

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 #: 47-017-06095

Farm name: Erwin, John F. Operator Well No.: Ruckman Unit 2H

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

District: New Milton County: Doddridge
Latitude: 8.135' Feet South of 39 Deg. 10 Min. 00 Sec.
Longitude 5.273' Feet West of 80 Deg. 40 Min. 00 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	56'	56'	54 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	338'	338'	470 Cu. Ft. Class A
Inspector: Douglas Newlon	9-5/8" 36#	2,500'	2,500'	1,018 Cu. Ft. Class A
Date Permit Issued: 7/11/2012	5-1/2" 23#	13,569'	13,569'	3,321 Cu. Ft. Class H
Date Well Work Commenced: 10/19/12				
Date Well Work Completed: 3/29/13	2-3/8" 4.7#	7,345'		
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): 7248' TVD (deepest point drilled)				
Total Measured Depth (ft): 13,569' MD, 7178' 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 Available				

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

Producing formation Marcellus Pay zone depth (ft) 7,213' TVD (Top)

Gas: Initial open flow --- MCF/d Oil: Initial open flow --- B
Final open flow 6,516 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

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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 _____ No **X**

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes- Cement Bond Log/ Gamma Ray, Photo Density/ Compensated Neutron/ Gamma Ray, Gamma Ray/ Dual Laterolog.

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: 7,431' - 13,504' MD (1,296 holes)

Frac'd w/ 9,500 gals 15% HCL Acid, 130,435 bbls Slick Water carrying 563,600# 100 mesh, 2,271,200# 40/70 sand and 1,243,200# 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	2340'	2439'
Big Injun	2440'	2578'
Weir	2579'	2785'
Berea	2786'	2896'
Gantz	2897'	2996'
Gordon	2997'	3331'
Fifth Sandstone	3332'	3412'
Bayard	3413'	4113'
Balltown	4114'	4804'
Bradford	4805'	5254'
Benson	5255'	5504'
Alexander	5505'	5733'
Elk	5734'	6782'
Sycamore	6783'	6934'
Middlesex Shale	6935'	7100'
Burkett Shale	7101'	7184'
Tully	7135'	7204'
Hamilton	7205'	7212'
Marcellus	7213'	7248'

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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 Unit 2H
Longitude:	-80.69535280
Latitude:	39.15219170
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,478,774
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
Water	ANTERO RESOURCES	Water	Water	7732-18-5	100.00000	87.87156	
MV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz Aluminum Oxide Titanium Oxide Iron Oxide	14808-60-7 1344-28-1 13463-67-7 1309-37-1	99.90000 1.10000 0.10000 0.10000	6.86932 0.07564 0.00688 0.00688	
MV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz Aluminum Oxide Titanium Oxide Iron Oxide	14808-60-7 1344-28-1 13463-67-7 1309-37-1	99.90000 1.10000 0.10000 0.10000	3.35070 0.03690 0.00335 0.00335	
MV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz Aluminum Oxide Iron Oxide	14808-60-7 1344-28-1 1309-37-1	99.90000 1.10000 0.10000	1.57190 0.01731 0.00157	

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SG-100L	Nabors Completion and Production Services	Gelling Agents	Titanium Oxide	13463-67-7	0.10000	0.00157	
HCl Acid (12.5%-18.0%)	Nabors Completion and Production Services	Bulk Acid	Petroleum Distillates	64742-47-8	70.00000	0.04633	
WFR-3B	Nabors Completion and Production Services	Friction Reducer	Hydrogen Chloride	7647-01-0	18.00000	0.02274	
OB-2	Nabors Completion and Production Services	Gel Breakers	Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	30.00000	0.02210	
Super GREEN SOLV	Nabors Completion and Production Services	Paraffin & Scale Additives	Ammonium Persulfate	7727-54-0	100.00000	0.01476	
			Silica, crystalline quartz	7631-86-9	10.00000	0.00148	
KR-153SL	Nabors Completion and Production Services	Biocides	BTEX Free Aliphatic Hydrocarbon	84742-96-7	100.00000	0.01372	
			Polyethylene-Glycol	25322-68-3	50.00000	0.00616	
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00246	
EB-4L	Nabors Completion and Production Services	Gel Breakers	Ethylene Glycol	107-21-1	40.00000	0.00039	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors	Isopropyl Alcohol	67-63-0	40.00000	0.00010	
			Glycol Ethers	111-46-6	40.00000	0.00010	
			Propargyl Alcohol	107-19-7	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.							
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	
			Water	7732-18-5	40.00000	0.02947	
			Anionic Polyacrylamide	910644-97-2	40.00000	0.02947	
			Ethoxylated Alcohols (C-10-C-16)	88002-97-1	15.00000	0.01105	
			Propylene glycol	57-55-6	15.00000	0.01105	

