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: 7/5/2013
API #: 47-017-06163

Farm name: Moore, Dwight E. and Tina M. Operator Well No.: Emily Unit 2H

LOCATION: Elevation: 1,237' Quadrangle: Smithburg 7.5

District: Grant County: Doddridge
Latitude: 9,433' Feet South of 39 Deg. 20 Min. 00 Sec.
Longitude 5,624' Feet West of 80 Deg. 40 Min. 00 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	39 Cu Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	399'	399'	554 Cu Ft. Class A
Inspector: Douglas Newlon	9 5/8" 36#	2,538'	2,538'	1033 Cu Ft. Class A
Date Permit Issued: 1/18/2013	5 1/2" 20#	12,825'	12,825'	3108 Cu Ft. Class H
Date Well Work Commenced: 2/18/2013				
Date Well Work Completed: 5/20/2013	2 3/8" 4.7#	7,159'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7102' TVD				
Total Measured Depth (ft): 12,825' MD				
Fresh Water Depth (ft.): 191'				
Salt Water Depth (ft.): 1336', 1681'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 274', 444', 1290'				
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) 7031' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,298 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3550 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.

Karen Buck 12/6/13
Signature Date

17-06163

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 (Moore Unit 1H API#47-017-06128). Please reference the wireline logs submitted with Form WR-35 for Moore Unit 1H.

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:

Perforated: 7,136- 12,771 (1,152 Holes)

Frac'd w/ 8,500 gals 15% Acid, 118,254 bbls Slick Water carrying 561,080# mesh,

2,220,030# 40/70 sand and 1,348,300# 20/40 sand.

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

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Big Lime	est. 2049'	2165'
Big Injun	est. 2166'	2596'
Gantz Sand	est. 2597'	2730'
Fifty Foot Sandstone	est. 2731'	2799'
Gordon	est. 2800'	3142'
Fifth Sandstone	est. 3143'	3156'
Bayard	est. 3157'	3885'
Speechley	est. 3886'	4146'
Balltown	est. 4147'	4663'
Bradford	est. 4663'	5165'
Benson	est. 5166'	5434'
Alexander	est. 5435'	6189'
Rhinestreet	est. 6190'	6624'
Sycamore	6625'	6920'
Sonyea	6770'	6769'
Burkett	6921'	6920'
Tully LS	6950'	6949'
Hamilton	7010'	7009'
Marcellus	7031'	7102' TVD

17-06163

ANTERO RESOURCES

Antero Resources
Emily Unit 2H
Doddridge County WV
Northing: 14277822.00
Easting: 1725262.42
Original Wellpath

WELL DETAILS: Emily Unit 2H

Ground Level: 1237.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14277822.00	1725262.42	39° 19' 4.419 N	80° 42' 0.022 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Emily Unit 2H, Grid North
Vertical (TVD) Reference: Emily 2H 1237 GL + 23 KB @ 1260.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Emily 2H 1237 GL + 23 KB @ 1260.0usft (Original Well Elev)
Calculation Method: Minimum Curvature

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

LEGEND

- Moore Unit 2H, Original Wellpath, Original Wellpath V0
- Moore Unit 1H, Original Wellpath, Original Wellpath V0
- Emily Unit 2H, Original Wellpath, Plan 4 V0
- Emily Unit 1H, Original Wellpath, Original Wellpath V0
- Original Wellpath

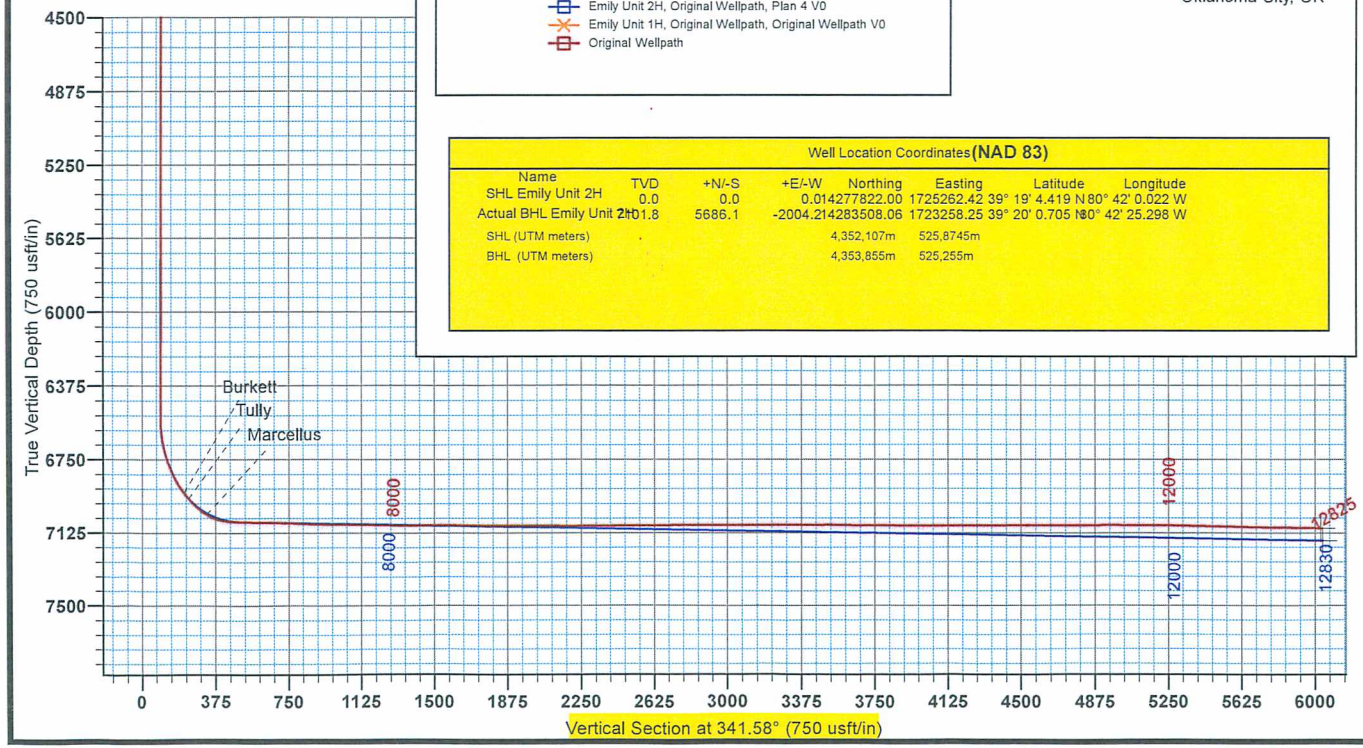
Scientific Drilling

Genie Lightfoot
14:59, July 18 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Well Location Coordinates (NAD 83)

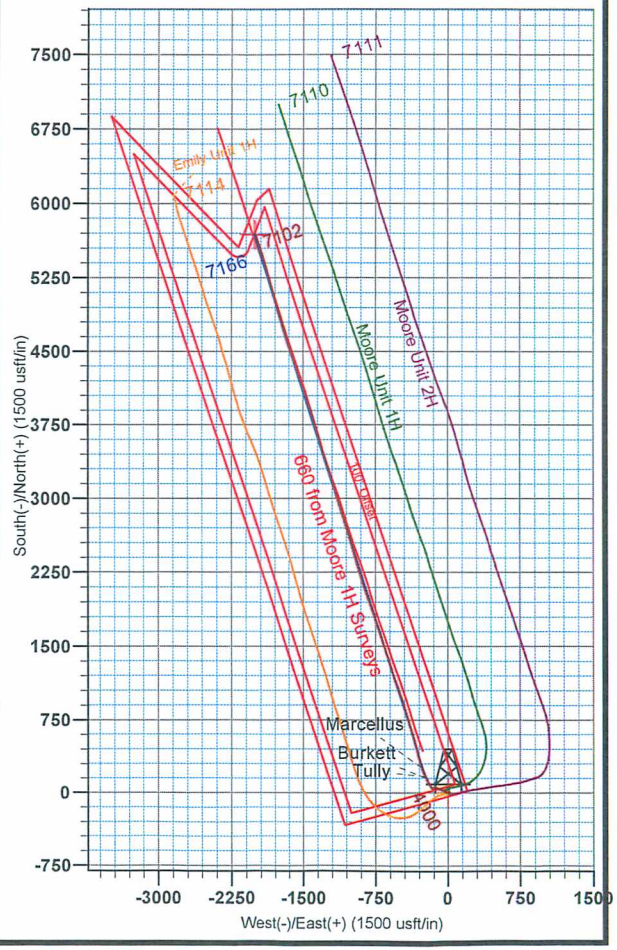
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Emily Unit 2H	0.0	0.0	0.0	14277822.00	1725262.42	39° 19' 4.419 N	80° 42' 0.022 W
Actual BHL Emily Unit 2H	7101.8	5686.1	-2004.2	14283508.06	1723258.25	39° 20' 0.705 N	80° 42' 25.298 W
SHL (UTM meters)				4,352,107m	525,8745m		
BHL (UTM meters)				4,353,855m	525,255m		



To convert Magnetic North to Grid, Subtract 8.67°
To convert True North to Grid, Subtract 0.19°

Azimuths to Grid North
True North: -0.19°
Magnetic North: -8.67°

Magnetic Field
Strength: 52459.8snT
Dip Angle: 66.95°
Date: 2/19/2013
Model: IGRF2010



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17-06163

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/16/2013
Job End Date:	5/20/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06163-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Emily Unit 2H
Longitude:	-80.66674400
Latitude:	39.33335000
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,122,698
Total Base Non Water Volume:	20,782

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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
Freshwater	Antero Resources	Water					
			Water	7732-18-5	100.00000	89.99162	
40/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	5.25796	
20/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	3.21627	
100 Mesh	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.31484	
Beta M-4.0	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.06888	
			Guar Gum	9000-30-0	50.00000	0.06262	
			Clay	1302-78-9	5.00000	0.00626	
			Surfactant	154518-36-2	1.00000	0.00125	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.01814	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01659	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01555	
			Alcohol Ethoxylate Surfactants	Proprietary	8.00000	0.00415	
Hydrochloric Acid 10-15%	Reagent	Acid					

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			Hydrchloric Acid	7647-01-0	15.00000	0.03144	
Plexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02234	
			Glutaraldehyde	111-30-8	14.00000	0.00348	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00074	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00074	
			Ethanol	64-17-5	3.00000	0.00074	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01083	
			Methyl Alcohol	67-56-1	25.00000	0.00318	
			Sodium Salt of Phosphonodimethylated Diamine	Proprietary	5.00000	0.00064	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00150	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00043	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00019	
			Alcohol Ethoxylate Surfactants	Proprietary	30.00000	0.00019	
			n-olefins	Proprietary	10.00000	0.00006	
			Propargyl Alcohol	107-19-7	8.00000	0.00005	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00046	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00010	
			Methyl Alcohol	67-56-1	15.00000	0.00010	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00007	
			Diethanolamine	111-42-2	5.00000	0.00003	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00019	
			Water	7732-18-5	35.00000	0.00013	
			Citric Acid	77-92-9	30.00000	0.00011	

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.

* 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)

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: 8/12/2013
API #: 47-017-06164

Farm name: Mutschelknaus, Clarence Operator Well No.: Ruth Unit 1H

LOCATION: Elevation: 1050' Quadrangle: Big Isaac

District: Greenbrier County: Doddridge
Latitude: 7,514 Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 1,829' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft Class A
Agent: CT Corporation System	13 3/8" 54#	397'	397'	552 Cu. Ft Class A
Inspector: Douglas Newlon	9 5/8" 36#	2,540'	2,540'	1034 Cu. Ft Class A
Date Permit Issued: 1/15/2013	5 1/2" 20#	14,265'	14,265'	3503 Cu. Ft Class H
Date Well Work Commenced: 2/7/2013				
Date Well Work Completed: 7/15/2013	2 3/8" 4.7#	7,542'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,168' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 14,265' MD, 7103' TVD (BHL)				
Fresh Water Depth (ft.): 135'				
Salt Water Depth (ft.): 1,489'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 740', 820', 1,760'				
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) 7132' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 2,767 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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.

Karen Buck 12/11/2013
Signature Date

17-06164

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, Photo Density/ Compensated Nuetron, 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: 7,585'- 14,210' (3,096 Holes)

Frac'd w/ 22,000 gals 15% HCL Acid, 198,420 bbls Slick Water carrying 496,610# 100 mesh, 3,517,080# 40/70 sand and 1,858,810# 20/40 sand.

