State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47- 085 - 10339 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Hichman Pad Field/Pool Name -----
Farm name Radall Bond et al Well Number Short Run 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 4354355m Easting 509970m
Landing Point of Curve Northing 4353860m Easting 509341m
Bottom Hole Northing 4350658m Easting 510396m

Elevation (ft) 1250' 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 1/17/2018 Date drilling commenced 1/31/2018 Date drilling ceased 7/31/2018
Date completion activities began 1/5/2019 Date completion activities ceased 3/14/2019
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 None Identified Open mine(s) (Y/N) depths No
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

API 47- 085 - 10339 Farm name Radall Bond et al Well number Short Run 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"	466'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2663.6'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19354'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7329'		4.7#, L-80		
Packer type and depth set		N/A					

Comment Details **Cement Squeeze 7/24/2018 @ 7301' 354 sacks

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	204 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	400 sx	15.6	1.20	480	0'	8 Hrs.
Coal							
Intermediate 1	Class A	883 sx	15.6	1.20	1060	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	805sx (Lead) 1890sx (Tail)	14 (Lead), 15.2 (Tail)	1.49 (Lead), 1.85(Tail)	4696	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19374' MD, 6670' TVD (BHL), 6670' (Deepest Point Drilled) Loggers TD (ft) 19374' MD

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

Plug back procedure N/A

Kick off depth (ft) 6100'

** This is a subsequent Well. Antero only runs wireline logs on one well on a multi-well pad (Centerville Unit 2H API#47-085-10338). A Cement Bond Log has been included with this submittal.

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- 085 - 10339 Farm name Radall Bond et al Well number Short Run 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.

WR-35
Rev. 8/23/13

API 47- 085 - 10339 Farm name Radall Bond et al Well number Short Run Unit 1H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6584' (TOP)	TVD	7394' (TOP)	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown ■ Open Flow OIL TEST ■ Flow □ Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11695.15 mcfpd Oil 148 bpd NGL --- bpd Water 829.26 bpd GAS MEASURED BY □ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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 Frontier Drilling LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Allied Horizontal Wireline Services
Address 381 Colonial Manor Rd City North Huntington State PA Zip 15642

Cementing Company C&J Energy Services
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company CalFrac Well Services
Address 171 17th Street, Wuite 1445 City Denver State CO Zip 80202
Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820
Signature Title Permitting Agent Date 6/7/2019

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

API 47-085-10339 Farm Name Radall Bond et al Well Number Short Run Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1/5/2019	19195.1	19250.6	60	Marcellus
2	1/5/2019	18995.822	19163.887	60	Marcellus
3	1/6/2019	18796.544	18964.609	60	Marcellus
4	1/6/2019	18597.266	18765.331	60	Marcellus
5	1/7/2019	18397.988	18566.053	60	Marcellus
6	1/7/2019	18198.71	18366.775	60	Marcellus
7	1/7/2019	17999.432	18167.497	60	Marcellus
8	1/8/2019	17800.154	17968.219	60	Marcellus
9	1/8/2019	17600.876	17768.941	60	Marcellus
10	1/9/2019	17401.598	17569.663	60	Marcellus
11	1/9/2019	17202.32	17370.385	60	Marcellus
12	1/10/2019	17003.042	17171.107	60	Marcellus
13	1/10/2019	16803.764	16971.829	60	Marcellus
14	1/11/2019	16604.486	16772.551	60	Marcellus
15	1/11/2019	16405.208	16573.273	60	Marcellus
16	1/11/2019	16205.93	16373.995	60	Marcellus
17	1/12/2019	16006.652	16174.717	60	Marcellus
18	1/12/2019	15807.374	15975.439	60	Marcellus
19	1/13/2019	15608.096	15776.161	60	Marcellus
20	1/13/2019	15408.818	15576.883	60	Marcellus
21	1/14/2019	15209.54	15377.605	60	Marcellus
22	1/14/2019	15010.262	15178.327	60	Marcellus
23	1/15/2019	14810.984	14979.049	60	Marcellus
24	1/15/2019	14611.706	14779.771	60	Marcellus
25	1/15/2019	14412.428	14580.493	60	Marcellus
26	1/16/2019	14213.15	14381.215	60	Marcellus
27	1/16/2019	14013.872	14181.937	60	Marcellus
28	1/17/2019	13814.594	13982.659	60	Marcellus
29	1/17/2019	13615.316	13783.381	60	Marcellus
30	1/18/2019	13416.038	13584.103	60	Marcellus
31	1/18/2019	13216.76	13384.825	60	Marcellus
32	1/19/2019	13017.482	13185.547	60	Marcellus
33	1/19/2019	12818.204	12986.269	60	Marcellus
34	1/20/2019	12618.926	12786.991	60	Marcellus
35	1/20/2019	12419.648	12587.713	60	Marcellus
36	1/21/2019	12220.37	12388.435	60	Marcellus
37	1/21/2019	12021.092	12189.157	60	Marcellus
38	1/22/2019	11821.814	11989.879	60	Marcellus
39	1/22/2019	11622.536	11790.601	60	Marcellus
40	1/23/2019	11423.258	11591.323	60	Marcellus
41	1/24/2019	11223.98	11392.045	60	Marcellus
42	1/24/2019	11024.702	11192.767	60	Marcellus
43	1/25/2019	10825.424	10993.489	60	Marcellus
44	1/25/2019	10626.146	10794.211	60	Marcellus
45	1/25/2019	10426.868	10594.933	60	Marcellus
46	1/26/2019	10227.59	10395.655	60	Marcellus
47	1/26/2019	10028.312	10196.377	60	Marcellus
48	1/27/2019	9829.034	9997.099	60	Marcellus
49	1/27/2019	9629.756	9797.821	60	Marcellus
50	1/28/2019	9430.478	9598.543	60	Marcellus
51	1/28/2019	9231.2	9399.265	60	Marcellus
52	1/29/2019	9031.922	9199.987	60	Marcellus
53	1/29/2019	8832.644	9000.709	60	Marcellus
54	1/29/2019	8633.366	8801.431	60	Marcellus
55	1/30/2019	8434.088	8602.153	60	Marcellus
56	1/30/2019	8234.81	8402.875	60	Marcellus
57	1/30/2019	8035.532	8203.597	60	Marcellus
58	1/31/2019	7836.254	8004.319	60	Marcellus
59	1/31/2019	7636.976	7805.041	60	Marcellus
60	2/1/2019	7437.698	7605.763	60	Marcellus

API 47-085-10339 **Farm Name** Radall Bond et al **Well Number** Short Run 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	1/5/2019	61.7	8238	6892	4061	151250	4771.38	N/A
2	1/5/2019	68.8	7712	5639	4402	398950	8398.97	N/A
3	1/6/2019	72.2	7628	5608	5009	399900	8285.77	N/A
4	1/6/2019	77.4	8203	5654	4795	398800	8278.25	N/A
5	1/7/2019	76	7974	3982	4602	398150	8289.33	N/A
6	1/7/2019	73.6	8215	5743	4342	399100	8122.17	N/A
7	1/7/2019	70	8346	8471	4139	400750	8174.88	N/A
8	1/8/2019	68.3	7726	6293	4265	398150	8258.04	N/A
9	1/8/2019	75.5	8052	6375	4231	397850	8148.84	N/A
10	1/9/2019	72.5	7950	6702	4911	398600	8132.39	N/A
11	1/9/2019	70.7	8069	6278	4099	399300	7889.42	N/A
12	1/10/2019	71.1	8289	6381	4797	398075	8606.04	N/A
13	1/10/2019	77.7	8306	6739	3375	398600	8217.11	N/A
14	1/11/2019	70.8	8163	6888	4148	398350	9126.38	N/A
15	1/11/2019	74.9	8178	6647	4104	398500	8172.16	N/A
16	1/11/2019	70.2	8046	6285	4142	399600	8480.24	N/A
17	1/12/2019	77.2	8439	6064	4390	399400	8252.99	N/A
18	1/12/2019	76.4	8191	6065	3971	398500	8133.85	N/A
19	1/13/2019	63	8005	6365	4162	384300	9545.1	N/A
20	1/13/2019	72.4	8043	6250	4850	396550	8021.75	N/A
21	1/14/2019	73.2	7850	5936	4070	398350	8296	N/A
22	1/14/2019	76.9	8369	6096	4303	400550	8014	N/A
23	1/15/2019	73.3	8008	5886	4117	398050	8148.9	N/A
24	1/15/2019	58.4	8286	6446	3803	398200	9900.5	N/A
25	1/15/2019	77.1	8374	6501	4288	397450	8260.6	N/A
26	1/16/2019	79.8	7874	6693	3757	400700	8103	N/A
27	1/16/2019	75.4	7862	6538	3425	398350	8839	N/A
28	1/17/2019	74.4	7852	5768	4684	398450	8054.7	N/A
29	1/17/2019	77.4	8236	6437	3933	399500	8318	N/A
30	1/18/2019	78.6	7673	6212	4130	398950	8136	N/A
31	1/18/2019	78.6	8157	6310	3679	399250	8233	N/A
32	1/19/2019	77.1	7684	5548	3649	399300	8137	N/A
33	1/19/2019	78.8	8244	6442	4151	400600	8790	N/A
34	1/20/2019	74.5	8108	6135	4862	399900	8319	N/A
35	1/20/2019	78.3	7960	5923	4276	401600	8180	N/A
36	1/21/2019	78.6	7955	6125	4282	399150	8077.5	N/A
37	1/21/2019	81.7	7739	6196	3790	399700	8159	N/A
38	1/22/2019	78.2	7851	6084	3057	400950	8161	N/A
39	1/22/2019	78.6	7574	6506	3287	398250	8022	N/A
40	1/23/2019	82.1	7740	6722	3550	398250	7935	N/A
41	1/24/2019	77.7	8275	6445	4682	399500	7973.09	N/A
42	1/24/2019	75.5	7894	6507	3822	398000	8398.64	N/A
43	1/25/2019	71.6	7650	6581	3407	398600	8214	N/A
44	1/25/2019	79.8	7550	6200	3533	398600	7932	N/A
45	1/25/2019	77.6	7694	6425	3570	374300	7804	N/A
46	1/26/2019	81	7873	5927	3920	396600	7953.46	N/A
47	1/26/2019	79.6	7823	6611	4395	398850	8050	N/A
48	1/27/2019	82.4	7804	6142	3923	398250	7945.54	N/A
49	1/27/2019	78.1	7854	5728	3606	399300	8040	N/A
50	1/28/2019	80.3	7727	5915	3509	398050	7834.76	N/A
51	1/28/2019	79.2	7577	6876	3596	399700	7976	N/A
52	1/29/2019	78.8	7347	6097	3593	399100	7990	N/A
53	1/29/2019	76.7	7535	6085	3781	395900	7734	N/A
54	1/29/2019	75.5	7444	6316	4723	398800	8347	N/A
55	1/30/2019	79	7259	5939	3651	397200	7804.4	N/A
56	1/30/2019	73.9	6825	6296	3861	398300	7790.31	N/A
57	1/30/2019	80.68946	7364.217	6500	4339	399500	7856.76	N/A
58	1/31/2019	74.8	7077	5861	3787	398200	9212.26	N/A
59	1/31/2019	78.89714	6953.334	6148	3613	398300	7914.58	N/A
60	2/1/2019	81.56192	7151.869	5419	3952	398450	7837.67	N/A
	AVG=	**76**	**7,864**	**6,231**	**4,053**	**23,641,675**	**489,998**	TOTAL

API 47-085-10339 **Farm Name** Radall Bond et al **Well Number** Short Run 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
No Data collected	0	445	0	445
Silty Shale	est 445	505	est 445	505
Shaly Siltstone	est 505	685	est 505	685
Sandy Siltstone	est 685	765	est 685	765
Silty Sandstone	est 765	845	est 765	845
Sandy Siltstone	est 845	905	est 845	905
Shaly Sandstone	est 905	945	est 905	945
Sandy Shale	est 945	1,085	est 945	1,085
Shaly sandstone tr coal	est 1,085	1,145	est 1,085	1,145
Shaly Sandstone	est 1,145	1,265	est 1,145	1,265
Silty Shale with intermittend SS	est 1,265	1,625	est 1,265	1,625
Sandstone	est 1,625	1,785	est 1,625	1,785
Sandy Shale	est 1,785	2,105	est 1,785	2,209
Big Lime	2,105	2,978	2,209	3,169
Fifty Foot Sandstone	2,978	3,074	3,169	3,275
Gordon	3,074	3,224	3,275	3,441
Fifth Sandstone	3,224	3,461	3,441	3,702
Bayard	3,461	3,970	3,702	4,259
Speechley	3,970	4,214	4,259	4,527
Balltown	4,214	4,721	4,527	5,087
Bradford	4,721	5,036	5,087	5,434
Benson	5,036	5,269	5,434	5,693
Alexander	5,269	6,288	5,693	6,831
Sycamore	6,288	6,408	6,831	6,999
Middlesex	6,408	6,522	6,999	7,193
Burkett	6,522	6,552	7,193	7,269
Tully	6,552	6,584	7,269	7,394
Marcellus	6,584	NA	7,394	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:	1/5/2019
Job End Date:	2/1/2019
State:	West Virginia
County:	Ritchie
API Number:	47-085-10339-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Short Run Unit 1H
Latitude:	39.33848600
Longitude:	-80.88447800
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,670
Total Base Water Volume (gal):	21,336,299
Total Base Non Water Volume:	0

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Supplied by Operator	Base Fluid					
			Water	7732-18-5	70.00000	87.93485	
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			

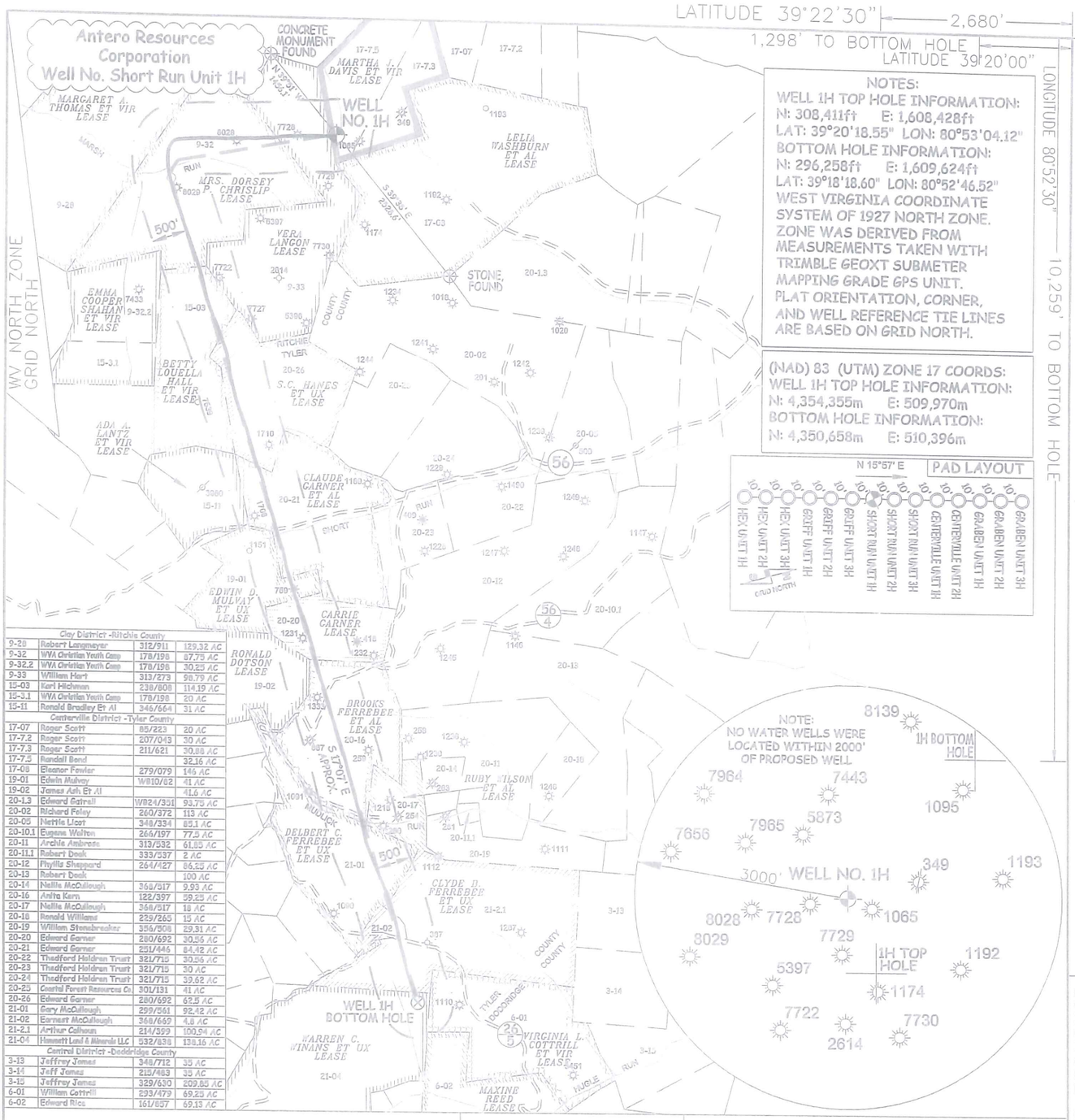
DAP-103	CWS	Iron Control					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
SaniFrac 8844	CWS	Biocide					
				Listed Below			
Calcium Chloride	CWS	Brine					
				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	11.67970	
			Calcite	471-34-1	1.00000	0.08163	
			Hydrochloric acid	7647-01-0	37.00000	0.05490	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.04445	
			Guar gum	9000-30-0	60.00000	0.04445	
			Illite	12173-60-3	1.00000	0.03513	
			Polymer	26100-47-0	45.00000	0.02882	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01921	
			Biotite	1302-27-8	0.10000	0.01168	
			Goethite	1310-14-1	0.10000	0.01168	
			Apatite	64476-38-6	0.10000	0.01168	
			Ammonium chloride	12125-02-9	11.00000	0.00705	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00604	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00584	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00370	
			Ilmenite	98072-94-7	0.10000	0.00351	
			Sorbitan monooleate	1338-43-8	4.00000	0.00256	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00214	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00192	
			Ammonium Persulfate	64742-47-8	100.00000	0.00152	
			1,2-Propanediol	57-55-6	10.00000	0.00151	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00128	

			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00111	
			Calcium Chloride	10043-52-4	100.00000	0.00099	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00064	
			Citric acid	77-92-9	60.00000	0.00050	
			Sodium bromide	7647-15-6	4.00000	0.00043	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00032	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00032	
			Vinylidene chloride-methyl acrylate copolymer	69418-26-4	20.00000	0.00030	
			Acrylamide	79-06-1	0.10000	0.00006	
			Ethylene glycol	107-21-1	40.00000	0.00003	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride-quatenized	72480-70-7	10.00000	0.00001	
			Formic Acid	64-18-6	10.00000	0.00001	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



NOTES:
WELL 1H TOP HOLE INFORMATION:
N: 308,411ft E: 1,608,428ft
LAT: 39°20'18.55" LON: 80°53'04.12"
BOTTOM HOLE INFORMATION:
N: 296,258ft E: 1,609,624ft
LAT: 39°18'18.60" LON: 80°52'46.52"
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: 4,354,355m E: 509,970m
BOTTOM HOLE INFORMATION:
N: 4,350,658m E: 510,396m

