

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

API 47 - 095 - 02658 County Tyler District McElroy
Quad Shirley 7.5' Pad Name Colorado West Field/Pool Name ---
Farm name Antero Resources Corporation Well Number Rockies 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St 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 4361455m Easting 518115m
Landing Point of Curve Northing 517683.10m Easting 4361501.60m
Bottom Hole Northing 4364806m Easting 516631m

Elevation (ft) 749' 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 11/6/2019 Date drilling commenced 12/31/2019 Date drilling ceased 4/2/2020
Date completion activities began 2/3/2021 Date completion activities ceased 4/12/2021
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 298 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 916 Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: Steve May
APPROVED
3/30/23

API 47- 095 - 02658 Farm name Antero Resources Corporation Well number Rockies 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"	105'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	434	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3068'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18601'	New	20#, P-110	N/A	Y
Tubing		2-3/8"	6856'		4.7#, P-110		
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	284 sx	15.6	1.20	192	0	8 Hrs
Surface	Class A	354 sx	15.6	1.20	75	0	8 Hrs
Coal							
Intermediate 1	Class A	1018 sx	15.6	1.20	216	0	8 Hrs
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 2895 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.26 (Tail)	650	-500' into Intermediate Casing	8 Hrs
Tubing							

Drillers TD (ft) 18621' MD, 6401' TVD (BHL), 6416' (Deepest Point Drilled) Loggers TD (ft) 18621' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5850'

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 ever 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 on 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 _____

SM

LATITUDE 39°25'00"

11,240'

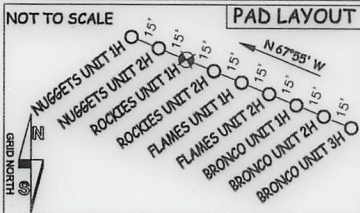
4,311' TO BOTTOM HOLE

LATITUDE 39°27'30"

Antero Resources Corporation Well No. Rockies Unit 1H

AS DRILLED DATA: WELL 1H TOP HOLE INFORMATION: N: 331,261ft E: 1,635,544ft ... BOTTOM HOLE INFORMATION: N: 342,339ft E: 1,630,857ft ... WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.

(NAD) 83 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 4,361,455m E: 518,115m ... BOTTOM HOLE INFORMATION: N: 4,364,806m E: 516,631m



NOTE: 12 WATER WELLS WERE LOCATED WITHIN 2000' OF THE PROPOSED WELL

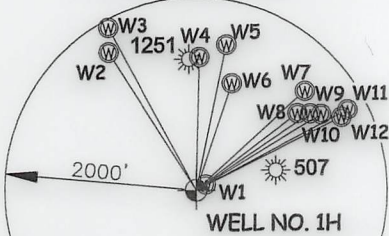


Table with 4 columns: Well ID, Northing, Easting, and Elevation. Lists wells W1 through W12 with their respective coordinates and elevations.

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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 # 19-004WA DRAWING # ROCKIES1HAD SCALE 1" = 2000' MINIMUM DEGREE OF ACCURACY SUBMETER ... 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 ... DATE 06/09/21 OPERATOR'S WELL# ROCKIES UNIT #1H

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. ... 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

