

APPROVED

WR-35
Rev. 8/23/13

NAME: James Webb

Page ___ of ___

DATE 1/3/15

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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
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API 47 - 017 - 06699 County Doddridge District Central
Quad Oxford 7.5' Pad Name James Webb Pad Field/Pool Name -----
Farm name James E. Webb Well Number Mary Jane 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 4343268m Easting 510943m
Landing Point of Curve Northing 4343520.771m Easting 510841.602m
Bottom Hole Northing 4346343m Easting 509505m

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 08/20/2015 Date drilling ceased 08/11/2016
Date completion activities began 03/25/2017 Date completion activities ceased 08/21/2017
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 - 06699

Farm name James E. Webb

Well number Mary Jane 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	94#, K-55	N/A	Y
Surface	17-1/2"	13-3/8"	471'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2574'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17542'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6612'		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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	60 sx	15.6	1.18	71	0'	8 Hrs.
Surface	Class A	518 sx	15.6	1.19	616	0'	8 Hrs.
Coal							
Intermediate 1	Class A	997 sx	15.6	1.19	1186	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	795 sx (Lead) 1560 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	4062	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17542' MD, 6367' TVD (BHL) & 6527' TVD (Deepest Point Drilled)

Loggers TD (ft) 17529' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5999'

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 _____

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WAS WELL COMPLETED OPEN HOLE? Yes No

DETAILS _____

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WERE TRACERS USED Yes No

TYPE OF TRACER(S) USED N/A

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API 47- 017 - 06699 Farm name James E. Webb Well number Mary Jane Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6467' (TOP)</u> TVD	<u>6672' (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 10228 mcfpd Oil 72 bpd NGL --- bpd Water 18 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 ₂ S, ETC)
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***PLEASE SEE ATTACHED EXHIBIT 3**

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Please insert additional pages as applicable.

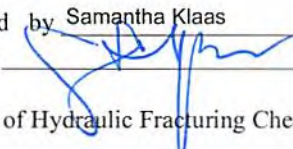
Drilling Contractor Patterson - UTI Drilling Company LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

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

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	3/25/2017	17271	17439	60	Marcellus
2	3/25/2017	17072	17240	60	Marcellus
3	3/25/2017	16873	17041	60	Marcellus
4	3/26/2017	16674	16842	60	Marcellus
5	3/26/2017	16475	16642	60	Marcellus
6	3/26/2017	16275	16443	60	Marcellus
7	3/27/2017	16076	16244	60	Marcellus
8	3/27/2017	15877	16045	60	Marcellus
9	3/27/2017	15678	15846	60	Marcellus
10	3/27/2017	15479	15647	60	Marcellus
11	3/28/2017	15280	15448	60	Marcellus
12	3/28/2017	15081	15249	60	Marcellus
13	3/28/2017	14881	15049	60	Marcellus
14	3/28/2017	14682	14850	60	Marcellus
15	3/29/2017	14483	14651	60	Marcellus
16	3/29/2017	14284	14452	60	Marcellus
17	3/29/2017	14085	14253	60	Marcellus
18	3/29/2017	13886	14054	60	Marcellus
19	3/29/2017	13687	13855	60	Marcellus
20	3/30/2017	13488	13655	60	Marcellus
21	3/30/2017	13288	13456	60	Marcellus
22	3/30/2017	13089	13257	60	Marcellus
23	3/30/2017	12890	13058	60	Marcellus
24	3/31/2017	12691	12859	60	Marcellus
25	3/31/2017	12492	12660	60	Marcellus
26	3/31/2017	12293	12461	60	Marcellus
27	3/31/2017	12094	12262	60	Marcellus
28	4/1/2017	11894	12062	60	Marcellus
29	4/1/2017	11695	11863	60	Marcellus
30	4/1/2017	11496	11664	60	Marcellus
31	4/1/2017	11297	11465	60	Marcellus
32	4/1/2017	11098	11266	60	Marcellus
33	4/2/2017	10899	11067	60	Marcellus
34	4/2/2017	10700	10868	60	Marcellus
35	4/2/2017	10500	10668	60	Marcellus
36	4/2/2017	10301	10469	60	Marcellus
37	4/3/2017	10102	10270	60	Marcellus
38	4/3/2017	9903	10071	60	Marcellus
39	4/3/2017	9704	9872	60	Marcellus
40	4/3/2017	9505	9673	60	Marcellus
41	4/4/2017	9306	9474	60	Marcellus
42	4/4/2017	9107	9275	60	Marcellus
43	4/4/2017	8907	9075	60	Marcellus
44	4/4/2017	8708	8876	60	Marcellus
45	4/4/2017	8509	8677	60	Marcellus
46	4/5/2017	8310	8478	60	Marcellus
47	4/5/2017	8111	8279	60	Marcellus
48	4/5/2017	7912	8080	60	Marcellus
49	4/5/2017	7713	7881	60	Marcellus
50	4/5/2017	7513	7681	60	Marcellus
51	4/6/2017	7314	7482	60	Marcellus
52	4/6/2017	7115	7283	60	Marcellus
53	4/6/2017	6916	7084	60	Marcellus
54	4/6/2017	6717	6885	60	Marcellus

