

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

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API 47 - 085 - 10233 County Ritchie District Clay  
Quad Pennsboro 7.5' Pad Name Kelly Pad WV Department of Environmental Protection Field/Pool Name -----  
Farm name Eddy D. Waggoner et al Well Number Aubie Unit 3H  
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 4351660m Easting 503218m  
Landing Point of Curve Northing 4351776.221m Easting 503900.356m  
Bottom Hole Northing 4349184m Easting 504951m

Elevation (ft) 1127' 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 08/31/2015 Date drilling commenced 08/10/2016 Date drilling ceased 11/21/2016  
Date completion activities began 05/15/2017 Date completion activities ceased 09/10/2017  
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 337' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1099' 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:

Reviewed by  
Michael Laff

9-5-18

09/07/2018

API 47-085 - 10233 Farm name Eddy D. Waggoner et al Well number Aubie Unit 3H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	53'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	503'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2522'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16479'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6991'		6.5#, N-80		
Packer type and depth set		N/A					

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

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CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	WV Department of Environmental Protection (H/S)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	102 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	715 sx	15.6	1.19	851	0'	8 Hrs.
Coal							
Intermediate 1	Class A	985 sx	15.6	1.18	1162	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	736 sx (Lead) 1387 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.65 (Lead), 1.83 (Tail)	3753	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16479' MD, 8423' TVD (BHL), 6429' (Deepest Point Drilled) Loggers TD (ft) 16479' MD

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

Plug back procedure N/A

Kick off depth (ft) 8254'

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

API 47- 085 - 10233 Farm name Eddy D. Waggoner et al Well number Aubie Unit 3H

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>					
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Please insert additional pages as applicable.

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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>								

Please insert additional pages as applicable.

API 47- 085 - 10233 Farm name Eddy D. Waggoner et al Well number Aubie Unit 3H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6381' (TOP)	TVD	7064' (TOP) 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 7934 mcfpd Oil -- bpd NGL -- bpd Water 1235 bpd  
GAS MEASURED BY  Estimated  Orifice  Pilot

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

**\*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 Pro Oilfield Services LLC  
Address 3141 Pulaski Rd City New Castle State PA Zip 16105

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

Stimulating Company FTS International  
Address 1432 Route 519 City Eighty Four State PA Zip 15330

Please insert additional pages as applicable.

Completed by Mallory Stanton Telephone 303-357-7182  
Signature *M Mallory Stanton* Title Permitting Supervisor Date 5/9/2018

