



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, sweeping underline.

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 47-095-02595 County Tyler District Meade  
Quad Middlebourne 7.5' Pad Name Gorrell Pad Field/Pool Name -----  
Farm name Elizabeth Gorrell Well Number Wick 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 4363231.299m Easting 500841.838m  
Landing Point of Curve Northing 4362847.36m Easting 501054.78m  
Bottom Hole Northing 4360209.708m Easting 502011.232m

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 - 02595 Farm name Elizabeth Gorrell Well number Wick Unit 3H

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"	80'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	602'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2577'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16917'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6452'		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	520 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) 2600sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.40 (Lead), 1.26 (Tail)		~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16938' MD, 6338' TVD (BHL), 6338' (Deepest Point Drilled) Loggers TD (ft) 16938' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5605'

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 - 02595 Farm name Elizabeth Gorrell Well number Wick 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>					

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 - 02595 Farm name Elizabeth Gorrell Well number Wick Unit 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>			
Marcellus	6212' (TOP)	TVD	6509' (TOP)	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 1356 mcfpd Oil 2 bpd NGL --- bpd Water 1 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
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**\*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 [Signature] Title Permitting Agent Date 4.3.20

API 47-095-02595 Farm Name Elizabeth Gorrell Well Number Wick Unit 3H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10/6/2019	16803.5	16857.8	60	Marcellus
2	10/6/2019	16602.62	16772.02	60	Marcellus
3	10/6/2019	16401.74	16571.14	60	Marcellus
4	10/6/2019	16200.86	16370.26	60	Marcellus
5	10/7/2019	15999.98	16169.38	60	Marcellus
6	10/7/2019	15799.1	15968.5	60	Marcellus
7	10/7/2019	15598.22	15767.62	60	Marcellus
8	10/7/2019	15397.34	15566.74	60	Marcellus
9	10/8/2019	15196.46	15365.86	60	Marcellus
10	10/8/2019	14995.58	15164.98	60	Marcellus
11	10/8/2019	14794.7	14964.1	60	Marcellus
12	10/9/2019	14593.82	14763.22	60	Marcellus
13	10/9/2019	14392.94	14562.34	60	Marcellus
14	10/9/2019	14192.06	14361.46	60	Marcellus
15	10/9/2019	13991.18	14160.58	60	Marcellus
16	10/10/2019	13790.3	13959.7	60	Marcellus
17	10/10/2019	13589.42	13758.82	60	Marcellus
18	10/10/2019	13388.54	13557.94	60	Marcellus
19	10/10/2019	13187.66	13357.06	60	Marcellus
20	10/10/2019	12986.78	13156.18	60	Marcellus
21	10/11/2019	12785.9	12955.3	60	Marcellus
22	10/11/2019	12585.02	12754.42	60	Marcellus
23	10/11/2019	12384.14	12553.54	60	Marcellus
24	10/11/2019	12183.26	12352.66	60	Marcellus
25	10/12/2019	11982.38	12151.78	60	Marcellus
26	10/12/2019	11781.5	11950.9	60	Marcellus
27	10/12/2019	11580.62	11750.02	60	Marcellus
28	10/12/2019	11379.74	11549.14	60	Marcellus
29	10/13/2019	11178.86	11348.26	60	Marcellus
30	10/13/2019	10977.98	11147.38	60	Marcellus
31	10/13/2019	10777.1	10946.5	60	Marcellus
32	10/13/2019	10576.22	10745.62	60	Marcellus
33	10/13/2019	10375.34	10544.74	60	Marcellus
34	10/14/2019	10174.46	10343.86	60	Marcellus
35	10/14/2019	9973.58	10142.98	60	Marcellus
36	10/14/2019	9772.7	9942.1	60	Marcellus
37	10/14/2019	9571.82	9741.22	60	Marcellus
38	10/14/2019	9370.94	9540.34	60	Marcellus
39	10/15/2019	9170.06	9339.46	60	Marcellus
40	10/15/2019	8969.18	9138.58	60	Marcellus
41	10/15/2019	8768.3	8937.7	60	Marcellus
42	10/15/2019	8567.42	8736.82	60	Marcellus
43	10/15/2019	8366.54	8535.94	60	Marcellus
44	10/15/2019	8165.66	8335.06	60	Marcellus
45	10/16/2019	7964.78	8134.18	60	Marcellus
46	10/16/2019	7763.9	7933.3	60	Marcellus
