

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

API 47 - 085 - 10484 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Jackson Pad Field/Pool Name -----
Farm name Daniel R. Christian Well Number Hazelbaker Unit 2H
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 4348878m Easting 501426m
Landing Point of Curve Northing 4348699.66m Easting 501421.28m
Bottom Hole Northing 4346282m Easting 502306m

Elevation (ft) 1035' 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

RECEIVED
Office Of Oil and Gas

APR 30 2024

Date permit issued 5/30/2023 Date drilling commenced 6/7/2023 Date drilling ceased 7/29/2023
Date completion activities began 11/27/2023 Date completion activities ceased 2/13/2024
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 101, 192' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1703' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 665' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

APPROVED

J.M.
06/14/2024

API 47- 085 - 10484 Farm name Daniel R. Christian Well number Hazelbaker Unit 2H

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	28"	20"	130'	New	91.59#, J-55	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"	3252'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15951'	New	23#, P-110/ICY	N/A	Y
Tubing		2-3/8"	6413'		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	234 sx	15.6	1.18	276	0'	8 Hrs.
Surface	Class C	330 sx	15.8	1.16	383	0'	8 Hrs.
Coal							
Intermediate 1	Class C	1140 sx	15.8	1.16	1322	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	(Lead) sx (Tail)	13.5 (Lead), 15.2(Tail)	1.25 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15951' MD, 6341 TVD (BHL), 6343' (Deepest Point Drilled) Loggers TD (ft) 15951' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

RECEIVED
Office Of Oil and Gas
APR 30 2024

Kick off depth (ft) 5980'

WV Department of Environmental Protection

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 - 10484 Farm name Daniel R. Christian Well number Hazelbaker Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6262' (TOP)</u> TVD	<u>6668' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1689 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13574 mcfpd Oil 205 bpd NGL --- bpd Water 551 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	

***PLEASE SEE ATTACHED EXHIBIT 3**

					RECEIVED Office Of Oil and Gas
					APR 30 2024
					WV Department of Environmental Protection

Please insert additional pages as applicable.

Drilling Contractor H & P Drilling
Address 912 N Eagle Valley Rd City Howard State PA Zip 16841

Logging Company Nine Energy Services
Address 6500 West Fwy City Fort Worth State TX Zip 76116

Cementing Company Halliburton Energy Services
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Stimulating Company Halliburton
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Carly Marvel Telephone 303-357-7373
Signature Carly Marvel Title Permitting Agent Date 4/11/2024

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

06/14/2024

LATITUDE 39°17'30"

7,162'

LATITUDE 39°17'30"

4,277' TO BOTTOM HOLE

Antero Resources Corporation Well No. Hazelbaker Unit 2H

Pensboro Corporation	
03-1.1	Daniel R. Christian
03-11	Michael Sedese Jr.
03-12	Alfred Rodriguez
03-13	James Richards
03-23.1	Larry Gregory
03-31	Melissa Carmichael
03-33	Generation Holdings LLC
03-33.1	Brian Bartlett
03-33.2	CM Properties Pensboro LLC
03-44	Robert Wright Jr. et al
03-45	Alfred Rodriguez
04-01	Gregory Barnes
09-05	Ritchie County Fairgrounds Inc.
09-06	Carl Short
09-6.1	Ritchie County Fairgrounds Inc.
09-12	Louanna Merritt
09-14	Mount Harmony Cemetery Assoc.
09-15	Mount Harmony Cemetery Co.
09-17	John Meyer III
12-01	Timothy Shultz et al
12-03	Frank Butler et al
16-02	Larry Horner Jr.
Clay District	
19-31	Joshua Hilvers
19-41	Joseph Davis
19-41.1	Edgar Davis Jr.
19-41.2	Joseph Davis
19-41.3	Edgar Davis Jr.
19-44	Daniel R. Christian
19-44.1	Daniel R. Christian
19-44.2	Daniel R. Christian
25-04	Donald McCullough
25-4.1	Donald McCullough
25-11	Alfred Rodriguez
25-11.1	Alfred Rodriguez
25-29	Archie Carpenter
25-30	Stonewall Property Holdings LLC
25-32.1	Stonewall Property Holdings LLC
25-45.2	Dennis Markwith
25-46	Stonewall Property Holdings LLC
30-4.1	Stonewall Property Holdings LLC

- 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.

