



Antero Resources
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September 5, 2019

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th 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 ³ /sks)	Volume (ft ³)	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)
*PLEASE SEE ATTACHED EXHIBIT 1					

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)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

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 ₂ 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 47-095-02534 Farm Name James Sine et al Well Number Winchester Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/10/2019	16582.4		60	Marcellus
2	4/10/2019	16382.624	16467.864	60	Marcellus
3	4/10/2019	16182.848	16268.088	60	Marcellus
4	4/11/2019	15983.072	16068.312	60	Marcellus
5	4/11/2019	15783.296	15868.536	60	Marcellus
6	4/11/2019	15583.52	15668.76	60	Marcellus
7	4/12/2019	15383.744	15468.984	60	Marcellus
8	4/12/2019	15183.968	15269.208	60	Marcellus
9	4/12/2019	14984.192	15069.432	60	Marcellus
10	4/13/2019	14784.416	14869.656	60	Marcellus
11	4/13/2019	14584.64	14669.88	60	Marcellus
12	4/13/2019	14384.864	14470.104	60	Marcellus
13	4/14/2019	14185.088	14270.328	60	Marcellus
14	4/14/2019	13985.312	14070.552	60	Marcellus
15	4/14/2019	13785.536	13870.776	60	Marcellus
16	4/15/2019	13585.76	13671	60	Marcellus
17	4/15/2019	13385.984	13471.224	60	Marcellus
18	4/15/2019	13186.208	13271.448	60	Marcellus
19	4/15/2019	12986.432	13071.672	60	Marcellus
20	4/16/2019	12786.656	12871.896	60	Marcellus
21	4/16/2019	12586.88	12672.12	60	Marcellus
22	4/16/2019	12387.104	12472.344	60	Marcellus
23	4/17/2019	12187.328	12272.568	60	Marcellus
24	4/17/2019	11987.552	12072.792	60	Marcellus
25	4/17/2019	11787.776	11873.016	60	Marcellus
26	4/17/2019	11588	11673.24	60	Marcellus
27	4/18/2019	11388.224	11473.464	60	Marcellus
28	4/18/2019	11188.448	11273.688	60	Marcellus
29	4/18/2019	10988.672	11073.912	60	Marcellus
30	4/18/2019	10788.896	10874.136	60	Marcellus
31	4/19/2019	10589.12	10674.36	60	Marcellus
32	4/19/2019	10389.344	10474.584	60	Marcellus
33	4/19/2019	10189.568	10274.808	60	Marcellus
34	4/20/2019	9989.792	10075.032	60	Marcellus
35	4/20/2019	9790.016	9875.256	60	Marcellus
36	4/20/2019	9590.24	9675.48	60	Marcellus
37	4/20/2019	9390.464	9475.704	60	Marcellus
38	4/21/2019	9190.688	9275.928	60	Marcellus
39	4/21/2019	8990.912	9076.152	60	Marcellus
40	4/22/2019	8791.136	8876.376	60	Marcellus
41	4/22/2019	8591.36	8676.6	60	Marcellus
42	4/22/2019	8391.584	8476.824	60	Marcellus
43	4/23/2019	8191.808	8277.048	60	Marcellus
44	4/23/2019	7992.032	8077.272	60	Marcellus
45	4/23/2019	7792.256	7877.496	60	Marcellus
46	4/23/2019	7592.48	7677.72	60	Marcellus
47	4/24/2019	7392.704	7477.944	60	Marcellus
48	4/24/2019	7192.928	7278.168	60	Marcellus
49	4/24/2019	6993.152	7078.392	60	Marcellus
50	4/25/2019	6793.376	6878.616	60	Marcellus
51	4/25/2019	6593.6	6678.84	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	4/10/2019	72.34021	8148.637	6710	4979	164450	7414.18	N/A
2	4/10/2019	78.01938	8164.648	7891	5454	403900	9105.13	N/A
3	4/10/2019	75.42383	8112.537	5730	4314	403500	9081.3	N/A
4	4/11/2019	74.77982	8051.884	5717	4464	403470	9097.31	N/A
5	4/11/2019	76.5048	8150.672	5676	5703	403450	8950.19	N/A
6	4/11/2019	76.586	8168.384	6689	5562	402950	9119.22	N/A
7	4/12/2019	76.5237	8113.554	6313	5776	403600	8882.21	N/A
8	4/12/2019	77.50034	8240.345	6426	5266	403350	8994.04	N/A
9	4/12/2019	79.64008	8042.183	5970	4411	403450	10823.01	N/A
10	4/13/2019	80.13228	8031.412	5890	4573	405050	8881.7	N/A
