

# APPROVED

WR-35  
Rev. 8/23/13

NAME: Julian Page     of    

DATE: 11/8/17

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

API 47-017-06554 County Doddridge District Central  
Quad West Union 7.5' Pad Name McGill Pad Field/Pool Name         
Farm name Mary F. Brown Well Number Wilhelm 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 4347284m Easting 513048m  
Landing Point of Curve Northing 4347622.986m Easting 513028.360m  
Bottom Hole Northing 4350286m Easting 512165m

Elevation (ft) 1165' 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

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Date permit issued 09/26/2014 Date drilling commenced 12/06/2014 Date drilling ceased 04/05/2016  
Date completion activities began 03/28/2017 Date completion activities ceased 06/18/2017  
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 200' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1835' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 1195', 1355', 2005' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

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

01/05/2018

API 47-017 - 06554 Farm name Mary F. Brown Well number Wilhelm 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	30"	20"	59'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	383'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2532'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16817'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6839'		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	150 sx	15.6	1.18	177	0'	8 Hrs.
Surface	Class A	452 sx	15.6	1.18	533	0'	8 Hrs.
Coal							
Intermediate 1	Class A	931 sx	15.6	1.18	1099	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	860 sx (Load) 1006 sx (Tail)	14.6 (Load), 15.2 (Tail)	1.33 (Load), 1.83 (Tail)	2971	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16817' MD; 6634' TVD (BHL); 6700' TVD (Deepest Point Drilled) Loggers TD (ft) 16769' MD

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

Plug back procedure N/A

Kick off depth (ft) 5948'

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

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Nero Unit 1H API #47-017-06211). Please submit the wireline logs submitted with Form of Completion Unit 1H. A Cement Bond Log has been included with this submittal.

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API 47- 017 - 06554 Farm name Mary F. Brown Well number Wilhelm Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6665' (TOP)</u>	<u>TVD</u>	<u>6970' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

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 3778 mcfpd Oil 5 bpd NGL --- bpd Water 14 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**


Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP  
 Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Clutch Energy Services LLC  
 Address 2154 Greensburg Road City New Kensington State PA Zip 15068

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 Dr. City Jane Lew State WV Zip 26378

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Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759  
Signature [Signature] Title Permitting Agent Date 11/01/2017

