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: 5/28/13
API #: 47-017-06103

Farm name: Erwin, John F. Operator Well No.: Ruckman Unit 3H

LOCATION: Elevation: 1,218' Quadrangle: New Milton 7.5'

District: New Milton County: Doddridge
Latitude: 8,130' Feet South of 39 Deg. 10 Min. 00 Sec.
Longitude 5,264' Feet West of 80 Deg. 40 Min. 00 Sec.

Company: Antero Resources Appalachian

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	43'	43'	41 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	350'	350'	486 Cu. Ft. Class A
Inspector: Douglas Newlon	9-5/8" 36#	2,492'	2,492'	1,015 Cu. Ft. Class A
Date Permit Issued: 8/14/2012	5-1/2" 20#	13,108'	13,108'	3,197 Cu. Ft. Class H
Date Well Work Commenced: 10/18/2012				
Date Well Work Completed: 3/20/2013	2-3/8" 4.7#	7,357'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7250' TVD (deepest point drilled)				
Total Measured Depth (ft): 13,108' MD, 7185' TVD (BHL)				
Fresh Water Depth (ft.): 295'				
Salt Water Depth (ft.): 1054'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 240', 455', 765'				
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) 7,228' TVD (Top)
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- B
Final open flow 5,009 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

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.

Kaitlin Buck
Signature

11/22/13
Date

01/10/2014

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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 wire-line logs on the first well on a multi-well pad (Ruckman Unit 2H API#47-017-06095). Please reference the wire-line logs submitted with Form WR-35 for Ruckman Unit 2H.

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: 7,410' - 13,053' MD (1,008 holes)

Frac'd w/ 7,500 gals 15% HCL Acid, 306,250 bbls Slick Water carrying 862,500# 100 mesh, 3,382,300# 40/70 sand and 1,780,300# 20/40 sand.

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

Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime	2365'	2453'
Big Injun	2454'	2612'
Weir	2613'	2798'
Berea	2799'	2894'
Gantz	2895'	3011'
Gordon	3012'	3339'
Fifth Sandstone	3340'	3423'
Bayard	3424'	4098'
Balltown	4099'	4827'
Bradford	4828'	5274'
Benson	5275'	5523'
Alexander	5524'	5751'
Elk	5752'	6791'
Sycamore	6792'	6955'
Middlesex Shale	6956'	7110'
Burkett Shale	7111'	7146'
Tully	7147'	7220'
Hamilton	7221'	7227'
Marcellus	7228'	7250' TVD

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/20/2013
Job End Date:	3/29/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06095-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Ruckman 3H
Longitude:	-80.69517100
Latitude:	39.15228300
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,478,774
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

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	Water					
			Water	7732-18-5	100.00000	87.87166	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	6.86932	
			Aluminum Oxide	1344-28-1	1.10000	0.07564	
			Iron Oxide	1309-37-1	0.10000	0.00688	
			Titanium Oxide	13463-67-7	0.10000	0.00688	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	3.35071	
			Aluminum Oxide	1344-28-1	1.10000	0.03690	
			Iron Oxide	1309-37-1	0.10000	0.00335	
			Titanium Oxide	13463-67-7	0.10000	0.00335	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	1.57190	
			Aluminum Oxide	1344-28-1	1.10000	0.01731	
			Titanium Oxide	13463-67-7	0.10000	0.00157	

