

# APPROVED

WR-35  
Rev. 8/23/13

Page \_\_\_ of \_\_\_

NAME: Julian

DATE 11/3/16

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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

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API 47-017-06702 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 2H  
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 4343266m Easting 510940m  
Landing Point of Curve Northing 4343000.135m Easting 511098.820m  
Bottom Hole Northing 4340233m Easting 512339m

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 03/25/2015 Date drilling commenced 09/05/2015 Date drilling ceased 08/16/2016  
Date completion activities began 03/18/2017 Date completion activities ceased 08/16/2017  
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:

01/05/2018

API 47-017 - 06702 Farm name James E. Webb Well number Mahogany Unit 2H

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"	452'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2604'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17233'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6637'		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	521 sx	15.6	1.18	615	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1010 sx	15.6	1.18	1192	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	788 sx (Lead), 1518 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	3973	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17233' MD, 6518' TVD (BHL) & 6520' TVD (Deepest Point Drilled) Loggers TD (ft) 17219' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5996'

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 N/A

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API 47- 017 - 06702 Farm name James E. Webb Well number Mahogany Unit 2H

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 - 06702 Farm name James E. Webb Well number Mahogany Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6467' (TOP)</u> TVD	<u>6661' (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 11720 mcfpd Oil 155 bpd NGL --- bpd Water 1294 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

**\*PLEASE SEE ATTACHED EXHIBIT 3**


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Please insert additional pages as applicable.

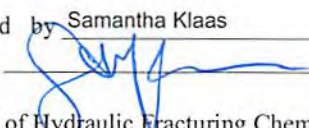
Drilling Contractor Patterson – UTI Drilling Company LLC  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

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

Please insert additional pages as applicable.

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

Submittal 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	3/18/2017	16961	17131	60	Marcellus
2	3/18/2017	16760	16930	60	Marcellus
3	3/18/2017	16559	16729	60	Marcellus
4	3/19/2017	16358	16528	60	Marcellus
5	3/19/2017	16157	16327	60	Marcellus
6	3/19/2017	15956	16126	60	Marcellus
7	3/19/2017	15755	15924	60	Marcellus
8	3/20/2017	15554	15723	60	Marcellus
9	3/20/2017	15353	15522	60	Marcellus
10	3/20/2017	15152	15321	60	Marcellus
11	3/21/2017	14951	15120	60	Marcellus
12	3/21/2017	14750	14919	60	Marcellus
13	3/21/2017	14548	14718	60	Marcellus
14	3/21/2017	14347	14517	60	Marcellus
15	3/22/2017	14146	14316	60	Marcellus
16	3/22/2017	13945	14115	60	Marcellus
17	3/22/2017	13744	13914	60	Marcellus
18	5/21/2017	13543	13713	60	Marcellus
19	5/21/2017	13342	13511	60	Marcellus
20	5/21/2017	13141	13310	60	Marcellus
21	5/22/2017	12940	13109	60	Marcellus
22	5/22/2017	12739	12908	60	Marcellus
23	5/22/2017	12538	12707	60	Marcellus
24	5/22/2017	12336	12506	60	Marcellus
25	5/23/2017	12135	12305	60	Marcellus
26	5/23/2017	11934	12104	60	Marcellus
27	5/23/2017	11733	11903	60	Marcellus
28	5/23/2017	11532	11702	60	Marcellus
29	5/23/2017	11331	11501	60	Marcellus
30	5/24/2017	11130	11300	60	Marcellus
31	5/24/2017	10929	11098	60	Marcellus
32	5/25/2017	10728	10897	60	Marcellus
33	5/25/2017	10527	10696	60	Marcellus
34	5/25/2017	10326	10495	60	Marcellus
35	5/26/2017	10125	10294	60	Marcellus
36	5/26/2017	9923	10093	60	Marcellus
37	5/26/2017	9722	9892	60	Marcellus
38	5/27/2017	9521	9691	60	Marcellus
39	5/27/2017	9320	9490	60	Marcellus
40	5/27/2017	9119	9289	60	Marcellus
41	5/27/2017	8918	9088	60	Marcellus
42	5/28/2017	8717	8887	60	Marcellus
43	5/28/2017	8516	8685	60	Marcellus
44	5/28/2017	8315	8484	60	Marcellus
45	5/28/2017	8114	8283	60	Marcellus
46	5/29/2017	7913	8082	60	Marcellus
47	5/29/2017	7712	7881	60	Marcellus
48	5/29/2017	7510	7680	60	Marcellus
49	5/29/2017	7309	7479	60	Marcellus
50	5/29/2017	7108	7278	60	Marcellus
51	5/30/2017	6907	7077	60	Marcellus
52	5/30/2017	6706	6876	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	3/18/2017	72.6	7778	6090	4662	411350	10248	N/A
2	3/18/2017	70.6	7670	6073	3931	411400	9357	N/A
3	3/18/2017	70.5	7706	6171	4924	411800	9828	N/A
4	3/19/2017	72.0	7804	6443	5453	411350	9485	N/A
5	3/19/2017	73.4	7737	6073	4603	410650	9340	N/A
6	3/19/2017	74.5	7628	5988	4484	411550	9240	N/A
7	3/19/2017	76.4	7810	6042	4640	411300	9537	N/A
8	3/20/2017	78.2	7668	6038	3856	411900	9179	N/A
9	3/20/2017	74.2	7756	5943	3703	411700	9099	N/A
10	3/20/2017	78.0	7848	5697	7591	408450	8623	N/A
11	3/21/2017	75.1	7806	6079	3830	411450	9330	N/A
12	3/21/2017	74.9	7352	6168	3846	410400	10280	N/A
13	3/21/2017	73.5	7321	5963	3905	411150	9250	N/A
14	3/21/2017	77.3	7690	6435	3854	411200	10202	N/A
15	3/22/2017	77.2	7492	6578	3635	411800	9107	N/A
16	3/22/2017	72.5	7266	6052	3593	410850	9031	N/A
17	3/22/2017	76.1	7290	5942	5510	404450	9043	N/A
18	5/21/2017	79.2	7897	6491	3855	409100	9118	N/A
19	5/21/2017	79.5	7745	6659	3873	411100	9002	N/A
20	5/21/2017	79.9	7865	6455	3873	410900	8953	N/A
21	5/22/2017	78.9	7978	6419	3966	411500	8947	N/A
22	5/22/2017	79.0	7854	6101	3794	408500	9069	N/A
23	5/22/2017	78.7	7700	6337	3669	402500	9073	N/A
24	5/22/2017	70.9	8163	6423	3659	404200	10079	N/A
25	5/23/2017	77.9	7542	6702	3730	403200	8872	N/A
26	5/23/2017	79.2	7615	5976	3730	402200	9068	N/A
27	5/23/2017	79.2	7681	6208	3791	403400	8958	N/A
28	5/23/2017	71.6	7992	6498	3741	403000	9762	N/A
29	5/23/2017	40.2	8415	6677	5071	90000	9311	N/A
30	5/24/2017	78.8	7590	5947	4249	402500	8888	N/A
31	5/24/2017	72.0	7782	6777	5046	332900	9844	N/A
32	5/25/2017	77.8	7411	6155	3805	403400	8816	N/A
33	5/25/2017	76.8	7567	6906	3923	401900	8888	N/A
34	5/25/2017	78.5	7209	5772	3895	402500	8816	N/A
35	5/26/2017	78.3	7265	5693	3812	402200	8803	N/A
36	5/26/2017	75.4	7691	6140	3798	402500	9181	N/A
37	5/26/2017	76.0	7420	6151	4134	402700	8837	N/A
38	5/27/2017	76.0	7295	6183	3952	401900	8799	N/A
39	5/27/2017	76.3	7559	6065	3855	402400	8787	N/A
40	5/27/2017	77.5	7536	5901	3927	402700	9601	N/A
41	5/27/2017	72.7	7207	6090	3687	403600	8752	N/A
42	5/28/2017	77.4	7497	5844	3952	403500	8761	N/A
43	5/28/2017	79.3	7465	5997	4277	403200	8760	N/A
44	5/28/2017	79.9	7739	5704	3930	402700	9565	N/A
45	5/28/2017	78.4	7414	5761	4138	403100	10906	N/A
46	5/29/2017	77.3	7309	5565	3777	402800	8703	N/A
47	5/29/2017	77.5	7547	5490	4034	402800	8686	N/A
48	5/29/2017	76.3	7378	5815	4052	403500	8678	N/A
49	5/29/2017	77.6	7641	6655	3988	404000	8729	N/A
50	5/29/2017	74.1	7103	6559	3794	404000	8984	N/A
51	5/30/2017	75.6	7116	6781	3762	403100	8658	N/A
52	5/30/2017	79.4	7313	6216	4152	404500	8726	N/A
AVG=		75.6	7,599	6,171	4,129	20,740,750	477,559	TOTAL

