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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)

Tuesday, December 9, 2025  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for ZAMPERINI UNIT 1H  
47-095-02951-00-00

**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: ZAMPERINI UNIT 1H  
Farm Name: ANTERO RESOURCES CORPORATION  
U.S. WELL NUMBER: 47-095-02951-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 12/9/2025

Promoting a healthy environment.

12/12/2025

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

1) Well Operator: <u>Antero Resources Corporation</u>	494507062	095 - Tyler	Lincoln	Paden City
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: Zamperini Unit 1H MOD Well Pad Name: Shinn Pad

3) Farm Name/Surface Owner: Antero Resources Corporation Public Road Access: Badger Run Road

4) Elevation, current ground: 1036' Elevation, proposed post-construction: 1036'

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: 6700' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 6700' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 22000' MD

11) Proposed Horizontal Leg Length: 12280'

12) Approximate Fresh Water Strata Depths: 328

13) Method to Determine Fresh Water Depths: 47-095-02781

14) Approximate Saltwater Depths: 1440

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 ☒

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

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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#	378	378	CTS, 394 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#	22000	22000	4616 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-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			

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Digitally signed by  
Stephen Mccoy  
Date: 2025.09.10 08:07:31  
-04'00'



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): 38.32 acres

22) Area to be disturbed for well pad only, less access road (acres): 16.29 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.

# LEGEND

- Proposed gas well
- Existing Well, as noted
- Digitized Well, as noted



The orientation of this survey is Grid North, and its coordinate base is the West Virginia Coordinate System of 1927, North Zone

500' Buffer

Zamperini 1H

47-095-00988

47-095-00953

47-095-00781

47-095-00688

47-095-00684

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Bridgeport Office  
Phone: (304) 848-5035  
Fax: (304) 848-5037

172 Thompson Drive  
Bridgeport, WV 26330

PARTY CHIEF: C. Lynch	DRAWN BY: D. Rader
RESEARCH: J. Miller	PREPARED: October 17, 2025
SURVEYED: Dec. 2016	PROJECT NO: 104-54-L-25
FIELD CREW: C.L., K.M.	SHEET 1 of 1 DRAWING NO: Zamperini 1H BHL-MOD AOR