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

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Big Lime	1990'	2104'
Big Injun	2105'	2454'
Gantz Sand	2455'	2573'
Fifty Foot Sandstone	2574'	2662'
Gordon	2663'	2831'
Fifth Sandstone	2832'	2875'
Bayard	2876'	3553'
Speechley	3554'	3879'
Balltown	3880'	4380'
Bradford	4381'	4966'
Benson	4967'	5279'
Alexander	5280'	5435'
Elk	5436'	6065'
Rhinestreet	6066'	6583'
Sycamore	6584'	6812'
Middlesex	6813'	6956'
Burkett	6957'	6982'
Tully	6983'	7079'
Hamilton	7080'	7131'
Marcellus	7132'	7168' TVD

17-06164

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/6/2013
Job End Date:	7/15/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06164-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Ruth Unit 1H
Longitude:	-80.56812220
Latitude:	39.24473610
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,168
Total Base Water Volume (gal):	8,333,640
Total Base Non Water Volume:	300,578

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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	Base Fluid					
			Water	7732-18-5	100.00000	91.90934	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	7.76572	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.10605	
			Hydrogen Chloride	7641-01-1	18.00000	0.02533	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02987	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02987	
			Petroleum Distillates	64742-47-8	40.00000	0.02405	
			Crystalline Salt	12125-02-9	5.00000	0.00373	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00373	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.03573	
			Petroleum Distillates	64742-47-8	60.00000	0.03384	
			Suspending agent (solid)	14808-60-7	3.00000	0.00546	

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			Surfactant	68439-51-0	3.00000	0.00214	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00510	
			Ethylene Glycol	107-21-1	20.00000	0.00461	
			Water	7732-18-5	30.00000	0.00385	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00656	
			Deionized Water	7732-18-5	28.00000	0.00375	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00028	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00009	
			Cinnamaldehyde	104-55-2	15.00000	0.00008	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00007	
			2-Butoxyethanol	111-76-2	15.00000	0.00007	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nolylphenyl)-omega-hydroxy, branched	127087-87-0	5.00000	0.00003	
			1-Decanol	112-30-1	5.00000	0.00002	
			Isopropyl Alcohol	67-63-0	2.50000	0.00001	
			1-Octanol	111-87-5	3.00000	0.00001	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00061	

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WR-35
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State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 7/5/2013
API #: 47-017-06166

Farm name: Moore, Dwight E. and Tina M. Operator Well No.: Emily Unit 1H

LOCATION: Elevation: 1,237' Quadrangle: Smithburg 7.5'

District: Grant County: Doddridge
Latitude: 9,443' Feet South of 39 Deg. 20 Min. 00 Sec.
Longitude 5,624' Feet West of 80 Deg. 40 Min. 00 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	44'	44'	42 Cu Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	402'	402'	559 Cu Ft. Class A
Inspector: Douglas Newlon	9 5/8" 36#	2,550'	2,550'	1038 Cu Ft. Class A
Date Permit Issued: 1/28/2013	5 1/2" 20#	13,913'	13,913'	3404 Cu Ft. Class H
Date Well Work Commenced: 2/18/2013				
Date Well Work Completed: 5/25/2013	2 3/8" 4.7#	7,380'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7114' TVD				
Total Measured Depth (ft): 13,913' MD				
Fresh Water Depth (ft.): 192'				
Salt Water Depth (ft.): 1336', 1681'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 274', 444', 1290'				
Void(s) encountered (N/Y) Depth(s) None				

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

Producing formation Marcellus Pay zone depth (ft) 7031' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 9008 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3550 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.

Kallen Buck
Signature

12/6/13
Date

17-06166

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 (Moore Unit 1H API#47-017-06128). Please reference the wireline logs submitted with Form WR-35 for Moore Unit 1H.

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:

Perforated: 7,585-13,858 (1,296 Holes)

Frac'd w/ 10,000 gals 15% HCL Acid, 136,431 bbls Slick Water carrying 693,810# 100 mesh, 2,617,650# 40/70 sand and 1,567,760# 20/40 sand

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

Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime	est. 2049'	2165'
Big Injun	est. 2166'	2596'
Gantz Sand	est. 2597'	2730'
Fifty Foot Sandstone	est. 2731'	2799'
Gordon	est. 2800'	3142'
Fifth Sandstone	est. 3143'	3156'
Bayard	est. 3157'	3885'
Speechley	est. 3886'	4146'
Balltown	est. 4147'	4662'
Bradford	est. 4663'	5165'
Benson	est. 5166'	5434'
Alexander	est. 5435'	6189'
Rhinestreet	est. 6190'	6626'
Sycamore	6627'	6769'
Sonyea	6770'	6921'
Burkett	6922'	6948'
Tully LS	6949'	7008'
Hamilton	7009'	7030'
Marcellus	7031'	7,114' TVD

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17-06166

ANTERO RESOURCES

Antero Resources
Emily Unit 1H
Doddridge County WV
Northing: 14277820.83
Easting: 1725252.44
Original Wellpath

WELL DETAILS: Emily Unit 1H

Ground Level: 1237.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14277820.83	1725252.44	39° 19' 4.408 N	80° 42' 0.150 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Emily Unit 1H, Grid North
Vertical (TVD) Reference: Emily 1H 1237 GL + 23 KB @ 1260.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Emily 1H 1237 GL + 23 KB @ 1260.0usft (Original Well Elev)
Calculation Method: Minimum Curvature

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

G T M

To convert Magnetic North to Grid, Subtract 8.67°
To convert True North to Grid, Subtract 0.19°

Azimuths to Grid North
True North: -0.19°
Magnetic North: -8.67°

Magnetic Field
Strength: 52459.8snT
Dip Angle: 66.95°
Date: 2/19/2013
Model: IGRF2010

LEGEND

- Moore Unit 2H, Original Wellpath, Original Wellpath V0
- Moore Unit 1H, Original Wellpath, Original Wellpath V0
- Emily Unit 2H, Original Wellpath, Original Wellpath V0
- Emily Unit 1H, Original Wellpath, Plan 5 V0
- Original Wellpath

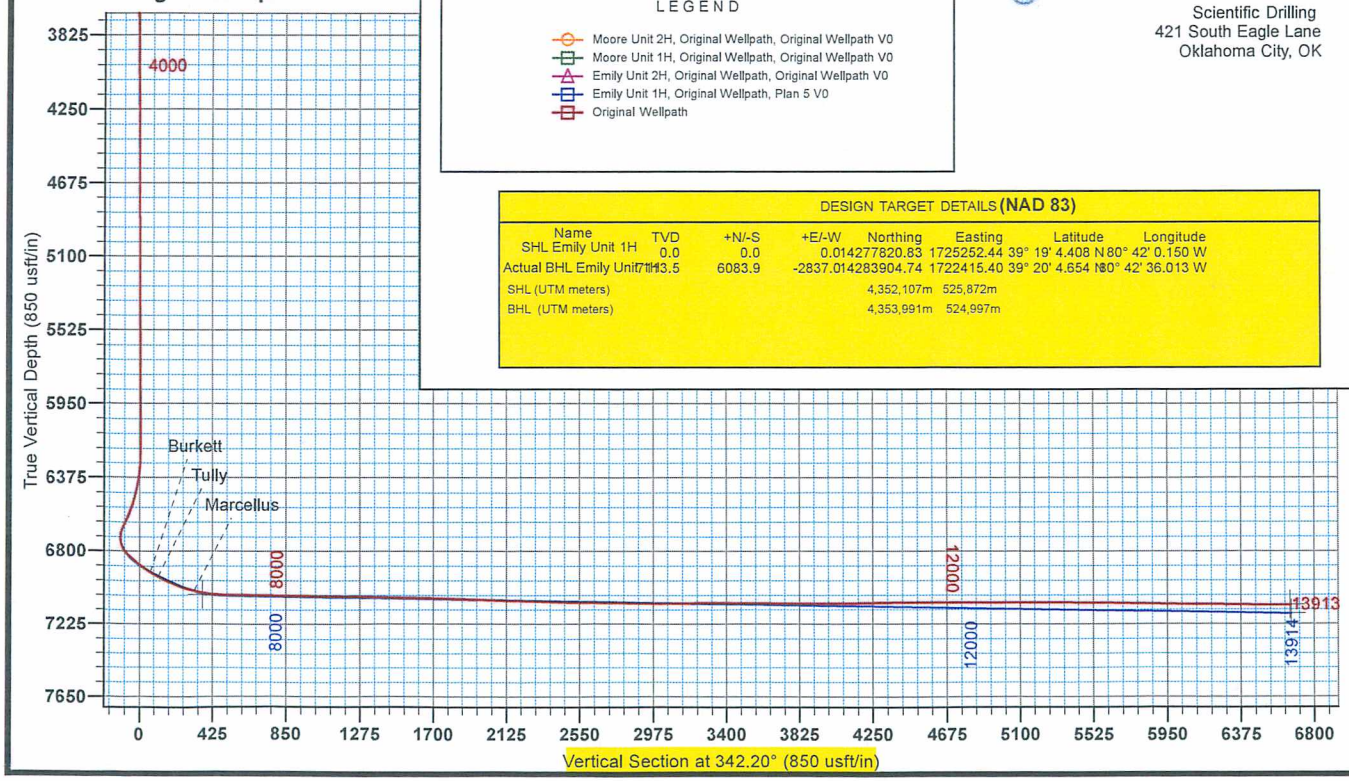
Scientific Drilling

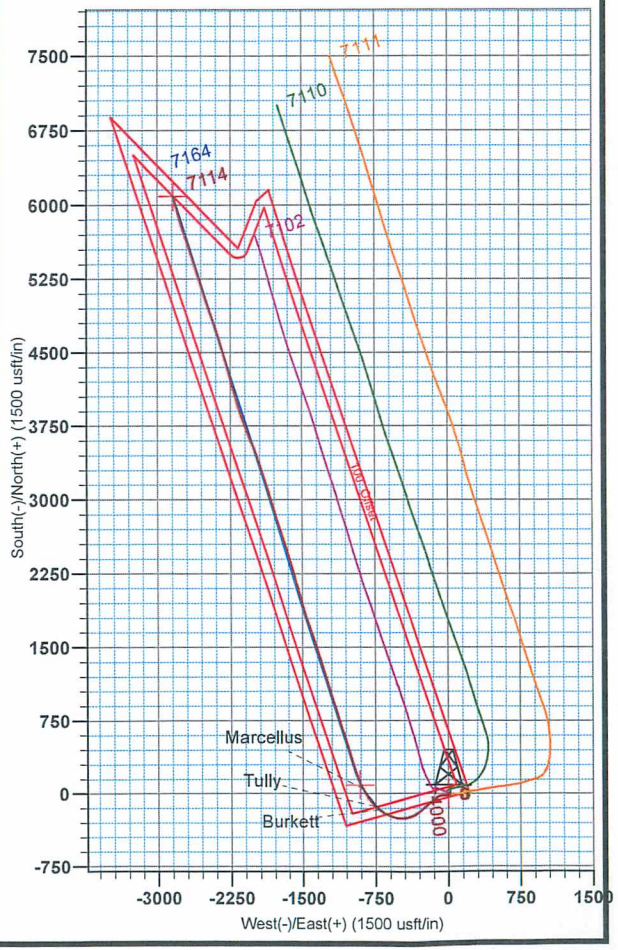
Genie Lightfoot
14:49, July 18 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

DESIGN TARGET DETAILS (NAD 83)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Emily Unit 1H	0.0	0.0	0.0	14277820.83	1725252.44	39° 19' 4.408 N	80° 42' 0.150 W
Actual BHL Emily Unit	7113.5	6083.9	-2837.0	14283904.74	1722415.40	39° 20' 4.654 N	80° 42' 36.013 W
SHL (UTM meters)				4,352,107m	525,872m		
BHL (UTM meters)				4,353,991m	524,997m		





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17-06166

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/21/2013
Job End Date:	5/25/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06166-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Emily Unit 1H
Longitude:	-80.66666670
Latitude:	39.33333300
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,730,102
Total Base Non Water Volume:	21,514

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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
Freshwater	Antero Resources	water					
			Water	7732-18-5	100.00000	89.59038	
40/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	5.47431	
20/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	3.27870	
100 Mesh	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.45208	
Beta M-4.0	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.06298	
			Guar Gum	9000-30-0	50.00000	0.05725	
			Clay	1302-78-9	5.00000	0.00573	
			Surfactant	154518-36-2	1.00000	0.00115	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.01851	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01692	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01586	
			Alcohol Ethoxylate Surfactants	Proprietary	8.00000	0.00423	
Plexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02241	

17-06166

			Glutaraldehyde	111-30-8	14.00000	0.00349	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00075	
			Ethanol	64-17-5	3.00000	0.00075	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00075	
Hydrochloric Acid 10-15%	Reagent	Acid					
			Hydrchloric Acid	7647-01-0	15.00000	0.02811	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01074	
			Methyl Alcohol	67-56-1	25.00000	0.00316	
			Sodium Salt of Phosphonodimethylated Diamine	Proprietary	5.00000	0.00063	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00133	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00041	
			Alcohol Ethoxylate Surfactants	Proprietary	30.00000	0.00017	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00017	
			n-olefins	Proprietary	10.00000	0.00006	
			Propargyl Alcohol	107-19-7	8.00000	0.00005	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00043	
			Methyl Alcohol	67-56-1	15.00000	0.00010	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00010	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00006	
			Diethanolamine	111-42-2	5.00000	0.00003	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00019	
			Water	7732-18-5	35.00000	0.00013	
			Citric Acid	77-92-9	30.00000	0.00011	

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.

