

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 in a cursive style.

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 - 02435 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 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 4363164m Easting 506665m  
 Landing Point of Curve Northing 4363288.48m Easting 506803.33m  
 Bottom Hole Northing 4366828m Easting 505526m

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 2/8/2018  
 Date completion activities began 6/16/2018 Date completion activities ceased 12/30/2018  
 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 - 02435

Farm name Steven McPeek et al

Well number Pheasant 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"	617'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2633'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19265'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6617'		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	898 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) 19265' MD, 6275' TVD (BHL), 6399' (Deepest Point Drilled)

Loggers TD (ft) 19265' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5950'

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 - 02435 Farm name Steven McPeek et al Well number Pheasant 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 - 02435 Farm name Steven McPeek et al Well number Pheasant Unit 2H

PRODUCING FORMATION(S)

DEPTHS

Marcellus 6347' (TOP) TVD 6682' (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 8987 mcfpd Oil 298 bpd NGL --- bpd Water 19 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 47-095-02435 Farm Name Steven McPeek et al Well Number Pheasant Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/13/2018	18992.925	19163	60	Marcellus
2	9/13/2018	18795.075	18961.95	60	Marcellus
3	9/14/2018	18597.225	18764.1	60	Marcellus
4	9/15/2018	18399.375	18566.25	60	Marcellus
5	9/15/2018	18201.525	18368.4	60	Marcellus
6	9/16/2018	18003.675	18170.55	60	Marcellus
7	9/16/2018	17805.825	17972.7	60	Marcellus
8	9/16/2018	17607.975	17774.85	60	Marcellus
9	9/17/2018	17410.125	17577	60	Marcellus
10	9/17/2018	17212.275	17379.15	60	Marcellus
11	9/17/2018	17014.425	17181.3	60	Marcellus
12	9/18/2018	16816.575	16983.45	60	Marcellus
13	9/18/2018	16618.725	16785.6	60	Marcellus
14	9/18/2018	16420.875	16587.75	60	Marcellus
15	9/19/2018	16223.025	16389.9	60	Marcellus
16	9/19/2018	16025.175	16192.05	60	Marcellus
17	9/20/2018	15827.325	15994.2	60	Marcellus
18	9/20/2018	15629.475	15796.35	60	Marcellus
19	9/21/2018	15431.625	15598.5	60	Marcellus
20	9/21/2018	15233.775	15400.65	60	Marcellus
21	9/22/2018	15035.925	15202.8	60	Marcellus
22	9/22/2018	14838.075	15004.95	60	Marcellus
23	9/23/2018	14640.225	14807.1	60	Marcellus
24	9/23/2018	14442.375	14609.25	60	Marcellus
25	9/24/2018	14244.525	14411.4	60	Marcellus
26	9/24/2018	14046.675	14213.55	60	Marcellus
27	9/24/2018	13848.825	14015.7	60	Marcellus
28	9/25/2018	13650.975	13817.85	60	Marcellus
29	9/25/2018	13453.125	13620	60	Marcellus
30	9/26/2018	13255.275	13422.15	60	Marcellus
31	9/26/2018	13057.425	13224.3	60	Marcellus
32	9/26/2018	12859.575	13026.45	60	Marcellus
33	9/26/2018	12661.725	12828.6	60	Marcellus
34	9/27/2018	12463.875	12630.75	60	Marcellus
35	9/28/2018	12266.025	12432.9	60	Marcellus
36	9/28/2018	12068.175	12235.05	60	Marcellus
37	9/29/2018	11870.325	12037.2	60	Marcellus
38	9/29/2018	11672.475	11839.35	60	Marcellus
39	9/29/2018	11474.625	11641.5	60	Marcellus
40	9/30/2018	11276.775	11443.65	60	Marcellus
41	9/30/2018	11078.925	11245.8	60	Marcellus
42	10/1/2018	10881.075	11047.95	60	Marcellus
43	10/1/2018	10683.225	10850.1	60	Marcellus
44	10/2/2018	10485.375	10652.25	60	Marcellus
45	10/2/2018	10287.525	10454.4	60	Marcellus
46	10/3/2018	10089.675	10256.55	60	Marcellus
47	10/3/2018	9891.825	10058.7	60	Marcellus
48	10/4/2018	9693.975	9860.85	60	Marcellus
49	10/4/2018	9496.125	9663	60	Marcellus
50	10/5/2018	9298.275	9465.15	60	Marcellus
51	10/5/2018	9100.425	9267.3	60	Marcellus
52	10/6/2018	8902.575	9069.45	60	Marcellus
53	10/6/2018	8704.725	8871.6	60	Marcellus
54	10/7/2018	8506.875	8673.75	60	Marcellus
55	10/7/2018	8309.025	8475.9	60	Marcellus
56	10/7/2018	8111.175	8278.05	60	Marcellus
57	10/8/2018	7913.325	8080.2	60	Marcellus
58	10/8/2018	7715.475	7882.35	60	Marcellus
59	10/8/2018	7517.625	7684.5	60	Marcellus
60	10/9/2018	7319.775	7486.65	60	Marcellus
61	10/9/2018	7121.925	7288.8	60	Marcellus
62	10/9/2018	6924.075	7090.95	60	Marcellus
63	10/9/2018	6726.225	6893.1	60	Marcellus