11	4/13/2019	67.75028	7590.396	5860	5456	404050	8946.97	N/A
12	4/13/2019	81.5	8207	6479	5219	403800	8931.63	N/A
13	4/14/2019	80.31492	8078.121	5902	5085	403700	8898.19	N/A
14	4/14/2019	85.4	8249	5938	5316	404850	8821.76	N/A
15	4/14/2019	79.72511	8131.658	6112	5281	403950	8937.87	N/A
16	4/15/2019	80.6	7991	6262	5670	404800	8681.25	N/A
17	4/15/2019	81.20769	8058.812	5043	4341	403800	8772.44	N/A
18	4/15/2019	79.34573	8113.503	6015	4645	404050	8881.98	N/A
19	4/15/2019	86.5	8252	5936	4841	404050	8674.04	N/A
20	4/16/2019	83.46219	8082.372	5946	4065	404150	8657.16	N/A
21	4/16/2019	79.9	8356	6209	4837	404000	8666.48	N/A
22	4/16/2019	84.9	7992	5675	4953	403850	8708.6	N/A
23	4/17/2019	84.27467	7994.25	5877	4297	403950	8820.2	N/A
24	4/17/2019	85.38481	8299.014	6118	4078	404150	11948.2	N/A
25	4/17/2019	84.42749	8074.858	6078	5145	404650	8728.96	N/A
26	4/17/2019	86.12592	7931.981	5742	4019	403750	8579.71	N/A
27	4/18/2019	85.78636	8047.54	6377	4378	386250	8686.25	N/A
28	4/18/2019	85.31224	7813.629	5948	4516	404300	8934.17	N/A
29	4/18/2019	88.52037	8174.944	6226	4189	403300	8624.32	N/A
30	4/18/2019	87.39135	7941.144	6034	4317	404100	8618.87	N/A
31	4/19/2019	84.20863	7917.595	6399	4150	404600	8700.6	N/A
32	4/19/2019	84.18148	7495.615	6016	4881	404300	8716.82	N/A
33	4/19/2019	83.14208	7664.697	5903	5451	404500	8608.98	N/A
34	4/20/2019	89.4614	7993.776	5809	4721	402850	8543.92	N/A
35	4/20/2019	82.24709	7981.858	5644	4936	404750	8797.82	N/A
36	4/20/2019	84.35663	7640.215	5783	4311	403600	8679.62	N/A
37	4/20/2019	81.73174	8032.332	5646	5094	403950	9400.2	N/A
38	4/21/2019	83.90982	7543.871	5232	4586	405300	8660.64	N/A
39	4/21/2019	88.90147	8035.369	5774	4615	403500	9800.73	N/A
40	4/22/2019	87.90909	7713.326	5539	5217	405350	8482.05	N/A
41	4/22/2019	86.86906	7741.237	5700	4735	403250	8631.95	N/A
42	4/22/2019	86.06895	7598.87	5879	4265	403200	8631.23	N/A
43	4/23/2019	85.31339	7701.7	5623	4645	403450	8418.52	N/A
44	4/23/2019	90.12194	7461.164	5771	4104	403100	8599.39	N/A
45	4/23/2019	88.61802	7201.873	6284	4412	403700	8634.69	N/A
46	4/23/2019	87.87665	7038.96	6319	4398	404600	8427	N/A
47	4/24/2019	88.19219	7014.432	7066	4242	403100	8498.88	N/A
48	4/24/2019	87.58499	6996.22	6851	4260	403350	8660.72	N/A
49	4/24/2019	88.18512	7024.603	6191	3752	403000	8480.52	N/A
50	4/25/2019	90.3992	7293.071	7134	3633	403450	8673.785	N/A
51	4/25/2019	88.26545	6535.283	6562	3699	403200	9878.08	N/A
	AVG	82.5	7,963	5,995	4,784	17,920,070	400,175	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	1,605	1,515	1,631
Big Lime	1,630	2,458	1,656	2,530
Fifty Foot Sandstone	2,458	2,539	2,530	2,614
Gordon	2,539	2,899	2,614	2,991
Fifth Sandstone	2,899	3,202	2,991	3,315
Bayard	3,202	3,781	3,315	3,933
Speechley	3,781	4,097	3,933	4,269
Balltown	4,097	4,277	4,269	4,460
Bradford	4,277	4,552	4,460	4,753
Benson	4,552	4,703	4,753	4,914
Alexander	4,703	5,934	4,914	6,297
Sycamore	5,792	5,909	6,099	6,272
Middlesex	5,909	5,999	6,272	6,454
Burkett	5,999	6,023	6,454	6,522
Tully	6,023	6,032	6,522	6,549
Marcellus	6,032	NA	6,549	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:	4/10/2019
Job End Date:	4/25/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02534-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Winchester Unit 2H
Latitude:	39.41505000
Longitude:	-80.95651400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,147
Total Base Water Volume (gal):	19,564,712
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	88.53996	
DAP-901	CWS	Scale Inhibitor					
				Listed Below			

