

west virginia department of environmental protection

Office of Oil and Gas 601 57th Street, S.E. Charleston, WV 25304 (304) 926-0450 fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary www.dep.wv.gov

Wednesday, October 2, 2024 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re:

Permit Modification Approval for RATA UNIT 1H

47-095-02895-00-00

Extended Lateral Length

ANTERO RESOURCES CORPORATION

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926-0450.

James A. Martin

Operator's Well Number: RATA UNIT 1H

Farm Name: SHIRLEY J WELLS & SUSIE CUNNINGHAM

U.S. WELL NUMBER: 47-095-02895-00-00

Horizontal 6A New Drill

Date Modification Issued: 10/2/2024

Promoting a healthy environment.

API NO. 47- 095 - 02895

OPERATOR WELL NO. Rata Unit 1H MOD

Well Pad Name: Wrigley Pad

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL WORK PERMIT APPLICATION

1) Well Operator: An	tero Resources	Corpora	494507062	095-Tyler	Meade	Bens Run
-M			Operator ID	County	District	Quadrangle
2) Operator's Well Nu	mber: Rata Unit	1H MOD	Well P	ad Name: Wrig	gley Pad	
3) Farm Name/Surface	e Owner: Shirley J. V	Vells & Susie Cur	Public Re	oad Access: Re	ock Run Ro	ad
4) Elevation, current g	round: 937'	El	evation, propose	d post-construc	etion:	
5) Well Type (a) Ga	s X	_ Oil	Un	derground Stor	age	
Other						
(b)If (Gas Shallow	X	Deep			
	Horizontal	X				
6) Existing Pad: Yes o	-					
7) Proposed Target Fo Marcellus Shale: 65						· ·
8) Proposed Total Ver	tical Depth: 650	00' TVD				
9) Formation at Total	Vertical Depth:	Marcellus	3			
10) Proposed Total M	easured Depth:	23900' M	D			
11) Proposed Horizon	tal Leg Length:	15943.8'				
12) Approximate Fres	h Water Strata D	epths:	397'			
13) Method to Determ	ine Fresh Water	Depths:	47-095-02593			
14) Approximate Salts						
15) Approximate Coa	Seam Depths:	None Ider	ntified			
16) Approximate Dep	th to Possible Vo	id (coal m	ine, karst, other)	None Anticip	oated	
17) Does Proposed we directly overlying or a			ms Yes	1	No X	
(a) If Yes, provide M	Mine Info: Nam	e:			oeCl	EIVED
	Dept				Office of (Oll ario
	Sean	1:			DUA	28 2024
	Own	er:				+ of
					WV D Environn	epartment of nental Protection

Page 1 of 3 10/04/2024 8-27-24

OPERATOR WELL NO. Rata Unit 1H MOD

Well Pad Name: Wrigley Pad

18)

CASING AND TUBING PROGRAM

ТҮРЕ	Size (in)	New or Used	<u>Grade</u>	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	447'	447'	CTS, 466 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	23900'	23900'	CTS, 5095 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

ТҮРЕ	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A/L	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A/L	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A/L	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Class G/H	~1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

Kind:	N/A	
Sizes:	N/A	Office Bree
Depths Set:	N/A	AUG 2 8 2024

W Department of Environmental Protection

Page 2 of 3

API NO. 47- 095 - 02895

OPERATOR WELL NO. Rata Unit 1H MOD

Well Pad Name: Wrigley Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new shallow well and complete Marcellus Shale.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

Anticipated Max Pressure - 9300 lbs Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 28.45 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.35 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

24) Describe all cement additives associated with each cement type:

Conductor: no additives, Class A/L cement.

Surface: Class A/L cement with 2-3% calcium chloride and 1/4 lb of flake Intermediate: Class A/L cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51 Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

