

JL

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:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street 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 <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
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 ---- Bbl/d  
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

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.

Karlin Buck  
Signature

12/10/2013  
Date

04/04/2014

33.05639

Were core samples taken? Yes \_\_\_\_\_ No

Were cuttings caught during drilling? Yes  No \_\_\_\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes- CBL

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:	Top Depth	Bottom Depth
<u>Surface:</u>		
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

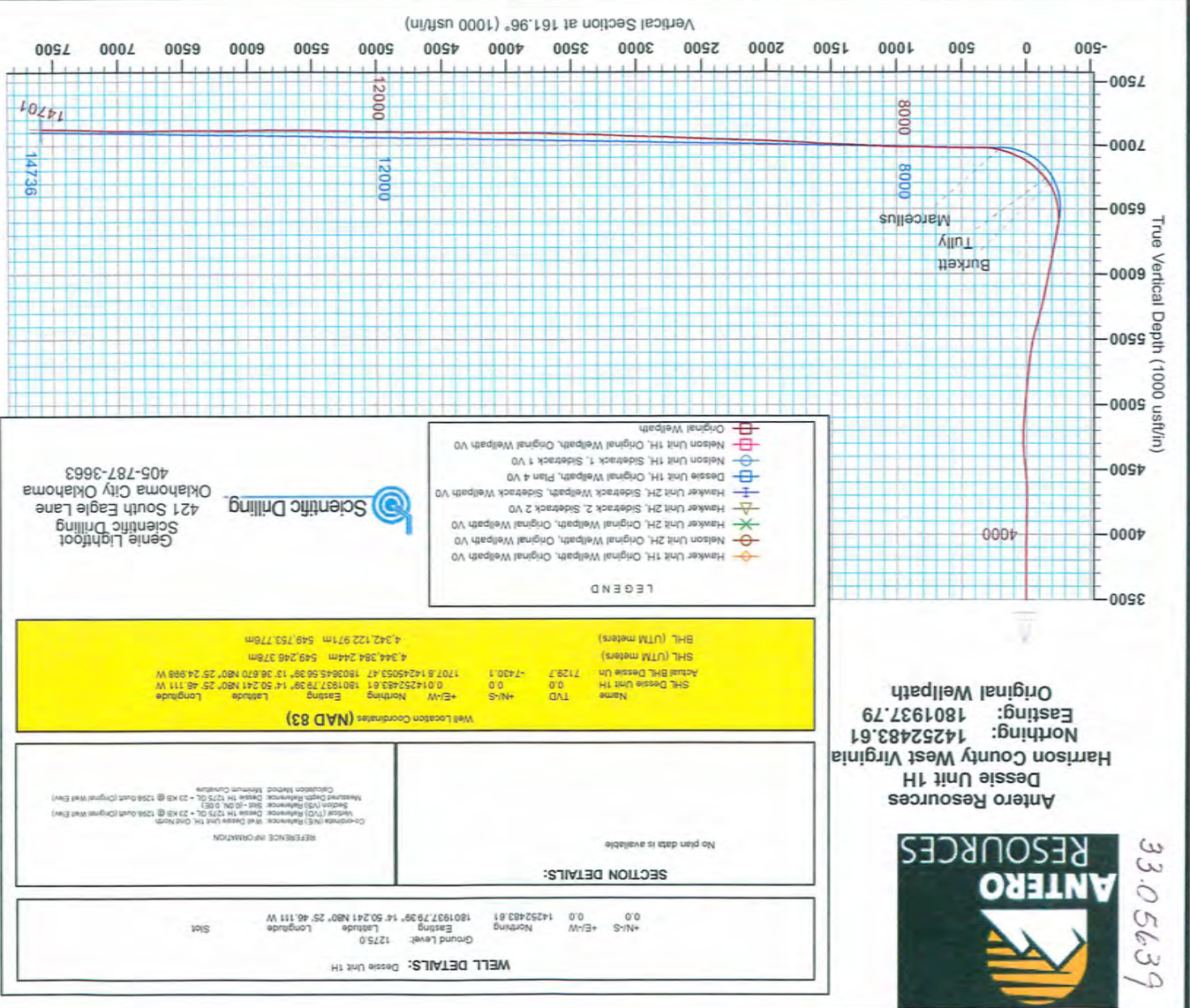
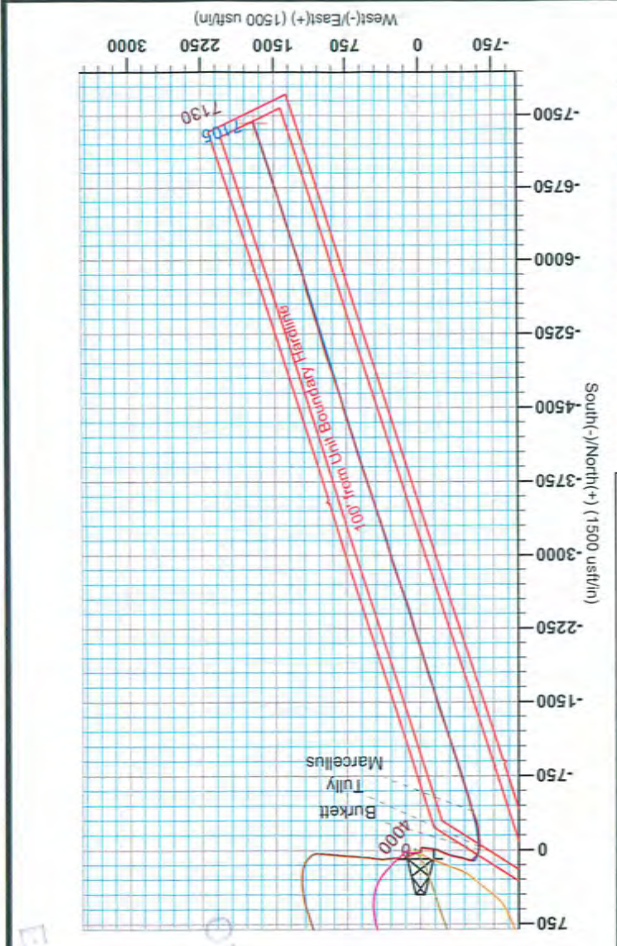
*[Faint handwritten notes and stamps]*

