



Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

April 3, 2020

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

To Whom It May Concern:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following wells off of the **Gorrell Pad**:

- Grounds Unit 1H-3H
- Wick Unit 1H-3H

If you have any questions, please feel free to contact me at (303)-357-7223.

Sincerely,

A handwritten signature in black ink, appearing to read "Megan Griffith", with a long horizontal flourish extending to the right.

Megan Griffith  
Permitting Agent  
Antero Resources Corporation

Enclosures

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

API 47-095-02593 County Tyler District Meade  
Quad Middlebourne 7.5' Pad Name Gorrell Pad Field/Pool Name ----  
Farm name Elizabeth Gorrell Well Number Wick 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 4363225.259m Easting 500842.731m  
Landing Point of Curve Northing 4362615.30m Easting 500599.06m  
Bottom Hole Northing 4360067.786m Easting 501532.205m

Elevation (ft) 1045' 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 3/15/2019 Date drilling commenced 3/26/2019 Date drilling ceased 6/10/2019  
Date completion activities began 10/5/2019 Date completion activities ceased 11/19/2019  
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 108', 505' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1378', 1544' 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:  
\_\_\_\_\_

API 47-095 - 02593 Farm name Elizabeth Gorrell Well number Wick 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"	110'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	631'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2619'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17042'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6517'		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	214 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	631 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	890 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	675sx (Lead) 2448sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.40 (Lead), 1.26 (Tail)		~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17062' MD ,6310' TVD (BHL), 6310' (Deepest Point Drilled)      Loggers TD (ft) 17062' MD  
 Deepest formation penetrated Marcellus      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5687

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 47-095 - 02593 Farm name Elizabeth Gorrell Well number Wick Unit 1H

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

Please insert additional pages as applicable.

API 47- 095 - 02593 Farm name Elizabeth Gorrell Well number Wick Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6176' (TOP)</u> TVD	<u>6585' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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 1104 mcfpd Oil 1 bpd NGL --- bpd Water 711 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 <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 Patterson UTI Drilling Company LLC  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company KLX Energy Services  
Address 3040 Post Oak Boulevard City Houston State TX Zip 77056

Cementing Company C&J Energy Services  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes  
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature  Title Permitting Agent Date 4-3-20

## API 47-095-02593 Farm Name Elizabeth Gorrell Well Number Wick Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10/19/2019	16923.7	16978.8	60	Marcellus
2	10/19/2019	16725.82	16892.72	60	Marcellus
3	10/19/2019	16527.94	16694.84	60	Marcellus
4	10/20/2019	16330.06	16496.96	60	Marcellus
5	10/20/2019	16132.18	16299.08	60	Marcellus
6	10/20/2019	15934.3	16101.2	60	Marcellus
7	10/20/2019	15736.42	15903.32	60	Marcellus
8	10/21/2019	15538.54	15705.44	60	Marcellus
9	10/21/2019	15340.66	15507.56	60	Marcellus
10	10/21/2019	15142.78	15309.68	60	Marcellus
11	10/21/2019	14944.9	15111.8	60	Marcellus
12	10/22/2019	14747.02	14913.92	60	Marcellus
13	10/22/2019	14549.14	14716.04	60	Marcellus
14	10/22/2019	14351.26	14518.16	60	Marcellus
15	10/22/2019	14153.38	14320.28	60	Marcellus
16	10/23/2019	13955.5	14122.4	60	Marcellus
17	10/23/2019	13757.62	13924.52	60	Marcellus
18	10/24/2019	13559.74	13726.64	60	Marcellus
19	10/24/2019	13361.86	13528.76	60	Marcellus
20	10/24/2019	13163.98	13330.88	60	Marcellus
21	10/24/2019	12966.1	13133	60	Marcellus
22	10/24/2019	12768.22	12935.12	60	Marcellus
23	10/25/2019	12570.34	12737.24	60	Marcellus
24	10/25/2019	12372.46	12539.36	60	Marcellus
25	10/25/2019	12174.58	12341.48	60	Marcellus
26	10/26/2019	11976.7	12143.6	60	Marcellus
27	10/26/2019	11778.82	11945.72	60	Marcellus
28	10/26/2019	11580.94	11747.84	60	Marcellus
29	10/26/2019	11383.06	11549.96	60	Marcellus
30	10/27/2019	11185.18	11352.08	60	Marcellus
31	10/27/2019	10987.3	11154.2	60	Marcellus
32	10/27/2019	10789.42	10956.32	60	Marcellus
33	10/28/2019	10591.54	10758.44	60	Marcellus
34	10/28/2019	10393.66	10560.56	60	Marcellus
35	10/28/2019	10195.78	10362.68	60	Marcellus
36	10/28/2019	9997.9	10164.8	60	Marcellus
37	10/29/2019	9800.02	9966.92	60	Marcellus
38	10/29/2019	9602.14	9769.04	60	Marcellus
39	10/29/2019	9404.26	9571.16	60	Marcellus
40	10/29/2019	9206.38	9373.28	60	Marcellus
41	10/30/2019	9008.5	9175.4	60	Marcellus
42	10/30/2019	8810.62	8977.52	60	Marcellus
43	10/30/2019	8612.74	8779.64	60	Marcellus
44	10/30/2019	8414.86	8581.76	60	Marcellus
45	10/31/2019	8216.98	8383.88	60	Marcellus
46	10/31/2019	8019.1	8186	60	Marcellus
47	10/31/2019	7821.22	7988.12	60	Marcellus
48	10/31/2019	7623.34	7790.24	60	Marcellus
49	11/1/2019	7425.46	7592.36	60	Marcellus
50	11/1/2019	7227.58	7394.48	60	Marcellus
51	11/1/2019	7029.7	7196.6	60	Marcellus
52	11/1/2019	6831.82	6998.72	60	Marcellus
53	11/2/2019	6633.94	6800.84	60	Marcellus