* 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)

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: 8/8/2013
API #: 47-017-06180

Farm name: Richard E. & Wilma J. Marsden et al Operator Well No.: Flossie Unit 1H

LOCATION: Elevation: 971' Quadrangle: Big Isaac 7.5'

District: Greenbrier County: Doddridge
Latitude: 4,357' Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 1,089' Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	105'	105'	100 Cu Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	365'	365'	507 Cu Ft. Class A
Inspector: Douglas Newlon	9 5/8" 36#	2,519'	2,519'	1025 Cu Ft. Class A
Date Permit Issued: 3/28/2013	5 1/2" 20#	14,514'	14,514'	3578 Cu Ft. Class H
Date Well Work Commenced: 4/12/2013				
Date Well Work Completed: 6/12/2013	2 3/8" 4.7#	7,271'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7119' TVD				
Total Measured Depth (ft): 14,514' MD				
Fresh Water Depth (ft.): 191'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 680'				
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) 7080' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 11,116 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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 12/6/13
Signature Date

17-06180

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 (Flossie Unit 2H API#47-017-06144). Please reference the wireline logs submitted with Form WR-35 for Flossie 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 7,329'- 14,459' (1,800 Holes)

Frac'd w/ 13,000 gals 15% HCL Acid, 153,362 bbls Slick Water carrying 728,230# 100 mesh, 2,815,310# 40/70 sand and 1,739,498# 20/40.

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

Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime	est 1971'	2093'
Big Injun	est 2094'	2457'
Gantz Sand	est 2458'	2584'
Fifty Foot Sandstone	est 2585'	2674'
Gordon	est 2675'	2840'
Fifth Sandstone	est 2841'	2881'
Bayard	est 2882'	3364'
Speechley	est 3365'	3879'
Balltown	est 3880'	4361'
Bradford	est 4362'	4960'
Benson	est 4961'	5246'
Alexander	est 5247'	5436'
Elk	est 5437'	6014'
Rhinestreet	6015'	6521'
Sycamore	6522'	6731'
Middlesex	6732'	6915'
Burkett	6916'	6946'
Tully	6947'	7037'
Hamilton	7038'	7079'
Marcellus	7080'	7119' TVD

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17-06180

ANTERO RESOURCES

Antero Resources
Flossie Unit 1H
Doddridge County WV
Northing: 14252125.91
Easting: 1754023.86
As Drilled

WELL DETAILS: Flossie Unit 1H
Ground Level: 971.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14252125.91	1754023.86	39° 14' 49.246 N	80° 35' 55.384 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

Coordinate (N/E) Reference: Well Flossie Unit 1H, Grid North
Vertical (TVD) Reference: Flossie Unit 1H GL 971' + 24' RKB @ 995.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Flossie Unit 1H GL 971' + 24' RKB @ 995.0usft (Original Well Elev)
Calculation Method: Minimum Curvature

Scientific Drilling

Genie Lightfoot
15:31, September 06 2013

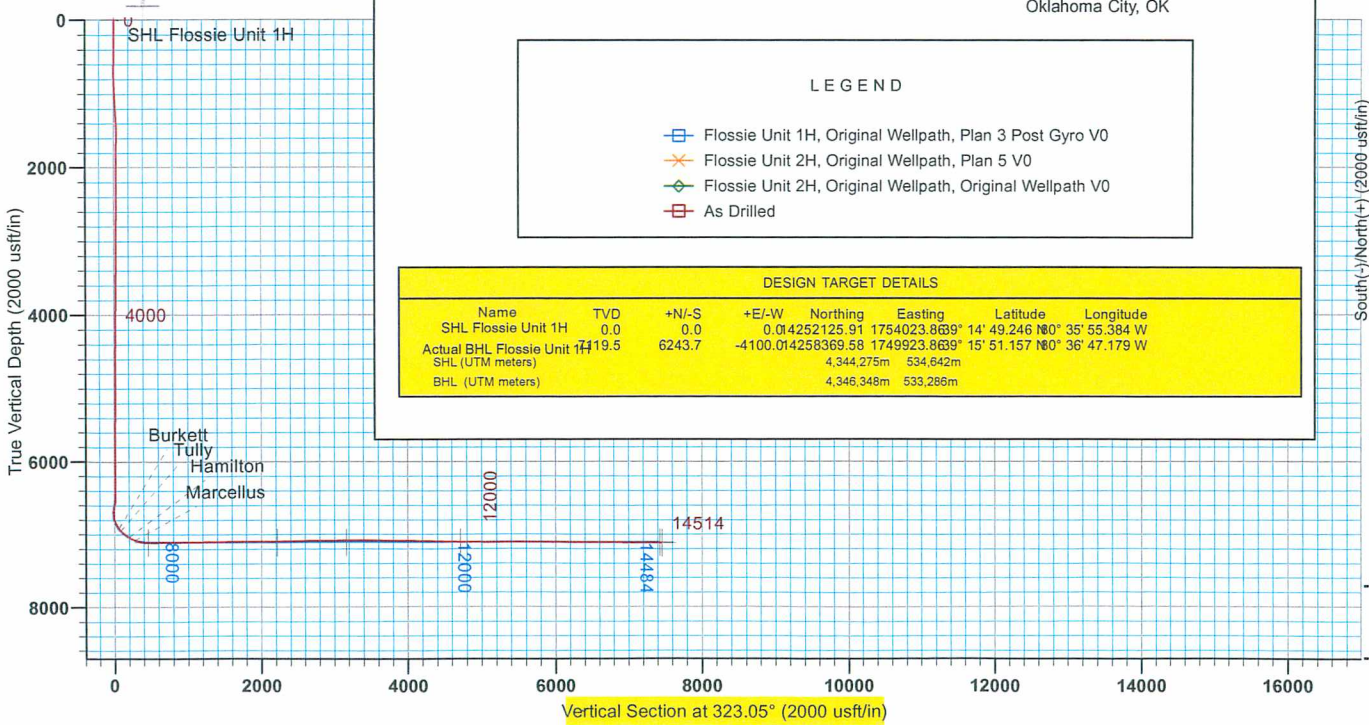
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

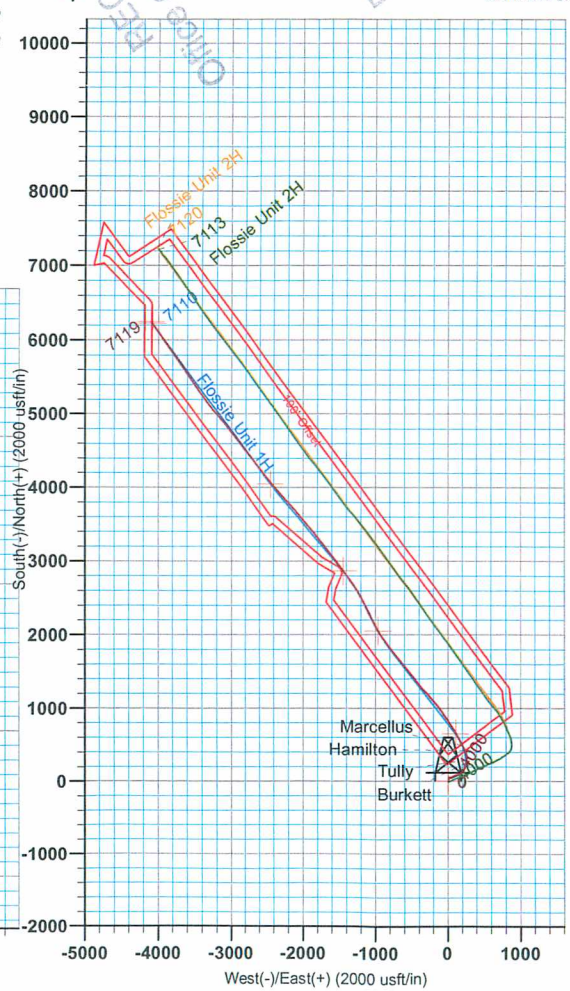
LEGEND

- Flossie Unit 1H, Original Wellpath, Plan 3 Post Gyro V0
- Flossie Unit 2H, Original Wellpath, Plan 5 V0
- Flossie Unit 2H, Original Wellpath, Original Wellpath V0
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Flossie Unit 1H	0.0	0.0	0.0	14252125.91	1754023.86	39° 14' 49.246 N	80° 35' 55.384 W
Actual BHL Flossie Unit 1H	7119.5	6243.7	-4100.0	14258369.58	1749923.86	39° 15' 51.157 N	80° 36' 47.179 W
SHL (UTM meters)				4,344,275m	534,642m		
BHL (UTM meters)				4,346,348m	533,286m		





To convert Magnetic North to Grid, Subtract 8.80°
To convert True North to Grid, Subtract 0.25°

Azimuths to Grid North
True North: -0.25°
Magnetic North: -8.80°

Magnetic Field
Strength: 52406.2snT
Dip Angle: 66.87°
Date: 3/14/2013
Model: IGRF2010

Office of Oil and Gas
DEC 2013
WV Department of Environmental Protection

17-06180

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/6/2013
Job End Date:	6/11/2013
State:	West Virginia
County:	Doddridge
API Number:	47-017-06180-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Flossie Unit 1H
Longitude:	-80.59876900
Latitude:	39.24701400
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	6,666,240
Total Base Non Water Volume:	27,284

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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
Freshwater	Antero Resources	Water					
			Water	7732-18-5	100.00000	89.53852	
40/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	5.47061	
20/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	3.38137	
100 Mesh	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.41649	
Beta M-4.0	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.04948	
			Guar Gum	9000-30-0	50.00000	0.04498	
			Clay	1302-78-9	5.00000	0.00450	
			Surfactant	154518-36-2	1.00000	0.00090	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.02211	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.02021	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01895	
			Alcohol Ethoxylate Surfactants	proprietary	8.00000	0.00505	
Hydrochloric Acid 10-15%	Reagent	Acid					

			Hydrchloric Acid	7647-01-0	15.00000	0.03503	
Plexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02414	
			Glutaraldehyde	111-30-8	14.00000	0.00376	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00080	
			Ethanol	64-17-5	3.00000	0.00080	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00080	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01272	
			Methyl Alcohol	67-56-1	25.00000	0.00374	
			Sodium Salt of Phosphonodimethylated Diamine	proprietary	5.00000	0.00075	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00141	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00051	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00022	
			Alcohol Ethoxylate Surfactants	proprietary	30.00000	0.00022	
			n-olefins	proprietary	10.00000	0.00007	
			Propargyl Alcohol	107-19-7	8.00000	0.00006	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00054	
			Methyl Alcohol	67-56-1	15.00000	0.00012	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00012	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00008	
			Diethanolamine	111-42-2	5.00000	0.00004	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00024	
			Water	7732-18-5	35.00000	0.00017	
			Citric Acid	77-92-9	30.00000	0.00014	

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.

* 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)

17-06180

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: 8/28/2013
API #: 47-033-05622

Farm name: Myer, Everette M. Jr. Operator Well No.: Thaddeus Unit 2H

LOCATION: Elevation: 1358' Quadrangle: Big Isaac

District: Union County: Harrison
Latitude: 3,445' Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 6,952' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	55'	55'	52 Cu Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	375'	375'	520 Cu Ft. Class A
Inspector: Sam Ward	9 5/8" 36#	2,580'	2,580'	1050 Cu Ft. Class A
Date Permit Issued: 7/17/2012	5 1/2" 20#	12,382'	12,382'	2973 Cu Ft. Class H
Date Well Work Commenced: 9/30/2012				
Date Well Work Completed: 5/17/2013	2 3/8" 4.7#	7455'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7333' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 12,382' MD, 7292' TVD (BHL)				
Fresh Water Depth (ft.): 70'				
Salt Water Depth (ft.): 500'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 263', 490', 554, 1329'				
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) 7293' (Top)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,966 MCF/d Final open flow ----- Bbl/d
Time of open flow between initial and final tests ----- Hours
Static rock Pressure 3600 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.

Kathi Buck 12/6/13
Signature Date

33-05622

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/ Gamma Ray, 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: 7,587'-12,327' MD (1,008 Holes)

Frac'd w/ 7,500 gals 15% HCL Acid, 101,996 bbls Slick Water carrying 429,700# 100 mesh, 2,024,100# 40/70 sand and 958,800# 20/40 sand.

