

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

API 47 - 085 - 10168 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Kelly Pad Field/Pool Name -----
Farm name Eddy D. Waggoner et al Well Number Duchene Unit 4H
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 4351666m Easting 503232m
Landing Point of Curve Northing 4351941.66m Easting 503810.82m
Bottom Hole Northing 4354406m Easting 502838m

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

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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 12/08/2014 Date drilling commenced 8/11/2016 Date drilling ceased 10/31/2016
Date completion activities began 05/16/2017 Date completion activities ceased 9/12/2017
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
Michael Daff

9-5-18

Reviewed by:
09/07/2018

API 47-085 - 10168 Farm name Eddy D. Waggoner et al Well number Duchene Unit 4H

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"	59'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	546'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2598'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15984'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6890'		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	102 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	650 sx	15.6	1.19	774	0'	8 Hrs.
Coal							
Intermediate 1	Class A	990 sx	15.6	1.18	1168	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	730 ea (Lead) 1309 ea (Tail)	13.5 (Lead), 15.2 (Tail)	1.65 (Lead), 1.83 (Tail)	3600	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15984' MD, 6394' TVD (BHL), 6246' (Deepest Point Drilled) Loggers TD (ft) 15984' MD

Deepest formation penetrated Marcellus ~~RESERVED~~ to (ft) N/A

Plug back procedure N/A Office of Oil and Gas

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Kick off depth (ft) 6344' WV Department of Environmental Protection

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 - 10168 Farm name Eddy D. Waggoner et al Well number Duchene Unit 4H

PERFORATION RECORD

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

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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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)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

API 47- 085 - 10168 Farm name Eddy D. Waggoner et al Well number Duchene Unit 4H

PRODUCING FORMATION(S)	DEPTHS		
<u>Marcellus</u>	<u>6377' (TOP)</u>	<u>TVD</u>	<u>6978' (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 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 8261 mcfpd Oil --- bpd NGL --- bpd Water 1096 bpd GAS MEASURED BY Estimated Orifice Pilot

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

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Please insert additional pages as applicable.

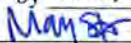
Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 17701

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  Title Permitting Supervisor Date 05/09/2018

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

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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5/16/2017	15716	15883	48	Marcellus
2	6/25/2017	15518	15685	48	Marcellus
3	6/26/2017	15320	15487	48	Marcellus
4	6/26/2017	15122	15289	48	Marcellus
5	6/27/2017	14925	15092	48	Marcellus
6	6/29/2017	14727	14894	48	Marcellus
7	6/29/2017	14529	14696	48	Marcellus
8	6/30/2017	14331	14498	48	Marcellus
9	7/1/2017	14133	14300	48	Marcellus
10	7/1/2017	13935	14102	48	Marcellus
11	7/2/2017	13737	13904	48	Marcellus
12	7/3/2017	13539	13706	48	Marcellus
13	7/3/2017	13342	13509	48	Marcellus
14	7/4/2017	13144	13311	48	Marcellus
15	7/5/2017	12946	13113	48	Marcellus
16	7/5/2017	12748	12915	48	Marcellus
17	7/6/2017	12550	12717	48	Marcellus
18	7/7/2017	12352	12519	48	Marcellus
19	7/7/2017	12154	12321	48	Marcellus
20	7/8/2017	11956	12123	48	Marcellus
21	7/9/2017	11759	11926	48	Marcellus
22	7/9/2017	11561	11728	48	Marcellus
23	7/11/2017	11363	11530	48	Marcellus
24	7/17/2017	11165	11332	48	Marcellus
25	7/18/2017	10967	11134	48	Marcellus
26	7/19/2017	10769	10936	48	Marcellus
27	7/20/2017	10571	10738	48	Marcellus
28	7/20/2017	10374	10540	48	Marcellus
29	7/21/2017	10176	10343	48	Marcellus
30	7/22/2017	9978	10145	48	Marcellus
31	7/22/2017	9780	9947	48	Marcellus
32	7/23/2017	9582	9749	48	Marcellus
33	7/24/2017	9384	9551	48	Marcellus
34	7/24/2017	9186	9353	48	Marcellus
35	7/25/2017	8988	9155	48	Marcellus
36	7/25/2017	8791	8957	48	Marcellus
37	7/26/2017	8593	8760	48	Marcellus
38	7/27/2017	8395	8562	48	Marcellus
39	7/27/2017	8197	8364	48	Marcellus
40	7/28/2017	7999	8166	48	Marcellus
41	7/29/2017	7801	7968	48	Marcellus
42	7/30/2017	7603	7770	48	Marcellus
43	7/31/2017	7405	7572	48	Marcellus
44	7/31/2017	7208	7374	48	Marcellus
45	7/31/2017	7010	7177	48	Marcellus

