

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

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JAN 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

API 47 - 017 - 06281 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name Moore Pad Field/Pool Name _____
Farm name Moore, Dwight E. & Tina M. Well Number Gavin 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 4,352,106m Easting 525,866m
Landing Point of Curve Northing 4,352,014.39m Easting 526,080.28m
Bottom Hole Northing 4,350,044m Easting 526,737m

Elevation (ft) 1237' 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 7/30/2013 Date drilling commenced 8/6/2013 Date drilling ceased 10/28/2013
Date completion activities began 2/23/2014 Date completion activities ceased 3/31/2014
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 287' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1214' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1290' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: _____

Smithton-Flint-SedaQ:ia (99) 6-6

API 47-017 - 06281 Farm name Moore, Dwight E. & Tina M. Well number Gavin 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"	40'	New	94# H-40	N/A	Yes
Surface	17- 1/2"	13- 3/8"	380'	New	48# H-40	N/A	Yes
Coal							
Intermediate 1	12-1/4"	9-5/8"	2548'	New	36# J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	14404'	New	20# P-110	N/A	Yes
Tubing		2-3/8"	7275'		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	108 sx	15.6	1.18	38	0	8 Hrs.
Surface	Class A	500 sx	15.6	1.18	164	0	8 Hrs.
Coal							
Intermediate 1	Class A	998 sx	15.6	1.18	798	0	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	732 sx (Lead) 753 sx (Tail)	14.5 Lead 15.2 Tail	1.44 Lead 1.86 Tail	2831	-500 into intermediate casing	8 Hrs.
Tubing							

Drillers TD (ft) 14408' MD, 7038' TVD (BHL), 7072' TVD (Deepest Point Drilled) Loggers TD (ft) 14360' MD

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

Plug back procedure N/A

Kick off depth (ft) 6373'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Moore Unit 1H API# 47-017-06128). Please reference the wireline logs submitted with Form WR-35 for the Moore Unit 1H. 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 SONIC

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 _____

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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	23-Feb-14	14,148	14,316	60	Marcellus
2	23-Feb-14	13,948	14,116	60	Marcellus
3	24-Feb-14	13,748	13,916	60	Marcellus
4	24-Feb-14	13,548	13,717	60	Marcellus
5	24-Feb-14	13,348	13,517	60	Marcellus
6	24-Feb-14	13,148	13,317	60	Marcellus
7	26-Feb-14	12,948	13,117	60	Marcellus
8	26-Feb-14	12,748	12,917	60	Marcellus
9	27-Feb-14	12,549	12,717	60	Marcellus
10	27-Feb-14	12,349	12,517	60	Marcellus
11	27-Feb-14	12,149	12,317	60	Marcellus
12	28-Feb-14	11,949	12,117	60	Marcellus
13	1-Mar-14	11,749	11,918	60	Marcellus
14	1-Mar-14	11,549	11,718	60	Marcellus
15	1-Mar-14	11,349	11,518	60	Marcellus
16	4-Mar-14	11,149	11,318	60	Marcellus
17	5-Mar-14	10,949	11,118	60	Marcellus
18	5-Mar-14	10,749	10,918	60	Marcellus
19	5-Mar-14	10,550	10,718	60	Marcellus
20	5-Mar-14	10,350	10,518	60	Marcellus
21	6-Mar-14	10,150	10,318	60	Marcellus
22	6-Mar-14	9,950	10,119	60	Marcellus
23	6-Mar-14	9,750	9,919	60	Marcellus
24	6-Mar-14	9,550	9,719	60	Marcellus
25	6-Mar-14	9,350	9,519	60	Marcellus
26	7-Mar-14	9,150	9,319	60	Marcellus
27	7-Mar-14	8,950	9,119	60	Marcellus
28	7-Mar-14	8,751	8,919	60	Marcellus
29	7-Mar-14	8,551	8,719	60	Marcellus
30	7-Mar-14	8,351	8,519	60	Marcellus
31	7-Mar-14	8,151	8,319	60	Marcellus
32	8-Mar-14	7,951	8,120	60	Marcellus
33	8-Mar-14	7,751	7,920	60	Marcellus
34	8-Mar-14	7,551	7,720	60	Marcellus
35	8-Mar-14	7,351	7,520	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	67.7	6,772	0	5,323	119,600	6,703	N/A
2	23-Feb-14	76.6	7,218	5,727	5,497	227,200	6,362	N/A
3	24-Feb-14	74.8	7,098	5,885	5,610	232,300	6,005	N/A
4	24-Feb-14	77.2	6,745	5,588	5,974	237,500	6,161	N/A
5	24-Feb-14	80.7	6,975	5,566	5,171	230,900	6,031	N/A
6	24-Feb-14	77.2	7,199	5,544	5,561	227,100	8,404	N/A
7	26-Feb-14	76.2	7,541	5,757	5,293	224,900	6,220	N/A
8	26-Feb-14	78.0	7,097	5,654	5,213	230,700	6,095	N/A
9	27-Feb-14	75.1	7,075	5,665	5,401	229,900	5,990	N/A
10	27-Feb-14	74.8	7,051	5,560	5,074	205,600	6,542	N/A
11	27-Feb-14	77.3	7,125	5,515	5,301	234,000	6,082	N/A
12	28-Feb-14	76.3	7,110	5,793	5,648	231,900	5,946	N/A
13	1-Mar-14	74.5	7,114	5,513	5,638	224,000	5,913	N/A
14	1-Mar-14	76.2	6,925	5,375	5,698	235,700	6,050	N/A
15	1-Mar-14	67.7	6,793	5,420	5,390	230,600	5,852	N/A
16	4-Jan-14	74.7	6,936	5,835	5,010	228,300	6,016	N/A
17	5-May-14	80.1	7,345	6,511	5,904	233,100	6,121	N/A
18	5-May-14	79.6	6,952	5,937	5,864	231,500	6,078	N/A
19	5-May-14	76.3	7,071	5,657	5,136	199,900	5,693	N/A
20	5-May-14	75.5	6,815	5,369	5,202	229,900	5,910	N/A
21	6-May-14	78.5	6,737	5,287	5,274	230,900	5,909	N/A
22	6-May-14	77.2	7,016	5,706	5,638	205,900	6,296	N/A
23	6-May-14	76.5	6,898	5,859	5,427	231,800	5,883	N/A
24	6-May-14	76.9	6,665	5,581	4,981	231,300	5,838	N/A
25	6-May-14	77.4	6,644	5,192	5,006	230,500	5,945	N/A
26	7-May-14	76.8	6,679	5,348	5,346	201,500	5,524	N/A
27	7-May-14	79.2	7,072	5,292	5,403	214,700	6,218	N/A
28	7-May-14	77.7	6,866	5,588	4,784	228,500	5,815	N/A
29	7-May-14	78.0	6,886	5,684	4,923	214,600	6,051	N/A
30	7-May-14	77.6	6,796	5,467	5,384	228,500	5,914	N/A
31	7-May-14	77.9	6,694	5,391	5,067	233,500	5,794	N/A
32	8-May-14	78.0	6,764	6,416	5,623	196,700	6,236	N/A
33	8-May-14	76.4	7,230	5,735	5,375	176,600	6,050	N/A
34	8-May-14	75.4	7,298	6,401	4,602	229,500	6,045	N/A
35	8-May-14	74.2	6,608	6,372	3,823	213,200	6,027	N/A
AVG =		76.4	6,966	5,520	5,302	7,712,300	213,719	TOTAL

