

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

RECEIVED
Office of Oil and Gas
MAY 16 2024
WV Department of
Environmental Protection

API 47-085-10501 County Ritchie District Union
Quad Oxford 7.5' Pad Name Cashew Pad Field/Pool Name ----
Farm name Elmer W. Pierce Well Number Key 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 4335919m Easting 512318m
Landing Point of Curve Northing 4336223.13m Easting 513233.27m
Bottom Hole Northing 4340281m Easting 511546m

Elevation (ft) 1019' 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 7/17/2023 Date drilling commenced 8/10/2023 Date drilling ceased 10/9/2023
Date completion activities began 1/22/2024 Date completion activities ceased 3/5/2024
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 53', 184', 236' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1709', 1759', 1847' Void(s) encountered (Y/N) depths No
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

APPROVED

Reviewed by:

[Signature]

06/14/2024

WR-35
Rev. 8/23/13

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API 47-085 - 10501

Farm name Elmer W. Pierce

WV Department of
Environmental Protection

Well number Key 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"	371'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3169'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	22267'	New	23#, P-110/ICY	N/A	Y
Tubing		2-3/8"	7293'		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	218 sx	15.6	1.18	257	0'	8 Hrs.
Surface	Class C	325 sx	15.8	1.16	377	0'	8 Hrs.
Coal							
Intermediate 1	Class C	1105 sx	15.8	1.16	1282	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H		12.5 (Lead), 13.5(Tail)	1.53 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 22267' MD, 6528' TVD (BHL), 6531' (Deepest Point Drilled)

Loggers TD (ft) 22267' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6469'

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 - 10501 Farm name Elmer W. Pierce Well number Key Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6379' (TOP)</u> TVD	<u>7571' (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 2379 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 12682 mcfpd Oil 172 bpd NGL --- bpd Water 557 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	

***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 Baker Hughes
Address 1681 E Main St City Bridgeport State WV Zip 26330

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 5/9/2024

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

06/14/2024

LATITUDE 39°12'30"

6,873'

LATITUDE 39°15'00"

9,379' TO BOTTOM HOLE

Antero Resources Corporation Well No. Key 2H

Union District - Ritchie County	
9-9.1	Naomi Cunningham
9-14	John Louke
9-15	Marvin Osborne
9-15.1	Marvin Osborne
9-16	Marvin Osborne
9-18	Jack Guthrie Trust
9-19	Twila Evitts
9-20	Twila Evitts
9-20.1	Mark Morrison
9-20.2	Brian Bonner
9-21	Stephanie Knight
9-22	Stephanie Knight
9-23	Marvin Osborne
14-3.3	Mary Harms
14-4	Stephanie Knight
14-4.1	Stephanie Knight
14-11	Nathaniel Hendricks
14-11.6	Nathaniel Hendricks
14-11.7	Nathaniel Hendricks
14-11.8	Nathaniel Hendricks
14-17	Ralph Thacker
14-20	David Weekley
15-1	Timothy Alexander
15-1.1	Ralph Thacker
15-2	Ralph Thacker
15-3	Larry Gander
15-4	Stout Valley Trust
15-5	Larry Gander
15-6	Ralph Thacker
15-7	Stephanie Knight
15-8	Stephanie Knight
21-1	Ralph Thacker
21-2	Bria Fork Trust
21-3	Dallas Smith Et Al
21-4	Larry Gander
21-4.1	Joseph Bianchini
21-4.2	Marie Bianchini
21-4.3	Joseph Bianchini
21-5	James Beck Et Al
21-6	WF Smith
21-6.1	Lals Gander
21-7	Elmer Pierce
21-7.1	Larry Gander
21-7.2	Larry Gander
21-8.4	Brian Vansant
21-10	James Beck
21-10.1	Harvey Shepler
21-10.2	James Beck

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.

Southwest District - Doddridge County	
1-1	Jeffrey Palan
4-2	Cevasco Family Trust
4-10	James Webb
4-11	Juanita Leggett
4-14	Juanita Leggett
4-16	James Webb
4-18	James Webb
4-19.3	CHG Transmission Corp.
4-19.4	CHG Transmission Corp.
4-19.5	Dana Huerst
4-19.7	James Webb
4-19.8	James Webb
4-19.9	James Webb
4-21	Anthony Ayers
4-22	Reed Zinn
4-24	T L Morris
4-25	Tina Osborne
4-25.1	Stanley Chippis
4-28.3	Alfred Farley
4-31	Vicki Moore
4-31.2	Bradley Davis
4-34	Carl Ravin
8-1	Richard Brown
8-3	Randall Russell
8-4	John Gray Jr
8-5	Larry Gander
12-1	David Ball

