

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

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

API 47 - 017 - 06227 County Doddridge District Greenbrier
Quad Big Isaac Pad Name Marsden Pad Field/Pool Name _____
Farm name Marsden, Wilma J. & Richard E. Well Number Golden Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,344,280.969m Easting 534,635.488m
Landing Point of Curve Northing 4,344,304.43m Easting 535,218.97m
Bottom Hole Northing 4,341,637.351m Easting 536,164.099m

Elevation (ft) 971' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

Date permit issued 5/10/2013 Date drilling commenced 7/22/2013 Date drilling ceased 11/19/2013
Date completion activities began 2/10/2014 Date completion activities ceased 4/9/2014
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 191' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths N
Coal depth(s) ft 680' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

API 47-017 - 06227 Farm name Marsden, Wilma J. & Richard E. Well number Golden Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	90'	New	94#/H-40	N/A	Y
Surface	17-1/2"	13-3/8"	350'	New	48#/J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2612'	New	36#/J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17,370'	New	20#/P-110	N/A	Y
Tubing		2-3/8"	7598'		4.7#/N-80	N/A	
Packer type and depth set		N/A					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	424 sx	15.6	1.18	245 Cu. Ft.	0'	8 hrs
Surface	Class A	408 sx	15.6	1.18	243 Cu. Ft.	0'	8 hrs
Coal							
Intermediate 1	Class A	955 sx	15.6	1.18	818 Cu. Ft.	0'	8 hrs
Intermediate 2							
Intermediate 3							
Production	Class H	1044 sx (Lead), 1594 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.80 (Tail)	3496 Cu. Ft.	~500' into Intermediate Casing	8 hrs
Tubing							

Drillers TD (ft) 17,370' MD, 7021' TVD (BHL), 7147' TVD (Deepest Point Drilled) Loggers TD (ft) 17,370' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6948'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Flossie Unit 2H API# 47-017-06144). Please reference the wireline logs submitted with Form WR-35 for the Flossie Unit 2H. A Cement Bond Log has been included with this submittal.

Check all wireline logs run caliper density deviated/directional induction neutron resistivity gamma ray temperature

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor - 0
Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface
Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>7106' (Top)</u> TVD	<u>7648' (Top)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3600 psi Bottom Hole 3600 psi DURATION OF TEST --- hrs

OPEN FLOW Gas 8547 mcfpd Oil --- bpd NGL --- bpd Water 605 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		

*PLEASE SEE ATTACHED EXHIBIT 3

Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company, LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company U.S. Well Services
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Natalie Komp Telephone 303-357-6820
Signature _____ Title Permitting Agent Date 1/13/2015