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	3/28/2017	16547	16715	48	Marcellus
2	5/10/2017	16348	16516	48	Marcellus
3	5/11/2017	16150	16317	48	Marcellus
4	5/11/2017	15951	16119	48	Marcellus
5	5/11/2017	15752	15920	48	Marcellus
6	5/12/2017	15554	15721	48	Marcellus
7	5/12/2017	15355	15522	48	Marcellus
8	5/12/2017	15156	15324	48	Marcellus
9	5/13/2017	14957	15125	48	Marcellus
10	5/13/2017	14759	14926	48	Marcellus
11	5/13/2017	14560	14728	48	Marcellus
12	5/14/2017	14361	14529	48	Marcellus
13	5/14/2017	14163	14330	48	Marcellus
14	5/14/2017	13964	14131	48	Marcellus
15	5/15/2017	13765	13933	48	Marcellus
16	5/15/2017	13566	13734	48	Marcellus
17	5/15/2017	13368	13535	48	Marcellus
18	5/16/2017	13169	13337	48	Marcellus
19	5/16/2017	12970	13138	48	Marcellus
20	5/16/2017	12772	12939	48	Marcellus
21	5/17/2017	12573	12740	48	Marcellus
22	5/17/2017	12374	12542	48	Marcellus
23	5/17/2017	12175	12343	48	Marcellus
24	5/18/2017	11977	12144	48	Marcellus
25	5/18/2017	11778	11946	48	Marcellus
26	5/18/2017	11579	11747	48	Marcellus
27	5/19/2017	11380	11548	48	Marcellus
28	5/19/2017	11182	11349	48	Marcellus
29	5/19/2017	10983	11151	48	Marcellus
30	5/20/2017	10784	10952	48	Marcellus
31	5/20/2017	10586	10753	48	Marcellus
32	5/20/2017	10387	10554	48	Marcellus
33	5/21/2017	10188	10356	48	Marcellus
34	5/21/2017	9989	10157	48	Marcellus
35	5/21/2017	9791	9958	48	Marcellus
36	5/22/2017	9592	9760	48	Marcellus
37	5/22/2017	9393	9561	48	Marcellus
38	5/22/2017	9195	9362	48	Marcellus
39	5/23/2017	8996	9163	48	Marcellus
40	5/23/2017	8797	8965	48	Marcellus
41	5/23/2017	8598	8766	48	Marcellus
42	5/23/2017	8400	8567	48	Marcellus
43	5/24/2017	8201	8369	48	Marcellus
44	5/24/2017	8002	8170	48	Marcellus
45	5/24/2017	7804	7971	48	Marcellus
46	5/25/2017	7605	7772	48	Marcellus
47	5/25/2017	7406	7574	48	Marcellus
48	5/26/2017	7207	7375	48	Marcellus
49	5/26/2017	7009	7176	48	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	5/10/2017	74.7	7577	5772	3684	394270	8431	N/A
2	5/10/2017	77.4	7602	5343	4345	394750	8417	N/A
3	5/11/2017	74.3	7828	5500	4678	396200	10130	N/A
4	5/11/2017	80.4	7503	5304	4277	395570	8233	N/A
5	5/11/2017	78.2	7654	5604	3855	394950	8431	N/A
6	5/12/2017	70.6	7259	5522	4034	396600	8504	N/A
7	5/12/2017	78.4	7604	5200	4106	394340	8364	N/A
8	5/12/2017	75.5	7551	5175	4181	397250	9391	N/A
9	5/13/2017	75.7	7241	5000	4638	395630	8161	N/A
10	5/13/2017	80.2	7616	5096	4982	395580	8169	N/A
11	5/13/2017	80.2	7393	5282	4810	395400	8306	N/A
12	5/14/2017	77.7	7448	5046	4545	394500	8353	N/A
13	5/14/2017	69.0	7644	5075	4231	394750	11955	N/A
14	5/14/2017	77.9	7359	5196	4613	394500	8536	N/A
15	5/15/2017	80.2	7708	5203	4016	395900	8219	N/A
16	5/15/2017	80.7	7578	5332	4191	396700	8068	N/A
17	5/15/2017	80.1	7677	5379	4785	394900	8332	N/A
18	5/16/2017	78.9	7943	5347	4621	397000	9592	N/A
19	5/16/2017	74.1	7326	5375	5311	396300	8197	N/A
20	5/16/2017	77.0	7639	5668	4077	394500	9115	N/A
21	5/17/2017	80.2	7950	5504	4166	396000	8107	N/A
22	5/17/2017	78.5	7682	5479	5039	397300	8020	N/A
23	5/17/2017	79.0	7827	5357	5211	395130	8259	N/A
24	5/18/2017	73.0	7458	5268	5157	395770	9510	N/A
25	5/18/2017	71.2	7305	5350	4081	395900	8131	N/A
26	5/18/2017	78.9	7654	5686	4302	394700	8116	N/A
27	5/19/2017	75.9	7545	5533	4452	396170	8458	N/A
28	5/19/2017	76.2	7832	5454	5153	396540	8012	N/A
29	5/19/2017	72.0	7204	5325	4796	395300	8129	N/A
30	5/20/2017	79.8	7707	5576	4030	394930	8104	N/A
31	5/20/2017	76.0	7420	5647	4041	396500	8108	N/A
32	5/20/2017	74.9	7578	6108	4356	394400	8251	N/A
33	5/21/2017	75.4	7469	5726	3809	394800	8068	N/A
34	5/21/2017	74.0	7773	6130	3791	396000	7944	N/A
35	5/21/2017	79.3	8183	5554	4313	395050	8082	N/A
36	5/22/2017	79.0	7602	6012	4245	395250	8064	N/A
37	5/22/2017	77.0	7505	6076	4091	395000	8049	N/A
38	5/22/2017	75.6	7456	6005	4120	394720	8024	N/A
39	5/23/2017	76.9	7479	6080	4148	395830	8021	N/A
40	5/23/2017	75.0	7219	6702	4481	394500	8038	N/A
41	5/23/2017	73.3	7722	6756	4611	395360	7882	N/A
42	5/23/2017	74.8	7399	6377	3991	394900	7813	N/A
43	5/24/2017	72.0	7456	5879	3937	394000	7955	N/A
44	5/24/2017	74.0	7758	6405	3841	394500	7954	N/A
45	5/24/2017	73.6	7741	5851	6169	234025	7980	N/A
46	5/25/2017	70.0	6750	5343	4839	393000	7952	N/A
47	5/25/2017	75.1	7078	6863	3748	394220	7759	N/A
48	5/26/2017	74.8	6981	6884	3748	393680	7770	N/A
49	5/26/2017	73.0	6958	6359	3665	396500	7929	N/A
AVG=		76.1	7,527	5,668	4,374	19,209,565	409,393	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	200'	N/A	200'	N/A
Shale/ Sandstone	est. 0	205	est. 0	205
Sandstone	est. 205	655	est. 205	655
Siltstone	est. 655	715	est. 655	715
Sandstone	est. 715	835	est. 715	835
Sandstone/ Limestone	est. 835	875	est. 835	875
Sandstone	est. 875	1035	est. 875	1035
Siltstone/ Limestone	est. 035	1145	est. 035	1145
Sandstone	est. 1145	1195	est. 1145	1195
Sandstone/ Trace Coal	est. 1195	1235	est. 1195	1235
Siltstone/ Limestone	est. 1235	1318	est. 1235	1318
Shale/Siltstone	est. 1318	1325	est. 1318	1325
Sandstone	est. 1325	1355	est. 1325	1355
Sandstone/ Trace Coal	est. 1355	1435	est. 1355	1435
Sandstone/ Siltstone	est. 1435	2005	est. 1435	2005
Sandstone/ Trace Coal	est. 2005	2035	est. 2005	2035
Sandstone	est. 2035	2124	est. 2035	2132
Big Lime	2124	2230	2132	2239
Big Injun	2230	2626	2239	2635
Gantz Sand	2626	2778	2635	2787
Fifty Foot Sandstone	2778	2867	2787	2876
Gordon	2867	3183	2876	3192
Fifth Sandstone	3183	3215	3192	3224
Bayard	3215	3595	3224	3604
Warren	3595	3954	3604	3963
Speechley	3954	4241	3963	4250
Baltown	4241	4692	4250	4701
Bradford	4692	5110	4701	5119
Benson	5110	5394	5119	5403
Alexander	5394	5543	5403	5552
Elk	5543	6039	5552	6048
Rhinestreet	6039	6321	6048	6380
Sycamore	6321	6486	6380	6586
Middlesex	6486	6606	6586	6798
Burkett	6606	6633	6778	6844
Tully	6633	6665	6844	6970
Marcellus	6665	NA	6970	NA