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API 47-085-10168 Farm Name Eddy D. Waggoner et al Well Number Duchene Unit 4H

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	5/16/2017	79	7377	5658	2816	503004	10063	N/A
2	6/25/2017	80	7389	4499	3519	495160	9706	N/A
3	6/26/2017	79	7424	6081	3564	497008	9732	N/A
4	6/26/2017	80	7448	6003	3259	504926	9918	N/A
5	6/27/2017	80	7282	5959	4101	517064	10839	N/A
6	6/29/2017	76	7436	6186	3783	500631	9872	N/A
7	6/29/2017	75	7405	5741	4161	500189	9787	N/A
8	6/30/2017	76	7532	6139	4080	504746	9922	N/A
9	7/1/2017	78	7807	6116	4072	500714	9676	N/A
10	7/1/2017	78	7654	6387	3888	497690	9700	N/A
11	7/2/2017	79	7412	5875	3859	497565	9947	N/A
12	7/3/2017	77	7662	5651	3960	503623	9783	N/A
13	7/3/2017	80	7401	5409	4201	500661	9830	N/A
14	7/4/2017	77	7437	5582	3814	501439	9818	N/A
15	7/5/2017	76	7646	5225	4333	502059	9809	N/A
16	7/5/2017	79	7383	5505	4173	506448	10106	N/A
17	7/6/2017	79	7218	5784	4069	501512	9959	N/A
18	7/7/2017	79	7255	5875	4341	506069	10040	N/A
19	7/7/2017	78	7330	5532	4170	504315	9884	N/A
20	7/8/2017	80	7161	5137	3939	503749	9877	N/A
21	7/9/2017	80	7041	5603	3970	508831	9958	N/A
22	7/9/2017	78	7328	6255	3915	477352	10318	N/A
23	7/11/2017	78	7329	4849	4687	502963	12639	N/A
24	7/17/2017	80	7120	5436	4101	482908	10527	N/A
25	7/18/2017	80	7174	5579	4302	505115	10042	N/A
26	7/19/2017	79	7569	5722	4452	349358	11501	N/A
27	7/20/2017	81	6868	5913	4752	506227	9934	N/A
28	7/20/2017	73	7120	5612	3894	508979	9846	N/A
29	7/21/2017	80	7087	5395	3875	504715	10222	N/A
30	7/22/2017	80	6646	5597	3990	503342	10565	N/A
31	7/22/2017	78	7154	5756	7344	508915	9917	N/A
32	7/23/2017	74	6560	6169	4417	506301	9766	N/A
33	7/24/2017	81	6636	6234	4482	509209	10896	N/A
34	7/24/2017	80	6903	6163	4286	510207	9698	N/A
35	7/25/2017	80	6850	6039	4302	504379	9646	N/A
36	7/25/2017	79	6584	6188	3766	508013	9709	N/A
37	7/26/2017	76	6723	6746	3859	502510	9726	N/A
38	7/27/2017	79	7199	6007	3810	503896	10501	N/A
39	7/27/2017	80	6854	5875	0	499687	10752	N/A
40	7/28/2017	80	80.5	6521	4241	498290	11066	N/A
41	7/29/2017	77	6506	5922	3921	504884	9725	N/A
42	7/30/2017	73	6580	6173	4474	502270	11668	N/A
43	7/31/2017	80	6995	5756	4060	513073	9777	N/A
44	7/31/2017	80	6821	6112	4078	504568	9672	
45	7/31/2017	79	6583	6204	3948	502921	10990	N/A
	AVG=	78.4	6,999	5,826	4,023	22,477,485	457,329	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	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	1,988	est. 941	2,035
Big Lime	1,988	2,502	2,035	2,576
Gantz	2,502	2,874	2,576	2,966
Fifty Foot Sandstone	2,874	2,971	2,966	3,072
Gordon	2,971	3,337	3,072	3,474
Fifth Sandstone	3,337	3,409	3,474	3,553
Bayard	3,409	3,949	3,553	4,140
Speechley	3,949	4,204	4,140	4,414
Baltown	4,204	4,599	4,414	4,849
Bradford	4,599	4,985	4,849	5,275
Benson	4,985	5,224	5,275	5,540
Alexander	5,224	5,504	5,540	5,848
Elk	5,504	5,787	5,848	6,156
Rhinestreet	5,787	6,132	6,156	6,540
Sycamore	6,132	6,229	6,540	6,666
Middlesex	6,229	6,330	6,666	6,846
Burkett	6,330	6,357	6,846	6,915
Tully	6,357	6,377	6,915	6,978
Marcellus	6,377	NA	6,978	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:	6/23/2017
Job End Date:	7/31/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10168-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Duchene 4H
Latitude:	39.31438600
Longitude:	-80.96250800
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,400
Total Base Water Volume (gal):	19,164,726
Total Base Non Water Volume:	55,271



