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 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,

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 - 02515 County Tyler District Meade
Quad Middlebourne 7.5' Pad Name Sine Pad Field/Pool Name -----
Farm name James Sine et al Well Number Winchester Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4362847m Easting 503753m
Landing Point of Curve Northing 4362639.47m Easting 504078.04m
Bottom Hole Northing 4359939m Easting 505072m

Elevation (ft) 799' 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 8/8/2018 Date drilling commenced 11/25/2018 Date drilling ceased 2/10/2019
Date completion activities began 4/27/2019 Date completion activities ceased 6/6/2019
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 42' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1269', 1274' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 154', 278' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

API 47- 095 - 02515 Farm name James Sine et al Well number Winchester Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	376'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2626'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16786'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6221'		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 ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	Class A	250 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	350 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	905 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	664 sx (Lead) 2270 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.40 (Lead), 1.26 (Tail)		~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16806' MD, 6143' TVD (BHL), 6140' (Deepest Point Drilled) Loggers TD (ft) 16806' MD

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

Plug back procedure N/A

Kick off depth (ft) 5774'

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 - 02515 Farm name James Sine et al Well number Winchester Unit 1H

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- 095 - 02515 Farm name James Sine et al Well number Winchester Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6004' (TOP) TVD	6275' (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 10730 mcfpd Oil 265 bpd NGL --- bpd Water 696 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_2S, ETC)
***PLEASE SEE ATTACHED EXHIBIT 3**					

Please insert additional pages as applicable.

Drilling Contractor Patterson UTI Drilling Company LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company KLX Energy Services
Address 3040 Post Oak Boulevard City Houston State TX Zip 77056

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 _____

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

API 47-095-02515 **Farm Name** James Sine et al **Well Number** Winchester Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/27/2019	16630.7		60	Marcellus
2	4/28/2019	16429.1	16599.1	60	Marcellus
3	4/29/2019	16227.5	16397.5	60	Marcellus
4	4/29/2019	16025.9	16195.9	60	Marcellus
5	4/30/2019	15824.3	15994.3	60	Marcellus
6	4/30/2019	15622.7	15792.7	60	Marcellus
7	4/30/2019	15421.1	15591.1	60	Marcellus
8	5/1/2019	15219.5	15389.5	60	Marcellus
9	5/1/2019	15017.9	15187.9	60	Marcellus
10	5/2/2019	14816.3	14986.3	60	Marcellus
11	5/2/2019	14614.7	14784.7	60	Marcellus
12	5/3/2019	14413.1	14583.1	60	Marcellus
13	5/3/2019	14211.5	14381.5	60	Marcellus
14	5/4/2019	14009.9	14179.9	60	Marcellus
15	5/4/2019	13808.3	13978.3	60	Marcellus
16	5/5/2019	13606.7	13776.7	60	Marcellus
17	5/5/2019	13405.1	13575.1	60	Marcellus
18	5/5/2019	13203.5	13373.5	60	Marcellus
19	5/6/2019	13001.9	13171.9	60	Marcellus
20	5/6/2019	12800.3	12970.3	60	Marcellus
21	5/7/2019	12598.7	12768.7	60	Marcellus
22	5/8/2019	12397.1	12567.1	60	Marcellus
23	5/8/2019	12195.5	12365.5	60	Marcellus
24	5/8/2019	11993.9	12163.9	60	Marcellus
25	5/9/2019	11792.3	11962.3	60	Marcellus
26	5/9/2019	11590.7	11760.7	60	Marcellus
27	5/10/2019	11389.1	11559.1	60	Marcellus
28	5/10/2019	11187.5	11357.5	60	Marcellus
29	5/10/2019	10985.9	11155.9	60	Marcellus
30	5/11/2019	10784.3	10954.3	60	Marcellus
31	5/11/2019	10582.7	10752.7	60	Marcellus
32	5/12/2019	10381.1	10551.1	60	Marcellus
33	5/12/2019	10179.5	10349.5	60	Marcellus
34	5/12/2019	9977.9	10147.9	60	Marcellus
35	5/13/2019	9776.3	9946.3	60	Marcellus
36	5/13/2019	9574.7	9744.7	60	Marcellus
37	5/14/2019	9373.1	9543.1	60	Marcellus
38	5/14/2019	9171.5	9341.5	60	Marcellus
39	5/14/2019	8969.9	9139.9	60	Marcellus
40	5/15/2019	8768.3	8938.3	60	Marcellus
41	5/15/2019	8566.7	8736.7	60	Marcellus
42	5/16/2019	8365.1	8535.1	60	Marcellus
43	5/16/2019	8163.5	8333.5	60	Marcellus
44	5/16/2019	7961.9	8131.9	60	Marcellus
45	5/17/2019	7760.3	7930.3	60	Marcellus
46	5/17/2019	7558.7	7728.7	60	Marcellus
47	5/17/2019	7357.1	7527.1	60	Marcellus
48	5/18/2019	7155.5	7325.5	60	Marcellus
49	5/18/2019	6953.9	7123.9	60	Marcellus
50	5/18/2019	6752.3	6922.3	60	Marcellus
51	5/19/2019	6550.7	6720.7	60	Marcellus
52	5/19/2019	6349.1	6519.1	60	Marcellus

