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west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Thursday, December 18, 2025  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for LODGE UNIT 1H  
47-103-03790-00-00

Extended Lateral

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.



H. Jason Harmon  
Acting Chief

Operator's Well Number: LODGE UNIT 1H  
Farm Name: WILLIAM WADE FLETCHER  
U.S. WELL NUMBER: 47-103-03790-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 12-18-2025

Promoting a healthy environment.

12/19/2025

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

1) Well Operator: Antero Resources Corpora  494507062 | 103 - Wetze  Green | Pine Grove 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Lodge Unit 1H MOD      Well Pad Name: Harbour Pad

3) Farm Name/Surface Owner: William Wade Fletcher      Public Road Access: Ashland Ridge Road

4) Elevation, current ground: 1420'      Elevation, proposed post-construction: 1410'

5) Well Type    (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

(b) If Gas      Shallow  Deep \_\_\_\_\_

Horizontal  \_\_\_\_\_

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7800' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 7800' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,600' MD

11) Proposed Horizontal Leg Length: 11,063'

12) Approximate Fresh Water Strata Depths: 368'

13) Method to Determine Fresh Water Depths: From 47103027260000

14) Approximate Saltwater Depths: 1638'

15) Approximate Coal Seam Depths: N/A

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?      Yes \_\_\_\_\_ No

(a) If Yes, provide Mine Info:      Name: \_\_\_\_\_

Depth: \_\_\_\_\_

Seam: \_\_\_\_\_

Owner: \_\_\_\_\_

18)

**CASING AND TUBING PROGRAM**

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	H-40	94#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	418'	418'	CTS, 436 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	3200'	3200'	CTS, 1303 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	20,600'	20,600'	4263 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
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	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

**PACKERS**

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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

Drill, perforate, fracture a new vertical 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): 28.34 acres

22) Area to be disturbed for well pad only, less access road (acres): 13.21 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.

HARBOUR PAD  
ANTERO RESOURCES  
CORPORATION

WELL NO.  
LODGE 1 H

500

A scale bar and a north arrow are located in the top left corner of the map. The scale bar is a horizontal line with tick marks and labels: '0', '1000', '2000', and '3000'. Above the scale bar, the text 'SCALE : 1-INCH = 1000-FEET' is written. To the left of the scale bar is a north arrow, which is a circle with a cross inside, and a dashed line extending from the center of the circle.

WILLOW LAND SURVEYING, PLLC  
P.O. BOX 17, PENNSBORO, WV 26415  
(304) 659-1717

DATE: 12/4/25

DRAWN BY: D.L.P.

ETL E: L0RGE1HAQB.DWG

SCALE : 1-INCH = 1000-FEET

1000' 2000'

3000'

12/1

12/19/2025

LATITUDE 39°37'30"

9,361'

Antero Resources  
Corporation  
Well No. Lodge #1H

WV NORTH ZONE  
GRID NORTH

A	WILLIAM W. FLETCHER, SR.
B	WILLIAM W. FLETCHER, SR.
C1	STONE HILL MINERALS HOLDINGS, LLC.
C2	STONE HILL MINERALS HOLDINGS, LLC.
D	DEAN H. BUCHER
F1	STONE HILL MINERALS HOLDINGS, LLC.
F2	STONE HILL MINERALS HOLDINGS, LLC.
G	BOUNTY MINERALS LLC.
H	WILMA MARIE MORRIS
I	WILMA M. MORRIS
L	BRC APPALACHIAN MINERALS I, LLC.
N	JUNIOR L. ROBINSON
O	WILDA N. AND ROBERT L. YEAGER
P1	BRC APPALACHIAN MINERALS I, LLC.
P2	BRC APPALACHIAN MINERALS I, LLC.
R	RONALD I. HALLAND R. KEVIN HALL, AS JTWROS
S	BOUNTY MINERALS, LLC.
T	BRC APPALACHIAN MINERALS I, LLC.
U1	ANTERO MINERALS, LLC.
U2	ANTERO MINERALS, LLC.
V	BLACK GOLD GROUP, LTD.
W	STONE HILL MINERALS HOLDINGS, LLC.
X	STONE HILL MINERALS HOLDINGS, LLC.
Y	JUNIOR L. ROBINSON

LATITUDE 39°35'00"

6,178' TO BOTTOM HOLE

NOTES:

WELL 1H TOP HOLE INFORMATION:

N: 406,233ft E: 1,661,947ft

LAT: 39°36'32.93" LONG: 80°41'59.61"

BOTTOM HOLE INFORMATION:

N: 395,560ft E: 1,664,992ft

LAT: 39°34'47.85" LONG: 80°41'18.90"

WEST VIRGINIA COORDINATE

SYSTEM OF 1927 NORTH ZONE.