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

API 47-085-10233 Farm Name Eddy D. Waggoner et al Well Number Aubie Unit 3H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5/15/2017	16207	16378	48	Marcellus
2	5/24/2017	16005	16176	48	Marcellus
3	5/24/2017	15803	15973	48	Marcellus
4	5/25/2017	15600	15771	48	Marcellus
5	5/26/2017	15398	15568	48	Marcellus
6	5/27/2017	15195	15366	48	Marcellus
7	5/28/2017	14993	15164	48	Marcellus
8	5/29/2017	14791	14961	48	Marcellus
9	5/30/2017	14588	14759	48	Marcellus
10	5/30/2017	14386	14557	48	Marcellus
11	5/31/2017	14184	14354	48	Marcellus
12	6/1/2017	13981	14152	48	Marcellus
13	6/1/2017	13779	13949	48	Marcellus
14	6/2/2017	13576	13747	48	Marcellus
15	6/3/2017	13374	13545	48	Marcellus
16	6/4/2017	13172	13342	48	Marcellus
17	6/4/2017	12969	13140	48	Marcellus
18	6/5/2017	12767	12938	48	Marcellus
19	6/5/2017	12565	12735	48	Marcellus
20	6/6/2017	12362	12533	48	Marcellus
21	6/6/2017	12160	12330	48	Marcellus
22	6/6/2017	11957	12128	48	Marcellus
23	6/7/2017	11755	11926	48	Marcellus
24	6/7/2017	11553	11723	48	Marcellus
25	6/9/2017	11350	11521	48	Marcellus
26	6/9/2017	11148	11319	48	Marcellus
27	6/10/2017	10945	11116	48	Marcellus
28	6/10/2017	10743	10914	48	Marcellus
29	6/11/2017	10541	10711	48	Marcellus
30	6/11/2017	10338	10509	48	Marcellus
31	6/12/2017	10136	10307	48	Marcellus
32	6/13/2017	9934	10104	48	Marcellus
33	6/14/2017	9731	9902	48	Marcellus
34	6/15/2017	9529	9699	48	Marcellus
35	6/16/2017	9326	9497	48	Marcellus
36	6/16/2017	9124	9295	48	Marcellus
37	6/16/2017	8922	9092	48	Marcellus
38	6/16/2017	8719	8890	48	Marcellus
39	6/17/2017	8517	8688	48	Marcellus
40	6/17/2017	8315	8485	48	Marcellus
41	6/17/2017	8112	8283	48	Marcellus
42	6/17/2017	7910	8080	48	Marcellus
43	6/18/2017	7707	7878	48	Marcellus
44	6/18/2017	7505	7676	48	Marcellus
45	6/19/2017	7303	7473	48	Marcellus
46	6/19/2017	7100	7271	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 (bbbls)	Amount of Nitrogen/ other (units)
1	5/15/2017	69	6237	5425	3261	417850	10159	N/A
2	5/24/2017	67	7615	5115	3348	428086	11875	N/A
3	5/24/2017	77	7852	5709	3373	415099	8816	N/A
4	5/25/2017	76	7515	5822	3631	424421	8480	N/A
5	5/26/2017	79	8018	4493	3456	417850	8453	N/A
6	5/27/2017	75	7527	6080	3581	417850	8643	N/A
7	5/28/2017	72	7714	5580	0	417850	10556	N/A
8	5/29/2017	76	7714	5326	3515	418133	8563	N/A
9	5/30/2017	77	7618	5936	7105	419004	8092	N/A
10	5/30/2017	73	7735	6231	8195	417502	8488	N/A
11	5/31/2017	78	7626	5194	3833	417974	8442	N/A
12	6/1/2017	74	7667	6002	3860	428065	8639	N/A
13	6/1/2017	74	7848	5689	3506	421094	8893	N/A
14	6/2/2017	78	7721	5409	3435	417639	8458	N/A
15	6/3/2017	74	7674	5643	0	420253	8484	N/A
16	6/4/2017	76	7750	5973	3865	413187	8444	N/A
17	6/4/2017	75	7373	5861	6912	417859	8485	N/A
18	6/5/2017	78	7642	0	3590	416211	8421	N/A
19	6/5/2017	78	7721	5409	3435	417639	8458	N/A
20	6/6/2017	76	7750	5973	3865	413187	8444	N/A
21	6/6/2017	65	6970	5276	3595	417471	8372	N/A
22	6/6/2017	73	7226	6019	3699	417293	8549	N/A
23	6/7/2017	72	7911	4956	3918	417670	8332	N/A
24	6/7/2017	71	7788	5384	6606	417839	12126	N/A
25	6/9/2017	79	7782	5614	3745	416159	8297	N/A
26	6/9/2017	79	7614	9630	3968	414100	8309	N/A
27	6/10/2017	75	7756	4922	4161	416736	8237	N/A
28	6/10/2017	73	7832	4996	3722	400271	8835	N/A
29	6/11/2017	65	6970	5276	3595	417471	8372	N/A
30	6/11/2017	76	7750	5973	3865	413187	8444	N/A
31	6/12/2017	79	7487	5342	3440	419686	8374	N/A
32	6/13/2017	70	7560	5626	4786	409445	16602	N/A
33	6/14/2017	62	7689	5748	4757	233625	11743	N/A
34	6/15/2017	65	7560	5846	4746	417167	13815	N/A
35	6/16/2017	79	7180	5405	0	415823	8077	N/A
36	6/16/2017	72	7102	5341	4105	412180	8297	N/A
37	6/16/2017	71	6752	5416	3625	404535	7948	N/A
38	6/16/2017	79	6819	6154	3799	417986	8001	N/A
39	6/17/2017	77	7110	6262	0	416632	8214	N/A
40	6/17/2017	74	6962	6780	3707	410836	8098	N/A
41	6/17/2017	77	6689	6230	4331	417734	9470	N/A
42	6/17/2017	80	6565	5850	4213	417869	8174	N/A
43	6/18/2017	78	6963	6436	4369	419508	10076	N/A
44	6/18/2017	71	6752	5416	3625	404535	7948	N/A
45	6/19/2017	79	6585	5980	3572	418132	8138	N/A
46	6/19/2017	76	6312	6272	3591	411812	7934	N/A
	<b>AVG=</b>	<b>74.3</b>	<b>7,391</b>	<b>5,631</b>	<b>3,768</b>	<b>18,972,455</b>	<b>416,075</b>	<b>TOTAL</b>