API 47-095-02435 Farm Name Steven McPeck et al Well Number Pheasant 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	9/13/2018	77.06846	7989.342	6247	3962	281650	9870.52	N/A
2	9/13/2018	76.33006	7829.042	5540	3585	400050	8292.11	N/A
3	9/14/2018	70.47124	7416.546	6150	4142	400350	10328.99	N/A
4	9/15/2018	74.16678	7629.722	6055	4158	400200	8164.29	N/A
5	9/15/2018	74.10939	7735.386	5772	3879	399350	9116.82	N/A
6	9/16/2018	73.21461	7514.915	5682	4303	401050	8181.1	N/A
7	9/16/2018	72.70847	7411.913	6181	4254	400550	8235.05	N/A
8	9/16/2018	76.87963	7595.375	6191	4368	400550	7936.89	N/A
9	9/17/2018	76.03726	7674.24	6888	3991	399700	8149.62	N/A
10	9/17/2018	74.97718	7583.746	6759	4618	399450	8145.21	N/A
11	9/17/2018	74.00499	7366.563	5531	3966	400350	8250.295	N/A
12	9/18/2018	75.40015	7541.676	6154	3659	400250	8112.6	N/A
13	9/18/2018	74.8	7456	7034	3933	400100	8184.3	N/A
14	9/18/2018	74.97379	7522.862	6728	4077	400400	9968.06	N/A
15	9/19/2018	77.00142	7491.292	6778	4054	401400	7884.23	N/A
16	9/19/2018	74.97928	7403.681	6053	3962	398200	8171.72	N/A
17	9/20/2018	73.34574	7452.092	6135	3979	399900	8276.52	N/A
18	9/20/2018	77.83998	7574.959	5640	3859	400700	7918.87	N/A
19	9/21/2018	75.1478	7263.843	5830	3540	400450	8234.02	N/A
20	9/21/2018	75.9236	7437.961	6016	3815	400450	7983.07	N/A
21	9/22/2018	75.61315	7302	6363	3836	400700	8011.2	N/A
22	9/22/2018	76.99502	7468.126	5696	4118	400500	7858.71	N/A
23	9/23/2018	77.72654	7575.769	5982	4448	401550	8519.11	N/A
24	9/23/2018	75.72216	7365.244	6317	4044	399950	8041.9	N/A
25	9/24/2018	77.18162	7314.159	5721	4249	401250	7884.32	N/A
26	9/24/2018	75.09574	7307.45	5913	4043	400500	8060.05	N/A
27	9/24/2018	77.01152	7370.934	6686	4226	401600	7462.78	N/A
28	9/25/2018	73.79242	7271.024	5878	3836	400800	8221.92	N/A
29	9/25/2018	76.41492	7318.781	6097	4157	400600	7865.3	N/A
30	9/26/2018	75.96506	7270.079	6112	4082	402700	8020.72	N/A
31	9/26/2018	73.74753	7036.531	6043	4026	399550	7664.2	N/A
32	9/26/2018	73.74356	7016.624	5689	4307	398750	7918.45	N/A
33	9/26/2018	72.94314	7294.576	6432	4014	399850	7956.57	N/A
34	9/27/2018	76.22776	7119.054	6189	4178	402350	7855.23	N/A
35	9/28/2018	74.71817	7112.182	6056	4433	399500	7758.05	N/A
36	9/28/2018	77.32499	7104.787	5628	4104	400700	7777.37	N/A
37	9/29/2018	75.76625	7083.454	5952	4199	399850	7773.79	N/A
38	9/29/2018	77.09028	7072.693	5700	4504	397750	7701.28	N/A
39	9/29/2018	78.26337	7303.518	6380	4334	400900	7896.39	N/A
40	9/30/2018	79.55565	7466.201	6381	4150	398350	7690.82	N/A
41	9/30/2018	50.15569	7619.519	6811	4132	398850	8950.78	N/A
42	10/1/2018	74.9931	7192.439	6741	4226	399000	7600.49	N/A
43	10/1/2018	65.13544	7333.924	6371	4396	401600	7694.17	N/A
44	10/2/2018	71.73134	6977.522	6606	4116	399400	7697.04	N/A
45	10/2/2018	71.46233	6749.643	6283	4085	392920	7795.83	N/A
46	10/3/2018	75.76824	7259.465	6866	4357	404650	8017.2	N/A
47	10/3/2018	68.7	7546.286	6404	4405	402400	10159	N/A
48	10/4/2018	71.06273	7049.636	6977	4281	399950	7779	N/A
49	10/4/2018	75.25545	6917.636	6273	4420	399250	7630	N/A
50	10/5/2018	73.83091	6944.545	6839	4701	399800	7633.005	N/A
51	10/5/2018	74.16667	7115.167	5835	4040	400700	8659	N/A
52	10/6/2018	73.7	6891	6499	4497	399750	7732	N/A
53	10/6/2018	73.966	6673.6	6686	4225	333950	6765	N/A
54	10/7/2018	73.21182	6584.818	7596	4189	399350	7631	N/A
55	10/7/2018	74.05909	6792.818	6224	4339	400550	7668.005	N/A
56	10/7/2018	75.825	6817.571	7101	4744	399650	8700	N/A
57	10/8/2018	72.6125	6637.583	7189	4632	400300	7727.005	N/A
58	10/8/2018	74.27182	6458.091	6295	4283	400200	7633.005	N/A
59	10/8/2018	76.11364	6567.636	6678	4302	399700	7621	N/A
60	10/9/2018	69.72	6383.091	7201	4361	399800	7644	N/A
61	10/9/2018	77.09364	6501.545	6931	4121	401150	7499.005	N/A
62	10/9/2018	76.63718	6446.818	6459	4144	400550	7583.005	N/A
63	10/9/2018	77.53091	6520.091	7401	3963	399400	7803	N/A
	AVG=	75.3	7,402	6,100	4,077	15,093,550	311,755	TOTAL

