

04/05/2019



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

April 4, 2019

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:

- Parachute Unit 1H (API # 47-095-02429)—Stonefly Pad
- Parachute Unit 2H (API # 47-095-02429)—Stonefly Pad
- Parachute Unit 3H (API # 47-095-02433)—Stonefly Pad
- Copper John Unit 1H (API # 47-095-02404)—Stonefly Pad
- Copper John Unit 2H (API # 47-095-02405)—Stonefly Pad
- Copper John Unit 3H (API # 47-095-02406)—Stonefly Pad
- Pheasant Unit 1H (API # 47-095-02434)—Stonefly Pad
- Pheasant Unit 2H (API # 47-095-02435)—Stonefly Pad
- Pheasant Unit 3H (API # 47-095-02437)—Stonefly Pad
- Tauscher Unit 1H (API # 47-095-02357)—Stonefly Pad
- Tauscher Unit 2H (API # 47-095-02407)—Stonefly Pad
- Tauscher Unit 3H (API # 47-095-02456)—Stonefly Pad

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 "MGriffith", written over a light blue horizontal line.

Megan Griffith  
Permitting Agent  
Antero Resources Corporation

Enclosures

WR-35  
Rev. 8/23/13

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

API 47 - 095 - 02430 County Tyler District Centerville  
 Quad Middlebourne 7.5' Pad Name Stonefly Pad Field/Pool Name -----  
 Farm name Steven McPeek et al Well Number Parachute Unit 2H  
 Operator (as registered with the OOG) Antero Resources Corporation  
 Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
 Top hole Northing 4363173m Easting 506663m  
 Landing Point of Curve Northing 4363098.81m Easting 506236.11m  
 Bottom Hole Northing 4366622m Easting 504973m

Elevation (ft) 982' 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 &amp; 4% KCL

Mud - Polymer

Date permit issued 3/15/2017 Date drilling commenced 8/29/2017 Date drilling ceased 2/27/2018  
 Date completion activities began 6/15/2018 Date completion activities ceased 12/13/2018  
 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 52', 400', 457' Open mine(s) (Y/N) depths No  
 Salt water depth(s) ft 1425', 1431' Void(s) encountered (Y/N) depths No  
 Coal depth(s) ft 52', 457' Cavern(s) encountered (Y/N) depths No  
 Is coal being mined in area (Y/N) No

Reviewed by:

WR-35  
Rev. 8/23/13

API 47-095 - 02430 Farm name Steven McPeek et al Well number Parachute Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	574'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2649'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19332'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6728'		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	204 sx	15.6	1.18	244	0'	8 Hrs.
Surface	Class A	478 sx	15.6	1.19	402	0'	8 Hrs.
Coal							
Intermediate 1	Class A	910 sx	15.6	1.18	1047	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	633sx (Lead) 1977 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)	2819	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19332' MD, 6252' TVD (BHL), 6377' (Deepest Point Drilled) Loggers TD (ft) 19332' MD

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

Plug back procedure N/A

Kick off depth (ft) 6100'

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

WR-35  
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API 47- 095 - 02430 Farm name Steven McPeek et al Well number Parachute Unit 2H

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.

WR-35  
Rev. 8/23/13

API 47- 095 - 02430

Farm name Steven McPeek et al

Well number Parachute Unit 2H

PRODUCING FORMATION(S)

DEPTHS

Marcellus 6322' (TOP) TVD 6785' (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 9235 mcfpd Oil 272 bpd NGL --- bpd Water 24 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 Frontier Drilling LLC  
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Nine Energy Services  
Address 125 Museum Road City Washington State PA Zip 15301