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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	87.42824	
Other Chemical (s)	Listed Above	See Trade Name (s) List					
			Water	7732-18-5	60.00000	0.04268	

			Water	7732-18-5	30.00000	0.00007	
			Water	7732-18-5	30.00000	0.00341	
			Water	7732-18-5	97.00000	0.01422	
			Water	7732-18-5	85.00000	0.10819	
30/50 White	FTSI	Proppant					
				Listed Below			
40/70 White	FTSI	Proppant					
				Listed Below			
K-BAC-1020	FTSI	Biocide					
				Listed Below			
FRW-900	FTSI	Friction Reducer					
				Listed Below			
LTB-1	FTSI	Breaker					
				Listed Below			
HVG-1 4.0	FTSI	Water gelling agent					
				Listed Below			
100 Mesh Sand	FTSI	Proppant					

				Listed Below			
10.1%-15.0% HCL	FTSI	Acid					
				Listed Below			
CS-750 SI	FTSI	Scale Inhibitor					
				Listed Below			
CI-150	FTSI	Acid Corrosion Inhibitor					
				Listed Below			

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

			Silica, Quartz	14808-60-7	100.00000	5.56420	
			Silica, Quartz	14808-60-7	100.00000	3.61120	
			Silica, Quartz	14808-60-7	100.00000	3.11678	
			Hydrotreated Light Distillate	64742-47-8	40.00000	0.02845	
			Anionic polymer	Proprietary	40.00000	0.02845	
			Raffinates, Sorption Process	64741-85-1	55.00000	0.02372	
			Petroleum Distillate	64742-47-8	55.00000	0.02372	
			Guar gum	9000-30-0	55.00000	0.02372	
			2-Propenoic acid, polymer with 2 propenamide	9003-06-9	30.00000	0.02134	
			Hydrogen Chloride	7647-01-0	15.00000	0.01909	
			Ammonium Persulfate	7727-54-0	84.00000	0.00990	
			Glycerol	56-81-5	10.00000	0.00711	
			Polyethylene glycol	25322-68-3	50.00000	0.00569	
			Sorbitan, mono-(9Z)-9- octadecenoate	1338-43-8	5.00000	0.00356	
			Ethoxylated Alcohols	Proprietary	5.00000	0.00356	

