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Rev. 10-10

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: 47-095-02559 County: Tyler
District: Meade Well No: Winebrenner Unit 1H
Farm Name: Joseph R. Rymer Jr.
Discharge Date/s From:(MMDDYY) 12/13/19 To: (MMDDYY) 01/12/20
Discharge Times. From: 0:00 To: 24:00
Total Volume to be Disposed from this facility (gallons): 1,539,309
Disposal Option(s) Utilized (write volumes in gallons):

(1) Land Application: _____ (Include a topographical map of the Area.)
(2) UIC: 27,391 Permit No. 3400923821, 3400923823, 3400923824, 3416729543, 3416729464, 3416729445
(3) Offsite Disposal: 473 Site Location: MudMasters
(4) Reuse: 1,511,445 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: 3/16/20

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.

07/03/2026

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

07/03/2026

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: _____

07/03/2026

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

API 47 - 095 - 02559 County Tyler District Meade
Quad Middlebourne 7.5' Pad Name Rush Fork Pad Field/Pool Name -----
Farm name Joseph R. Rymer Jr. Well Number Winebrenner 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 4363041m Easting 502627m
Landing Point of Curve Northing 4363329.19m Easting 502965.41m
Bottom Hole Northing 4367858m Easting 501334m

Elevation (ft) 986' 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 11/9/2018 Date drilling commenced 12/8/2019 Date drilling ceased 5/10/2019
Date completion activities began 8/13/2019 Date completion activities ceased 11/28/2019
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 30, 81 Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1461, 1485, 1510 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:

~~07/03/2026~~

API 47- 095 - 02559 Farm name Joseph R. Rymer Jr. Well number Winebrenner 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	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2587'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	22876'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	7154'		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	300 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	332 sx	15.6	1.20	635	0'	8 Hrs.
Coal							
Intermediate 1	Class A	895 sx	15.6	1.19	1082	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 4020 sx (Tail)	14.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.6 (Tail)	3003	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 22895' MD, 6164' TVD (BHL), 6165' (Deepest Point Drilled) Loggers TD (ft) 22895' MD

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

Plug back procedure N/A

Kick off depth (ft) 5600'

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

07/03/2026

API 47- 095 - 02559 Farm name Joseph R. Rymer Jr. Well number Winebrenner 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.

07/03/2026

API 47- 095 - 02559 Farm name Joseph R. Rymer Jr. Well number Winebrenner Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6154' (TOP) TVD	6571' (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 10448 mcfpd Oil 340 bpd NGL --- bpd Water 106 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 Frontier Drilling LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company KLX Energy Services
Address 6072 W Veterans Memorial Hwy City Bridgeport State WV Zip 26330

Cementing Company Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

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 Megan Griffith Telephone 303-357-7223
Signature _____ Title Permitting Agent Date _____

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

07/03/2026

API 47-095-02559 **Farm Name** Joseph R. Rymer Jr. **Well Number** Winebrenner Unit

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/12/2019	18507	18460	60	Marcellus
2	8/13/2019	18422.458	18256.748	60	Marcellus
3	8/13/2019	18221.206	18055.496	60	Marcellus
4	8/14/2019	18019.954	17854.244	60	Marcellus
5	8/14/2019	17818.702	17652.992	60	Marcellus
6	8/15/2019	17617.45	17451.74	60	Marcellus
7	8/15/2019	17416.198	17250.488	60	Marcellus
8	8/16/2019	17214.946	17049.236	60	Marcellus
9	8/16/2019	17013.694	16847.984	60	Marcellus
10	8/17/2019	16812.442	16646.732	60	Marcellus
11	8/18/2019	16611.19	16445.48	60	Marcellus
12	8/18/2019	16409.938	16244.228	60	Marcellus
13	8/18/2019	16208.686	16042.976	60	Marcellus
14	8/18/2019	16007.434	15841.724	60	Marcellus
15	8/20/2019	15806.182	15640.472	60	Marcellus
16	8/22/2019	15604.93	15439.22	60	Marcellus
17	8/23/2019	15403.678	15237.968	60	Marcellus
18	8/23/2019	15202.426	15036.716	60	Marcellus
19	8/24/2019	15001.174	14835.464	60	Marcellus
20	8/25/2019	14799.922	14634.212	60	Marcellus
21	8/25/2019	14598.67	14432.96	60	Marcellus
22	8/26/2019	14397.418	14231.708	60	Marcellus
23	8/27/2019	14196.166	14030.456	60	Marcellus
24	8/27/2019	13994.914	13829.204	60	Marcellus
25	8/27/2019	13793.662	13627.952	60	Marcellus
26	8/28/2019	13592.41	13426.7	60	Marcellus
27	8/28/2019	13391.158	13225.448	60	Marcellus
28	8/29/2019	13189.906	13024.196	60	Marcellus
29	8/29/2019	12988.654	12822.944	60	Marcellus
30	8/29/2019	12787.402	12621.692	60	Marcellus
31	8/30/2019	12586.15	12420.44	60	Marcellus
32	8/30/2019	12384.898	12219.188	60	Marcellus
33	8/31/2019	12183.646	12017.936	60	Marcellus
34	8/31/2019	11982.394	11816.684	60	Marcellus
35	9/1/2019	11781.142	11615.432	60	Marcellus
36	9/1/2019	11579.89	11414.18	60	Marcellus
37	9/2/2019	11378.638	11212.928	60	Marcellus
38	9/2/2019	11177.386	11011.676	60	Marcellus
39	9/3/2019	10976.134	10810.424	60	Marcellus
40	9/3/2019	10774.882	10609.172	60	Marcellus
41	9/3/2019	10573.63	10407.92	60	Marcellus
42	9/4/2019	10372.378	10206.668	60	Marcellus
43	9/4/2019	10171.126	10005.416	60	Marcellus
44	9/4/2019	9969.874	9804.164	60	Marcellus
45	9/5/2019	9768.622	9602.912	60	Marcellus
46	9/5/2019	9567.37	9401.66	60	Marcellus
47	9/6/2019	9366.118	9200.408	60	Marcellus
48	9/6/2019	9164.866	8999.156	60	Marcellus
49	9/6/2019	8963.614	8797.904	60	Marcellus
50	9/7/2019	8762.362	8596.652	60	Marcellus
51	9/7/2019	8561.11	8395.4	60	Marcellus
52	9/7/2019	8359.858	8194.148	60	Marcellus
53	9/8/2019	8158.606	7992.896	60	Marcellus
54	9/8/2019	7957.354	7791.644	60	Marcellus
55	9/8/2019	7756.102	7590.392	60	Marcellus
56	9/9/2019	7554.85	7389.14	60	Marcellus
57	9/9/2019	7353.598	7187.888	60	Marcellus
58	9/10/2019	7152.346	6986.636	60	Marcellus
59	9/10/2019	6951.094	6785.384	60	Marcellus
60	9/10/2019	6749.842	6584.132	60	Marcellus

API 47-095-02559 **Farm Name** Joseph R. Rymer Jr. **Well Number** Winebrenner 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	8/12/2019	73.03906	7975.121	5761	4133	288520	4642.506	N/A
2	8/13/2019	76.70062	7925.691	6952	4881	286860	8834.806	N/A
3	8/13/2019	79.17382	8236.479	5905	4586	281340	8777.81	N/A
4	8/14/2019	76.74974	8016.883	6122	3439	282400	8767.26	N/A
5	8/14/2019	79.69976	7960.411	5872	4417	279940	8738.74	N/A
6	8/15/2019	79.17255	7957.369	5791	4067	278920	8627.77	N/A
7	8/15/2019	79.48534	8251.383	5604	4251	282640	8943.71	N/A
8	8/16/2019	73.12968	8126.496	5505	3633	282600	8738.7	N/A
9	8/16/2019	68.99791	8375.914	7292	3480	278540	9183.73	N/A
10	8/17/2019	65.31565	8119.859	6014	3596	284760	8718.95	N/A
11	8/18/2019	65.43001	8097.128	7305	3479	288520	8777.25	N/A
12	8/18/2019	70.63998	8229.159	6694	3485	277160	8801.66	N/A
13	8/18/2019	73.01793	8114.037	5676	3575	286000	8707.44	N/A
14	8/18/2019	78.85612	7966.913	6619	3534	271200	8778.01	N/A
15	8/20/2019	78.04329	8175.312	5630	3293	281260	8993.12	N/A
16	8/22/2019	61.49676	8236.325	6767	5000	288100	10375.36	N/A
17	8/23/2019	74.72191	8018.069	6202	3342	277780	8699.37	N/A
18	8/23/2019	64.17487	7856.286	7643	3514	282640	14406.23	N/A
19	8/24/2019	77.47268	8224.543	5053	4186	276240	8809.7	N/A
20	8/25/2019	78.9793	8080.368	5832	3378	280420	8554.85	N/A
21	8/25/2019	69.36431	7659.199	5521	3544	281020	12170.11	N/A
22	8/26/2019	76.86466	7511.279	6500	4266	281720	8511.06	N/A
23	8/27/2019	72.42696	7591.799	6957	3502	284500	8587.89	N/A
24	8/27/2019	73.08673	7966.216	5520	3986	280160	8843.04	N/A
25	8/27/2019	82.07748	8071.141	7024	3477	281040	8366.27	N/A
26	8/28/2019	83.72225	7949.574	5844	4078	274660	8605.49	N/A
27	8/28/2019	84.88638	7747.897	6990	3534	274460	8628.73	N/A
28	8/29/2019	84.89637	7898.41	6818	3733	279600	8565.54	N/A
29	8/29/2019	86.7872	7864.67	5677	3742	271460	8656.47	N/A
30	8/29/2019	85.92645	7909.989	5933	3834	279940	8491.33	N/A
31	8/30/2019	85.14064	7402.654	5160	4270	279240	8604.26	N/A
32	8/30/2019	85.55767	7469.35	5973	3747	281420	8674.96	N/A
33	8/31/2019	84.29674	7553.988	4660	3985	279840	8698.84	N/A
34	8/31/2019	84.33958	7684.731	5988	4235	281620	8603.51	N/A
35	9/1/2019	82.17472	7686.079	6269	3779	280660	11190.09	N/A
36	9/1/2019	83.03731	7274.12	5466	3502	281320	8464.82	N/A
37	9/2/2019	84.62201	7407.154	5377	3880	281180	8523.46	N/A
38	9/2/2019	85.83008	7689.614	5279	4413	279460	9635.98	N/A
39	9/3/2019	85.93623	7563.308	5269	3430	280960	8382.08	N/A
40	9/3/2019	81.37086	7270.691	5631	3750	280680	8651.47	N/A
41	9/3/2019	85.42887	7386.687	4558	3475	279700	8445.49	N/A
42	9/4/2019	84.27304	7234.883	4660	4053	278500	8429.3	N/A
43	9/4/2019	83.94013	7223.474	4693	4002	280160	8549.48	N/A
44	9/4/2019	87.84415	7666.248	5396	4340	282180	8347.29	N/A
45	9/5/2019	83.80044	7489.505	5235	4281	280040	8348.33	N/A
46	9/5/2019	85.85856	7557.553	5579	5180	280020	8431.1	N/A
47	9/6/2019	83.3125	7483.389	4889	4960	279180	8425.05	N/A
48	9/6/2019	86.7602	7360.751	6139	3377	283340	8406.88	N/A
49	9/6/2019	87.52495	7178.251	5474	3318	280680	8411	N/A
50	9/7/2019	87.07848	7397.738	5085	3765	281040	8377.28	N/A
51	9/7/2019	84.3018	7056.058	5344	3436	279560	8460.17	N/A
52	9/7/2019	85.42532	7070.968	5070	3237	280920	8376.46	N/A
53	9/8/2019	82.44999	7027.679	5772	3381	280620	8310.54	N/A
54	9/8/2019	84.91814	6912.811	6248	3469	279560	8383.2	N/A
55	9/8/2019	86.47574	6815.892	5769	3589	277780	8280.19	N/A
56	9/9/2019	83.28788	7034.689	6320	3314	279800	8276.73	N/A
57	9/9/2019	87.76157	7078.587	5992	3569	278980	8341.04	N/A
58	9/10/2019	85.83761	6688.744	5469	3669	280140	8328.89	N/A
59	9/10/2019	86.60626	6894.721	6005	3928	321020	8328.82	N/A
60	9/10/2019	84.86596	6687.296	5569	4607	321020	8332.57	N/A
	AVG=	**77**	**7,956**	**6,146**	**3,847**	**9,264,900**	**294,281**	TOTAL

07/03/2026

API 47-095-02559 Farm Name Joseph R. Rymer Jr. Well Number Winebrenner 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**
Sandstone	0	215	0	215
Sandy Siltstone	215	385	215	385
Shaly Siltstone	385	585	385	585
Silty sandstone	585	625	585	625
Shaly Siltstone	625	745	625	745
Silty sandstone	745	805	745	805
Sandy Siltstone	805	865	805	865
Shaly Siltstone	865	985	865	985
Silty Shale	985	1,185	985	1,185
Silty Sandstone	1,185	1,475	1,185	1,475
Sandstone	1,475	1,645	1,475	1,645
Sandy Siltstone	1,645	1,745	1,645	1,745
Silty sandstone	1,745	1,771	1,745	1,823
Big Lime	1,786	2,628	1,798	2,702
Fifty Foot Sandstone	2,628	2,696	2,677	2,772
Gordon	2,696	3,030	2,747	3,119
Fifth Sandstone	3,030	3,330	3,094	3,432
Bayard	3,330	3,931	3,407	4,057
Speechley	3,931	4,216	4,032	4,352
Balltown	4,216	4,390	4,327	4,534
Bradford	4,390	4,643	4,509	4,797
Benson	4,643	4,760	4,772	4,918
Alexander	4,760	6,063	4,893	6,342
Sycamore	5,944	6,038	6,181	6,317
Middlesex	6,038	6,131	6,317	6,500
Burkett	6,131	6,150	6,500	6,555
Tully	6,150	6,154	6,555	6,571
Marcellus	6,154	NA	6,571	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.

07/03/2026

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/30/2019
Job End Date:	11/8/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02559-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Winebrenner Unit 1H
Latitude:	39.41680830
Longitude:	-80.96965500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,236
Total Base Water Volume (gal):	31,164,185
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	88.64195	
DynaRate 6522	CWS	Friction Reducer					
				Listed Below			

SaniFrac 8844	CWS	Biocide					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
CalGel 4000	CWS	Gel Slurry					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				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	11.05288	
			Hydrochloric acid	7647-01-0	37.00000	0.08912	

			Calcite	471-34-1	1.00000	0.07707	
			Illite	12173-60-3	1.00000	0.03345	
			Copolymer of 2-propenamide	69418-26-4	30.00000	0.01536	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.01346	
			Guar gum	9000-30-0	60.00000	0.01346	
			Biotite	1302-27-8	0.10000	0.01105	
			Apatite	64476-38-6	0.10000	0.01105	
			Goethite	1310-14-1	0.10000	0.01105	
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.01024	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00592	
			Ammonium chloride	12125-02-9	8.00000	0.00410	
			Ilmenite	98072-94-7	0.10000	0.00335	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00217	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00112	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00102	
			Ammonium Persulfate	7727-54-0	100.00000	0.00050	
			Sodium bromide	7647-15-6	4.00000	0.00043	
			Citric acid	77-92-9	60.00000	0.00036	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00034	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00033	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00010	
			Ethylene Glycol	107-21-1	40.00000	0.00005	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	

			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Formic acid	64-18-6	10.00000	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	
			Cinnamaldehyde	104-55-2	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)