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EXHIBIT 2							
API 47-017-06699 Farm Name James E. Webb Well Number Mary Jane Unit 1H							
Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Nitrogen/other (units)
1	3/25/2017	69.5	7282	5716	5256	404500	N/A
2	3/25/2017	65.9	7756	6374	4982	405650	N/A
3	3/25/2017	72.3	8096	6996	5716	405450	N/A
4	3/26/2017	74.0	7662	5994	5344	405800	N/A
5	3/26/2017	68.0	7661	6189	4757	407550	N/A
6	3/26/2017	75.4	7672	5583	4790	406350	N/A
7	3/27/2017	77.2	7705	5651	5233	406750	N/A
8	3/27/2017	75.6	7629	5858	5526	406950	N/A
9	3/27/2017	79.6	7616	5478	4678	406700	N/A
10	3/27/2017	79.8	7888	5612	5392	376100	N/A
11	3/28/2017	77.5	7662	6037	4705	407500	N/A
12	3/28/2017	80.3	7688	5899	5256	406700	N/A
13	3/28/2017	80.2	7691	5891	4819	406250	N/A
14	3/28/2017	78.9	8038	5704	4876	407000	N/A
15	3/29/2017	77.3	8166	5873	4756	406300	N/A
16	3/29/2017	76.9	7878	6146	5520	406050	N/A
17	3/29/2017	79.5	7722	5965	5080	406550	N/A
18	3/29/2017	79.5	7816	5899	5080	407350	N/A
19	3/29/2017	78.5	7670	5897	4672	368650	N/A
20	3/30/2017	78.2	7696	5757	5140	406750	N/A
21	3/30/2017	78.8	7741	6162	5100	407200	N/A
22	3/30/2017	67.3	7967	5893	4290	338400	N/A
23	3/30/2017	72.4	7726	6235	3598	405050	N/A
24	3/31/2017	76.0	7903	6383	3793	404650	N/A
25	3/31/2017	68.2	8135	6654	6230	406400	N/A
26	3/31/2017	75.8	7942	7223	5089	408300	N/A
27	3/31/2017	79.0	8037	5876	5811	382100	N/A
28	4/1/2017	76.3	7951	6047	5088	406650	N/A
29	4/1/2017	78.8	7802	6009	5143	407050	N/A
30	4/1/2017	79.4	7583	5971	4321	406200	N/A
31	4/1/2017	78.8	7615	6079	4436	407050	N/A
32	4/1/2017	79.5	7543	5613	5339	405000	N/A
33	4/2/2017	79.9	7584	5849	5404	405890	N/A
34	4/2/2017	79.7	7651	6372	3946	406350	N/A
35	4/2/2017	78.1	7688	5878	5362	394700	N/A
36	4/2/2017	79.0	7650	6613	5618	406450	N/A
37	4/3/2017	79.9	7530	5983	5725	406000	N/A
38	4/3/2017	75.4	7854	7089	5022	348850	N/A
39	4/3/2017	71.3	7797	6392	4750	306790	N/A
40	4/3/2017	77.8	7622	6242	5119	405400	N/A
41	4/4/2017	79.5	7418	5808	5661	407150	N/A
42	4/4/2017	80.4	6985	6053	5286	405450	N/A
43	4/4/2017	80.1	7116	6395	4982	406000	N/A
44	4/4/2017	79.4	7250	6616	5250	406700	N/A
45	4/4/2017	77.0	7985	6476	4644	405300	N/A
46	4/5/2017	78.7	7770	6395	5961	405150	N/A
47	4/5/2017	80.4	7453	6343	6368	406700	N/A
48	4/5/2017	78.8	7498	6085	5645	406100	N/A
49	4/5/2017	79.6	7395	5809	5354	406750	N/A
50	4/5/2017	79.5	7355	5574	5516	395800	N/A
51	4/6/2017	80.2	7136	5826	5611	405190	N/A
52	4/6/2017	79.9	6707	5691	3771	407150	N/A
53	4/6/2017	78.5	7618	5968	6188	406950	N/A
54	4/6/2017	79.9	7199	5985	4308	405550	N/A
AVG=							
77.2							
7,652							
6,076							
5,098							
21,601,320							
517,084							
TOTAL							