API 47-095-02515 **Farm Name** James Sine al **Well Number** Winchester Unit 1H

EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	4/27/2019	59.30746	8199.365	8111	3526	167700	8724.05	N/A
2	4/28/2019	73.09926	8163.187	7102	4635	409550	9065.99	N/A
3	4/29/2019	74.86506	8046.201	5896	4701	409450	8911.72	N/A
4	4/29/2019	77.90484	8081.915	6482	4811	409300	9003.43	N/A
5	4/30/2019	74.81922	8103.893	6223	4605	409400	9022.31	N/A
6	4/30/2019	76.08721	8093.952	6677	4937	408200	8978.76	N/A
7	4/30/2019	76.36451	8156.702	7027	4563	409150	8894.95	N/A
8	5/1/2019	79.53191	8206.517	6818	4561	409100	8893.27	N/A
9	5/1/2019	78.9682	8161.28	6273	4080	409750	8923.72	N/A
10	5/2/2019	75.44831	8015.303	7225	4684	409950	8836.13	N/A
11	5/2/2019	72.75139	7823.926	6679	4508	409400	8916.62	N/A
12	5/3/2019	79.1	8071	6920	4378	409850	9162	N/A
13	5/3/2019	75.21342	8120.312	6725	4658	409100	8913.52	N/A
14	5/4/2019	81	8236	7238	4811	410100	8724	N/A
15	5/4/2019	81.1279	8171.983	6983	4657	409700	8807.8	N/A
16	5/5/2019	80.12881	8069.92	6621	4709	409800	8938.38	N/A
17	5/5/2019	80.4	7987	7530	4437	410050	8795	N/A
18	5/5/2019	81.04298	8104.953	6892	4158	409400	8845.86	N/A
19	5/6/2019	80.5	8068	7070	4172	409900	8782	N/A
20	5/6/2019	83.27714	8024.361	6767	3889	410550	8853.8	N/A
21	5/7/2019	73.9	8246	7404	5049	410300	11677	N/A
22	5/8/2019	78.14283	8063.758	6654	4334	410050	8780.48	N/A
23	5/8/2019	81	8140	6710	4341	409750	8850	N/A
24	5/8/2019	86.29292	8187.591	6470	4493	409900	8690.34	N/A
25	5/9/2019	86.2281	7979.97	7708	4907	410100	8888.82	N/A
26	5/9/2019	80.30499	8174.883	7187	4480	409350	8903.01	N/A
27	5/10/2019	80.28804	8154.27	6956	4805	408550	8841.93	N/A
28	5/10/2019	83.8285	7925.199	6781	4732	410000	8849.66	N/A
29	5/10/2019	85.07807	8149.509	7166	4320	409350	8881.59	N/A
30	5/11/2019	76.67368	8143.836	6516	4540	410650	9550.76	N/A
31	5/11/2019	84.38869	8014.541	6146	5265	410600	8605.14	N/A
32	5/12/2019	82.34637	8023.445	6503	4147	408800	8840.74	N/A
33	5/12/2019	82.40346	7771.632	6635	4721	410150	8755.51	N/A
34	5/12/2019	88.85787	7989.453	6699	4154	408650	8740.3	N/A
35	5/13/2019	86.77721	7923.965	7214	4382	410150	8780.93	N/A
36	5/13/2019	78.41085	7607.528	6911	4392	409050	9247.46	N/A
37	5/14/2019	86.74281	7850.631	6451	4541	408900	8671.89	N/A
38	5/14/2019	83.18974	7616.674	5812	5204	410300	8677.56	N/A
39	5/14/2019	89.08425	7820.042	6857	4326	408950	8698.73	N/A
40	5/15/2019	85.7872	8055.699	7309	4397	410100	8657.25	N/A
41	5/15/2019	88.64589	7633.212	6867	5325	409200	8934.24	N/A
42	5/16/2019	84.66903	7458.594	6949	5036	408800	8773.16	N/A
43	5/16/2019	88.51293	7681.564	7374	4830	409450	8627.53	N/A
44	5/16/2019	88.69029	7821.65	6598	4233	408550	8620.31	N/A
45	5/17/2019	88.41568	7607.581	6842	4359	409050	8732.44	N/A
46	5/17/2019	86.7566	7469.595	6469	4456	409300	8651.34	N/A
47	5/17/2019	84.45815	7111.534	7095	3904	409000	8991.09	N/A
48	5/18/2019	84.96711	7378.354	7310	4249	409350	8531.69	N/A
49	5/18/2019	85.43908	7058.618	6890	4220	409300	8616.5	N/A
50	5/18/2019	89.91354	7191.189	7424	3982	408850	8520.41	N/A
51	5/19/2019	87.92386	6881.912	7098	4240	409350	8548.5	
52	5/19/2019	90.31482	6842.606	7145	3792		8561.95	N/A
	AVG	**80.9**	**7,999**	**6,844**	**4,551**	**18,188,100**	**401,270**	TOTAL

API 47-095-02515 **Farm Name** James Sine et al **Well Number** Winchester Unit 1H

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	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	1,609	1,515	1,621
Big Lime	1,634	2,460	1,646	2,489
Fifty Foot Sandstone	2,460	2,542	2,489	2,572
Gordon	2,542	2,881	2,572	2,915
Fifth Sandstone	2,881	3,205	2,915	3,244
Bayard	3,205	3,769	3,244	3,817
Speechley	3,769	4,092	3,817	4,146
Balltown	4,092	4,278	4,146	4,335
Bradford	4,278	4,553	4,335	4,615
Benson	4,553	4,690	4,615	4,755
Alexander	4,690	5,920	4,755	6,063
Sycamore	5,777	5,895	5,877	6,038
Middlesex	5,895	5,986	6,038	6,210
Burkett	5,986	6,010	6,210	6,275
Tully	6,010	6,019	6,275	6,304
Marcellus	6,019	NA	6,304	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:	47-095-02515-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Winchester Unit 1H
Latitude:	39.41572200
Longitude:	-80.95788600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,143
Total Base Water Volume (gal):	19,913,946
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	88.47646	
SaniFrac 8844	CWS	Biocide					
				Listed Below			

DAP-103	CWS	Iron Control					
				Listed Below			
15% HCl Acid	CWS	Clean Perforations					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
CalGel 4000	CWS	Gel Slurry					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				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	11.21073	
			Calcite	471-34-1	1.00000	0.07790	
			Hydrochloric acid	7647-01-0	37.00000	0.05212	
			Illite	12173-60-3	1.00000	0.03418	
			Guar gum	9000-30-0	60.00000	0.02700	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02700	
			Polymer	26100-47-0	45.00000	0.02048	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01365	
			Biotite	1302-27-8	0.10000	0.01121	
			Apatite	64476-38-6	0.10000	0.01121	
			Goethite	1310-14-1	0.10000	0.01121	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00597	
			Ammonium chloride	12125-02-9	11.00000	0.00501	
			Ilmenite	98072-94-7	0.10000	0.00342	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00225	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00219	
			Sorbitan monooleate	1338-43-8	4.00000	0.00182	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00137	
			Ammonium Persulfate	7727-54-0	100.00000	0.00099	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00091	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00068	
			Citric acid	77-92-9	60.00000	0.00047	

			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00046	
			Sodium bromide	7647-15-6	4.00000	0.00044	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00033	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00023	
			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	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Formic acid	64-18-6	10.00000	0.00001	
			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride-quatenized	72480-70-7	10.00000	0.00001	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	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: 47-095-02515 County: Tyler
District: Meade Well No: Winchester Unit 1H
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 Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
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 Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
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 Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
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,

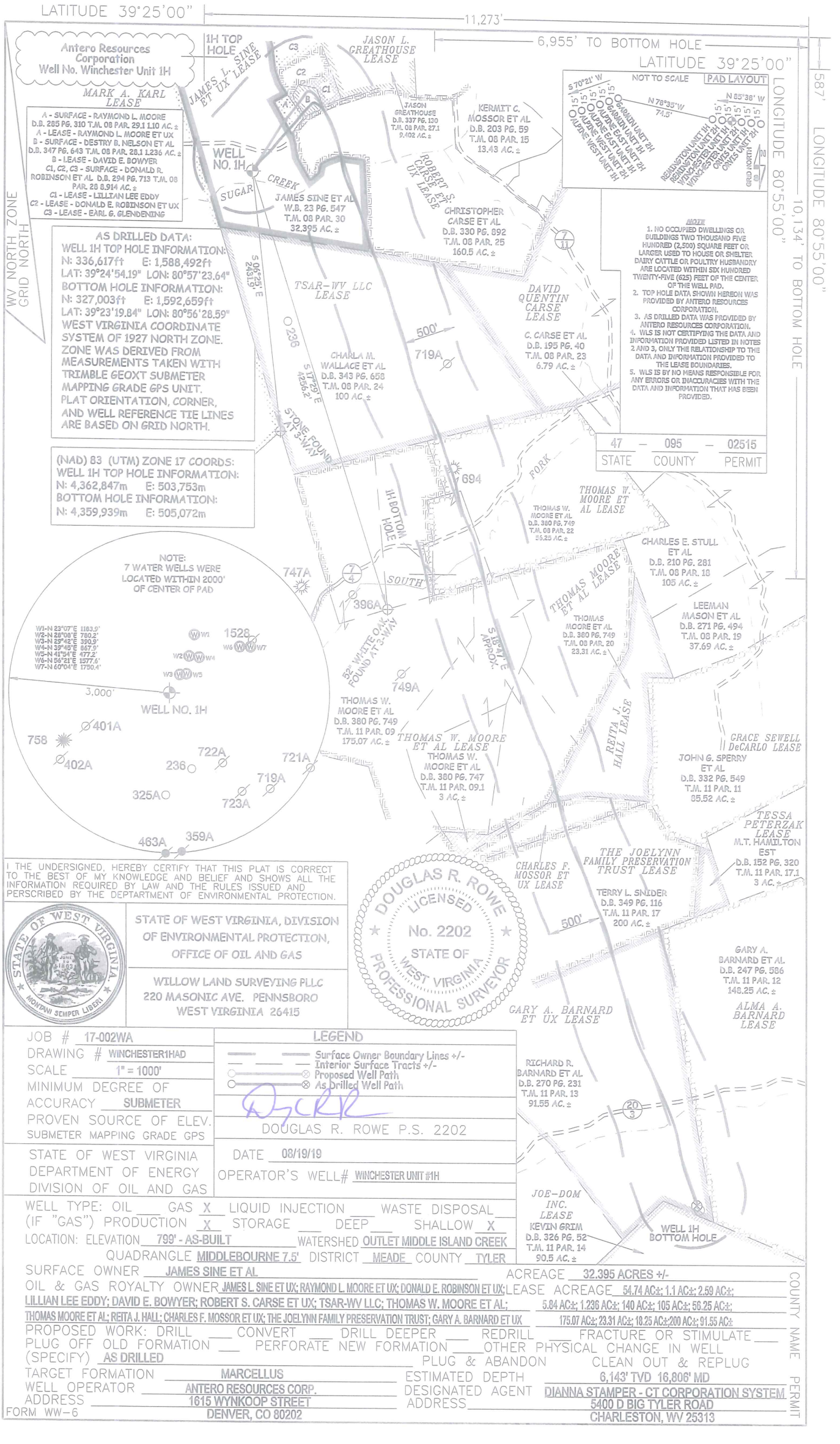
(Inspector's signature): _____ Date: _____
** Include a description of your aeration technique. Aeration Code: _____
*** Al is only reported if the pH is above 9.0.

