

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: _____
API #: 47-085-09966

Farm name: Andrew Williamson, et al Operator Well No.: O'Neil Unit 2H

LOCATION: Elevation: 1,142' Quadrangle: Pullman 7.5'

District: Union County: Ritchie
Latitude: 2.685° Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 4.703° Feet West of 80 Deg. 52 Min. 30 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#	41'	41'	39 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	339'	339'	471 Cu. Ft. Class A
Inspector: David Cowan	9 5/8" 36#	2,586'	2,586'	1,053 Cu. Ft. Class A
Date Permit Issued: 8/10/2012	5 1/2" 20#	15,472'	15,472'	3,824 Cu. Ft. Class H
Date Well Work Commenced: 11/21/2012				
Date Well Work Completed: 4/30/2012	2 3/8" 4.7#	6,619'		
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): 6633' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 15,472' MD, 6585' TVD (BHL)				
Fresh Water Depth (ft.): 127'				
Salt Water Depth (ft.): 2000'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): None Available				
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) 6576' (TOP)

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

Final open flow 3,985 MCF/d Final open flow --- Bbl/d

Time of open flow between initial and final tests --- Hours

Static rock Pressure 3000 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

11/18/13
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, CBL.

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Nicholson 2H API# 47-085-09960). Please reference the wire line logs submitted with form WR-35 for Nicholson 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: 7,120- 15,417 (1728 Holes)

Frac'd w/ 12,500 gals 15% HCL Acid, 177,532 bbls Slick water carrying 799,554# 100 mesh, 3,393,613 40/70 sand and 2,081,486 20/40 sand.

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

Formations Encountered: _____ Top Depth / _____ Bottom Depth

Surface:

Big Lime	est. 2115'	2178'
Big Injun	est. 2179'	2362'
Gantz Sand	est. 2463'	2597'
Fifty Foot Sandstone	est. 2598'	2709'
Gordon	est. 2710'	3084'
Fifth Sandstone	est. 3085'	3191'
Bayard	est. 3192'	3961'
Speechley	est. 3962'	4165'
Balltown	est. 4166'	4636'
Bradford	est. 4637'	5027'
Benson	est. 5028'	5268'
Alexander	est. 5269'	5467'
Elk	est. 5468'	5815'
Rhinestreet	est. 5816'	6243'
Sycamore SS	6244'	6410'
Middlesex Shale	6411'	6522'
Burkett Shale	6523'	6553'
Tully LS	6554'	6575'
Marcellus	6576'	6633' TVD

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/23/2013
Job End Date:	4/30/2013
State:	West Virginia
County:	Ritchie
API Number:	47-085-09966-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Ohell Unit 2H
Longitude:	-80.88447500
Latitude:	39.19542080
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	7,402,878
Total Base Non Water Volume:	300,587

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	Operator	Carrier	Water	7732-18-5	100.00000	90.76567	
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	4.78416	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	2.75934	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	1.17581	
GW-3LDF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	60.00000	0.09151	SmartCare Product
			Petroleum Distillates	64742-47-8	30.00000	0.04576	SmartCare Product
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.04576	SmartCare Product
			sovrdecanol, ethoxylated	9043-30-5	5.00000	0.00763	SmartCare Product
			1-Butoxy-2-Propanol	5131-66-8	5.00000	0.00763	SmartCare Product
			Crystalline Silica, Quartz (SiO2)	14808-60-7	5.00000	0.00763	SmartCare Product
HCl, 10.1 - 15%	Baker Hughes	Acidizing	Water	7732-18-5	85.00000	0.15105	
			Hydrochloric Acid	7647-01-0	15.00000	0.02666	
Enzyme G-NE	Baker Hughes	Breaker	Water	7732-18-5	95.00000	0.01888	



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FRW-18	Baker Hughes	Friction Reducer	Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00099	
Alpha 1427	Baker Hughes	Biocide	Petroleum Distillates	64742-47-8	30.00000	0.01647	SmartCare Product
			Glutaraldehyde	111-30-8	30.00000	0.00694	SmartCare Product
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00233	SmartCare Product
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00116	SmartCare Product
			Ethanol	64-17-5	5.00000	0.00116	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor	Ethylene Glycol	107-21-1	30.00000	0.00496	
			Calcium Chloride	10043-52-4	5.00000	0.00083	
Ferrotrol 300L	Baker Hughes	Iron Control	Citric Acid	77-92-9	60.00000	0.00076	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor	Polyoxyalkylenes	Trade Secret	30.00000	0.00008	
			Fatty Acids	Trade Secret	10.00000	0.00003	
			Olefin	Trade Secret	5.00000	0.00001	
			Propargyl Alcohol	107-19-7	5.00000	0.00001	
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 Chemicals	Water	7732-18-5		0.05007	
			Poly (acrylamide-co-acrylic acid)	Trade Secret		0.01647	
			Polyacrylate	Trade Secret		0.00331	
			Salt	Trade Secret		0.00274	
			Sorbilan Monooleate	Trade Secret		0.00274	
			Ethoxylated Alcohol	Trade Secret		0.00110	
			Methanol	67-56-1		0.00027	
			2-Butoxy-1-Propanol	15621-83-7		0.00012	
			Modified Thiora Polymer	88527-49-1		0.00002	
			Potassium Chloride	7447-40-7		0.00001	
			Sodium Chloride	7647-14-5		0.00001	
			Formaldehyde	50-00-0		0.00000	
			Hydrochloric Acid	7647-01-0		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)

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Antero Resources
 O'Neil Unit 2H
 Ritchie County WV
 Northing: 14233111.24
 Easting: 1673146.77
 Original Wellpath

