



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

September 5, 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:

- Winchester Unit 1H (API # 47-095-02515)—Sine Pad
- Winchester Unit 2H (API # 47-095-02534)—Sine Pad
- Orvis Unit 2H (API # 47-095-02532)—Sine Pad
- Remington Unit 1H (API # 47-095-02533)—Sine Pad
- Remington Unit 2H (API # 47-095-02535)—Sine 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 "Megan Griffith", written over a white background.

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- \_\_\_\_\_ - \_\_\_\_\_ County \_\_\_\_\_ District \_\_\_\_\_  
Quad \_\_\_\_\_ Pad Name \_\_\_\_\_ Field/Pool Name \_\_\_\_\_  
Farm name \_\_\_\_\_ Well Number \_\_\_\_\_  
Operator (as registered with the OOG) \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) \_\_\_\_\_ 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)  
\_\_\_\_\_  
\_\_\_\_\_

Date permit issued \_\_\_\_\_ Date drilling commenced \_\_\_\_\_ Date drilling ceased \_\_\_\_\_  
Date completion activities began \_\_\_\_\_ Date completion activities ceased \_\_\_\_\_  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft \_\_\_\_\_ Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft \_\_\_\_\_ Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) \_\_\_\_\_

Reviewed by:  
\_\_\_\_\_

API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) \_\_\_\_\_ Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated \_\_\_\_\_ Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) \_\_\_\_\_

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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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 \_\_\_\_\_

API 47- \_\_\_ - \_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

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- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

PRODUCING FORMATION(S)

DEPTHS

_____	_____ TVD	_____ MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ 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 \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by \_\_\_\_\_ Telephone \_\_\_\_\_  
Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