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) 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	6133	5806	6142
Sycamore	6127	6293	6142	6340
Middlesex	6293	6411	6340	6530
Burkett	6411	6440	6530	6592
Tully	6440	6467	6592	6672
Marcellus	6467	NA	6672	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:	3/25/2017
Job End Date:	4/6/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06699-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mary Jane 1H
Latitude:	39.23859900
Longitude:	-80.87323100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,527
Total Base Water Volume (gal):	22,476,478
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	89.45993	
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			

Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
DWP-975	CWS	Breaker					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
DWP-111	CWS	Gel Slurry					
				Listed Below			
DAP-925	CWS	Acid Corrosion Inhibitor					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
SANIFRAC 8844	CWS	Bicide					
				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	10.25191
			Hydrochloric acid	7647-01-0	37.00000	0.04938
			Guar gum	9000-30-0	60.00000	0.04875
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.04875
			Polymer	26100-47-0	45.00000	0.03691
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.02461
			Calcite	471-34-1	1.00000	0.01599
			Ammonium chloride	12125-02-9	11.00000	0.00902
			Illite	12173-60-3	1.00000	0.00723
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00621
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00617
			Goethite	1310-14-1	0.10000	0.00496
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00406
			Biotite	1302-27-8	0.10000	0.00344
			Apatite	64476-38-6	0.10000	0.00344
			Sorbitan monooleate	1338-43-8	4.00000	0.00328
			Ilmenite	98072-94-7	0.10000	0.00268
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00246
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2		0.00228
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00164
			1,2-Propanediol	57-55-6	10.00000	0.00154

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			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00122	
			Ammonium Persulfate	7727-54-0	100.00000	0.00114	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00082	
			Sodium bromide	7647-15-6	4.00000	0.00046	
			Citric acid	77-92-9	60.00000	0.00046	
			Alcohols, C12-14, ethoxylated	84133-50-6	0.50000	0.00041	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00034	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00025	
			Acrylamide	79-06-1	0.10000	0.00008	
			Hydrated magnesium silicate	14807-96-6	1.00000	0.00004	
			Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00003	
			Methanol	67-56-1	60.00000	0.00003	
			Modified thiourea polymer	68527-49-1	30.00000	0.00002	
			Alcohols, C14-15, ethoxylated	68951-67-7	30.00000	0.00002	
			Fatty acids, tall-oil	61790-12-3	30.00000	0.00002	
			Propargyl Alcohol	107-19-7	10.00000	0.00001	
			Alkenes, C>10 a-	64743-02-8	5.00000	0.00001	
			Formaldehyde	50-00-0	0.10000	0.00001	
			Sodium chloride	7647-14-5	1.00000	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"