## 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	10/19/2019	78.21	7805	6633	3403	163220	4653.5	N/A
2	10/19/2019	82.05	7849	5921	3865	281420	8683.9	N/A
3	10/19/2019	82.2	7923	5702	3901	280600	8703.3	N/A
4	10/20/2019	82.9	7906	5937	3206	284960	8815.4	N/A
5	10/20/2019	83.85	7829	5788	3120	288020	8743.3	N/A
6	10/20/2019	84.6	8046	3708	3508	286540	8841.8	N/A
7	10/20/2019	83.34	7872	5734	3354	284080	8639	N/A
8	10/21/2019	83.99	7920	5800	3883	285000	8563.5	N/A
9	10/21/2019	83.83	7818	6233	3320	286820	8747.6	N/A
10	10/21/2019	84.1	7893	7032	3461	283640	8630.3	N/A
11	10/21/2019	83.43	7655	5658	3470	279940	8580.9	N/A
12	10/22/2019	83.77	8052	5587	3752	284260	8534.5	N/A
13	10/22/2019	85.54	7820	5168	3753	281560	8522.3	N/A
14	10/22/2019	85.3	7714	7020	3819	285540	8583.3	N/A
15	10/22/2019	82.49	7644	4946	4294	281920	8489.6	N/A
16	10/23/2019	83.34	7566	5168	3630	286580	8568.9	N/A
17	10/23/2019	88.21	7661	5088	4114	283800	8770.8	N/A
18	10/24/2019	69.32	7760	4998	4334	287020	10351.8	N/A
19	10/24/2019	81.41	7454	5219	3779	286880	8753.7	N/A
20	10/24/2019	85.08	7696	5154	3964	288540	8789.4	N/A
21	10/24/2019	83.93	7490	5040	4228	285840	8605.4	N/A
22	10/24/2019	81.61	7520	4911	3674	279620	8409.8	N/A
23	10/25/2019	86.95	7785	4991	4589	285980	8786.5	N/A
24	10/25/2019	88.51	7718	4939	4062	285040	8720.6	N/A
25	10/25/2019	85.82	7691	4980	3860	283700	8548.9	N/A
26	10/26/2019	83.6	7903	5360	4115	277060	8527.6	N/A
27	10/26/2019	86.06	7565	5122	3642	281060	8465.1	N/A
28	10/26/2019	84.81	7396	4719	3398	275480	8511.8	N/A
29	10/26/2019	85.61	7705	5081	4210	277320	8432.5	N/A
30	10/27/2019	83.9	7372	5176	3150	278460	8439.6	N/A
31	10/27/2019	86.04	7645	4455	3441	277340	8489.2	N/A
32	10/27/2019	36.13	7499	5190	4446	21000	7028.9	N/A
33	10/28/2019	82.74	7054	5088	3065	290100	10000.8	N/A
34	10/28/2019	84.19	7257	5075	3200	286900	8560.9	N/A
35	10/28/2019	83.07	7439	5508	3148	282740	8507.8	N/A
36	10/28/2019	70.29	6729	5232	3208	286820	10008.9	N/A
37	10/29/2019	82.3	7000	6635	3455	283220	8299.1	N/A
38	10/29/2019	87.06	7168	5943	3337	286300	8530.2	N/A
39	10/29/2019	83.32	7055	5553	3387	292380	8754.5	N/A
40	10/29/2019	88.23	7529	6100	3552	280720	8378.1	N/A
41	10/30/2019	87.63	7114	5898	3368	282620	8401.9	N/A
42	10/30/2019	85.8	7084	5604	3689	294140	8706.7	N/A
43	10/30/2019	85.69	7167	5183	3434	288200	8529.8	N/A
44	10/30/2019	84.88	6789	5311	3480	276760	8312.6	N/A
45	10/31/2019	86.07	6903	5421	3121	283160	8409.8	N/A
46	10/31/2019	87.18	6611	5402	3515	291280	8444.9	N/A
47	10/31/2019	86.41	6891	5235	3399	284880	8421.6	N/A
48	10/31/2019	87.94	6619	5261	3555	277860	8483.2	N/A
49	11/1/2019	87.67	6460	5008	3324	282100	8380	N/A
50	11/1/2019	83.2	6689	4300	3374	280400	9239	N/A
51	11/1/2019	85.41	6347	5921	3362	277280	8209.7	N/A
52	11/1/2019	87.47	6385	5597	3088	283740	8446.1	N/A
53	11/2/2019	88.12	6020	5318	3006	279280	8397.5	N/A
	<b>AVG</b>	<b>82.7</b>	<b>7,544</b>	<b>5,445</b>	<b>3,649</b>	<b>12,392,300</b>	<b>385,334</b>	<b>TOTAL</b>

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	70	300	70	300
Sandy Siltstone	300	380	300	380
Sandstone	380	540	380	540
Sandy Siltstone	540	580	540	580
Silty Sandstone	580	630	580	630
Silty Shale	630	720	630	720
Shale	720	1,280	720	1,280
Sandstone	1,280	1,660	1,280	1,660
Sandy Siltstone	1,660	1,780	1,660	1,780
Silty Sandstone, tr Shale	1,780	1,820	1,780	1,820
Sandstone	1,820	1,870	1,820	1,870
Sandy siltstone	1,870	1,880	1,870	1,880
Sandstone	1,880	1,892	1,880	N/A
Big Lime	1,922	2,756	0	2,819
Fifty Foot Sandstone	2,756	2,853	0	2,923
Gordon	2,853	3,103	0	3,186
Fifth Sandstone	3,103	3,189	0	3,275
Bayard	3,189	3,813	0	3,923
Speechley	3,813	4,084	0	4,206
Bailtown	4,084	4,467	0	4,603
Bradford	4,467	4,859	0	5,012
Benson	4,859	5,152	0	5,318
Alexander	5,152	6,100	0	6,379
Sycamore	5,975	6,070	6,207	6,349
Middlesex	6,070	6,152	6,349	6,520
Burkett	6,152	6,170	6,520	6,568
Tully	6,170	6,176	6,568	6,585
Marcellus	6,176	NA	6,585	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.



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/19/2019
Job End Date:	11/1/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02593-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Wick Unit 1H
Latitude:	39.41847200
Longitude:	-80.99093300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,307
Total Base Water Volume (gal):	19,040,943
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
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	57.01426	Density = 8.34
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	31.28896	Density = 8.50

Ingredients	Listed Above	Listed Above	Listed Above						
				Water		7732-18-5	100.00000	0.15062	
Sand-Premium White-40/70	Halliburton	Proppant				Listed Below			
CalFrac CalBreak 5501	Calfrac Well Services Corp.	Oxidizer				Listed Below			
LD-2950	MultiChem	Friction Reducer				Listed Below			
FORSA SCW4037W SCALE INHIBITOR	Baker Hughes	Scale Inhibitor				Listed Below			
FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent				Listed Below			