AS DRILLED DATA:

WELL 2H TOP HOLE INFORMATION:
 N: 247,783ft E: 1,615,122ft
 LAT: 39°10'20.38" LON: 80°51'27.26"

BOTTOM HOLE INFORMATION:
 N: 262,139ft E: 1,612,827ft
 LAT: 39°12'41.91" LON: 80°51'59.16"

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: 4,335,919m E: 512,318m

BOTTOM HOLE INFORMATION:
 N: 4,340,281m E: 511,546m

(NAD 27 (UTM) ZONE 17 COORDS:

WELL 2H TOP HOLE INFORMATION:
 N: 14,224,714ft E: 1,680,782ft

POINT OF ENTRY INFORMATION:
 N: 14,225,491ft E: 1,683,873ft

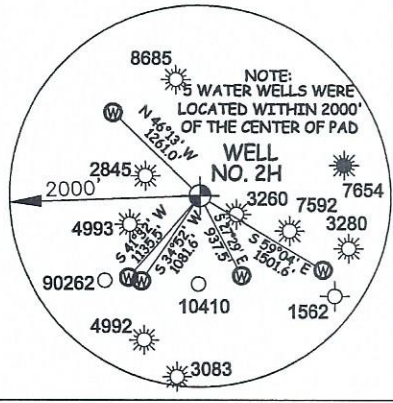
BOTTOM HOLE INFORMATION:
 N: 14,239,024ft E: 1,678,249ft

WV NORTH ZONE GRID NORTH

13,971' TO BOTTOM HOLE

13,115'

LONGITUDE 80°50'00"



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 AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 23-007WA
 DRAWING # KEY2HAD
 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

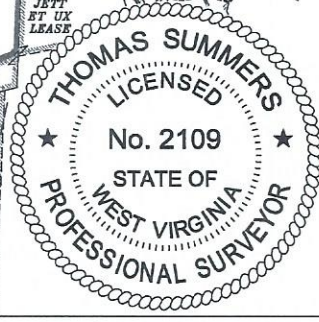
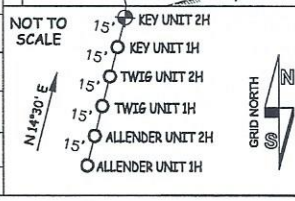
LEGEND

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

THOMAS SUMMERS P.S. 2109

DATE 05/07/24

OPERATOR'S WELL# KEY 2H



WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 085 - 10501

(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X STATE COUNTY PERMIT

LOCATION: ELEVATION 1,019'-AS-BUILT WATERSHED SOUTH FORK HUGHES RIVER

QUADRANGLE OXFORD 7.5 DISTRICT UNION COUNTY RITCHIE

SURFACE OWNER LARRY GANDER ET UX ACREAGE 17 ACRES +/- LEASE ACREAGE 50 AC.±

OIL & GAS ROYALTY OWNER B. GUY WHITEHAIR ET UX

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 6,528' TVD 22,267' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT KEVIN ELLIS