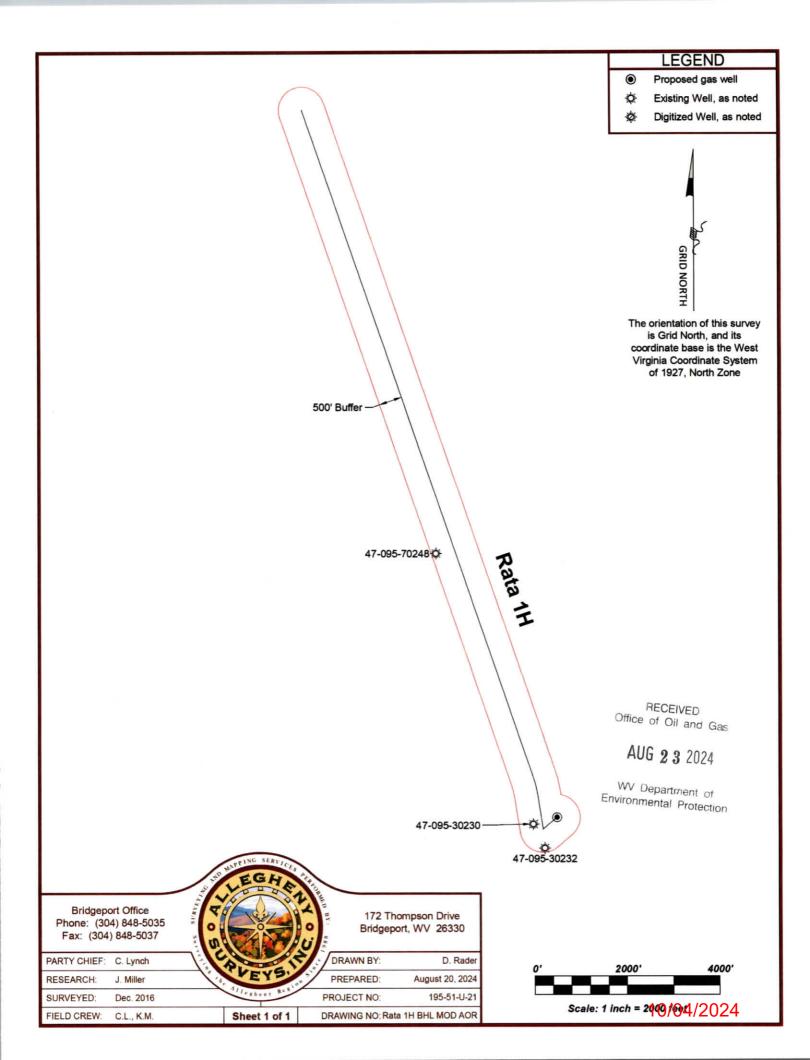
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

AUG 28 2024

WV Department of Environmental Protection 10/04/2024 7 10/04



UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47095302300000							A SALUTION AS	
47095302320000			THE RESERVE OF THE PARTY OF THE	THE REPORT OF THE PERSON OF TH		Carlo Control Carlo Carl		
47095702480000	CLARK SMITH	2	CARTER OIL CO	CARTER OIL CO				

Office of Oil and Gas

AUG 2 3 2024

WV Department of Environmental Protection WW-6A1 (5/13)

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that —

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
A: Louis J. DeLoretta Lease	Louis J. Deloretta	Antero Resources Corporation	1/8+	360/692

RECEIVED
Office of Oil and Gas

SEP 27 2024

WV Department of Environmental Protection

Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator:	Antero Resources Corporation				
By:	Tim Rady	In- ledin			
Its:	Senior Vice P	resident of Land			

Page 1 of 1

Rata Unit 1H MOD

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Grantor, lessor, etc.	Grantee, less	ee, etc.	Royalty	Book/Page
U: Antero Minerals, LLC Lease Antero Minerals, LLC	Antero Resources Corporation		1/8+	184/780
Q: Greenbrier Royalty Fund II, LLC Lease Greenbrier Royalty Fund II, LLC	Antero Resources Corporation		1/8+	296/93
R: Richard W. Barnhart, Jr. Lease Richard W. Barnhart, Jr.	Antero Resources Corporation		1/8+	293/765
T: Cecil E. Jordan, et ux Lease Cecil E. Jordan, et ux	Antero Resources Corporation		1/8+	636/382
S: Vicki Bonner Lease Vicki Bonner	Antero Resources Corporation		1/8+	297/160
Q: Greenbrier Royalty Fund II, LLC Lease Greenbrier Royalty Fund II, LLC	Antero Resources Corporation		1/8+	296/93
N: Wells Cattle Farms, Inc Lease Wells Cattle Farms, Inc	Antero Resources Corporation		1/8+	410/647
D: WVDNR Lease WVDNR	Antero Resources Corporation		1/8+	307/127
L: Ann Wells Clutter Lease Ann Wells Clutter	Antero Resources Corporation		1/8+	299/701
K: Nancy Thomas Lease Nancy Thomas	Antero Resources Corporation		1/8+	308/443
J: Greenbrier Royalty Fund II, LLC Lease Greenbrier Royalty Fund II, LLC	Antero Resources Corporation		1/8+	296/93
K: Nancy Thomas Lease Nancy Thomas	Antero Resources Corporation	DECENTED.	1/8+	308/443
J: Greenbrier Royalty Fund II, LLC Lease Greenbrier Royalty Fund II, LLC	Antero Resources Corporation	RECEIVED Office of Oil and Gas	1/8+	296/93
I: Robert H. Weaver Lease Robert H. Weaver	Antero Resources Corporation	SEP 27 2024	1/8+	308/273
H: Bobbin E. Pardine Lease Bobbin E. Pardine	Antero Resources Corporation	WV Department of Environmental Protection	1/8+	349/170
F: Lisa Kmyaich Lease Lisa Kmyaich	Antero Resources Corporation		1/8+	189/373

Rata Unit 1H MOD

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Grantor, lessor, etc.