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	Water	7732-18-5	60.00000	0.00892
	Water	7732-18-5	80.00000	0.00885
	Proprietary	Proprietary	50.00000	0.00827
	Ethoxylated oleylamine	26635-93-8	5.00000	0.00368
	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
	Proprietary	Proprietary	2.00000	0.00147
	Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00132
	Surfactant	68439-51-0	2.00000	0.00132
	Proprietary	Proprietary	100.00000	0.00098
	Sugar	57-50-1	100.00000	0.00098
	Water	7732-18-5	100.00000	0.00048
	Water	7732-18-5	48.00000	0.00011
	2-Butoxyethanol	111-76-2	13.00000	0.00003
	Proprietary	Proprietary	1.00000	0.00001
	Proprietary	Proprietary	1.00000	0.00001
	Proprietary	Proprietary	1.00000	0.00001
	Proprietary	Proprietary	1.00000	0.00001
	Proprietary	Proprietary	1.00000	0.00001
	Dioxane	123-91-1	1.00000	0.00001
	Organophilic Clay	68953-58-2	1.00000	0.00000

* 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)



Antero Resources
Ruckman Unit 2H
Doddridge County WV
 Northing: 14217496.43
 Easting: 1726781.97
 Original Wellpath

WELL DETAILS: Ruckman Unit 2H

Ground Level:	1250.0	Northing:	14217496.43	Longitude:	93° 07' 43.263 W
+N/-S:	0.0	+E/-W:	0.0	Latitude:	39° 07' 8.90 N
SLT (UTM meters):	1726781.97	Well ID:	1726781.97	Well Name:	14-25, September 06 2013

REFERENCE INFORMATION
 Geomatics (N/E) Reference: WA Ruckman Unit 2H, 0301 Meter Station (N/E) Reference: 882 - 02.04 (0.02) Meter Station (S/E) Reference: 882 - 02.04 (0.02) Meter Station (W/E) Reference: 1250 - 24.992 @ 1717.64m
 Calculation Method: Spheroid Coordinates