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			Iron Oxide	1309-37-1	0.10000	0.00157
WFR-3B	Nabors Completion and Production Services	Friction Reducer				
			Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	50.00000	0.03684
			Ethoxylated alcohols	68551-12-2	15.00000	0.01105
			Ethoxylated oleylamine	26635-93-8	5.00000	0.00368
LSG-100L	Nabors Completion and Production Services	Gelling Agents				
			Petroleum Distillates	64742-47-8	70.00000	0.04633
HCl Acid (12.5%-18.0%)	Nabors Completion and Production Services	Bulk Acid				
			Hydrogen Chloride	7647-01-0	18.00000	0.02274
OB-2	Nabors Completion and Production Services	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.01476
			Sillica, crystalline quartz	7631-86-9	10.00000	0.00148
Super GREEN SOLV	Nabors Completion and Production Services	Paraffin & Scale Additives				
			BTEX Free Aliphatic Hydrocarbon	64742-96-7	100.00000	0.01372
KR-153SL	Nabors Completion and Production Services	Biocides				
			Polyethlyene-Glycol	25322-68-3	50.00000	0.00615
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00246
EB-4L	Nabors Completion and Production Services	Gel Breakers				
			Breaker Component	Proprietary	100.00000	0.00090
			Water	7732-18-5	100.00000	0.00090
			Cellulase enzyme	Proprietary	100.00000	0.00090
			Sugar	57-50-1	100.00000	0.00090
			Demulsifier Base	Proprietary	100.00000	0.00090
			Ethylene Glycol	107-21-1	40.00000	0.00036
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors				
			Isopropyl Alcohol	67-63-0	40.00000	0.00010
			Propargyl Alcohol	107-19-7	40.00000	0.00010
			Glycol Ethers	111-46-6	40.00000	0.00010
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00003
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00002

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.

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Other Ingredients	Nabors Completion and Production Services	Other Ingredients					
			Water	7732-18-5	87.50000	0.11052	
			guar gum	9000-30-0	50.00000	0.03309	
			Polyacrylamide	57-55-6	40.00000	0.02947	
			Water	7732-18-5	40.00000	0.02947	
			Propylene glycol	57-55-6	15.00000	0.01105	
			Water	7732-18-5	60.00000	0.00992	
			Water	7732-18-5	80.00000	0.00985	
			Proprietary	Proprietary	50.00000	0.00827	
			vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00295	
			Proprietary	Proprietary	15.00000	0.00248	
			Proprietary	Proprietary	15.00000	0.00248	
			Proprietary	Proprietary	15.00000	0.00248	
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00132	
			Surfactant	68439-51-0	2.00000	0.00132	
			Microparticle	Proprietary	1.00000	0.00074	
			Water	7732-18-5	48.00000	0.00011	
			2-Butoxyethanol	111-76-2	13.00000	0.00003	
			Dioxane	123-91-1	1.00000	0.00000	
			Organophylic Clay	68953-58-2			

* 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)

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ANTERO RESOURCES

Antero Resources
Ruckman Unit 3H
Doddridge County WV
Northing: 14217504.51
Easting: 1726786.83
Original Wellpath

WELL DETAILS: Ruckman Unit 3H

Ground Level: 1250.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14217504.51	1726786.83	39° 9' 7.970 N	80° 41' 43.201 W	

PROJECT DETAILS: Doddridge County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Ruckman Unit 3H, Grid North
Vertical (TVD) Reference: Ruckman Unit 3H Frontier 8 1250' GL + 24' RKB @ 1274.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Ruckman Unit 3H Frontier 8 1250' GL + 24' RKB @ 1274.0usft
Calculation Method: Minimum Curvature

LEGEND

- Ruckman Unit 2H, Original Wellpath, Original Wellpath V0
- Droppleman Unit 1H, Original Wellpath, Original Wellpath V0
- Ruckman Unit 1H, Original Wellpath, Original Wellpath V0
- Ruckman Unit 3H, Original Wellpath, Plan 4 V0
- Original Wellpath

Scientific Drilling

Genie Lightfoot
14:38, September 06 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Ruckman Unit 3H	0.0	0.0	0.0	14217504.50	1726786.83	39° 9' 7.970 N	80° 41' 43.201 W
Actual BHL Ruckman Unit 3H	7354.8	4656.6	-3778.11	14222161.07	1723008.71	39° 9' 54.136 N	80° 42' 30.988 W
SHL (UTM meters)				4,333,722m	526,340m		
BHL (UTM meters)				4,335,136m	525,192m		

To convert Magnetic North to Grid, Subtract 8.63°
To convert True North to Grid, Subtract 0.19°

Azimuths to Grid North
True North: -0.19°
Magnetic North: -8.63°

Magnetic Field
Strength: 52414.2nT
Dip Angle: 66.85°
Date: 10/23/2012
Model: IGRF2010