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\*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:	5/10/2017
Job End Date:	5/26/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06554-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Wilhelm 2H
Latitude:	39.27470000
Longitude:	-80.84890000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,700
Total Base Water Volume (gal):	17,756,566
Total Base Non Water Volume:	0



## 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	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	88.27681	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	11.45089	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.40000	0.12263	
			Hydrogen Chloride	7647-01-0	17.50000	0.02851	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.03423	
			Petroleum Distillates	64742-47-8	60.00000	0.03242	
			Suspending agent (solid)	14808-60-7	3.00000	0.00524	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Surfactant	68439-51-0	3.00000	0.00205	
			2-Propenoic acid, polymer with 29	9003-06-9	30.00000	0.01331	
			propenamide				
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01072	

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WFRA-500	J.S. Well Services, LLC	Friction Reducer	2-Propenoic acid, polymer with propenamide Hydrated light distillate (petroleum)	29003-06-9 64742-47-8	30.00000 30.00000	0.00817 0.00658
Bioclear 2000	J.S. Well Services, LLC	Anti-Bacterial Agent	2,2-dibromo-3-nitropropionamide Deionized Water	10222-01-2 7732-18-5	20.00000 28.00000	0.00410 0.00234
AP One	J.S. Well Services, LLC	Gel Breakers	Ammonium Persulfate	7727-54-0	100.00000	0.00119
SI-1200s	J.S. Well Services, LLC	Scale Inhibitor	Alkyl Phosphonic Acid Ammonia	Proprietary 7664-41-7	5.00000 0.50000	0.00063 0.00010
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors	Ethylene glycol Formic acid Cinnamaldehyde Butyl cellosolve Polyether Acetophenone, thiourea, formaldehyde polymer	107-21-1 64-18-6 104-55-2 111-76-2 60828-78-6 68527-49-1	40.00000 20.00000 20.00000 20.00000 10.00000 5.00000	0.00004 0.00001 0.00001 0.00001 0.00001 0.00000