DynaRate 6524	CWS	Friction Reducer					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
CalGel 4000	CWS	Gel Slurry					
				Listed Below			
SaniFrac 8844	CWS	Biocide					

				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	11.13523	
			Calcite	471-34-1	1.00000	0.07741	
			Hydrochloric acid	7647-01-0	37.00000	0.05398	
			Illite	12173-60-3	1.00000	0.03391	
			Guar gum	9000-30-0	60.00000	0.02830	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02830	
			Polymer	26100-47-0	45.00000	0.02232	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01488	
			Apatite	64476-38-6	0.10000	0.01113	
			Biotite	1302-27-8	0.10000	0.01113	
			Goethite	1310-14-1	0.10000	0.01113	
			Polyethylene glycol mixture	Proprietary	54.50000	0.00598	Proprietary CAS
			Ammonium chloride	12125-02-9	11.00000	0.00567	
			Ilmenite	98072-94-7	0.10000	0.00339	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00236	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00220	
			Sorbitan monooleate	1338-43-8	4.00000	0.00198	

			Ethanaminium, N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-propenamide	69418-26-4	30.00000	0.00150	
			Hydrotreated Kerosene	64742-47-8	30.00000	0.00150	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00149	
			Ammonium Persulfate	7727-54-0	100.00000	0.00101	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00099	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00071	
			Methanol	67-56-1	19.00000	0.00063	
			Amines, tallow alkyl, ethoxylated	Proprietary	1.00000	0.00050	Proprietary CAS
			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	
			9-Octadecenamide, N,N-bis(2-hydroxyethyl)-, (9Z)-	93-83-4	5.00000	0.00025	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00025	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00025	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00020	
			Acrylamide	79-06-1	0.10000	0.00005	
			Acetic acid	64-19-7	1.00000	0.00003	
			formaldehyde	50-00-0	1.00000	0.00003	
			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	
			Isopropyl alcohol	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	
			Organic Acid Salts	9003-04-7			Proprietary Additive Concentration
			Oxyalkylated polyamine	Proprietary			Proprietary CAS & Additive Concentration
			Organic Phosphonate 1	Proprietary			Proprietary CAS & Additive Concentration
			Amine Salt	Proprietary			Proprietary CAS & Additive Concentration
			Organic Phosphonate 2	Proprietary			Proprietary CAS & 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: 47-095-02534 County: Tyler
District: Meade Well No: Winchester Unit 2H
Farm Name: James Sine et al
Discharge Date/s From:(MMDDYY) 06/19/19 To: (MMDDYY) 07/19/19
Discharge Times. From: 0:00 To: 24:00
Total Volume to be Disposed from this facility (gallons): 941,306

