

# APPROVED

WR-35  
Rev. 8/23/13

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DATE 1/3/18

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

NOV 30 2017

WV Department of Environmental Protection

API 47-017-06705 County Doddridge District Central  
Quad Oxford 7.5' Pad Name James Webb Pad Field/Pool Name         
Farm name James E. Webb Well Number Mahogany 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 4343264m Easting 510935m  
Landing Point of Curve Northing 4343059.451m Easting 510853.926m  
Bottom Hole Northing 4340157m Easting 512118m

Elevation (ft) 991' 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 03/26/2015 Date drilling commenced 09/04/2015 Date drilling ceased 09/09/2016  
Date completion activities began 02/28/2017 Date completion activities ceased 08/06/2017  
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 62', 173' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1145' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 1552', 1632' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by: \_\_\_\_\_

API 47-017 - 06705 Farm name James E. Webb Well number Mahogany 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"	65'	New	106.5#, J-55	N/A	Y
Surface	17-1/2"	13-3/8"	465'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2596'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17396'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	6653'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	60 sx	15.6	1.18	71	0'	8 Hrs.
Surface	Class A	550 sx	15.6	1.19	655	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1014 sx	15.6	1.18	1197	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	807 sx (Lead) 1495 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.67 (Tail)	3958	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17396' MD, 8512' TVD (BHL) & 6515' TVD (Deepest Point Drilled) Loggers TD (ft) 17379' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6092'

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

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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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API 47- 017 - 06705 Farm name James E. Webb Well number Mahogany Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
<b>*PLEASE SEE ATTACHED EXHIBIT 1</b>					

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

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Please insert additional pages as applicable.

API 47- 017 - 06705 Farm name James E. Webb Well number Mahogany Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6467' (TOP)</u> TVD	<u>6707' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11511 mcfpd Oil 144 bpd NGL --- bpd Water 1275 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
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**\*PLEASE SEE ATTACHED EXHIBIT 3**

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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 Allied Horizontal Wireline Services  
Address 381 Colonial Manor Rd. City North Huntingdon State PA Zip 15642

Cementing Company C&J Energy Services  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company CalFrac Well Services  
Address 717 17th Street City Denver State CO Zip 80202

Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759  
Signature  Title Permitting Agent Date 11/29/2017

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

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/28/2017	17128	17296	60	Marcellus
2	3/1/2017	16928	17096	60	Marcellus
3	3/2/2017	16729	16897	60	Marcellus
4	3/2/2017	16529	16697	60	Marcellus
5	3/2/2017	16330	16498	60	Marcellus
6	3/2/2017	16130	16298	60	Marcellus
7	3/3/2017	15931	16099	60	Marcellus
8	3/3/2017	15731	15899	60	Marcellus
9	3/3/2017	15532	15700	60	Marcellus
10	3/3/2017	15332	15500	60	Marcellus
11	3/4/2017	15132	15301	60	Marcellus
12	3/4/2017	14933	15101	60	Marcellus
13	3/4/2017	14733	14902	60	Marcellus
14	3/5/2017	14534	14702	60	Marcellus
15	3/5/2017	14334	14503	60	Marcellus
16	3/5/2017	14135	14303	60	Marcellus
17	3/5/2017	13935	14104	60	Marcellus
18	3/6/2017	13736	13904	60	Marcellus
19	3/6/2017	13536	13705	60	Marcellus
20	3/6/2017	13337	13505	60	Marcellus
21	3/6/2017	13137	13306	60	Marcellus
22	3/7/2017	12938	13106	60	Marcellus
23	3/7/2017	12738	12906	60	Marcellus
24	3/7/2017	12539	12707	60	Marcellus
25	3/8/2017	12339	12507	60	Marcellus
26	3/8/2017	12140	12308	60	Marcellus
27	3/8/2017	11940	12108	60	Marcellus
28	3/8/2017	11741	11909	60	Marcellus
29	3/8/2017	11541	11709	60	Marcellus
30	3/9/2017	11342	11510	60	Marcellus
31	3/9/2017	11142	11310	60	Marcellus
32	3/10/2017	10942	11111	60	Marcellus
33	3/10/2017	10743	10911	60	Marcellus
34	3/10/2017	10543	10712	60	Marcellus
35	3/11/2017	10344	10512	60	Marcellus
36	3/12/2017	10144	10313	60	Marcellus
37	3/12/2017	9945	10113	60	Marcellus
38	3/12/2017	9745	9914	60	Marcellus
39	3/12/2017	9546	9714	60	Marcellus
40	3/13/2017	9346	9515	60	Marcellus
41	3/13/2017	9147	9315	60	Marcellus
42	3/13/2017	8947	9116	60	Marcellus
43	3/13/2017	8748	8916	60	Marcellus
44	3/14/2017	8548	8716	60	Marcellus
45	3/14/2017	8349	8517	60	Marcellus
46	3/14/2017	8149	8317	60	Marcellus
47	3/14/2017	7950	8118	60	Marcellus
48	3/14/2017	7750	7918	60	Marcellus
49	3/15/2017	7551	7719	60	Marcellus
50	3/15/2017	7351	7519	60	Marcellus
51	3/15/2017	7152	7320	60	Marcellus
52	3/15/2017	6952	7120	60	Marcellus
53	3/16/2017	6752	6921	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	3/1/2017	74.1	7361	5063	4831	406250	10357	N/A
2	3/1/2017	70.9	7692	6338	4785	395800	10515	N/A
3	3/2/2017	69.1	7569	5854	4232	407350	8355	N/A
4	3/2/2017	76.5	8093	5976	5040	408000	9492	N/A
5	3/2/2017	75.3	7947	6326	5502	408500	9198	N/A
6	3/2/2017	74.0	7998	5643	5580	388650	10392	N/A
7	3/3/2017	74.6	7996	6208	4917	407150	9030	N/A
8	3/3/2017	79.2	8127	5762	4086	407250	9181	N/A
9	3/3/2017	78.8	8010	6134	3930	407300	9122	N/A
10	3/3/2017	80.1	7953	5974	5090	407400	9094	N/A
11	3/4/2017	79.7	8070	6105	4607	408500	9252	N/A
12	3/4/2017	72.9	8002	6001	4272	407600	9274	N/A
13	3/4/2017	79.3	8086	6201	5518	407600	9084	N/A
14	3/5/2017	78.5	7955	6235	4811	397800	10323	N/A
15	3/5/2017	78.1	8059	6143	3812	408200	9261	N/A
16	3/5/2017	79.3	8154	5936	5131	406950	12126	N/A
17	3/5/2017	79.4	8021	5825	4875	409300	9175	N/A
18	3/6/2017	79.5	7906	5127	6030	408550	9258	N/A
19	3/6/2017	78.6	7835	5843	4729	407550	10952	N/A
20	3/6/2017	74.5	8070	5788	4109	408100	9260	N/A
21	3/6/2017	74.4	7839	5918	5131	406750	10562	N/A
22	3/7/2017	74.5	7374	5553	3093	408100	9125	N/A
23	3/7/2017	77.2	7298	5681	5043	398600	10767	N/A
24	3/7/2017	76.7	7373	5460	4190	407400	9072	N/A
25	3/8/2017	78.0	7990	5717	5122	329000	11226	N/A
26	3/8/2017	75.6	7799	5707	3379	407200	9482	N/A
27	3/8/2017	75.8	7243	5709	4038	386900	8807	N/A
28	3/8/2017	75.2	6957	5637	3141	407100	9044	N/A
29	3/8/2017	77.4	7422	5837	4730	364850	9531	N/A
30	3/9/2017	79.3	7610	5910	4129	407150	9039	N/A
31	3/9/2017	73.1	6922	6131	3492	407750	8941	N/A
32	3/10/2017	72.6	7215	5936	5813	391800	9968	N/A
33	3/10/2017	77.5	7204	5739	3074	407400	9042	N/A
34	3/10/2017	77.4	7187	5816	5064	386700	8323	N/A
35	3/11/2017	78.2	6751	5691	3134	407250	12991	N/A
36	3/12/2017	79.6	6919	6109	3510	408700	8953	N/A
37	3/12/2017	77.6	6968	5703	3814	384350	9254	N/A
38	3/12/2017	77.2	7169	5489	4062	407750	8878	N/A
39	3/12/2017	78.9	7425	6275	5873	407800	8974	N/A
40	3/13/2017	77.3	6890	5495	3367	407200	8813	N/A
41	3/13/2017	78.7	7195	5491	5322	407900	9028	N/A
42	3/13/2017	77.1	7258	5565	4325	352950	9443	N/A
43	3/13/2017	76.6	7299	6070	5633	391700	9618	N/A
44	3/14/2017	77.4	7143	5527	4365	407400	8839	N/A
45	3/14/2017	76.5	6868	6868	3788	407800	9790	N/A
46	3/14/2017	77.9	6988	5871	5131	407650	10191	N/A
47	3/14/2017	77.6	6867	5380	4383	407370	8959	N/A
48	3/14/2017	78.6	6756	5579	5160	408450	9060	N/A
49	3/15/2017	80.0	6737	5183	4806	403900	8783	N/A
50	3/15/2017	79.4	6769	4796	5216	405160	9537	N/A
51	3/15/2017	77.9	6501	4933	4972	407500	8594	N/A
52	3/15/2017	78.6	6566	4986	5099	406750	8715	N/A
53	3/16/2017	78.3	6583	5436	4898	408250	8727	N/A
<b>AVG=</b>		<b>77.0</b>	<b>7,434</b>	<b>5,768</b>	<b>4,570</b>	<b>21,276,330</b>	<b>502,777</b>	<b>TOTAL</b>

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**EXHIBIT 3**

<b>LITHOLOGY/ FORMATION</b>	<b>TOP DEPTH (TVD) From Surface</b>	<b>BOTTOM DEPTH (TVD) From Surface</b>	<b>TOP DEPTH (MD) From Surface</b>	<b>BOTTOM DEPTH (MD) From Surface</b>
Fresh Water	62'	N/A	62'	N/A
Fresh Water	173'	N/A	173'	N/A
Siltstone	est. 0	177	est. 0	177
Sandstone	est. 177	237	est. 177	237
Siltstone	est. 237	567	est. 237	567
Sandstone	est. 567	1552	est. 567	1552
Coal	est. 1552	1557	est. 1552	1557
Shale	est. 1557	1587	est. 1557	1587
Sandstone	est. 1587	1632	est. 1587	1632
Coal	est. 1632	1634	est. 1632	1634
Sandstone	est. 1634	2045	est. 1634	2046
Big Lime	2045	2131	2046	2132
Big Injun	2131	2440	2132	2441
Gantz Sand	2440	2686	2441	2687
Fifty Foot Sandstone	2686	2763	2687	2764
Gordon	2763	3080	2764	3081
Fifth Sandstone	3080	3105	3081	3107
Bayard	3105	3433	3107	3434
Warren	3433	3797	3434	3798
Speechley	3797	4541	3798	4542
Bradford	4541	4933	4542	4935
Benson	4933	5199	4935	5200
Alexander	5199	5354	5200	5356
Elk	5354	5804	5356	5806
Rhinestreet	5804	6127	5806	6137
Sycamore	6127	6293	6198	6391
Middlesex	6293	6411	6391	6574
Burkett	6411	6440	6574	6633
Tully	6440	6467	6633	6707
Marcellus	6467	NA	6707	NA

\*Please note Antero determines 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

Job Start Date:	3/1/2017
Job End Date:	3/16/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06705-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mahogany 1HST
Latitude:	39.23852500
Longitude:	-80.87346400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,515
Total Base Water Volume (gal):	21,116,634
Total Base Non Water Volume:	0

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### 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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	94.34515	
DWP-111	CWS	Gel Slurry					
				Listed Below			



Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
SANIFRAC 8844	CWS	Biocide					
				Listed Below			
DAP-925	CWS	Acid Corrosion Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
DWP-975	CWS	Breaker					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

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				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica (Quartz)	14808-60-7	100.00000	5.51891	
			Hydrochloric acid	7647-01-0	37.00000	0.02591	
			Guar gum	9000-30-0	60.00000	0.01941	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.01941	
			Polymer	26100-47-0	45.00000	0.01816	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.01210	
			Calcite	471-34-1	1.00000	0.00861	
			Ammonium chloride	12125-02-9	11.00000	0.00444	
			Illite	12173-60-3	1.00000	0.00389	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00328	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00324	
			Goethite	1310-14-1	0.10000	0.00267	
			Biotite	1302-27-8	0.10000	0.00185	
			Apatite	64476-38-6	0.10000	0.00185	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00162	
			Sorbitan monooleate	1338-43-8	4.00000	0.00161	
			Ilmenite	98072-94-7	0.10000	0.00144	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00121	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2		0.00119	
			1,2-Propanediol	57-55-6	10.00000	0.00082	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00081	