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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	337'	N/A	337'	N/A
Sandstone	0	221	0	221
Siltstone	est. 221	241	est. 221	241
Shale	est. 241	381	est. 241	381
Coal	est. 381	401	est. 381	401
Sandstone	est. 401	441	est. 401	441
Limestone	est. 441	561	est. 441	561
Sandstone	est. 561	621	est. 561	621
Sandstone	est. 621	761	est. 621	761
Sandstone	est. 761	941	est. 761	941
Limestone	est. 941	1,999	est. 941	2,019
Big Lime	1,999	2,502	2,040	2,569
Gantz	2,502	2,882	2,569	2,973
Fifty Foot Sandstone	2,882	2,981	2,973	3,081
Gordon	2,981	3,357	3,081	3,496
Fifth Sandstone	3,357	3,415	3,496	3,561
Bayard	3,415	3,955	3,561	4,164
Speechley	3,955	4,224	4,164	4,466
Baltown	4,224	4,615	4,466	4,900
Bradford	4,615	5,001	4,900	5,328
Benson	5,001	5,250	5,328	5,609
Alexander	5,250	5,542	5,609	5,942
Elk	5,542	5,817	5,942	6,245
Rhinestreet	5,817	6,135	6,245	6,619
Sycamore	6,135	6,229	6,619	6,750
Middlesex	6,229	6,334	6,750	6,941
Burkett	6,334	6,361	6,941	7,003
Tully	6,361	6,381	7,003	7,064
Marcellus	6,381	NA	7,064	NA

\*Please note Antero determines formation gas 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:	5/23/2017
Job End Date:	6/19/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10233-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Aubie 3H
Latitude:	39.31433330
Longitude:	-80.96267200
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,400
Total Base Water Volume (gal):	17,567,382
Total Base Non Water Volume:	52,734

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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	88.31968	
Other Chemical (s)	Listed Above	See Trade Name (s) List					
			Water	7732-18-5	97.00000	0.01389	



			Water	7732-18-5	30.00000	0.00008	
			Water	7732-18-5	85.00000	0.12382	
			Water	7732-18-5	60.00000	0.03896	
			Water	7732-18-5	30.00000	0.00347	
FRW-900	FTSI	Friction Reducer					
				Listed Below			
10.1%-15.0% HCL	FTSI	Acid					
				Listed Below			
40/70 White	FTSI	Proppant					
				Listed Below			
CS-750 SI	FTSI	Scale Inhibitor					
				Listed Below			
100 Mesh Sand	FTSI	Proppant					
				Listed Below			
APB-1	FTSI	Gel breaker					
				Listed Below			
K-BAC-1020	FTSI	Biocide					

				Listed Below			
LTB-1	FTSI	Breaker					
				Listed Below			
30/50 White	FTSI	Proppant					
				Listed Below			
HVG-1 4.0	FTSI	Water gelling agent					
				Listed Below			
CI-150	FTSI	Acid Corrosion Inhibitor					
				Listed Below			