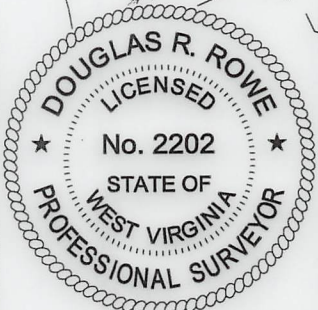
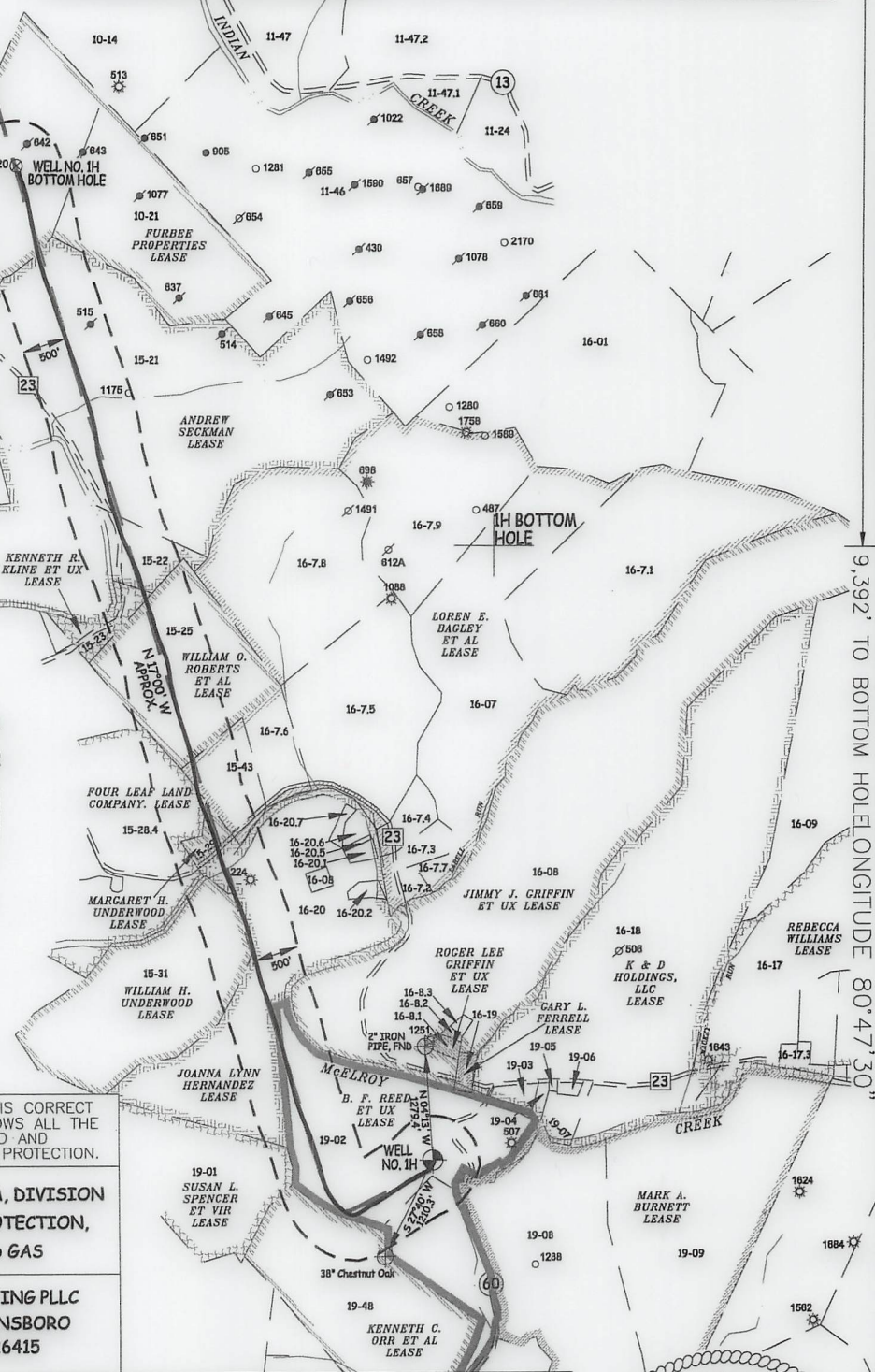


Table with 6 columns: TM-Par, Surface Owner, and well IDs (15-29, 16-08, 16-20.5). Lists various landowners and their associated well identifiers.



WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02658 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION 749' - AS BUILT WATERSHED McELROY CREEK QUADRANGLE SHIRLEY 7.5' DISTRICT McELROY COUNTY TYLER SURFACE OWNER ANTERO RESOURCES CORPORATION ACREAGE 127.86 ACRES +/- OIL & GAS ROYALTY OWNER B.F. REED ET UX; JOANNA LYNN HERNANDEZ; WILLIAM H. UNDERWOOD; LEASE ACREAGE 130 AC.±; 99.5 AC.±; 81 AC.±; MARGARET H. UNDERWOOD; FOUR LEAF LAND COMPANY; LOREN E. BAGLEY ET AL; WILLIAM O. ROBERTS ET AL; 3.18 AC.±; 150 AC.±; 502.8 AC.±; 66.25 AC.±; KENNETH R. CLINE ET UX; ANDREW SECKMAN; FURBEE PROPERTIES 9.08 AC.±; 300 AC.±; 316 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 6,401' TVD 18,621' MD WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