Grantee, lessee, etc.

Royalty

Book/Page

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the

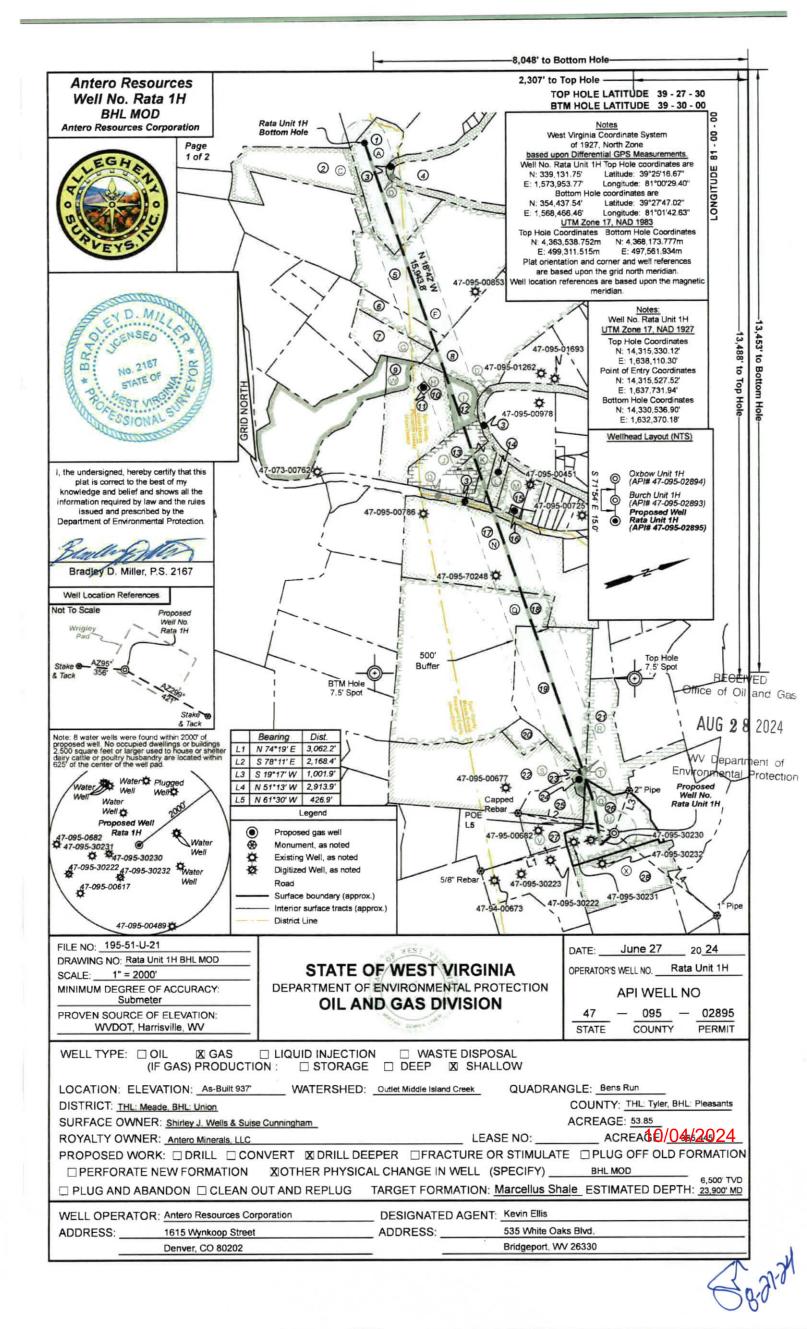
*Cotenancy Utilization - Antero is utilizing the Co-tenancy Modernization and Majority Protection Act to proceed with development of certain royalty owners' interests in this tract.