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

Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime	1960'	2065'
Big Injun	2066'	2314'
Gantz Sand	2315'	2429'
Fifty Foot Sandstone	2430'	2522'
Gordon	2523'	2831'
Fifth Sandstone	2832'	2871'
Bayard	2872'	3530'
Speechley	3531'	3775'
Balltown	3775'	4290'
Bradford	4290'	4842'
Benson	4843'	5041'
Alexander	5042'	5190'
Elk	5191'	5851'
Rhinestreet	5852'	6627'
Sycamore	6628'	6897'
Middlesex	6898'	7068'
Burkett	7069'	7094
Tully	7095'	7225'
Hamilton	7226'	7293'
Marcellus	7293'	7333' TVD

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33-05622

ANTERO RESOURCES

Antero Resources
Thaddeus Unit 2H
Harrison County West Virginia
Northing: 14231176.62
Easting: 1778722.04
Original Wellpath

WELL DETAILS: Thaddeus Unit 2H

Ground Level: 1358.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14231176.62	1778722.04	39° 11' 20.911 N	80° 30' 42.769 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SHL Thaddeus Unit 2H	0.0	0.0	0.0	14231176.62	1778722.04	39° 11' 20.911 N	80° 30' 42.769 W	Point
Actual BHL Thaddeus Unit 2H	7323.0	-4867.5	2090.8	14226309.12	1780812.84	39° 10' 32.672 N	80° 30' 16.544 W	Point
PBHL Thaddeus Unit 2H	7328.0	-4867.5	2090.8	14226309.12	1780812.84	39° 10' 32.672 N	80° 30' 16.543 W	Point

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Thaddeus Unit 2H, Grid North
Vertical (TVD) Reference: Thaddeus Unit 2H 1358' GL + 28' RKB @ 1386.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Thaddeus Unit 2H 1358' GL + 28' RKB @ 1386.0usft (Original Well Elev)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Harrison County West Virginia

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

LEGEND

- Thaddeus Unit 2H, Original Wellpath, Plan 4 V0
- Original Wellpath

Scientific Drilling

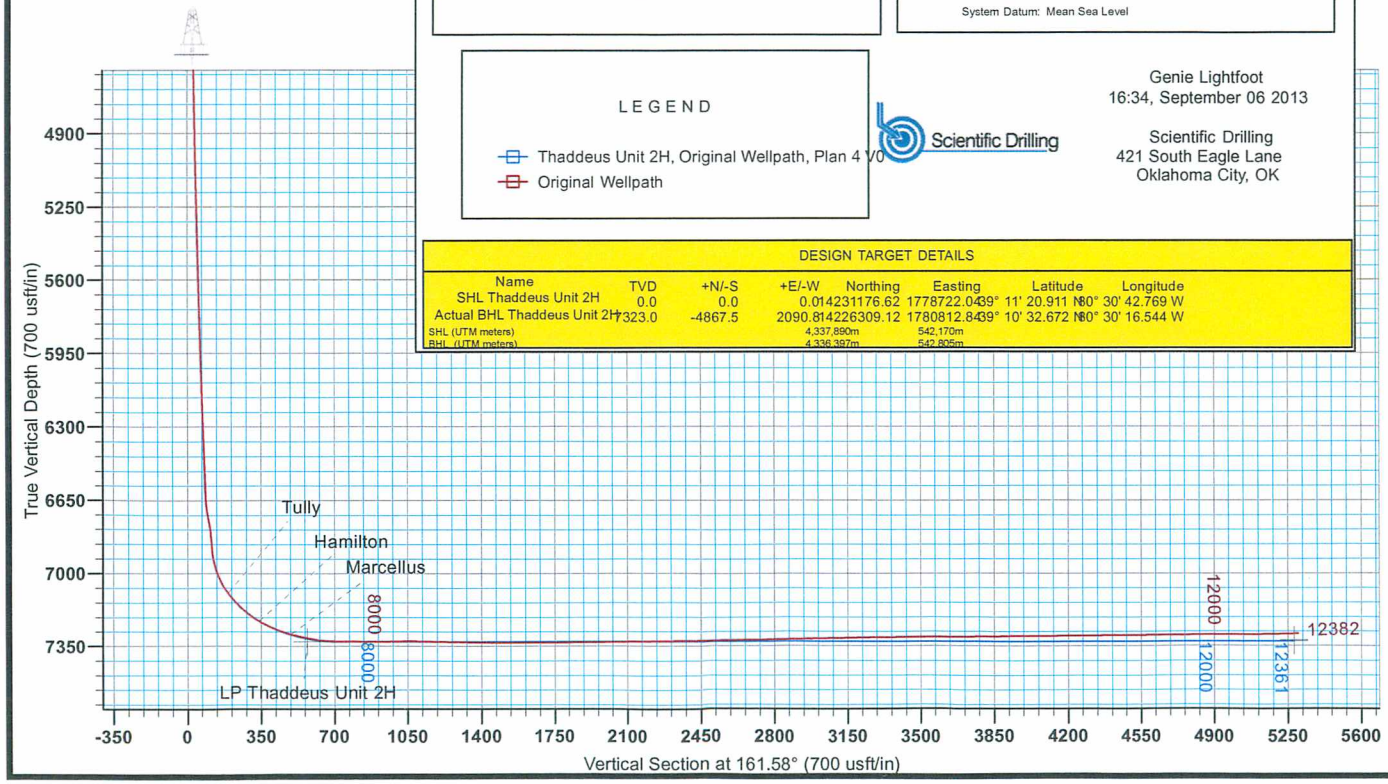
Genie Lightfoot
16:34, September 06 2013

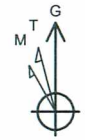
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Thaddeus Unit 2H	0.0	0.0	0.0	14231176.62	1778722.04	39° 11' 20.911 N	80° 30' 42.769 W
Actual BHL Thaddeus Unit 2H	7323.0	-4867.5	2090.8	14226309.12	1780812.84	39° 10' 32.672 N	80° 30' 16.544 W

SHL (UTM meters)	4,337,890m	542,170m
BHL (UTM meters)	4,336,397m	542,805m

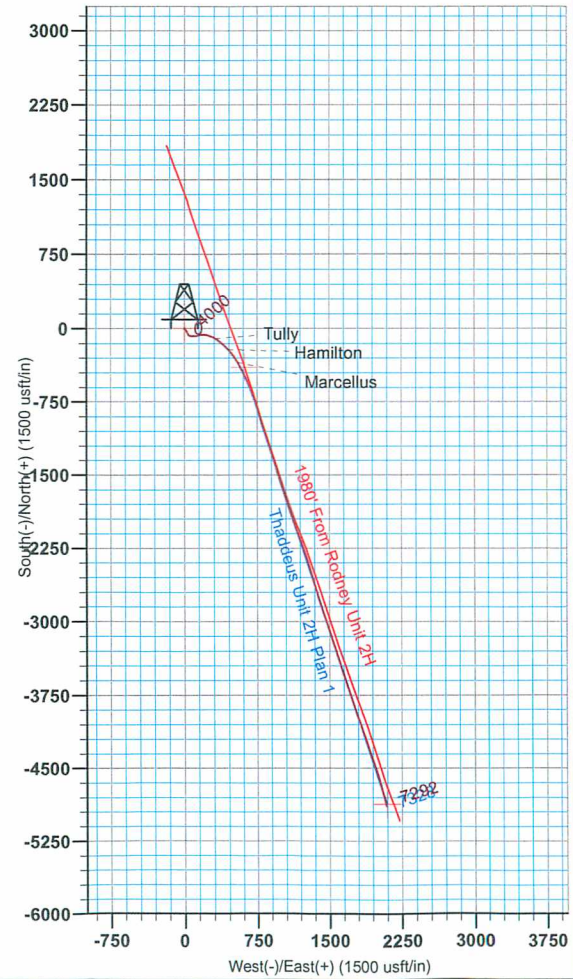




To convert Magnetic North to Grid, Subtract 8.88°
To convert True North to Grid, Subtract 0.31°

Azimuths to Grid North
True North: -0.31°
Magnetic North: -8.88°

Magnetic Field
Strength: 52418.0snT
Dip Angle: 66.86°
Date: 10/1/2012
Model: IGRF2010



33-05623

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/18/2013
Job End Date:	5/23/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05623-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Thaddeus Unit 1H
Longitude:	-80.51184440
Latitude:	39.18913610
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,281
Total Base Water Volume (gal):	5,089,728
Total Base Non Water Volume:	

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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	91.24647	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	4.75400	
			Aluminum Oxide	1344-28-1	1.10000	0.05235	
			Iron Oxide	1309-37-1	0.10000	0.00476	
			Titanium Oxide	13463-67-7	0.10000	0.00476	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	2.50864	
			Aluminum Oxide	1344-28-1	1.10000	0.02762	
			Titanium Oxide	13463-67-7	0.10000	0.00251	
			Iron Oxide	1309-37-1	0.10000	0.00251	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	1.10550	
			Aluminum Oxide	1344-28-1	1.10000	0.01217	

33-05623

			Iron Oxide	1309-37-1	0.10000	0.00111	
			Titanium Oxide	13463-67-7	0.10000	0.00111	
WFR-3B	Nabors Completion and Production Services	Friction Reducer					
			Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	50.00000	0.02942	
			Ethoxylated alcohols	68551-12-2	15.00000	0.00883	
			Ethoxylated oleylamine	26635-93-8	5.00000	0.00294	
HCl Acid (12.5%-18.0%)	Nabors Completion and Production Services	Bulk Acid					
			Hydrogen Chloride	7647-01-0	18.00000	0.04032	
LSG-100L	Nabors Completion and Production Services	Gelling Agents					
			Petroleum Distillates	64742-47-8	70.00000	0.03379	
Super GREEN SOLV	Nabors Completion and Production Services	Paraffin & Scale Additives					
			BTEX Free Aliphatic Hydrocarbon	64742-96-7	100.00000	0.00966	
OB-2	Nabors Completion and Production Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00741	
			Sillica, crystalline quartz	7631-86-9	10.00000	0.00074	
KR-153SL	Nabors Completion and Production Services	Biocides					
			Polyethlyene-Glycol	25322-68-3	50.00000	0.00542	
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00217	
EB-4L	Nabors Completion and Production Services	Gel Breakers					
			Water	7732-18-5	100.00000	0.00059	
			Breaker Component	Proprietary	100.00000	0.00059	
			Cellulase enzyme	Proprietary	100.00000	0.00059	
			Demulsifier Base	Proprietary	100.00000	0.00059	
			Sugar	57-50-1	100.00000	0.00059	
			Ethylene Glycol	107-21-1	40.00000	0.00024	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors					
			Glycol Ethers	111-46-6	40.00000	0.00016	
			Propargyl Alcohol	107-19-7	40.00000	0.00016	
			Isopropyl Alcohol	67-63-0	40.00000	0.00016	
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00005	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00004	

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	0.19600	
			guar gum	9000-30-0	50.00000	0.02413	
			Polyacrylamide	57-55-6	40.00000	0.02354	
			Water	7732-18-5	40.00000	0.02354	
			Water	7732-18-5	60.00000	0.01020	
			Propylene glycol	57-55-6	15.00000	0.00883	
			Water	7732-18-5	80.00000	0.00868	
			Proprietary	Proprietary	50.00000	0.00850	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00148	
			Surfactant	68439-51-0	2.00000	0.00097	
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00097	
			Microparticle	Proprietary	1.00000	0.00059	
			Water	7732-18-5	48.00000	0.00019	
			2-Butoxyethanol	111-76-2	13.00000	0.00005	
			Dioxane	123-91-1	1.00000	0.00000	
			Organophylic Clay	68953-58-2			

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* 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)

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: 9/26/2013
API #: 47-033-05623

Farm name: Myer, Everette M. Jr. Operator Well No.: Thaddeus Unit 1H

LOCATION: Elevation: 1358' Quadrangle: Big Isaac

District: Union County: Harrison
Latitude: 3,435' Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 6,954' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	42'	42'	40 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	333'	333'	462 Cu. Ft. Class A
Inspector: Sam Ward	9 5/8" 36#	2,540'	2,540'	1034 Cu. Ft. Class A
Date Permit Issued: 7/9/2012	5 1/2" 20#	13,105'	13,105'	3184 Cu. Ft. Class H
Date Well Work Commenced: 9/30/2012				
Date Well Work Completed: 5/23/2013	2 3/8" 4.7#	7,394'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ✓ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7327' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 13,105' MD, 7281' TVD (BHL)				
Fresh Water Depth (ft.): 70'				
Salt Water Depth (ft.): 500'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 263', 490', 554, 1329'				
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) 7284' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 6197 MCF/d Final open flow ----- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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.

Kaylen Buck 12/6/13
Signature Date

33-05623

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 (Thaddeus Unit 2H API#47-033-05622). Please reference the wireline logs submitted with Form WR-35 for Thaddeus 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: 7,486- 13, 048' MD (1,152 Holes)

Frac'd w/ 8,500 gals 15% HCL Acid, 121,184 Slick Water carrying 496,700# 100 mesh,

1,972,600# 40/70 sand and 1,061,900# 20/40 sand.

