

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
West Virginia Department of
Environmental Protection

API 47 - 085 - 10497 County Ritchie District Union
Quad Oxford 7.5' Pad Name Cashew Pad Field/Pool Name -----
Farm name Elmer W. Pierce Well Number Allender 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 4335901m Easting 512313m
Landing Point of Curve Northing 4336104.71m Easting 511947.59m
Bottom Hole Northing 4339742m Easting 510441m

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

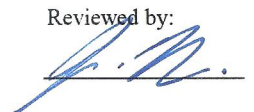
Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

Date permit issued 7/17/2023 Date drilling commenced 8/10/2023 Date drilling ceased 11/10/2023
Date completion activities began 1/1/2024 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:


06/14/2024

API 47-085 - 10497 Farm name Elmer W. Pierce Well number Allender 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	24"	20"	130'	New	91.59#, J-55	N/A	Y
Surface	17 1/2"	13-3/8"	380'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2889'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	20875'	New	23#, P-110/ICY	N/A	Y
Tubing		2-3/8"	6484'		4.7#, P-110		
Packer type and depth set		N/A					

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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	1156 sx	15.8	1.16	1341	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) 20875' MD, 6488' TVD (BHL), 6512' (Deepest Point Drilled) Loggers TD (ft) 20875' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5635'

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 - 10497

Farm name Elmer W. Pierce

Well number Allender Unit 2H

PRODUCING FORMATION(S)

DEPTHS

<u>Marcellus</u>	<u>6375' (TOP)</u>	<u>TVD</u>	<u>6835' (TOP)</u>	<u>MD</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2175 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 12640 mcfpd Oil 195 bpd NGL --- bpd Water 695 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	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**

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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 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 5/8/2024

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

06/14/2024

LATITUDE 39°12'30"

6,887'

LATITUDE 39°12'30" 1,200' TO BOTTOM HOLE
2H BOTTOM

Antero Resources Corporation
Well No. Allender 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 Everts
9-20	Twila Everts
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	Briar 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	Lola 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

Southwest District - Doddridge County	
1-1	Jeffrey Polan
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	CNG Transmission Corp.
4-19.4	CNG Transmission Corp.
4-19.5	Dona Hurst
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 Chipps
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 Hirs
8-5	Larry Gander
12-1	David Ball

AS DRILLED DATA: HOLE
WELL 2H TOP HOLE INFORMATION:
N: 247,725ft E: 1,615,106ft
LAT: 39°10'19.80" LON: 80°51'27.45"
BOTTOM HOLE INFORMATION:
N: 260,432ft E: 1,609,173ft
LAT: 39°12'24.49" LON: 80°52'45.25"
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: 4,335,901m E: 512,313m
BOTTOM HOLE INFORMATION:
N: 4,339,742m E: 510,441m

(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 14,224,656ft E: 1,680,768ft
POINT OF ENTRY INFORMATION:
N: 14,224,326ft E: 1,679,989ft
BOTTOM HOLE INFORMATION:
N: 14,237,257ft E: 1,674,626ft

- 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.

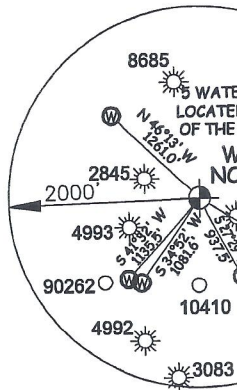
WV NORTH ZONE
GRID NORTH

557' TO BOTTOM HOLE

LONGITUDE 80°52'30"

13,173'

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 # 12-121WA
DRAWING # ALLENDER2HAD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND
 - - - - - Surface Owner Boundary Lines +/-
 - - - - - Interior Surface Tracts +/-
 ○ - - - - Proposed Well Path
 ○ - - - - As Drilled Well Path
 THOMAS SUMMERS P.S. 2109

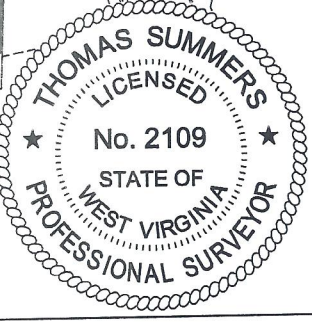
STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

DATE 05/07/24
OPERATOR'S WELL# ALLENDER 2H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 085 - 10497
 (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 ELMER W. PIERCE ACREAGE 67.78 ACRES +/- LEASE ACREAGE 70 AC.±
 OIL & GAS ROYALTY OWNERR. F. KIESTER ET AL

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 6,488' TVD 20,875' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT KEVIN ELLIS
 ADDRESS 1615 WYNKOOP ST. ADDRESS 535 WHITE OAK BLVD.
 DENVER, CO 80202 BRIDGEPORT, WV 26330