WELL DETAILS: O'Neil Unit 2H

+N/-S	0.0	Ground Level	1142.0
+E/-W	0.0	Easting	1673146.77 56° 11' 43.515 N 80° 53' 4.112 W
		Latitude	
		Longitude	
		Spot	

PROJECT DETAILS: Ritchie County WV

Geologic 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

Geographic (NED) Reference: Well O'Neil Unit 2H, Grid from
 Vertical FTD Reference: O'Neil Unit 2H, 1142.0, ± 25.83 @ 1157.0m
 Mastered Datum Reference: O'Neil Unit 2H, 1142.0, ± 25.83 @ 1157.0m
 Orientation Method: Iterative Correction

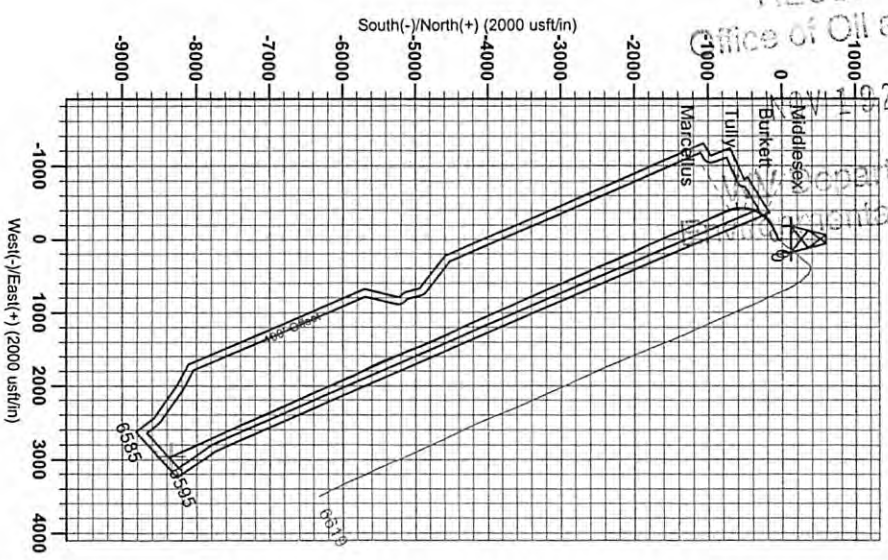
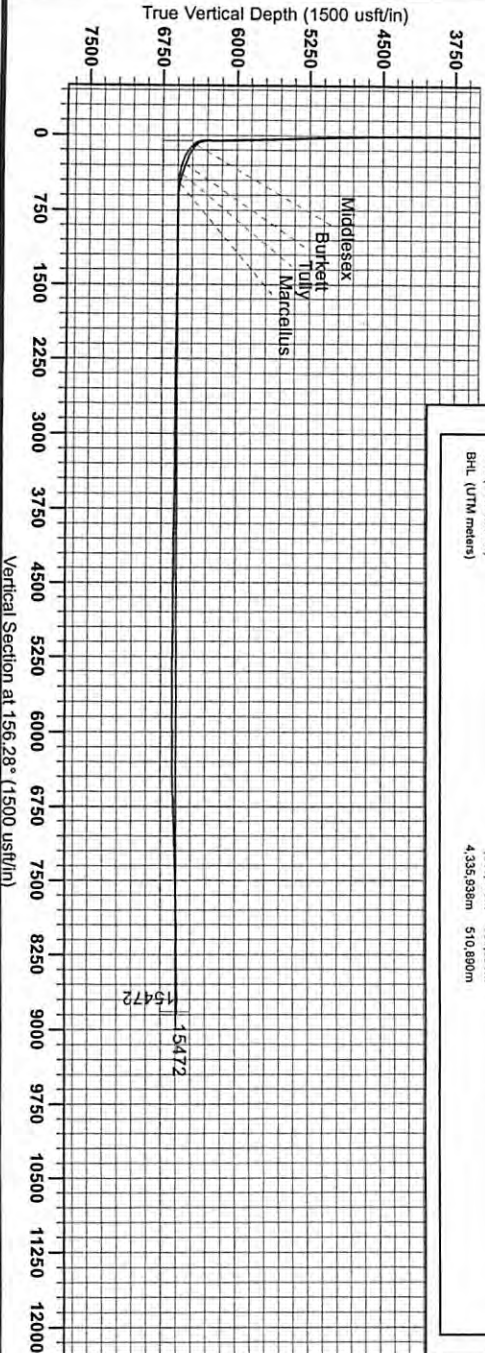
LEGEND

- O'Neil Unit 2H, Original Wellpath, Plan 5 Post Gyro YO
- Original Wellpath

DESIGN TARGET DETAILS (NAD 83)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL O'Neil Unit 2H	0.0	0.0	0.0	14233111.24	1673146.7739° 11' 43.515 N 80° 53' 4.112 W		
Actual SHL O'Neil Unit 2H 65655.0		-8363.2		2958.614224748 07° 16' 51.053 389° 10' 20' 782 760° 52' 28.665 W			
SHL (UTM meters)				4,338,479m	509,991m		
BHL (UTM meters)				4,335,838m	510,890m		

Genie Lightfoot
 14:42, July 18 2013
 Scientific Drilling
 421 South Eagle Lane
 Oklahoma City, OK



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To convert Magnetic North to Grid, Subtract 8.37°
 To convert True North to Grid, Subtract 0.07°

Azimuth to Grid North
 Magnetic North: -8.37°

Magnetic Field
 Strength: 52492.2aNT
 Dip Angle: 66.03°
 Date: 7/16/2012
 Model: IGRF-2010

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