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: 848,829 Alternate Permit Number: _____
(5) Centralized Facility: _____ Permit No. _____
(6) Other method: _____ (Include an explanation)

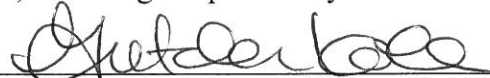
Follow Instructions below to determine your treatment category:

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"

11,258'

6,193' TO BOTTOM HOLE

LATITUDE 39°25'00"

LONGITUDE 80°55'00"

589' LONGITUDE 80°55'00"

9,756' TO BOTTOM HOLE

Antero Resources Corporation Well No. Winchester Unit 2H

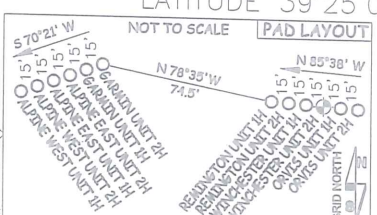
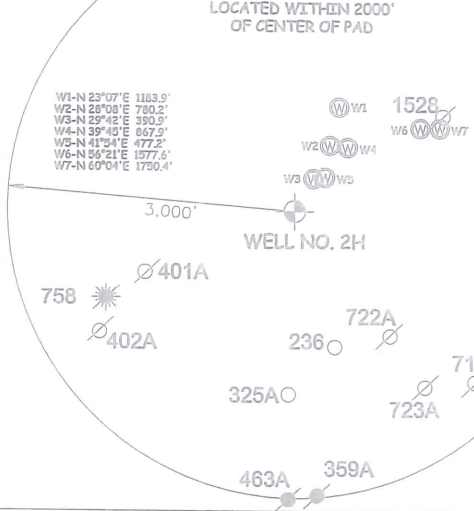
MARK A. KARL LEASE

- A - SURFACE - RAYMOND L. MOORE D.B. 285 PG. 310 T.M. 08 PAR. 29.1 1.10 AC. ±
A - LEASE - RAYMOND L. MOORE ET UX
B - SURFACE - DESTRY B. NELSON ET AL D.B. 347 PG. 643 T.M. 08 PAR. 28.1 1.236 AC. ±
B - LEASE - DAVID E. BOWYER
C1, C2, C3 - SURFACE - DONALD R. ROBINSON ET AL D.B. 294 PG. 713 T.M. 08 PAR. 28 0.914 AC. ±
C1 - LEASE - LILLIAN LEE EDDY
C2 - LEASE - DONALD E. ROBINSON ET UX
C3 - LEASE - EARL G. GLENDENING

AS DRILLED DATA: WELL 2H TOP HOLE INFORMATION: N: 336,616ft E: 1,588,507ft LAT: 39°24'54.18" LON: 80°57'23.45"
BOTTOM HOLE INFORMATION: N: 327,369ft E: 1,593,427ft LAT: 39°23'23.58" LON: 80°56'18.88"
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: 4,362,846m E: 503,758m
BOTTOM HOLE INFORMATION: N: 4,360,054m E: 505,304m

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



- 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.

47 STATE 095 COUNTY 02534 PERMIT

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 # 17-002WA
DRAWING # WINCHESTER2HAD
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# WINCHESTER 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; ROBERT S. CARSE ET UX; JASON GREATHOUSE; LEASE ACREAGE 54.74 ACRES±; 140 ACRES±; 9.402 ACRES±; DAVID QUENTIN CARSE; TSAR-WV LLC; THOMAS W. MOORE ET AL; THOMAS MOORE ET AL; REITA J. HALL; 105 ACRES±; 75 ACRES±; 56.25 ACRES±; 175.07 ACRES±; 23.31 ACRES±; GRACE SEWELL DECARLO; THE JOELLYNN FAMILY PRESERVATION TRUST; TESSA PETERZAK; ALMA A. BARNARD 85.52 AC±; 200 AC±; 3 AC±; 148.252 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
TARGET FORMATION MARCELLUS PLUG & ABANDON CLEAN OUT & REPLUG
WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 6,141' TVD 16,800' MD
ADDRESS 1615 WYNKOOP STREET DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT