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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)

Wednesday, November 5, 2025  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for Wysong Unit 2H  
47-017-06995-00-00

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.

A handwritten signature in black ink, reading "H. Jason Harmon".

H. Jason Harmon  
Acting Chief

Operator's Well Number: Wysong Unit 2H  
Farm Name: Sandra E Erwin  
U.S. WELL NUMBER: 47-017-06995-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 11/5/2025

Promoting a healthy environment.

11/07/2025

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

1) Well Operator: Antero Resources Corporat 494507062 017-Doddrid New Miltc New Milton  
Operator ID County District Quadrangle

2) Operator's Well Number: Wysong Unit 2H MOD Well Pad Name: Brushy Pad

3) Farm Name/Surface Owner: Sandra E. Erwin Public Road Access: Toms Fork

4) Elevation, current ground: 1213' Elevation, proposed post-construction: \_\_\_\_\_

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

Other \_\_\_\_\_

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

Horizontal X

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6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7700' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7700' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20200' MD

11) Proposed Horizontal Leg Length: 8887.2'

12) Approximate Fresh Water Strata Depths: 702'

13) Method to Determine Fresh Water Depths: 47-017-01341

14) Approximate Saltwater Depths: 2307'

15) Approximate Coal Seam Depths: N/A

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

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

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

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

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

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

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b><u>Size (in)</u></b>	<b><u>New or Used</u></b>	<b><u>Grade</u></b>	<b><u>Weight per ft. (lb/ft)</u></b>	<b><u>FOOTAGE: For Drilling (ft)</u></b>	<b><u>INTERVALS: Left in Well (ft)</u></b>	<b><u>CEMENT: Fill-up (Cu. Ft.)/CTS</u></b>
Conductor	20"	New	H-40	94#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	752'	752'	CTS, 731 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	1117'	1117'	CTS, 455 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	20200'	20200'	4162 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

<b>TYPE</b>	<b><u>Size (in)</u></b>	<b><u>Wellbore Diameter (in)</u></b>	<b><u>Wall Thickness (in)</u></b>	<b><u>Burst Pressure (psi)</u></b>	<b><u>Anticipated Max. Internal Pressure (psi)</u></b>	<b><u>Cement Type</u></b>	<b><u>Cement Yield (cu. ft./k)</u></b>
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							

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**PACKERS**

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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 shallow well and complete Marcellus Shale.

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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): 37.49 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.90 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.

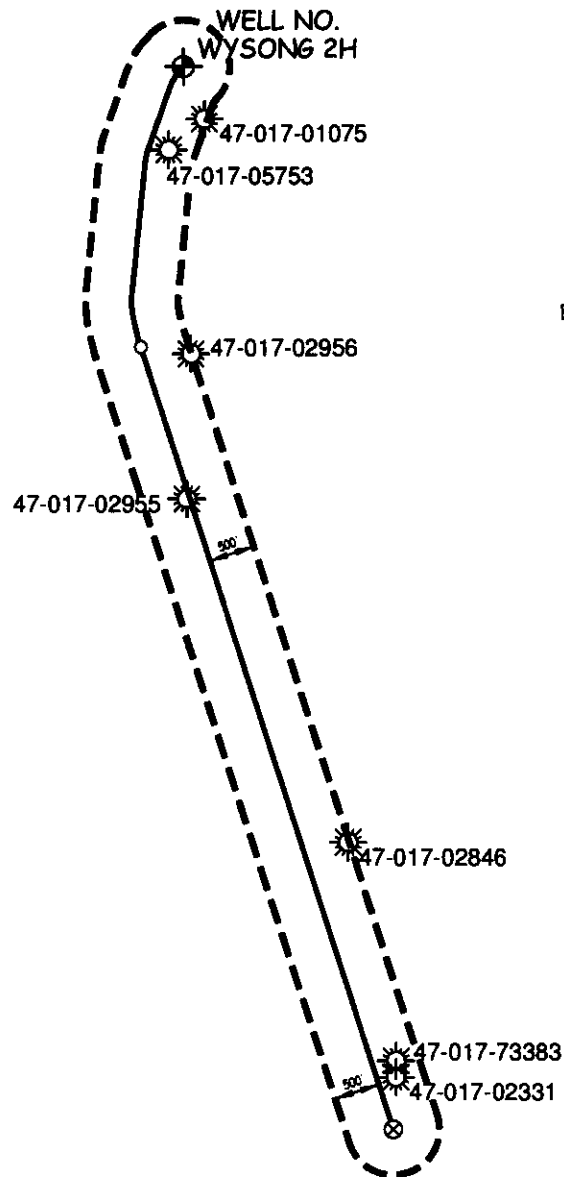
Surface: blowhole clean with air, trip conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pip capacity +40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

