

## 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

### Monday, August 25, 2025 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re:

Permit Modification Approval for Bucher Unit 1H

47-103-03735-00-00

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

James A. Martin

Chief

Operator's Well Number: Bucher Unit 1H

Farm Name: Dallison Lumber Company Inc.

U.S. WELL NUMBER: 47-103-03735-00-00

Horizontal 6A New Drill

Date Modification Issued: 8/25/2025

Promoting a healthy environment.

API NO. 47-103	_ 03735	
OPERATOR WE	LL NO.	Bucher Unit 1H MOD
Well Pad Nam	e: Galmis	sh Pad

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

1) Well Operator:	Antero Res	sources Corp	or <b>ai</b> 49450	7062	103 - Wetze	Green	Pine Grove 7.5'
			Opera	tor ID	County	District	Quadrangle
2) Operator's We	ll Number: Bu	ucher Unit 1H	MOD	Well Pac	l Name: Galmi	sh Pad	
3) Farm Name/Su	ırface Owner:	Dallison Lumber C	ompany Inc. p	ublic Roa	d Access: Mck	(immie Ri	dge Road
4) Elevation, curr	ent ground:	As-Built 1160'	Elevation,	proposed	post-construction	on:	
5) Well Type (a	a) Gas X	Oil		Unde	erground Storag	ge	
C	ther				<u>.</u>		
(1	,	allow X		Deep			
		rizontal X					
6) Existing Pad: Y					_		
7) Proposed Target Marcellus Shale		• • •	-		and Expected Properties at the Expected Pressure- 2	. ,	
8) Proposed Total	Vertical Dep	th: 7600' TV	D				
9) Formation at T	otal Vertical I	Depth: Marce	ellus				
10) Proposed Total	al Measured D	epth: 28900	) MD				
11) Proposed Hor	rizontal Leg Le	ength: 19842	2' *Open to	modifica	ation at a later	date	
12) Approximate	Fresh Water S	Strata Depths:	<u>45', 13</u>	0'			
13) Method to De	termine Fresh	Water Depths	47103025550	0000 Offset wel	l records. Depths have	been adjusted a	according to surface elevations
14) Approximate	Saltwater Dep	oths: 1961'			<del></del>		
15) Approximate	Coal Seam De	epths: N/A					
16) Approximate	Depth to Poss	ible Void (coa	l mine, karst	, other):	None Anticipat	ed	
17) Does Propose	d well location	n contain coal	seams				
directly overlying	or adjacent to	an active min	e? Ye	s	No	X	
(a) If Yes, provi	de Mine Info:	Name:					
		Depth:					
		Seam:					
05/15	<b>0</b>	Owner: _					
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API NO. 47- <sup>103</sup> - <sup>03735</sup>	٩	ΡI	NO.	47-	103	_	03735
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OPERATOR WELL NO. Bucher Unit 1H MOD
Well Pad Name: Galmish Pad

18) <u>CASING AND TUBING PROGRAM</u>

ТҮРЕ	Size (in)	New or Used	<u>Grade</u>	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-ICY	23#	28900'	28900'	CTS, 6355 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			<u> </u>
Liners							

ТҮРЕ	Size (in)	Wellbore Diameter (in)	<u>Wall</u> <u>Thickness</u> (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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API NO. 47- 103 - 03735

OPERATOR WELL NO. Bucher Unit 1H MOD

Well Pad Name: Galmish Pad

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 RECEIVED
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- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 64.40 acres W Department of
- 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:

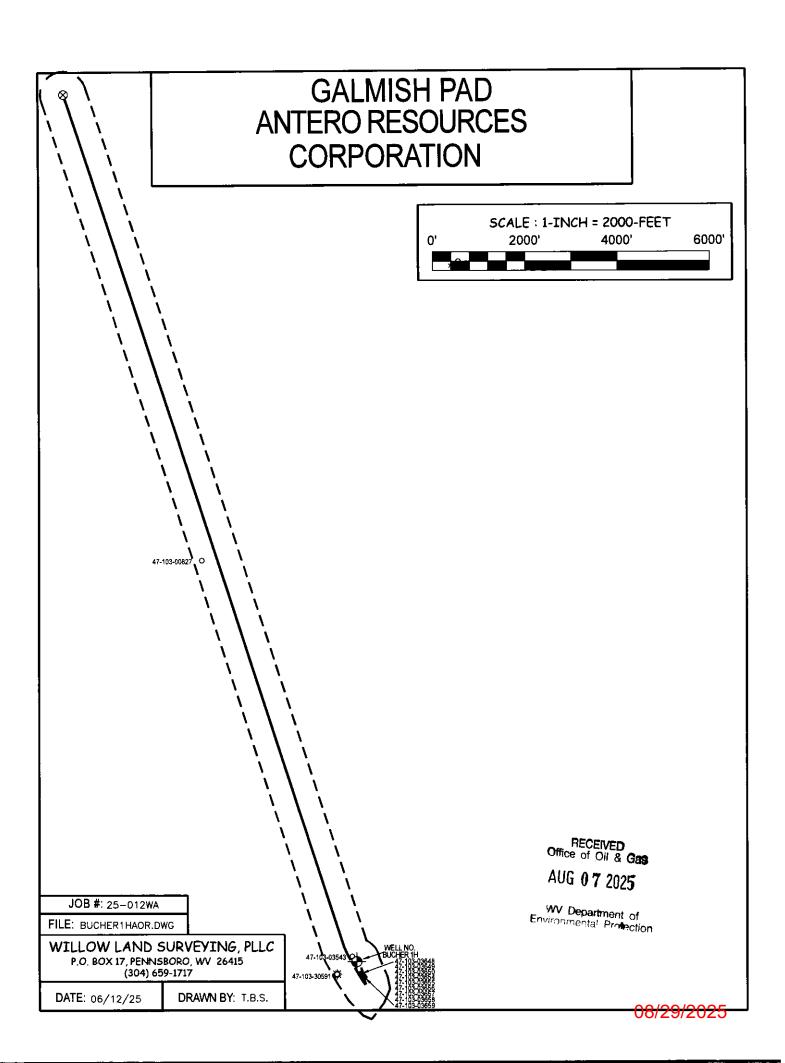
Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

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 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.



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	ELECTRIC CONTRACTOR CONTRACTOR	21,913	7376 - 21834	Marcellus	Control of the Contro
47103036500000	Walshin 1H	1H	ANTERO RESOURCES CORP	With the second of the second	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	
47103036560000	L S LEEZER 1	8177	WEST VIRGINIA LAND	WEST VIRGINIA LAND	1,460			Weir, Benson, Alexander
47103036570000	Cobb Unit	1H	ANTERO RESOURCES CORP		26,908	8049 - 26819	Marcellus	
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					
47103305910000	C E GRIM 1	5235	UNKNOWN	UNKNOWN	2,896		Big Injun, Gordon	Weir, Benson, Alexander
47103008270000	JOHN SPRINGER	1294	CARNEGIE NATURAL GAS	CARNEGIE NATURAL GAS	2,980			Thus ship is the recent the best of the be

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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)

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
AC: Robert Barry Myers, Jr. Lease Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	300A/0634
AB: Bounty Minerals, LLC Lease Bounty Minerals, LLC	Antero Resources Corporation	1/8+	293A/0008
Z: Eddie D. Dallison Lease Eddie D. Dallison	Antero Resources Corporation	1/8+	307A/0447
Y: Junior L. Robinson Lease Junior L. Robinson Mountain Link Associates, Inc. The Whittle Corporation	Mountain Link Associates, Inc. The Whittle Corporation Antero Resources Corporation	1/8 Assignment <b>Assignment</b>	101A/0333 111A/0574 <b>377A/0896</b>
<u>U: Jeffrey L. Mason Lease</u> Jeffrey L. Mason	Antero Resources Corporation	1/8+	277A/0001
V: Meghan A. Kalinowski Lease Meghan A. Kalinowski	Antero Resources Corporation	1/8+	294A/0026
T: Dean H. Bucher Lease Dean H. Bucher	Antero Resources Corporation	Office of Oil & Gas  AUG 07 2025	262A/0192
S: John Phillip Springer and Eva J. Springer Lease John Phillip Springer and Eva J. Springer	Antero Resources Corporation	WAY Department of 1/8+	301A/0638
R: William W. Fletcher, Sr. Lease William W. Fletcher, Sr.	Antero Resources Corporation	Environmental Profection  1/8+	294A/0681
Q: Nelda Jean Kocher Glover Lease Nelda Jean Kocher Glover Pikewood Energy Corporation	Pikewood Energy Corporation Antero Resources Corporation	1/8 Assignment	289A/0524 <b>307A/0457</b>
P: The 5 K's Future, LLC Lease The 5 K's Future, LLC	Antero Resources Corporation	1/8+	327A/0141
N: Master Mineral Holdings II, LP Lease Master Mineral Holdings II, LP SEP Appalachia, LLC	SEP Appalachia, LLC Antero Resources Corporation	1/8+ Agreement	385A/0229 <b>418A/0375</b>
M: Redstone Resources, LLC Lease Redstone Resources, LLC	Antero Resources Corporation	1/8+	219A/0455
L: Master Mineral Holdings II, LP Lease Master Mineral Holdings II, LP SEP Appalachia, LLC	SEP Appalachia, LLC Antero Resources Corporation	1/8+ Agreement	385A/0233 <b>418A/0375</b>
J: George Henry Mason Lease George Henry Mason	Antero Resources Corporation	1/8+	<sup>285A/0598</sup> 08/29/2025