API 47-095-02533 Farm Name James Sine et al Well Number Remington Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/27/2019	16816.5		60	Marcellus
2	4/28/2019	16615.662	16785.027	60	Marcellus
3	4/29/2019	16414.824	16584.189	60	Marcellus
4	4/29/2019	16213.986	16383.351	60	Marcellus
5	4/30/2019	16013.148	16182.513	60	Marcellus
6	4/30/2019	15812.31	15981.675	60	Marcellus
7	5/1/2019	15611.472	15780.837	60	Marcellus
8	5/1/2019	15410.634	15579.999	60	Marcellus
9	5/2/2019	15209.796	15379.161	60	Marcellus
10	5/2/2019	15008.958	15178.323	60	Marcellus
11	5/3/2019	14808.12	14977.485	60	Marcellus
12	5/3/2019	14607.282	14776.647	60	Marcellus
13	5/4/2019	14406.444	14575.809	60	Marcellus
14	5/4/2019	14205.606	14374.971	60	Marcellus
15	5/4/2019	14004.768	14174.133	60	Marcellus
16	5/5/2019	13803.93	13973.295	60	Marcellus
17	5/5/2019	13603.092	13772.457	60	Marcellus
18	5/6/2019	13402.254	13571.619	60	Marcellus
19	5/6/2019	13201.416	13370.781	60	Marcellus
20	5/7/2019	13000.578	13169.943	60	Marcellus
21	5/7/2019	12799.74	12969.105	60	Marcellus
22	5/8/2019	12598.902	12768.267	60	Marcellus
23	5/8/2019	12398.064	12567.429	60	Marcellus
24	5/9/2019	12197.226	12366.591	60	Marcellus
25	5/9/2019	11996.388	12165.753	60	Marcellus
26	5/10/2019	11795.55	11964.915	60	Marcellus
27	5/10/2019	11594.712	11764.077	60	Marcellus
28	5/10/2019	11393.874	11563.239	60	Marcellus
29	5/11/2019	11193.036	11362.401	60	Marcellus
30	5/11/2019	10992.198	11161.563	60	Marcellus
31	5/11/2019	10791.36	10960.725	60	Marcellus
32	5/12/2019	10590.522	10759.887	60	Marcellus
33	5/12/2019	10389.684	10559.049	60	Marcellus
34	5/13/2019	10188.846	10358.211	60	Marcellus
35	5/13/2019	9988.008	10157.373	60	Marcellus
36	5/13/2019	9787.17	9956.535	60	Marcellus
37	5/14/2019	9586.332	9755.697	60	Marcellus
38	5/14/2019	9385.494	9554.859	60	Marcellus
39	5/15/2019	9184.656	9354.021	60	Marcellus
40	5/15/2019	8983.818	9153.183	60	Marcellus
41	5/15/2019	8782.98	8952.345	60	Marcellus
42	5/16/2019	8582.142	8751.507	60	Marcellus
43	5/16/2019	8381.304	8550.669	60	Marcellus
44	5/17/2019	8180.466	8349.831	60	Marcellus
45	5/17/2019	7979.628	8148.993	60	Marcellus
46	5/18/2019	7778.79	7948.155	60	Marcellus
47	5/19/2019	7577.952	7747.317	60	Marcellus
48	5/20/2019	7377.114	7546.479	60	Marcellus
49	5/21/2019	7176.276	7345.641	60	Marcellus
50	5/22/2019	6975.438	7144.803	60	Marcellus
51	5/23/2019	6774.6	6943.965	60	Marcellus
52	5/24/2019	6573.762	6743.127	60	Marcellus
53	5/25/2019	6372.924	6542.289	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	4/27/2019	72.96757	8170.065	6914	4561	166000	5395.33	N/A
2	4/28/2019	75.99061	8149.247	6074	5159	407300	8964.47	N/A
3	4/29/2019	76.25797	7892	6167	5270	406950	8938.75	N/A
4	4/29/2019	75.7398	8029.234	5873	4953	407300	8878.92	N/A
5	4/30/2019	77.58623	8023.189	5891	4795	406900	8962.47	N/A
6	4/30/2019	75.0274	7988.921	5880	4374	407640	8979.97	N/A
7	5/1/2019	73.54153	8081.427	6625	4081	406800	8979.74	N/A
8	5/1/2019	76.7805	8105.979	6271	4870	406600	8873.94	N/A
9	5/2/2019	78.02981	8177.006	6058	4757	408100	8732.94	N/A
10	5/2/2019	76.28419	8091.138	6387	5311	407800	8702.78	N/A
11	5/3/2019	11.9	7915	5463	4311	407500	8870.2	N/A
12	5/3/2019	78.81422	8278.865	6131	4557	407350	8778.27	N/A
13	5/4/2019	78.79196	8072.042	5942	4577	407700	8818.04	N/A
14	5/4/2019	79.5	8260	6413	5938	408350	8999	N/A
15	5/4/2019	78.10188	8111.863	6085	5293	407150	8856.17	N/A
16	5/5/2019	78.6	8034	6536	5893	407700	8827	N/A
17	5/5/2019	78.57307	8172.659	6149	4974	407400	8815.93	N/A
18	5/6/2019	79.5	8255	6202	5358	407450	8802	N/A
19	5/6/2019	81.24606	8129.175	6291	4434	407850	8823.6	N/A
20	5/7/2019	77	8117	6011	4758	407400	10042	N/A
21	5/7/2019	81.84255	8189.511	6945	4638	404500	8306.89	N/A
22	5/8/2019	83.6	8052	6544	4955	407600	8782	N/A
23	5/8/2019	84.8634	8209.301	6348	4322	407600	8714.07	N/A
24	5/9/2019	82.10214	8275.176	6578	4693	407250	8770.59	N/A
25	5/9/2019	82.09337	8037.669	6429	4739	407900	8794.48	N/A
26	5/10/2019	80.95258	8045.158	7077	4528	407100	8865.15	N/A
27	5/10/2019	82.8898	7935.191	7031	4810	407650	8790.74	N/A
28	5/10/2019	86.00413	8181.76	6225	4256	406750	8800.61	N/A
29	5/11/2019	88.01934	8101.295	6225	4495	407250	9594.63	N/A
30	5/11/2019	83.41507	8047.998	6332	4438	407000	8766.19	N/A
31	5/11/2019	85.30343	8027.53	7155	4083	406450	8685.79	N/A
32	5/12/2019	81.93586	7743.604	6874	4292	407900	8673.12	N/A
33	5/12/2019	87.57985	8012.107	6860	4277	407150	8709.64	N/A
34	5/13/2019	84.78386	8029.888	7206	4700	406600	9531.54	N/A
35	5/13/2019	84.03549	7716.404	7138	4308	407900	8640.34	N/A
36	5/13/2019	84.66631	7774.85	7260	4393	407100	8725.6	N/A
37	5/14/2019	82.9348	7575.174	6985	4698	406600	8584.42	N/A
38	5/14/2019	90.11677	7965.067	6719	4132	406750	8640.63	N/A
39	5/15/2019	88.48601	7842.254	6815	3926	408100	8653.94	N/A
40	5/15/2019	87.78341	7615.927	5166	4245	409000	8828.88	N/A
41	5/15/2019	85.3614	7452.415	6042	4083	406750	8605.15	N/A
42	5/16/2019	88.07822	7546.243	6593	4328	406950	8524.16	N/A
43	5/16/2019	85.41994	7535.209	6366	3891	406700	8639.94	N/A
44	5/17/2019	90.22751	7518.929	6774	3648	406700	8587.61	N/A
45	5/17/2019	87.31858	7273.025	6810	4090	406900	8584.11	N/A
46	5/17/2019	87.7498	7258.174	7242	4219	407200	8650.98	N/A
47	5/18/2019	88.24971	7219.641	7726	4465	406700	8595.6	N/A
48	5/18/2019	86.58488	7128.514	7071	4215	407100	8556.24	N/A
49	5/18/2019	89.77945	7131.29	7237	3956	406900	8587.95	N/A
50	5/19/2019	86.44187	7033.542	6725	4185	407500	8531.26	N/A
51	5/19/2019	85.58575	6821.795	7090	4257	406980	8538.56	N/A
52	5/19/2019	89.22624	6861.394	6829	3717	405200	8297.72	N/A
53	5/20/2019	89.75556	7036.22	6433	3644	401300	8434.89	N/A
	<b>AVG</b>	<b>80.2</b>	<b>7,972</b>	<b>6,441</b>	<b>4,604</b>	<b>18,085,390</b>	<b>393,842</b>	TOTAL