Category 4
Sampling Results
API No: _____

Parameter	Predischarge Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
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"
11,273'
6,955' TO BOTTOM HOLE
LATITUDE 39°25'00"
587'
LONGITUDE 80°55'00"
10,134' TO BOTTOM HOLE
LONGITUDE 80°55'00"
WV NORTH ZONE GRID NORTH
Antero Resources Corporation
Well No. Winchester Unit 1H
1H TOP HOLE
WELL NO. 1H
BOTTOM HOLE
JAMES L. SINE ET UX LEASE
JASON L. GREATHOUSE LEASE
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 D - 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 8.914 AC. ±
C1 - LEASE - LILLIAN LEE EDDY
C2 - LEASE - DONALD E. ROBINSON ET UX
C3 - LEASE - EARL G. GLENDENING
JASON GREATHOUSE D.B. 337 PG. 120 T.M. 08 PAR. 27.1 9.402 AC. ±
KERMIT C. MOSSOR ET AL D.B. 203 PG. 59 T.M. 08 PAR. 15 13.43 AC. ±
ROBERT S. CARSE ET UX LEASE
CHRISTOPHER CARSE ET AL D.B. 330 PG. 692 T.M. 08 PAR. 25 160.5 AC. ±
SUGAR CREEK
JAMES SINE ET AL W.B. 23 PG. 547 T.M. 08 PAR. 30 32.395 AC. ±
TSAR-WV LLC LEASE
DAVID QUENTIN CARSE LEASE
C. CARSE ET AL D.B. 195 PG. 40 T.M. 08 PAR. 23 6.79 AC. ±
CHARLA M. WALLACE ET AL D.B. 343 PG. 658 T.M. 08 PAR. 24 100 AC. ±
719A
500'
694
747A
396A
749A
401A
758
402A
722A
721A
719A
723A
325A
359A
463A
236
S 06°25' E 2431.5'
S 17°29' E 4256.2'
S 13°47' E APPROX.
STONE FOUND AT 3-WAY
32" WHITE OAK FOUND AT 3-WAY
FORK
SOUTH
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 29°42'E 390.9'
W4-N 39°45'E 867.9'
W5-N 41°24'E 477.2'
W6-N 56°21'E 1377.6'
W7-N 60°04'E 1730.4'
1528
3,000'
AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 336,617ft E: 1,588,492ft
LAT: 39°24'54.19" LON: 80°57'23.64"
BOTTOM HOLE INFORMATION:
N: 327,003ft E: 1,592,659ft
LAT: 39°23'19.84" LON: 80°56'28.59"
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: 503,753m
BOTTOM HOLE INFORMATION:
N: 4,359,939m E: 505,072m
NOT TO SCALE
PAD LAYOUT
S 70°21' W
N 76°35' W 74.5'
N 65°36' W
ALPINE WEST UNIT 1H
ALPINE WEST UNIT 2H
ALPINE EAST UNIT 1H
ALPINE EAST UNIT 2H
GRAHAM UNIT 1H
GRAHAM UNIT 2H
REMINGTON UNIT 1H
REMINGTON UNIT 2H
WINCHESTER UNIT 1H
WINCHESTER UNIT 2H
GNTS UNIT 1H
GNTS UNIT 2H
GRID NORTH
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.
