

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 9/12/2013
API #: 47-017-06100

Farm name: Elton D. Whitehair, et al Operator Well No.: Crislip Unit 1H

LOCATION: Elevation: 1,241' Quadrangle: New Milton 7.5'

District: New Milton County: Doddridge
Latitude: 7.346° Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 229° 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" 94#	40'	40'	60 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	411'	411'	571 Cu. Ft. Class A
Inspector: Douglas Newlon	9-5/8" 36#	2,545'	2,545'	1036 Cu. Ft. Class A
Date Permit Issued: 8/17/2012	5-1/2" 20#	15,967'	15,967'	3967 Cu. Ft. Class H
Date Well Work Commenced: 8/24/2012				
Date Well Work Completed: 3/9/2013	2-3/8" 4.7#	7,313'		
Verbal Plugging: N/A	Sidetrack	Top	Bottom	
Date Permission granted on: N/A	Cement Plug	800'	1018'	229 Cu. Ft. Class A
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7282' TVD				
Total Measured Depth (ft): 15,967' MD				
Fresh Water Depth (ft.): 350'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 371', 451', 899'				
Void(s) encountered (N/Y) Depth(s) N, N/A				

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

Producing formation Marcellus Pay zone depth (ft) 7,190' TVD (Top)

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

Final open flow 10,385 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.

Kaitli Buck
Signature

9/12/13
Date

11/08/2013

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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/ Gamma Ray, 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: 7,402' - 15,901' MD (1,800 holes)

Frac'd w/ 13,500 gals 15% HCL Acid, 179,100 bbls Slick Water carrying 906,593# 100 mesh, 3,518,949# 40/70 sand and 2,059,213# 20/40 sand.

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

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

Formations Encountered:	Top Depth	Bottom Depth
Big Lime	2,277'	2,343'
Big Injun	2,344'	2,592'
Weir	2,593'	2,767'
Berea	2,768'	2,876'
Gantz	2,877'	2,969'
Gordon	2,970'	3,325'
Fifth Sand	3,326'	3,392'
Bayard	3,393'	3,953'
Speechley	3,954'	4,790'
Bradford	4,791'	5,259'
Benson	5,260'	5,506'
Alexander	5,507'	6,772'
Sycamore	6,773'	6,927'
Middlesex Shale	6,928'	7,022'
Genundewa	7,023'	7,058'
Burkett	7,059'	7,100'
Tully	7,101'	7,189'
Marcellus	7,190'	7282' TVD

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	3/1/2013
State:	WV
County:	Dodderidge
API Number:	47-017-06100
Operator Name:	Antaro Resources
Well Name and Number:	Chrislip 1H
Longitude:	-80.6925944
Latitude:	39.2017058
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,282
Total Water Volume* (gal):	7,522,200

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Compositional or Formulary Components Disclosed	Chemical Abstract Service Number (CAS #) - If applicable	Maximum Component Concentration in Additive (% by mass)**	Maximum Component Concentration in HF Fluid (% by mass)**	Comments
AL-300	U.S. Well Services, LLC	Acid Corrosion Inhibitors	2-Butoxyethanol Cinnamaldehyde Ethoxylated Nonylphenol Ethylene Glycol Isopropyl Alcohol N,N-Dimethylformamide Tar bases, quinoline derivs, benzyl chloride-quaternized Triethyl Phosphate Water	111-76-2 104-55-2 68412-54-4 107-21-1 67-53-0 72480-70-7 78-40-0 7732-18-5 10222-01-2 7732-18-5 9000-30-0 64742-47-8 68439-51-0 14808-60-7 7727-54-0	7.00% 5.00% 5.00% 31.00% 3.00% 15.00% 13.00% 3.00% 20.00% 20.00% 28.00% 50.00% 60.00% 3.00% 3.00% 100.00%	0.00002% 0.00002% 0.00002% 0.00011% 0.00001% 0.00004% 0.00001% 0.00006% 0.00463% 0.00265% 0.00391% 0.06887% 0.06887% 0.06887% 0.00113%	
Bloclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent	2,2-dibromo-3-nitriopropionamide Deionized Water	7732-18-5 7732-18-5	20.00% 20.00%	0.00463% 0.00265%	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum Petroleum Distillates Surfactant	9000-30-0 64742-47-8 68439-51-0	50.00% 60.00% 3.00%	0.00391% 0.06887% 0.06887%	
AP One	U.S. Well Services, LLC	Gel Breakers	Suspending agent (solid) Ammonium Persulfate	14808-60-7 7727-54-0	3.00% 100.00%	0.06887% 0.00113%	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	Anionic Polyacrylamide Ethoxylated alcohol blend Water	Proprietary Proprietary 7732-18-5	Proprietary 5.00% 40.00%	Proprietary 0.00105% 0.02438%	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor	Ammonium Chloride Petroleum Distillates Ethylene Glycol Water	12125-02-9 64742-47-8 107-21-1 7732-18-5	5.00% 22.00% 20.00% 30.00%	0.00305% 0.01079% 0.00408% 0.00340%	
Sand	U.S. Well Services, LLC	Proppant	Anionic Copolymer	Proprietary	Proprietary	Proprietary	
HCL Acid (12.5%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Crystalline Silica, quartz Hydrogen Chloride Water	14808-60-7 7641-01-1 7732-18-5	100.00% 18.00% 87.50%	9.35636% 0.02954% 0.07102%	
Water		Carrier/Base Fluid	Water	7732-18-5	100.00%	90.44597%	

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*Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Concentration is based on the maximum potential for concentration and thus the total may be over 100%
†† Component information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)