



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 \_\_\_\_\_

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>
_____	_____ 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 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 \_\_\_\_\_  
 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 47-095-02535 Farm Name James Sine et al Well Number Remington Unit 2H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/27/2019	16275.2		60	Marcellus
2	4/28/2019	16076.096	16161.056	60	Marcellus
3	4/29/2019	15876.992	15961.952	60	Marcellus
4	4/29/2019	15677.888	15762.848	60	Marcellus
5	4/30/2019	15478.784	15563.744	60	Marcellus
6	4/30/2019	15279.68	15364.64	60	Marcellus
7	5/1/2019	15080.576	15165.536	60	Marcellus
8	5/1/2019	14881.472	14966.432	60	Marcellus
9	5/2/2019	14682.368	14767.328	60	Marcellus
10	5/2/2019	14483.264	14568.224	60	Marcellus
11	5/2/2019	14284.16	14369.12	60	Marcellus
12	5/3/2019	14085.056	14170.016	60	Marcellus
13	5/3/2019	13885.952	13970.912	60	Marcellus
14	5/4/2019	13686.848	13771.808	60	Marcellus
15	5/4/2019	13487.744	13572.704	60	Marcellus
16	5/5/2019	13288.64	13373.6	60	Marcellus
17	5/5/2019	13089.536	13174.496	60	Marcellus
18	5/6/2019	12890.432	12975.392	60	Marcellus
19	5/6/2019	12691.328	12776.288	60	Marcellus
20	5/7/2019	12492.224	12577.184	60	Marcellus
21	5/7/2019	12293.12	12378.08	60	Marcellus
22	5/8/2019	12094.016	12178.976	60	Marcellus
23	5/8/2019	11894.912	11979.872	60	Marcellus
24	5/9/2019	11695.808	11780.768	60	Marcellus
25	5/9/2019	11496.704	11581.664	60	Marcellus
26	5/9/2019	11297.6	11382.56	60	Marcellus
27	5/10/2019	11098.496	11183.456	60	Marcellus
28	5/10/2019	10899.392	10984.352	60	Marcellus
29	5/11/2019	10700.288	10785.248	60	Marcellus
30	5/11/2019	10501.184	10586.144	60	Marcellus
31	5/11/2019	10302.08	10387.04	60	Marcellus
32	5/12/2019	10102.976	10187.936	60	Marcellus
33	5/12/2019	9903.872	9988.832	60	Marcellus
34	5/12/2019	9704.768	9789.728	60	Marcellus
35	5/13/2019	9505.664	9590.624	60	Marcellus
36	5/13/2019	9306.56	9391.52	60	Marcellus
37	5/14/2019	9107.456	9192.416	60	Marcellus
38	5/14/2019	8908.352	8993.312	60	Marcellus
39	5/15/2019	8709.248	8794.208	60	Marcellus
40	5/15/2019	8510.144	8595.104	60	Marcellus
41	5/15/2019	8311.04	8396	60	Marcellus
42	5/16/2019	8111.936	8196.896	60	Marcellus
43	5/16/2019	7912.832	7997.792	60	Marcellus
44	5/16/2019	7713.728	7798.688	60	Marcellus
45	5/17/2019	7514.624	7599.584	60	Marcellus
46	5/17/2019	7315.52	7400.48	60	Marcellus
47	5/17/2019	7116.416	7201.376	60	Marcellus
48	5/18/2019	6917.312	7002.272	60	Marcellus
49	5/18/2019	6718.208	6803.168	60	Marcellus
50	5/19/2019	6519.104	6604.064	60	Marcellus
51	5/19/2019	6320	6404.96	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 (bbbls)	Amount of Nitrogen/ other (units)
1	4/27/2019	72.34021	8148.637	6710	4979	164450	5053.5	N/A
2	4/28/2019	78.01938	8164.648	7891	5454	403900	8948.67	N/A
3	4/29/2019	75.42383	8112.537	5730	4314	403500	8797.46	N/A