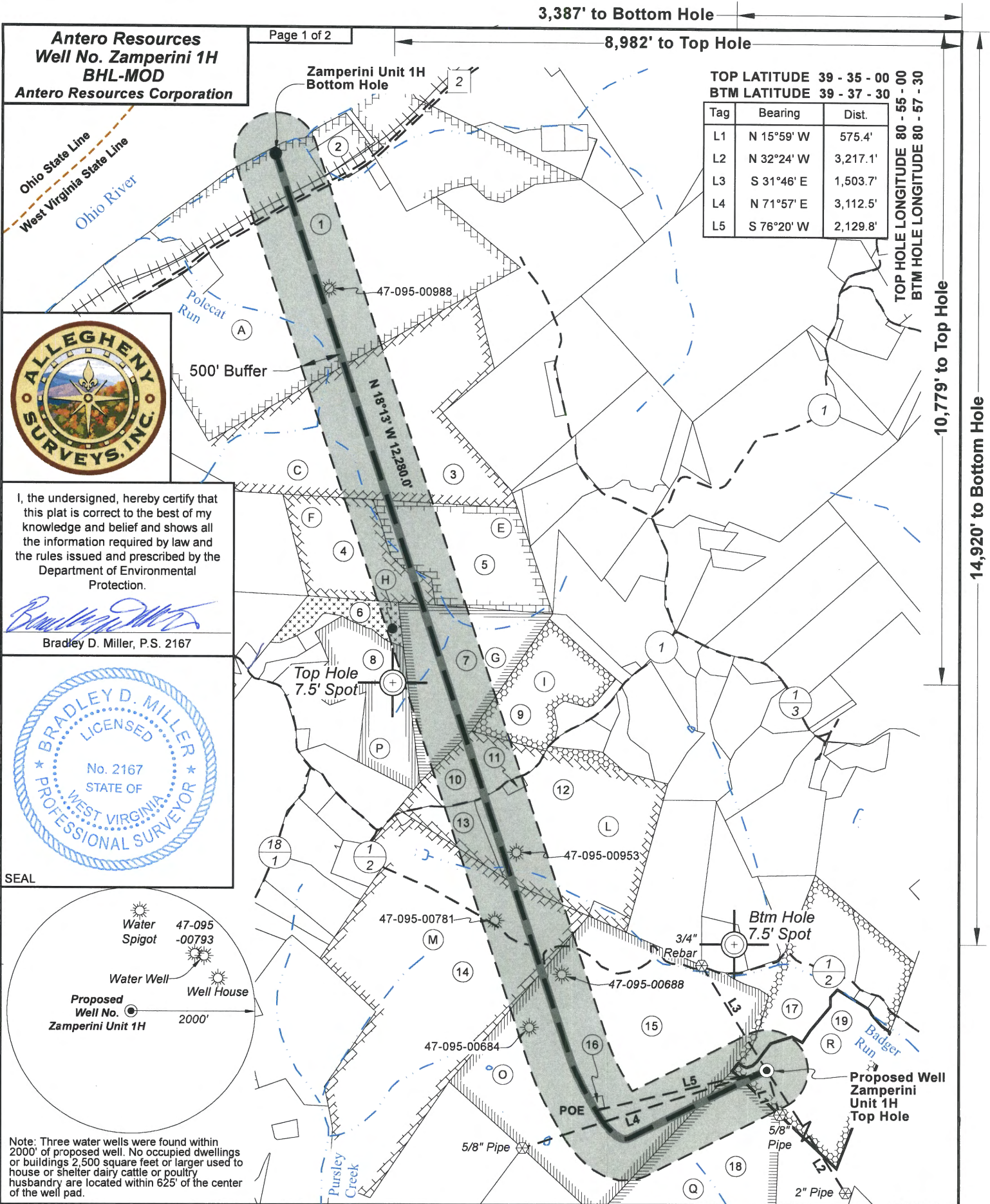
Scale: 1 inch = 1500 feet

12/12/2025

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
4709500684	STARKEY CLAIR	3	LIPPIZAN PETROLEUM INC	EMES JIM PET	3,404	2878 - 2898		Berea, Weir, Alexander
4709500688	STARKEY CLAIR	2	LIPPIZAN PETROLEUM INC	EMES JIM PET	3,012			Berea, Weir, Alexander
4709500781	JOHNSON WILLIAM K	1	LIPPIZAN PETROLEUM INC	EMES JIM PET	2,989	2831 - 2884	Gordon	Berea, Weir, Alexander
4709500953	SANDS & HERRINGTON	1	LIPPIZAN PETROLEUM INC	EMES JIM PET	2,963	2759 - 2778	Fifth	Berea, Weir, Alexander
4709500988	RUSSELL ESTATE	J-653	RUSSELL ESTATE	ROSS & WHARTON GAS CO	5,012	2325 - 4200	Udev, Lower Huron	Berea, Weir, Alexander

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FILE NO: 104-54-L-25	<b>STATE OF WEST VIRGINIA</b> DEPARTMENT OF ENVIRONMENTAL PROTECTION <b>OIL AND GAS DIVISION</b>	DATE: September 17 20 25
DRAWING NO: Zamperini Unit 1H Well Plat		OPERATOR'S WELL NO. Zamperini Unit 1H
SCALE: 1" = 1500'		API WELL NO
MINIMUM DEGREE OF ACCURACY: Submeter		47 - 095 - 02951 STATE COUNTY PERMIT
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV		
WELL TYPE: <input type="checkbox"/> OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL (IF GAS) PRODUCTION: <input type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input checked="" type="checkbox"/> SHALLOW		
LOCATION: ELEVATION: As-Built 1,036' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Paden City		
DISTRICT: Lincoln COUNTY: Tyler		
SURFACE OWNER: Antero Resources Corp ACREAGE: 52.51 12/12/2025		
ROYALTY OWNER: Raymond B. Heintzman & Eva J. Heintzman LEASE NO: ACREAGE: 52.51		
PROPOSED WORK: <input type="checkbox"/> DRILL <input type="checkbox"/> CONVERT <input checked="" type="checkbox"/> DRILL DEEPER <input checked="" type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input checked="" type="checkbox"/> OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL-MOD 6,700' TVD		
<input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 22,000' MD		
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Conrad Baston		
ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oaks Blvd. Denver, CO 80202 Bridgeport, WV 26330		

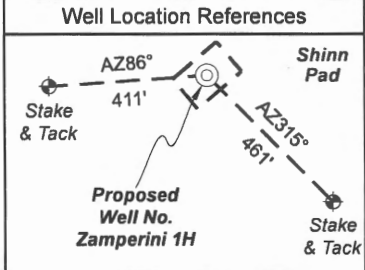


Antero Resources  
Well No. Zamperini 1H  
BHL-MOD  
Antero Resources Corporation

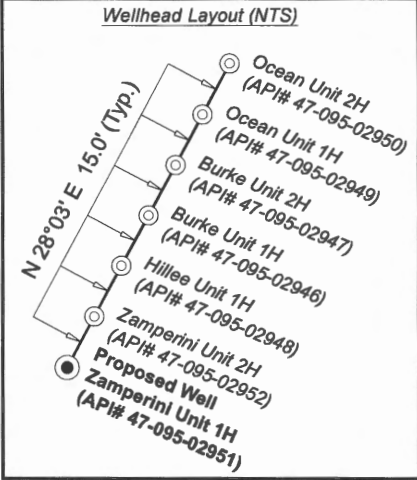


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Well Location References



Wellhead Layout (NTS)



Legend

- Proposed gas well
- Well Reference, as noted
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Existing road
- Surface boundary (approx.)
- State line (approx.)

Notes

West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.

Well No. Zamperini Unit 1H Top Hole coordinates are  
N: 387,087.36'      Latitude: 39°33'13.47"  
E: 1,591,579.91'      Longitude: 80°56'54.67"

Bottom Hole coordinates are  
N: 398,221.73'      Latitude: 39°35'02.54"  
E: 1,585,605.61'      Longitude: 80°58'13.26"

UTM Zone 17, NAD 1983

Top Hole Coordinates      Bottom Hole Coordinates  
N: 4,378,238.459m      N: 4,381,600.184m  
E: 504,437.560m      E: 502,560.907m

Plat orientation and corner and well references are based upon the grid north meridian.

Well location references are based upon the magnetic meridian.

FILE NO: 104-54-L-25

DRAWING NO: Zamperini Unit 1H Well Plat

SCALE: 1" = 1500'

MINIMUM DEGREE OF ACCURACY:  
Submeter

PROVEN SOURCE OF ELEVATION:  
WVDOT, Harrisville, WV

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

DATE: September 17 20 25

OPERATOR'S WELL NO. Zamperini Unit 1H

API WELL NO

47 - 095 - 02951

STATE COUNTY PERMIT

WELL TYPE: ☐ OIL    ☒ GAS    ☐ LIQUID INJECTION    ☐ WASTE DISPOSAL  
(IF GAS) PRODUCTION:    ☐ STORAGE    ☐ DEEP    ☒ SHALLOW

LOCATION: ELEVATION: As-Built 1,036'    WATERSHED: Outlet Middle Island Creek    QUADRANGLE: Paden City

DISTRICT: Lincoln    COUNTY: Tyler

SURFACE OWNER: Antero Resources Corp    ACREAGE: 52.51 12/12/2025

ROYALTY OWNER: Raymond B. Heintzman & Eva J. Heintzman    LEASE NO:    ACREAGE: 52.51

PROPOSED WORK: ☐ DRILL    ☐ CONVERT    ☒ DRILL DEEPER    ☒ FRACTURE OR STIMULATE    ☐ PLUG OFF OLD FORMATION

☐ PERFORATE NEW FORMATION    ☒ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL-MOD 6,700' TVD

☐ PLUG AND ABANDON    ☐ CLEAN OUT AND REPLUG    TARGET FORMATION: Marcellus Shale    ESTIMATED DEPTH: 22,000' MD

WELL OPERATOR: Antero Resources Corporation    DESIGNATED AGENT: Conrad Baston

ADDRESS: 1615 Wynkoop Street    ADDRESS: 535 White Oaks Blvd.

Denver, CO 80202    Bridgeport, WV 26330



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>R: Raymond B. &amp; Eva J. Heintzman Lease</u></b>			
Raymond B. & Eva J. Heintzman	McCombs Conrad & Barrett	1/8	207/136
McCombs Conrad & Barrett	Appalachian Exploration & Development, Inc	Assignment	207/487
Appalachian Exploration & Development, Inc	The Carter-Jones Lumber Company	Assignment	233/563
The Carter-Jones Lumber Company	Applied Mechanics Corporation	Assignment	258/132
Applied Mechanics Corporation	Triad Hunter, LLC	Assignment	385/566
Triad Hunter, LLC	Antero Resources Corporation	Assignment	496/776
<b><u>Q: Virginia A. Nalley Lease</u></b>			
Virginia A. Nalley	SEP Appalachia, LLC	1/8+	315/758
SEP Appalachia, LLC	Antero Resources Corporation	Agreement	328/598
<b><u>O: Nevin Porter, et al Lease</u></b>			
Nevin Porter, et al	Antero Resources Corporation	1/8+	464/467
<b><u>M: William K. Johnson &amp; Janet N. Johnson, his wife Lease</u></b>			
William K. Johnson & Janet N. Johnson, his wife	John Richmond	1/8	220/459
John Richmond	The Jim Emes Petroleum Company	Assignment	230/507
The Jim Emes Petroleum Company	James J. Harkins	Assignment	234/384
James J. Harkins	Robert Matthey	Assignment	280/521
Robert Matthey	Bald Eagle Oil & Gas, Inc	Assignment	302/109
Bald Eagle Oil & Gas, Inc	Sun Valley Oil and Gas, LLC	Assignment	390/663
Sun Valley Oil and Gas, LLC	Antero Resources Appalachian Corporation	Assignment	393/750
Antero Resources Appalachian Corporation	Antero Resources Corporation	Assignment	557/430
<b><u>L: Waco Oil &amp; Gas Co., Inc Lease</u></b>			
Waco Oil & Gas Co., Inc	Antero Resources Corporation	1/8+	317/312
<b><u>G: Happy Endings, LLC Lease</u></b>			
Happy Endings, LLC	Antero Resources Corporation	1/8+	147/756
<b><u>F: J&amp;N Management Enterprises, LLC Lease</u></b>			
J&N Management Enterprises, LLC	EQT Production Company	1/8+	364/729
EQT Production Company	Antero Resources Corporation	Agreement	Permission to Permit*
<b><u>E: Greenbrier Royalty Fund II, LLC Lease</u></b>			
Greenbrier Royalty Fund II, LLC	SEP Appalachia LLC	1/8+	326/40
SEP Appalachia LLC	Antero Resources Corporation	Agreement	375/110
<b><u>C: Sara Anetsberger Lease</u></b>			
Sara Anetsberger	Antero Resources Corporation	1/8+	622/666

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**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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- (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
<u>A: David E. Bowyer Lease</u>	David E. Bowyer	Antero Resources Corporation	1/8+	622/327

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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



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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
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**\*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

\*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.

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