ADDRESS 1615 WYNKOOP ST. ADDRESS 535 WHITE OAK BLVD. BRIDGEPORT, WV 26330

COUNTY NAME PERMIT

06/14/2024

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1/22/2024	22138.8	22094.8	36	Marcellus
2	1/22/2024	22056.1	21890.6	36	Marcellus
3	1/22/2024	21855.2	21689.7	36	Marcellus
4	1/23/2024	21654.2	21488.7	36	Marcellus
5	1/23/2024	21453.2	21287.8	36	Marcellus
6	1/23/2024	21252.3	21086.8	36	Marcellus
7	1/23/2024	21051.3	20885.9	36	Marcellus
8	1/24/2024	20850.4	20684.9	36	Marcellus
9	1/24/2024	20649.4	20484.0	36	Marcellus
10	1/24/2024	20448.5	20283.0	36	Marcellus
11	1/25/2024	20247.5	20082.1	36	Marcellus
12	1/25/2024	20046.6	19881.1	36	Marcellus
13	1/25/2024	19845.6	19680.2	36	Marcellus
14	1/25/2024	19644.7	19479.2	36	Marcellus
15	1/26/2024	19443.7	19278.3	36	Marcellus
16	1/26/2024	19242.8	19077.3	36	Marcellus
17	1/26/2024	19041.8	18876.4	36	Marcellus
18	1/26/2024	18840.9	18675.4	36	Marcellus
19	1/27/2024	18639.9	18474.4	36	Marcellus
20	1/27/2024	18439.0	18273.5	36	Marcellus
21	1/27/2024	18238.0	18072.5	36	Marcellus
22	1/27/2024	18037.1	17871.6	36	Marcellus
23	1/28/2024	17836.1	17670.6	36	Marcellus
24	1/28/2024	17635.1	17469.7	36	Marcellus
25	1/28/2024	17434.2	17268.7	36	Marcellus
26	1/29/2024	17233.2	17067.8	36	Marcellus
27	1/29/2024	17032.3	16866.8	36	Marcellus
28	1/29/2024	16831.3	16665.9	36	Marcellus
29	1/29/2024	16630.4	16464.9	36	Marcellus
30	1/30/2024	16429.4	16264.0	36	Marcellus
31	1/30/2024	16228.5	16063.0	36	Marcellus
32	1/30/2024	16027.5	15862.1	36	Marcellus
33	1/30/2024	15826.6	15661.1	36	Marcellus
34	1/30/2024	15625.6	15460.2	36	Marcellus
35	1/31/2024	15424.7	15259.2	36	Marcellus
36	1/31/2024	15223.7	15058.3	36	Marcellus
37	1/31/2024	15022.8	14857.3	36	Marcellus
38	1/31/2024	14821.8	14656.3	36	Marcellus
39	2/1/2024	14620.9	14455.4	36	Marcellus
40	2/1/2024	14419.9	14254.4	36	Marcellus
41	2/1/2024	14218.9	14053.5	36	Marcellus
42	2/2/2024	14018.0	13852.5	36	Marcellus
43	2/2/2024	13817.0	13651.6	36	Marcellus
44	2/2/2024	13616.1	13450.6	36	Marcellus
45	2/2/2024	13415.1	13249.7	36	Marcellus
46	2/3/2024	13214.2	13048.7	36	Marcellus
47	2/3/2024	13013.2	12847.8	36	Marcellus
48	2/3/2024	12812.3	12646.8	36	Marcellus
49	2/3/2024	12611.3	12445.9	36	Marcellus
50	2/3/2024	12410.4	12244.9	36	Marcellus
51	2/4/2024	12209.4	12044.0	36	Marcellus
52	2/4/2024	12008.5	11843.0	36	Marcellus
53	2/4/2024	11807.5	11642.1	36	Marcellus
54	2/4/2024	11606.6	11441.1	36	Marcellus
55	2/4/2024	11405.6	11240.2	36	Marcellus
56	2/5/2024	11204.7	11039.2	36	Marcellus
57	2/5/2024	11003.7	10838.2	36	Marcellus
58	2/5/2024	10802.8	10637.3	36	Marcellus
59	2/5/2024	10601.8	10436.3	36	Marcellus
60	2/6/2024	10400.8	10235.4	36	Marcellus
61	2/6/2024	10199.9	10034.4	36	Marcellus
62	2/6/2024	9998.9	9833.5	36	Marcellus
63	2/6/2024	9798.0	9632.5	36	Marcellus
64	2/6/2024	9597.0	9431.6	36	Marcellus
65	2/7/2024	9396.1	9230.6	36	Marcellus
66	2/7/2024	9195.1	9029.7	36	Marcellus
67	2/7/2024	8994.2	8828.7	36	Marcellus
68	2/7/2024	8793.2	8627.8	36	Marcellus
69	2/7/2024	8592.3	8426.8	36	Marcellus
70	2/8/2024	8391.3	8225.9	36	Marcellus
71	2/8/2024	8190.4	8024.9	36	Marcellus
72	2/8/2024	7989.4	7824.0	36	Marcellus
73	2/8/2024	7788.5	7623.0	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	1/22/2024	80.0	8739.4	10253.8	2253.0	180680	5240.8	N/A
2	1/22/2024	90.5	10299.8	6640.2	3734.9	409660	7156.8	N/A
3	1/22/2024	91.2	10008.7	6816.2	3678.4	409520	6890.0	N/A
4	1/23/2024	89.2	10154.4	5560.3	3530.7	404980	7429.0	N/A
