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WR-35
Rev. 8/23/13

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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

API 47-017-06622 County Doddridge District Central
Quad Oxford 7.5' Pad Name Robert Williams Pad Field/Pool Name ---
Farm name Williams, Robert Well Number McGee Unit 2H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St. 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 4343159m Easting 511853
Landing Point of Curve Northing 4343024.66m Easting 512050.53m
Bottom Hole Northing 4340777m Easting 513120m

Elevation (ft) 990' 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 11/14/2014 Date drilling commenced 11/19/2014 Date drilling ceased 1/31/2015
Date completion activities began 4/5/2015 Date completion activities ceased 6/24/2015
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 57' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1507' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: _____

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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	30"	20"	40'	New	94# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	385'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2527'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	15228'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6621'		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	150 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	453 sx	15.6	1.18	367	0'	8 Hrs.
Coal							
Intermediate 1	Class A	931 sx	15.6	1.18	791	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	845 sx (Lead) 1410 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.81 Tail	3024	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15228' MD, 6510' TVD (BHL); 6542' TVD (Deepest point drilled) Loggers TD (ft) 15183'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5879'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Pike Unit 1H API #47-017-06289). Please reference the wireline logs submitted with Form WR-35 for the Pike 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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API 47- 017 - 06622 Farm name Williams, Robert Well number McGee Unit 1H

McGee Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6480' (TOP) TVD	6766' (TOP) MD

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 -- psi DURATION OF TEST -- hrs

OPEN FLOW Gas 7848 mcfpd Oil 25 bpd NGL -- bpd Water 125 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 Precision Drilling Company, LP
Address 2640 Reach Rd. City Williamsport State PA Zip 17701

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

Cementing Company Nabors Completion & Production Services, Co.
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

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

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature *[Signature]* Title Permit Representative Date 7/8/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API 47-017-06622 Farm Name Williams, Robert Well Number McGee Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5-Apr-15	14,967	15,135	60	Marcellus
2	27-May-15	14,768	14,936	60	Marcellus
3	27-May-15	14,569	14,737	60	Marcellus
4	28-May-15	14,370	14,538	60	Marcellus
5	28-May-15	14,171	14,339	60	Marcellus
6	28-May-15	13,972	14,140	60	Marcellus
7	29-May-15	13,773	13,941	60	Marcellus
8	30-May-15	13,574	13,741	60	Marcellus
9	30-May-15	13,374	13,542	60	Marcellus
10	30-May-15	13,175	13,343	60	Marcellus
11	30-May-15	12,976	13,144	60	Marcellus
12	31-May-15	12,777	12,945	60	Marcellus
13	31-May-15	12,578	12,746	60	Marcellus
14	1-Jun-15	12,379	12,547	60	Marcellus
15	1-Jun-15	12,180	12,348	60	Marcellus
16	1-Jun-15	11,981	12,149	60	Marcellus
17	1-Jun-15	11,782	11,950	60	Marcellus
18	2-Jun-15	11,583	11,751	60	Marcellus
19	2-Jun-15	11,384	11,552	60	Marcellus
20	2-Jun-15	11,185	11,352	60	Marcellus
21	2-Jun-15	10,986	11,153	60	Marcellus
22	2-Jun-15	10,786	10,954	60	Marcellus
23	3-Jun-15	10,587	10,755	60	Marcellus
24	3-Jun-15	10,388	10,556	60	Marcellus
25	3-Jun-15	10,189	10,357	60	Marcellus
26	3-Jun-15	9,990	10,158	60	Marcellus
27	4-Jun-15	9,791	9,959	60	Marcellus
28	4-Jun-15	9,592	9,760	60	Marcellus
29	4-Jun-15	9,393	9,561	60	Marcellus
30	4-Jun-15	9,194	9,362	60	Marcellus
31	4-Jun-15	8,995	9,163	60	Marcellus
32	5-Jun-15	8,796	8,964	60	Marcellus
33	5-Jun-15	8,597	8,764	60	Marcellus
34	5-Jun-15	8,397	8,565	60	Marcellus
35	5-Jun-15	8,198	8,366	60	Marcellus
36	5-Jun-15	7,999	8,167	60	Marcellus
37	6-Jun-15	7,800	7,968	60	Marcellus
38	6-Jun-15	7,601	7,769	60	Marcellus
39	6-Jun-15	7,402	7,570	60	Marcellus
40	6-Jun-15	7,203	7,371	60	Marcellus
41	6-Jun-15	7,004	7,172	60	Marcellus
42	6-Jun-15	6,805	6,973	60	Marcellus