**Pooling/Unitization – Antero has filed a horizontal well unitization application with the West Virginia
Oil and Gas Conservation Commission that seeks to pool certain owners in this tract

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SEP 27 2024

WV Department of Environmental Protection



Antero Resources Well No. Rata 1H BHL MOD Antero Resources Corporation



	Leases
Α	Louis J. DeLoretta
С	Roy Emmett Huffman & Linda Gay Huffman
D	WVDNR
F	Lisa Krnyaich
G	Antero Minerals, LLC
Н	Bobbin E. Pardine
1	Robert H. Weaver
J	Greenbrier Royalty Fund II, LLC
K	Nancy Thomas
L	Ann Wells Clutter
М	BRC Appalachian Minerals I, LLC
Ν	Wells Cattle Farms, Inc.
Q	Greenbrier Royalty Fund II, LLC
R	Richard W. Bamhart, Jr.
S	Vicki Bonner
Т	Cecil E. Jordan, et ux
U	Antero Minerals, LLC
٧	Janelle Sue Perkins
W	Clifford Benjamin & Rebecca Louise Boone
Х	Mary C. Robinson Living Trust

ID	TM/Par	Owner	Bk/Pg	Acres
1	3-11	David P. & Cheryl M. Dean	291/392	60.00
2	3-9	Roy Emmett & Linda Gay Huffman	126/341	55.00
3		Middle Island Creek		
4	13-10	Charles L. & Jennifer N. Warner	177/1	114.00
5	13-36	Lisa Krynaich	566/759	165.50
6	12-12	Lisa Krynaich	566/759	20.00
7	7-23B	Frederick M. Bonner	286/474	27.33
8	13-37	Lisa Krynaich	566/759	105.94
9	7-15	Rebecca Louise & Clifford Benjamin Boone	348/317	77.25
10	7-15.1	Bobbin E. Pardine	268/516	63.60
11	7-15.2	Terry Heinzman	336/391	1.00
12	15-15	James E. & Anita Carr	349/742	13.17
13	15-16	James E. & Anita Carr	349/742	58.12
14	15-17.1	Howard D. II & Amy Spurlock	385/79	7.26
15	15-17	Terry L. & Daphne R. Heinzman	340/461	8.45
16	15-16.1	Ernest P. Herbold, Jr.	156/296	1.00
17	4-8	Wells Cattle Farms, Inc.	331/164	155.00
18	4-19	Wells Cattle Farms, Inc.	318/190	206.13
19	4-20	Cecil E. Sr. & Linda Jordan; James & Connie Hicks	318/190	206.13
20	4-32	Wells Cattle Farms, Inc.	318/190	206.13
21	4-20.1	Richard W. Barnhart, Jr.	213/162	49.74
22	7-1	Daniel Preston Bonner	416/11	142.72
23	4-20.3	Cecil E. & Linda M. Jordan	240/240	0.52
24	4-20.2	Daniel Preston Bonner	416/11	4.00
25	7-1.1	Daniel Preston Bonner	416/11	20.19
26	7-2	Shirley J. Wells & Susie Cunningham	WB41/317	53.85
27	7-7	Janelle S. Perkins	184/378	74.08
28	7-8	John Wells	428/412	52.39

FILE NO:	195-51-U-21
	NO: Rata Unit 1H BHL MOD
SCALE: _	1" = 2000'
MINIMUN	DEGREE OF ACCURACY: Submeter
a raseon maga	SOURCE OF ELEVATION:

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION

WEST

DATE: ____ June 27 ___ 20_24 OPERATOR'S WELL NO. Rata Unit 1H API WELL NO

47 — 095 — 02895 STATE COUNTY PERMIT

				SECTION NAMED		5. 403,14733115
WELL TYPE: □ OIL ☒ GAS (IF GAS) PRODUCTIO						
LOCATION: ELEVATION: As-Built 937'	WATERSHED	Outlet Middle Island Creek	QUADRAN	GLE: Bens Ru	un	
DISTRICT: THL: Meade, BHL: Union				COUNTY: T	<u> 107047</u>	202 ants
SURFACE OWNER: Shirley J. Wells & Suise	Cunningham			ACREAGE:	53.85	
ROYALTY OWNER: Antero Minerals, LLC		LEA	SE NO:	ACRE	EAGE:	365.445
PROPOSED WORK: DRILL COM	NVERT X DRILL D	EEPER	R STIMULATE		OFF OLD	FORMATION
☐ PERFORATE NEW FORMATION	XOTHER PHYSIC	CAL CHANGE IN WELL (SPECIFY)	BHL MOD	<u> </u>	_ 6 F00! T\/D
☐ PLUG AND ABANDON ☐ CLEAN O	UT AND REPLUG	TARGET FORMATION:	Marcellus Sha	le_ESTIMAT	ED DEPT	6,500' TVD FH: <u>23,900' MD</u>
WELL OPERATOR: Antero Resources Cor	poration	DESIGNATED AGENT	Kevin Ellis			
ADDRESS: 1615 Wynkoop Street		ADDRESS:	535 White Oak	s Blvd.		
Denver, CO 80202			Bridgeport, WV	26330		

