



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

Friday, August 29, 2025
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for Quay Unit 1H
47-103-03737-00-00

Lateral Extension

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 blue ink, appearing to read "James A. Martin", is written over a faint, larger signature.

James A. Martin
Chief

Operator's Well Number: Quay Unit 1H
Farm Name: Dallison Lumber Company Inc.
U.S. WELL NUMBER: 47-103-03737-00-00
Horizontal 6A New Drill
Date Modification Issued: 08/29/2025

Promoting a healthy environment.

08/29/2025

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

1) Well Operator: Antero Resources Corporation 494507062 103 - Wetzel Green Pine Grove 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Quay Unit 1H MOD Well Pad Name: Galmish Pad

3) Farm Name/Surface Owner: Dallison Lumber Company Inc. Public Road Access: McKimmie Ridge Road

4) Elevation, current ground: As-Built 1160' 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 Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7600' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7600' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20400' MD

11) Proposed Horizontal Leg Length: 11092' *Open to modification at a later date

12) Approximate Fresh Water Strata Depths: 45', 130'

13) Method to Determine Fresh Water Depths: 47103025550000 Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 1961'

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: _____

CK #4044240
#7500⁰⁸
8/21/2025

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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	J-55	94#	100'	100' ✓	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300'	300' ✓	CTS, 313 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	3200'	3200' ✓	CTS, 1303 Cu. Ft. ✓
Intermediate							
Production	5-1/2"	New	P110-ICV	23#	20400'	20400' ✓	CTS, 4213 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"	0.375"	2250	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"	14,360	2500 ✓	Class G/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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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill a new horizontal shallow well into the Marcellus Shale.

*Antero will be air drilling the fresh water string which makes it difficult to determine when fresh water is encountered. Therefore, we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

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): 64.40 acres

22) Area to be disturbed for well pad only, less access road (acres): 17.53 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 G/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.

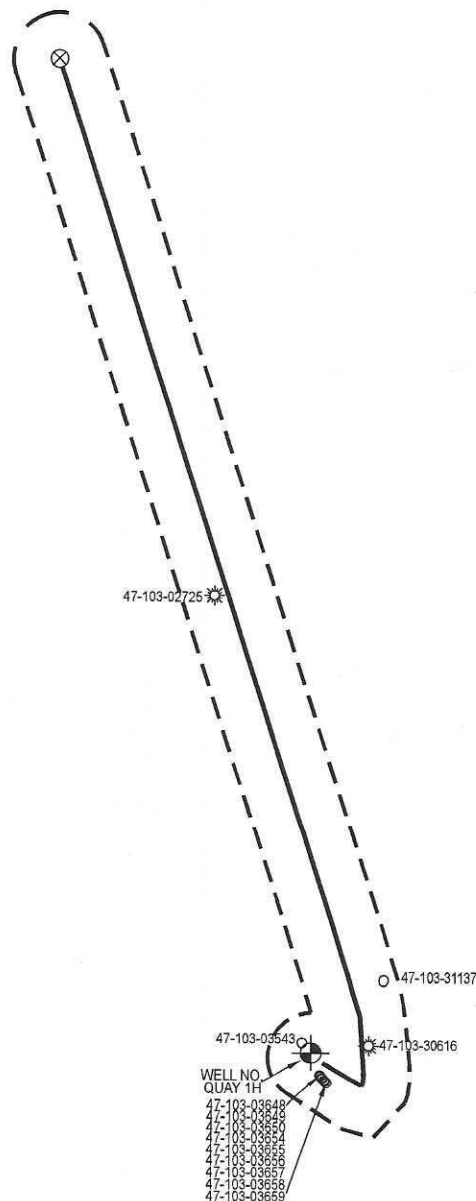
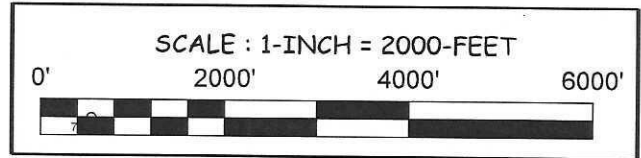
Production: circulate with 14 lb/gal NaCl mud, trip to bottom, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill,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

*Note: Attach additional sheets as needed.