11,341'

4,245' TO BOTTOM HOLE
LATITUDE 39°17'30"

LONGITUDE 80°52'30"
9,241' TO BOTTOM HOLE
LONGITUDE 80°50'00"

Antero Resources Corporation
Well No. Mary Jane Unit 1H
47-017-06699 (AS DRILLED)

LINE	BEARING	DISTANCE
L1	N 72°15' E	1424.3'
L2	N 88°07' E	1606.6'
L3	S 35°12' E	1107.5'
L4	S 17°19' E	1023.9'
L5	S 01°48' W	1030.8'
L6	S 13°26' W	1509.1'
L7	S 14°41' W	1308.9'
L8	S 16°45' W	1051.0'
L9	S 19°07' W	1434.9'
L10	S 24°11' W	1332.7'
L11	S 28°13' W	1000.5'
L12	S 26°15' W	1517.4'
L13	S 32°47' W	1748.1'
L14	S 32°53' W	1005.3'
L15	S 35°35' W	1770.2'
L16	S 38°23' W	1644.9'
L17	S 42°08' W	1809.6'



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 271,974ft E: 1,611,012ft
 LAT: 39°14'18.84" LON: 80°52'24.14"
BOTTOM HOLE INFORMATION:
 N: 282,145ft E: 1,606,461ft
 LAT: 39°15'58.66" LON: 80°53'23.98"
 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: 4,343,268m E: 510,943m
BOTTOM HOLE INFORMATION:
 N: 4,346,343m E: 509,505m

8102/50/10
01/5/2018



- 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 FOLKLY 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 DISCREPANCIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

API WELL #
47 - 017 - 06699

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 # 14-082WA
DRAWING # MARYJANE1HAD
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

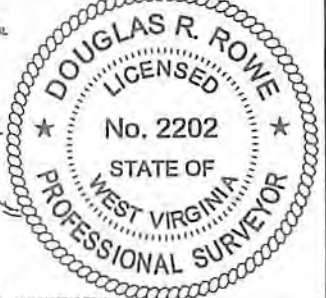
DATE 11/07/17

OPERATOR'S WELL# MARY JANE UNIT #1H

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

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' (TOP HOLE) PENNSBORO 7.5' (BOTTOM HOLE)
 DISTRICT CENTRAL COUNTY DODDRIDGE
 SURFACE OWNER JAMES E. WEBB ACREAGE 84.89 ACRES +/-

OIL & GAS ROYALTY OWNER CHARLEY WILSON ET UX; H.B. WILLIAMS ET UX; LEASE ACREAGE 91 ACRES+; 307 ACRES+;
 DONNA HELMICK ET AL; GERALDINE WILLARD; RITA I. TAGANI; ETTA ORDER ET VIR; V. OLIVE ELLIFRIT; E.M. SMITH ET UX 67.25 ACRES+; 131.5 ACRES+; 13.5 ACRES+; 201 ACRES+; 130 ACRES+; 109 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 PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,387' TVD 17,542' 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