Clay District -Ritchie County			
9-28	Robert Langmeyer	312/911	139.32 AC
9-32	WVA Christian Youth Camp	178/198	87.75 AC
9-32.2	WVA Christian Youth Camp	178/198	30.25 AC
9-33	William Hart	313/273	98.79 AC
15-03	Karl Hickman	238/808	114.19 AC
15-3.1	WVA Christian Youth Camp	178/198	20 AC
15-11	Ronald Bradley Et Al	346/664	31 AC
Centerville District -Tyler County			
17-07	Roger Scott	65/223	20 AC
17-7.2	Roger Scott	207/043	30 AC
17-7.3	Roger Scott	211/621	30.88 AC
17-7.5	Randall Bond		32.16 AC
17-08	Eleanor Fowler	279/079	146 AC
19-01	Edwin Mulvey	W810/62	41 AC
19-02	James Ash Et Al		41.6 AC
20-1.3	Edward Gatrell	W824/351	98.75 AC
20-02	Richard Foley	260/372	113 AC
20-05	Nettie Licot	348/334	85.1 AC
20-10.1	Eugene Walton	264/197	77.5 AC
20-11	Archie Ambrose	313/532	61.85 AC
20-11.1	Robert Doak	333/537	2 AC
20-12	Phyllis Sheppard	264/427	86.25 AC
20-13	Robert Doak		100 AC
20-14	Nellie McCullough	368/517	9.93 AC
20-16	Anita Kern	122/397	59.25 AC
20-17	Nellie McCullough	368/517	18 AC
20-18	Ronald Williams	259/265	15 AC
20-19	William Stenebrecher	356/508	59.91 AC
20-20	Edward Garner	280/692	30.56 AC
20-21	Edward Garner	251/446	84.12 AC
20-22	Thedford Holdren Trust	321/715	30.56 AC
20-23	Thedford Holdren Trust	321/715	30 AC
20-24	Thedford Holdren Trust	321/715	39.62 AC
20-25	Coastal Forest Resources Co	301/131	41 AC
20-26	Edward Garner	280/692	62.5 AC
21-01	Gary McCullough	299/561	92.42 AC
21-02	Earnest McCullough	368/695	4.5 AC
21-2.1	Arthur Calhoun	214/599	150.24 AC
21-04	Hannett Land & Minerals LLC	532/838	139.16 AC
Central District -Doddridge County			
3-13	Jeffrey James	348/712	35 AC
3-14	Jeff James	215/463	35 AC
3-15	Jeffrey James	329/630	209.85 AC
6-01	William Cottrill	293/479	69.25 AC
6-02	Edward Rice	161/657	69.13 AC

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.

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

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

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 ALLEGHENY SURVEYS, INC.
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.

DOUGLAS R. ROWE LICENSED No. 2202 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

JOB # 17-008WA
DRAWING # SHORTRUN1HAD
SCALE 1" = 2000'
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 06/03/19
OPERATOR'S WELL# SHORT RUN UNIT #1H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,250' AS BUILT WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
SURFACE OWNER RADALL BOND ET AL ACREAGE 32.16 ACRES +/-
OIL & GAS ROYALTY OWNER MARTHA J. DAVIS ET VIR; VERA LANGON; MRS. DORSEY P. CHRISLIP; LEASE ACREAGE 70 AC±; 98.79 AC±; 87.75 AC±;
BETTY LOUELLA HALL ET VIR; S.C. HANES ET UX; CLAUDE GARNER ET AL; EDWIN D. MULVAY ET UX; CARRIE GARNER 56 AC±; 64 AC±; 85 AC±; 41 AC±; 30 AC±;
BROOKS FERREBEE ET AL; DELBERT C. FERREBEE ET UX; CLYDE B. FERREBEE ET UX; WARREN C. WINANS ET UX 59.25 AC±; 76 AC±; 105 AC±; 143 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 6,670' TVD 19,374' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

47 – 085 – 10339
STATE COUNTY PERMIT

COUNTY NAME PERMIT

FORM WW-6