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

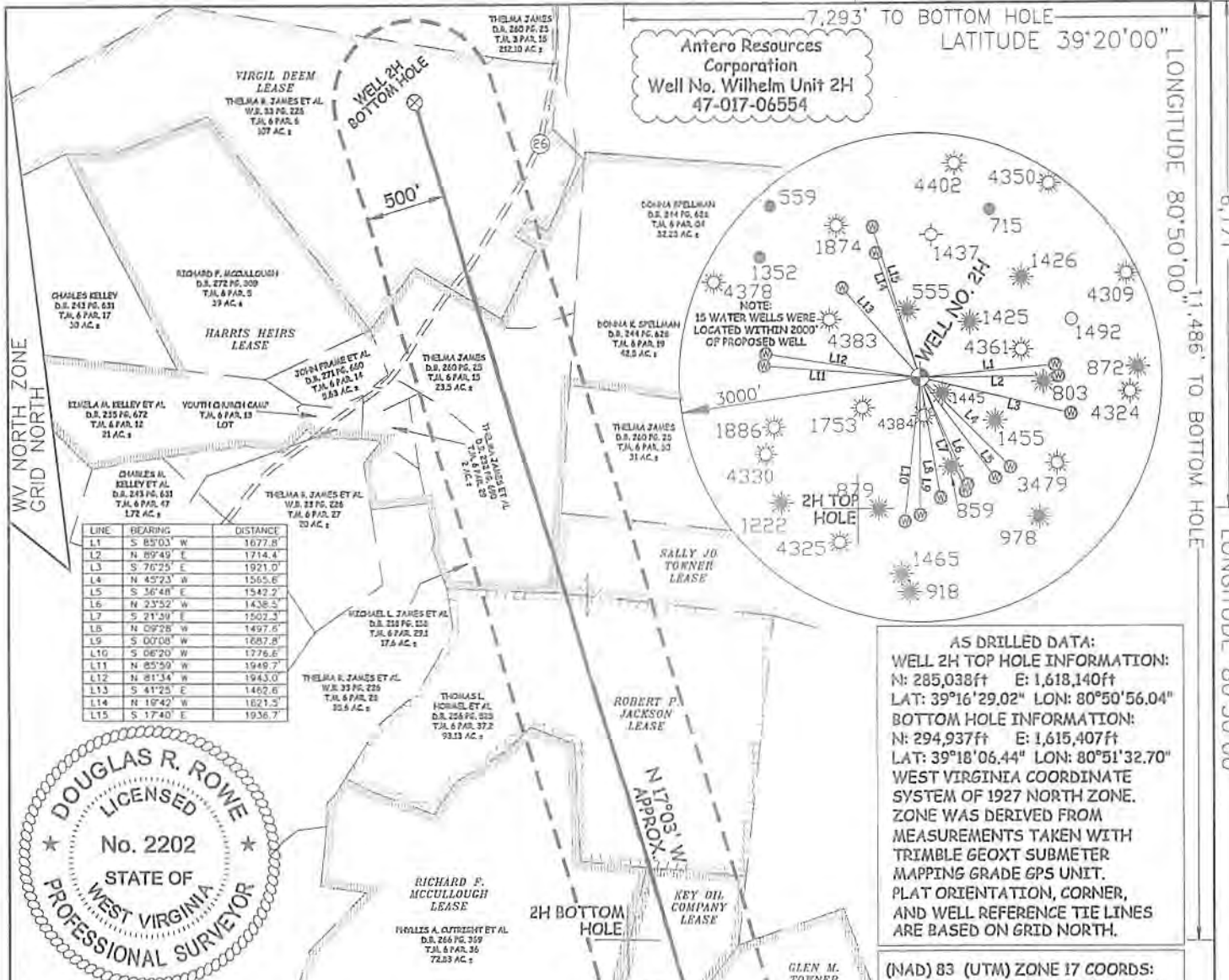
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)