WV NORTH ZONE GRID NORTH

5,225' LONGITUDE 80°45'00"

9,392' TO BOTTOM HOLE LONGITUDE 80°47'30"

COUNTY NAME

PERMIT

LATITUDE 39°25'00"

11,240'

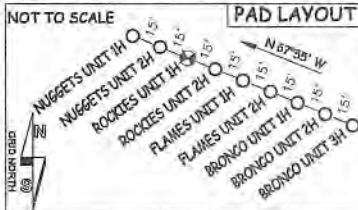
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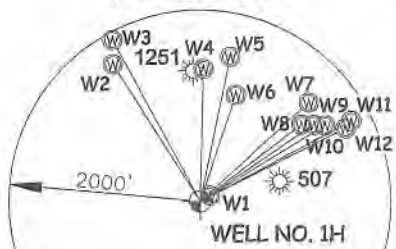


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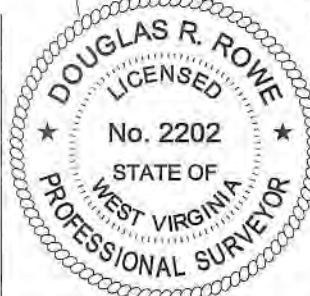
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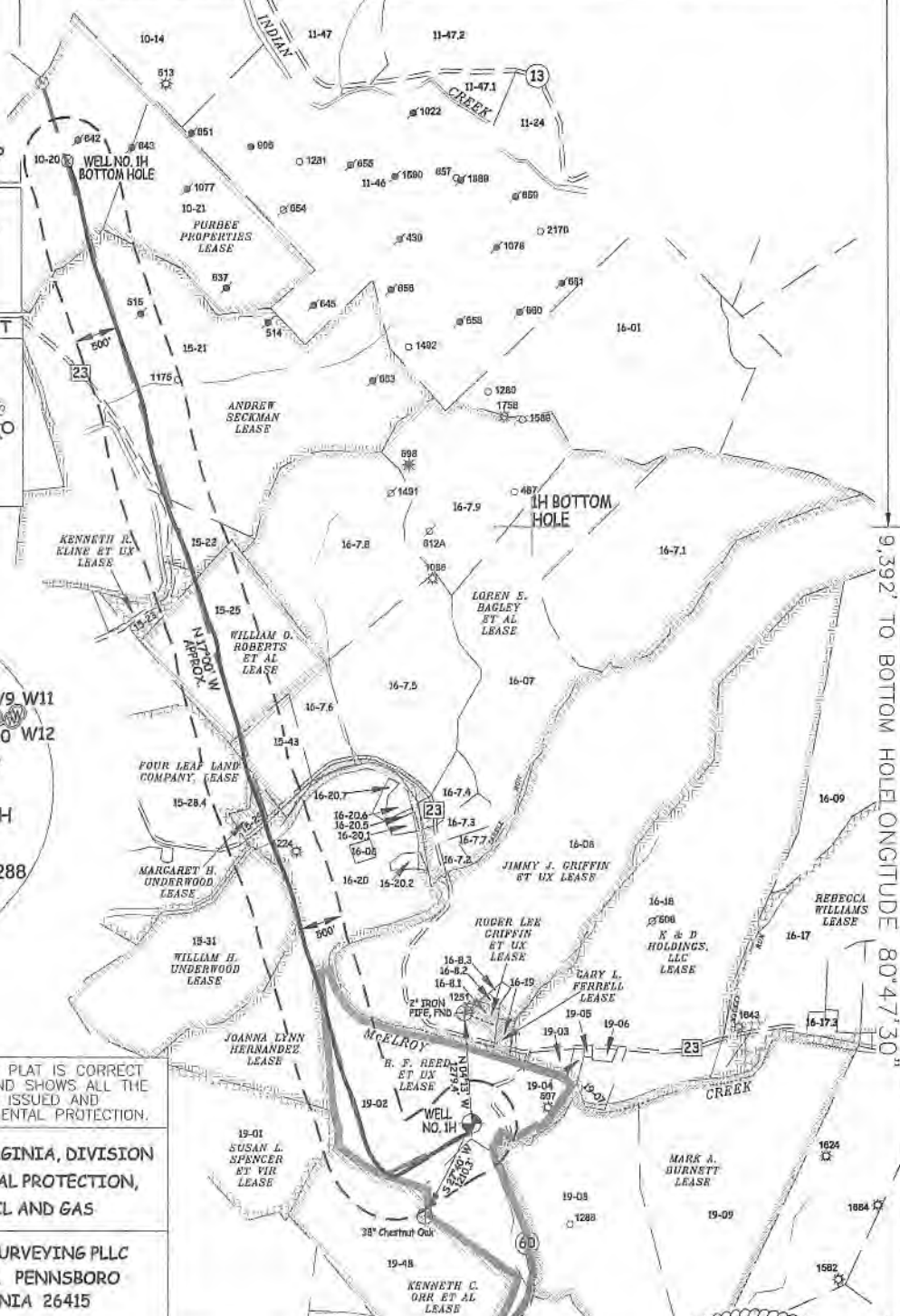
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WV NORTH ZONE GRID NORTH

5,225'

LONGITUDE 80°45'00"

9,392' TO BOTTOM HOLE LONGITUDE 80°47'30"

Handwritten signature and date: SM 3/30/13

API 47-095-02658 Farm Name Antero Resources Corporation Well Number Rockies Unit 1H

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/3/2021	18504.2	18460.6	36	Marcellus
2	2/3/2021	18420.87143	18208.5	36	Marcellus
3	2/4/2021	18170.77143	17958.4	36	Marcellus
4	2/4/2021	17920.67143	17708.3	36	Marcellus
5	2/4/2021	17670.57143	17458.2	36	Marcellus
6	2/5/2021	17420.47143	17208.1	36	Marcellus
7	2/5/2021	17170.37143	16958	36	Marcellus
8	2/6/2021	16920.27143	16707.9	36	Marcellus
9	2/6/2021	16670.17143	16457.8	36	Marcellus
10	2/6/2021	16420.07143	16207.7	36	Marcellus
11	2/7/2021	16169.97143	15957.6	36	Marcellus
12	2/7/2021	15919.87143	15707.5	36	Marcellus
13	2/7/2021	15669.77143	15457.4	36	Marcellus
14	2/7/2021	15419.67143	15207.3	36	Marcellus
15	2/8/2021	15169.57143	14957.2	36	Marcellus
16	2/8/2021	14919.47143	14707.1	36	Marcellus
17	2/8/2021	14669.37143	14457	36	Marcellus
18	2/8/2021	14419.27143	14206.9	36	Marcellus
19	2/9/2021	14169.17143	13956.8	36	Marcellus
20	2/9/2021	13919.07143	13706.7	36	Marcellus
21	2/9/2021	13668.97143	13456.6	36	Marcellus
22	2/10/2021	13418.87143	13206.5	36	Marcellus
23	2/10/2021	13168.77143	12956.4	36	Marcellus
24	2/10/2021	12918.67143	12706.3	36	Marcellus
25	2/11/2021	12668.57143	12456.2	36	Marcellus
26	2/11/2021	12418.47143	12206.1	36	Marcellus
27	2/12/2021	12168.37143	11956	36	Marcellus
28	2/12/2021	11918.27143	11705.9	36	Marcellus
29	2/12/2021	11668.17143	11455.8	36	Marcellus
30	2/12/2021	11418.07143	11205.7	36	Marcellus
31	2/13/2021	11167.97143	10955.6	36	Marcellus
32	2/13/2021	10917.87143	10705.5	36	Marcellus
33	2/13/2021	10667.77143	10455.4	36	Marcellus
34	2/14/2021	10417.67143	10205.3	36	Marcellus
35	2/14/2021	10167.57143	9955.2	36	Marcellus
36	2/14/2021	9917.471429	9705.1	36	Marcellus
37	2/15/2021	9667.371429	9455	36	Marcellus
38	2/15/2021	9417.271429	9204.9	36	Marcellus
39	2/15/2021	9167.171429	8954.8	36	Marcellus
40	2/16/2021	8917.071429	8704.7	36	Marcellus
41	2/16/2021	8666.971429	8454.6	36	Marcellus
42	2/16/2021	8416.871429	8204.5	36	Marcellus
43	2/16/2021	8166.771429	7954.4	36	Marcellus
44	2/16/2021	7916.671429	7704.3	36	Marcellus
45	2/17/2021	7666.571429	7454.2	36	Marcellus
46	2/17/2021	7416.471429	7204.1	36	Marcellus
47	2/17/2021	7166.371429	6954	36	Marcellus

API 47-095-02658 Farm Name Antero Resources Corporation Well Number Rockies 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	2/3/2021	71	8589	0	4303.26	163360	222157	N/A
2	2/3/2021	82.05	8532	6524	4746	501340	381793	N/A
3	2/4/2021	85.19	8180	6545	4599.13	509880	385184	N/A
4	2/4/2021	83.14	8438	5808	4497.03	499240	380798	N/A
5	2/4/2021	88.19	8350	6084	4551.25	515500	381685	N/A
6	2/5/2021	87.56	8382	5961	4547.49	509740	382140	N/A
7	2/5/2021	85.59	8702.26	7554.51	4152.04	512720	371759	N/A
8	2/6/2021	90.7	8676	8661	4275.97	514460	365387	N/A
9	2/6/2021	93.49	8670	8174	4416.91	504960	359790	N/A
10	2/6/2021	93.97	8621	7287	4078	510560	361483	N/A
11	2/7/2021	87.57	8229	8749	3800	503740	355884	N/A
12	2/7/2021	92.59	8709	7322	3944.3	504510	363303	N/A
13	2/7/2021	93.58	8708.51	8065.12	4264.02	507470	363191	N/A
14	2/7/2021	93.25	8610.33	8705.85	4424.22	510110	361081	N/A
15	2/8/2021	92.94	8728	8869	4111	511270	362638	N/A
16	2/8/2021	89.89	8707	8093	3820.17	505580	360685	N/A
17	2/8/2021	93.69	8694	7985	4097	512440	365955	N/A
18	2/8/2021	95.44	8553	8040	4222	517160	355538	N/A
19	2/9/2021	92.04	8482	7863	3982	518320	364763	N/A
20	2/9/2021	91.79	8401	7679	4033	512450	368713	N/A
21	2/9/2021	97.02	8415	6477	4153	510070	354694	N/A
22	2/10/2021	92.99	8575.23	8306.93	3914.19	512080	362784	N/A
23	2/10/2021	96.47	8488.16	2655.62	3866.11	512660	363492	N/A
24	2/10/2021	96.42	8325	6265	4162.44	515400	361583	N/A
25	2/11/2021	93.29	8497.68	2373.45	3767.36	506630	368766	N/A
26	2/11/2021	97.78	8421	3112	3900	511050	359288	N/A
27	2/12/2021	97.34	8450	7510	3981	508110	353266	N/A
28	2/12/2021	94.34	8468.45	2960.65	4116.67	508980	362167	N/A
29	2/12/2021	95.72	8370.02	2685.93	4056.18	513320	373426	N/A
30	2/12/2021	94.37	8239	6205	3965.19	513770	354481	N/A
31	2/13/2021	96.17	8381.1	6646	3939.36	511870	369683	N/A
32	2/13/2021	96.2	8455.87	2798.2	4183.41	508970	372438	N/A
33	2/13/2021	97.85	8622	2856	4017	511780	367170	N/A
34	2/14/2021	96.08	8233	6243	3948	514820	366638	N/A
35	2/14/2021	95.56	8354.7	7937	3918.77	504450	362168	N/A
36	2/14/2021	95.99	8524.87	3080.05	4045.13	514060	366995	N/A
37	2/15/2021	95.88	8159	7299	4235	501910	367967	N/A
38	2/15/2021	96.72	8300.44	2536.54	4567.75	503820	372219	N/A
39	2/15/2021	96.54	8330	5837	4132	509280	365773	N/A
40	2/16/2021	97.79	8344	7227	4199	508450	364817	N/A
41	2/16/2021	96.37	8265.19	6686.67	4281.09	514230	366614	N/A
42	2/16/2021	96.54	8192.35	2756.05	4127.48	511430	370108	N/A
43	2/16/2021	96.98	8101	2786	4418.25	496870	360352	N/A
44	2/16/2021	95.67	7802	7593	4167.05	503570	366982	N/A
45	2/17/2021	96.85	7926	7376	4555.2	506900	365002	N/A
46	2/17/2021	95.68	7666.99	2893.86	4419.42	513700	372638	N/A
47	2/17/2021	97.65	7478.87	2772.45	4353.08	512910	372986	N/A
	AVG=	93	8,390	5,912	4,176	23,605,900	17,078,424	TOTAL