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API 47-017-06622 Farm Name Williams, Robert Well Number McGee Unit 2H

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	13-Apr-15	62.8	7,082	5,604	4,989	91,120	7,100	N/A
2	27-May-15	59.9	7,250	6,303	4,832	162,440	6,604	N/A
3	27-May-15	59.3	7,314	6,843	4,799	192,820	6,707	N/A
4	28-May-15	51.7	7,429	6,655	4,163	42,100	7,065	N/A
5	28-May-15	56.0	7,081	7,331	4,832	72,840	6,484	N/A
6	28-May-15	62.5	7,023	6,251	5,375	224,320	6,404	N/A
7	29-May-15	62.4	6,915	6,146	5,217	242,970	6,436	N/A
8	30-May-15	62.8	7,317	5,987	5,025	200,970	6,383	N/A
9	30-May-15	54.5	6,956	5,776	4,520	101,770	6,986	N/A
10	30-May-15	60.3	6,533	5,944	5,136	142,740	6,684	N/A
11	30-May-15	64.1	6,806	6,162	4,874	243,380	6,591	N/A
12	31-May-15	63.2	6,694	5,579	5,068	219,400	6,948	N/A
13	31-May-15	64.9	6,808	5,629	4,678	243,180	6,650	N/A
14	1-Jun-15	66.1	7,238	6,198	4,610	141,880	6,754	N/A
15	1-Jun-15	63.2	6,768	5,778	5,457	232,650	6,394	N/A
16	1-Jun-15	63.1	6,775	5,497	4,416	171,775	6,354	N/A
17	1-Jun-15	61.3	6,473	6,055	5,168	194,770	6,733	N/A
18	2-Jun-15	65.1	6,531	5,951	4,274	244,400	6,376	N/A
19	2-Jun-15	66.3	6,782	5,773	4,414	245,310	6,290	N/A
20	2-Jun-15	67.4	6,848	5,460	4,584	245,765	6,279	N/A
21	2-Jun-15	65.3	6,691	5,872	4,824	243,400	6,306	N/A
22	2-Jun-15	66.4	6,823	6,101	4,814	231,750	6,875	N/A
23	3-Jun-15	67.1	7,224	5,679	4,499	182,600	6,781	N/A
24	3-Jun-15	66.7	6,929	5,777	5,047	215,320	5,839	N/A
25	3-Jun-15	66.4	7,106	5,679	5,679	202,540	6,739	N/A
26	3-Jun-15	64.6	6,659	5,976	5,096	156,000	5,924	N/A
27	4-Jun-15	62.8	6,598	5,754	4,592	197,925	6,671	N/A
28	4-Jun-15	67.1	6,634	5,550	5,368	241,675	6,173	N/A
29	4-Jun-15	66.7	6,515	5,704	5,397	241,650	6,192	N/A
30	4-Jun-15	67.3	6,442	6,166	5,025	243,770	6,209	N/A
31	4-Jun-15	67.6	6,788	5,854	5,021	228,150	5,974	N/A
32	5-Jun-15	67.0	6,552	6,162	5,189	244,100	6,140	N/A
33	5-Jun-15	65.8	6,906	6,144	5,096	224,200	5,864	N/A
34	5-Jun-15	67.9	6,568	5,820	5,534	244,800	6,133	N/A
35	5-Jun-15	66.8	6,313	6,919	5,604	243,520	6,114	N/A
36	5-Jun-15	67.8	6,383	6,502	5,257	243,660	6,118	N/A
37	6-Jun-15	68.9	6,439	5,661	5,014	204,740	5,976	N/A
38	6-Jun-15	68.2	6,800	5,701	4,528	196,700	5,995	N/A
39	6-Jun-15	67.7	6,559	5,951	5,465	231,210	5,936	N/A
40	6-Jun-15	67.9	6,373	5,819	5,450	242,600	6,102	N/A
41	6-Jun-15	68.1	6,513	5,833	4,674	239,910	6,007	N/A
42	6-Jun-15	68.7	6,414	6,956	4,646	227,180	5,682	N/A
AVG=		64.5	6,782	6,012	4,958	8,584,000	267,972	TOTAL

