

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

API 47-085-10485 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Jackson Pad Field/Pool Name -----
Farm name Daniel R. Christian Well Number Hazelbaker Unit 3H
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 4348883m Easting 501426m
Landing Point of Curve Northing 4348945.02m Easting 501606.56m
Bottom Hole Northing 4346225m Easting 502598m

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

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Date permit issued 5/30/2023 Date drilling commenced 6/7/2023 Date drilling ceased 8/3/2023
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

APPROVED

Reviewed by:
J.M.

06/14/2024

API 47-085 - 10485

Farm name Daniel R. Christian

Well number Hazelbaker Unit 3H

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"	381'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3291'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16826'	New	23#, P-110/ICY	N/A	Y
Tubing		2-3/8"	6472'		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	211 sx	15.6	1.18	249	0'	8 Hrs.
Surface	Class C	330 sx	15.8	1.16	383	0'	8 Hrs.
Coal							
Intermediate 1	Class C	1150 sx	15.8	1.16	1334	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) 16826' MD, 6354' TVD (BHL), 6355' (Deepest Point Drilled)

Loggers TD (ft) 16826' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

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Kick off depth (ft) 5556'

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

06/14/2024

API 47- 085 - 10485 Farm name Daniel R. Christian Well number Hazelbaker Unit 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6267' (TOP)</u> TVD	<u>6666' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1780 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13089 mcfpd Oil 181 bpd NGL --- bpd Water 492 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</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**

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 4/15/2024

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" 3,320' TO BOTTOM HOLE

Antero Resources Corporation
Well No. Hazelbaker Unit 3H

Pensboro Corporation	
03-11	Daniel R. Christian
03-11	Michael Sedesse 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	Jashua 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.

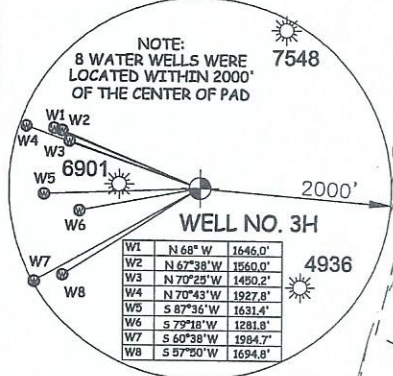
AS DRILLED DATA:
WELL 3H TOP HOLE INFORMATION:
 N: 290,922ft E: 1,580,088ft
 LAT: 39°17'21.24" LON: 80°59'01.10"
BOTTOM HOLE INFORMATION:
 N: 282,136ft E: 1,583,788ft
 LAT: 39°15'55.01" LON: 80°58'12.21"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH 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 3H TOP HOLE INFORMATION:
 N: 4,348,883m E: 501,426m
BOTTOM HOLE INFORMATION:
 N: 4,346,225m E: 502,598m

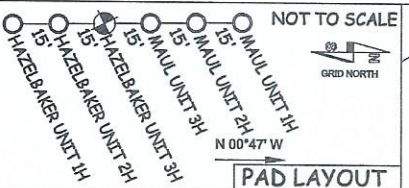
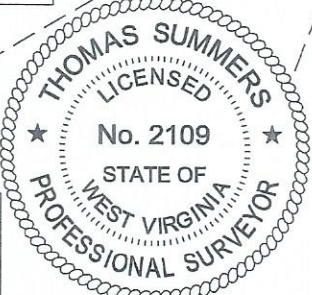
(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 3H TOP HOLE INFORMATION:
 N: 14,267,246ft E: 1,645,046ft
POINT OF ENTRY INFORMATION:
 N: 14,268,049ft E: 1,645,471ft
BOTTOM HOLE INFORMATION:
 N: 14,258,526ft E: 1,648,891ft

WV NORTH ZONE
 GRID NORTH

887'
 9,611' TO BOTTOM HOLE
 LONGITUDE 80°57'30"



Thomas Summers
 THOMAS SUMMERS P.S. 2109
 DATE 04/12/24
 OPERATOR'S WELL# HAZELBAKER UNIT #3H



LEGEND
 - - - Surface Owner Boundary Lines +/-
 - - - Interior Surface Tracts +/-
 O Proposed Well Path
 X 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
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVENUE PENNSBORO WEST VIRGINIA 26415