SM

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shale	0	310	0	310
Silty sandstone	310	460	310	460
Shale	460	700	460	700
Silty Shale	700	820	700	820
Shale with interbedded limestone	820	850	820	850
Shale	850	880	850	880
Shale w/ trace coal	880	910	880	910
Shaley Sandstone	910	1,180	910	1,180
Shale	1,180	1,240	1,180	1,240
Sandstone w/ interbedded coals	1,240	1,330	1,240	1,330
Sandstone w/ trace coal	1,330	1,480	1,330	1,480
Sandstone	1,480	1,510	1,480	1,510
Shale	1,510	1,639	1,510	N/A
Big Lime	1,639	2,364	1,643	2,369
Fifty Foot Sandstone	2,364	2,443	2,369	2,448
Gordon	2,443	2,748	2,448	2,753
Fifth Sandstone	2,748	2,772	2,753	2,777
Bayard	2,772	3,597	2,777	3,609
Speechley	3,597	3,809	3,609	3,829
Balltown	3,809	4,291	3,829	4,356
Bradford	4,291	4,762	4,356	4,874
Benson	4,762	5,010	4,874	5,147
Alexander	5,010	6,156	5,147	6,447
Sycamore	5,974	6,131	6,241	6,422
Middlesex	6,131	6,268	6,447	6,655
Burkett	6,268	6,296	6,680	6,725
Tully	6,296	6,342	6,750	6,907
Marcellus	6,342	NA	6,907	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:	2/2/2021
Job End Date:	2/17/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02658-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	ROCKIES UNIT 1H
Latitude:	39.40232200
Longitude:	-80.78977000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,415
Total Base Water Volume (gal):	23,640,850
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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	89.22005	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.03870	

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FLUID Enviro-Syn HCR-7000-WL	Fluid Energy Group	Acid Replacement					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			

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				Listed Below			
Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			

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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	10.68204	
			Complex Amine Compound	Proprietary	60.00000	0.02002	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01001	
			Proprietary	Proprietary	20.00000	0.00851	
			Proprietary	Proprietary	10.00000	0.00425	
			Hydrochloric acid	7647-01-0	30.00000	0.00364	
			Guar gum	9000-30-0	100.00000	0.00325	
			Glutaraldehyde	111-30-8	30.00000	0.00197	
			Surfactant	Proprietary	5.00000	0.00167	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00167	
			Ethoxylated alcohols	Proprietary	5.00000	0.00033	
			Alkoxylated polyhydric alcohol	Proprietary	1.00000	0.00033	
			Organic chloride compound	Proprietary	1.00000	0.00033	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00033	
			Methanol	67-56-1	100.00000	0.00009	
			Ammonium persulfate	7727-54-0	100.00000	0.00007	
			Ethanol	64-17-5	1.00000	0.00007	
			Oxylated phenolic resin	Proprietary	30.00000	0.00002	
			Modified thiourea polymer	Proprietary	30.00000	0.00001	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00001	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Acrylamide	79-06-1	0.01000	0.00000	
			Organic salt #1	Proprietary	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	

			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Sodium glycolate	2836-32-0	0.01000	0.00000	
			Organic salt #2	Proprietary	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Propargyl alcohol	107-19-7	5.00000	0.00000	
			Hexadecene	629-73-2	5.00000	0.00000	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	

* 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)