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 April 4, 2019

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

API 47-095-02430 Farm Name Steven McPeck et al Well Number Parachute Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/9/2018	19059.485	19229.4	60	Marcellus
2	8/9/2018	18861.827	19028.542	60	Marcellus
3	8/10/2018	18664.169	18830.884	60	Marcellus
4	8/10/2018	18466.511	18633.226	60	Marcellus
5	8/11/2018	18268.853	18435.568	60	Marcellus
6	8/11/2018	18071.195	18237.91	60	Marcellus
7	8/12/2018	17873.537	18040.252	60	Marcellus
8	8/12/2018	17675.879	17842.594	60	Marcellus
9	8/13/2018	17478.221	17644.936	60	Marcellus
10	8/13/2018	17280.563	17447.278	60	Marcellus
11	8/14/2018	17082.905	17249.62	60	Marcellus
12	8/14/2018	16885.247	17051.962	60	Marcellus
13	8/15/2018	16687.589	16854.304	60	Marcellus
14	8/16/2018	16489.931	16656.646	60	Marcellus
15	8/17/2018	16292.273	16458.988	60	Marcellus
16	8/16/2018	16094.615	16261.33	60	Marcellus
17	8/18/2018	15896.957	16063.672	60	Marcellus
18	8/19/2018	15699.299	15866.014	60	Marcellus
19	8/19/2018	15501.641	15668.356	60	Marcellus
20	8/20/2018	15303.983	15470.698	60	Marcellus
21	8/20/2018	15106.325	15273.04	60	Marcellus
22	8/20/2018	14908.667	15075.382	60	Marcellus
23	8/21/2018	14711.009	14877.724	60	Marcellus
24	8/21/2018	14513.351	14680.066	60	Marcellus
25	8/22/2018	14315.693	14482.408	60	Marcellus
26	8/22/2018	14118.035	14284.75	60	Marcellus
27	8/23/2018	13920.377	14087.092	60	Marcellus
28	8/24/2018	13722.719	13889.434	60	Marcellus
29	8/24/2018	13525.061	13691.776	60	Marcellus
30	8/24/2018	13327.403	13494.118	60	Marcellus
31	8/24/2018	13129.745	13296.46	60	Marcellus
32	8/26/2018	12932.087	13098.802	60	Marcellus
33	8/26/2018	12734.429	12901.144	60	Marcellus
34	8/27/2018	12536.771	12703.486	60	Marcellus
35	8/27/2018	12339.113	12505.828	60	Marcellus
36	8/27/2018	12141.455	12308.17	60	Marcellus
37	8/28/2018	11943.797	12110.512	60	Marcellus
38	8/29/2018	11746.139	11912.854	60	Marcellus
39	8/29/2018	11548.481	11715.196	60	Marcellus
40	8/30/2018	11350.823	11517.538	60	Marcellus
41	8/31/2018	11153.165	11319.88	60	Marcellus
42	8/31/2018	10955.507	11122.222	60	Marcellus
43	9/1/2018	10757.849	10924.564	60	Marcellus
44	9/1/2018	10560.191	10726.906	60	Marcellus
45	9/2/2018	10362.533	10529.248	60	Marcellus
46	9/2/2018	10164.875	10331.59	60	Marcellus
47	9/2/2018	9967.217	10133.932	60	Marcellus
48	9/3/2018	9769.559	9936.274	60	Marcellus
49	9/3/2018	9571.901	9738.616	60	Marcellus
50	9/4/2018	9374.243	9540.958	60	Marcellus
51	9/4/2018	9176.585	9343.3	60	Marcellus
52	9/5/2018	8978.927	9145.642	60	Marcellus
53	9/5/2018	8781.269	8947.984	60	Marcellus
54	9/5/2018	8583.611	8750.326	60	Marcellus
55	9/6/2018	8385.953	8552.668	60	Marcellus
56	9/7/2018	8188.295	8355.01	60	Marcellus
57	9/7/2018	7990.637	8157.352	60	Marcellus
58	9/8/2018	7792.979	7959.694	60	Marcellus
59	9/9/2018	7595.321	7762.036	60	Marcellus
60	9/9/2018	7397.663	7564.378	60	Marcellus
61	9/9/2018	7200.005	7366.72	60	Marcellus
62	9/10/2018	7002.347	7169.062	60	Marcellus
63	9/10/2018	6804.689	6971.404	60	Marcellus