5	1/23/2024	91.8	10303.0	6779.7	3297.4	409460	7057.7	N/A
6	1/23/2024	95.0	10440.1	6496.3	3743.1	418860	7107.0	N/A
7	1/23/2024	95.6	10308.4	5720.9	4000.6	415240	6898.4	N/A
8	1/24/2024	92.4	10146.0	6255.5	3375.0	413600	6970.4	N/A
9	1/24/2024	96.9	10473.9	5790.9	4050.0	413080	7098.4	N/A
10	1/24/2024	88.9	9774.0	6336.6	3424.5	412860	6950.5	N/A
11	1/25/2024	94.9	9945.3	5171.8	3555.7	414140	7407.8	N/A
12	1/25/2024	96.3	10028.7	6645.1	4060.0	410720	6908.9	N/A
13	1/25/2024	95.6	10287.0	6163.8	3267.7	414780	7039.5	N/A
14	1/25/2024	96.3	9847.2	4304.3	3221.0	411560	6953.0	N/A
15	1/26/2024	96.3	9918.2	5223.1	3265.6	410100	7027.1	N/A
16	1/26/2024	97.0	9760.7	6365.0	3810.5	414120	6939.6	N/A
17	1/26/2024	97.1	9870.2	5733.9	3832.0	405000	6980.2	N/A
18	1/26/2024	95.8	9588.4	4658.1	3663.9	409840	6904.5	N/A
19	1/27/2024	92.7	9394.4	5177.0	3173.2	406060	7002.0	N/A
20	1/27/2024	96.8	9879.2	6784.8	3725.0	404500	6936.8	N/A
21	1/27/2024	96.9	9959.2	5971.7	3544.0	411500	7270.4	N/A
22	1/27/2024	95.3	9832.2	6025.0	3381.8	416200	6940.9	N/A
23	1/28/2024	96.8	9714.6	5174.9	3427.4	414220	6913.0	N/A
24	1/28/2024	95.9	9630.8	5567.7	4543.0	406900	6928.7	N/A
25	1/28/2024	96.8	9956.8	4290.7	3265.6	410540	7044.6	N/A
26	1/29/2024	96.8	9539.7	6267.1	3073.9	408540	6859.6	N/A
27	1/29/2024	96.2	9642.6	4120.1	3082.5	407260	6843.6	N/A
28	1/29/2024	97.0	9948.0	6778.6	3545.0	402820	6989.8	N/A
29	1/29/2024	97.3	9851.9	4966.3	3248.0	403540	6913.9	N/A
30	1/30/2024	97.1	9836.7	4372.4	3101.4	399800	6850.9	N/A
31	1/30/2024	97.6	9866.4	6764.9	3624.0	411460	7208.6	N/A
32	1/30/2024	96.8	9763.0	6591.5	3529.0	403600	6838.1	N/A
33	1/30/2024	96.8	9858.0	6571.1	3724.0	400460	6971.7	N/A
34	1/30/2024	96.0	9630.7	5655.0	3501.0	408180	7083.0	N/A
35	1/31/2024	95.8	9559.1	9031.8	3319.0	411880	7021.0	N/A
36	1/31/2024	96.6	9738.7	6535.3	3428.0	412460	6958.7	N/A
37	1/31/2024	96.5	9579.7	5211.1	3723.0	403623	7075.1	N/A
38	1/31/2024	90.0	9464.6	8908.9	3186.0	410780	7827.2	N/A
39	2/1/2024	95.6	9843.0	7071.5	2928.7	410100	7142.3	N/A
40	2/1/2024	97.2	9792.7	5775.6	3092.0	413700	7058.2	N/A
41	2/1/2024	96.5	9683.0	7401.0	3370.0	415880	7350.2	N/A
42	2/2/2024	95.1	9593.4	6874.3	2865.0	420020	7215.7	N/A
43	2/2/2024	96.9	9738.3	7103.9	3600.0	414400	7140.8	N/A
44	2/2/2024	97.4	9674.0	5525.4	3698.0	410080	7173.0	N/A
45	2/2/2024	96.7	9485.2	8342.8	3003.0	413300	7205.2	N/A
46	2/3/2024	97.2	9272.7	5579.5	2933.2	409480	7072.3	N/A
47	2/3/2024	97.6	9590.5	5467.0	2704.6	412000	7016.9	N/A
48	2/3/2024	96.2	9347.7	4282.0	3561.0	415400	7153.2	N/A
49	2/3/2024	96.0	8829.0	6142.3	3576.0	417200	6882.3	N/A
50	2/3/2024	97.2	8980.7	6857.9	2948.6	416640	7117.9	N/A
51	2/4/2024	96.8	9173.5	6005.5	3147.7	415400	7133.6	N/A
52	2/4/2024	96.5	9262.9	4794.3	3363.0	415500	7094.9	N/A
53	2/4/2024	97.7	9245.9	6431.9	3185.0	424180	7116.4	N/A
54	2/4/2024	97.3	8410.1	4941.6	2994.0	402360	6809.7	N/A
55	2/4/2024	97.3	8613.0	7099.4	2951.0	417340	7176.5	N/A
56	2/5/2024	97.4	8601.1	5928.2	3041.0	404260	7038.4	N/A
57	2/5/2024	96.9	8756.3	6323.7	2802.3	413640	7152.6	N/A
58	2/5/2024	97.1	8498.2	6787.3	3306.0	419820.0	7019.0	N/A
59	2/5/2024	97.5	8375.0	5869.9	2739.0	415980.0	7001.2	N/A
60	2/6/2024	97.6	8396.3	6708.9	2988.0	417020.0	6942.6	N/A
61	2/6/2024	95.9	8447.5	6447.9	2677.3	410020.0	7038.2	N/A
62	2/6/2024	98.2	8452.5	6063.5	2633.4	414020.0	6991.8	N/A
63	2/6/2024	97.9	8337.5	4110.3	2792.1	412480.0	6999.9	N/A
64	2/6/2024	97.6	8246.1	5467.3	2861.0	413900.0	6987.5	N/A