LATITUDE 39°17'30"

4,407'



WV NORTH ZONE GRID NORTH

LONGITUDE 80°50'00" TO BOTTOM HOLE

LONGITUDE 80°50'00" TO BOTTOM HOLE

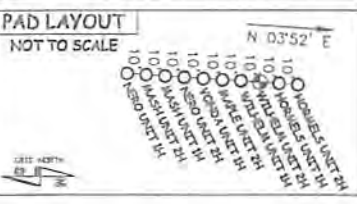
Antero Resources Corporation  
Well No. Wilhelm Unit 2H  
47-017-06554

LINE	BEARING	DISTANCE
L.1	S 85°03' W	1677.8
L.2	N 89°49' E	1714.4
L.3	S 76°25' E	1921.0
L.4	N 45°23' W	1565.6
L.5	S 36°48' E	1542.2
L.6	N 23°52' W	1436.5
L.7	S 21°39' E	1502.3
L.8	N 29°28' W	1497.6
L.9	S 07°08' W	1687.8
L.10	S 08°20' W	1726.6
L.11	N 85°50' W	1949.7
L.12	N 81°34' W	1943.0
L.13	S 41°25' E	1462.6
L.14	N 19°42' W	1621.5
L.15	S 17°40' E	1936.7



**AS DRILLED DATA:**  
**WELL 2H TOP HOLE INFORMATION:**  
 N: 285,038ft E: 1,618,140ft  
 LAT: 39°16'29.02" LON: 80°50'56.04"  
**BOTTOM HOLE INFORMATION:**  
 N: 294,937ft E: 1,615,407ft  
 LAT: 39°18'06.44" LON: 80°51'32.70"  
 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: 4,347,284m E: 513,048m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,350,286m E: 512,165m



JOB # 12-103WA  
 DRAWING # WILHELM2HAD  
 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 10/17/17  
 OPERATOR'S WELL# WILHELM UNIT #2H  
 API WELL # 47 - 017 - 06554  
 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 PRESCRIBED 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

STATE OF WEST VIRGINIA DEPT. 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 1,165' WATERSHED HEADWATERS MIDDLE ISLAND CREEK

QUADRANGLE WEST UNION 7.5' DISTRICT CENTRAL COUNTY DODD  
 SURFACE OWNER MARY F. BROWN ACREAGE 49.43 ACRES +/-  
 OIL & GAS ROYALTY OWNER MARY F. BROWN; EDNA R. BRITTON ET AL.; PATRICK A. WRIGHT; WVSRA; THELMA PRIMM ET AL.; LEASE ACREAGE 55.65 AC.; 95 AC.; 222 AC.; 301.19 ACRES.; 76.04 AC.; GLEN M. TOWNER ET AL.; KEY OIL COMPANY; RICHARD F. MCCULLOUGH; ROBERT P. JACKSON; SALLY JO TOWNER; HARRIS HEIRS; VIRGIL DEEM 68.23 AC.; 17 AC.; 72.83 AC.; 94 AC.; 22.9 AC.; 187 AC.; 107 AC.  
 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 6,634' TVD 16,817' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM  
 DENVER, CO 80202 CHARLESTON, WV 25313

- NOTE**
- 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.
  - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYING, INC.
  - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  - 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.
  - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

RECEIVED  
 Office of Oil and Gas  
 NOV - 2 2017  
 WV Department of Environmental Protection



LATITUDE 39°17'30"

4,407'