API 47-095-02430 Farm Name Steven McPeck et al Well Number Parachute Unit 2H								
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	8/9/2018	72.4	7576	4910	4809	311100	8853	N/A
2	8/9/2018	17	7703	5690	3657	400600	8365	N/A
3	8/10/2018	72.2	7490.3	5758	3331	399200	8196	N/A
4	8/10/2018	72.2	7352	6149	3163	399000	8246	N/A
5	8/11/2018	73.91	7429.08	4947	3424	399249.6516	8032	N/A
6	8/11/2018	73.19167	7377.167	5795	3239	399600	8189	N/A
7	8/12/2018	73.61	7123.12	5489	4467	399050	8398.005	N/A
8	8/12/2018	77.58333	7513.917	7147	3303	399450	8204	N/A
9	8/13/2018	73.59	7260.29	5183	4582	382900	8001	N/A
10	8/13/2018	74.75455	7267.091	5421	3436	400400	8441	N/A
11	8/14/2018	72.99	7065.72	5793	3458	399100	8019	N/A
12	8/14/2018	73.92941	7703.824	5378	3535	399600	8933	N/A
13	8/15/2018	77.32	7472.57	5990	3457	399200	8130	N/A
14	8/16/2018	77.5	7692	6118	3647	398550	8128.005	N/A
15	8/17/2018	77.98	7581.67	5859	3959	399000	8012	N/A
16	8/16/2018	74.6	7409	6258	3484	398550	8316.005	N/A
17	8/18/2018	76.46	7408	6559	3472	400800	8431	N/A
18	8/19/2018	77.7	7429	6097	3527	399050	7881	N/A
19	8/19/2018	76.6	7337	6095	3453	399500	8036.005	N/A
20	8/20/2018	74.9564	7066.73	6000	3485	400650	8066	N/A
21	8/20/2018	76.5872	7163.79	5020	3650	400200	7859	N/A
22	8/20/2018	75.2	7713	6095	3453	399050	9221.005	N/A
23	8/21/2018	76.6363	7318.76	6103	4048	400100	7933	N/A
24	8/21/2018	71.6	7378	6095	3453	400100	8941.005	N/A
25	8/22/2018	74.88415	7341.699	6057	3974	398800	10129	N/A
26	8/22/2018	78.3	7552	6095	3366	399600	8685.005	N/A
27	8/23/2018	77.35556	7454.222	6025	4935	269200	5576	N/A
28	8/24/2018	77.65833	7242.167	6430	3435	400500	7894.005	N/A
29	8/24/2018	78.7	7315	6753	3614	399900	7900	N/A
30	8/24/2018	77.60833	7338.167	6445	3429	399150	7972.005	N/A
31	8/24/2018	78.35	7129.083	5999	3591	399750	7943	N/A
32	8/26/2018	78.31667	7219	6071	3777	364150	7733.005	N/A
33	8/26/2018	78.55833	7167.417	6656	3502	371850	7538	N/A
34	8/27/2018	78.18333	7108	5737	3656	398750	8037.005	N/A
35	8/27/2018	77.11667	7053	6184	3907	430750	8669	N/A
36	8/27/2018	77.91667	7050.75	6134	3690	429250	8756.005	N/A
37	8/28/2018	76.375	6882	6132	3770	430850	8747.005	N/A
38	8/29/2018	78.20833	7204.5	6368	3657	431900	8585	N/A
39	8/29/2018	76.79167	6779.25	6210	3787	429550.4421	8728	N/A
40	8/30/2018	76.25	6707.333	5926	3747	430150.0497	8480	N/A
41	8/31/2018	79.1	6905	6153	3712	431100	8645	N/A
42	8/31/2018	74.05	6851.167	6133	4053	406750.0885	7741	N/A
43	9/1/2018	74.93333	6696.833	6560	3679	399600	7696	N/A
44	9/1/2018	78.55	6966.667	6701	3558	401400	7861	N/A
45	9/2/2018	76.9	6612.833	5940	3775	399749.866	7731	N/A
46	9/2/2018	79.8	6831	5543	3480	416800	8670	N/A
47	9/2/2018	77.45833	6498.917	5600	4244	400049.4956	7703	N/A
48	9/3/2018	79.45	6895.917	5828	3648	399750	7851	N/A
49	9/3/2018	76.03333	6878.917	6636	4024	399150.3067	7720	N/A
50	9/4/2018	78.74167	6885.5	6281	3814	397999.6761	7738	N/A
51	9/4/2018	77.975	6708	6346	3569	399750.0172	7829.005	N/A
52	9/5/2018	78.11667	6758.667	5709	3885	399550.0691	7685	N/A
53	9/5/2018	78.95833	6580.333	5293	3613	405150	7776	N/A
54	9/5/2018	80.025	6622.75	6275	3801	399099.5344	7836	N/A
55	9/6/2018	79.21314	6730.504	5989	3840	400300	7694.13	N/A
56	9/7/2018	73.83173	6448.286	6023	3584	400950	7843.46	N/A
57	9/7/2018	78.76948	6425.378	5292	3717	400300	7701.51	N/A
58	9/8/2018	78.03415	6646.928	5326	4080	399600	8191.27	N/A
59	9/9/2018	76.34276	6621.086	5937	4121	399100	7679	N/A
60	9/9/2018	76.38568	6523.577	6448	4632	408400	8086.73	N/A
61	9/9/2018	78.1974	6501.502	5819	4732	371400	7462	N/A
62	9/10/2018	76.1206	6801.773	6042	4279	399650	8090.55	N/A
63	9/10/2018	73.32624	6480.404	7618	3661	399600	8232	N/A
	AVG=	74.4	7,339	5,975	3,679	15,008,400	312,995	TOTAL