COUNTY NAME PERMIT



API 47-085-10497 Farm Name Eimer W. Pierce Well Number Allender Unit 2H

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1/1/2024	20747.4	20703.4	36	Marcellus
2	1/1/2024	20664.34412	20497.0647	36	Marcellus
3	1/2/2024	20461.20882	20293.9294	36	Marcellus
4	1/2/2024	20258.07353	20090.7941	36	Marcellus
5	1/2/2024	20054.93824	19887.6588	36	Marcellus
6	1/3/2024	19851.80294	19684.5235	36	Marcellus
7	1/3/2024	19648.66765	19481.3882	36	Marcellus
8	1/4/2024	19445.53235	19278.2529	36	Marcellus
9	1/4/2024	19242.39706	19075.1176	36	Marcellus
10	1/4/2024	19039.26176	18871.9824	36	Marcellus
11	1/5/2024	18836.12647	18668.8471	36	Marcellus
12	1/5/2024	18632.99118	18465.7118	36	Marcellus
13	1/6/2024	18429.85588	18262.5765	36	Marcellus
14	1/6/2024	18226.72059	18059.4412	36	Marcellus
15	1/6/2024	18023.58529	17856.3059	36	Marcellus
16	1/7/2024	17820.45	17653.1706	36	Marcellus
17	1/7/2024	17617.31471	17450.0353	36	Marcellus
18	1/7/2024	17414.17941	17246.9	36	Marcellus
19	1/8/2024	17211.04412	17043.7647	36	Marcellus
20	1/8/2024	17007.90882	16840.6294	36	Marcellus
21	1/8/2024	16804.77353	16637.4941	36	Marcellus
22	1/9/2024	16601.63824	16434.3588	36	Marcellus
23	1/9/2024	16398.50294	16231.2235	36	Marcellus
24	1/10/2024	16195.36765	16028.0882	36	Marcellus
25	1/10/2024	15992.23235	15824.9529	36	Marcellus
26	1/10/2024	15789.09706	15621.8176	36	Marcellus
27	1/11/2024	15585.96176	15418.6824	36	Marcellus
28	1/11/2024	15382.82647	15215.5471	36	Marcellus
29	1/12/2024	15179.69118	15012.4118	36	Marcellus
30	1/12/2024	14976.55588	14809.2765	36	Marcellus
31	1/12/2024	14773.42059	14606.1412	36	Marcellus
32	1/12/2024	14570.28529	14403.0059	36	Marcellus
33	1/13/2024	14367.15	14199.8706	36	Marcellus
34	1/13/2024	14164.01471	13996.7353	36	Marcellus
35	1/13/2024	13960.87941	13793.6	36	Marcellus
36	1/14/2024	13757.74412	13590.4647	36	Marcellus
37	1/14/2024	13554.60882	13387.3294	36	Marcellus
38	1/14/2024	13351.47353	13184.1941	36	Marcellus
39	1/14/2024	13148.33824	12981.0588	36	Marcellus
40	1/14/2024	12945.20294	12777.9235	36	Marcellus
41	1/15/2024	12742.06765	12574.7882	36	Marcellus
42	1/15/2024	12538.93235	12371.6529	36	Marcellus
43	1/15/2024	12335.79706	12168.5176	36	Marcellus
44	1/15/2024	12132.66176	11965.3824	36	Marcellus
45	1/15/2024	11929.52647	11762.2471	36	Marcellus
46	1/15/2024	11726.39118	11559.1118	36	Marcellus
47	1/16/2024	11523.25588	11355.9765	36	Marcellus
48	1/16/2024	11320.12059	11152.8412	36	Marcellus
49	1/16/2024	11116.98529	10949.7059	36	Marcellus
50	1/17/2024	10913.85	10746.5706	36	Marcellus
51	1/17/2024	10710.71471	10543.4353	36	Marcellus
52	1/17/2024	10507.57941	10340.3	36	Marcellus
53	1/17/2024	10304.44412	10137.1647	36	Marcellus
54	1/17/2024	10101.30882	9934.0294	36	Marcellus
55	1/17/2024	9898.173529	9730.89412	36	Marcellus
56	1/18/2024	9695.038235	9527.75882	36	Marcellus
57	1/18/2024	9491.902941	9324.62353	36	Marcellus
58	1/18/2024	9288.767647	9121.48824	36	Marcellus
59	1/18/2024	9085.632353	8918.35294	36	Marcellus
60	1/18/2024	8882.497059	8715.21765	36	Marcellus
61	1/19/2024	8679.361765	8512.08235	36	Marcellus
62	1/19/2024	8476.226471	8308.94706	36	Marcellus
63	1/19/2024	8273.091176	8105.81176	36	Marcellus
64	1/19/2024	8069.955882	7902.67647	36	Marcellus