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**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	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	6137	6336
Middlesex	6293	6411	6336	6525
Burkett	6411	6440	6525	6586
Tully	6440	6467	6586	6661
Marcellus	6467	NA	6661	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:	3/18/2017
Job End Date:	3/22/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06702-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mahogany 2H
Latitude:	39.23855280
Longitude:	-80.87340280
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,518
Total Base Water Volume (gal):	7,484,609
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	89.72228	
DAP-925	CWS	Acid Corrosion Inhibitor					
				Listed Below			



SANIFRAC 8844	CWS	Bloicide					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
DWP-975	CWS	Breaker					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
DWP-111	CWS	Gel Slurry					
				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	9.97800	
			Hydrochloric acid	7647-01-0	37.00000	0.06328	
			Guar gum	9000-30-0	60.00000	0.04385	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.04385	
			Polymer	26100-47-0	45.00000	0.04187	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.02791	
			Calcite	471-34-1	1.00000	0.01563	
			Ammonium chloride	12125-02-9	11.00000	0.01023	
			Illite	12173-60-3	1.00000	0.00696	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00577	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00573	
			Goethite	1310-14-1	0.10000	0.00481	
			Sorbitan monooleate	1338-43-8	4.00000	0.00372	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00365	
			Biotite	1302-27-8	0.10000	0.00332	
			Apatite	64476-38-6	0.10000	0.00332	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00279	
			Ilmenite	98072-94-7	0.10000	0.00258	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2		0.00210	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00186	
			1,2-Propanediol	57-55-6	10.00000	0.00144	

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			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00110	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00093	
			Ammonium Persulfate	7727-54-0	100.00000	0.00079	
			Citric acid	77-92-9	60.00000	0.00060	
			Alcohols, C12-14, ethoxylated	84133-50-6	0.50000	0.00047	
			Sodium bromide	7647-15-6	4.00000	0.00042	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00032	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00017	
			Acrylamide	79-06-1	0.10000	0.00009	
			Methanol	67-56-1	60.00000	0.00004	
			Hydrated magnesium silicate	14807-96-6	1.00000	0.00003	
			Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00002	
			Fatty acids, tall-oil	61790-12-3	30.00000	0.00002	
			Alcohols, C14-15, ethoxylated	68951-67-7	30.00000	0.00002	
			Modified thiourea polymer	68527-49-1	30.00000	0.00002	
			Sodium chloride	7647-14-5	1.00000	0.00001	
			Formaldehyde	50-00-0	0.10000	0.00001	
			Propargyl Alcohol	107-19-7	10.00000	0.00001	
			Alkenes, C>10 a-	64743-02-8	5.00000	0.00001	

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\* 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)







LATITUDE 39°15'00"

11,350'

6,777' TO BOTTOM HOLE

LATITUDE 39°15'00"

LONGITUDE 80°50'00"

4,170'

LONGITUDE 80°50'00"

LONGITUDE 80°50'00"