API 47-095-02435 Farm Name Steven McPeek et al Well Number Pheasant Unit 2H				
EXHIBIT 3				
LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
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	1,877	1,785	1,889
Big Lime	1,892	2,013	1,904	2,028
Big Injun	2,013	2,477	2,028	2,501
Gantz Sand	2,477	2,620	2,501	2,646
Fifty Foot Sandstone	2,620	2,724	2,646	2,751
Gordon	2,724	3,062	2,751	3,092
Fifth Sandstone	3,062	3,131	3,092	3,162
Bayard	3,131	3,495	3,162	3,529
Warren	3,495	3,882	3,529	3,921
Spechley	3,882	4,576	3,921	4,623
Balltown	4,186	4,971	4,227	5,022
Bradford	4,576	4,971	4,623	5,022
Benson	4,971	5,220	5,022	5,274
Alexander	5,220	5,764	5,274	5,826
Rhinestreet	5,740	6,050	5,802	6,134
Sycamore	6,050	6,211	6,134	6,357
Middlesex	6,211	6,297	6,357	6,535
Burkett	6,297	6,324	6,535	6,607
Tully	6,324	6,347	6,607	6,682
Marcellus	6,347	NA	6,682	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:	47-095-02435-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Pheasant Unit 2H
Latitude:	39.41789700
Longitude:	-80.92200000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,276
Total Base Water Volume (gal):	22,222,953
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	87.73839	
SaniFrac 8844	CWS	Biocide					
				Listed Below			

