

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

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

API 47 - 095 - 02434 County Tyler District Centerville  
Quad Middlebourne 7.5' Pad Name Stonefly Pad Field/Pool Name -----  
Farm name Steven McPeek et al Well Number Pheasant 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 4363167m Easting 506664m  
Landing Point of Curve Northing 4363233.56m Easting 506110.80m  
Bottom Hole Northing 4366787m Easting 505348m

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 & 4% KCL  
Mud - Polymer

Date permit issued 3/15/2017 Date drilling commenced 8/29/2017 Date drilling ceased 2/14/2018  
Date completion activities began 6/14/2018 Date completion activities ceased 12/23/2018  
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 - 02434 Farm name Steven McPeek et al Well number Pheasant 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"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	618'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2610'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19257'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6535'		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	511 sx	15.6	1.19	402	0'	8 Hrs.
Coal							
Intermediate 1	Class A	897 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) 19257' MD, 6269' TVD (BHL), 6398' (Deepest Point Drilled) Loggers TD (ft) 19257' MD

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

Plug back procedure N/A

Kick off depth (ft) 6000'

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  
Rev. 8/23/13

API 47- 095 - 02434 Farm name Steven McPeek et al Well number Pheasant Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6366' (TOP)</u> TVD	<u>6618' (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 9254 mcfpd Oil 303 bpd NGL --- bpd Water 18 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.

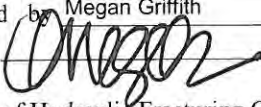
Drilling Contractor Frontier Drilling LLC  
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

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

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



API 47-095-02434 Farm Name Steven McPeek et al Well Number Pheasant Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/13/2018	18985.945	19156.8	60	Marcellus
2	9/13/2018	18787.159	18954.814	60	Marcellus
3	9/14/2018	18588.373	18756.028	60	Marcellus
4	9/14/2018	18389.587	18557.242	60	Marcellus
5	9/15/2018	18190.801	18358.456	60	Marcellus
6	9/16/2018	17992.015	18159.67	60	Marcellus
7	9/16/2018	17793.229	17960.884	60	Marcellus
8	9/16/2018	17594.443	17762.098	60	Marcellus
9	9/17/2018	17395.657	17563.312	60	Marcellus
10	9/17/2018	17196.871	17364.526	60	Marcellus
11	9/17/2018	16998.085	17165.74	60	Marcellus
12	9/18/2018	16799.299	16966.954	60	Marcellus
13	9/18/2018	16600.513	16768.168	60	Marcellus
14	9/18/2018	16401.727	16569.382	60	Marcellus
15	9/18/2018	16202.941	16370.596	60	Marcellus
16	9/19/2018	16004.155	16171.81	60	Marcellus
17	9/20/2018	15805.369	15973.024	60	Marcellus
18	9/20/2018	15606.583	15774.238	60	Marcellus
19	9/21/2018	15407.797	15575.452	60	Marcellus
20	9/21/2018	15209.011	15376.666	60	Marcellus
21	9/22/2018	15010.225	15177.88	60	Marcellus
22	9/22/2018	14811.439	14979.094	60	Marcellus
23	9/22/2018	14612.653	14780.308	60	Marcellus
24	9/23/2018	14413.867	14581.522	60	Marcellus
25	9/23/2018	14215.081	14382.736	60	Marcellus
26	9/24/2018	14016.295	14183.95	60	Marcellus
27	9/24/2018	13817.509	13985.164	60	Marcellus
28	9/25/2018	13618.723	13786.378	60	Marcellus
29	9/25/2018	13419.937	13587.592	60	Marcellus
30	9/25/2018	13221.151	13388.806	60	Marcellus
31	9/26/2018	13022.365	13190.02	60	Marcellus
32	9/26/2018	12823.579	12991.234	60	Marcellus
33	9/26/2018	12624.793	12792.448	60	Marcellus
34	9/27/2018	12426.007	12593.662	60	Marcellus
35	9/27/2018	12227.221	12394.876	60	Marcellus
36	9/28/2018	12028.435	12196.09	60	Marcellus
37	9/28/2018	11829.649	11997.304	60	Marcellus
38	9/29/2018	11630.863	11798.518	60	Marcellus
39	9/29/2018	11432.077	11599.732	60	Marcellus
40	9/30/2018	11233.291	11400.946	60	Marcellus
41	9/30/2018	11034.505	11202.16	60	Marcellus
42	10/1/2018	10835.719	11003.374	60	Marcellus
43	10/1/2018	10636.933	10804.588	60	Marcellus
44	10/1/2018	10438.147	10605.802	60	Marcellus
45	10/2/2018	10239.361	10407.016	60	Marcellus
46	10/3/2018	10040.575	10208.23	60	Marcellus
47	10/3/2018	9841.789	10009.444	60	Marcellus
48	10/4/2018	9643.003	9810.658	60	Marcellus
49	10/4/2018	9444.217	9611.872	60	Marcellus
50	10/5/2018	9245.431	9413.086	60	Marcellus
51	10/5/2018	9046.645	9214.3	60	Marcellus
52	10/6/2018	8847.859	9015.514	60	Marcellus
53	10/6/2018	8649.073	8816.728	60	Marcellus
54	10/7/2018	8450.287	8617.942	60	Marcellus
55	10/7/2018	8251.501	8419.156	60	Marcellus
56	10/7/2018	8052.715	8220.37	60	Marcellus
57	10/8/2018	7853.929	8021.584	60	Marcellus
58	10/8/2018	7655.143	7822.798	60	Marcellus
59	10/8/2018	7456.357	7624.012	60	Marcellus
60	10/8/2018	7257.571	7425.226	60	Marcellus
61	10/9/2018	7058.785	7226.44	60	Marcellus
62	10/9/2018	6859.999	7027.654	60	Marcellus
63	10/9/2018	6661.213	6828.868	60	Marcellus