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Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Silica, Quartz	14808-60-7	100.00000	5.25069	
			Silica, Quartz	14808-60-7	100.00000	3.22484	
			Silica, Quartz	14808-60-7	100.00000	2.91368	
			Anionic polymer	Proprietary	40.00000	0.02597	
			Hydrotreated Light Distillate	64742-47-8	40.00000	0.02597	
			Guar gum	9000-30-0	55.00000	0.02278	
			Petroleum Distillate	64742-47-8	55.00000	0.02278	
			Raffinates, Sorption Process	64741-85-1	55.00000	0.02278	
			Hydrogen Chloride	7647-01-0	15.00000	0.02185	
			2-Propenoic acid, polymer with 2 propenamide	9003-06-9	30.00000	0.01948	
			Ammonium Persulfate	7727-54-0	84.00000	0.00982	
			Glycerol	56-81-5	10.00000	0.00649	

			Polyethylene glycol	25322-68-3	50.00000	0.00579	
			Alcohols, C10-C16, ethoxylated	68002-97-1	5.00000	0.00325	
			Ethoxylated Alcohols	Proprietary	5.00000	0.00325	
			Sorbitan, mono-(9Z)-9-octadecenoate	1338-43-8	5.00000	0.00325	
			Sodium chloride (NaCl)	7647-14-5	5.00000	0.00325	
			Cured acrylic resin	25085-19-2	22.00000	0.00257	
			2,2-Dibromo-3-nitrilopropionamide	10222-01-2	21.00000	0.00243	
			Suspending Agent	1302-78-9	5.00000	0.00207	
			Quartz	14808-60-7	4.00000	0.00166	
			Proprietary Scale Inhibitor	Proprietary	10.00000	0.00143	
			Ammonium Persulfate	7727-54-0	100.00000	0.00124	
			Isotridecanol, ethoxylated	9043-30-5	2.00000	0.00083	
			Isopropanol	67-63-0	60.00000	0.00015	
			Ethoxylated fatty alcohol	Proprietary	30.00000	0.00008	
			Fatty amino compound salt	Proprietary	30.00000	0.00008	
			Talc	14807-96-6	0.60000	0.00007	
			Ethoxylated Alcohol	Proprietary	10.00000	0.00003	
			Aromatic aldehyde	Proprietary	8.00000	0.00002	
			Alkoxylated fatty amine	Proprietary	5.00000	0.00001	
			Methanol	67-56-1	0.10000	0.00000	

\* 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°20'00" | 1,275'

LATITUDE 39°20'00" | 7,386' TO BOTTOM HOLE

6,949'