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			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00049
			Ammonium Persulfate	7727-54-0	100.00000	0.00046
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00040
			Sodium bromide	7647-15-6	4.00000	0.00024
			Citric acid	77-92-9	60.00000	0.00024
			Alcohols, C12-14, ethoxylated	84133-50-6	0.50000	0.00020
			Dibromoacetonitrile	3252-43-5	3.00000	0.00018
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00010
			Acrylamide	79-06-1	0.10000	0.00004
			Hydrated magnesium silicate	14807-96-6	1.00000	0.00002
			Methanol	67-56-1	60.00000	0.00002
			Alcohols, C14-15, ethoxylated	68951-67-7	30.00000	0.00001
			Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00001
			Propargyl Alcohol	107-19-7	10.00000	0.00001
			Sodium chloride	7647-14-5	1.00000	0.00001
			Alkenes, C>10 a-	64743-02-8	5.00000	0.00001
			Fatty acids, tall-oil	61790-12-3	30.00000	0.00001
			Formaldehyde	50-00-0	0.10000	0.00001
			Modified thiourea polymer	68527-49-1	30.00000	0.00001

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

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LATITUDE 39°15'00"

11,367'

7,502' TO BOTTOM HOLE

LATITUDE 39°15'00"

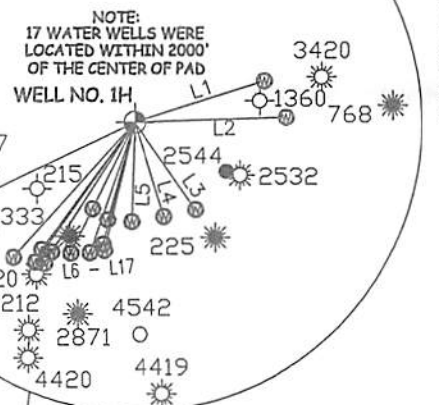
LONGITUDE 80°50'00"

4,179'

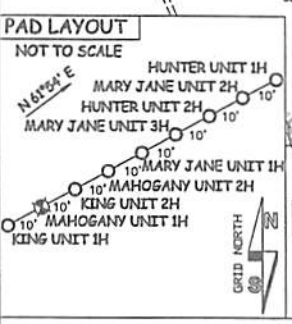
LONGITUDE 80°50'00"

LONGITUDE 80°50'00"

Antero Resources Corporation  
Well No. Mahogany Unit 1H  
47-017-06705 (AS DRILLED)



NOTES:  
WELL 1H TOP HOLE INFORMATION:  
N: 271,960ft E: 1,610,985ft  
LAT: 39°14'18.70" LON: 80°52'24.47"  
BOTTOM HOLE INFORMATION:  
N: 261,702ft E: 1,614,699ft  
LAT: 39°12'37.87" LON: 80°51'35.31"  
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.  
(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 1H TOP HOLE INFORMATION:  
N: 4,343,264m E: 510,935m  
BOTTOM HOLE INFORMATION:  
N: 4,340,157m E: 512,118m



- NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
  3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

API WELL #  
47 - 017 - 06705  
STATE COUNTY PERMIT

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 14-095WA  
DRAWING # MAHOGANY1HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND  
--- Surface Owner Boundary Lines +/-  
--- Interior Surface Tracts +/-  
○ Proposed Well Path  
○ As Drilled Well Path  
DOUGLAS R. ROWE P.S. 2202

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

DATE 11/01/17  
OPERATOR'S WELL# MAHOGANY UNIT #1H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X  
LOCATION: ELEVATION 991.4' - AS DRILLED WATERSHED CABIN RUN  
QUADRANGLE OXFORD 7.5' DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER JAMES E. WEBB ACREAGE 84.89 ACRES +/-  
OIL & GAS ROYALTY OWNER CHARLEY WILSON ET UX; RALPH LEGGETT ET UX; LAURA WHITE ET VIR; C.E. ROSS; MARY MAXINE WELCH; F.R. INGRAM ET AL; DENNIS POWELL; OPAL GRIBBLE; LEONA BROADWATER LEASE ACREAGE 91 ACRES +/-; 25 ACRES +/-; 60 ACRES +/-; 25 ACRES +/-; 130 ACRES +/-; 44.36 ACRES +/-; 50 ACRES +/-; 160 ACRES +/-  
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,512' TVD 17,396' MD  
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

LINE	BEARING	DISTANCE
L1	N 72°15' E	1424.3'
L2	N 88°07' E	1586.6'
L3	S 35°12' E	1107.5'
L4	S 17°19' E	1023.9'
L5	S 01°48' W	1030.8'
L6	S 13°28' W	1389.1'
L7	S 14°41' W	1309.8'
L8	S 15°45' W	1051.0'
L9	S 18°07' W	1434.8'
L10	S 24°11' W	1332.7'
L11	S 26°13' W	1000.5'
L12	S 26°15' W	1517.4'
L13	S 32°47' W	1748.1'
L14	S 32°53' W	1605.3'
L15	S 35°35' W	1789.2'
L16	S 36°23' W	1644.5'
L17	S 42°08' W	1899.8'