			Alcohols, C10-C16, ethoxylated	68002-97-1	5.00000	0.00356	
			Sodium chloride (NaCl)	7647-14-5	5.00000	0.00356	
			Cured acrylic resin	25085-19-2	22.00000	0.00259	
			2,2-Dibromo-3-nitrilopropionamide	10222-01-2	21.00000	0.00239	
			Suspending Agent	1302-78-9	5.00000	0.00216	
			Quartz	14808-60-7	4.00000	0.00172	
			Proprietary Scale Inhibitor	Proprietary	10.00000	0.00147	
			Isotridecanol, ethoxylated	9043-30-5	2.00000	0.00086	
			Isopropanol	67-63-0	60.00000	0.00014	
			Talc	14807-96-6	0.60000	0.00007	
			Ethoxylated fatty alcohol	Proprietary	30.00000	0.00007	
			Fatty amino compound salt	Proprietary	30.00000	0.00007	
			Ethoxylated Alcohol	Proprietary	10.00000	0.00002	
			Aromatic aldehyde	Proprietary	8.00000	0.00002	
			Alkoxyated 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)



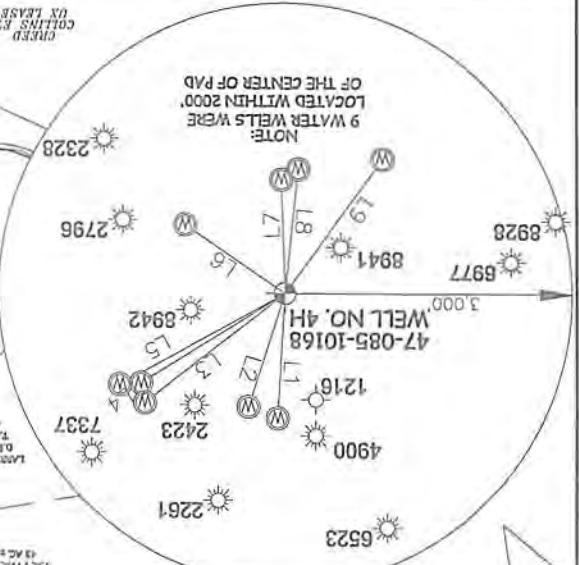
STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO
 WEST VIRGINIA 26415

JOB # 14-005VA
 DRAWING # DUCHEUNEUNIT4H
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
 OPERATOR'S WELL # DUCHEUNE UNIT #4H
 DATE 12/29/17
 DOUGLAS R. ROWE P.S. 2202

LEGEND

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

LINE	BEARINGS	DISTANCE
L1	N 03°22' E	1289.74
L2	N 18°02' E	1231.60
L3	N 52°14' E	1853.98
L4	N 58°08' E	1771.83
L5	N 61°09' E	1970.65
L6	S 55°50' E	1258.49
L7	S 01°45' E	1178.89
L8	S 06°14' W	1292.95
L9	S 35°19' W	1725.37



NOTE: 1. NO COALBED DWELLINGS OR BUILDINGS TWO THOUSAND FEET OR MORE SQUARE FEET OR LARGER USED TO HOUSE OR SHEPHERD DAMNED CATTLE OR POLKTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD. 2. TOP HOLE DATA IS NOT TO BE USED UNLESS PROVIDED BY ALBERTUS SURVEYS, INC. 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION. 4. THIS IS NOT CERTIFIED DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE INFORMATION TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES. 5. WAS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