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47103036480000	Pine Unit	1H	ANTERO RESOURCES CORP		22,384	7463 - 22294	Marcellus	
47103036490000	Pine Unit	2H	ANTERO RESOURCES CORP		21,913	7376 - 21834	Marcellus	
47103036500000	Walshin 1H	1H	ANTERO RESOURCES CORP		23,312	7701 - 23223	Marcellus	
47103036540000	Harlan Unit	1H	ANTERO RESOURCES CORP		22,565	7384 - 22485	Marcellus	
47103036550000	Harlan Unit	2H	ANTERO RESOURCES CORP		25,170	7571 - 25081	Marcellus	
			WEST VIRGINIA LAND	WEST VIRGINIA LAND	1,460			
47103036570000	Cobb Unit	1H	ANTERO RESOURCES CORP		26,908	8049 - 26819	Marcellus	Weir, Benson, Alexander
47103036580000	Shenango Unit	1H	ANTERO RESOURCES CORP		25,182	7939 - 25102	Marcellus	
47103036590000	Teocalli Unit	1H	ANTERO RESOURCES CORP		25,393	7647 - 25313	Marcellus	
47103035430000	Galmish	5V	ANTERO RESOURCES CORP					
47103306160000	J W HAINES 1	4850	UNKNOWN	UNKNOWN	2,891		Gordon Stray, Gordon	Weir, Benson, Alexander
47103311370000	ISAAC SMITH	6520	UNKNOWN	UNKNOWN				
47103027250000	ROBINSON JUNIOR L	W-1634	HAUGHT ENERGY CORP	HAUGHT ENERGY CORP	3,410	3116-3160	Gordon	Weir, Benson, Alexander

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 AUG 25 2025

GALMISH PAD ANTERO RESOURCES CORPORATION



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JOB #: 25-013WA

FILE: QUAY1HAOR.DWG

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

DATE: 06/12/25

DRAWN BY: T.B.S.

08/29/2025

LATITUDE 39°35'00"		8,268'	
LATITUDE 39°37'30"		11,233' TO BOTTOM HOLE	
Antero Resources Corporation Well No. Quay #1H		NOTES: WELL 1H TOP HOLE INFORMATION: N: 394,856ft E: 1,662,893ft LAT: 39°34'40.61" LON: 80°41'45.60" BOTTOM HOLE INFORMATION: N: 405,662ft E: 1,660,068ft LAT: 39°36'27.04" LON: 80°42'23.53" 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.	
LESSOR		(NAD) 83 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 4,380,968m E: 526,124m BOTTOM HOLE INFORMATION: N: 4,384,246m E: 525,209m	
A	NELDA JEAN KOCHER GLOVER	(NAD) 27 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 14,372,511ft E: 1,726,076ft POINT OF ENTRY INFORMATION: N: 14,372,748ft E: 1,726,584ft BOTTOM HOLE INFORMATION: N: 14,383,265ft E: 1,723,073ft	
B	WILLIAM W. FLETCHER, SR.		
C	WILLIAM W. FLETCHER, SR.		
D	WILLIAM W. FLETCHER, SR.		
E	JOHN PHILLIP SPRINGER AND EVA J. SPRINGER		
F	FRANCIS DAVID SPRINGER		
G	DEAN H. BUCHER		
J	JEFFREY L. MASON		
K	JUNIOR L. ROBINSON		
L	JUNIOR L. ROBINSON		
M	SHIBEN ESTATES, INC.		
N	EDDIE D. DALLISON		
O	SHARON S. FRANCIS		
P	RONALD L. HALL AND R. KEVIN HALL		
Q	BOUNTY MINERALS, LLC.		
R	BOUNTY MINERALS, LLC.		
S	BRC APPALACHIAN MINERALS I, LLC.		
T	ROBERT BARRY MYERS, JR.		
U	ROBERT BARRY MYERS, JR.		
V	FREEDA MARIE BROWN		
W	AUNIX ENERGY, LLC		
Green District - Wetzel County			
4-24 George Mason, Et Al			
4-36 George Mason, Et Al			
4-37 Harrison Cemetery			
4-38 William Fletcher			
4-49 William Fletcher			
4-56 William Fletcher			
4-47 William Fletcher			
9-9 James Welch, Et Al			
9-10 Howard & Clara Bucher			
9-11 Wilma Morris			
9-23 Karen Mason			
9-24 Wilma Morris			
9-35 Trixie Robinson			
9-36 Trixie Robinson			
9-46 John Haught			
9-47 Dallison Lumber Company Inc.			
9-48 Dallison Lumber Company Inc.			
9-49 Ronald & Kevin Hall			
9-58 Dallison Lumber Company Inc.			
14-4 Harry & Sharon Burton			
14-8 James C. Adams Et Al			
14-9 Dallison Lumber Company Inc.			
14-10 Sandra Fortney			
14-10.1 Sandra Fortney			
14-12 Freda Brown			
REFERENCES			
1" = 300'			
STAKE/ NAIL, SET			
WELL NO. 1H			
ONE WATER WELL WAS LOCATED WITHIN 2000' OF THE CENTER OF PAD			
31137			
3543			
WELL NO. 1H			
30613			
30616			
30591			
3648-3650			
3654-3659			
72596			
THOMAS SUMMERS			
LICENSED			
No. 2109			
STATE OF WEST VIRGINIA			
PROFESSIONAL SURVEYOR			
PAD LAYOUT NOT TO SCALE			
ANGULO UNIT 1H			
CRAFTSMAN UNIT 1H			
SPRINGER UNIT 1H			
BUCHER UNIT 1H			
QUAY UNIT 1H			
QUAY UNIT 2H			
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.			
STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS			
WILLOW LAND SURVEYING PLLC 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415			
JOB # 25-013WA		LEGEND	
DRAWING # QUAY1H		Surface Owner Boundary Lines +/-	
SCALE 1" = 2000'		Adjoining Surface Tracts +/-	
MINIMUM DEGREE OF ACCURACY SUBMETER		Found monument, as noted	
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS		THOMAS SUMMERS P.S. 2109	
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS		DATE 6/12/25	
		OPERATOR'S WELL# QUAY UNIT #1H	
		47 - 103 - 03737	
		STATE COUNTY PERMIT	
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL			
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X			
LOCATION: ELEVATION AS BUILT - 1,160.0' WATERSHED FISHING CREEK			
QUADRANGLE PINE GROVE 7.5' DISTRICT GREEN COUNTY WETZEL			
SURFACE OWNER DALLISON LUMBER COMPANY INC. ACREAGE 25 ACRES +/-			
OIL & GAS ROYALTY OWNER ROBERT BARRY MYERS, JR. LEASE ACREAGE 25 ACRES +/-			
PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL FRACTURE OR STIMULATE X			
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL			
(SPECIFY) MOD-BHL PLUG & ABANDON CLEAN OUT & REPLUG			
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,600' TVD 20,400' MD			
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CONRAD BASTON			
ADDRESS 1615 WYNKOOP ST. ADDRESS 535 WHITE OAK BLVD.			
FORM WW-6 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
<u>T: Robert Barry Myers, Jr. Lease</u> Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	300A/0634
<u>W: Aunix Energy, LLC Lease</u> Aunix Energy, LLC	Antero Resources Corporation	1/8+	305A/0014
<u>U: Robert Barry Myers, Jr. Lease</u> Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	304A/0413
<u>T: Robert Barry Myers, Jr. Lease</u> Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	300A/0634
<u>S: BRC Appalachian Minerals I, LLC Lease</u> BRC Appalachian Minerals I, LLC BRC Working Interest Company Chesapeake Appalachia, LLC SWN Production Company Antero Exchange Properties, LLC	BRC Working Interest Company Chesapeake Appalachia, LLC SWN Production Company Antero Exchange Properties, LLC Antero Resources Corporation	1/8 Assignment Assignment Assignment Merge	102A/0505 103A/0470 157A/0540 177A/0533 0113/0311
<u>R: Bounty Minerals, LLC Lease</u> Bounty Minerals, LLC	Antero Resources Corporation	1/8+	288A/0110
<u>Q: Bounty Minerals, LLC Lease</u> Bounty Minerals, LLC	Antero Resources Corporation	1/8+	293A/0008
<u>O: Sharon S. Francis Lease</u> Sharon S. Francis	Antero Resources Corporation	1/8+	391A/0484
<u>N: Eddie D. Dallison Lease</u> Eddie D. Dallison	Antero Resources Corporation	1/8+	307A/0447
<u>K: Junior L. Robinson Lease</u> 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/0333 111A/0574 377A/0896
<u>J: Jeffrey L. Mason Lease</u> Jeffrey L. Mason	Antero Resources Corporation	1/8+	277A/0001
<u>G: Dean H. Bucher Lease</u> Dean H. Bucher	Antero Resources Corporation	1/8+	262A/0192
<u>E: John Phillip Springer and Eva J. Springer Lease</u> John Phillip Springer and Eva J. Springer	Antero Resources Corporation	1/8+	301A/0638
<u>B: William W. Fletcher, Sr. Lease</u> William W. Fletcher, Sr.	Antero Resources Corporation	1/8+	294A/0681

08/29/2025

**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
<u>A: Nelda Jean Kocher</u> <u>Glover Lease</u>	Nelda Jean Kocher Glover Pikewood Energy Corporation	Pikewood Energy Corporation Antero Resources Corporation	1/8 Assignment	289A/0524 307A/0457

*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 the 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

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

August 22, 2025

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

Mr. Brewer:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for approved well on the existing Galmish Pad: Quay Unit 1H (47-103-03737) and Quay Unit 2H (47-103-03740) Expedited.

Attached you will find the following:

- AOR
- Revised Form WW-6B
- Revised Form WW-6A1
- Revised Mylar Plat

If you have any questions please feel free to contact me at (303) 357-6959.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "S Gaspar", written over a horizontal line.

Stefan Gaspar
Permitting Agent
Antero Resources Corporation

Enclosures

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