douglas Newlon         9 5/8" 36#         2,550'         2,550'         1038 Cu Ft. Class           Date Permit Issued:         1/28/2013         5 1/2" 20#         13,913'         13,913'         3404 Cu Ft. Class           Date Well Work Commenced:         2/18/2013         2 3/8" 4.7#         7,380'         Verbal Plugging:         N/A           Verbal Plugging:         N/A         N/A         N/A         N/A         N/A           Rotary         Cable         Rig         Rig         N/A         N/A         N/A
Company:       Casing & Tubing       Used in drilling       Left in well       Cement fill up Cu. Ft.         Denver, CO 80202       20" 94#       44'       44'       42 Cu Ft. Class         Agent:       CT Corporation System       13 3/8" 48#       402'       402'       559 Cu Ft. Class         Inspector:       Douglas Newlon       9 5/8" 36#       2,550'       2,550'       1038 Cu Ft. Class         Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'       7,380'         Verbal Plugging:       N/A       N/A       N/A         Date Permission granted on:       N/A       N/A         Rotary       Cable       Rig
Company:       Casing & Tubing       Used in drilling       Left in well       Cement fill up Cu. Ft.         Denver, CO 80202       20" 94#       44'       44'       42 Cu Ft. Class         Agent:       CT Corporation System       13 3/8" 48#       402'       402'       559 Cu Ft. Class         Inspector:       Douglas Newlon       9 5/8" 36#       2,550'       2,550'       1038 Cu Ft. Class         Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'       7,380'         Verbal Plugging:       N/A       N/A       N/A         Date Permission granted on:       N/A       N/A         Rotary       Cable       Rig
Address:       1625 17th Street       Tubing       drilling       up Cu. Ft.         Denver, CO 80202       20" 94#       44'       44'       42 Cu Ft. Class         Agent:       CT Corporation System       13 3/8" 48#       402'       402'       559 Cu Ft. Class         Inspector:       Douglas Newlon       9 5/8" 36#       2,550'       2,550'       1038 Cu Ft. Class         Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'         Verbal Plugging:       N/A       N/A         Date Permission granted on:       N/A         Rotary       Cable       Rig
Agent:       CT Corporation System       13 3/8" 48#       402'       402'       559 Cu Ft. Class         Inspector:       Douglas Newlon       9 5/8" 36#       2,550'       2,550'       1038 Cu Ft. Class         Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'         Verbal Plugging:       N/A       N/A         Date Permission granted on:       N/A       N/A         Rotary       Cable       Rig
Inspector:       Douglas Newlon       9 5/8" 36#       2,550'       2,550'       1038 Cu Ft. Class         Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'         Verbal Plugging:       N/A       N/A         Date Permission granted on:       N/A         Rotary       Cable       Rig
Date Permit Issued:       1/28/2013       5 1/2" 20#       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7#       7,380'         Verbal Plugging:       N/A       N/A         Date Permission granted on:       N/A         Rotary       Cable       Rig
Date Permit Issued:       1/28/2013       5 1/2" 20# 13,913'       13,913'       3404 Cu Ft. Class         Date Well Work Commenced:       2/18/2013       2 3/8" 4.7# 7,380'       7,380'         Verbal Plugging:       N/A       N/A         Date Permission granted on:       N/A       N/A         Rotary       Cable       Rig
Date Well Work Commenced: 2/18/2013  Date Well Work Completed: 5/25/2013 2 3/8" 4.7# 7,380'  Verbal Plugging: N/A  Date Permission granted on: N/A  Rotary ✓ Cable Rig
Date Well Work Completed: 5/25/2013 2 3/8" 4.7# 7,380'   Verbal Plugging: N/A   Date Permission granted on: N/A   Rotary ✓ Cable Rig
Verbal Plugging: N/A  Date Permission granted on: N/A  Rotary ✓ Cable Rig
Date Permission granted on: N/A  Rotary ✓ Cable Rig
Rotary Cable Rig
1 Total Vertical Deput (II).
Total Measured Depth (ft): 13,913' MD
Fresh Water Depth (ft.): 192'
Salt Water Depth (ft.): 1336', 1681'
Is coal being mined in area (N/V)? No
Coal Depths (ft.): 274', 444', 1290'
Coal Depths (ft.): 274', 444', 1290'  Void(s) encountered (N/Y) Depth(s) None  PEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)  Producing formation Marcellus  Pay zone depth (ft) 7031' (TOP)  Gas: Initial open flow — MCF/d Oil: Initial open flow — Bbl/d  Einel open flow 9008 — MCF/d Finel open flow — Ph/d