65	2/7/2024	97.6	8140.2	7050.6	3047.0	418020.0	7035.8	N/A
66	2/7/2024	98.0	7972.0	4241.3	2881.8	419880.0	7011.4	N/A
67	2/7/2024	97.7	8091.9	3377.4	2960.6	403120.0	6691.7	N/A
68	2/7/2024	97.7	7588.8	4395.5	2967.6	410080.0	6919.6	N/A
69	2/7/2024	97.6	7346.4	6736.2	3139.0	413160.0	6979.5	N/A
70	2/8/2024	96.9	7962.1	7485.1	3084.0	419300.0	7008.1	N/A
71	2/8/2024	97.9	7700.9	4680.0	2928.5	420830.0	6939.0	N/A
72	2/8/2024	97.8	7511.7	4200.4	2879.0	414600.0	6862.4	N/A
73	2/8/2024	97.1	7323.7	6564.0	2922.0	411400.0	6897.1	N/A
	AVERAGE	96	9,299	6,025	3,281	29,827,033	511,812	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandy Siltstone, tr LS	100	280	100	280
Sandy Siltstone, occ LS	280	430	280	430
Shaly Siltstone, tr SS	430	490	430	490
Shaly Siltstone, Coal	490	520	490	520
Shaly Siltstone, occ SS, tr Coal	520	610	520	610
Shaly Siltstone	610	730	610	730
Silty Shale, tr ls, coal	730	820	730	820
Sandy Shale, tr coal	820	970	820	970
Shaly Sandstone, tr coal	970	1,300	970	1,300
Sandy Shale, occ Siltstone	1,300	1,540	1,300	1,540
Silty Shale, occ sandstone	1,540	1,930	1,540	1,930
Shale, occ sandstone	1,930	1,834	1,930	1,978
Big Lime	1,864	2,378	1,978	2,633
Fifty Foot Sandstone	2,378	2,577	2,603	2,873
Gordon	2,577	2,852	2,843	3,203
Fifth Sandstone	2,852	2,942	3,173	3,311
Bayard	2,942	3,665	3,281	4,165
Speechley	3,665	3,817	4,135	4,344
Balltown	3,817	4,367	4,314	4,995
Bradford	4,367	4,769	4,965	5,472
Benson	4,769	5,018	5,442	5,767
Alexander	5,018	6,220	5,737	7,172
Sycamore	6,011	6,190	6,905	7,142
Middlesex	6,190	6,304	7,142	7,347
Burkett	6,304	6,354	7,347	7,475
Tully	6,354	6,379	7,475	7,571
Marcellus	6,379	NA	7,571	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.

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	01/22/2024
Job End Date:	02/08/2024
State:	West Virginia
County:	Ritchie
API Number:	47-085-10501-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	KEY UNIT 2H
Latitude:	39.172
Longitude:	-80.857
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6531
Total Base Water Volume (gal)*:	22848366.5
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 (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.

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			Water	7732-18-5	100.00000	88.30750	None
			Crystalline silica, quartz	14808-60-7	100.00000	11.52798	None
			Water	7732-18-5	100.00000	0.14208	None
			Hydrochloric acid	7647-01-0	30.00000	0.03258	None
			Complex amine compound	Proprietary	60.00000	0.02639	None
			Hydrotreated distillate	Proprietary	30.00000	0.01319	None
			Guar gum	9000-30-0	100.00000	0.00452	None
			Ammonium chloride	12125-02-9	5.00000	0.00220	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00220	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00220	None
			Glutaraldehyde	111-30-8	30.00000	0.00213	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00044	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00044	None
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00035	None
			Methanol	67-56-1	100.00000	0.00020	None
			Ammonium persulfate	7727-54-0	100.00000	0.00014	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	0.00004	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

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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%

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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