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

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Big Lime	est 1960'	2065'
Big Injun	est 2066'	2314'
Gantz Sand	est 2315'	2429'
Fifty Foot Sandstone	est 2430'	2522'
Gordon	est 2523'	2831'
Fifth Sandstone	est 2832'	2871'
Bayard	est 2872'	3530'
Speechley	est 3531'	3774'
Balltown	est 3775'	4289'
Bradford	est 4290'	4842'
Benson	est 4843'	5041'
Alexander	est 5042'	5190'
Elk	est 5191'	5851'
Rhinestreet	est 5852'	6627'
Sycamore	est 6628'	6881'
Middlesex	6882'	7069'
Burkett	7070'	7093'
Tully	7094'	7209'
Hamilton	7210'	7283'
Marcellus	7284'	7327' TVD

33-05623

ANTERO RESOURCES

Antero Resources
Thaddeus Unit 1H
Harrison County West Virginia
Northing: 14231174.64
Easting: 1778731.85
Original Wellpath

WELL DETAILS: Thaddeus Unit 1H

Ground Level: 1358.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14231174.64	1778731.85	39° 11' 20.891 N	80° 30' 42.645 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SHL Thaddeus Unit 1H	0.0	0.0	0.0	14231174.64	1778731.85	39° 11' 20.891 N	80° 30' 42.645 W	Point
Actual BHL Thaddeus Unit 1H	7328.0	-5828.4	1678.6	14225346.28	1780410.45	39° 10' 23.173 N	80° 30' 21.722 W	Point
PBHL TGT Thaddeus 1H	7333.0	-5828.4	1678.6	14225346.28	1780410.45	39° 10' 23.173 N	80° 30' 21.722 W	Point

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Thaddeus Unit 1H, Grid North
Vertical (TVD) Reference: Thaddeus 1H 1358 GL + 28 KB @ 1386.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Thaddeus 1H 1358 GL + 28 KB @ 1386.0usft
Calculation Method: Minimum Curvature

PROJECT DETAILS: Harrison County West Virginia

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

LEGEND

- Thaddeus Unit 1H, Original Wellpath, Plan 2 Post Gyro V0
- Thaddeus Unit 2H, Original Wellpath, Original Wellpath V0
- Original Wellpath

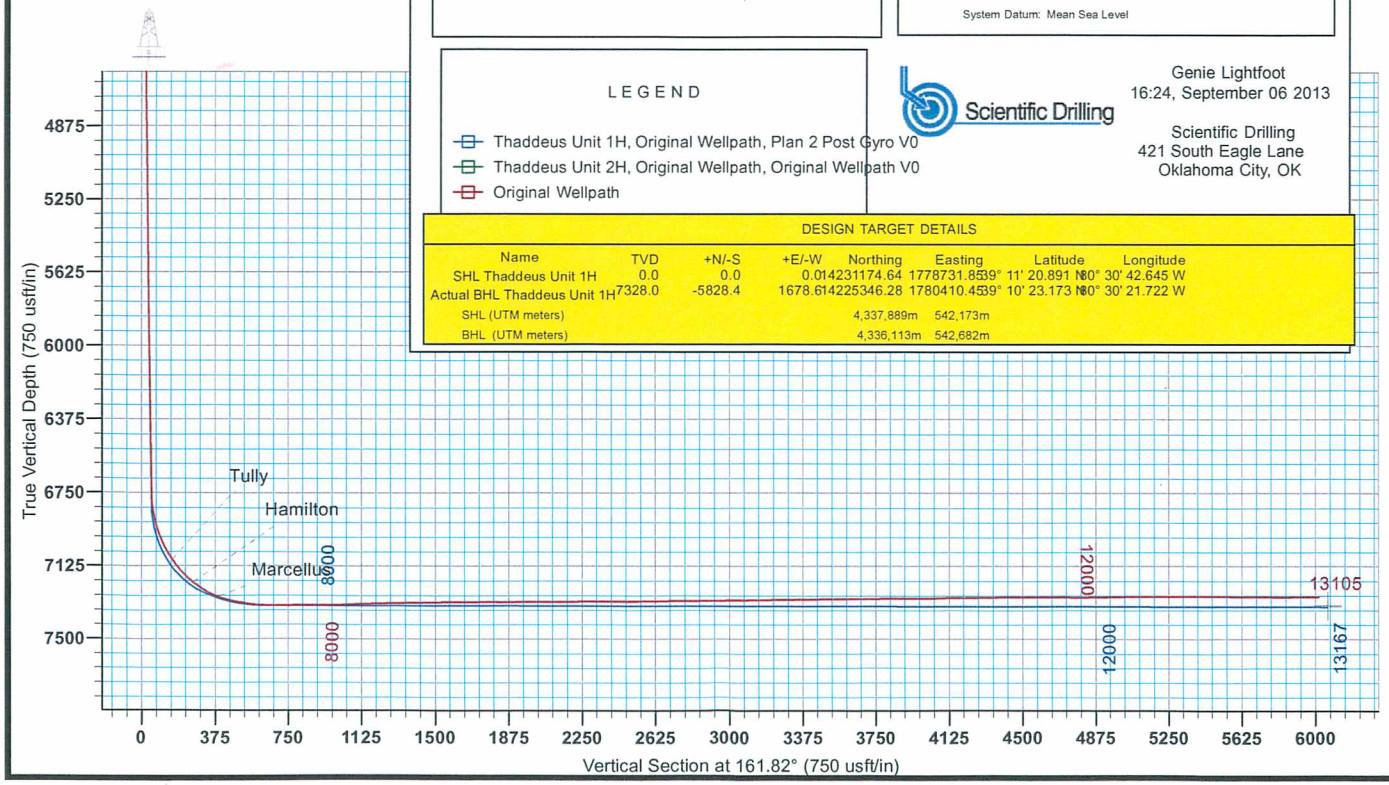
Scientific Drilling

Genie Lightfoot
16:24, September 06 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

DESIGN TARGET DETAILS

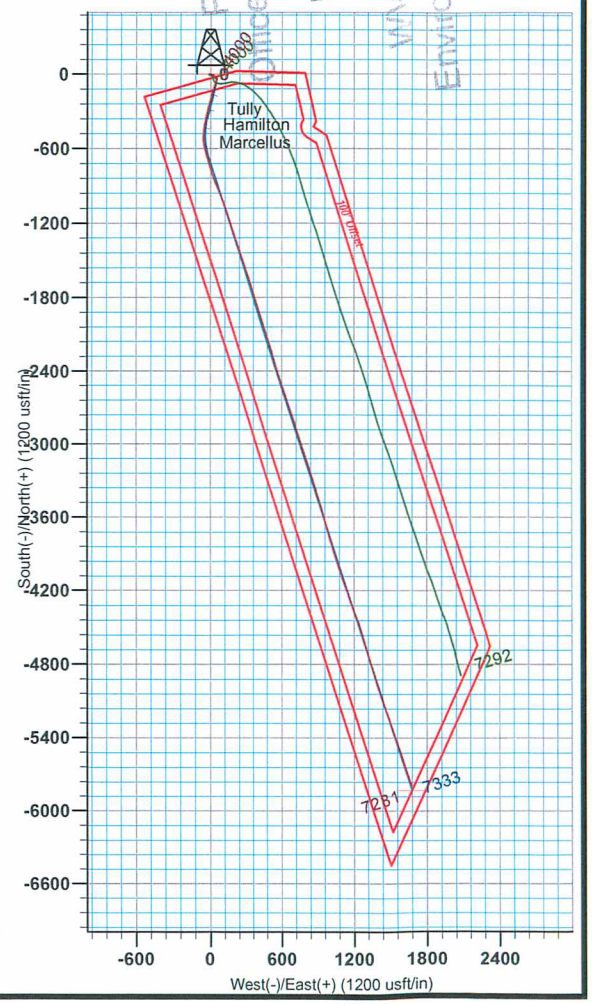
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Thaddeus Unit 1H	0.0	0.0	0.0	14231174.64	1778731.85	39° 11' 20.891 N	80° 30' 42.645 W
Actual BHL Thaddeus Unit 1H	7328.0	-5828.4	1678.6	14225346.28	1780410.45	39° 10' 23.173 N	80° 30' 21.722 W
SHL (UTM meters)				4,337,889m	542,173m		
BHL (UTM meters)				4,336,113m	542,682m		



To convert Magnetic North to Grid, Subtract 8.90°
To convert True North to Grid, Subtract 0.31°

Azimuths to Grid North
True North: -0.31°
Magnetic North: -8.90°

Magnetic Field
Strength: 52367.4snT
Dip Angle: 66.82°
Date: 3/1/2013
Model: IGRF2010



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33-05623

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/18/2013
Job End Date:	5/23/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05623-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Thaddeus Unit 1H
Longitude:	-80.51184440
Latitude:	39.18913610
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,281
Total Base Water Volume (gal):	5,089,728
Total Base Non Water Volume:	

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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	91.24647	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	4.75400	
			Aluminum Oxide	1344-28-1	1.10000	0.05235	
			Iron Oxide	1309-37-1	0.10000	0.00476	
			Titanium Oxide	13463-67-7	0.10000	0.00476	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	2.50864	
			Aluminum Oxide	1344-28-1	1.10000	0.02762	
			Titanium Oxide	13463-67-7	0.10000	0.00251	
			Iron Oxide	1309-37-1	0.10000	0.00251	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	1.10550	
			Aluminum Oxide	1344-28-1	1.10000	0.01217	

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			Iron Oxide	1309-37-1	0.10000	0.00111	
			Titanium Oxide	13463-67-7	0.10000	0.00111	
WFR-3B	Nabors Completion and Production Services	Friction Reducer					
			Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	50.00000	0.02942	
			Ethoxylated alcohols	68551-12-2	15.00000	0.00883	
			Ethoxylated oleylamine	26635-93-8	5.00000	0.00294	
HCl Acid (12.5%-18.0%)	Nabors Completion and Production Services	Bulk Acid					
			Hydrogen Chloride	7647-01-0	18.00000	0.04032	
LSG-100L	Nabors Completion and Production Services	Gelling Agents					
			Petroleum Distillates	64742-47-8	70.00000	0.03379	
Super GREEN SOLV	Nabors Completion and Production Services	Paraffin & Scale Additives					
			BTEX Free Aliphatic Hydrocarbon	64742-96-7	100.00000	0.00966	
OB-2	Nabors Completion and Production Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00741	
			Sillica, crystalline quartz	7631-86-9	10.00000	0.00074	
KR-153SL	Nabors Completion and Production Services	Biocides					
			Polyethlyene-Glycol	25322-68-3	50.00000	0.00542	
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00217	
EB-4L	Nabors Completion and Production Services	Gel Breakers					
			Water	7732-18-5	100.00000	0.00059	
			Breaker Component	Proprietary	100.00000	0.00059	
			Cellulase enzyme	Proprietary	100.00000	0.00059	
			Demulsifier Base	Proprietary	100.00000	0.00059	
			Sugar	57-50-1	100.00000	0.00059	
			Ethylene Glycol	107-21-1	40.00000	0.00024	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors					
			Glycol Ethers	111-46-6	40.00000	0.00016	
			Propargyl Alcohol	107-19-7	40.00000	0.00016	
			Isopropyl Alcohol	67-63-0	40.00000	0.00016	
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00005	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00004	

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	0.19600	
			guar gum	9000-30-0	50.00000	0.02413	
			Polyacrylamide	57-55-6	40.00000	0.02354	
			Water	7732-18-5	40.00000	0.02354	
			Water	7732-18-5	60.00000	0.01020	
			Propylene glycol	57-55-6	15.00000	0.00883	
			Water	7732-18-5	80.00000	0.00868	
			Proprietary	Proprietary	50.00000	0.00850	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00148	
			Surfactant	68439-51-0	2.00000	0.00097	
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00097	
			Microparticle	Proprietary	1.00000	0.00059	
			Water	7732-18-5	48.00000	0.00019	
			2-Butoxyethanol	111-76-2	13.00000	0.00005	
			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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OCT 2012
Environmental Protection
Division

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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: 8/12/2013
API #: 47-033-05639

Farm name: Matheny, Norman C. Operator Well No.: Dessie Unit 1H

LOCATION: Elevation: 1,275' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 15,437' Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 832' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	64'	64'	61 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 48#	546'	546'	759 Cu. Ft. Class A
Inspector: Sam Ward	9-5/8" 36#	2,583'	2,583'	1,052 Cu. Ft. Class A
Date Permit Issued: 8/22/12	5-1/2" 20#	14,701'	14,701'	3,607 Cu. Ft. Class H
Date Well Work Commenced: 9/21/12				
Date Well Work Completed: 3/12/13	2-3/8" 4.7#	7,169'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ✓ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7130' TVD				
Total Measured Depth (ft): 14,701' MD				
Fresh Water Depth (ft.): 187'				
Salt Water Depth (ft.): 747', 908'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): Pad built on reclaimed Pittsburgh coal bench.				
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) 6,962' (TOP)
Gas: Initial open flow ------ MCF/d Oil: Initial open flow ---- Bl
Final open flow 3,599 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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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DEC 13 2013

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.

Kaylin Buck
Signature

12/10/2013
Date

33-05639

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 wireline logs on the first well on a multi-well pad (Hawker Unit 1H API#47-033-05553). Please reference the wireline logs submitted with Form WR-35 for Hawker Unit 1H.

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: 7,329' - 14,635' MD (1,512 holes)

Frac'd w/ 12,000 gals 15% HCL Acid, 155,592 bbls Slick Water carrying 766,006# 100 mesh, 2,671,860# 40/70 sand and 1,635,700# 20/40 sand.