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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	2048'	0	2051'	Shale/Sandstone	
Big Lime	est. 2049'	2165'	est. 2052'	2168'	Limestone	
Big Injun	est. 2166'	2596'	est. 2169'	2599'	Sandstone/Shale/Siltstone	
Gantz Sand	est. 2597'	2730'	est. 2600'	2733'	Sandstone/Shale/Siltstone	
Fifty Foot Sandstone	est. 2731'	2799'	est. 2734'	2802'	Sandstone/Shale/Siltstone	
Gordon	est. 2800'	3142'	est. 2803'	3145'	Sandstone/Shale/Siltstone	
Fifth Sandstone	est. 3143'	3156'	est. 3146'	3159'	Sandstone/Shale/Siltstone	
Bayard	est. 3157'	3885'	est. 3160'	3888'	Sandstone/Shale/Siltstone	
Speechley	est. 3886'	4146'	est. 3889'	4149'	Sandstone/Shale/Siltstone	
Baltown	est. 4147'	4662'	est. 4150'	4665'	Sandstone/Shale/Siltstone	
Bradford	est. 4663'	5165'	est. 4666'	5168'	Sandstone/Shale/Siltstone	
Benson	est. 5166'	5434'	est. 5169'	5437'	Sandstone/Shale/Siltstone	
Alexander	est. 5435'	6189'	est. 5438'	6192'	Sandstone/Shale/Siltstone	
Rhinstreet	est. 6190'	6549'	est. 6193'	6563'	Sandstone/Shale/Siltstone	
Sycamore	est. 6550'	6623'	est. 6564'	7098'	Sandstone/Shale/Siltstone	
Burkett	6922'	6949'	7099'	7150'	Shale	Gas
Tully	6950'	7017'	7151'	7307'	Limestone	N/A
Hamilton	est. 7018'	7027'	est. 7308'	7330'	Shale	N/A
Marcellus	7028'		7331'		Shale	Gas

*Please note Antero determines formation tops based on wireline logs that are only run on one well on a multi-well pad (Please reference Moore Unit 1H API #47-017-06128). The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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