15,079' TO BOTTOM HOLE

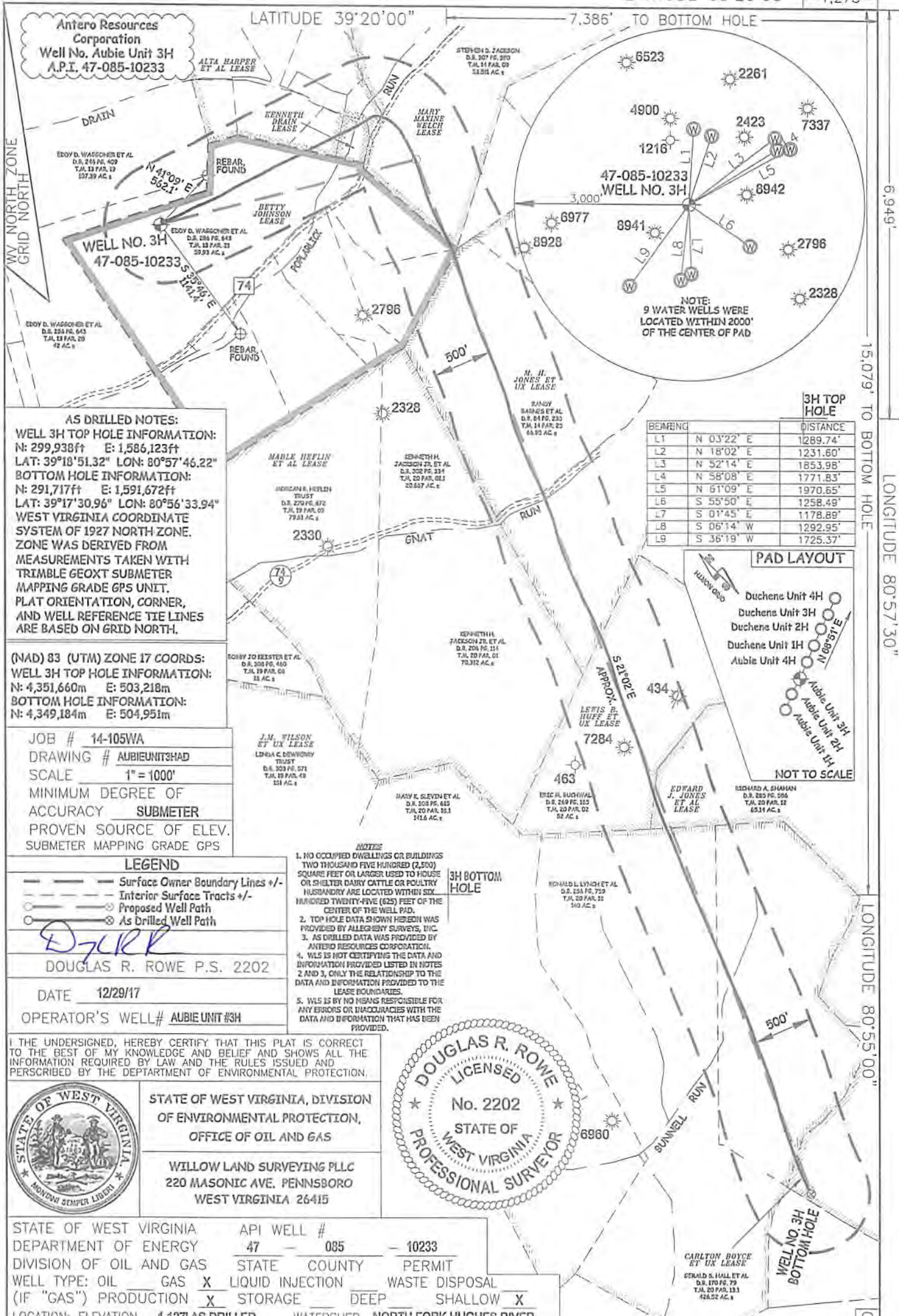
LONGITUDE 80°57'30"

LONGITUDE 80°55'00"

COUNTY NAME

PERMIT

Antero Resources Corporation  
Well No. Aubie Unit 3H  
A.P.I. 47-085-10233



**AS DRILLED NOTES:**  
**WELL 3H TOP HOLE INFORMATION:**  
 N: 299,938ft E: 1,586,123ft  
 LAT: 39°18'51.32" LON: 80°57'46.22"  
**BOTTOM HOLE INFORMATION:**  
 N: 291,717ft E: 1,591,672ft  
 LAT: 39°17'30.96" LON: 80°56'33.94"  
 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.

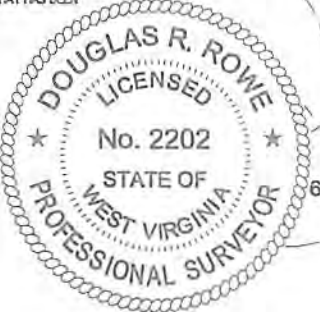
**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 3H TOP HOLE INFORMATION:**  
 N: 4,351,660m E: 503,218m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,349,184m E: 504,951m

JOB # 14-105WA  
 DRAWING # AUBIEUNIT3HAD  
 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

*DJR*  
 DOUGLAS R. ROWE P.S. 2202  
 DATE 12/29/17  
 OPERATOR'S WELL # AUBIE UNIT #3H

- NOTES**
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.