Sand-Premium White-30/50	Halliburton	Proppant								
					Listed Below					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant								
					Listed Below					
MC B-8614	Halliburton	Biocide								
					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			11.49988	
			Hydrochloric acid		7647-01-0	30.00000			0.03427	
			Complex Amine Compound		Proprietary	60.00000			0.02712	
			Hydrotreated light petroleum distillate		64742-47-8	30.00000			0.01356	
			Guar gum		9000-30-0	100.00000			0.01251	
			Alkanolamine phosphate		Trade Secret	30.00000			0.00453	
			Methanol		67-56-1	100.00000			0.00332	
			Glutaraldehyde		111-30-8	30.00000			0.00278	
			Ethylene glycol		107-21-1	5.00000			0.00076	
			Quaternary ammonium compounds, benzyl-C12-16-alkyl(dimethyl) chlorides		68424-85-1	5.00000			0.00046	
			Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched		69011-36-5	1.00000			0.00045	
			Ethoxylated alcohols		Proprietary	1.00000			0.00045	
			Adipic acid		124-04-9	1.00000			0.00045	
			Peroxydisulfuric acid ((HO)S(O)2]2O2), ammonium salt (1:2)		7727-54-0	100.00000			0.00038	

					Ethanol	64-17-5	1.00000	0.00009	
					2-Propenoic acid, methyl ester, polymer with 1,1-dichloroethene	25038-72-6	20.00000	0.00008	
					Modified thiourea polymer	Proprietary	30.00000	0.00006	
					Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00006	
					Hexadecene	629-73-2	5.00000	0.00001	
					Ethoxylated alcohols	Proprietary	5.00000	0.00001	
					Propargyl alcohol	107-19-7	5.00000	0.00001	
					Phosphoric acid	7664-38-2	0.10000	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)

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Discharge Monitoring Report  
Oil and Gas General Permit

Company Name: Antero Resources Corporation  
API No: 47-095-02593 County: Tyler  
District: Meade Well No: Wick Unit 1H  
Farm Name: Elizabeth Gorrell  
Discharge Date/s From:(MMDDYY) 11/29/19 To: (MMDDYY) 12/29/19  
Discharge Times. From: 0:00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 1,513,105  
Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)  
(2) UIC: 98,122 Permit No. 3400923821, 3400923823, 3400923824, 3416729731, 3416729543, 3416729464, 3416729445  
(3) Offsite Disposal: 140 Site Location: MudMasters  
(4) Reuse: 1,414,843 Alternate Permit Number: \_\_\_\_\_  
(5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_  
(6) Other method: \_\_\_\_\_ (Include an explanation)

Follow Instructions below to determine your treatment category:

Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) n/a If yes, who? \_\_\_\_\_ and place a four (4) on line 7.  
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) n/a If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) n/a If yes, go to line 4  
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) n/a If yes, go to line 6  
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. n/a is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: N/A No Pit on Site

Name of Principal Exec. Officer: Gretchen Kohler

Title of Officer: Senior Environmental Manager

Date Completed: 3/16/20

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

  
Signature of a Principal Exec. Officer or Authorized agent.

Category 1  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\*\*\* Al is only reported if the pH is above 9.0

Category 2  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0

Category 3  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0.

Category 4  
Sampling Results  
API No: \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	lb/Bf
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

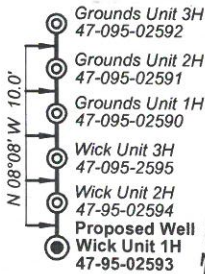
Date: \_\_\_\_\_



**Antero Resources**  
**Well No. Wick Unit 1H**  
**As-Drilled**  
**Antero Resources Corporation**

	Bearing	Dist.
L1	N 82°00' E	546.8'
L2	S 30°57' E	2,203.8'
L3	N 44°03' W	2,518.0'
L4	N 00°27' E	2,272.0'

**Wellhead Layout (NTS)**



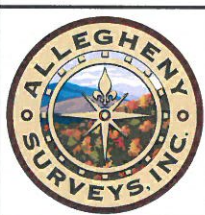
I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

*Bradley D. Miller*  
 Bradley D. Miller, P.S. 2167



**Notes:**  
 West Virginia Coordinate System of 1927, North Zone  
 based upon Differential GPS Measurements.  
 Well No. Wick Unit 1H Top Hole coordinates are  
 N: 338,019.01' Latitude: 39°25'06.50"  
 E: 1,578,961.33' Longitude: 80°59'25.36"  
 Bottom Hole coordinates are  
 N: 327,619.89' Latitude: 39°23'24.07"  
 E: 1,581,050.84' Longitude: 80°58'56.55"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,363,225.259m N: 4,360,067.786m  
 E: 500,842.731m E: 501,532.205m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

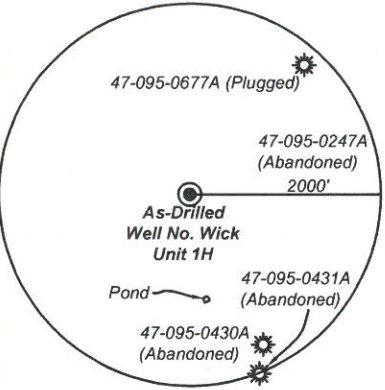


**Legend**

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Creek or Drain
- Surface boundary (approx.)
- Interior surface tracts (approx.)

