



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

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for Mary Ann Unit 1H
47-017-06992-00-00

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 "Jason Harmon".

H. Jason Harmon
Acting Chief

Operator's Well Number: Mary Ann Unit 1H
Farm Name: Sandra E Erwin
U.S. WELL NUMBER: 47-017-06992-00-00
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 Miltr New Milton
Operator ID County District Quadrangle

2) Operator's Well Number: Mary Ann Unit 1H 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

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: 24900' MD

11) Proposed Horizontal Leg Length: 12704.8'

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: _____

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WW-6B
(04/15)

API NO. 47- 017 - 06992
OPERATOR WELL NO. Mary Ann Unit 1H MOD
Well Pad Name: Brushy Pad

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	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#	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#	24900'	24900'	5347 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

TYPE	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	Lead-HIPOZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

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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.

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.

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

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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

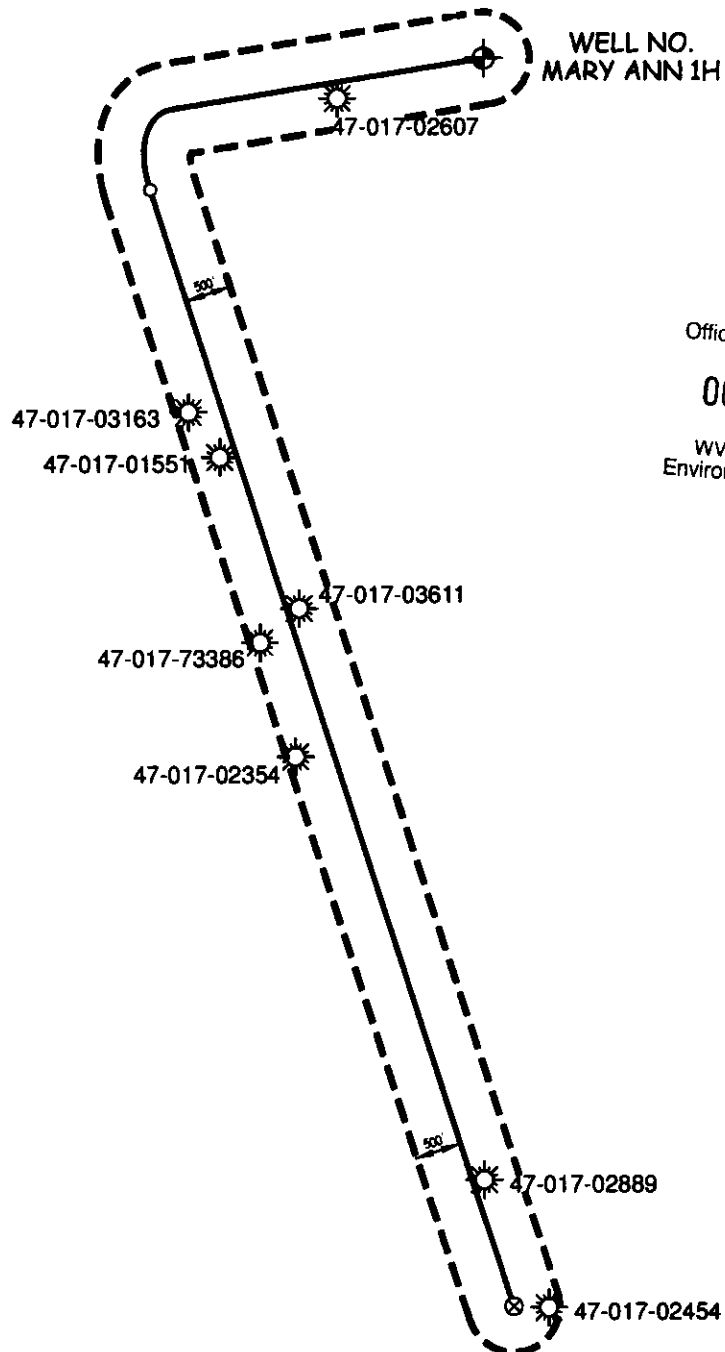
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25) Proposed borehole conditioning procedures:

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 #: 25-015WA

FILE: MARYANN1HAOR.DWG

SCALE : 1-INCH = 2000-FEET



DATE: 09/22/25

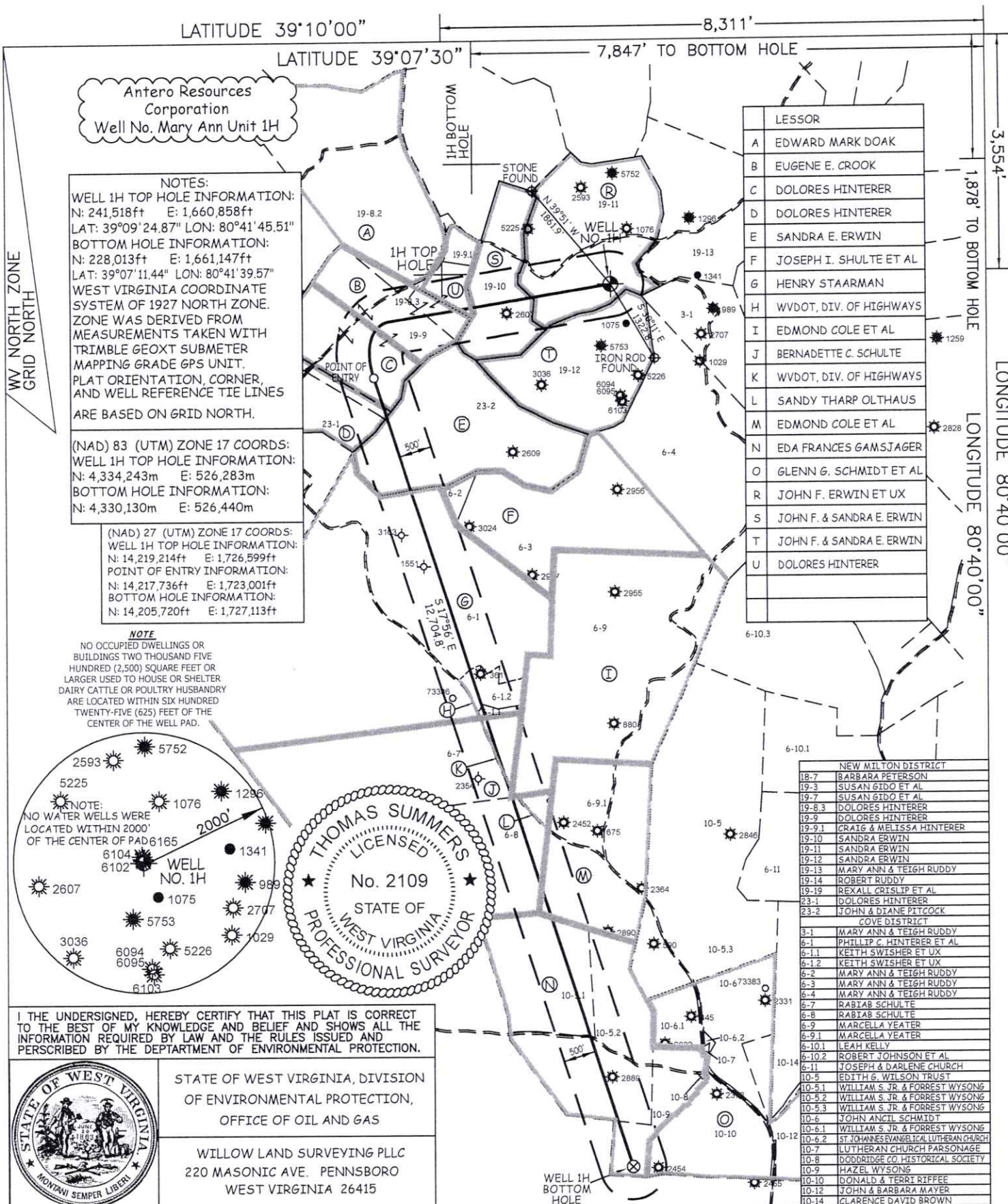
DRAWN BY: D.R.R.

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
4701702607	JOHN ERWIN	H-957	POSTROCK EASTERN PRODUCTION LLC	HAUGHT G L & SONS	5,658	5105 - 5473	Alexander	Weir, Benson	WVGES	http://www.wvgs.wv/
4701703163	STAARMAN HENRY	1	DEVON ENERGY CORP	DEVON ENERGY CORP	2,550	2330 - 2432	Big Injun	Weir, Benson, Alexander	WVGES	
4701701551	F & H STAARMAN	1	STAARMAN OIL & GAS	STAARMAN OIL & GAS	2,270		Big Injun	Weir, Benson, Alexander	WVGES	
4701703611	STAARMAN HENRY	3173	DIVERSIFIED PRODUCTION LLC	CNG DEVELOPMENT CO	5,682	4926 - 5284	Benson, Alexander	Weir	WVGES	
4701773386	HENRY STAARMAN	1	UNKNOWN	UNKNOWN					WVGES	
4701702354	SCHULTE CELIA F	12565	CONSOL GAS SUPPLY CRP	CONSOL GAS SUPPLY CRP	5,475	5190 - 5207	Alexander	Weir, Benson	WVGES	
4701702889	WYSONG WILLIAM S	3	CARSON PETROLEUM	CARSON PETROLEUM	5,445	4947 - 5315	Benson, Alexander	Weir	WVGES	
4701702454	SCHMIDT ROY B ET AL	4	ROCKWELL PETROLEUM	ROCKWELL PETROLEUM	5,467	5051 - 5376	Benson, Alexander	Weir	WVGES	

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JOB # 25-015WA	LEGEND	PAD LAYOUT	NOT TO SCALE	REFERENCES
DRAWING # MARYANN1H	— Surface Owner Boundary Lines +/-	MARY ANN UNIT 1H		STAKE/NAIL, SET
SCALE 1" = 2000'	--- Adjoining Surface Tracts +/-	MARY ANN UNIT 2H		WELL NO. 1H
MINIMUM DEGREE OF ACCURACY SUBMETER	⊕ Found monument, as noted	WYSONG UNIT 1H		STAKE/NAIL, SET
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS		WYSONG UNIT 2H		1" = 300'
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS	THOMAS SUMMERS P.S. 2109	DIAL UNIT 1H		
	DATE 08/18/25	SHULTE UNIT 1H		
	OPERATOR'S WELL# MARY ANN UNIT #1H	HINTERER UNIT 2H		
		HINTERER UNIT 1H		
WELL TYPE: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/>				
(IF "GAS") PRODUCTION <input checked="" type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>				
LOCATION: ELEVATION ASBUILT - 1,213'	WATERSHED HEADWATERS MIDDLE ISLAND CREEK	STATE 47	COUNTY 017	PERMIT 06992
QUADRANGLE NEW MILTON 7.5'	DISTRICT NEW MILTON	COUNTY DODDRIDGE		
SURFACE OWNER SANDRA E. ERWIN	ACREAGE 104 ACRES +/-			
OIL & GAS ROYALTY OWNER JOHN F. ERWIN ET UX	LEASE ACREAGE 104 ACRES±			
PROPOSED WORK: DRILL <input type="checkbox"/> CONVERT <input type="checkbox"/> DRILL DEEPER <input checked="" type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input checked="" type="checkbox"/>				
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL				
PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/>	ESTIMATED DEPTH 7,700' TVD 24,900' MD			
TARGET FORMATION MARCELLUS				
WELL OPERATOR ANTERO RESOURCES CORP.	DESIGNATED AGENT CONRAD BASTON			
ADDRESS 1615 WYNKOOP STREET	ADDRESS 535 WHITE OAK BLVD.			
DENVER, CO 80202	BRIDGEPORT, WV 26330			

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
R: John F. Erwin, et ux Lease John F. Erwin, et ux Bluestone Energy Partners BEP Merger Sub, LP	Bluestone Energy Partners BEP Merger Sub, LP Antero Resources Corporation	1/8 Merger Merger	251/486 288/1 288/1
S: John F. & Sandra E. Erwin Lease John F. & Sandra E. Erwin Antero Resources Appalachian	Antero Resources Appalachian Antero Resources Corporation	1/8+ Name Change	272/573 46/523
U: Dolores Hinterer Lease Dolores Hinterer Antero Resources Appalachian	Antero Resources Appalachian Antero Resources Corporation	1/8+ Name Change	538/346 46/523
B: Eugene E. Crook Lease Eugene E. Crook Antero Resources Appalachian	Antero Resources Appalachian Antero Resources Corporation	1/8+ Name Change	272/709 46/523
C: Dolores Hinterer Lease Dolores Hinterer Antero Resources Appalachian	Antero Resources Appalachian Antero Resources Corporation	1/8+ Name Change	538/346 46/523
D: Dolores Hinterer Lease Dolores Hinterer Antero Resources Appalachian	Antero Resources Appalachian Antero Resources Corporation	1/8+ Name Change	538/346 46/523
E: Sandra E. Erwin Lease Sandra E. Erwin	Antero Resources Corporation	1/8+	537/470
G: Henry Staarman Lease Henry Staarman Consolidated Gas Supply Corporation Consolidated Gas Transmission CNG Development Company CNG Development Company CNG Producing Company Dominion Exploration and Production Consol Gas Company CNX Gas Company	Consolidated Gas Supply Corporation Consolidated Gas Transmission CNG Development Company CNG Producing Company Dominion Exploration and Production Consol Gas Company CNX Gas Company Antero Resources Corporation	1/8 Assignment Assignment Merger Merger Merger Merger Assignment	86/232 135/583 139/41 WVSOS WVSOS WVSOS WVSOS 400/565
J: Bernadette C. Schulte Lease Bernadette C. Schulte	Antero Resources Corporation	1/8+	541/279
K: WVDOT Div. Of Highways Lease WVDOT Div. Of Highways	Antero Resources Corporation	1/8+	357/595
J: Bernadette C. Schulte Lease Bernadette C. Schulte	Antero Resources Corporation	1/8+	541/279

11/07/2025

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
I: Edmond Cole, et al Lease			
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	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
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J: Bernadette C. Schulte Lease			
Bernadette C. Schulte	Antero Resources Corporation	1/8+	541/279
M: Edmond Cole, et al Lease			
Edmond Cole, et al	Rockwell Petroleum Company	1/8	108/142
Rockwell Petroleum Company	Rockwell Resources, LLC	Assignment	260/429
Rockwell Resources, LLC	Antero Resources Appalachian	Assignment	267/244
Antero Resources Appalachian	Antero Resources Corporation	Name Change	46/523

*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

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)

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
N: Eda Frances Gamsjager Lease				
	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

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****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