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.

# BRUSHY PAD ANTERO RESOURCES CORPORATION



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

JOB #: 25-011WA

FILE: WYSONG2HAOR.DWG

DATE: 09/22/25

DRAWN BY: D.R.R.

SCALE : 1-INCH = 2000-FEET



11/07/2025

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd	Well Hyperlink	Don't Delete <a href="http://www.wvgs.wv.gov">http://www.wvgs.wv.gov</a>
4701701075	F M HINTER A HUNTER	2	DEVONIAN G&O CO	DEVONIAN G&O CO	2,454		Keener	Weir, Benson, Alexander	<a href="#">WVGES</a>	
4701705753	ERWIN JOHN	4	BERRY ENERGY INC	SUTTONS EXP&PROD CO	5,780	3606 - 5447	Warren, Speechley, Benson, Brailier	Weir, Alexander	<a href="#">WVGES</a>	
4701702956	W H SHULTE HEIRS	2	CARSON PETROLEUM CORP	CARSON PET CORP	5,495	2234 - 2238	Big Injun	Weir, Benson, Alexander	<a href="#">WVGES</a>	
4701702955	COLE EDMUND ET AL	1	CARSON PETROLEUM	CARSON PETROLEUM	5,494	5374 - 5374	Alexander	Weir, Benson	<a href="#">WVGES</a>	
4701702846	WYSONG WILLIAM S &	1	BETA HELIX ENERGY LLC	CARSON PETROLEUM	5,494	5010 - 5347	Benson, Alexander	Weir	<a href="#">WVGES</a>	
4701773383	GLENN G SCHMIDT		UNKNOWN	UNKNOWN					<a href="#">WVGES</a>	
4701702331	SCHMIDT G G ETAL	1	ROCKWELL PETROLEUM	ROCKWELL PETROLEUM	5,504	4979 - 5253	Benson, Elk	Weir, Alexander	<a href="#">WVGES</a>	