API 47-095-02430 Farm Name Steven McPeck et al Well Number Parachute Unit 2H

**EXHIBIT 3**

<b>LITHOLOGY/ FORMATION</b>	<b>TOP DEPTH (TVD) From Surface</b>	<b>BOTTOM DEPTH (TVD) From Surface</b>	<b>TOP DEPTH (MD) From Surface</b>	<b>BOTTOM DEPTH (MD) From Surface</b>
Silty Sandstone	0	205	0	205
Sandy siltstone	205	310	205	310
Sandstone	310	605	310	605
Silty Sandstone	605	785	605	785
limey siltstone	785	960	785	960
silty sandstone, tr. coal	960	1,110	960	1,110
silty sandstone	1,110	1,505	1,110	1,505
silty shale	1,505	1,635	1,505	1,635
sandstone, tr coal	1,635	1,645	1,635	1,645
silty sandstone	1,645	1,685	1,645	1,685
sandstone	1,685	1,760	1,685	1,760
sandy shale	1,760	1,785	1,760	1,785
shaly sand	1,785	1,861	1,785	1,879
Big Lime	1,876	2,015	1,894	2,039
Big Injun	2,015	2,476	2,039	2,524
Gantz Sand	2,476	2,614	2,524	2,667
Fifty Foot Sandstone	2,614	2,719	2,667	2,776
Gordon	2,719	3,058	2,776	3,132
Fifth Sandstone	3,058	3,120	3,132	3,196
Bayard	3,120	3,493	3,196	3,587
Warren	3,493	3,879	3,587	3,990
Speechley	3,879	4,574	3,990	4,716
Balltown	4,181	4,973	4,306	5,134
Bradford	4,574	4,973	4,716	5,134
Benson	4,973	5,206	5,134	5,378
Alexander	5,206	5,766	5,378	5,961
Rhinestreet	5,742	6,031	5,937	6,262
Sycamore	6,031	6,188	6,262	6,498
Middlesex	6,188	6,278	6,498	6,657
Burkett	6,278	6,301	6,657	6,706
Tully	6,301	6,322	6,706	6,761
Marcellus	6,322	NA	6,761	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:	8/9/2018
Job End Date:	9/10/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02430-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Parachute Unit 2H
Latitude:	39.41797800
Longitude:	-80.92276900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,253
Total Base Water Volume (gal):	22,198,680
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Supplied by Operator	Base Fluid					
			Water	7732-18-5	70.00000	90.44907	
Calbreak 5501	CWS	Breaker					
				Listed Below			