47 — 095 — 02515
STATE COUNTY PERMIT
THOMAS W. MOORE ET AL LEASE
THOMAS W. MOORE ET AL D.B. 380 PG. 749 T.M. 08 PAR. 22 56.25 AC. ±
CHARLES E. STULL ET AL D.B. 210 PG. 281 T.M. 08 PAR. 18 105 AC. ±
THOMAS MOORE ET AL LEASE
THOMAS MOORE ET AL D.B. 380 PG. 749 T.M. 08 PAR. 20 23.31 AC. ±
LEEMAN MASON ET AL D.B. 271 PG. 494 T.M. 08 PAR. 19 37.69 AC. ±
THOMAS W. MOORE ET AL D.B. 380 PG. 749 T.M. 11 PAR. 09 175.07 AC. ±
THOMAS W. MOORE ET AL LEASE
THOMAS W. MOORE ET AL D.B. 380 PG. 747 T.M. 11 PAR. 09.1 3 AC. ±
REITA J. HALL LEASE
GRACE SEWELL DeCARLO LEASE
JOHN G. SPERRY ET AL D.B. 332 PG. 549 T.M. 11 PAR. 11 85.52 AC. ±
TESSA PETERZAK LEASE
M.T. HAMILTON EST D.B. 152 PG. 320 T.M. 11 PAR. 17.1 3 AC. ±
CHARLES F. MOSSOR ET UX LEASE
THE JOELYNN FAMILY PRESERVATION TRUST LEASE
TERRY L. SNIDER D.B. 349 PG. 116 T.M. 11 PAR. 17 200 AC. ±
GARY A. BARNARD ET AL D.B. 247 PG. 586 T.M. 11 PAR. 12 148.25 AC. ±
ALMA A. BARNARD LEASE
GARY A. BARNARD ET UX LEASE
RICHARD R. BARNARD ET AL D.B. 270 PG. 231 T.M. 11 PAR. 13 91.55 AC. ±
JOE-DOM INC. LEASE
KEVIN GRIM D.B. 326 PG. 52 T.M. 11 PAR. 14 90.5 AC. ±
WELL 1H BOTTOM HOLE
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 DEPTARTMENT OF ENVIRONMENTAL PROTECTION.
DOUGLAS R. ROWE LICENSED No. 2202 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR
STATE OF WEST VIRGINIA * MONTANI SEMPER LIBERI * JUNE 20 1863
STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415
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 #1H
JOB # 17-002WA
DRAWING # WINCHESTER1HAD
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
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; RAYMOND L. MOORE ET UX; DONALD E. ROBINSON ET UX; LILLIAN LEE EDDY; DAVID E. BOWYER; ROBERT S. CARSE ET UX; TSAR-WV LLC; THOMAS W. MOORE ET AL; THOMAS MOORE ET AL; REITA J. HALL; CHARLES F. MOSSOR ET UX; THE JOELYNN FAMILY PRESERVATION TRUST; GARY A. BARNARD ET UX
LEASE ACREAGE 54.74 AC±; 1.1 AC±; 2.59 AC±; 5.84 AC±; 1.236 AC±; 140 AC±; 105 AC±; 56.25 AC±; 175.07 AC±; 23.31 AC±; 18.25 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 6,143' TVD 16,806' 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