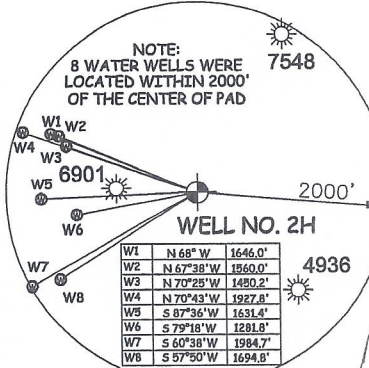
AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
 N: 290,907ft E: 1,580,088ft
 LAT: 39°17'21.09" LON: 80°59'01.09"
BOTTOM HOLE INFORMATION:
 N: 282,338ft E: 1,582,835ft
 LAT: 39°15'56.85" LON: 80°58'24.38"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
 N: 4,348,878m E: 501,426m
BOTTOM HOLE INFORMATION:
 N: 4,346,282m E: 502,306m

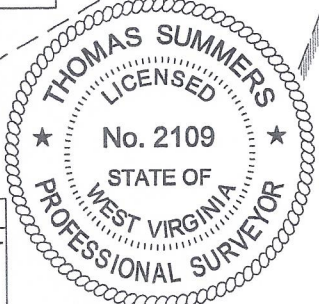
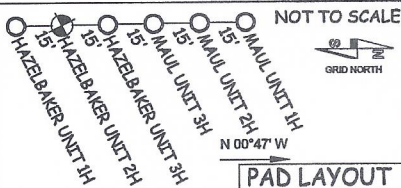
(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
 N: 14,267,231ft E: 1,645,047ft
POINT OF ENTRY INFORMATION:
 N: 14,267,421ft E: 1,644,831ft
BOTTOM HOLE INFORMATION:
 N: 14,258,712ft E: 1,647,935ft

LEASES

A	Daniel R. Christian Et Al
B	Donald R. McCullough Et Ux
C	Master Mineral Holdings, III
D	Andrew Hickman Et Ux
E	Linda J. Wass
F	Donald R. McCullough Et Ux
G	WVSR
H	Brian L. Bartlett
I	CM Properties-Pensboro, LLC
J	Generation Holdings, LLC
K	William H. Snider
L	Larry G. Gregory
M	Mount Harmony Cemetery Assoc.
N	Mary Susan Gibbs
O	Mount Harmony Cemetery Assoc.
P	Erma Jean Valentine
Q	Guy Wilson Et Al
R	John P. Thomas Et Al
S	Timothy E. Mullooly II
T	Richard Barnard
U	Susan Diane Ridgway Et Vir
V	John P. Thomas Et Al
W	Roseann Conley
X	Generation Holdings, LLC
Y	Thomas A. McCullough Et Ux



Thomas Summers
 THOMAS SUMMERS P.S. 2109
 DATE 04/12/24
 OPERATOR'S WELL# HAZELBAKER UNIT #2H



LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Proposed Well Path
- As Drilled Well Path

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
 WILLLOW LAND SURVEYING PLLC
 220 MASONIC AVENUE PENNSBORO WEST VIRGINIA 26415

JOB # 23-005WA
 DRAWING # HAZELBAKER2HAD
 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 LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1,035' AS BUILT WATERSHED NORTH FORK HUGHES RIVER 47 085 - 06/14/2024
 QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE STATE COUNTY PERMIT
 SURFACE OWNER DANIEL R. CHRISTIAN ACREAGE 17.36 ACRES +/- LEASE ACREAGE 76.11 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 6,341' TVD 15,951' MD
 WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT KEVIN ELLIS
 ADDRESS 1615 WYNKOOP STREET ADDRESS 554 WHITE OAKS BLVD
 FORM WW-6 DENVER, CO 80202 BRIDGEPORT, WV 26330

LONGITUDE 80°57'30"

LONGITUDE 80°57'30"