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

Formations Encountered: Surface:	Top Depth /	Bottom Depth
Big Lime	est. 1458'	1573'
Big Injun	est. 1574'	1842'
Gantz	est. 1843'	1968'
Fifty Foot Sandstone	est. 1969'	2119'
Gordon	est. 2120'	2388'
Fifth Sandstone	est. 2389'	2445'
Bayard	est. 2446'	3089'
Speechley	est. 3090'	3301'
Balltown	est. 3302'	3798'
Bradford	est. 3799'	4398'
Benson	est. 4399'	4707'
Alexander	est. 4708'	4924'
Elk	est. 4925'	5618'
Rhinestreet	est. 5619'	6448'
Sonyea	6449'	6597'
West River	6598'	6699'
Burkett	6700'	6735'
Tully	6736'	6869'
Hamilton	6870'	6961'
Marcellus	6962'	7130' TVD

33.05639

ANTERO RESOURCES

Antero Resources
Dessie Unit 1H
Harrison County West Virginia
Northing: 14252483.61
Easting: 1801937.79
Original Wellpath

WELL DETAILS: Dessie Unit 1H

Ground Level: 1275.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14252483.61	1801937.79	39° 14' 50.241 N	80° 25' 46.111 W	

SECTION DETAILS:

No plan data is available

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Dessie Unit 1H, Grid North
Vertical (TVD) Reference: Dessie 1H 1275 GL + 23 KB @ 1298.0usft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Dessie 1H 1275 GL + 23 KB @ 1298.0usft (Original Well Elev)
Calculation Method: Minimum Curvature

Well Location Coordinates **(NAD 83)**

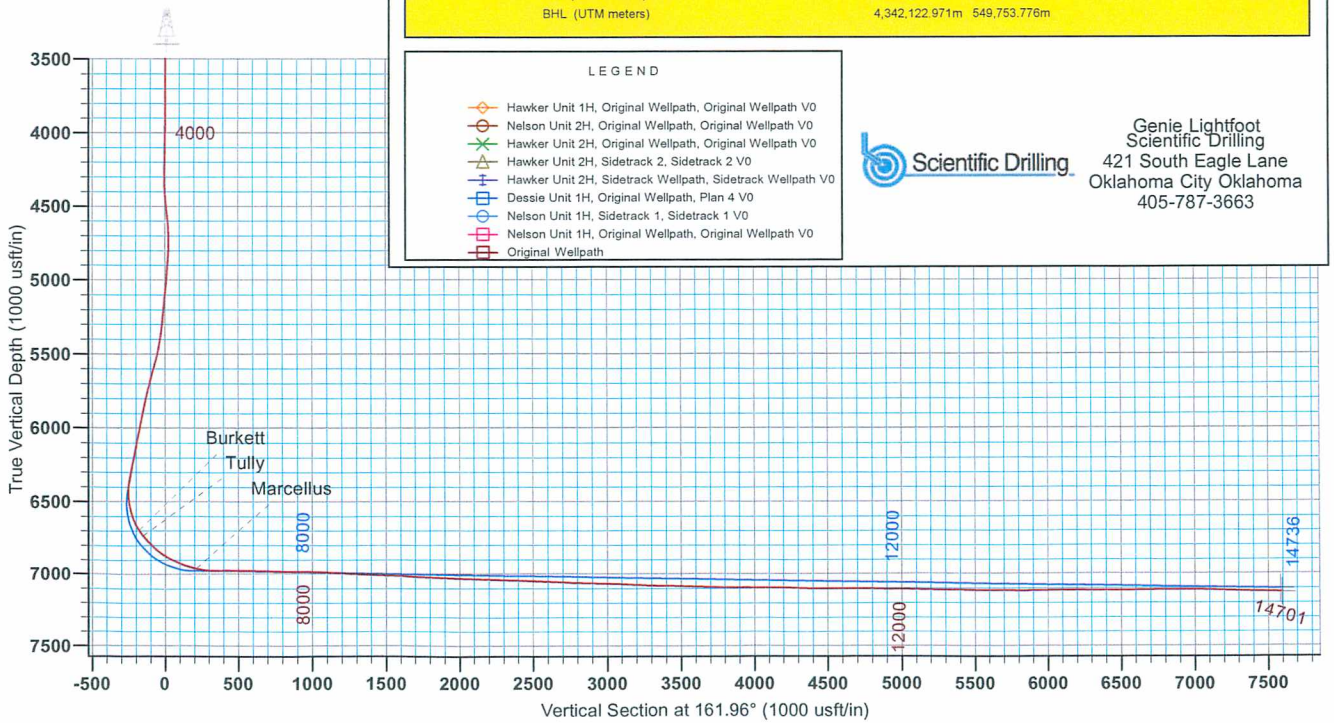
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Dessie Unit 1H	0.0	0.0	0.0	14252483.61	1801937.79	39° 14' 50.241 N	80° 25' 46.111 W
Actual BHL Dessie Un	7129.7	-7430.1	1707.8	14245053.47	1803645.56	39° 13' 36.670 N	80° 25' 24.998 W
SHL (UTM meters)				4,344,384.244m	549,246.378m		
BHL (UTM meters)				4,342,122.971m	549,753.776m		

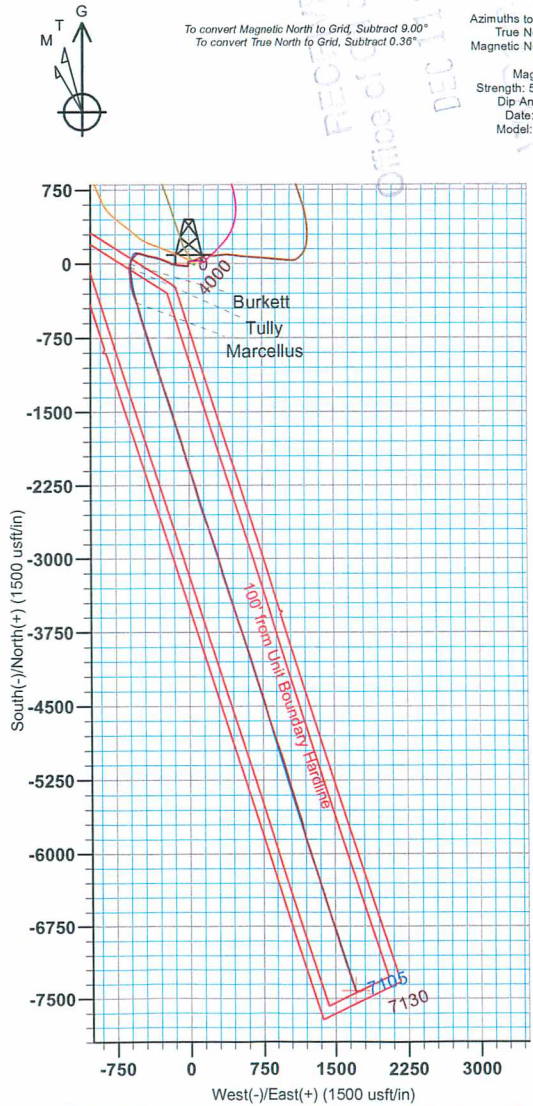
LEGEND

- Hawker Unit 1H, Original Wellpath, Original Wellpath V0
- Nelson Unit 2H, Original Wellpath, Original Wellpath V0
- Hawker Unit 2H, Original Wellpath, Original Wellpath V0
- Hawker Unit 2H, Sidetrack 2, Sidetrack 2 V0
- Hawker Unit 2H, Sidetrack Wellpath, Sidetrack Wellpath V0
- Dessie Unit 1H, Original Wellpath, Plan 4 V0
- Nelson Unit 1H, Sidetrack 1, Sidetrack 1 V0
- Nelson Unit 1H, Original Wellpath, Original Wellpath V0
- Original Wellpath

Scientific Drilling

Genie Lightfoot
Scientific Drilling
421 South Eagle Lane
Oklahoma City Oklahoma
405-787-3663





33-05639

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	2/14/2013
State:	WV
County:	Harrison
API Number:	47-033-05639
Operator Name:	Antero Resources
Well Name and Number:	Dessie Unit 1H
Longitude:	-80.429475
Latitude:	39.2472889
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,130
Total Water Volume* (gal):	6,534,864

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WV Department of
Environmental Protection

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
Freshwater	Antero Resources		Water	7732-18-5	100.00%	90.47873%	
Hydrochloric Acid 10-15%	Reagent	Acid	Hydrchloric Acid	7647-01-0	15.00%	0.02957%	
100 Mesh	US Silica	Propppant	Sand	14808-60-7	100.00%	1.40649%	
40/70 White	US Silica	Propppant	Sand	14808-60-7	100.00%	4.89766%	
20/40 White	US Silica	Propppant	Sand	14808-60-7	100.00%	2.99944%	
Sodium Persulfate	Chemplex	Breaker	Sodium Persulfate	7775-27-1	100.00%	0.00166%	
Ferriplex 66	Chemplex	Iron Control	Acetic Acid	64-19-7	50.00%	0.00019%	
			Citric Acid	77-92-9	30.00%	0.00012%	
			Water	7732-18-5	35.00%	0.00014%	
Plexbreak 145	Chemplex	Non-emulsifier	Cocamide Diethanolamine Salt	68603-42-9	10.00%	0.00007%	
			Diethanolamine	111-42-2	5.00%	0.00003%	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00%	0.00010%	
			Methyl Alcohol	67-56-1	15.00%	0.00010%	
			Water	732-18-5	66.00%	0.00044%	
Plexhib 256	Chemplex	Corrosion	Alcohol Ethoxylate Surfactants	Trade Secret	30.00%	0.00018%	
		Inhibitor	Methyl Alcohol	67-56-1	70.00%	0.00042%	
			n-olefins	Trade Secret	10.00%	0.00006%	
			Propargyl Alcohol	107-19-7	8.00%	0.00005%	
			thiourea-formaldehyde copolymer	68527-49-1	30.00%	0.00018%	
Plexaid 673	Chemplex	Scale Inhibitor	Methyl Alcohol	67-56-1	25.00%	0.00358%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00072%	
			Water	7732-18-5	85.00%	0.01219%	
Plexcide 15G	Chemplex	Biocide	Water	7732-18-5	90.00%	0.02234%	
			Glutaraldehyde	111-30-8	14.00%	0.00348%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00074%	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00%	0.00074%	
			Ethanol	64-17-5	3.00%	0.00074%	
Plexslick 921 E	Chemplex	Friction Reducer	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00427%	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.01601%	
			Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.01707%	
			Water	7732-18-5	35.00%	0.01867%	
Beta M-4.0	PfP	Guar Gel	Guar Gum	9000-30-0	50.00%	0.06031%	
			Petroleum Distillate	64742-47-8	55.00%	0.06634%	
			Clay	1302-78-9	5.00%	0.00603%	
			Surfactant	154518-36-2	1.00%	0.00121%	
Plexslick 953	Chemplex	Friction Reducer	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00042%	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.00158%	
			Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.00169%	
			Water	7732-18-5	35.00%	0.00184%	

*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%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

33-05639

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	2/14/2013
State:	WV
County:	Harrison
API Number:	47-033-05639
Operator Name:	Antero Resources
Well Name and Number:	Dessie Unit 1H
Longitude:	-80.429475
Latitude:	39.2472889
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,130
Total Water Volume* (gal):	6,534,864

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
Freshwater	Antero Resources		Water	7732-18-5	100.00%	90.47873%	
Hydrochloric Acid 10-15%	Reagent	Acid	Hydrchloric Acid	7647-01-0	15.00%	0.02957%	
100 Mesh	US Silica	Propppant	Sand	14808-60-7	100.00%	1.40649%	
40/70 White	US Silica	Propppant	Sand	14808-60-7	100.00%	4.89766%	
20/40 White	US Silica	Propppant	Sand	14808-60-7	100.00%	2.99944%	
Sodium Persulfate	Chemplex	Breaker	Sodium Persulfate	7775-27-1	100.00%	0.00166%	
Ferriplex 66	Chemplex	Iron Control	Acetic Acid	64-19-7	50.00%	0.00019%	
			Citric Acid	77-92-9	30.00%	0.00012%	
			Water	7732-18-5	35.00%	0.00014%	
Plexbreak 145	Chemplex	Non-emulsifier	Cocamide Diethanolamine Salt	68603-42-9	10.00%	0.00007%	
			Diethanolamine	111-42-2	5.00%	0.00003%	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00%	0.00010%	
			Methyl Alcohol	67-56-1	15.00%	0.00010%	
			Water	732-18-5	66.00%	0.00044%	
Plexhib 256	Chemplex	Corrosion	Alcohol Ethoxylate Surfactants	Trade Secret	30.00%	0.00018%	
		Inhibitor	Methyl Alcohol	67-56-1	70.00%	0.00042%	
			n-olefins	Trade Secret	10.00%	0.00006%	
			Propargyl Alcohol	107-19-7	8.00%	0.00005%	
			thiourea-formaldehyde copolymer	68527-49-1	30.00%	0.00018%	
Plexaid 673	Chemplex	Scale Inhibitor	Methyl Alcohol	67-56-1	25.00%	0.00358%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00072%	
			Water	7732-18-5	85.00%	0.01219%	
Plexcide 15G	Chemplex	Biocide	Water	7732-18-5	90.00%	0.02234%	
			Glutaraldehyde	111-30-8	14.00%	0.00348%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00074%	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00%	0.00074%	
			Ethanol	64-17-5	3.00%	0.00074%	
Plexslick 921 E	Chemplex	Friction Reducer	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00427%	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.01601%	
			Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.01707%	
			Water	7732-18-5	35.00%	0.01867%	
Beta M-4.0	PfP	Guar Gel	Guar Gum	9000-30-0	50.00%	0.06031%	
			Petroleum Distillate	64742-47-8	55.00%	0.06634%	
			Clay	1302-78-9	5.00%	0.00603%	
			Surfactant	154518-36-2	1.00%	0.00121%	
Plexslick 953	Chemplex	Friction Reducer	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00042%	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.00158%	
			Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.00169%	
			Water	7732-18-5	35.00%	0.00184%	

*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%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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: 8/7/2013
API #: 47-033-05640

Farm name: Matheny, Norman C. Operator Well No.: Rogers Unit 1H

LOCATION: Elevation: 1,275' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 15,427' Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 833' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	544'	544'	756 Cu. Ft. Class A
Inspector: Sam Ward	9 5/8" 36#	2,579'	2,579'	1050 Cu. Ft. Class A
Date Permit Issued: 8/16/2012	5 1/2" 20#	14,202'	14,202'	3474 Cu. Ft. Class H
Date Well Work Commenced: 9/20/2012				
Date Well Work Completed: 2/27/2013	2 3/8" 4.7#	7220'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,172' TVD				
Total Measured Depth (ft): 14,202' MD				
Fresh Water Depth (ft.): 187'				
Salt Water Depth (ft.): 747', 908'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): Pad constructed on reclaimed Pittsburgh coal bench				
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) 6999' (TOP)
Gas: Initial open flow ------ MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 3,854 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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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Office of Oil & Gas
DEC 17 2013

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.

