

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: 7/25/2013  
API #: 47-033-05608

Farm name: Mountain Lakes Limited Operator Well No.: Lewis Unit 1H

LOCATION: Elevation: 1386' Quadrangle: West Milford

District: Union County: Harrison  
Latitude: 3,204' Feet South of 39 Deg. 15 Min. 00 Sec.  
Longitude 9,642' Feet West of 80 Deg. 27 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#	44'	44'	42 Cu Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	550'	550'	764 Cu Ft. Class A
Inspector: Sam Ward	9 5/8" 36#	2,613'	2,613'	1,064 Cu Ft. Class A
Date Permit Issued: 5/29/2012	5 1/2" 20#	12,184'	12,184'	2,912 Cu Ft. Class H
Date Well Work Commenced: 12/22/2012				
Date Well Work Completed: 4/19/2013	2 3/8" 4.7#	7354'		
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): 7201' TVD (deepest point drilled)				
Total Measured Depth (ft): 12,189' MD, 7134' TVD (BHL)				
Fresh Water Depth (ft.): 280'				
Salt Water Depth (ft.): None Available				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 191', 274', 306'				
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) 7155' (TOP)

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

Final open flow 7,336 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  
Signature

12/4/2013  
Date

01/17/2014

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 logs on the first well on a multi-well pad (Kermit Unit 3H API# 47-033-05591). Please reference the wire line logs submitted with form WR-35 for Kermit Unit 3H.

**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: 7469- 12,119 (1,008 Holes)

Frac'd w/ 7,500 gals 15% HCL Acid, 100,117 bbls Slick Water carrying 481,400# mesh, 1,996,200# 40/70 sand and 997,900 20/40 sand.

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

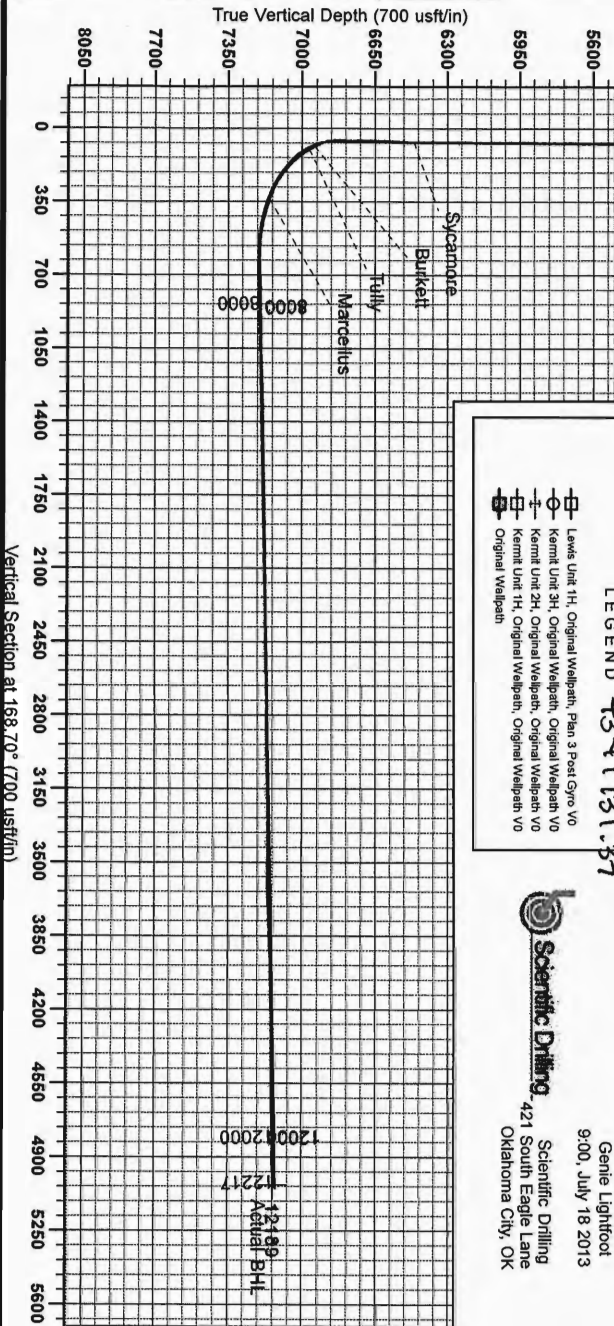
Formations Encountered: \_\_\_\_\_ Top Depth \_\_\_\_\_ / \_\_\_\_\_ Bottom Depth \_\_\_\_\_  
Surface:

Big Lime	1775'	1874'
Big Injun	1875'	2161'
Gantz Sand	2162'	2263'
Fifty Foot Sandstone	2264'	2350'
Gordon	2351'	2672'
Fifth Sandstone	2673'	2713'
Bayard	2714'	3372'
Speechley	3373'	3617'
Balltown	3618'	4118'
Bradford	4119'	4702'
Benson	4703'	4912'
Alexander	4913'	6461'
Sycamore	6462'	6830'
West River	6831'	6940'
Burkett	6941'	6965'
Tully	6966'	7089'
Hamilton	7090'	7154'
Marcellus	7155'	201' TVD

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Antero Resources  
 Lewis Unit 1H  
 Harrison County West Virginia  
 Northing: 14243780.06  
 Easting: 1790631.01  
 Original Wellpath



**WELL DETAILS: Lewis Unit 1H**

+N/S	+E/W	Northing	Ground Level	1388.0
0.0	0.0	14243780.06	1790631.01 39° 13' 24.865 N80° 28' 10.529 W	S01

**PROJECT DETAILS:** Harrison County West Virginia  
 Geoidic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1983 (NADCON CONUS)  
 Ellipsoid: GRS 1980  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**REFERENCE INFORMATION**  
 Coordinate Reference: Wellbore Unit 1H (21.5' @ 11.1' East (Original Well Bore))  
 Station (US Reference): S24° 01' 00" E 7' 00" @ 11.1' East (Original Well Bore)  
 Station (US Reference): S24° 01' 00" E 7' 00" @ 11.1' East (Original Well Bore)  
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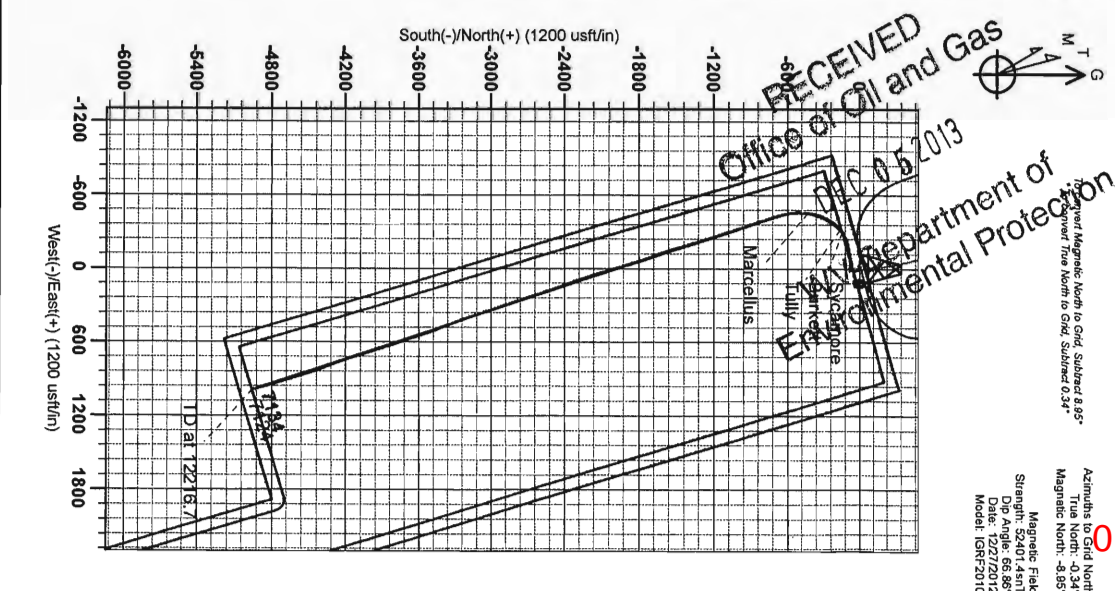
**Well Location Coordinates (NAD 83)**

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape
SHL Lewis Unit 1H	0.0	0.0	0.0	14243780.06	1790631.01 39° 13' 24.865 N80° 28' 10.529 W	Point		
Actual BHL	7134.5	-4924.8		985.614238845 30	1791616.66 39° 12' 36.016 N80° 27' 58.370 W	Point		
SHL (UTM meters)				4341507.66	545781.00		545° 7' 00.09	
BHL (UTM meters)				4339997.10	546072.31			

**LEGEND** 43-41731.37

- Lewis Unit 1H, Original Wellpath, Plan 3 Post-Gyro VO
- Kemt Unit 3H, Original Wellpath, Original Wellpath VO
- Kemt Unit 2H, Original Wellpath, Original Wellpath VO
- Kemt Unit 1H, Original Wellpath, Original Wellpath VO
- Original Wellpath