**Lease**

A	Vickie L. Gorrell, et al
B	Roy & Leona M. Ankrom
C	Gaston Family Investments, LLC
D	Patricia G. Mason
E	F & R Farms
F	Mark Layne & Lori Helmick
G	Ann W. Clutter
H	J. Bradford Wells
J	Kevin Andrew Yeater
K	Ross A. & Allana D. Paden
L	James Dean Ankrom



Note: It appears 0 water wells and a pond were found within 2000' of proposed well. No occupied dwellings and no buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.

41	10/20	Jackson, et al	348/697	56.88
40	11/30	Shea, et ux	356/33	60.00
39	11/31	Shea Jr., et al	481/185	11.07
38	11/32.1	Shea Jr., et al	481/185	2.22
37	11/32	Hall, et ux	338/287	153.11
36	11/28	Kasper	309/500	8.21
35	11/28.1	Hendrickson Jr., et ux	261/272	1.00
34	11/29	Hendrickson Jr., et ux	261/272	10.00
33	10/14	Hendrickson Jr., et ux	261/272	38.50
32	10/15	F&R Farm, LLC	343/331	47.17
31	10/16	Jackson, et al	355/311	71.18
30	10/9	McGowan, et al	348/320	61.51
29	10/10	Helmick, et ux	262/135	42.81
28	11/2	Grim, et al	333/675	35.00
27	11/36	Mossor	230/255	0.94
26	11/38	Reed, et ux	343/196	1.063
25	11/37	Hendrickson Jr., et ux	255/100	0.343
24	10/13	Hendrickson Jr., et ux	234/71	2.13
23	11/1	Shields	493/423	1.76
22	11/1.1	Shields	324/287	0.23
21	11/3	Shields	324/287	1.84
20	11/4.1	Forrester, et al	275/76	1.82
19	11/4	Forrester	285/111	7.37
18	10/12	Serafine, et ux	352/624	32.00
17	8/46	Snider, et ux	376/614	49.03
16	8/42	Brisendine	353/369	49.03
15	10/11	Tartal, et al	342/109	80.32
14	7/25	Ankrom	380/447	0.43
13	7/20.1	Ankrom	303/61	0.75
12	7/26.1	Glover, et ux	347/492	4.36
11	7/26	Freeland, et ux	348/231	5.64
10	7/20	Ankrom	357/397	62.25
9	7/15.1	Paden, et al	369/11	7.76
8	7/24	Grimes, et ux	335/304	50.00
7	7/13	Smith, et ux	328/867	6.00
6	7/14	Smith	121/11	50.00
5	7/9	Smith	263/615	66.85
4	7/5	Coastal Forest Resources Co.	301/131	74.30
3	7/10	Fritzsimmmons, et al	336/764	161.63
2	7/16	Seven Spirits Farms, LLC	381/67	175.11
1	7/15	Gorrell	321/360	242.50

FILE NO: 53-54-M-17  
 DRAWING NO: Wick 1H As-Drilled  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: February 28 2020  
 OPERATOR'S WELL NO. Wick Unit 1H  
 API WELL NO  
 47 - 095 - 02593  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built Elev. 1045' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne  
 DISTRICT: Meade

SURFACE OWNER: Elizabeth Gorrell  
 ROYALTY OWNER: Wilma Jane Benefield; Vickie L. Gorrell, et al; Janet Sue Baker; LEASE NO: ACREAGE: 242.5 234.74; 74.3; 50; 42.81; 71.18; 155.5;

PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 6,310' TVD 17,062' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
 Denver, CO 80202 Charleston, WV 25313

9,288' to Top Hole

6,852 to Bottom Hole

TOP HOLE LATITUDE 39 - 27 - 30  
 BTM HOLE LATITUDE 39 - 25 - 00

LONGITUDE 80 - 57 - 30

9,593' to Bottom Hole

14,368' to Top Hole