Antero Resources Corporation
 Well No. Duchene Unit 4H
 A.P.I. 47-085-10168

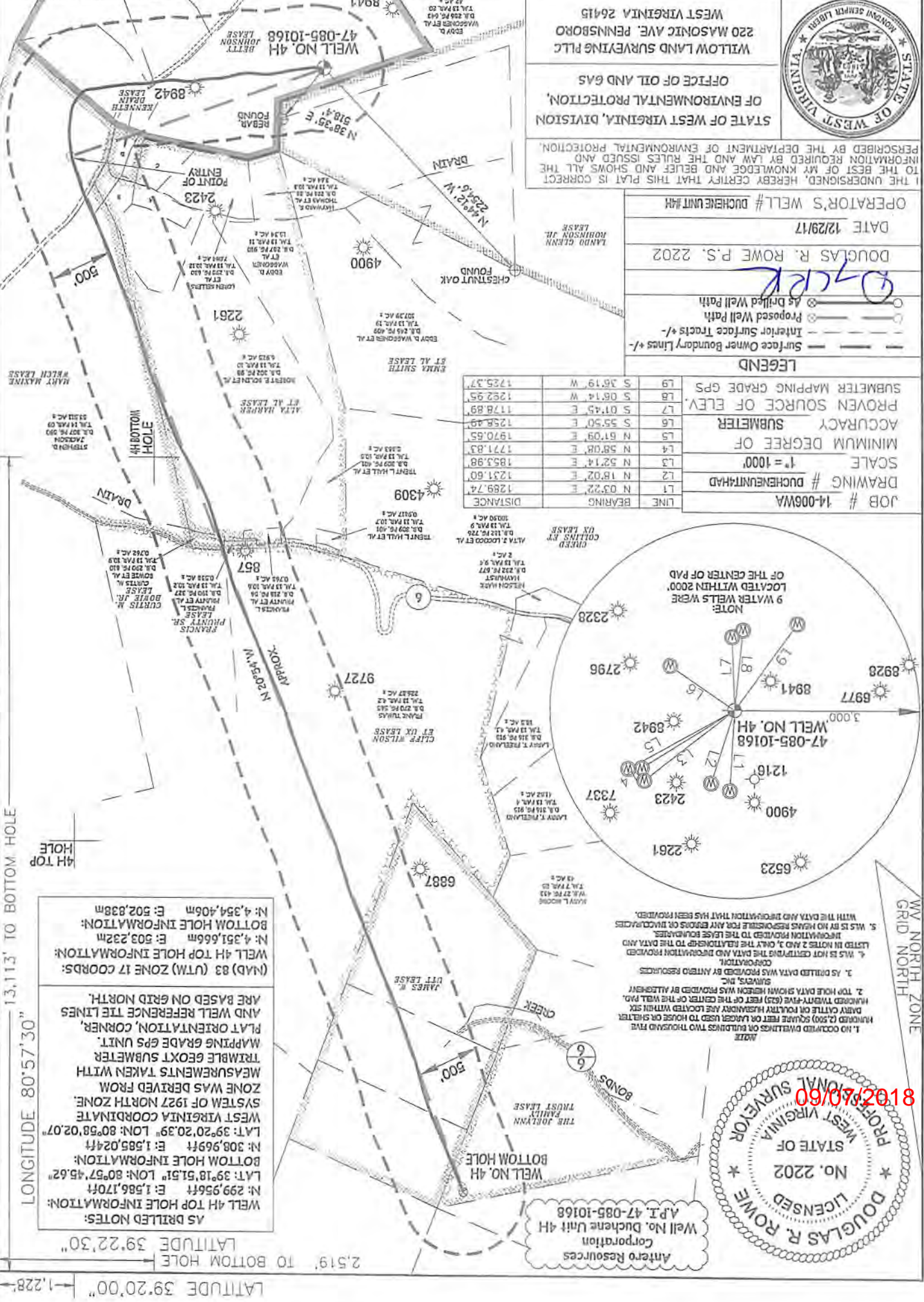
AS DRILLED NOTES:
 WELL 4H TOP HOLE INFORMATION:
 N: 299,956ft E: 1,586,170ft
 LAT: 39°18'51.51" LON: 80°57'45.62"
 BOTTOM HOLE INFORMATION:
 N: 308,969ft E: 1,585,024ft
 LAT: 39°20'20.39" LON: 80°58'02.07"
 (NAD) 83 (UTM) ZONE 17 COORDS:
 WELL 4H TOP HOLE INFORMATION:
 N: 4,351,666m E: 503,232m
 BOTTOM HOLE INFORMATION:
 N: 4,354,406m E: 502,838m