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 DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 API WELL # 47-085-10233  
 STATE COUNTY PERMIT  
 WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION  STORAGE DEEP SHALLOW   
 LOCATION: ELEVATION 1,127' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
 QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE  
 SURFACE OWNER EDDY D. WAGGONER ET AL ACREAGE 59.93 ACRES +/-  
 OIL & GAS ROYALTY OWNER BETTY JOHNSON; ALTA HARPER ET AL; KENNETH DRAIN; MARY MAXINE WELCH; M. H. JONES ET UX; LEWIS B. HUFF ET UX; EDWARD J. JONES ET AL; J.M. WILSON ET UX; CARLTON BOYCE ET UX

LEASE ACREAGE 130 AC±; 112 AC±; 1.82 AC±; 163 AC±; 200 AC±; 52 ACRES±; 73 ACRES±; 700 ACRES±; 201 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 6,423' TVD 16,479' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

09/07/2018

WELL OPERATOR: ANTERO RESOURCES CORP.  
 TARGET FORMATION: MARCELLUS  
 (SPECIFY) AS DRILLED: PLUG & ABANDON  
 PLUG OFF OLD FORMATION: PERFORATE NEW FORMATION  
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
 LEASE ACRES: 130 AC. 112 AC. 183 AC. 200 AC. 52 ACRES. 73 ACRES. 201 ACRES.

PERMIT COUNTY NAME

ADDRESS: 1615 WYNKOOP STREET  
 DESIGNATED AGENT: CT CORPORATION SYSTEM-DAIANNA STAMPER  
 ESTIMATED DEPTH: 6,423 TWD 16,479 MD  
 PLUG & ABANDON: CLEAN OUT & REPLUG  
 OTHER PHYSICAL CHANGE IN WELL: FRACTURE OR STIMULATE  
 LEASE ACRES: 130 AC. 112 AC. 183 AC. 200 AC. 52 ACRES. 73 ACRES. 201 ACRES.

LEASING: LEMIS B. HUFF ET UX; EDWARD J. JONES ET AL.; J.M. WILSON ET UX; CARLTON BOYCE ET UX  
 SURFACE OWNER: BETTY JOHNSON; ALTA HARPER ET AL.; KENNETH DRAIN; MARY MAXINE WELCH; M. H. JONES ET UX  
 QUADRANGLE: PENNSBORO 7.5 DISTRICT: CLAY COUNTY: RITCHIE

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY API WELL # 47-085-10233  
 DIVISION OF OIL AND GAS STATE COUNTY PERMIT  
 WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X  
 LOCATION: ELEVATION 1,127 AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
 SURFACE OWNER: EDDY D. WAGGONER ET AL. ACREAGE 59.93 ACRES +/-  
 OIL & GAS ROYALTY OWNER: BETTY JOHNSON; ALTA HARPER ET AL.; KENNETH DRAIN; MARY MAXINE WELCH; M. H. JONES ET UX