47	10/16/2019	7563.02	7732.42	60	Marcellus
48	10/16/2019	7362.14	7531.54	60	Marcellus
49	10/17/2019	7161.26	7330.66	60	Marcellus
50	10/17/2019	6960.38	7129.78	60	Marcellus
51	10/17/2019	6759.5	6928.9	60	Marcellus
52	10/17/2019	6558.62	6728.02	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	10/6/2019	74.03	7832	7641	3556	183960	5106.8	N/A
2	10/6/2019	74.21	7659	5660	2988	407280	7247	N/A
3	10/6/2019	79.22	7955	5165	3043	404360	7313	N/A
4	10/6/2019	79.38	7953	5835	3078	407820	9219.4	N/A
5	10/7/2019	80.15	7859	5571	3161	409080	7382.1	N/A
6	10/7/2019	74.74	7624	5232	2994	406880	7460.1	N/A
7	10/7/2019	76.36	7580	5227	3034	406700	7343.5	N/A
8	10/7/2019	79.47	8210	5598	3275	408540	7342.1	N/A
9	10/8/2019	53.78	7756	5712	3451	413260	12779.9	N/A
10	10/8/2019	78.21	7882	5318	3321	409280	7227.3	N/A
11	10/8/2019	65	8165	4817	4729	408540	9449.6	N/A
12	10/9/2019	81.9	8036	5048	3636	404900	7627.8	N/A
13	10/9/2019	86.19	8187	5451	3200	408540	7433.6	N/A
14	10/9/2019	85.84	8127	9005	3255	408720	7465.1	N/A
15	10/9/2019	81.4	8027	5749	3339	411680	7331	N/A
16	10/10/2019	86	7942	8486	3419	409740	7213.7	N/A
17	10/10/2019	83.04	7941	7369	3155	409700	7475.6	N/A
18	10/10/2019	86.07	7960	5041	3250	407380	7438	N/A
19	10/10/2019	84.73	7791	5045	3298	406980	7167.6	N/A
20	10/10/2019	85.7	7756	6453	3220	410780	7209.1	N/A
21	10/11/2019	83.5	7664	5108	3168	408260	7172.1	N/A
22	10/11/2019	84.05	7610	4926	3314	407260	7064.3	N/A
23	10/11/2019	84.64	7725	5413	3385	408000	7052.9	N/A
24	10/11/2019	84.3	7768	5381	3313	413320	7084.9	N/A
25	10/12/2019	84.1	7677	6083	3129	408480	6979	N/A
26	10/12/2019	84.3	7617	5576	3149	406580	7022.4	N/A
27	10/12/2019	84.27	7713	5055	3200	407080	6928.5	N/A
28	10/12/2019	85.46	7829	5264	3176	407120	6955.6	N/A
29	10/13/2019	84.5	7833	4709	3152	405680	6924.2	N/A
30	10/13/2019	86.8	7601	4931	3072	411540	7079	N/A
31	10/13/2019	84.02	7430	5906	3065	410960	6886.5	N/A
32	10/13/2019	84.93	7325	5281	3168	405900	6860.3	N/A
33	10/13/2019	81.4	7059	5369	3167	413480	7894	N/A
34	10/14/2019	84.1	7470	5714	3148	411400	6975.2	N/A
35	10/14/2019	85.48	7406	5878	3130	407500	6961.5	N/A
36	10/14/2019	86.03	7539	5722	3300	406360	6899.3	N/A
37	10/14/2019	84.92	7356	5968	3339	405240	6962.9	N/A
38	10/14/2019	83.7	7271	5298	3456	400740	6830.2	N/A
39	10/15/2019	84.5	7382	7448	3013	404300	6840.4	N/A
40	10/15/2019	85.7	7104	5548	3266	408200	6828.9	N/A
41	10/15/2019	85.77	7327	5668	3238	408900	6872	N/A
42	10/15/2019	84.88	7286	5316	3088	406160	6816	N/A
43	10/15/2019	85	7216	5701	3076	405040	6838.3	N/A
44	10/15/2019	86	7079	5920	3326	402700	6574	N/A
45	10/16/2019	84.91	7071	5162	3420	404940	6798.9	N/A
46	10/16/2019	85.03	7121	5623	3135	411080	6868.2	N/A
47	10/16/2019	84.6	6983	5360	3301	409180	6848.4	N/A
48	10/16/2019	85.4	6865	5524	3051	406640	6812.3	N/A
49	10/17/2019	85.9	6850	5133	2974	404700	6809	N/A
50	10/17/2019	83.28	6544	6125	3154	406600	7829.4	N/A
51	10/17/2019	85.54	6805	6335	3226	403500	6803.2	N/A
52	10/17/2019	85.5	6613	5602	2928	406020	6855.2	N/A
	<b>AVG</b>	<b>82.1</b>	<b>7,658</b>	<b>5,728</b>	<b>3,259</b>	<b>18,129,260</b>	<b>328,334</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	1,889	1,880	N/A
Big Lime	1,919	2,746	0	2,746
Fifty Foot Sandstone	2,746	2,861	0	2,862
Gordon	2,861	3,191	0	3,194
Fifth Sandstone	3,191	3,292	0	3,296
Bayard	3,292	3,755	0	3,764
Speechley	3,755	4,039	0	4,051
Balltown	4,039	4,504	0	4,522
Bradford	4,504	4,870	0	4,891
Benson	4,870	5,174	0	5,197
Alexander	5,174	6,129	0	6,245
Sycamore	6,008	6,099	6,081	6,215
Middlesex	6,099	6,187	6,215	6,407
Burkett	6,187	6,208	6,407	6,487
Tully	6,208	6,212	6,487	6,509
Marcellus	6,212	NA	6,509	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:	10/5/2019
Job End Date:	10/17/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02595-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Wick 3H
Latitude:	39.41852800
Longitude:	-80.99038900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,337
Total Base Water Volume (gal):	16,482,834
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	55.95770	Density = 8.34
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	30.70913	Density = 8.50