## 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	75	195	75	195
Silty Shale	195	245	195	245
shaly sand	245	415	245	415
Shale	415	475	415	475
Dolomitic Shale	475	755	475	755
Shaly Siltstone	755	875	755	875
Silty Sandstone	875	915	875	915
Shaly Sand	915	985	915	985
Sandstone	985	1,125	985	1,125
Silty, Shaly, Sandstone	1,125	1,185	1,125	1,185
Sandstone, Tr Shale, Tr Coal	1,185	1,235	1,185	1,235
Silty Sandstone	1,235	1,515	1,235	1,515
Shaly Siltstone	1,515	1,599	1,515	1,614
Big Lime	1,624	2,465	1,639	2,499
Fifty Foot Sandstone	2,465	2,544	2,499	2,579
Gordon	2,544	2,865	2,579	2,906
Fifth Sandstone	2,865	3,220	2,906	3,266
Bayard	3,220	3,772	3,266	3,828
Speechley	3,772	4,089	3,828	4,151
Balltown	4,089	4,265	4,151	4,331
Bradford	4,265	4,535	4,331	4,606
Benson	4,535	4,686	4,606	4,760
Alexander	4,686	5,900	4,760	6,065
Sycamore	5,774	5,875	5,897	6,040
Middlesex	5,875	5,962	6,040	6,229
Burkett	5,962	5,988	6,229	6,311
Tully	5,988	5,993	6,311	6,328
Marcellus	5,993	NA	6,328	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:	4/27/2019
Job End Date:	5/20/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02533-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Remington Unit 1H
Latitude:	39.41505800
Longitude:	-80.94668600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,127
Total Base Water Volume (gal):	20,100,331
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	100.00000	88.43179	
DWP-641	CWS	Friction Reducer					
				Listed Below			

CalGel 4000	CWS	Gel Slurry					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
15% HCl Acid	CWS	Clean Perforations					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
SaniFrac 8844	CWS	Biocide					
				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	11.24982	
			Calcite	471-34-1	1.00000	0.07837	
			Hydrochloric acid	7647-01-0	37.00000	0.05248	
			Illite	12173-60-3	1.00000	0.03410	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02769	
			Guar gum	9000-30-0	60.00000	0.02769	
			Polymer	26100-47-0	45.00000	0.02202	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01468	
			Goethite	1310-14-1	0.10000	0.01125	
			Biotite	1302-27-8	0.10000	0.01125	
			Apatite	64476-38-6	0.10000	0.01125	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00593	
			Ammonium chloride	12125-02-9	11.00000	0.00538	
			Ilmenite	98072-94-7	0.10000	0.00341	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00231	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00218	
			Sorbitan monooleate	1338-43-8	4.00000	0.00196	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00147	
			Ammonium Persulfate	7727-54-0	100.00000	0.00101	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00098	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00069	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00049	

			Citric acid	77-92-9	60.00000	0.00048	
			Sodium bromide	7647-15-6	4.00000	0.00044	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00033	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00024	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00020	
			Acrylamide	79-06-1	0.10000	0.00005	
			Ethylene Glycol	107-21-1	40.00000	0.00003	
			Formic acid	64-18-6	10.00000	0.00001	
			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride- quatenized	72480-70-7	10.00000	0.00001	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Organic Acid Salts	9003-04-7			Proprietary Additive Concentration
			Glycol	57-55-6			Proprietary Additive Concentration