04/04/2014



Azimuths to Grid North  
 True North: -0.36°  
 Magnetic North: -9.00°  
 Strength: 52.439 Gauss  
 Dip Angle: 66.90°  
 Date: 6/28/2012  
 Model: IGRF2010

To convert True North to Grid, Subtract 9.00°  
 Magnetic North: -9.00°



**SECTION DETAILS:**

No plan data is available

**WELL DETAILS: Dессie Unit 1H**

+N/S	0.0	0.0	0.0
+E/W	14252483.61	1801937.7939°	14° 50' 241 N80° 25' 46.111 W
Ground Level:	1275.0		
Easting	1801937.7939°	14° 50' 241 N80° 25' 46.111 W	Slot
Latitude			
Longitude			

**REFERENCE INFORMATION**

Coordinates (N/E) Reference: Well Dессie Unit 1H, Grid North  
 Vertical (VD) Reference: Dессie 1H 1275.0L - 23 m @ 1258.0usft (Original Well Elev)  
 Station (S) Reference: 386 + 0.26 (0.85)  
 Measured Depth Reference: Dессie 1H 1275.0L - 23 m @ 1258.0usft (Original Well Elev)  
 Calculation Method: Minimum Curvature

**Well Location Coordinates (NAD 83)**

SHL (UTM meters)	4 344 384 244m	549 248 378m
BHL (UTM meters)	4 342 122 971m	549 753 778m
Actual BHL Dессie Unit 1H	1707.8	14245053.47
+E/W	1801937.7939°	14° 50' 241 N80° 25' 46.111 W
Nothing	1803645.5639°	13° 38' 670 N80° 25' 24.998 W
+N/S	0.0	0.0
TVD	7129.7	-7420.1

**LEGEND**

- Original Wellpath, Original Wellpath VO
- Nelson Unit 2H, Original Wellpath, Original Wellpath VO
- Hawker Unit 2H, Original Wellpath, Original Wellpath VO
- Hawker Unit 2H, Sidetrack 2, Sidetrack 2 VO
- Hawker Unit 2H, Sidetrack Wellpath, Sidetrack Wellpath VO
- Dессie Unit 1H, Original Wellpath, Plan 4 VO
- Nelson Unit 1H, Sidetrack 1, Sidetrack 1 VO
- Original Wellpath

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

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



33.05639



Hydraulic Fracturing Fluid Product Component Information Disclosure

33.05639

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

RECEIVED  
Office of Oil and Gas  
DEC 11 2013  
West Virginia 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	Hydrochloric Acid	7647-01-0	15.00%	0.02957%	
100 Mesh	US Silica	Proppant	Sand	14808-60-7	100.00%	1.40649%	
40/70 White	US Silica	Proppant	Sand	14808-60-7	100.00%	4.89766%	
20/40 White	US Silica	Proppant	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 Inhibitor	Alcohol Ethoxylate Surfactants	Trade Secret	30.00%	0.00018%	
			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	PPF	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)



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