COUNTY NAME

PERMIT

API 47-085-10484 Farm Name Daniel R. Christian Well Number Hazelbaker Unit 2H

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/27/2023	15823	15778	36	Marcellus
2	11/28/2023	15739.46296	15573.7778	36	Marcellus
3	11/28/2023	15538.24074	15372.5556	36	Marcellus
4	11/28/2023	15337.01852	15171.3333	36	Marcellus
5	11/29/2023	15135.7963	14970.1111	36	Marcellus
6	11/29/2023	14934.57407	14768.8889	36	Marcellus
7	11/29/2023	14733.35185	14567.6667	36	Marcellus
8	11/30/2023	14532.12963	14366.4444	36	Marcellus
9	11/30/2023	14330.90741	14165.2222	36	Marcellus
10	11/30/2023	14129.68519	13964	36	Marcellus
11	12/1/2023	13928.46296	13762.7778	36	Marcellus
12	12/1/2023	13727.24074	13561.5556	36	Marcellus
13	12/1/2023	13526.01852	13360.3333	36	Marcellus
14	12/2/2023	13324.7963	13159.1111	36	Marcellus
15	12/2/2023	13123.57407	12957.8889	36	Marcellus
16	12/2/2023	12922.35185	12756.6667	36	Marcellus
17	12/2/2023	12721.12963	12555.4444	36	Marcellus
18	12/3/2023	12519.90741	12354.2222	36	Marcellus
19	12/3/2023	12318.68519	12153	36	Marcellus
20	12/3/2023	12117.46296	11951.7778	36	Marcellus
21	12/3/2023	11916.24074	11750.5556	36	Marcellus
22	12/4/2023	11715.01852	11549.3333	36	Marcellus
23	12/4/2023	11513.7963	11348.1111	36	Marcellus
24	12/4/2023	11312.57407	11146.8889	36	Marcellus
25	12/5/2023	11111.35185	10945.6667	36	Marcellus
26	12/5/2023	10910.12963	10744.4444	36	Marcellus
27	12/5/2023	10708.90741	10543.2222	36	Marcellus
28	12/5/2023	10507.68519	10342	36	Marcellus
29	12/6/2023	10306.46296	10140.7778	36	Marcellus
30	12/6/2023	10105.24074	9939.55556	36	Marcellus
31	12/6/2023	9904.018519	9738.33333	36	Marcellus
32	12/7/2023	9702.796296	9537.11111	36	Marcellus
33	12/7/2023	9501.574074	9335.88889	36	Marcellus
34	12/7/2023	9300.351852	9134.66667	36	Marcellus
35	12/7/2023	9099.12963	8933.44444	36	Marcellus
36	12/8/2023	8897.907407	8732.22222	36	Marcellus
37	12/8/2023	8696.685185	8531	36	Marcellus
38	12/8/2023	8495.462963	8329.77778	36	Marcellus
39	12/8/2023	8294.240741	8128.55556	36	Marcellus
40	12/8/2023	8093.018519	7927.33333	36	Marcellus
41	12/8/2023	7891.796296	7726.11111	36	Marcellus
42	12/9/2023	7690.574074	7524.88889	36	Marcellus
43	12/9/2023	7489.351852	7323.66667	36	Marcellus
44	12/9/2023	7288.12963	7122.44444	36	Marcellus
45	12/9/2023	7086.907407	6921.22222	36	Marcellus
46	12/9/2023	6885.685185	6720	36	Marcellus

RECEIVED
Office Of Oil and Gas
APR 30 2024
WV Department of
Environmental Protection