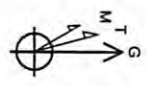
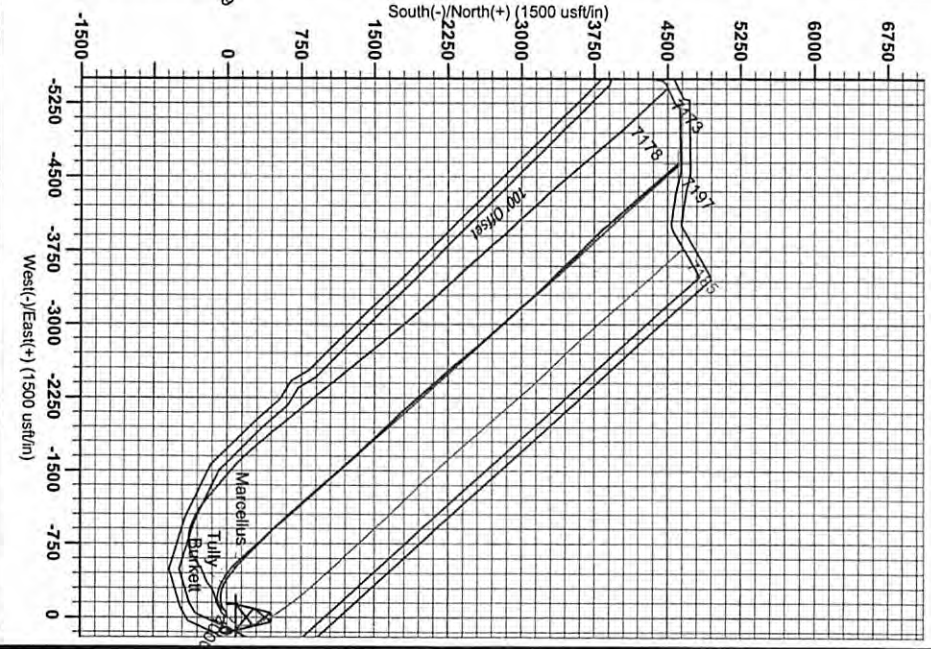
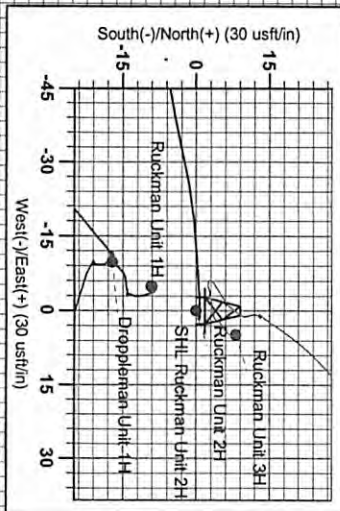
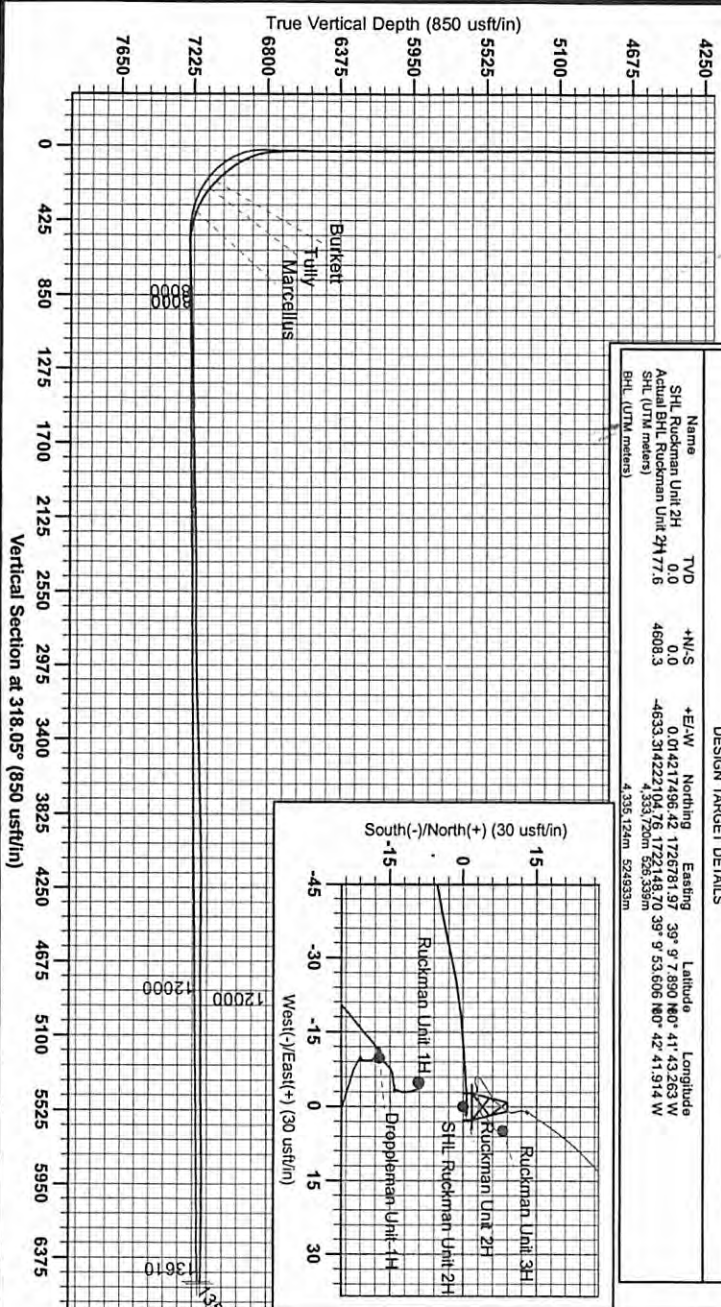
Genie Lightfoot
 14-25, September 06 2013
 Scientific Drilling
 421 South Eagle Lane
 Oklahoma City, OK

LEGEND

- Original Wellpath
- Ruckman Unit 2H, Original Wellpath, Para 3 VO
- Ruckman Unit 1H, Original Wellpath, Original Wellpath VO
- Ruckman Unit 2H, Original Wellpath, Original Wellpath VO
- Ruckman Unit 3H, Original Wellpath, Original Wellpath VO
- Original Wellpath

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Ruckman Unit 2H	0.0	0.0	0.0	14217496.42	1726781.97	39° 07' 8.90 N	41° 43' 26.3 W
Actual BHL Ruckman Unit 2H 177.6	4608.3	-4608.3	-4693.3	3142221.04	76.1722148	70° 39' 9.53	606° 18' 42.41
SHL (UTM meters)				4,335,726m	528,339m		
BHL (UTM meters)				4,335,126m	528,939m		



To convert Magnetic North to Grid, Subtract 8.97°
 To convert True North to Grid, Subtract 0.19°

Azimuths to Grid North
 True North: -9.16°
 Magnetic North: -0.03°

Magnetic Field
 Strength: 52414.2nT
 Dip Angle: 68.85°
 Date: 10/23/2012
 Model: IGRF2010