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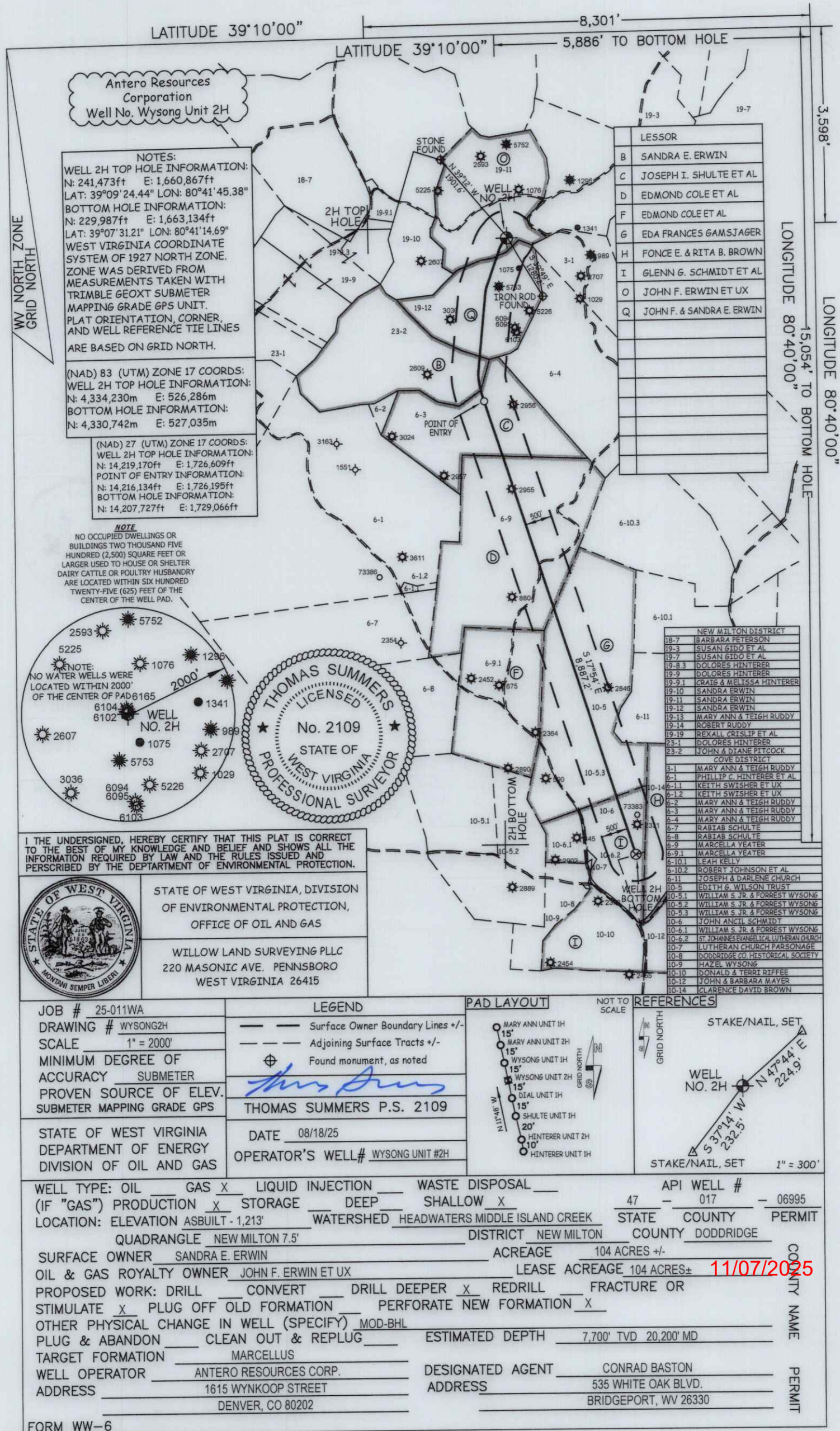


-8,301'