4	4/29/2019	74.77982	8051.884	5717	4464	403470	8823.45	N/A
5	4/30/2019	76.5048	8150.672	5676	5703	403450	8652.78	N/A
6	4/30/2019	76.586	8168.384	6689	5562	402950	8853.34	N/A
7	5/1/2019	76.5237	8113.554	6313	5776	403600	8775.96	N/A
8	5/1/2019	77.50034	8240.345	6426	5266	403350	8819.94	N/A
9	5/2/2019	79.64008	8042.183	5970	4411	403450	8751.02	N/A
10	5/2/2019	80.13228	8031.412	5890	4573	405050	8791.38	N/A
11	5/2/2019	67.75028	7590.396	5860	5456	404050	10504.68	N/A
12	5/3/2019	81.5	8207	6479	5219	403800	8655	N/A
13	5/3/2019	80.31492	8078.121	5902	5085	403700	8739.92	N/A
14	5/4/2019	85.4	8249	5938	5316	404850	8680	N/A
15	5/4/2019	79.72511	8131.658	6112	5281	403950	8703.34	N/A
16	5/5/2019	80.6	7991	6262	5670	404800	8825	N/A
17	5/5/2019	81.20769	8058.812	5043	4341	403800	8724.28	N/A
18	5/6/2019	79.34573	8113.503	6015	4645	404050	8768.01	N/A
19	5/6/2019	86.5	8252	5936	4841	404050	8839.8	N/A
20	5/7/2019	83.46219	8082.372	5946	4065	404150	8664	N/A
21	5/7/2019	79.9	8356	6209	4837	404000	10133	N/A
22	5/8/2019	84.9	7992	5675	4953	403850	9277	N/A
23	5/8/2019	84.27467	7994.25	5877	4297	403950	8705.75	N/A
24	5/9/2019	85.38481	8299.014	6118	4078	404150	8683.16	N/A
25	5/9/2019	84.42749	8074.858	6078	5145	404650	8814.06	N/A
26	5/9/2019	86.12592	7931.981	5742	4019	403750	8790.1	N/A
27	5/10/2019	85.78636	8047.54	6377	4378	386250	8460.71	N/A
28	5/10/2019	85.31224	7813.629	5948	4516	404300	8670.23	N/A
29	5/11/2019	88.52037	8174.944	6226	4189	403300	8610.47	N/A
30	5/11/2019	87.39135	7941.144	6034	4317	404100	8649.56	N/A
31	5/11/2019	84.20863	7917.595	6399	4150	404600	8635.55	N/A
32	5/12/2019	84.18148	7495.615	6016	4881	404300	8627.44	N/A
33	5/12/2019	83.14208	7664.697	5903	5451	404500	8663.985	N/A
34	5/12/2019	89.4614	7993.776	5809	4721	402850	8497.43	N/A
35	5/13/2019	82.24709	7981.858	5644	4936	404750	8685.31	N/A
36	5/13/2019	84.35663	7640.215	5783	4311	403600	8567.74	N/A
37	5/14/2019	81.73174	8032.332	5646	5094	403950	8520.67	N/A
38	5/14/2019	83.90982	7543.871	5232	4586	405300	8644.39	N/A
39	5/15/2019	88.90147	8035.369	5774	4615	403500	8450.43	N/A
40	5/15/2019	87.90909	7713.326	5539	5217	405350	8541.21	N/A
41	5/15/2019	86.86906	7741.237	5700	4735	403250	8617.97	N/A
42	5/16/2019	86.06895	7598.87	5879	4265	403200	8544.77	N/A
43	5/16/2019	85.31339	7701.7	5623	4645	403450	8616.67	N/A
44	5/16/2019	90.12194	7461.164	5771	4104	403100	8490.84	N/A
45	5/17/2019	88.61802	7201.873	6284	4412	403700	8495.88	N/A
46	5/17/2019	87.87665	7038.96	6319	4398	404600	8583.24	N/A
47	5/17/2019	88.19219	7014.432	7066	4242	403100	8536.99	N/A
48	5/18/2019	87.58499	6996.22	6851	4260	403350	8380.07	N/A
49	5/18/2019	88.18512	7024.603	6191	3752	403000	8546.01	N/A
50	5/19/2019	90.3992	7293.071	7134	3633	403450	8365.06	N/A
51	5/19/2019	88.26545	6535.283	6562	3699	403200	8439.86	N/A
	<b>AVG</b>	<b>82.5</b>	<b>7,963</b>	<b>5,995</b>	<b>4,784</b>	<b>17,920,070</b>	<b>390,766</b>	<b>TOTAL</b>