65	1/19/2024	7866.820588	7699.54118	36	Marcellus
66	1/20/2024	7663.685294	7496.40588	36	Marcellus
67	1/20/2024	7460.55	7293.27059	36	Marcellus
68	1/21/2024	7257.414706	7090.13529	36	Marcellus
69	1/21/2024	7054.279412	6887	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	1/1/2024	84.7	9463.4	5976.0	2862.2	172740	4982.5	N/A
2	1/1/2024	93.2	10221.8	4725.2	4144.0	398500	7378.9	N/A
3	1/2/2024	92.0	10043.2	5516.9	3593.7	416960	7288.2	N/A
4	1/2/2024	83.8	9808.0	5142.4	3406.0	404547	7249.9	N/A
5	1/2/2024	94.3	10353.1	4849.2	3320.2	412640	7370.5	N/A
6	1/3/2024	96.6	10209.9	3078.8	3219.0	412700	7373.0	N/A
7	1/3/2024	84.2	10171.8	5421.3	3657.2	410880	9934.1	N/A
8	1/4/2024	97.5	10308.6	4671.7	3956.0	414560	7269.4	N/A
9	1/4/2024	97.3	10013.8	3106.4	3726.3	417440	7302.5	N/A
10	1/4/2024	98.4	10121.0	5084.5	4130.0	415620	7255.2	N/A
11	1/5/2024	97.4	9869.2	4731.9	4434.0	413000	7243.7	N/A
12	1/5/2024	96.0	9886.4	3526.0	3838.0	415360	7256.4	N/A
13	1/6/2024	96.5	9894.7	3395.1	3657.2	415400	7038.7	N/A
14	1/6/2024	97.7	10026.1	2510.5	3537.8	408920	7006.8	N/A
15	1/6/2024	97.8	10480.8	5354.0	3746.1	411220	7155.5	N/A
16	1/7/2024	97.3	9742.2	3261.8	3497.0	418040	8111.2	N/A
17	1/7/2024	97.3	9915.2	6609.4	3647.6	409160	6690.4	N/A
18	1/7/2024	95.6	9771.7	5015.5	3414.5	411760	7067.2	N/A
19	1/8/2024	96.7	9789.5	5343.0	3720.2	410140	7157.5	N/A
20	1/8/2024	96.9	9901.1	3132.0	3595.0	412420	7108.2	N/A
21	1/8/2024	97.5	9963.0	6204.8	4260.0	402040	6923.2	N/A
22	1/9/2024	94.8	9601.9	6133.8	3232.0	417660	6858.2	N/A
23	1/9/2024	96.6	9803.9	6439.6	3452.7	418840	6935.2	N/A
24	1/10/2024	96.7	9951.2	5744.6	3302.0	411920	6971.4	N/A
25	1/10/2024	97.1	9915.5	5606.0	3018.0	412720	7151.8	N/A
26	1/10/2024	95.8	9717.5	6736.1	3325.0	410360	6872.3	N/A
27	1/11/2024	92.7	9739.1	10427.6	3072.0	411940	6952.1	N/A
28	1/11/2024	95.8	9453.0	6190.6	3079.0	411480	6985.2	N/A
29	1/12/2024	96.9	9706.6	6458.8	3266.0	407920	6921.8	N/A
30	1/12/2024	96.8	9920.0	7309.0	3500.0	412700	7013.3	N/A
31	1/12/2024	96.8	9799.0	8160.8	3281.1	410620	6899.5	N/A
32	1/12/2024	98.3	9442.3	5916.4	3531.0	414100	6898.0	N/A
33	1/13/2024	96.5	9459.1	6558.8	3280.0	411520	7108.5	N/A
34	1/13/2024	96.4	9671.7	6429.9	3203.0	412420	6931.4	N/A
35	1/13/2024	96.7	9826.3	6960.1	3280.0	415960	6877.2	N/A
36	1/14/2024	96.7	9840.1	5740.2	3148.0	417460	7067.9	N/A
37	1/14/2024	96.5	9748.9	6929.1	3002.0	405560	6888.4	N/A
38	1/14/2024	97.5	9647.7	7802.9	3184.0	409180	6926.7	N/A
39	1/14/2024	96.3	9164.2	0.0	3388.0	409700	6860.7	N/A
40	1/14/2024	96.6	9369.0	5290.7	3299.0	416060	6788.0	N/A
41	1/15/2024	95.6	8996.0	6031.8	3699.0	410640	6880.9	N/A
42	1/15/2024	96.6	9236.7	6340.0	3176.0	415508	7124.5	N/A
43	1/15/2024	96.1	9773.7	6772.7	2809.0	410400	6997.9	N/A
44	1/15/2024	97.0	9573.4	8200.7	2849.2	411740	6787.0	N/A
45	1/15/2024	97.0	8951.7	6036.0	3306.0	406580	6682.2	N/A
46	1/15/2024	97.3	9139.6	6507.8	3080.9	414300	6764.1	N/A
47	1/16/2024	97.2	9090.5	6363.8	3223.8	414720	6774.6	N/A
48	1/16/2024	87.9	8689.1	6259.8	3954.5	412980	9414.9	N/A
49	1/16/2024	96.0	8554.4	5183.6	3029.4	407060	7272.6	N/A
50	1/17/2024	97.0	8701.0	5534.5	2905.8	400280	6924.4	N/A
51	1/17/2024	96.6	8867.8	5950.9	2866.0	399380	7152.1	N/A
52	1/17/2024	97.0	9012.7	6154.5	2911.0	410460	7038.9	N/A
53	1/17/2024	97.2	9126.8	6117.9	3199.0	407840	6831.5	N/A
54	1/17/2024	96.9	8764.5	5945.3	2948.9	410160	6637.0	N/A
55	1/17/2024	96.8	8530.0	5645.2	2970.5	419340	6755.6	N/A
56	1/18/2024	96.6	8897.9	5491.4	2884.5	412460	6744.9	N/A
57	1/18/2024	96.9	9594.3	6133.2	2916.0	415260	6864.7	N/A
58	1/18/2024	96.7	9267.5	6388.9	2861.0	406000.0	6917.4	N/A
59	1/18/2024	96.7	8844.4	6420.5	3303.0	413200.0	7155.1	N/A
60	1/18/2024	80.6	7594.4	6197.5	3124.1	418440.0	10010.5	N/A
61	1/19/2024	96.5	8081.3	4579.7	3030.4	420060.0	6897.6	N/A
62	1/19/2024	93.8	8205.3	4303.8	2687.8	411780.0	6805.8	N/A
63	1/19/2024	95.0	7751.8	5803.4	2898.2	400200.0	6855.9	N/A
64	1/19/2024	96.8	7969.5	6065.9	2899.8	408780.0	6875.9	N/A
65	1/19/2024	96.1	7847.5	5393.7	2970.4	407840.0	6748.4	N/A
66	1/20/2024	93.0	8127.6	6374.8	2758.0	405220.0	7116.3	N/A
67	1/20/2024	97.3	7677.9	6082.7	3187.8	400360.0	6797.5	N/A
68	1/21/2024	97.2	7678.1	6438.5	3025.5	396080.0	6641.5	N/A
69	1/21/2024	96.7	7349.1	5936.0	3067.9	405280.0	6849.5	N/A
	AVERAGE	96	9,328	5,683	3,301	28,114,515	489,390	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	1,845	1,930	1,885
Big Lime	1,875	2,393	1,885	2,443
Fifty Foot Sandstone	2,393	2,593	2,413	2,646
Gordon	2,593	2,867	2,616	2,925
Fifth Sandstone	2,867	2,958	2,895	3,017
Bayard	2,958	3,690	2,987	3,766
Speechley	3,690	3,839	3,736	3,917
Balltown	3,839	4,399	3,887	4,484
Bradford	4,399	4,783	4,454	4,872
Benson	4,783	5,034	4,842	5,129
Alexander	5,034	6,224	5,099	6,390
Sycamore	6,014	6,194	6,136	6,360
Middlesex	6,194	6,308	6,360	6,562
Burkett	6,308	6,351	6,562	6,702
Tully	6,351	6,375	6,702	6,835
Marcellus	6,375	NA	6,835	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:	01/01/2024
Job End Date:	01/21/2024
State:	West Virginia
County:	Ritchie
API Number:	47-085-10497-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	ALLENDER UNIT 2H
Latitude:	39.172
Longitude:	-80.857
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6512
Total Base Water Volume (gal)*:	21608055
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	88.33965	None
			Crystalline silica, quartz	14808-60-7	100.00000	11.49400	None
			Water	7732-18-5	100.00000	0.14384	None
			Hydrochloric acid	7647-01-0	30.00000	0.03329	None
			Complex amine compound	Proprietary	60.00000	0.02571	None
			Hydrotreated distillate	Proprietary	30.00000	0.01285	None
			Guar gum	9000-30-0	100.00000	0.00503	None
			Glutaraldehyde	111-30-8	30.00000	0.00215	None
			Ammonium chloride	12125-02-9	5.00000	0.00214	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00214	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00214	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00043	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00043	None
		RECEIVED Office of Oil and Gas	Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00036	None
		MAY 16 2024	Methanol	67-56-1	100.00000	0.00021	None
		NY Department of Environmental Protection	Ammonium persulfate	7727-54-0	100.00000	0.00015	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	0.00005	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.

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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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