JOB # 23-005WA
 DRAWING # HAZELBAKER3HAD
 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

LEASES

A	Daniel R. Christian Et Al
B	Donald R. McCullough Et Ux
C	Master Mineral Holdings, III
D	Andrew Hickman Et Ux
E	Larry Gander Et Ux
F	Linda J. Wass
G	WV SRA
H	Michael Sedesse Jr.
I	Jackson Hole Properties, LLC
J	Generation Holdings, LLC
K	William H. Snider
L	Matthew J. Heater
M	Mount Harmony Cemetery Assoc.
N	James Junior Richards
O	Mount Harmony Cemetery Assoc.
P	Erma Jean Valentine
Q	Guy W. Wilson
R	John P. Thomas Et Al
S	Roseann Conley
T	Richard Barnard

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X 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 P. CHRISTIAN ACREAGE 17.36 ACRES +/-
 OIL & GAS ROYALTY OWNER DANIEL R. CHRISTIAN ET UX 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 6,354' TVD 16,826' 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

COUNTY NAME
 PERMIT

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/27/2023	16699	16655	36	Marcellus
2	11/28/2023	16616.88333	16453.3	36	Marcellus
3	11/28/2023	16418.18333	16254.6	36	Marcellus
4	11/28/2023	16219.48333	16055.9	36	Marcellus
5	11/28/2023	16020.78333	15857.2	36	Marcellus
6	11/29/2023	15822.08333	15658.5	36	Marcellus
7	11/29/2023	15623.38333	15459.8	36	Marcellus
8	11/29/2023	15424.68333	15261.1	36	Marcellus
9	11/29/2023	15225.98333	15062.4	36	Marcellus
10	11/29/2023	15027.28333	14863.7	36	Marcellus
11	11/30/2023	14828.58333	14665	36	Marcellus
12	12/2/2023	14629.88333	14466.3	36	Marcellus
13	12/3/2023	14431.18333	14267.6	36	Marcellus
14	12/3/2023	14232.48333	14068.9	36	Marcellus
15	12/3/2023	14033.78333	13870.2	36	Marcellus
16	12/3/2023	13835.08333	13671.5	36	Marcellus
17	12/3/2023	13636.38333	13472.8	36	Marcellus
18	12/4/2023	13437.68333	13274.1	36	Marcellus
19	12/4/2023	13238.98333	13075.4	36	Marcellus
20	12/4/2023	13040.28333	12876.7	36	Marcellus
21	12/4/2023	12841.58333	12678	36	Marcellus
22	12/4/2023	12642.88333	12479.3	36	Marcellus
23	12/4/2023	12444.18333	12280.6	36	Marcellus
24	12/5/2023	12245.48333	12081.9	36	Marcellus
25	12/5/2023	12046.78333	11883.2	36	Marcellus
26	12/5/2023	11848.08333	11684.5	36	Marcellus
27	12/5/2023	11649.38333	11485.8	36	Marcellus
28	12/5/2023	11450.68333	11287.1	36	Marcellus
29	12/5/2023	11251.98333	11088.4	36	Marcellus
30	12/6/2023	11053.28333	10889.7	36	Marcellus
31	12/6/2023	10854.58333	10691	36	Marcellus
32	12/6/2023	10655.88333	10492.3	36	Marcellus
33	12/6/2023	10457.18333	10293.6	36	Marcellus
34	12/6/2023	10258.48333	10094.9	36	Marcellus
35	12/6/2023	10059.78333	9896.2	36	Marcellus
36	12/6/2023	9861.083333	9697.5	36	Marcellus
37	12/7/2023	9662.383333	9498.8	36	Marcellus
38	12/7/2023	9463.683333	9300.1	36	Marcellus
39	12/7/2023	9264.983333	9101.4	36	Marcellus
40	12/7/2023	9066.283333	8902.7	36	Marcellus
41	12/7/2023	8867.583333	8704	36	Marcellus
42	12/8/2023	8668.883333	8505.3	36	Marcellus
43	12/8/2023	8470.183333	8306.6	36	Marcellus
44	12/8/2023	8271.483333	8107.9	36	Marcellus
45	12/8/2023	8072.783333	7909.2	36	Marcellus
46	12/8/2023	7874.083333	7710.5	36	Marcellus
47	12/8/2023	7675.383333	7511.8	36	Marcellus
48	12/9/2023	7476.683333	7313.1	36	Marcellus
49	12/9/2023	7277.983333	7114.4	36	Marcellus
50	12/9/2023	7079.283333	6915.7	36	Marcellus
51	12/9/2023	6880.583333	6717	36	Marcellus