5,886' TO BOTTOM HOLE

FORM WW-6







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><u>Q: John F. Erwin, et ux Lease</u></b>			
John F. Erwin, et ux	Bluestone Energy Partners	1/8	251/486
Bluestone Energy Partners	BEP Merger Sub, LP	Merger	288/1
BEP Merger Sub, LP	Antero Resources Corporation	Merger	288/1
<b><u>Q: John F. &amp; Sandra E. Erwin Lease</u></b>			
John F. & Sandra E. Erwin	Antero Resources Appalachian	1/8+	272/573
Antero Resources Appalachian	Antero Resources Corporation	Name Change	46/523
<b><u>B: Sandra E. Erwin Lease</u></b>			
Sandra E. Erwin	Antero Resources Corporation	1/8+	537/470
<b><u>C: Joseph I. Shulte, et al Lease</u></b>			
Joseph I. Shulte, et al	Rockwell Petroleum Company	1/8	110/6
Rockwell Petroleum Company	Carson Petroleum Corporation, et al	Assignment	117/525
Carson Petroleum Corporation, et al	Devon Energy Corporation	Assignment	128/273
Devon Energy Corporation	Abarta Oil and Gas Company Inc	Assignment	178/682
Abarta Oil and Gas Company Inc	Antero Resources Appalachian	Assignment	261/463
Antero Resources Appalachian	Antero Resources Corporation	Name Change	46/523
<b><u>D: Edmond Cole, et al Lease</u></b>			
Edmond Cole, et al	J.M.L. Smith	1/8	61/214
J.M.L. Smith	Kewanee Oil Company	Assignment	62/8
Kewanee Oil Company	John S. Bailey	Assignment	68/439
John S. Bailey	Triangle Oil Company, et al	Assignment	69/46
Triangle Oil Company, et al	New Triangle Oil Company	Assignment	149/174
New Triangle Oil Company	Professional Oilfield Services Inc	Assignment	194/277
Professional Oilfield Services Inc	Bluestone Energy Partners	Assignment	246/181
Bluestone Energy Partners	BEP Merger Sub LP	Merger	288/1
BEP Merger Sub LP	Antero Resources Corporation	Merger	288/1
<b><u>G: Eda Francis Gamsjager Lease</u></b>			
Eda Frances Gamsjager	J.M.L. Smith	1/8	61/222
J.M.L. Smith	Kewanee Oil Company	Assignment	62/8
Kewanee Oil Company	John S. Bailey	Assignment	68/438
John S. Bailey	Triangle Oil Company	Assignment	69/46
Triangle Oil Company	New Triangle Oil Company	Assignment	149/174
New Triangle Oil Company	Professional Oilfield Services Inc	Assignment	194/277
Professional Oilfield Services Inc	Bluestone Energy Partners	Assignment	246/181
Bluestone Energy Partners	BEP Merger Sub LP	Merger	288/1
BEP Merger Sub LP	Antero Resources Corporation	Merger	288/1

11/07/2025

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<b>I: Glenn G. Schmidt, et al Lease</b>				
	Glenn G. Schmidt, et al	Rockwell Petroleum Company	1/8	106/639
	Rockwell Petroleum Company	Carson Petroleum Corporation	Assignment	107/704
	Carson Petroleum Corporation	Devon Energy Corporation	Assignment	126/434
	Devon Energy Corporation	Abarta Oil and Gas Company, Inc	Assignment	178/682
	Abarta Oil and Gas Company, Inc	Antero Resources Appalachian	Assignment	261/463
	Antero Resources Appalachian	HG Energy II Appalachia, LLC	Assignment	512/658
	HG Energy II Appalachia, LLC	Antero Resources Corporation	Assignment	543/170

**\*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

**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

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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



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Chapter 22, Article 6A, Section 5(a)(5)  
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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 Marcellus and any other formations completed with this well.

**\*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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October 15th, 2025

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Attn: Mr. Taylor Brewer  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

Mr. Brewer:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for approved wells on the Brushy Pad. We are requesting to extend the horizontal lateral length which will change the bottom hole location of the Mary Ann Unit 1H, Mary Ann Unit 2H, Wysong Unit 1H & Wysong Unit 2H wells.

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised MD and Production Casing/Cement program
- REVISED Form WW-6A1, which shows the leases we will be drilling into
- REVISED Mylar Plat, which shows the new bottom hole location

If you have any questions please feel free to contact me at (303) 357-7373.

Thank you in advance for your consideration.

Sincerely,

Carly Wren  
Permitting Agent  
Antero Resources Corporation

Enclosures

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CK# 4044676

- Mary Ann Unit 1H

AMT \$7,500.00

CK# 4044679  
- Wysong Unit 2H  
AMT \$7,500.00

CK# 4044677  
- Mary Ann Unit 2H  
AMT \$7,500.00

CK# 4044678  
- Wysong Unit 1H  
AMT \$7,500.00

11/07/2025