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API 47-017-06622 Farm Name Williams, Robert Well Number McGee Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)		BOTTOM DEPTH (TVD)		TOP DEPTH (MD)		BOTTOM DEPTH (MD)	
	From Surface		From Surface		From Surface		From Surface	
Fresh Water	57'		N/A		57'		N/A	
Shale/ Sandstone	0		427		0		427	
Limestone/ Sandstone	est. 427		507		est. 427		507	
Shale/ Siltstone	est. 507		587		est. 507		587	
Sandstone/ Trace Coal	est. 587		607		est. 587		607	
Sandstone/ Siltstone	est. 607		687		est. 607		687	
Sandstone/ Limestone	est. 687		787		est. 687		787	
Shale/ Sandstone	est. 787		947		est. 787		947	
Siltstone/ Limestone	est. 947		1327		est. 947		1327	
Shale/ Trace Coal	est. 1327		1387		est. 1327		1387	
Shale/ Sandstone	est. 1387		1427		est. 1387		1427	
Shale/ Coal	est. 1427		1487		est. 1427		1487	
Sandstone	est. 1487		1527		est. 1487		1527	
Sandstone/ Trace Coal	est. 1527		1667		est. 1527		1667	
Sandstone/ Siltstone	est. 1667		1907		est. 1667		1907	
Sandstone/ Trace Coal	est. 1907		1985		est. 1907		1987	
Big Lime	1985		2083		1987		2085	
Big Injun	2083		2401		2085		2403	
Gantz Sand	2401		2595		2403		2597	
Fifty Foot Sandstone	2595		2665		2597		2667	
Gordon	2665		3025		2667		3027	
Fifth Sandstone	3025		3057		3027		3059	
Bayard	3057		3410		3059		3412	
Warren	3410		3768		3412		3770	
Speechley	3768		4066		3770		4068	
Baltown	4066		4532		4068		4534	
Bradford	4532		4932		4534		4934	
Benson	4932		5168		4934		5170	
Alexander	5168		5355		5170		5357	
Elk	5355		5805		5357		5807	
Rhinestreet	5805		6162		5807		6194	
Sycamore	6143		6305		6175		6404	
Middlesex	6305		6426		6404		6622	
Burkett	6426		6453		6622		6685	
Tully	6453		6480		6685		6766	
Marcellus	6480		NA		6766		NA	

*Please note Antero determines shallow formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Hydraulic Fracturing Fluid Product Component Information Disclosure



Frac Focus
Chemical Disclosure Registry



Job Start Date:	4/13/2015
Job End Date:	6/6/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06622-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	McGee Unit 2H
Longitude:	-80.86265600
Latitude:	39.23765600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,542
Total Base Water Volume (gal):	11,705,877
Total Base Non Water Volume:	477,377

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	91.33893	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	8.03111	
LGC-15	J.S. Well Services	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.12507	
			Petroleum Distillates	64742-47-8	60.00000	0.11845	
			Suspending agent (solid)	14808-60-7	3.00000	0.01913	
			Surfactant	68439-51-0	3.00000	0.00750	
HCL Acid (12.6%-18.0%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.16711	
			Hydrogen Chloride	7647-01-0	18.00000	0.03992	
WFRA-405	J.S. Well Services	Friction Reducer	Water	7732-18-5	40.00000	0.03368	
			Anionic Polyacrylamide	Proprietary	40.00000	0.03368	
			Sodium Chloride	7647-14-5	20.00000	0.01684	
			Petroleum Distillates	64742-47-8	20.00000	0.01356	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00421	

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SI-1100	U.S. Well Services	Scale Inhibitor							
			DI Water	7732-18-5		80.00000		0.01061	
			Ethylene Glycol	107-21-1		40.00000		0.00599	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8		10.00000		0.00179	
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1		10.00000		0.00171	
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6		10.00000		0.00166	
			Copolymer of Maleic and Acrylic acid	26677-99-6		10.00000		0.00156	
			bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4		10.00000		0.00152	
			Acrylic polymer	52255-49-9		5.00000		0.00066	
	U.S. Well Services	Bulk Acid							
			Water	7732-18-5		97.50000		0.01487	
			Hydrogen Chloride	7647-01-0		4.90000		0.00087	
	U.S. Well Services	Anti-Bacterial Agent							
			2,2-dibromo-3-nitropropionamide	10222-01-2		20.00000		0.00441	
			Deionized Water	7732-18-5		28.00000		0.00252	
	U.S. Well Services	Gel Breakers							
			Ammonium Persulfate	7727-54-0		100.00000		0.00230	
	U.S. Well Services	Acid Corrosion Inhibitors							
			Diethylene Glycol	111-46-6		30.00000		0.00013	
			Methenamine	100-97-0		20.00000		0.00010	
			Hydrogen Chloride	7647-01-0		10.00000		0.00005	
			Polyethylene polyamine	68603-67-8		10.00000		0.00004	
			Coco amine	61791-14-8		5.00000		0.00002	
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)