ZONE WAS DERIVED FROM

MEASUREMENTS TAKEN WITH

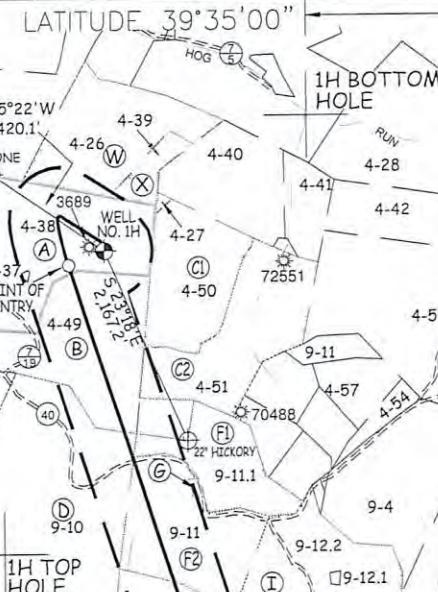
TRIMBLE GEOXT SUBMETER

MAPPING GRADE GPS UNIT.

PLAT ORIENTATION, CORNER,

AND WELL REFERENCE TIE LINES

ARE BASED ON GRID NORTH.

1,230' TO BOTTOM HOLE  
5,775'LONGITUDE  
80°40'00"

**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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b>A: William W. Fletcher, Sr. Lease</b> William W. Fletcher, Sr.	Antero Resources Corporation	1/8+	294A/0681
<b>B: William W. Fletcher, Sr. Lease</b> William W. Fletcher, Sr.	Antero Resources Corporation	1/8+	294A/0681
<b>D: Dean H. Bucher Lease</b> Dean H. Bucher	Antero Resources Corporation	1/8+	262A/0192
<b>F2: Stone Hill Minerals Holdings, LLC Lease</b> Stone Hill Minerals Holdings, LLC	Antero Resources Corporation	1/8+	259A/0769
<b>H: Wilma Marie Morris Lease</b> Wilma Marie Morris	Antero Resources Corporation	1/8+	406A/0662
<b>I: Wilma M. Morris Lease</b> Wilma M. Morris	Antero Resources Corporation	1/8+	301A/0844
<b>H: Wilma Marie Morris Lease</b> Wilma Marie Morris	Antero Resources Corporation	1/8+	406A/0662
<b>L: BRC Appalachian Minerals I, LLC Lease</b> BRC Appalachian Minerals I, LLC BRC Working Interest Company, LLC Chesapeake Appalachia, LLC SWN Production Company Antero Exchange Properties, Inc.	BRC Working Interest Company, LLC Chesapeake Appalachia, LLC SWN Production Company Antero Exchange Properties, Inc. Antero Resources Corporation	1/8 Assignment Assignment Assignment Name Change	102A/0505 103A/0470 157A/0540 177A/0533 0013/0311
<b>O: Wilda N. and Robert L. Yeager Lease</b> Wilda N. and Robert L. Yeager	Antero Resources Corporation	1/8+	437A/0174
<b>N: Junior L. Robinson Lease</b> Junior L. Robinson Mountain Link Associates, Inc. The Whittle Corporation	Mountain Link Associates, Inc. The Whittle Corporation Antero Resources Corporation	1/8 Assignment Assignment	101A/0335 111A/0574 377A/0896
<b>R: Ronald I. Hall and R. Kevin Hall, As JTWROS Lease</b> Ronald I. Hall and R. Kevin Hall, As JTWROS	Antero Resources Corporation	1/8+	294A/0016
<b>S: Bounty Minerals, LLC Lease</b> Bounty Minerals, LLC	Antero Resources Corporation	1/8+	288A/0110

\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

\*Co-tenancy 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. 12/19/2023

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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U1: Antero Minerals, LLC Lease

Antero Minerals, LLC	Antero Resources Corporation	1/8+	292A/0739
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**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  
Its: Senior Vice President of Land