API 47-017-06227 Farm Name Marsden, Richard E. & Wilma J. Well Number Golden Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10-Feb-14	17114'	17282'	60	Marcellus
2	23-Feb-14	16913'	17082'	60	Marcellus
3	24-Feb-14	16713'	16882'	60	Marcellus
4	25-Feb-14	16513'	16682'	60	Marcellus
5	25-Feb-14	16313'	16482'	60	Marcellus
6	25-Feb-14	16113'	16282'	60	Marcellus
7	26-Feb-14	15913'	16081'	60	Marcellus
8	26-Feb-14	15712'	15881'	60	Marcellus
9	26-Feb-14	15512'	15681'	60	Marcellus
10	26-Feb-14	15312'	15481'	60	Marcellus
11	27-Feb-14	15112'	15281'	60	Marcellus
12	27-Feb-14	14912'	15081'	60	Marcellus
13	27-Feb-14	14712'	14880'	60	Marcellus
14	27-Feb-14	14511'	14680'	60	Marcellus
15	28-Feb-14	14311'	14480'	60	Marcellus
16	28-Feb-14	14111'	14280'	60	Marcellus
17	1-Mar-14	13911'	14080'	60	Marcellus
18	1-Mar-14	13711'	13880'	60	Marcellus
19	1-Mar-14	13511'	13679'	60	Marcellus
20	2-Mar-14	13120'	13286'	60	Marcellus
21	2-Mar-14	12922'	13089'	60	Marcellus
22	2-Mar-14	12725'	12892'	60	Marcellus
23	2-Mar-14	12528'	12694'	60	Marcellus
24	2-Mar-14	12331'	12497'	60	Marcellus
25	4-Mar-14	12133'	12300'	60	Marcellus
26	4-Mar-14	11936'	12103'	60	Marcellus
27	4-Mar-14	11739'	11905'	60	Marcellus
28	4-Mar-14	11542'	11708'	60	Marcellus
29	5-Mar-14	11344'	11511'	60	Marcellus
30	5-Mar-14	11147'	11314'	60	Marcellus
31	6-Mar-14	10950'	11116'	60	Marcellus
32	6-Mar-14	10753'	10919'	60	Marcellus
33	6-Mar-14	10555'	10722'	60	Marcellus
34	7-Mar-14	10358'	10525'	60	Marcellus
35	7-Mar-14	10161'	10327'	60	Marcellus
36	7-Mar-14	9964'	10130'	60	Marcellus
37	7-Mar-14	9766'	9933'	60	Marcellus
38	8-Mar-14	9569'	9736'	60	Marcellus
39	8-Mar-14	9372'	9538'	60	Marcellus
40	8-Mar-14	9175'	9341'	60	Marcellus
41	8-Mar-14	8977'	9144'	60	Marcellus
42	9-Mar-14	8780'	8947'	60	Marcellus
43	9-Mar-14	8583'	8749'	60	Marcellus
44	9-Mar-14	8386'	8552'	60	Marcellus
45	9-Mar-14	8188'	8355'	60	Marcellus
46	9-Mar-14	7862'	8026'	60	Marcellus
47	10-Mar-14	7668'	7832'	60	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	23-Feb-14	63.0	7,961	N/A	5,285	72,781	6,293	N/A
2	23-Feb-14	70.0	7,756	6,453	5,239	228,900	6,410	N/A
3	24-Feb-14	72.7	8,370	6,554	5,516	200,025	6,996	N/A
4	25-Feb-14	70.1	8,349	6,050	4,794	234,170	6,591	N/A
5	25-Feb-14	70.0	8,174	6,973	4,783	160,390	6,883	N/A
6	25-Feb-14	70.5	8,484	6,228	5,033	237,000	6,350	N/A
7	26-Feb-14	69.6	8,174	6,275	5,834	189,750	6,906	N/A
8	26-Feb-14	75.0	8,226	6,469	4,790	217,450	6,869	N/A
9	26-Feb-14	69.2	8,294	6,613	5,737	137,450	6,516	N/A
10	26-Feb-14	72.2	8,278	6,472	4,993	237,550	6,212	N/A
11	27-Feb-14	76.0	8,148	6,249	4,842	223,680	6,339	N/A
12	27-Feb-14	74.0	8,302	6,363	5,385	237,630	6,205	N/A
13	27-Feb-14	73.8	8,055	6,183	5,648	237,750	6,269	N/A
14	27-Feb-14	75.7	8,078	6,185	5,100	237,350	6,291	N/A
15	28-Feb-14	78.0	8,042	5,936	5,367	237,000	5,818	N/A
16	28-Feb-14	75.9	7,999	5,839	5,839	236,480	6,132	N/A
17	1-Mar-14	76.0	8,172	5,876	4,537	238,530	6,000	N/A
18	1-Mar-14	76.0	7,994	6,001	4,631	221,640	6,787	N/A
19	1-Mar-14	71.4	8,064	5,953	5,695	237,730	6,115	N/A
20	2-Mar-14	73.9	8,026	5,847	5,464	214,050	5,816	N/A
21	2-Mar-14	75.0	8,206	5,902	4,646	238,610	6,060	N/A
22	2-Mar-14	75.0	8,160	6,359	4,507	236,580	6,058	N/A
23	2-Mar-14	71.0	8,197	6,307	5,746	169,000	6,537	N/A
24	2-Mar-14	75.8	7,878	5,937	4,748	235,500	6,018	N/A
25	4-Mar-14	76.4	7,857	5,853	4,892	237,940	5,101	N/A
26	4-Mar-14	78.3	7,853	5,830	4,467	232,140	6,016	N/A
27	4-Mar-14	75.5	7,673	5,658	4,709	234,500	6,019	N/A
28	4-Mar-14	76.9	7,796	6,380	5,602	217,310	6,455	N/A
29	5-Mar-14	79.5	7,780	5,728	5,132	231,190	6,017	N/A
30	5-Mar-14	76.7	7,877	6,093	4,985	222,070	5,911	N/A
31	6-Mar-14	76.9	7,937	5,919	5,856	229,490	6,022	N/A
32	6-Mar-14	74.8	7,870	6,026	6,015	210,210	6,075	N/A
33	6-Mar-14	76.8	7,839	5,665	5,172	238,630	5,942	N/A
34	7-Mar-14	78.7	7,718	6,029	5,716	224,620	6,474	N/A
35	7-Mar-14	74.0	7,853	6,280	4,506	229,620	5,997	N/A
36	7-Mar-14	76.6	7,508	5,820	5,825	237,650	5,961	N/A
37	7-Mar-14	77.0	7,417	5,626	5,393	236,970	5,852	N/A
38	8-Mar-14	76.7	7,398	5,559	5,816	236,550	5,901	N/A
39	8-Mar-14	78.1	7,414	5,739	5,123	223,020	6,323	N/A
40	8-Mar-14	78.5	7,362	5,544	5,533	229,040	5,820	N/A
41	8-Mar-14	76.7	7,141	5,478	5,403	235,230	5,832	N/A
42	9-Mar-14	76.8	7,214	5,636	4,637	236,620	5,796	N/A
43	9-Mar-14	79.5	7,109	5,655	5,525	232,960	5,780	N/A
44	9-Mar-14	78.6	7,678	6,039	5,768	243,810	5,773	N/A
45	9-Mar-14	79.1	7,405	6,007	5,848	241,480	5,755	N/A
46	9-Mar-14	76.4	7,655	5,627	5,667	237,250	6,015	N/A
47	10-Mar-14	76.7	7,237	6,589	5,807	234,710	5,733	N/A
		75.0	7,872	6,039	5,267			