WELL 4H TOP HOLE INFORMATION:
 N: 299,956ft E: 1,586,170ft
 LAT: 39°18'51.51" LON: 80°57'45.62"
 BOTTOM HOLE INFORMATION:
 N: 308,969ft E: 1,585,024ft
 LAT: 39°20'20.39" LON: 80°58'02.07"
 (NAD) 83 (UTM) ZONE 17 COORDS:
 WELL 4H TOP HOLE INFORMATION:
 N: 4,351,666m E: 503,232m
 BOTTOM HOLE INFORMATION:
 N: 4,354,406m E: 502,838m

AS DRILLED NOTES:
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STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY
 DIVISION OF OIL AND GAS
 PERMIT # 47-085-10168
 API WELL # 47-085-10168
 WASTE DISPOSAL DEEP SHALLOW X
 (IF "GAS") PRODUCTION X STORAGE
 LOCATION: ELEVATION 1,127 AS DRILLED
 QUADRANGLE PENNSBORO 7.5
 DISTRICT CLAY COUNTY RITCHIE
 SURFACE OWNER EDDY D. WAGGONER ET AL
 ACREAGE 59.93 ACRES +/-
 CURTIS M. BOWIE JR., CLIFF WILSON ET UX, JAMES W. UTT, THE JOELYNN FAMILY TRUST
 LEASE ACREAGE 130 AC±, 112 AC±, 163 AC±, 0.762 AC±, 413 AC±, 82 AC±, 22 AC±
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
 (SPECIFY) AS DRILLED
 TARGET FORMATION MARCELLUS
 WELL OPERATOR ANTERO RESOURCES CORP.
 ADDRESS 1615 WYNNKOP STREET
 DENVER, CO 80202
 FORM W-6

COUNTY NAME PERMIT
 ADDRESS 5400 D BIG TYLER ROAD
 CHARLESTON, WV 25313
 DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
 ESTIMATED DEPTH 6,394 TVD 15,984 MD
 PLUG & ABANDON CLEAN OUT & REFLUG
 OTHER PHYSICAL CHANGE IN WELL
 REDRILL
 PERFORATE NEW FORMATION
 OTHER PHYSICAL CHANGE IN WELL
 CLEAN OUT & REFLUG
 ESTIMATED DEPTH 6,394 TVD 15,984 MD
 DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
 ADDRESS 5400 D BIG TYLER ROAD
 CHARLESTON, WV 25313



LATITUDE 39°20'00" LONGITUDE 80°57'30"
 LATITUDE 39°22'30" LONGITUDE 80°57'30"
 2,519' TO BOTTOM HOLE
 6,930'
 13,113' TO BOTTOM HOLE
 4H TOP HOLE
 4H TOP HOLE

LATITUDE 39°20'00" | -1,228'

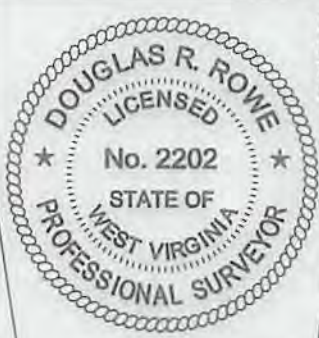
LATITUDE 39°22'30"

LONGITUDE 80°57'30"

6,930'

13,113' TO BOTTOM HOLE

LONGITUDE 80°57'30"



Antero Resources Corporation
Well No. Duchene Unit 4H
A.P.I. 47-085-10168

AS DRILLED NOTES:
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LAT: 39°18'51.51" LON: 80°57'45.62"
BOTTOM HOLE INFORMATION:
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LAT: 39°20'20.39" LON: 80°58'02.07"
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 4H TOP HOLE INFORMATION:
N: 4,351,666m E: 503,232m
BOTTOM HOLE INFORMATION:
N: 4,354,406m E: 502,838m

- 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 SURVEYS, 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.