API 47-095-02434 Farm Name Steven McPeck et al. Well Number Pheasant Unit 1H								
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	6/9/2018	76.76989	7739.762	5534	3739	305250	8851.19	N/A
2	6/23/2018	76.67528	7699.513	5651	3753	400950	8792.45	N/A
3	6/24/2018	71.09441	7491.893	6041	3733	401200	8304.48	N/A
4	6/26/2018	76.26387	7624.055	5703	4630	401900	10352.5	N/A
5	6/27/2018	74.34384	7748.848	5796	4143	401500	8236.73	N/A
6	6/27/2018	77.08629	7878.69	5347	4727	402100	8176.07	N/A
7	6/28/2018	72.02365	7512.858	6233	4395	401500	8208.98	N/A
8	6/28/2018	76.27213	7606.693	6028	4549	401800	8111.57	N/A
9	6/28/2018	76.20388	7682.846	6384	4396	401550	8195.02	N/A
10	6/29/2018	76.33683	7688.324	6272	4130	401900	8249.42	N/A
11	6/30/2018	75.50051	7680.569	6406	4107	395750	8039.955	N/A
12	6/30/2018	75.11438	7594.575	6887	4067	401850	8090.83	N/A
13	6/30/2018	74.10684	7495.331	6340	3925	401400	8184.15	N/A
14	6/30/2018	75.3	7501	6872	4279	400650	8190.2	N/A
15	7/1/2018	77.15068	7594.889	6278	4045	402250	8063.38	N/A
16	7/1/2018	75.07063	7540.932	6351	3962	399500	8152.02	N/A
17	7/1/2018	76.38996	7507.752	6134	4130	401100	8099.53	N/A
18	7/2/2018	77.33062	7423.69	5513	3875	402100	7947.14	N/A
19	7/2/2018	74.74647	7425.77	6372	3818	400750	7917.38	N/A
20	7/2/2018	75.96248	7396.8	6017	3726	402000	7927.33	N/A
21	7/3/2018	76.82812	7430.165	5470	3938	405550	7957.99	N/A
22	7/3/2018	73.18793	7364.964	6175	3901	401500	7954.54	N/A
23	7/4/2018	77.97809	7399.85	6616	4099	401910	7900.36	N/A
24	7/4/2018	75.378	7393.466	5993	3734	400600	8032.5	N/A
25	7/4/2018	46.87687	7779.758	7140	4491	25400	4782.42	N/A
26	7/4/2018	68.29326	7464.966	6643	3956	407700	8415.54	N/A
27	7/5/2018	78.24762	7317.033	5813	4202	408200	7550.14	N/A
28	7/5/2018	77.26468	7212.219	6020	3947	401850	7828.72	N/A
29	7/5/2018	75.84541	7214.013	6091	4214	400200	8028.29	N/A
30	7/6/2018	75.78532	7305.273	6711	4182	402300	7977.02	N/A
31	7/6/2018	70.96292	7000.394	6618	4265	399850	9918.86	N/A
32	7/6/2018	75.97809	7131.075	6310	4414	400200	8229.44	N/A
33	7/6/2018	74.44783	7069.459	6058	4485	401950	7902.19	N/A
34	7/6/2018	79.51122	7366.428	6545	4402	400300	8667.57	N/A
35	7/7/2018	74.22999	7224.252	6237	4281	401100	9670.7	N/A
36	7/7/2018	76.6605	7034.263	5672	4483	400400	7856.77	N/A
37	7/7/2018	77.2698	7095.649	6371	4506	401100	7767.1	N/A
38	7/7/2018	77.86897	7230.33	6741	4556	401400	7589.59	N/A
39	7/8/2018	77.31013	7192.888	6722	4214	401500	7981.06	N/A
40	7/9/2018	78.06751	7291.36	5938	4452	401200	7781.15	N/A
41	7/10/2018	80.54418	7185.126	6025	4275	400150	7738.47	N/A
42	7/11/2018	75.66317	7051.606	6048	4157	401100	7864.75	N/A
43	7/12/2018	73.84317	6923.173	6177	4358	400400	7712.7	N/A
44	7/13/2018	75.62574	6970.484	6344	4037	400000	7811.29	N/A
45	7/14/2018	76.13134	6959.811	5788	4537	400850	7611.17	N/A
46	7/15/2018	76.76023	7079.554	6013	4296	395400	7470.76	N/A
47	7/16/2018	77.312	6961.021	5779	4500	401500	7770.51	N/A
48	7/17/2018	74.68455	6883.545	6445	4272	400400	8046	N/A
49	7/18/2018	72.93	6881	6342	4344	406700	7730.005	N/A
50	7/19/2018	75.07364	6798.818	6271	4508	403400	7778	N/A
51	7/20/2018	72.12364	6512	6095	4537	401300	7695.005	N/A
52	7/21/2018	77.3	6781	6198	4339	401000	7700	N/A
53	7/22/2018	76.11455	6627.182	5728	4161	400300	7529.005	N/A
54	7/23/2018	74.73818	6654.909	5733	4345	400700	7696	N/A
55	7/24/2018	77.52182	6584.727	5659	4489	401150	7728.005	N/A
56	7/25/2018	75.69455	6530.818	5836	4326	401200	7802	N/A
57	7/26/2018	76.77091	6638	6673	4359	400250	7751	N/A
58	7/27/2018	75.72	6461.636	5879	4390	401650	7516.005	N/A
59	7/28/2018	76.30818	6433.727	5324	4154	401950	7538.005	N/A
60	7/29/2018	73.05636	6516.818	6234	4839	401250	7671	N/A
61	7/30/2018	74.57091	6422.182	6043	4848	401200	7676	N/A
62	7/31/2018	77.38364	6449.455	6946	4572	401200	7530.005	N/A
63	8/1/2018	76.49455	6415.455	6837	3786	400850	7692	N/A
	AVG=	74.8	7,444	6,194	4,163	14,788,510	310,120	TOTAL