Karen Buck
Signature

12/10/2013
Date

33-05640

ANTERO RESOURCES

Antero Resources
Rogers Unit 1H
Harrison County West Virginia
Northing: 14252483.33
Easting: 1801947.78
Original Wellpath

WELL DETAILS: Rogers Unit 1H

Ground Level: 1275.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14252483.33	1801947.78	39° 14' 50.238 N	80° 25' 45.984 W	

PROJECT DETAILS: Harrison County West Virginia

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 Rogers Unit 1H, Grid North
Vertical (TVD) Reference: Rogers 1H 1275 GL + 28 KB @ 1303.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Rogers 1H 1275 GL + 28 KB @ 1303.0usft
Calculation Method: Minimum Curvature

LEGEND

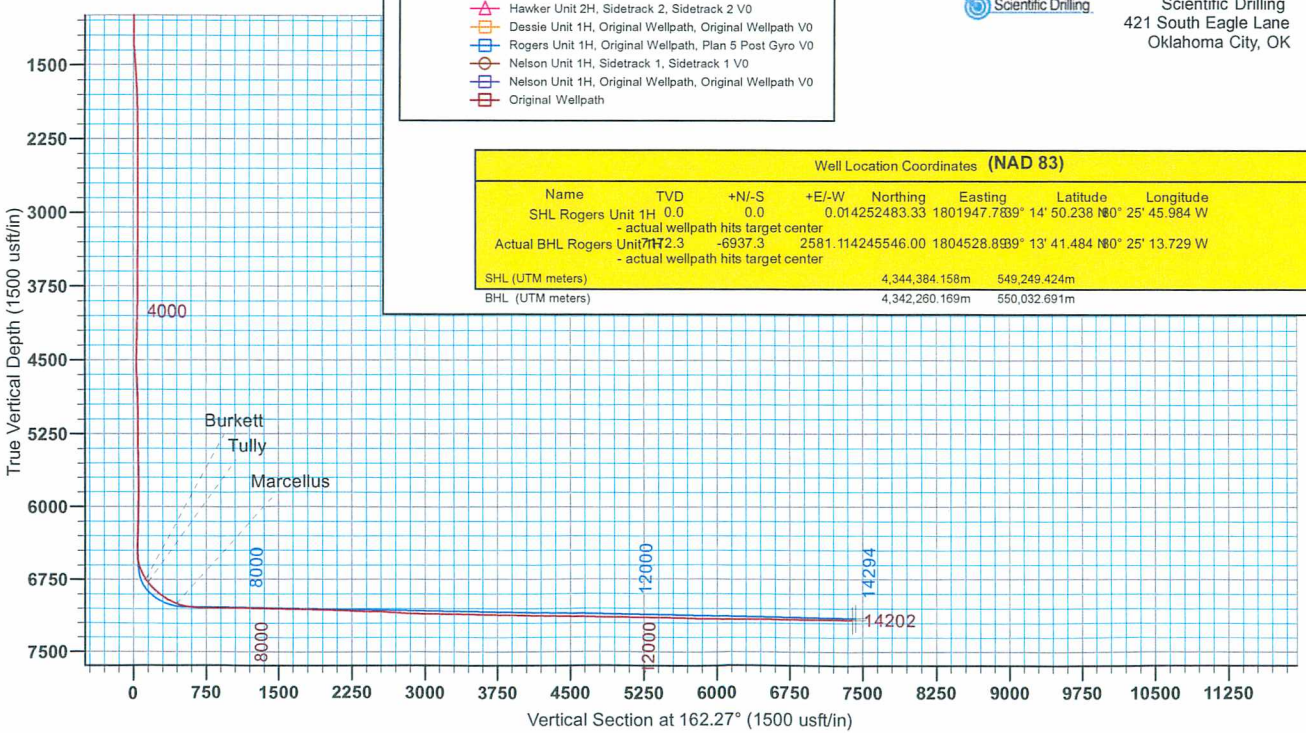
- Hawker Unit 1H, Original Wellpath, Original Wellpath V0
- Nelson Unit 2H, Original Wellpath, Original Wellpath V0
- Hawker Unit 2H, Sidetrack 2, Sidetrack 2 V0
- Dessie Unit 1H, Original Wellpath, Original Wellpath V0
- Rogers Unit 1H, Original Wellpath, Plan 5 Post Gyro V0
- Nelson Unit 1H, Sidetrack 1, Sidetrack 1 V0
- Nelson Unit 1H, Original Wellpath, Original Wellpath V0
- Original Wellpath

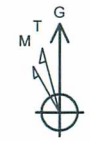
Genie Lightfoot
13:31, July 18 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Well Location Coordinates **(NAD 83)**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Rogers Unit 1H	0.0	0.0	0.0	14252483.33	1801947.78	39° 14' 50.238 N	80° 25' 45.984 W
- actual wellpath hits target center							
Actual BHL Rogers Unit 1H	7172.3	-6937.3	2581.11	14245546.00	1804528.89	39° 13' 41.484 N	80° 25' 13.729 W
- actual wellpath hits target center							
SHL (UTM meters)				4,344,384.158m	549,249.424m		
BHL (UTM meters)				4,342,260.169m	550,032.691m		





To convert Magnetic North to Grid, Subtract 9.01°
To convert True North to Grid, Subtract 0.36°

Azimuths to Grid North
True North: -0.36°
Magnetic North: -9.01°

Magnetic Field
Strength: 52424.3snT
Dip Angle: 66.89°
Date: 11/13/2012
Model: IGRF2010

33-05640

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/19/2013
Job End Date:	2/27/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05640-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Rogers Unit 1H
Longitude:	-80.42943890
Latitude:	39.24728890
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	7,906,164
Total Base Non Water Volume:	28,309

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
Freshwater	Antero Resources	Carrier					
			Water	7732-18-5	100.00000	88.67178	
40/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	6.25925	
20/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	3.23573	
100 Mesh	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.65576	
Beta M-4.0	PfP	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.05304	
			Guar Gum	9000-30-0	50.00000	0.04822	
			Clay	1302-78-9	5.00000	0.00482	
			Surfactant	154518-36-2	1.00000	0.00096	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.01977	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01808	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01695	
			Alcohol Ethoxylate Surfactants	Trade Secret	8.00000	0.00452	
Plexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02337	

33-05640

			Glutaraldehyde	111-30-8	14.00000	0.00363	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00078	
			Ethanol	64-17-5	3.00000	0.00078	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00078	
Hydrochloric Acid 10-15%	Reagent	Acid					
			Hydrchloric Acid	7647-01-0	15.00000	0.01833	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01262	
			Methyl Alcohol	67-56-1	25.00000	0.00371	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00000	0.00074	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00133	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00025	
			Water	7732-18-5	35.00000	0.00018	
			Citric Acid	77-92-9	30.00000	0.00015	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00014	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00006	
			Alcohol Ethoxylate Surfactants	Trade Secret	30.00000	0.00006	
			n-olefins	Trade Secret	10.00000	0.00002	
			Propargyl Alcohol	107-19-7	8.00000	0.00002	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00014	
			Methyl Alcohol	67-56-1	15.00000	0.00003	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00003	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00002	
			Diethanolamine	111-42-2	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.

* 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)

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: 8/12/2013
API #: 47-033-05641

Farm name: Matheny, Norman C. Operator Well No.: Rogers Unit 2H

LOCATION: Elevation: 1,275' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 15,417' Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 833' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	544'	544'	756 Cu. Ft. Class A
Inspector: Sam Ward	9 5/8" 36#	2,567'	2,567'	1045 Cu. Ft. Class A
Date Permit Issued: 8/16/2012	5 1/2" 20#	13,955'	13,955'	3410 Cu. Ft. Class H
Date Well Work Commenced: 9/20/2012				
Date Well Work Completed: 3/8/2013	2 3/8" 4.7#	7,387'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ✓ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,182' TVD (Deepest point drilled)				
Total Measured Depth (ft): 13,955' MD,TVD 7179' (BHL)				
Fresh Water Depth (ft.): 187'				
Salt Water Depth (ft.): 747', 908'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): Pad constructed on reclaimed Pittsburgh coal bench				
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) 7,023' (Top)
Gas: Initial open flow ------ MCF/d Oil: Initial open flow ---- B
Final open flow 4,155 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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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DEC 11 2013
WV Department of Environmental Protection

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.

Kathleen Buck
Signature

12/10/2013
Date

33-05641

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 wireline logs on the first well on a multi-well pad (Hawker Unit 1H API#47-033-05553). Please reference the wireline logs submitted with Form WR-35 for Hawker Unit 1H.

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: 7,444' - 13,899' MD (1,368 holes)

Frac'd w/ 11,000 gals 15% HCL Acid, 139,080 bbls Slick Water carrying 652,158# 100 mesh, 2,642,750# 40/70 sand and 1,594,470# 20/40 sand.

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

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Big Lime	est. 1458'	1573'
Big Injun	est. 1574'	1842'
Gantz	est. 1843'	1968'
Fifty Foot Sandstone	est. 1969'	2119'
Gordon	est. 2120'	2388'
Fifth Sandstone	est. 2389'	2445'
Bayard	est. 2446'	3089'
Speechley	est. 3090'	3301'
Balltown	est. 3302'	3798'
Bradford	est. 3799'	4398'
Benson	est. 4399'	4707'
Alexander	est. 4708'	4924'
Elk	est. 4925'	5618'
Rhinestreet	est. 5619'	6308'
Sycamore	6309'	6675'
West River Shale	6676'	6784'
Burkett	6785'	6807'
Tully	6808'	6932'
Hamilton	6933'	7022'
Marcellus	7023'	7182' TVD

33-05641

ANTERO RESOURCES

Antero Resources
Rogers Unit 2H
Harrison County West Virginia
Northing: 14252483.05
Easting: 1801957.77
Original Wellpath

WELL DETAILS: Rogers Unit 2H

Ground Level: 1275.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14252483.05	1801957.77	39° 14' 50.234 N	80° 25' 45.857 W	

PROJECT DETAILS: Harrison County West Virginia

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 Rogers Unit 2H, Grid North
Vertical (TVD) Reference: Rogers 2H 1275.GL + 28 KB @ 1303.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Rogers 2H 1275.GL + 28 KB @ 1303.0usft
Calculation Method: Minimum Curvature

Well Location Coordinates **(NAD 83)**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Rogers Unit 2H	0.0	0.0	0.0	14252483.05	1801957.77	39° 14' 50.234 N	80° 25' 45.857 W
Actual BHL Rogers Unit 2H	7179.3	-6514.8	3424.5	14245968.28	1805382.26	39° 13' 45.605 N	80° 25' 2.847 W
SHL (UTM meters)				4,344,384.072m	549,252.470m		
BHL (UTM meters)				4,342,401.892m	550,280.243m		