06/14/2024

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	11/27/2023	78.4	8741.747	9048.49	3739.9	164040	4701.5	N/A
2	11/28/2023	91.9	8839.787	4978.93	3741.9	419120	7625.2	N/A
3	11/28/2023	92.5	9391.545	5045.71	2973.5	406520	6894.3	N/A
4	11/28/2023	92.6	9302.769	4724.54	2841.0	409780	6861.5	N/A
5	11/29/2023	95.6	9984.949	4571.28	3300.3	411100	6908.0	N/A
6	11/29/2023	95.0	9343.361	4771.94	3105.5	417800	6989.7	N/A
7	11/29/2023	96.5	9474.316	4525.07	2796.1	413220	6897.3	N/A
8	11/30/2023	88.1	8538.852	4709.16	3465.6	418060	8878.3	N/A
9	11/30/2023	94.8	9128.957	4504.07	3323.2	417240	7033.9	N/A
10	11/30/2023	96.2	9096.342	4539.65	3496.7	419380	7270.1	N/A
11	12/1/2023	96.1	8963.659	4689.1	3772.0	416320	7258.0	N/A
12	12/1/2023	96.0	9017.088	4520.45	3192.1	415800	7267.4	N/A
13	12/1/2023	96.4	8905.268	4640.24	3425.0	417780	7256.1	N/A
14	12/2/2023	96.5	9276.844	4718.22	3078.4	415560	7246.8	N/A
15	12/2/2023	96.9	8995.567	4733.34	3156.8	422360	7357.9	N/A
16	12/2/2023	96.1	8678.699	4667.52	3107.5	416300	7203.2	N/A
17	12/2/2023	96.0	8536.473	4710.35	3313.8	416480	7329.1	N/A
18	12/3/2023	97.1	8612.629	5124.92	3264.6	411780	7054.0	N/A
19	12/3/2023	96.6	8733.029	4692.99	3196.9	418120	7228.0	N/A
20	12/3/2023	96.4	8828.496	4771.58	3474.3	416220	7111.1	N/A
21	12/3/2023	95.8	8819.901	5016.03	3507.0	400580	6962.0	N/A
22	12/4/2023	96.6	8969.581	4851.2	4300.0	420880	7127.5	N/A
23	12/4/2023	96.4	8566.065	4794.41	3486.6	418840	7195.9	N/A
24	12/4/2023	96.1	8651.713	4835.19	3554.9	409720	7019.0	N/A
25	12/5/2023	96.9	8578.989	4969.2	3280.1	418780	7171.0	N/A
26	12/5/2023	96.2	8455.133	5185.45	3266.0	417400	7215.2	N/A
27	12/5/2023	96.6	8537.719	5152.32	3151.9	416740	7115.0	N/A
28	12/5/2023	97.2	8473.779	2859.87	3169.3	415560	7065.9	N/A
29	12/6/2023	95.9	8158.049	4870.94	3147.8	416880	6937.3	N/A
30	12/6/2023	96.7	8590.105	4935.47	3155.8	418040	7110.6	N/A
31	12/6/2023	96.4	8053.413	4856.1	3160.2	415160	6530.4	N/A
32	12/7/2023	97.3	8190.137	4470.2	3092.7	418420	6657.0	N/A
33	12/7/2023	96.3	8177.966	4718.11	3256.0	411440	6659.2	N/A
34	12/7/2023	96.2	8099.043	4836.2	3271.4	415800	6574.0	N/A
35	12/7/2023	97.3	7921.799	4582.02	3246.0	421600	6640.0	N/A
36	12/8/2023	97.2	8119.333	4654.53	3513.0	413100	6669.0	N/A
37	12/8/2023	96.6	8266.624	4632.61	3521.5	414260	6662.5	N/A
38	12/8/2023	97.3	8098.292	4800.55	3495.2	414420	6659.9	N/A
39	12/8/2023	96.5	7860.949	4791.61	3480.2	421600	6618.3	N/A
40	12/8/2023	96.6	7699.421	4907.66	3675.3	415600	6630.2	N/A
41	12/8/2023	97.6	7632.864	4647.91	3638.4	417300	6519.7	N/A
42	12/9/2023	97.4	7686.288	3962.43	3729.7	415200	6622.7	N/A
43	12/9/2023	97.5	7754.098	3449.11	3688.8	408960	6592.9	N/A
44	12/9/2023	96.5	7481.976	4910.21	3420.2	417320	6673.8	N/A
45	12/9/2023	96.8	7692.87	5471.28	3272.3	414380	6584.6	N/A
46	12/9/2023	96.9	7391.41	5704.22	3423.3	418460	6509.7	N/A
	AVERAGE	96	8,529	4,816	3,362	18,869,420	319,095	TOTAL