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)	ROCK TYPE	FLUID PRODUCED
Undifferentiated Pennsylvanian Sedimentary Sequence	0'	1970'	0'	1970'	Sandstone/ Shale/ Siltstone	
Big Lime	est. 1971'	2093'	est. 1971'	2093'	Limestone	
Big Injun	est. 2094'	2457'	est. 2094'	2457'	Sandstone	
Gantz Sand	est. 2458'	2584'	est. 2458'	2584'	Sandstone	
Fifty Foot Sandstone	est. 2585'	2674'	est. 2585'	2674'	Sandstone	
Gordon	est. 2675'	2840'	est. 2675'	2840'	Sandstone	
Fifth Sandstone	est. 2841'	2881'	est. 2841'	2881'	Sandstone	
Bayard	est. 2882'	3587'	est. 2882'	3587'	Sandstone	
Speechley	est. 3588'	3879'	est. 3588'	3879'	Sandstone	
Baltown	est. 3880'	4361'	est. 3880'	4361'	Sandstone	
Bradford	est. 4362'	4960'	est. 4362'	4984'	Sandstone	
Benson	est. 4961'	5246'	est. 4985'	5285'	Sandstone	
Alexander	est. 5247'	5436'	est. 5286'	5489'	Sandstone	
Elk	est. 5437'	6014'	est. 5490'	6124'	Sandstone	
Rhinestreet	est. 6015'	6506'	est. 6125'	6833'	Sandstone	
Sycamore	6507'	6803'	6834'	7175'	Sandstone	
Middlesex	6804'	6934'	7176'	7343'	Shale	
Burkett	6935'	6971'	7344'	7395'	Shale	Gas
Tully	6972'	7061'	7396'	7544'	Limestone	N/A
Hamilton	7062'	7105'	7545'	7647'	Shale	N/A
Marcellus	7106'	7147'	7648'	8047'	Shale	Gas

*Please note Antero determines formation tops based on wireline logs that are only run on the initial well (Please reference Flossie Unit 2H API# 47-017-06144). The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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