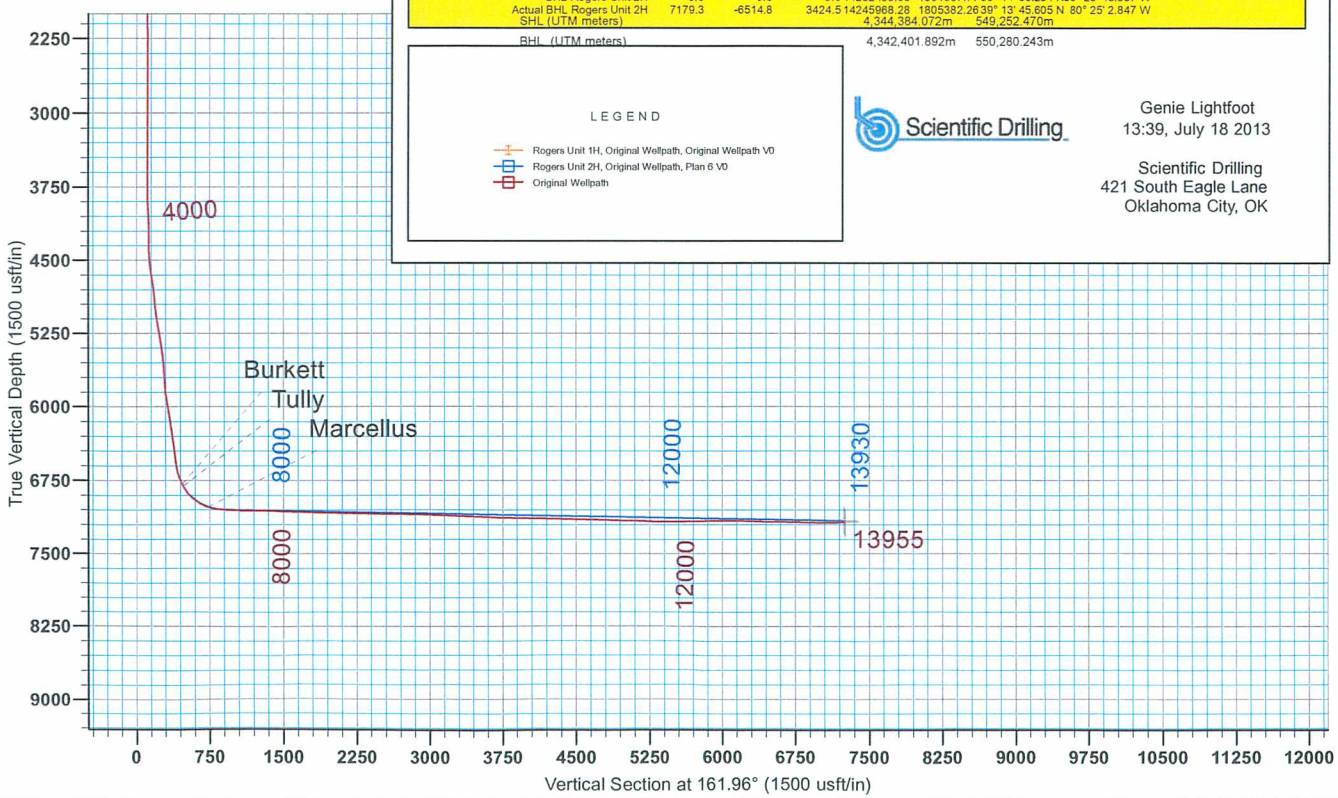
LEGEND

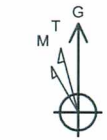
- Rogers Unit 1H, Original Wellpath, Original Wellpath V0
- Rogers Unit 2H, Original Wellpath, Plan 6 V0
- Original Wellpath

Scientific Drilling

Genie Lightfoot
13:39, July 18 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

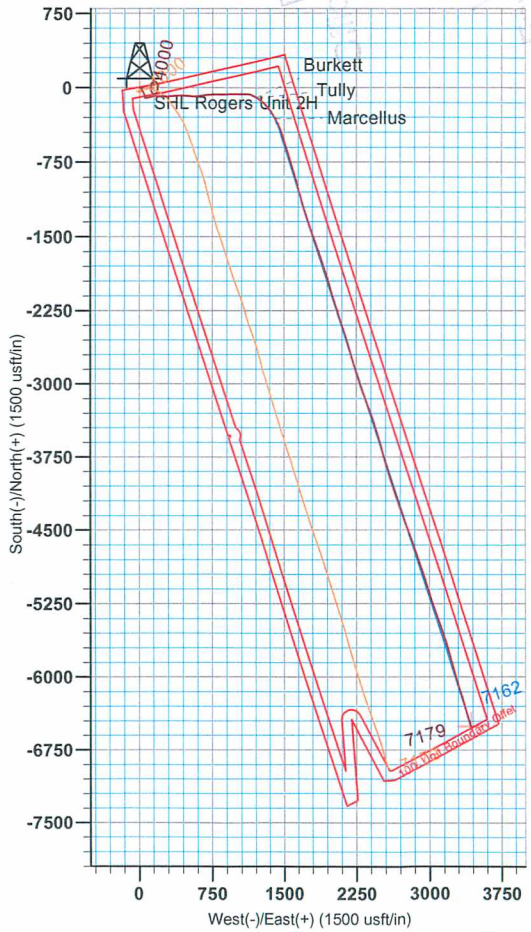




To convert Magnetic North to Grid, Subtract 9.00°
To convert True North to Grid, Subtract 0.36°

Azimuths to Grid North
True North: -0.36°
Magnetic North: -9.00°

Magnetic Field
Strength: 52444.4snT
Dip Angle: 66.90°
Date: 9/14/2012
Model: IGRF2010



33-05641

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	2/28/2013
State:	WV
County:	Harrison
API Number:	47-033-05641
Operator Name:	Antero Resources
Well Name and Number:	Rogers Unit 2H
Longitude:	-80.4294056
Latitude:	39.2472861
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,179
Total Water Volume* (gal):	5,593,182

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
Freshwater	Antero Resources		Water	7732-18-5	100.00%	89.31866%	
Hydrochloric Acid 10-15%	Reagent	Acid	Hydrchloric Acid	7647-01-0	15.00%	0.03167%	
100 Mesh	US Silica	Propppant	Sand	14808-60-7	100.00%	1.39723%	
40/70 White	US Silica	Propppant	Sand	14808-60-7	100.00%	5.46433%	
20/40 White	US Silica	Propppant	Sand	14808-60-7	100.00%	3.59236%	
Sodium Persulfate	Chemplex	Breaker	Sodium Persulfate	7775-27-1	100.00%	0.00160%	
Ferriplex 66	Chemplex	Iron Control	Acetic Acid	64-19-7	50.00%	0.00021%	
			Citric Acid	77-92-9	30.00%	0.00012%	
			Water	7732-18-5	35.00%	0.00014%	
Plexbreak 145	Chemplex	Non-emulsifier	Cocamide Diethanolamine Salt	68603-42-9	10.00%	0.00007%	
			Diethanolamine	111-42-2	5.00%	0.00003%	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00%	0.00010%	
			Methyl Alcohol	67-56-1	15.00%	0.00010%	
			Water	732-18-5	66.00%	0.00046%	
Plexhib 256	Chemplex	Corrosion	Alcohol Ethoxylate Surfactants	Trade Secret	30.00%	0.00019%	
		Inhibitor	Methyl Alcohol	67-56-1	70.00%	0.00044%	
			n-olefins	Trade Secret	10.00%	0.00006%	
			Propargyl Alcohol	107-19-7	8.00%	0.00005%	
			thiourea-formaldehyde copolymer	68527-49-1	30.00%	0.00019%	
Plexaid 673	Chemplex	Scale Inhibitor	Methyl Alcohol	67-56-1	25.00%	0.00404%	
			Sodium Salt of Phosphonodimethylated Diamine	Trade Secret	5.00%	0.00081%	
			Water	7732-18-5	85.00%	0.01374%	
Plexcide 15G	Chemplex	Biocide	Water	7732-18-5	90.00%	0.02524%	
			Glutaraldehyde	111-30-8	14.00%	0.00393%	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00%	0.00084%	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00%	0.00084%	
			Ethanol	64-17-5	3.00%	0.00084%	
Beta M-4.0	PfP	Guar Gel	Guar Gum	9000-30-0	50.00%	0.06224%	
			Petroleum Distillate	64742-47-8	55.00%	0.06847%	
			Clay	1302-78-9	5.00%	0.00622%	
			Surfactant	154518-36-2	1.00%	0.00124%	
Plexslick 953	Chemplex	Friction Reducer	Alcohol Ethoxylate Surfactants	Trade Secret	8.00%	0.00492%	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00%	0.01847%	
			Polyacrylamide-co-acrylic acid	6/9/9003	32.00%	0.01970%	
			Water	7732-18-5	35.00%	0.02155%	

*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%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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: 11/21/2013
API #: 47-033-05653

Farm name: Consolidation Coal Co. Operator Well No.: Brutus Unit 1H

LOCATION: Elevation: 1089' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 6,178' Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 4,359' Feet West of 80 Deg. 27 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	38 Cu Ft Class A
Agent: CT Corporation System	13 3/8" 48#	630'	630'	875 Cu Ft Class A
Inspector: Sam Ward	9 5/8" 36#	2,512'	2,512'	1023 Cu Ft Class A
Date Permit Issued: 9/24/2012	5 1/2" 20#	13,550'	13,550'	3315 Cu Ft Class H
Date Well Work Commenced: 5/22/2013				
Date Well Work Completed: 9/29/2013	2 3/8" 4.7#	6,979'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6858' TVD				
Total Measured Depth (ft): 13,550' MD				
Fresh Water Depth (ft.): 81', 196'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 125', 500'				
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) 6770' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,083 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3600 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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Office of Oil and Gas
JAN 17 2014
WV Department of
Environmental Protection

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.

Kaylen Buck 1/16/2014
Signature Date

33-05653

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 (Thrash Unit 1H API#47-033-05647). Please reference the wireline logs submitted with Form WR-35 for Thrash Unit 1H.

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: 7,053'-13,484' (1,920 Holes)

Frac'd w/ 21,000 gals 15% HCL Acid, 170,972 bbls Slick Water carrying 452,788# 100 mesh, 3,990,440# 40/70 sand and 2,302,155# 20/40 sand.

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

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Big Lime	est. 1517'	1625'
Big Injun	est. 1626'	1995'
Fifty Foot Sandstone	est. 1996'	2072'
Gordon	est. 2073'	2327'
Fifth Sandstone	est. 2328'	2392'
Bayard	est. 2393'	3076'
Speechley	est. 3077'	3342'
Balltown	est. 3343'	3856'
Bradford	est. 3857'	4423'
Benson	est. 4424'	4639'
Alexander	est. 4640'	4776'
Elk	est. 4777'	5361'
Rhinestreet	est. 5362'	6160'
Sycamore	est. 6161'	6429'
Middlesex Shale	est. 6430'	6562'
Burkett Shale	6563'	6583'
Tully	6584'	6687'
Hamilton	6688'	6769'
Marcellus	6770'	6858' TVD

Hydraulic Fracturing Fluid Product Component Information Disclosure

33-05653

Job Start Date:	9/23/2013
Job End Date:	9/29/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05653-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Brutus Unit 1H
Longitude:	-80.47996670
Latitude:	39.19618330
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,858
Total Base Water Volume (gal):	0
Total Base Non Water Volume:	0

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
Freshwater	Antero Resources	Water					
			Water	7732-18-5	100.00000	90.70898	
40/70 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	4.91440	
20/40 White	US Silica	Propppant					
			Sand	14808-60-7	100.00000	2.92370	
100 Mesh	US Silica	Propppant					
			Sand	14808-60-7	100.00000	1.26770	
CFS40	PQS	Guar Gel					
			Petroleum Distillate	64742-47-8	55.00000	0.04677	
			Guar Gum	9000-30-0	50.00000	0.04252	
			Clay	1302-78-9	5.00000	0.00425	
			Surfactant	154518-36-2	1.00000	0.00085	
Plexslick 953	Chemplex	Friction Reducer					
			Water	7732-18-5	35.00000	0.02152	
			Polyacrylamide-co-acrylic acid	9003-06-9	32.00000	0.01967	
			Hydrotreated Petroleum Distillate	64742-47-8	30.00000	0.01844	
			Alcohol Ethoxylate Surfactants	Proprietary	8.00000	0.00492	

33-05653

Hydrochloric Acid 10-15%	Reagent	Acid					
			Hydrchloric Acid	7647-01-0	15.00000	0.03424	
Plexcide 15G	Chemplex	Biocide					
			Water	7732-18-5	90.00000	0.02285	
			Glutaraldehyde	111-30-8	14.00000	0.00355	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	3.00000	0.00076	
			Ethanol	64-17-5	3.00000	0.00076	
			Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	3.00000	0.00076	
Plexaid 673	Chemplex	Scale Inhibitor					
			Water	7732-18-5	85.00000	0.01335	
			Methyl Alcohol	67-56-1	25.00000	0.00393	
			Sodium Salt of Phosphonodimethylated Diamine	Proprietary	5.00000	0.00079	
Sodium Persulfate	Chemplex	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00123	
Plexhib 256	Chemplex	Corrosion					
			Methyl Alcohol	67-56-1	70.00000	0.00049	
			Alcohol Ethoxylate Surfactants	Proprietary	30.00000	0.00021	
			thiourea-formaldehyde copolymer	68527-49-1	30.00000	0.00021	
			n-olefins	Proprietary	10.00000	0.00007	
			Propargyl Alcohol	107-19-7	8.00000	0.00006	
Plexbreak 145	Chemplex	Non-emulsifier					
			Water	732-18-5	66.00000	0.00052	
			Ethylene Glycol Monobutyl Ether	111-76-2	15.00000	0.00012	
			Methyl Alcohol	67-56-1	15.00000	0.00012	
			Cocamide Diethanolamine Salt	68603-42-9	10.00000	0.00008	
			Diethanolamine	111-42-2	5.00000	0.00004	
Ferriplex 66	Chemplex	Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00022	
			Water	7732-18-5	35.00000	0.00016	
			Citric Acid	77-92-9	30.00000	0.00013	

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.

* 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)