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	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	1,602	1,515	1,602
Big Lime	1,627	2,462	1,627	2,463
Fifty Foot Sandstone	2,462	2,535	2,463	2,535
Gordon	2,535	2,882	2,535	2,883
Fifth Sandstone	2,882	3,222	2,883	3,226
Bayard	3,222	3,760	3,226	3,773
Speechley	3,760	4,094	3,773	4,115
Balltown	4,094	4,271	4,115	4,295
Bradford	4,271	4,536	4,295	4,567
Benson	4,536	4,690	4,567	4,724
Alexander	4,690	5,912	4,724	6,041
Sycamore	5,781	5,887	5,866	6,016
Middlesex	5,887	5,973	6,016	6,185
Burkett	5,973	5,998	6,185	6,252
Tully	5,998	6,004	6,252	6,275
Marcellus	6,004	NA	6,275	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:	5/19/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02535-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Remington Unit 2H
Latitude:	39.41513400
Longitude:	-80.95644900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,134
Total Base Water Volume (gal):	19,053,984
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	88.37251	
Calbreak 5501	CWS	Breaker					
				Listed Below			

CalGel 4000	CWS	Gel Slurry					
				Listed Below			
15% HCl Acid	CWS	Clean Perforations					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
SaniFrac 8844	CWS	Biocide					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				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	11.30737	
			Calcite	471-34-1	1.00000	0.07876	
			Hydrochloric acid	7647-01-0	37.00000	0.05348	
			Illite	12173-60-3	1.00000	0.03429	
			Guar gum	9000-30-0	60.00000	0.02782	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02782	
			Polymer	26100-47-0	45.00000	0.02184	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01456	
			Apatite	64476-38-6	0.10000	0.01131	
			Goethite	1310-14-1	0.10000	0.01131	
			Biotite	1302-27-8	0.10000	0.01131	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00598	
			Ammonium chloride	12125-02-9	11.00000	0.00534	
			Ilmenite	98072-94-7	0.10000	0.00343	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00232	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00219	
			Sorbitan monooleate	1338-43-8	4.00000	0.00194	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00146	
			Ammonium Persulfate	7727-54-0	100.00000	0.00100	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00097	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00070	
			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	
			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Formic acid	64-18-6	10.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride- quatenized	72480-70-7	10.00000	0.00001	
			Glycol	57-55-6			Proprietary Additive Concentration
			Organic Acid Salts	9003-04-7			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: 47-095-02535 County: Tyler  
District: Meade Well No: Remington Unit 2H  
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/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: \_\_\_\_\_

LATITUDE 39°25'00"

11,288'

LATITUDE 39°25'00"

LONGITUDE 80°55'00"