WELL OPERATOR
 ANTERO RESOURCES CORP.
 1615 WYNKOOP STREET
 DENVER, CO 80202

DESIGNATED AGENT
 DIANNA STAMPER
 CT CORPORATION SYSTEM
 5400 D BIG TYLER ROAD
 CHARLESTON, WV 25313

FORM WV-6

WELL TYPE: OIL GAS X LIQUID INJECTION
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 LOCATION: ELEVATION 991.4'-AS DRILLED WATERSHED CABIN RUN
 QUADRANGLE OXFORD 7.5 (TOP HOLE) PENNSBORO 7.5 (BOTTOM HOLE)
 DISTRICT CENTRAL
 COUNTY DODDRIDGE
 SURFACE OWNER JAMES E. WEBB
 ACREAGE 84.89 ACRES +/-
 DONNA HELMICK ET AL.: GERALDINE WILLARD: RITA L. TAGAM: ETTA ORDER ET VIR.: V. OLIVE ET AL.: FERRIS E.M. SMITH ET UX
 PROPOSED WORK: DRILL CONVERT PERFORATE NEW FORMATION DRILL DEEPER REDRILL
 (SPECIFY) AS DRILLED
 TARGET FORMATION MARCELLUS
 PLUG & ABANDON ESTIMATED DEPTH
 CLEAN OUT & REFLUG
 FRACTURE OR STIMULATE
 OTHER PHYSICAL CHANGE IN WELL

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

OPERATOR'S WELL # MARY JANE UNIT #1H
 DATE 11/07/17

DOUGLAS R. ROWE P.S. 2202

PROVEN SOURCE OF ELEV.
 SUBMETER MAPPING GRADE GPS

ACCURACY SUBMETER
 MINIMUM DEGREE OF
 SCALE 1" = 1000'