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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	79.6	8416.39	9690.4	4029.0	165820	5280.0	N/A
2	11/28/2023	88.5	8987.321	5212.28	3830.5	418280	7368.3	N/A
3	11/28/2023	93.8	9589.424	5219.37	3017.6	416140	8301.3	N/A
4	11/28/2023	93.5	9912.144	4945.99	2881.3	418200	6893.0	N/A
5	11/28/2023	92.3	9475.466	4787.28	3234.0	421980	6941.0	N/A
6	11/29/2023	96.3	9982.048	4826.73	3196.4	419680	6848.8	N/A
7	11/29/2023	93.3	9756.022	4855.21	3175.9	410040	6761.0	N/A
8	11/29/2023	94.3	9597.402	4630.42	3334.4	414040	6849.0	N/A
9	11/29/2023	96.7	9680.027	4741.93	3167.1	417300	7112.2	N/A
10	11/29/2023	97.2	9712.933	4739.52	3334.2	416800	6881.2	N/A
11	11/30/2023	3.5	3775.559	5073.04	4320.0	14380	5191.9	N/A
12	12/2/2023	95.1	9756.295	5348.31	3009.7	412820	7431.4	N/A
13	12/3/2023	96.2	9405.04	4913.05	3082.0	415360	7240.9	N/A
14	12/3/2023	95.3	9188.715	4982.48	3339.8	412560	7260.3	N/A
15	12/3/2023	82.4	8540.213	4845.23	5153.9	100080	5056.5	N/A
16	12/3/2023	96.4	9072.938	4896.05	3036.9	420380	7137.0	N/A
17	12/3/2023	96.9	9189.109	4844.48	3387.0	410923	7078.3	N/A
18	12/4/2023	95.7	9233.227	4986.52	3451.1	418260	7128.4	N/A
19	12/4/2023	97.0	9396.055	5103.66	3405.8	412260	7352.6	N/A
20	12/4/2023	96.1	9040.009	4681.89	3304.3	421000	7245.5	N/A
21	12/4/2023	95.0	8978.605	4776.82	3395.3	415600	7209.1	N/A
22	12/4/2023	95.7	8779.912	4786.69	3459.1	420140	7159.5	N/A
23	12/4/2023	96.3	8764.33	5018.59	3400.5	408520	7004.8	N/A
24	12/5/2023	96.4	9004.951	5286.83	3090.6	413500	7083.3	N/A
25	12/5/2023	95.9	8897.06	5085.63	3308.0	420480	7172.7	N/A
26	12/5/2023	96.4	9033.8	5074.57	3134.5	410180	7146.0	N/A
27	12/5/2023	96.4	8903.566	5146.76	3377.0	420140	7190.0	N/A
28	12/5/2023	96.8	8621.981	4768.5	3458.0	419620	7194.3	N/A
29	12/5/2023	84.7	7957.863	4625.29	3199.8	415480	7969.7	N/A
30	12/6/2023	96.1	8697.468	4562.62	3191.8	419800	6959.0	N/A
31	12/6/2023	96.8	8613.207	4898.88	3387.7	413500	6929.9	N/A
32	12/6/2023	96.7	8687.699	4800.77	3330.8	419200	7051.8	N/A
33	12/6/2023	96.3	8624.432	5066.46	3519.1	413500	6913.2	N/A
34	12/6/2023	96.3	8135.875	5222.2	3416.8	418200	6901.5	N/A
35	12/6/2023	96.0	8278.217	5032.88	3473.5	414720	6746.0	N/A
36	12/6/2023	96.6	8320.864	3086.72	3138.6	420020	6793.3	N/A
37	12/7/2023	97.0	8424.834	4757.18	3271.1	415460	6788.2	N/A
38	12/7/2023	96.4	8293.681	3039.43	3295.1	414280	6808.3	N/A
39	12/7/2023	96.1	8494.419	4799.9	3602.0	416680	6803.3	N/A
40	12/7/2023	97.0	8224.309	5204.43	3596.1	415760	6677.3	N/A
41	12/7/2023	97.7	8125.07	4690.12	3340.0	418300	6739.5	N/A
42	12/8/2023	97.3	8169.249	4351.2	3655.0	415540	6755.1	N/A
43	12/8/2023	96.8	8057.725	5031.79	3549.5	409400	6719.7	N/A
44	12/8/2023	96.5	8072.558	5024.02	3353.6	415280	6716.0	N/A
45	12/8/2023	95.5	7765.326	5003.88	3902.0	420160	6792.7	N/A
46	12/8/2023	97.2	7375.858	4731.35	3641.0	418340	6675.6	N/A
47	12/8/2023	97.5	8280.738	5697.42	3439.8	421400	6712.0	N/A
48	12/9/2023	97.3	7573.701	4881.21	3594.9	418420	6796.7	N/A
49	12/9/2023	97.6	7681.986	4861.54	3295.9	408880	6686.1	N/A
50	12/9/2023	96.8	7539.829	5339.67	3517.0	409500	6602.1	N/A
51	12/9/2023	96.9	7337.409	5231.7	3465.0	420080	6533.1	N/A
	AVERAGE	93	8,718	4,939	3,417	18,178,103	318,259	TOTAL