DWP-641	CWS	Friction Reducer											
					Listed Below								
Calbreak 5501	CWS	Breaker											
					Listed Below								
DWP-111	CWS	Gel Slurry											
					Listed Below								
Sand (Proppant)	CWS	Propping Agent											
					Listed Below								
CI-9100G	CWS	Corrosion Inhibitor											
					Listed Below								
DAP-902	CWS	Scale Inhibitor											
					Listed Below								
DAP-103	CWS	Iron Control											
					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			11.84513		
					Calcite	471-34-1		1.00000			0.07733		

				Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.06300	
				Guar gum	9000-30-0	60.00000	0.06300	
				Hydrochloric acid	7647-01-0	37.00000	0.05809	
				Illite	12173-60-3	1.00000	0.04107	
				Polymer	26100-47-0	45.00000	0.02229	
				Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01486	
				Biotite	1302-27-8	0.10000	0.01184	
				Apatite	64476-38-6	0.10000	0.01184	
				Goethite	1310-14-1	0.10000	0.01184	
				2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00602	
				Polyethylene glycol mixture	25322-68-3	54.50000	0.00598	
				Ammonium chloride	12125-02-9	11.00000	0.00545	
				Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00525	
				Ilmenite	98072-94-7	0.10000	0.00411	
				2,2-Dibromo-3-Nitripropionamide	10222-01-2	20.00000	0.00220	
				Ammonium Persulfate	64742-47-8	100.00000	0.00218	
				Sorbitan monooleate	1338-43-8	4.00000	0.00198	
				Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00157	
				1,2-Propanediol	57-55-6	10.00000	0.00151	
				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00149	
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00099	
				Citric acid	77-92-9	60.00000	0.00053	
				Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00050	

				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	
				Alkylxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00025	
				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	
				Formic Acid	64-18-6	10.00000	0.00001	
				Isopropanol	67-63-0	5.00000	0.00001	
				Cinnamaldehyde	104-55-2	10.00000	0.00001	
				Tar bases, quinolone derivs	68513-87-1	1.00000	0.00001	
				Ethoxylated alcohols	Proprietary	10.00000	0.00001	Proprietary CAS
				Tar bases, quinolone derivs, benzyl chloride- quaternized	72480-70-7	10.00000	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: 47-095-02435 County: Tyler  
District: Centerville Well No: Pheasant 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, 3416729445, 3405320968, 4708509721, 3400923761, 3416723862, 3410523268
- (3) Offsite Disposal: 700 Site Location: Mud Masters
- (4) Reuse: 301,407 Alternate Permit Number: \_\_\_\_\_
- (5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_
- (6) Other method: \_\_\_\_\_ (Include an explanation)

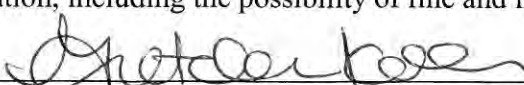
Follow Instructions below to determine your treatment category:

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: 3/15/19

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