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

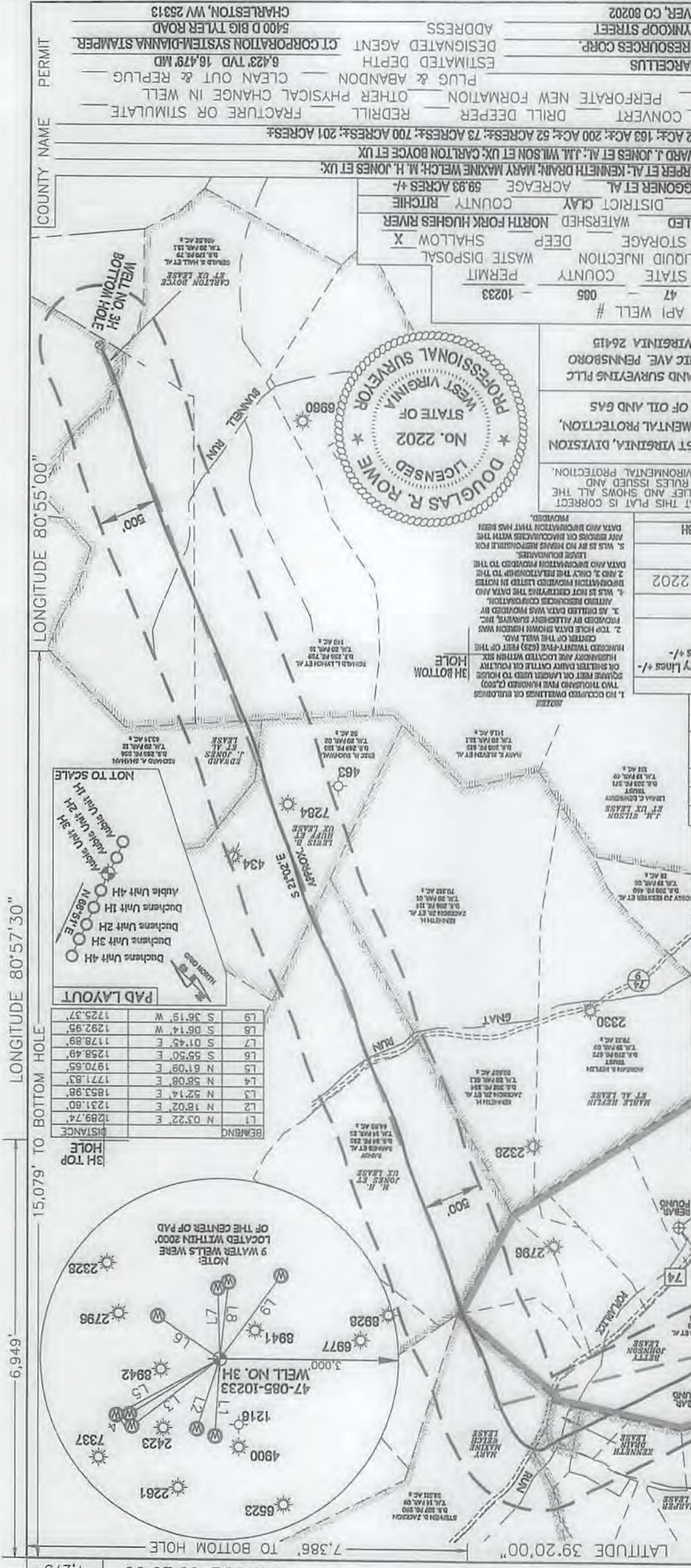


I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

OPERATOR'S WELL # AUBIE UNIT 3H  
 DATE 12/29/17  
 DOUGLAS R. ROWE P.S. 2202  
 SURFACE OWNER Boundary Lines +/-  
 Interior Surface Tracts +/-  
 Proposed Well Path  
 As Drilled Well Path

**LEGEND**  
 SUBMETER Mapping Grade GPS  
 PROVEN SOURCE OF ELEV.  
 ACCURACY SUBMETER  
 MINIMUM DEGREE OF  
 SCALE 1" = 1000'  
 DRAWING # AUBIEUNIT3HAD  
 JOB # 14-105WA  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.  
 MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT.  
 PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

**AS DRILLED NOTES:**  
 WELL 3H TOP HOLE INFORMATION: N: 299.938ft E: 1586.123ft  
 BOTTOM HOLE INFORMATION: LAT: 39°18'51.32" LONG: 80°57'46.22"  
 WELL 3H TOP HOLE INFORMATION: N: 4351.660m E: 503.218m  
 BOTTOM HOLE INFORMATION: N: 4349.184m E: 504.951m  
 JOB # 14-105WA  
 DRAWING # AUBIEUNIT3HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



LONGITUDE 80°57'30"

LONGITUDE 80°55'00"

LATITUDE 39°20'00"

**Antero Resources Corporation**  
 Well No. 3H, Aubie Unit 3H  
 A.P.I. 47-085-10233  
 8107/0160