DRAWING # MARYJANE1HAD
 JOB # 14-082WA

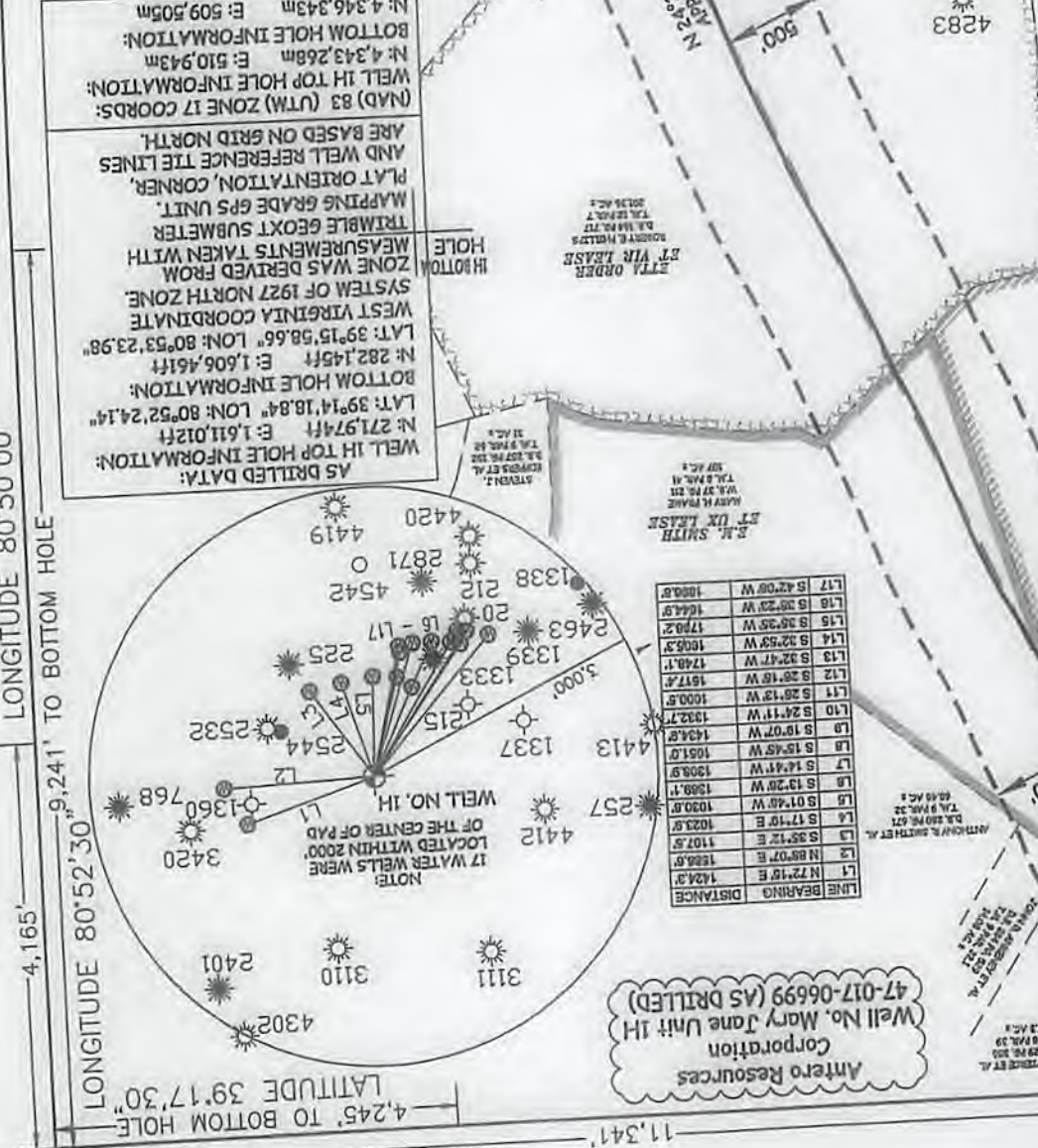
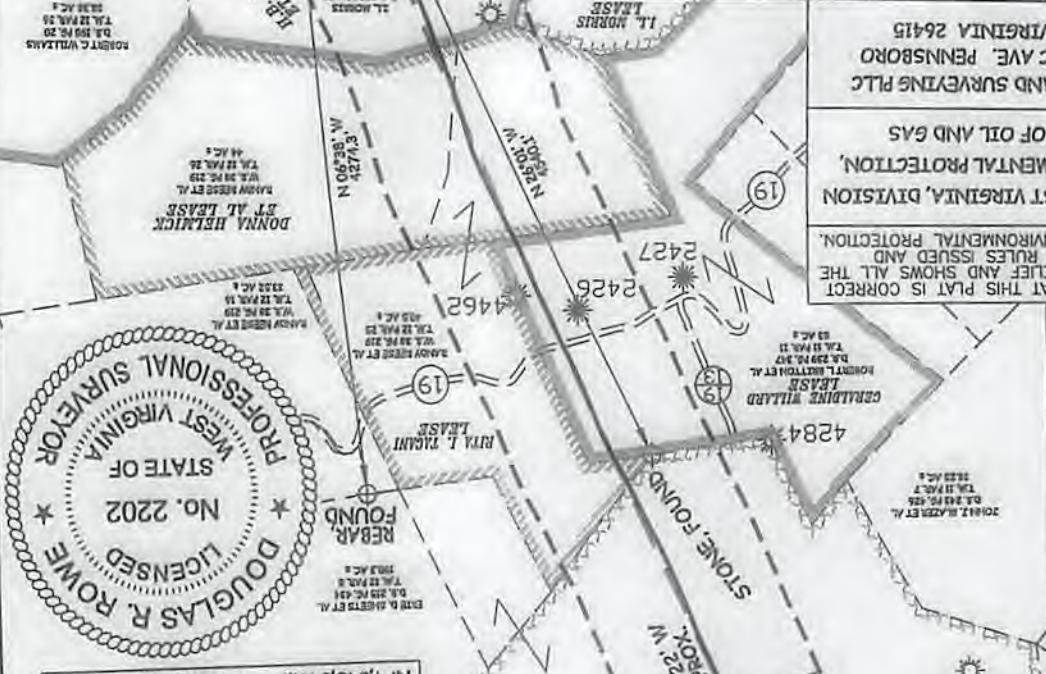
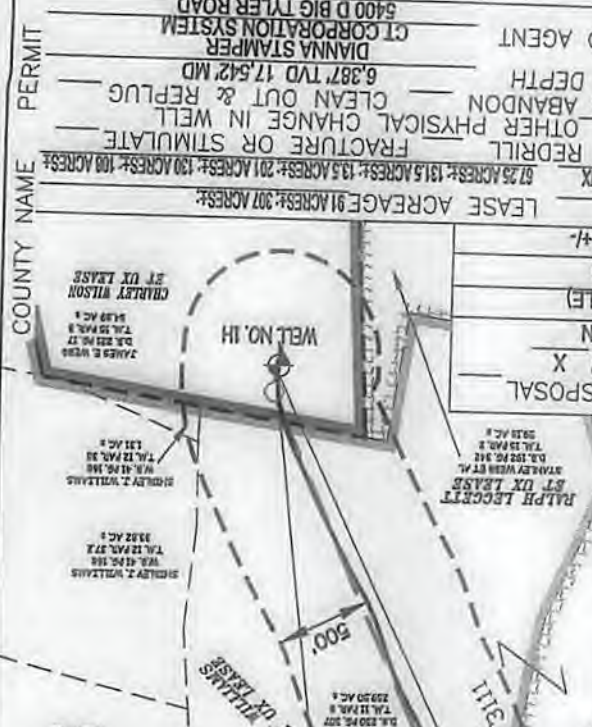
WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO
 WEST VIRGINIA 26415