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
H: Jessie A. Thompson Lease Jessie A. Thompson	Antero Resources Corporation	1/8+	294A/0394
<u>D: Stone Hill Minerals Holdings, LLC Lease</u> Stone Hill Minerals Holdings, LLC TH Exploration, LLC	TH Exploration, LLC Antero Resources Corporation	1/8 Assignment	272A/0939 <b>318A/0035</b>
C: Stone Hill Minerals Holdings, LLC Lease Stone Hill Minerals Holdings, LLC TH Exploration, LLC	TH Exploration, LLC Antero Resources Corporation	1/8 Assignment	289A/0450 <b>318A/0035</b>
E: Brady Gene Howell Lease Brady Gene Howell	Antero Resources Corporation	1/8+	378A/0540
C: Stone Hill Minerals Holdings, LLC Lease Stone Hill Minerals Holdings, LLC TH Exploration, LLC	TH Exploration, LLC Antero Resources Corporation	1/8 Assignment	289A/0450 <b>318A/0035</b>
A; Lloyd Dennis and Susan Dennis Lease Lloyd Dennis and Susan Dennis	Antero Resources Corporation	1/8+	360A/0583

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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.

<sup>\*</sup>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.

<sup>\*</sup>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.

WW-6A1 (5/13)

### 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
B: James A. Greathouse and Donna L. Greathouse Lease				
	James A. Greathouse and Donna L. Greathouse Stone Energy Corporation EQT Production Company	Stone Energy Corporation EQT Production Company Antero Resources Corporation	1/8 Assignment <b>Assignment</b>	159A/0408 183A/0305 <b>230A/0801</b>

<sup>\*</sup>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 Vinginia 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

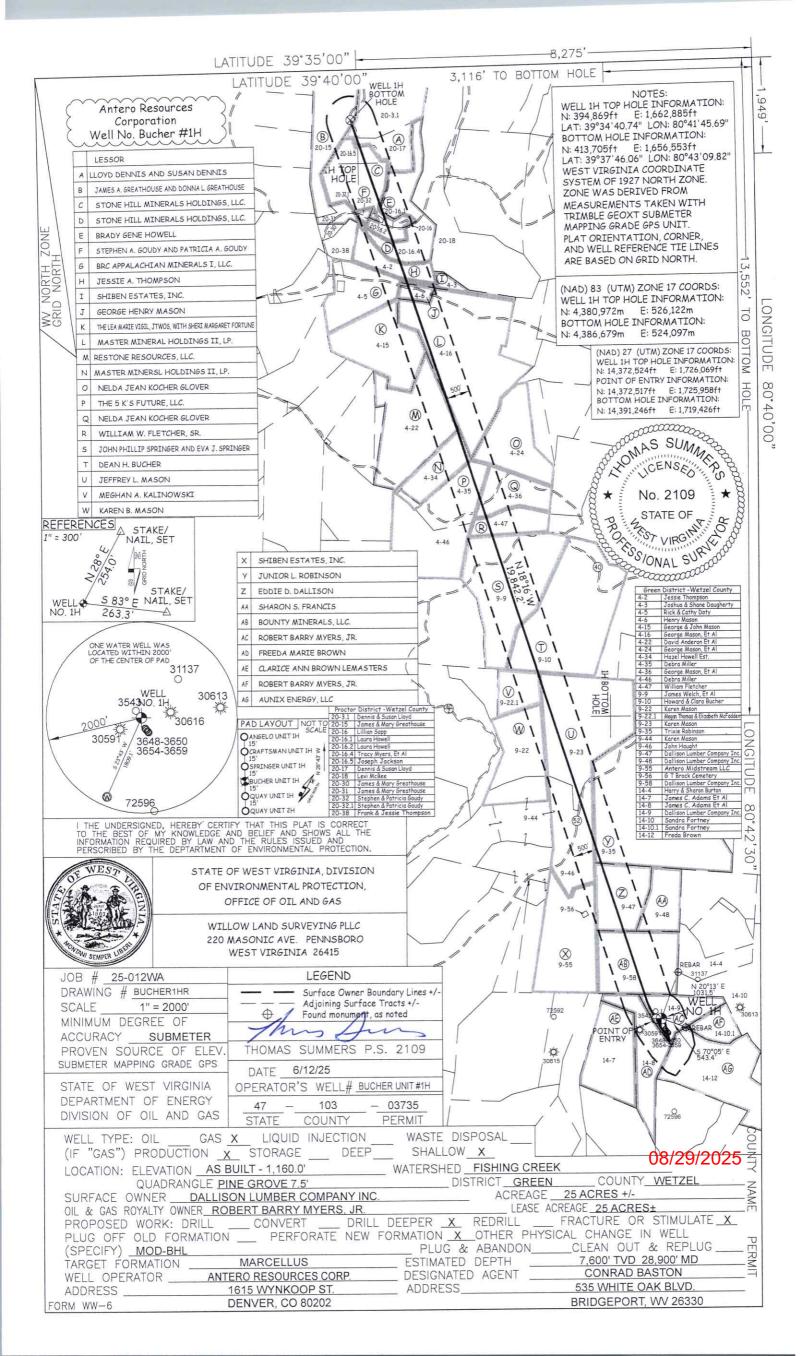
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