API 47-095-02434 Farm Name Steven McPeek et al Well Number Pheasant Unit 1H				
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	-15	205	-15	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	1,877	1,785	1,877
Big Lime	1,892	2,021	1,892	2,021
Big Injun	2,021	2,481	2,021	2,481
Gantz Sand	2,481	2,620	2,481	2,620
Fifty Foot Sandstone	2,620	2,726	2,620	2,726
Gordon	2,726	3,064	2,726	3,067
Fifth Sandstone	3,064	3,123	3,067	3,126
Bayard	3,123	3,498	3,126	3,505
Warren	3,498	3,884	3,505	3,900
Speechley	3,884	4,582	3,900	4,613
Balltown	4,188	4,972	4,211	5,008
Bradford	4,582	4,972	4,613	5,008
Benson	4,972	5,215	5,008	5,255
Alexander	5,215	5,757	5,255	5,803
Rhinstreet	5,733	6,046	5,779	6,118
Sycamore	6,046	6,203	6,118	6,327
Middlesex	6,203	6,294	6,327	6,489
Burkett	6,294	6,320	6,489	6,552
Tully	6,320	6,342	6,552	6,618
Marcellus	6,342	NA	6,618	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:	9/13/2018
Job End Date:	10/9/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02434-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Pheasant Unit 1H
Latitude:	39.41792500
Longitude:	-80.92275000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,270
Total Base Water Volume (gal):	21,993,468
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	87.73123	
DWP-111	CWS	Gel Slurry					
				Listed Below			