RECEIVED
 Office Of Oil and Gas
 APR 30 2024
 WV Department of
 Environmental Protection

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	120	200	120	200
Shale	200	340	200	340
Siltstone/ Shale	340	380	340	380
Trace Coal	380	640	380	640
Siltstone	640	610	640	610
Shaly Siltstone	610	760	610	760
Shale/ Limestone	760	800	760	800
Siltstone	800	980	800	980
Shale/ limestone	980	1,240	980	1,240
Siltstone/ shale	1,240	1,340	1,240	1,340
Sandstone	1,340	1,560	1,340	1,560
Sandstone	1,560	1,894	1,560	1,899
Big Lime	1,924	2,754	1,899	2,782
Fifty Foot Sandstone	2,754	2,906	2,752	2,938
Gordon	2,906	3,220	2,908	3,263
Fifth Sandstone	3,220	3,273	3,233	3,317
Bayard	3,273	3,826	3,287	3,893
Speechley	3,826	4,040	3,863	4,115
Balltown	4,040	4,447	4,085	4,542
Bradford	4,447	4,864	4,512	4,974
Benson	4,864	5,140	4,944	5,256
Alexander	5,140	6,150	5,226	6,375
Sycamore	6,025	6,120	6,206	6,345
Middlesex	6,120	6,221	6,345	6,542
Burkett	6,221	6,248	6,542	6,616
Tully	6,248	6,262	6,616	6,668
Marcellus	6,262	NA	6,668	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.

RECEIVED
Office Of Oil and Gas
APR 30 2024
WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/27/2023
Job End Date:	12/09/2023
State:	West Virginia
County:	Ritchie
API Number:	47-085-10484-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	HAZELBAKER UNIT 2H
Latitude:	39.2892
Longitude:	-80.9834
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6343
Total Base Water Volume (gal)*:	13841908.5
Total Base Non Water Volume:	0



Water Source	Percent
Produced Water	100.00%

RECEIVED
Office Of Oil and Gas
APR 30 2024
WV Department of
Environmental Protection

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
FDP-S1464-22	Halliburton	Friction Reducer					
HAI-501	Halliburton	Acid Corrosion Inhibitor					
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
MC B-8614A	MultiChem	Biocide					
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
Produced Water (Density 10.0)	Operator	Base Fluid					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
WG-36 GELLING AGENT	Halliburton	Gelling Agent					

Items above are Trade Names. Items below are the individual ingredients.

06/14/2024

			Water	7732-18-5	100.00000	87.85233	None
			Crystalline silica, quartz	14808-60-7	100.00000	11.97613	None
			Water	7732-18-5	100.00000	0.14650	None
			Hydrochloric acid	7647-01-0	30.00000	0.03458	None
			Complex amine compound	Proprietary	60.00000	0.02386	None
			Hydrotreated distillate	Proprietary	30.00000	0.01193	None
			Guar gum	9000-30-0	100.00000	0.00873	None
			Glutaraldehyde	111-30-8	30.00000	0.00221	None
			Ammonium chloride	12125-02-9	5.00000	0.00199	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00199	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00199	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00040	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00040	None
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00037	None
			Methanol	67-56-1	100.00000	0.00022	None
			Ammonium persulfate	7727-54-0	100.00000	0.00020	None
			Ethanol	64-17-5	1.00000	0.00007	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00006	None
			Modified thiourea polymer	Proprietary	30.00000	0.00006	None
			Oxylated phenolic resin	Proprietary	30.00000	0.00006	None
			Propargyl alcohol	107-19-7	5.00000	0.00001	None
			Hexadecene	629-73-2	5.00000	0.00001	None
			Ethoxylated alcohols	Proprietary	5.00000	0.00001	None
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	None

* 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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

RECEIVED
Office Of Oil and Gas
APR 30 2024
WV Department of
Environmental Protection
06/14/2024

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

RECEIVED
Office Of Oil and Gas
JUN 30 2024
WV Department of
Environmental Protection

06/14/2024