Ingredients	Listed Above	Listed Above	Listed Above						
				Water		7732-18-5	100.00000	0.14641	
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent							
MC B-8614	Halliburton	Biocide				Listed Below			
FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor				Listed Below			
CalFrac CalBreak 5501	Calfrac Well Services Corp.	Oxidizer				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent				Listed Below			
LD-2950	MultiChem	Friction Reducer				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant				Listed Below			

FORSA SCW4037W SCALE INHIBITOR	Baker Hughes	Scale Inhibitor											
					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	13.13686						
				Hydrochloric acid	7647-01-0	30.00000	0.04112						
				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01159						
				Guar gum	9000-30-0	100.00000	0.00694						
				Glutaraldehyde	111-30-8	30.00000	0.00281						
				Alkanolamine phosphate	Trade Secret	30.00000	0.00119						
				Methanol	67-56-1	100.00000	0.00113						
				Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00047						
				Ethoxylated alcohols	Proprietary	1.00000	0.00039						
				Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00039						
				Ethylene glycol	107-21-1	5.00000	0.00020						
				Peroxydisulfuric acid ([HO)S(O)2]2O2), ammonium salt (1:2)	7727-54-0	100.00000	0.00014						
				Ethanol	64-17-5	1.00000	0.00009						
				Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007						
				Modified thiourea polymer	Proprietary	30.00000	0.00007						
				2-Propenoic acid, methyl ester, polymer with 1,1-dichloroethene	25038-72-6	20.00000	0.00003						
				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: 47-095-02595 County: Tyler  
District: Meade Well No: Wick Unit 3H  
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