DWP-641	CWS	Friction Reducer											
					Listed Below								
DAP-902	CWS	Scale Inhibitor											
					Listed Below								
CI-9100G	CWS	Corrosion Inhibitor											
					Listed Below								
DAP-103	CWS	Iron Control											
					Listed Below								
SaniFrac 8844	CWS	Biocide											
					Listed Below								
Calbreak 5501	CWS	Breaker											
					Listed Below								
Sand (Proppant)	CWS	Propping Agent											
					Listed Below								
Other Chemical (s)	Listed Above	See Trade Name (s) List											
					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				11.85741	
					Calcite	471-34-1		1.00000				0.07751	



				Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.06159	
				Guar gum	9000-30-0	60.00000	0.06159	
				Hydrochloric acid	7647-01-0	37.00000	0.05789	
				Illite	12173-60-3	1.00000	0.04101	
				Polymer	26100-47-0	45.00000	0.02133	
				Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01422	
				Goethite	1310-14-1	0.10000	0.01185	
				Biotite	1302-27-8	0.10000	0.01185	
				Apatite	64476-38-6	0.10000	0.01185	
				Polyethylene glycol mixture	25322-68-3	54.50000	0.00600	
				2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00594	
				Ammonium chloride	12125-02-9	11.00000	0.00521	
				Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00513	
				Ilmenite	98072-94-7	0.10000	0.00410	
				2,2-Dibromo-3-Nitripropionamide	10222-01-2	20.00000	0.00220	
				Ammonium Persulfate	64742-47-8	100.00000	0.00220	
				Sorbitan monooleate	1338-43-8	4.00000	0.00190	
				Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00154	
				1,2-Propanediol	57-55-6	10.00000	0.00148	
				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00142	
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00095	
				Citric acid	77-92-9	60.00000	0.00052	
				Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00047	

				Sodium bromide	7647-15-6	4.00000	0.00044	
				Vinylidene chloride-methyl acrylate copolymer	69418-26-4	20.00000	0.00044	
				Dibromoacetonitrile	3252-43-5	3.00000	0.00033	
				Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00024	
				Acrylamide	79-06-1	0.10000	0.00005	
				Ethylene glycol	107-21-1	40.00000	0.00003	
				Diethylene glycol (mono) methyl ether	34590-94-8	20.00000	0.00002	
				Ethoxylated alcohols	Proprietary	10.00000	0.00001	Proprietary CAS
				Tar bases, quinolone derivs	68513-87-1	1.00000	0.00001	
				Diethylene glycol	111-46-6	1.00000	0.00001	
				Isopropanol	67-63-0	5.00000	0.00001	
				Tar bases, quinolone derivs, benzyl chloride- quatenized	72480-70-7	10.00000	0.00001	
				Formic Acid	64-18-6	10.00000	0.00001	
				Cinnamaldehyde	104-55-2	10.00000	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: 47-095-02434 County: Tyler  
 District: Centerville Well No: Pheasant Unit 1HST  
 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 3416729445, 3405320968, 4708509721, 3400923761, 3416723862,
- (4) Reuse: 301,407 Alternate Permit Number: \_\_\_\_\_
- (5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_
- (6) Other method: \_\_\_\_\_ (Include an explanation)

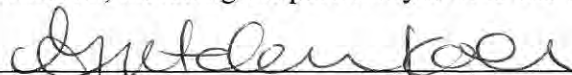
Follow Instructions below to determine your treatment category:

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/Bl
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: \_\_\_\_\_