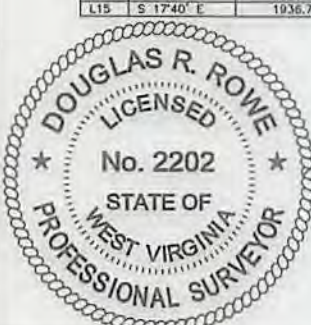
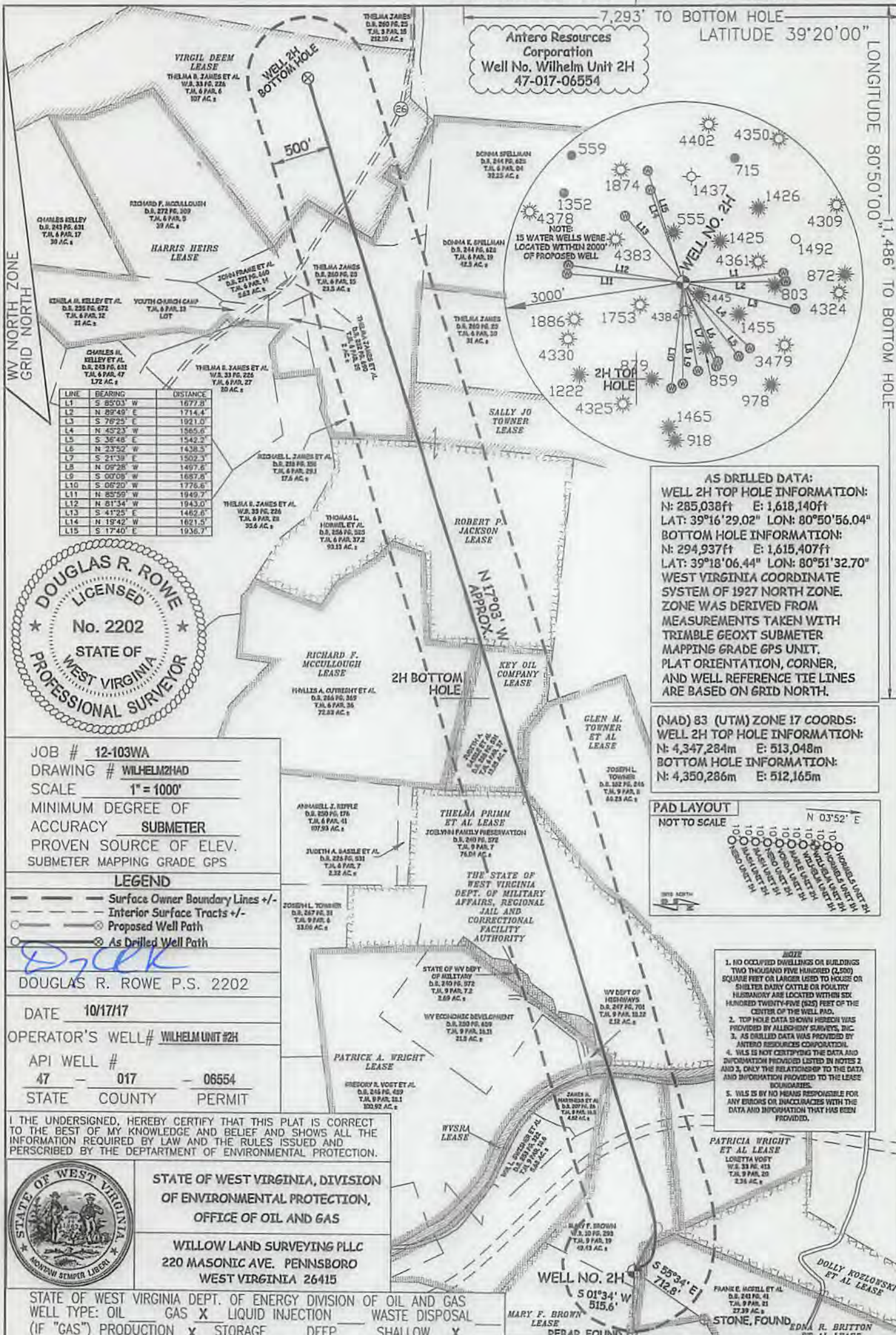
7,293' TO BOTTOM HOLE

LATITUDE 39°20'00"

LONGITUDE 80°50'00"

6,171'

LONGITUDE 80°50'00"



JOB # 12-103WA  
 DRAWING # WILHELM2HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

**DOUGLAS R. ROWE P.S. 2202**

DATE 10/17/17  
 OPERATOR'S WELL# WILHELM UNIT #2H  
 API WELL # 47 - 017 - 06554  
 STATE COUNTY PERMIT

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 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM  
 FORM WW-6 DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

01/05/2018

COUNTY NAME PERMIT