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.

gnature

Date

04/04/2014

Were core samples taken? YesNo_X	Were cuttings cau	ght during drilling? YesNo_X
Were Electrical, Mechanical or Geophysical logs This is a subsequent well. Antero only runs wireline logs on the first well on a r		
NOTE: IN THE AREA BELOW PUT FRACTURING OR STIMULATING, PHYS DETAILED GEOLOGICAL RECORD OF COAL ENCOUNTERED BY THE WELLBO	SICAL CHANGE, ETC. 2). THE W F THE TOPS AND BOTTOMS (	ELL LOG WHICH IS A SYSTEMATIC OF ALL FORMATIONS, INCLUDING
Perforated Intervals, Fracturing, or Stimulating:		
Perforated: 7,585-13,858 (1,296 Holes)		
Frac'd w/ 10,000 gals 15% HCL Acid, 1	36,431 bbls Slick Water carryir	ng 693,810# 100 mesh,
2,617,650# 40/70 sand and 1,567,760#	20/40 sand	
Plug Back Details Including Plug Type and Dept	th(s): Ν/Δ	
	· N/A	
Formations Encountered: Surface:	Top Depth /	Bottom Depth
<u>Surface.</u>		
Big Lime	est. 2049'	2165'
Big Injun	est. 2166'	2596' 2730'
Gantz Sand	est. 2597' est. 2731'	2730 2799'
Fifty Foot Sandstone Gordon	est. 2800'	3142'
Fifth Sandstone	est. 3143'	3156'
	est. 3157'	3885'
Bayard Speechley	est. 3886'	4146'
Balltown	est. 4147'	4662'
Bradford	est. 4663'	5165 CON 611 PO
Benson	est. 5166'	5434' 6 0 - ~13
Alexander	est. 5435'	6780
Rhinestreet	est. 6190'	3885' 4146' 4662' 516\$\(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(
	6627'	6769'
Sycamore	6770'	6921' 1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Sonyea Burkett	6922'	6948'
Tully LS	6949'	7008'~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hamilton	7009'	7030'
Marcellus	7031'	516\$ 10 0 0000 0000 00000 00000 00000 00000 0000
iviai Cellus	7031	7,443 149