10,597' TO BOTTOM HOLE

WV NORTH ZONE GRID NORTH

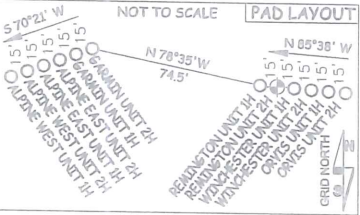
2H TOP HOLE

JAMES SINE ET AL  
W.B. 23 PG. 547  
T.M. 08 PAR. 30  
32.395 AC. ±

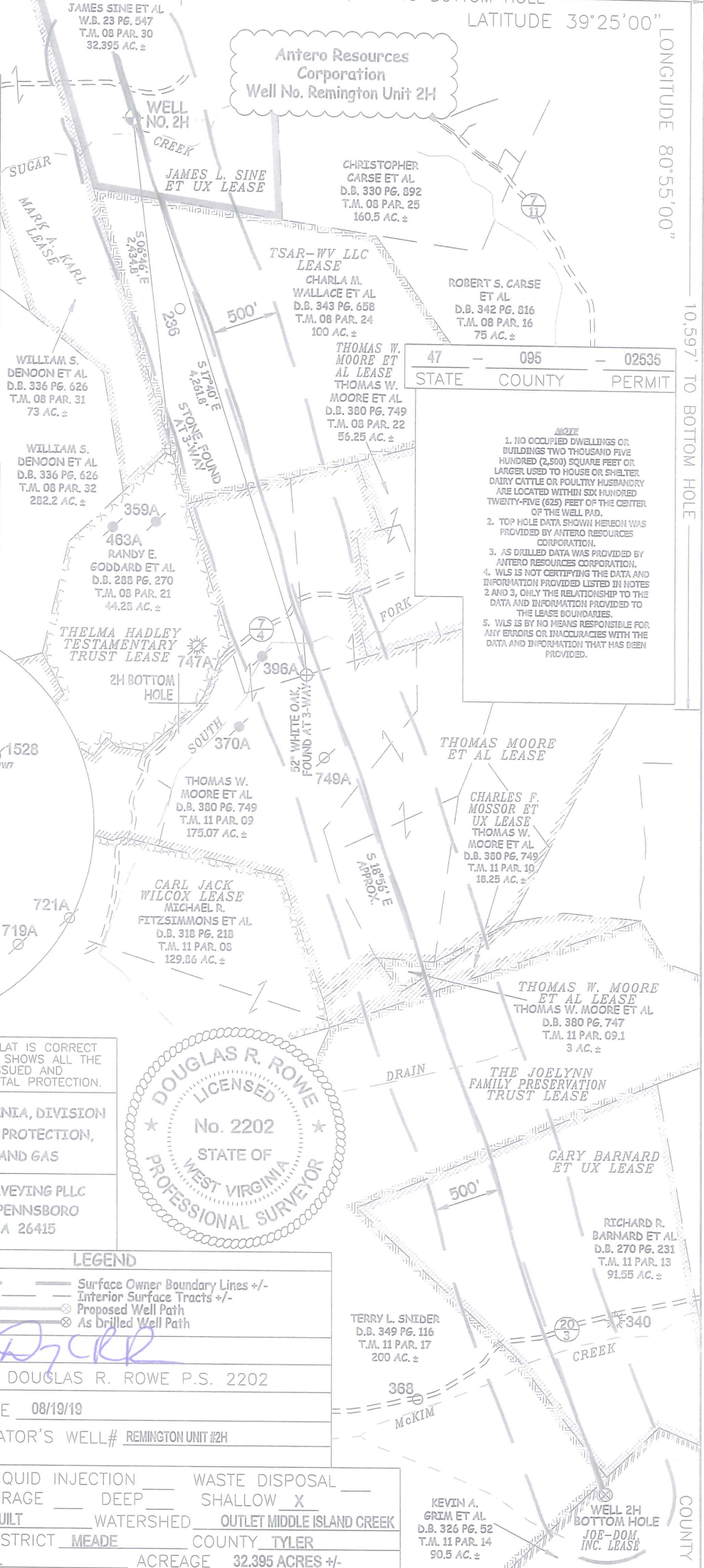
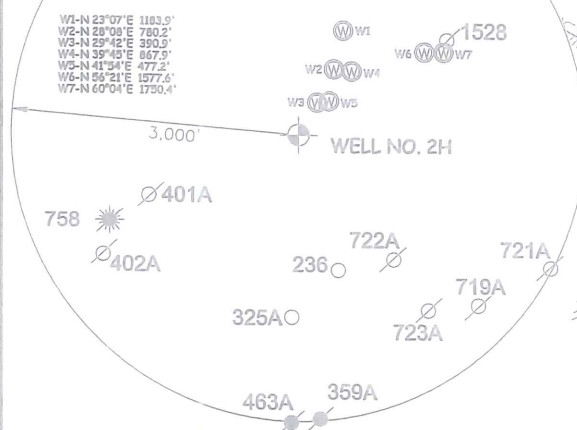
Antero Resources Corporation  
Well No. Remington Unit 2H

AS DRILLED DATA:  
WELL 2H TOP HOLE INFORMATION:  
N: 336,618ft E: 1,588,477ft  
LAT: 39°24'54.20" LON: 80°57'23.83"  
BOTTOM HOLE INFORMATION:  
N: 326,551ft E: 1,591,962ft  
LAT: 39°23'15.27" LON: 80°56'37.37"  
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 2H TOP HOLE INFORMATION:  
N: 4,362,847m E: 503,749m  
BOTTOM HOLE INFORMATION:  
N: 4,359,798m E: 504,862m



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



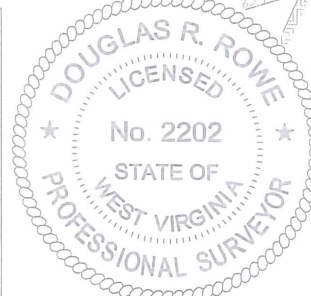
47 - 095 - 02535  
STATE COUNTY PERMIT

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 500 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.

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 # REMINGTON2HAD  
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 #2H

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 L. SINE ET UX; TSAR-WV LLC; THOMAS MOORE ET AL; LEASE ACREAGE 54.74 ACRES±; 105 ACRES±; 175.07 ACRES±; THOMAS W. MOORE ET AL; CHARLES F. MOSSOR ET UX; THE JOELYNN FAMILY PRESERVATION TRUST; GARY BARNARD ET UX; JOE-DOM, INC. 3 ACRES±; 18.25 ACRES±; 200 ACRES±; 91.55 ACRES±; 300 ACRES±  
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  
TARGET FORMATION MARCELLUS PLUG & ABANDON \_\_\_ CLEAN OUT & REPLUG \_\_\_  
WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 6,133' TVD 16,942' MD  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

WELL 2H BOTTOM HOLE  
JOE-DOM, INC. LEASE  
KEVIN A. GRIM ET AL  
D.B. 326 PG. 52  
T.M. 11 PAR. 14  
90.5 AC. ±