\* 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: 47-095-02533 County: Tyler  
District: Meade Well No: Remington Unit 1H  
Farm Name: James Sine et al  
Discharge Date/s From:(MMDDYY) 06/20/19 To: (MMDDYY) 07/20/19  
Discharge Times. From: 0:00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 961,769  
Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)  
(2) UIC: 92,477 Permit No. 3400923821, 3400923823, 3400923824, 3416729731, 3416729543, 3416729464, 3416729445  
(3) Offsite Disposal: \_\_\_\_\_ Site Location: \_\_\_\_\_  
(4) Reuse: 869,292 Alternate Permit Number: \_\_\_\_\_  
(5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_  
(6) Other method: \_\_\_\_\_ (Include an explanation)

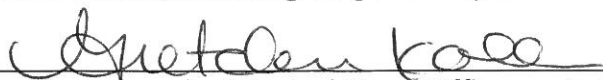
Follow Instructions below to determine your treatment category:

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: 8/28/19

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.

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: \_\_\_\_\_



LATITUDE 39°25'00"

11,303'

LATITUDE 39°25'00"

LONGITUDE 80°55'00"

586'

10,835' TO BOTTOM HOLE

WV NORTH ZONE  
GRID NORTH

1H TOP HOLE

JANIE  
DENOON  
TRUST  
LEASE

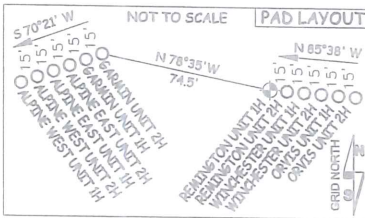
Antero Resources  
Corporation  
Well No. Remington Unit 1H

CHRISTOPHER  
CARSE ET AL  
D.B. 330 PG. 092  
T.M. 08 PAR. 25  
160.5 AC. ±



AS DRILLED DATA:  
WELL 1H TOP HOLE INFORMATION:  
N: 336,619ft E: 1,588,462ft  
LAT: 39°24'54.21" LON: 80°57'24.02"  
BOTTOM HOLE INFORMATION:  
N: 326,327ft E: 1,591,093ft  
LAT: 39°23'12.91" LON: 80°56'48.40"  
WEST VIRGINIA COORDINATE  
SYSTEM OF 1927 NORTH ZONE.  
ZONE WAS DERIVED FROM  
MEASUREMENTS TAKEN WITH  
TRIMBLE GEOXT SUBMETER  
MAPPING GRADE GPS UNIT.  
PLAT ORIENTATION, CORNER,  
AND WELL REFERENCE TIE LINES  
ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 1H TOP HOLE INFORMATION:  
N: 4,362,847m E: 503,744m  
BOTTOM HOLE INFORMATION:  
N: 4,359,724m E: 504,598m



NOTE:  
7 WATER WELLS WERE  
LOCATED WITHIN 2000'  
OF CENTER OF PAD

- W1-N 23°07'E 1183.9'
- W2-N 28°08'E 780.2'
- W3-N 25°42'E 350.9'
- W4-N 39°40'E 867.9'
- W5-N 41°54'E 177.2'
- W6-N 56°21'E 1577.6'
- W7-N 60°04'E 1730.4'



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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION  
OF ENVIRONMENTAL PROTECTION,  
OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO  
WEST VIRGINIA 26415

JOB # 17-001WA  
DRAWING # REMINGTON1HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF  
ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV.  
SUBMETER MAPPING GRADE GPS  
STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY  
DIVISION OF OIL AND GAS

LEGEND		
---	---	Surface Owner Boundary Lines +/-
---	---	Interior Surface Tracts +/-
○	○	Proposed Well Path
○	○	As Drilled Well Path
DOUGLAS R. ROWE P.S. 2202		
DATE 08/19/19		
OPERATOR'S WELL# REMINGTON UNIT #1H		
47	095	02533
STATE	COUNTY	PERMIT

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X  
LOCATION: ELEVATION 799' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK  
QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT MEADE COUNTY TYLER  
SURFACE OWNER JAMES SINE ET AL ACREAGE 32.395 ACRES +/-  
OIL & GAS ROYALTY OWNER JAMES SINE ET UX; MARK KARL; JANIE DENOON TRUST LEASE ACREAGE 54.74 AC±; 73 AC±; 85.3 AC±;  
THELMA HADLEY TESTAMENTARY TRUST; THOMAS MOORE ET AL; CARL JACK WILCOX; THE JOELYNN FAMILY 44.28 AC±; 175.07 AC±; 129.86 AC±;  
PRESERVATION TRUST; THE JOELYNN FAMILY PRESERVATION TRUST; GARY BARNARD ET UX 20 AC±; 200 AC±; 91.55 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,127' TVD 16,987' MD  
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME  
PERMIT

- NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