OFFICE OF OIL AND GAS
 STATE OF WEST VIRGINIA, DIVISION
 OF ENVIRONMENTAL PROTECTION,
 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION,
 INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND
 I THE UNDERGROUND, HEREBY CERTIFY THAT THIS PLAN IS CORRECT
 TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE



APL WELL # 47 - 017 - 06699
 STATE COUNTY PERMIT

NOTE
 1. NO COVERED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR STORE COMBUSTIBLE OR FLAMMABLE MATERIALS WITHIN SIX HUNDRED FEET OF THE WELL LOCATION.
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
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LONGITUDE 80°50'00"
 LONGITUDE 80°52'30"
 LONGITUDE 80°54'00"
 LONGITUDE 80°55'30"
 LONGITUDE 80°57'00"
 LONGITUDE 80°58'30"
 LONGITUDE 80°59'00"

4,165'
 9,241' TO BOTTOM HOLE
 4,245' TO BOTTOM HOLE
 11,541'

AS DRILLED DATA:
 WELL 1H TOP HOLE INFORMATION:
 N: 271.974ft E: 1.611,012ft
 LAT: 39°14'18.84" LON: 80°52'24.14"
 BOTTOM HOLE INFORMATION:
 N: 282.145ft E: 1.606,461ft
 LAT: 39°15'58.66" LON: 80°53'23.98"

WELL 1H TOP HOLE INFORMATION:
 N: 4,343,268m E: 510,943m
 BOTTOM HOLE INFORMATION:
 N: 4,346,343m E: 509,505m

NOTE:
 17 WATER WELLS WERE LOCATED WITHIN 2000' OF THE CENTER OF PAD

LINE BEARING DISTANCE
 L1 N 72°10' E 142.3'
 L2 N 69°07' E 158.6'
 L3 S 57°12' E 110.5'
 L4 S 17°20' W 103.0'
 L5 S 01°40' W 109.0'
 L6 S 13°20' W 109.1'
 L7 S 14°41' W 109.9'
 L8 S 15°45' W 105.0'
 L9 S 19°07' W 143.8'
 L10 S 24°11' W 133.7'
 L11 S 28°13' W 100.5'
 L12 S 32°16' W 174.1'
 L13 S 32°47' W 167.4'
 L14 S 32°53' W 160.3'
 L15 S 35°35' W 170.2'
 L16 S 35°23' W 164.8'
 L17 S 42°08' W 108.6'



LONGITUDE 80°50'00"
 LONGITUDE 80°52'30"
 LONGITUDE 80°54'00"
 LONGITUDE 80°55'30"
 LONGITUDE 80°57'00"
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01/05/2018