CI-9100G	CWS	Corrosion Inhibitor								
						Listed Below				
Hydrochloric Acid	CWS	Clean Perforations								
						Listed Below				
DAP-103	CWS	Iron Control								
						Listed Below				
DAP-902	CWS	Scale Inhibitor								
						Listed Below				
Sand (Proppant)	CWS	Propping Agent								
						Listed Below				
DWP-111	CWS	Gel Slurry								
						Listed Below				
DWP-641	CWS	Friction Reducer								
						Listed Below				
SaniFrac 8844	CWS	Biocide								
						Listed Below				
Other Chemical (s)	Listed Above	See Trade Name (s) List								

Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.						
			Listed Below			
			Crystalline silica (Quartz)	14808-60-7	100.00000	9.07430
			Hydrochloric acid	7647-01-0	37.00000	0.14503
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.06892
			Guar gum	9000-30-0	60.00000	0.06892
			Illite	12173-60-3	1.00000	0.05460
			Calcite	471-34-1	1.00000	0.03609
			Polymer	26100-47-0	45.00000	0.01960
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01307
			Goethite	1310-14-1	0.10000	0.00907
			Biotite	1302-27-8	0.10000	0.00907
			Apatite	64476-38-6	0.10000	0.00907
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00620
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00607
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00574
			Ilmenite	98072-94-7	0.10000	0.00546
			Ammonium chloride	12125-02-9	11.00000	0.00479
			2,2-Dibromo-3-Nitripropionamide	10222-01-2	20.00000	0.00228
			Ammonium Persulfate	64742-47-8	100.00000	0.00207
			Sorbitan monooleate	1338-43-8	4.00000	0.00174
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00172
			1,2-Propanediol	57-55-6	10.00000	0.00152

				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00131	
				Citric acid	77-92-9	60.00000	0.00131	
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00087	
				Sodium bromide	7647-15-6	4.00000	0.00046	
				Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00044	
				Vinylidene chloride-methyl acrylate copolymer	69418-26-4	20.00000	0.00041	
				Dibromoacetonitrile	3252-43-5	3.00000	0.00034	
				Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00022	
				Ethylene glycol	107-21-1	40.00000	0.00008	
				Diethylene glycol (mono) methyl ether	34590-94-8	20.00000	0.00004	
				Acrylamide	79-06-1	0.10000	0.00004	
				Formic Acid	64-18-6	10.00000	0.00002	
				Cinnamaldehyde	104-55-2	10.00000	0.00002	
				Ethoxylated alcohols	Proprietary	10.00000	0.00002	Proprietary CAS
				Tar bases, quinolone derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00002	
				Tar bases, quinolone derivs	68513-87-1	1.00000	0.00001	
				Isopropanol	67-63-0	5.00000	0.00001	
				Diethylene glycol	111-46-6	1.00000	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: 47-095-02430 County: Tyler  
District: Centerville Well No: Parachute Unit 2H  
Farm Name: Steven McPeek et al  
Discharge Date/s From:(MMDDYY) 01/07/19 To: (MMDDYY) 02/06/19  
Discharge Times. From: 0:00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 753,747  
Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)
- (2) UIC: 451,640 Permit No. 3400923821, 3410523619, 3416729731, 3416729543, 3416729464,
- (3) Offsite Disposal: 700 Site Location: Mud Masters <sup>3410523268</sup>
- (4) Reuse: 301,407 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 and Regulatory Manager  
Date Completed: 3/18/19

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.

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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

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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: \_\_\_\_\_