JOB #	14-006WA
DRAWING #	DUCHENEUNIT4HAD
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	SUBMETER
PROVEN SOURCE OF ELEV.	SUBMETER MAPPING GRADE GPS

LINE	BEARING	DISTANCE
L1	N 03°22' E	1289.74'
L2	N 18°02' E	1231.80'
L3	N 52°14' E	1853.98'
L4	N 58°08' E	1771.83'
L5	N 61°09' E	1970.65'
L6	S 55°50' E	1258.49'
L7	S 01°45' E	1178.89'
L8	S 06°14' W	1292.95'
L9	S 36°19' W	1725.37'

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

DOUGLAS R. ROWE P.S. 2202
 DATE 12/29/17
 OPERATOR'S WELL # DUCHENE UNIT 4H

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

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

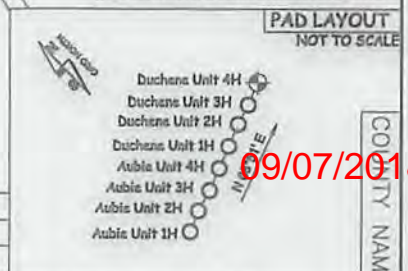
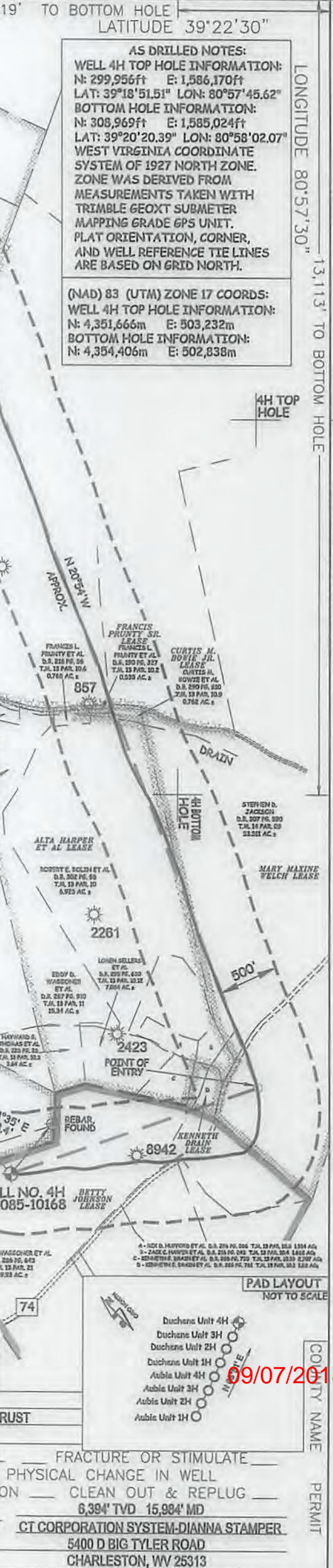
WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW

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; MARY MAXINE WELCH;
 CURTIS M. BOWIE JR.; CLIFF WILSON ET UX; JAMES W. UTT; THE JOELLYNN FAMILY TRUST

LEASE ACREAGE 130 AC±; 112 AC±; 163 AC±; 0.762 AC±; 413 AC±; 82 AC±; 22 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 ___
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,394' TVD 15,984' 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

COUNTY NAME

PERMIT