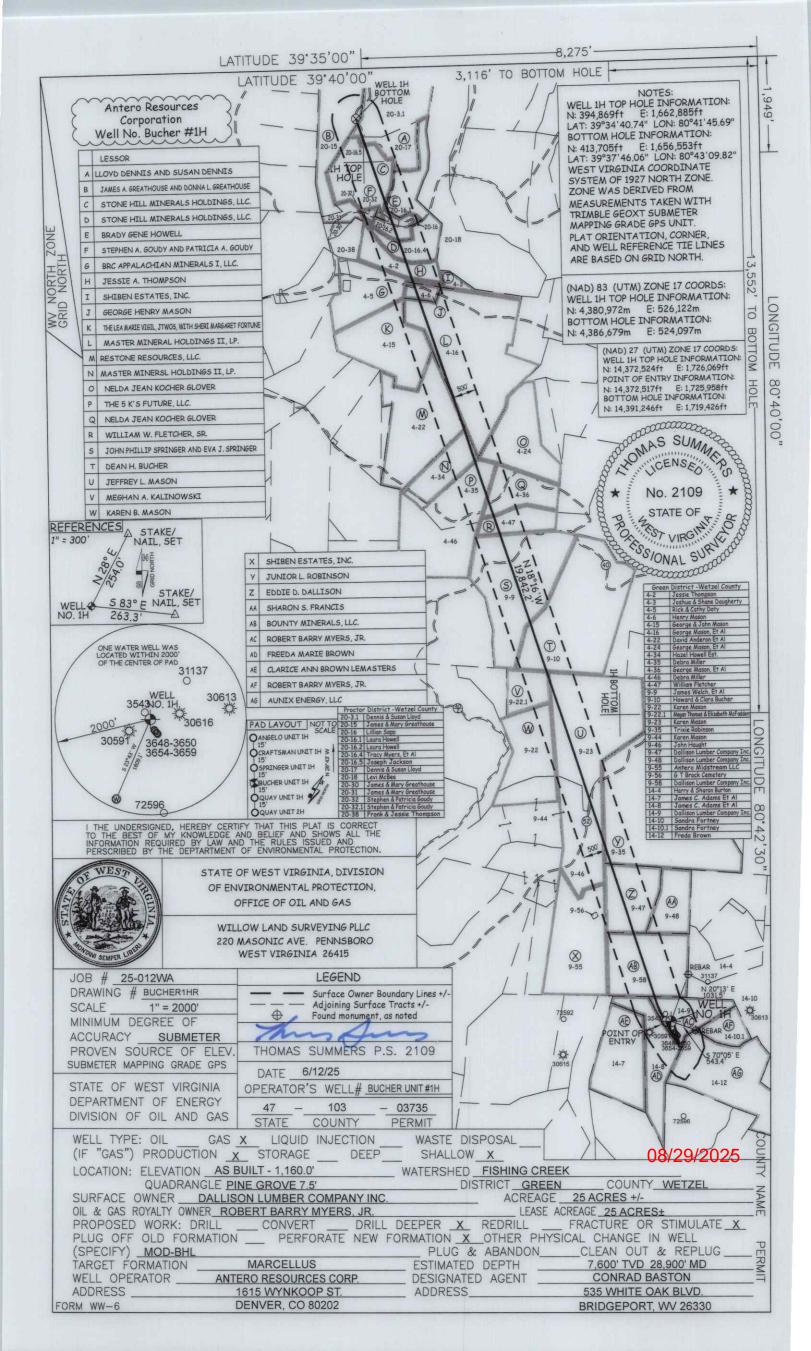
- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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.

	■ By:	Antero Resources Corporation		
DECEIVED 1		Tim Rady		
Office of Oil & Gas	Its:	Senior Vice President of Land		
AUG 0 7 2025		,		
WV Department of Environmental Projection				

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August 6, 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 well on the existing Galmish Pad: Bucher Unit 1H (47-103-03735), Craftsman Unit 1H (47-103-03736), and Springer Unit 1H (47-103-03738) Expedited.

Attached you will find the following:

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

# 4043919 8/4/25 \$7,500.00

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

Thank you in advance for your consideration.

Sincerely,

Stefan Gaspar Permitting Agent

Enclosures

Antero Resources Corporation

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