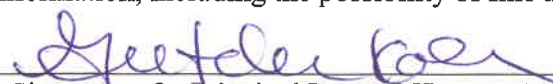
1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) n/a If yes, who? \_\_\_\_\_ and place a four (4) on line 7.  
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) n/a If yes, go to line 5. If not, go to line 3.
3. Do you have 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/B1
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area			Monitor	_____	Acres

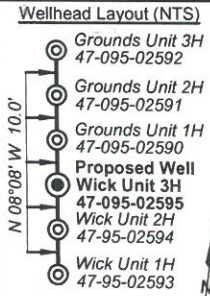
\* Can be 25,000 with inspector's approval,

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

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

**Antero Resources**  
**Well No. Wick Unit 3H**  
**As-Drilled**  
**Antero Resources Corporation**

	Bearing	Dist.
L1	N 79°55' E	547.5'
L2	S 31°09' E	2,185.5'
L3	N 43°47' W	2,534.0'
L4	N 00°23' E	2,291.8'



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.

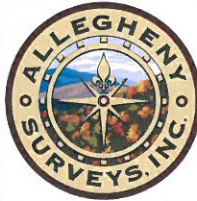
*Bradley D. Miller*  
**Bradley D. Miller, P.S. 2167**



**Notes:**  
 West Virginia Coordinate System of 1927, North Zone  
 based upon Differential GPS Measurements.  
 Well No. Wick Unit 3H Top Hole coordinates are  
 N: 338,038.88' Latitude: 39°25'06.70"  
 E: 1,578,958.73' Longitude: 80°59'25.40"  
 Bottom Hole coordinates are  
 N: 328,059.32' Latitude: 39°23'28.67"  
 E: 1,582,630.56' Longitude: 80°58'36.53"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,363,231.299m N: 4,360,209.708m  
 E: 500,841.838m E: 502,011.232m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

FILE NO: 53-54-M-17  
 DRAWING NO: Wick 3H As-Drilled  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: WV DOT, Harrisville, WV

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.



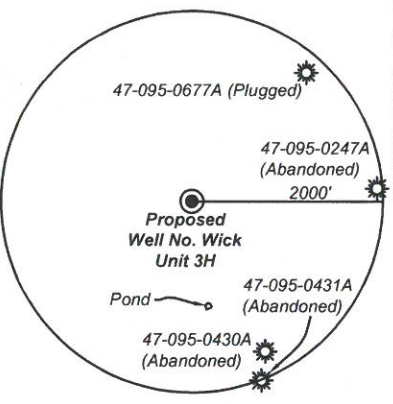
**Legend**

- 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

9,290' to Top Hole  
 5,372' to Bottom Hole  
 TOP HOLE LATITUDE 39 - 27 - 30  
 BTM HOLE LATITUDE 39 - 25 - 00



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
ID	TM/Par	Owner	Bk/Pg	Acres

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

DATE: February 28 20 20  
 OPERATOR'S WELL NO. Wick Unit 3H  
 API WELL NO  
 47 - 095 - 02595  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1045' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne 3.83; 234.74;  
 DISTRICT: Meade J&N Management Enterprises, LLC; DWG Oil & Gas Acquisitions, LLC; Patricia G. Mason; COUNTY: Tyler 74.3; 63; 80;  
 SURFACE OWNER: Elizabeth Gorrell Roy & Leona M. Ankrom; J. Bradford Wells (2); Gaston Family Investments, LLC; Ottis F. Wilcox; ACREAGE: 242.5 50; 185;  
 ROYALTY OWNER: Wilma Jane Benefield; Vickie L. Gorrell, et al; Mary E. Clymer; LEASE NO: ACREAGE: 127.846; 83.12; 20;  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,338' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 16,938' 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