Genie Lightfoot  
 9:00, July 18 2013  
 Scientific Drilling  
 421 South Eagle Lane  
 Oklahoma City, OK



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Azimuths to Grid North  
 True North: -0.34°  
 Magnetic North: -8.85°  
 Magnetic Field  
 Strength: 53401.45nT  
 Dip Angle: 66.86°  
 Date: 12/27/2012  
 Model: IGRF2010



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/13/2013
Job End Date:	4/17/2013
State:	West Virginia
County:	Harrison
API Number:	47-033-05608-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Lewis Unit 1H
Longitude:	-80.46959170
Latitude:	39.22357500
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	4,204,914
Total Base Non Water Volume:	

## 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	90.25307	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz	14808-60-7	99.90000	5.35645	
			Aluminum Oxide	1344-28-1	1.10000	0.05898	
			Iron Oxide	1309-37-1	0.10000	0.00536	
			Titanium Oxide	13463-67-7	0.10000	0.00536	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz	14808-60-7	99.90000	2.76410	
			Aluminum Oxide	1344-28-1	1.10000	0.03044	
			Iron Oxide	1309-37-1	0.10000	0.00277	
			Titanium Oxide	13463-67-7	0.10000	0.00277	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Crystalline Silica, quartz	14808-60-7	99.90000	1.27188	
			Aluminum Oxide	1344-28-1	1.10000	0.01401	
			Iron Oxide	1309-37-1	0.10000	0.00127	



WFR-3B	Nabors Completion and Production Services	Friction Reducer	Titanium Oxide	13463-67-7	0.10000	0.00127
			Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	50.00000	0.03332
			Ethoxylated alcohols	68551-12-2	15.00000	0.01000
			Ethoxylated cetylamine	26635-93-8	5.00000	0.00333
LSG-100L	Nabors Completion and Production Services	Gelling Agents	Petroleum Distillates	64742-47-8	70.00000	0.03642
HCl Acid (12.5%-18.0%)	Nabors Completion and Production Services	Bulk Acid	Hydrogen Chloride	7647-01-0	18.00000	0.03245
Super GREEN SOLV	Nabors Completion and Production Services	Paraffin & Scale Additives	BTEX Free Aliphatic Hydrocarbon	64742-96-7	100.00000	0.01222
KR-153SL	Nabors Completion and Production Services	Biocides	Polyethylene-glycol	25322-68-3	50.00000	0.00525
			2,2-dibromo-3-nitriopropanamide	10222-01-2	20.00000	0.00210
OB-2	Nabors Completion and Production Services	Gel Breakers	Ammonium Persulfate	7727-54-0	100.00000	0.00555
			Silica, crystalline quartz	7631-86-9	10.00000	0.00056
EB-4L	Nabors Completion and Production Services	Gel Breakers	Sugar	57-50-1	100.00000	0.00053
			Demulsifier Base	Proprietary	100.00000	0.00053
			Water	7732-18-5	100.00000	0.00053
			Breaker Component	Proprietary	100.00000	0.00053
			Cellulase enzyme	Proprietary	100.00000	0.00053
			Ethylene Glycol	107-21-1	40.00000	0.00021
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors	Propargyl Alcohol	107-19-7	40.00000	0.00014
			Glycol Ethers	111-46-6	40.00000	0.00014
			sopropyl Alcohol	67-63-0	40.00000	0.00014
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00004
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00003

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

Other Ingredients	Nabors Completion and Production Services	Other Ingredients						
	Water		7/32-18-5	87.50000	0.15776			
	Water		7/32-18-5	40.00000	0.02666			
	Polyacrylamide		57-55-6	40.00000	0.02666			
	guar gum		9000-30-0	50.00000	0.02602			
	Water		7/32-18-5	60.00000	0.01020			
	Propylene glycol		57-55-6	15.00000	0.01000			
	Proprietary		Proprietary	50.00000	0.00850			
	Water		7/32-18-5	80.00000	0.00839			
	Proprietary		Proprietary	15.00000	0.00255			
	Proprietary		Proprietary	15.00000	0.00255			
	Proprietary		Proprietary	15.00000	0.00255			
	Proprietary		Proprietary	20.00000	0.00111			
	vinylidene chloride-methyl acrylate copolymer		25038-72-6	20.00000	0.00111			
	Surfactant		68439-51-0	2.00000	0.00104			
	Crystalline Silica (in the form of quartz)		14808-60-7	2.00000	0.00104			
	Microparticle		Proprietary	1.00000	0.00067			
	Water		7/32-18-5	48.00000	0.00016			
	2-Butoxyethanol		111-76-2	13.00000	0.00004			
	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)