

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: 11/20/2013
API #: 47-017-06104

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

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

District: New Milton County: Doddridge
Latitude: 8.290° Feet South of 30 Deg. 10 Min. 00 Sec.
Longitude 3.648° Feet West of 80 Deg. 40 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" 51# | 46' | 46' | 44 Cu. Ft. Class A |
| Agent: CT Corporation System | 13 3/8" 48# | 376' | 376' | 522 Cu. Ft. Class A |
| Inspector: Douglas Newlon | 9 5/8" 36# | 2,452' | 2,452' | 998 Cu. Ft. Class A |
| Date Permit Issued: 7/31/2012 | 5 1/2" 20# | 15,954' | 15,954' | 3994 Cu. Ft. Class H |
| Date Well Work Commenced: 1/17/2013 | | | | |
| Date Well Work Completed: 5/24/2013 | 2 3/8" 4.7# | 7471' | | |
| 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): 7227' TVD (Deepest Point Drilled) | | | | |
| Total Measured Depth (ft): 15,954' MD, 7143 TVD (BHL) | | | | |
| Fresh Water Depth (ft.): 160' | | | | |
| Salt Water Depth (ft.): 762', 857', 1130' | | | | |
| Is coal being mined in area (N/Y)? No | | | | |
| Coal Depths (ft.): 680', 1850' | | | | |
| 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) 7200' (Top)
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- Bbl/d
Final open flow 5,634 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

2/10/2014
Date

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New Milton Sooty (307) 6-6

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

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: 7,517'-15,898' (1800 Holes)

Frac'd w/ 15,500 gals 15% HCL Acid, 182,663 bbls Slick Water carrying 894,320# 100 mesh, 3,252,090# 40/70 sand and 1,979,380# 20/40 sand.

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

Formations Encountered: _____ Top Depth _____ / _____ Bottom Depth _____
Surface: _____

| | | |
|----------------------|-------|-----------|
| Big Lime | 2242' | 2370' |
| Big Injun | 2371' | 2602' |
| Gantz Sand | 2603' | 2755' |
| Fifty Foot Sandstone | 2756' | 2948' |
| Gordon | 2948' | 3303' |
| Fifth Sandstone | 3304' | 3351' |
| Bayard | 3352' | 3941' |
| Speechley | 3942' | 4138' |
| Balltown | 4139' | 4779' |
| Bradford | 4780' | 5232' |
| Benson | 5233' | 5499' |
| Alexander | 5500' | 5707' |
| Elk | 5708' | 6247' |
| Rhinestreet | 6248' | 6885' |
| Sycamore | 6786' | 6945' |
| Middlesex | 6946' | 7086' |
| Burkett | 7087' | 7120' |
| Tully | 7121' | 7120' |
| Hamilton | 7193' | 7199' |
| Marcellus | 7200' | 7227' TVD |

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Hydraulic Fracturing Fluid Product Component Information Disclosure

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Frac Focus
Chemical Disclosure Registry



Hydraulic Fracturing Fluid Composition:

| Component | Supplier | Product | Material | Chemical Name | Chemical ID | Quantity | Concentration |
|------------------------|-------------------------|------------------|----------------------------|---------------|-------------|-----------|---------------|
| Water | Antero Resources | Base Fluid | Water | | 7732-18-5 | 100.00000 | 90.98125 |
| Sand | U.S. Well Services, LLC | Proppant | Crystalline Silica, quartz | | 14808-60-7 | 100.00000 | 8.71060 |
| HCL Acid (12.6%-18.0%) | U.S. Well Services, LLC | Bulk Acid | Water | | 7732-18-5 | 87.50000 | 0.08034 |
| | | | Hydrogen Chloride | | 7641-01-1 | 18.00000 | 0.01918 |
| MFR-405 | U.S. Well Services, LLC | Friction Reducer | Ationic Polyacrylamide | Proprietary | | 40.00000 | 0.02229 |
| | | | Water | | 7732-18-5 | 40.00000 | 0.02229 |
| | | | Petroleum Distillates | | 64742-47-8 | 40.00000 | 0.01764 |
| | | | Ethoxylated alcohol blend | Proprietary | | 5.00000 | 0.00279 |
| | | | Crystalline Salt | | 12125-02-9 | 5.00000 | 0.00279 |
| GC-15 | U.S. Well Services, LLC | Gelling Agents | Guar Gum | | 9000-30-0 | 50.00000 | 0.03032 |
| | | | Petroleum Distillates | | 64742-47-8 | 60.00000 | 0.02871 |
| | | | Suspending agent (solid) | | 14808-60-7 | 3.00000 | 0.00464 |
| | | | Surfactant | | 68439-51-0 | 3.00000 | 0.00182 |

| HL Flow 3-N/E | U.S. Well Services, LLC | Surfactant | | | | | | | |
|---------------|-------------------------|--------------------------|---|-------------|--|-----------|--|---------|--|
| | | | Propylene Glycol | 57-55-6 | | 30.00000 | | 0.02741 | |
| | | | Oxirane, methyl-, polymer with oxirane, mono(2-ethylhexyl) ether | 54366-70-7 | | 13.00000 | | 0.01135 | |
| | | | Propylene Glycol n-butyl ether | 5131-66-8 | | 5.00000 | | 0.00388 | |
| | | | D-Limonene | 8028-48-6 | | 5.00000 | | 0.00370 | |
| | | | Isopropyl Alcohol | 67-63-0 | | 5.00000 | | 0.00349 | |
| | | | 1-Decanol | 112-30-1 | | 2.50000 | | 0.00192 | |
| | | | 1-Octanol | 111-87-5 | | 2.50000 | | 0.00183 | |
| SI-1000 | U.S. Well Services, LLC | Scale Inhibitor | | | | | | | |
| | | | Anionic Copolymer | Proprietary | | | | 0.00450 | |
| | | | Ethylene Glycol | 107-21-1 | | 20.00000 | | 0.00407 | |
| | | | Water | 7732-18-5 | | 30.00000 | | 0.00339 | |
| K-BAC 1020 | U.S. Well Services, LLC | Anti-Bacterial Agent | | | | | | | |
| | | | 2,2-dibromo-3-nitropropanamide | 10222-01-2 | | 20.00000 | | 0.00504 | |
| | | | Deionized Water | 7732-18-5 | | 28.00000 | | 0.00288 | |
| AP One | U.S. Well Services, LLC | Gel Breakers | | | | | | | |
| | | | Ammonium Persulfate | 7727-54-0 | | 100.00000 | | 0.00110 | |
| AL-300 | U.S. Well Services, LLC | Acid Corrosion Inhibitor | | | | | | | |
| | | | Ethylene Glycol | 107-21-1 | | 40.00000 | | 0.00021 | |
| | | | Cinnamaldehyde | 104-55-2 | | 15.00000 | | 0.00006 | |
| | | | N,N-Dimethylformamide | 89-12-2 | | 20.00000 | | 0.00006 | |
| | | | Tar bases, quinoline derivs, benzyl chloride-quaternized | 72480-70-7 | | 15.00000 | | 0.00006 | |
| | | | 2-Butoxyethanol | 111-76-2 | | 15.00000 | | 0.00005 | |
| | | | Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy, branched | 127087-87-0 | | 5.00000 | | 0.00002 | |
| | | | 1-Decanol | 112-30-1 | | 5.00000 | | 0.00002 | |
| | | | 1-Octanol | 111-87-5 | | 3.00000 | | 0.00001 | |
| | | | Isopropyl Alcohol | 67-63-0 | | 2.50000 | | 0.00001 | |

Ingredients shown above are subject to 29 CFR 1910.1200 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)

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