COUNTY NAME PERMIT

LATITUDE 39°15'00"

11,367'

7,502' TO BOTTOM HOLE

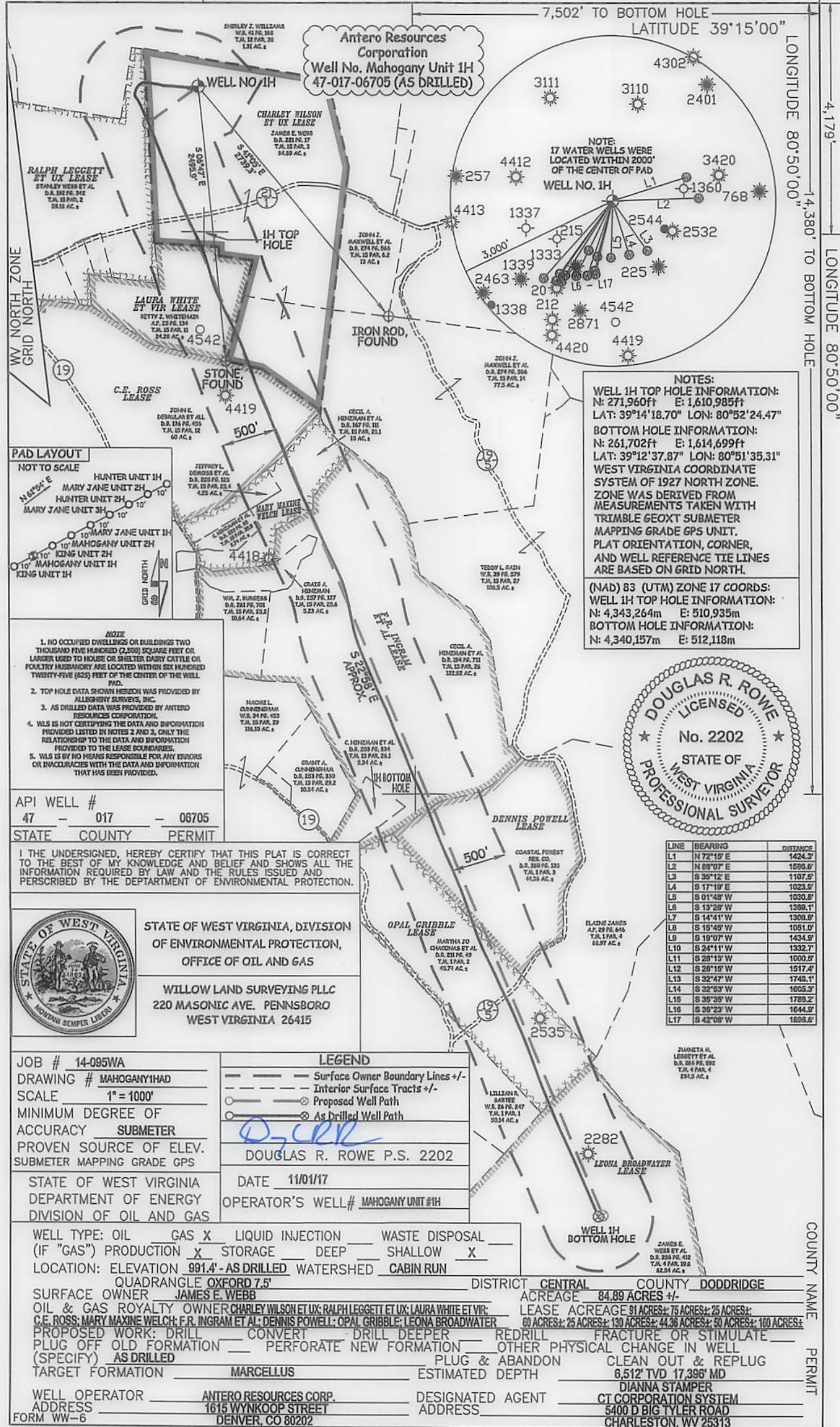
LATITUDE 39°15'00"

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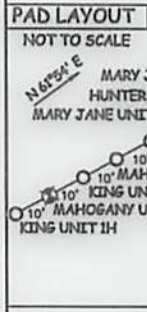
14,380' TO BOTTOM HOLE

LONGITUDE 80°50'00"



**NOTES:**  
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PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

**LEGEND**

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Proposed Well Path
- As Drilled Well Path

DOUGLAS R. ROWE P.S. 2202  
DATE 11/01/17  
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PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
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