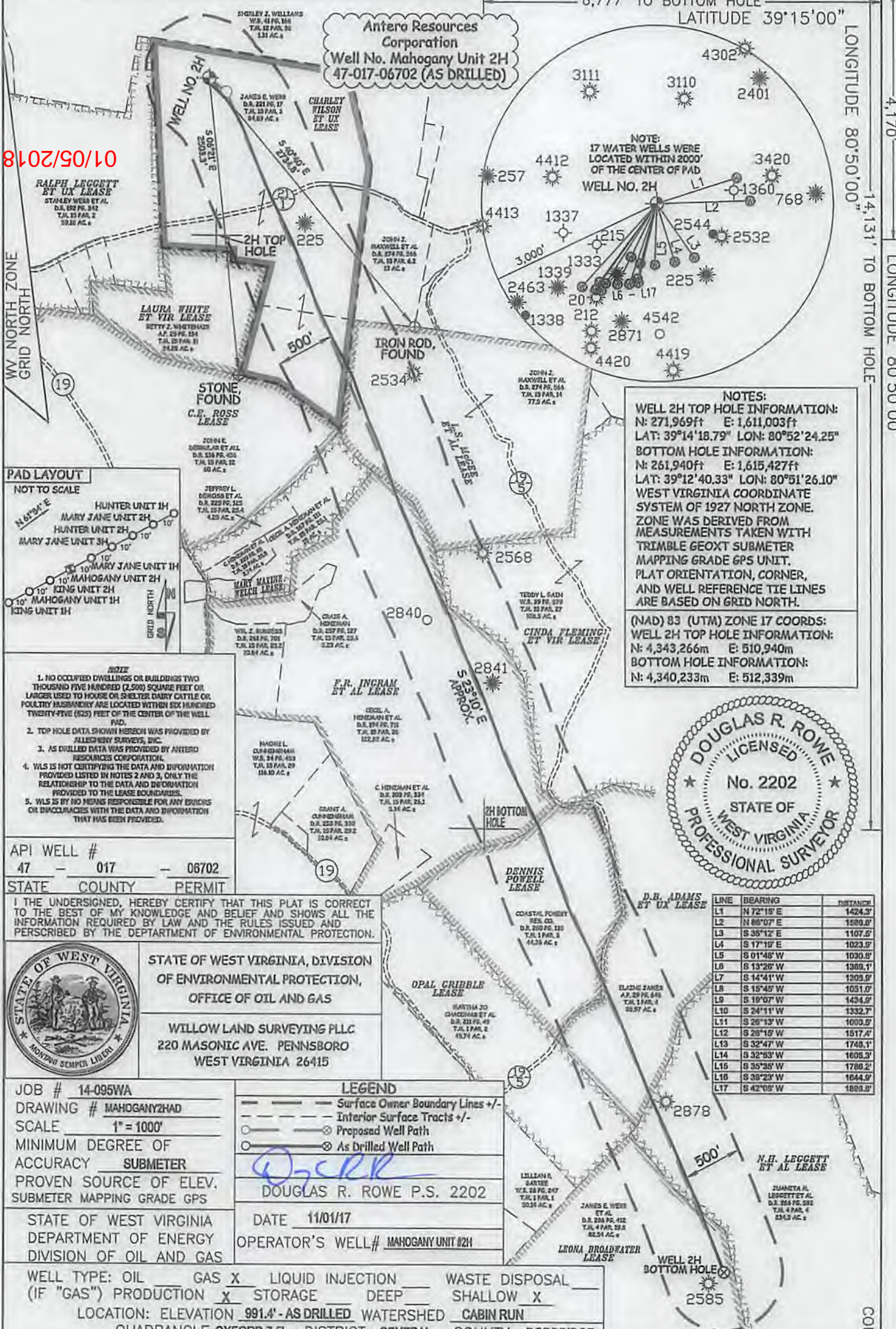
LONGITUDE 80°50'00"

COUNTY NAME

PERMIT

Antero Resources Corporation  
Well No. Mahogany Unit 2H  
47-017-06702 (AS DRILLED)

01/05/2018



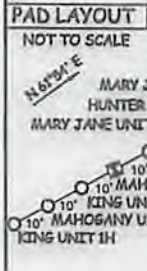
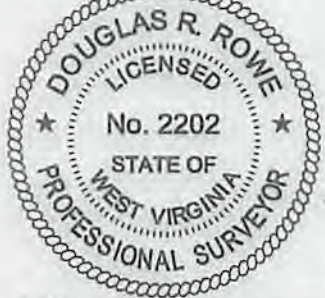
**NOTES:**

WELL 2H TOP HOLE INFORMATION:  
N: 271,969ft E: 1,611,003ft  
LAT: 39°14'18.79" LON: 80°52'24.25"

BOTTOM HOLE INFORMATION:  
N: 261,940ft E: 1,615,427ft  
LAT: 39°12'40.33" LON: 80°51'26.10"

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 2H TOP HOLE INFORMATION:  
N: 4,343,266m E: 510,940m  
BOTTOM HOLE INFORMATION:  
N: 4,340,233m E: 512,339m



- 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 - 06702  
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 # MAHOGANY2HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
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  
OPERATOR'S WELL# MAHOGANY UNIT #2H

LINE	BEARING	DISTANCE
L1	N 72°15' E	1424.3'
L2	N 85°07' E	1589.0'
L3	S 35°12' E	1107.0'
L4	S 17°19' E	1023.9'
L5	S 01°48' W	1030.0'
L6	S 13°26' W	1369.1'
L7	S 14°41' W	1309.9'
L8	S 15°45' W	1051.0'
L9	S 19°07' W	1434.9'
L10	S 24°11' W	1332.7'
L11	S 26°13' W	1009.0'
L12	S 28°19' W	1517.2'
L13	S 32°47' W	1749.1'
L14	S 32°53' W	1605.3'
L15	S 35°35' W	1786.2'
L16	S 38°23' W	1844.9'
L17	S 42°05' W	1868.0'

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
 (IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
 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; L.S. MCGEE ET AL; F.R. INGRAM ET AL; DENNIS POWELL; D.B. ADAMS ET UX; N.H. LEGGETT ET AL; LEONA BROADWATER LEASE ACREAGE 91 ACRES +/-; 78 ACRES +/-; 130 ACRES +/-; 44.36 ACRES +/-; 89 ACRES +/-; 140 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 6,518' TVD 17,233' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 DENVER, CO 80202 CHARLESTON, WV 25313