WELL DETAILS: Emily Unit 1H Azimuths to Grid North To convert Magnetic North to Grid, Subtract 8.67" True North: -0.19° Magnetic North: -8.67° 9 To convert True North to Grid, Subtract 0.19\* E/-W Northing Easting Lattude Longitude 0.0 14277820.83 1725252.44 39' 19' 4,408 N 80' 42' 0,150 W Magnetic Field Strength: 52459,8snT Dip Angle: 66,95° Date: 2/19/2013 2 0 Model: IGRF2010 PROJECT DETAILS: Doddridge County WV REFERENCE INFORMATION Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866 the (NE) Reference: Well Emily Unit 1H, Ond North
all (TVO) Reference: Emily 1H 1237 Ct. + 23 KB @ 1260.Dush (Driginal Well Bev)
ton (NS) Reference: Std. + (DVO, 0.65)
ed Depth Reference: Emily 1H 1237 Ct. + 23 KB @ 1260.Dush (Driginal Well Bev)
Tolkhall Stein Well Bev)
Tolkhall Stein Well Bev)
Tolkhall Stein Well Bev)
Tolkhall Stein Well Bev) Zone: Zone 17N (84 W to 78 W) Antero Resources System Datum: Mean Sea Level 7500-Emily Unit 1H Doddridge County WV Northing: 14277820.83 Genie Lightfoot 6750-Easting: 1725252.44 14:49, July 18 2013 7164 Original Wellpath Scientific Drilling LEGEND Scientific Drilling 421 South Eagle Lane 3825-6000-Moore Unit 2H, Original Wellpath, Original Wellpath VO Oklahoma City, OK Moore Unit 1H, Original Wellpath, Original Wellpath V0 4000 Emily Unit 2H, Original Wellpath, Original Wellpath V0
Emily Unit 1H, Original Wellpath, Plan 5 V0
Original Wellpath 4250 5250-€ 4500-4675 DESIGN TARGET DETAILS (NAD 83) 3750-SHL Emily Unit 1H +N/-S Easting usft/in) 0.014277820.83 1725252.44 39° 19' 4.408 N 80° 42' 0.150 W 5100-Actual BHL Emily Unit7ti43.5 -2837,014283904.74 1722415.40 39° 20' 4.654 NBO° 42' 36.013 W (-)/North(+) SHL (UTM meters) 4,352,107m 525,872m (850 BHL (UTM meters) 4.353.991m 524.997m 5525 Depth ( 5950-2250 Burkett € 6375-1500-Marcellus 6800-Marcellus 7225-7650--2250 -1500 -750 150 -3000 750 425 850 1275 1700 2125 2975 3400 3825 4250 4675 5100 5525 5950 2550 West(-)/East(+) (1500 usft/in) Vertical Section at 342,20° (850 usft/in)

## Hydraulic Fracturing Fluid Product Component Information Disclosure

5/21/2013	Job Start Date:
5/25/2013	Job End Date:
West Virginia	State:
Doddridge	County:
47-017-06166-00-00	API Number:
	Operator Name:
	Well Name and Number:
-80.6666670	Longitude:
39.33333300	Latitude:
NAD27	Datum:
NO	Federal/Tribal Well:
5,730,102	Total Base Water Volume (gal):
21,514	Total Base Non Water Volume:







## 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
reshwater	Antero Resources	water					
			Water	7732-18-5	100.00000	89.59038	
0/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	5.47431	
0/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	3.27870	
100 Mesh US Silica	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.45208	
Beta M-4.0 PfP	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.06298	
			Guar Gum	9000-30-0	50.00000	0.05725	
			Clay	1302-78-9	5.00000	0.00573	
			Surfactant	154518-36-2	1.00000	0.00115	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.01851	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01692	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01586	
			Alcohol Ethoxylate Surfactants	Proprietary	8.00000	0.00423	
lexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02241	

	5		Glutaraldehyde	111-30-8	14.00000	0.00349	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00075	見り
			Ethanol	64-17-5	3.00000	0.00075	
	h .		Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00075	, 0 %
ydrochloric Acid 10- 5%	Reagent	Acid				No.	<b>3</b>
			Hydrchloric Acid	7647-01-0	15.00000	0.02811	TT.
lexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01074	)
			Methyl Alcohol	67-56-1	25.00000	0.00316	
			Sodium Salt of Phosphonodimethylated Diamine	Proprietary	5.00000	0.00063	
odium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00133	
Plexhib 256 Che	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00041	
			Alcohol Ethoxylate Surfactants	Proprietary	30.00000	0.00017	C-
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00017	
			n-olefins	Proprietary	10.00000	0.00006	
			Propargyl Alcohol	107-19-7	8.00000	0.00005	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00043	
			Methyl Alcohol	67-56-1	15.00000	0.00010	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00010	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00006	
			Diethanolamine	111-42-2	5.00000	0.00003	
erriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00019	
			Water	7732-18-5	35.00000	0.00013	
			Citric Acid	77-92-9	30.00000	0.00011	

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)

<sup>\*</sup> 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%