RECEIVED
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APR 30 2024
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WV Department of

06/14/2024

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	1,896	1,560	1,936
Big Lime	1,926	2,742	1,936	2,823
Fifty Foot Sandstone	2,742	2,906	2,793	2,992
Gordon	2,906	3,234	2,962	3,330
Fifth Sandstone	3,234	3,279	3,300	3,377
Bayard	3,279	3,815	3,347	3,941
Speechley	3,815	4,033	3,911	4,171
Balltown	4,033	4,460	4,141	4,615
Bradford	4,460	4,878	4,585	5,043
Benson	4,878	5,148	5,013	5,320
Alexander	5,148	6,155	5,290	6,406
Sycamore	6,028	6,125	6,246	6,376
Middlesex	6,125	6,226	6,376	6,555
Burkett	6,226	6,253	6,555	6,620
Tully	6,253	6,267	6,620	6,666
Marcellus	6,267	NA	6,666	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.

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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:	47-085-10485-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	HAZELBAKER UNIT 3H
Latitude:	39.2893
Longitude:	-80.9834
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6354
Total Base Water Volume (gal)*:	15316043.5
Total Base Non Water Volume:	0



Water Source	Percent
Produced Water	100.00%

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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	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.

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			Water	7732-18-5	100.00000	86.09183	None
			Crystalline silica, quartz	14808-60-7	100.00000	13.65249	None
			Water	7732-18-5	100.00000	0.22590	None
			Hydrochloric acid	7647-01-0	30.00000	0.05685	None
			Complex amine compound	Proprietary	60.00000	0.02772	None
			Hydrotreated distillate	Proprietary	30.00000	0.01386	None
			Guar gum	9000-30-0	100.00000	0.01073	None
			Glutaraldehyde	111-30-8	30.00000	0.00260	None
			Ammonium chloride	12125-02-9	5.00000	0.00231	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00231	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00231	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00046	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00046	None
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00043	None
			Methanol	67-56-1	100.00000	0.00036	None
			Ammonium persulfate	7727-54-0	100.00000	0.00024	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00011	None
			Modified thiourea polymer	Proprietary	30.00000	0.00011	None
			Ethanol	64-17-5	1.00000	0.00009	None
			Oxylated phenolic resin	Proprietary	30.00000	0.00007	None
			Propargyl alcohol	107-19-7	5.00000	0.00002	None
			Hexadecene	629-73-2	5.00000	0.00002	None
			Ethoxylated alcohols	Proprietary	5.00000	0.00002	None
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	None

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* 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%

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

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

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