

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 Springer Unit 1H

47-103-03738-00-00

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

Operator's Well Number: Springer Unit 1H

Farm Name: Dallison Lumber Company Inc

U.S. WELL NUMBER: 47-103-03738-00-00

Horizontal 6A New Drill

Date Modification Issued: 8/25/2025

Promoting a healthy environment.

API NO. 47- 103 - 03738	
OPERATOR WELL NO.	Springer Unit 1H MOD
Mall Dad Name: Galmis	th Pad

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

1) Well Operato	or: Antero Res	sources Corpo	494507062	103 - Wetze	Green	Pine Grove 7.5'
			Operator ID	County	District	Quadrangle
2) Operator's W	ell Number: Sp	oringer Unit 1H	MOD Well Pad	Name: Galmi	sh Pad	
3) Farm Name/S	Surface Owner:	Dallison Lumber Co	mpany Inc. Public Roa	d Access: Mck	(immie Ric	dge Road
4) Elevation, cu	rrent ground:	As-Built 1160'	Elevation, proposed	post-construction	on:	
	(a) Gas X	Oil		erground Storag		
	Other		 		<u> </u>	· · · · · · · · · · · · · · · · · · ·
	(b)If Gas Sha	allow X	Deep			
	Но	rizontal X				
6) Existing Pad:	Yes or No Ye	s				
	-		ticipated Thickness a kness- 55 feet, Associa	•	. ,	
8) Proposed Tot	al Vertical Dept	th: 7600' TVD)			
9) Formation at			•			
10) Proposed To	otal Measured D	epth: 29500'	MD			
11) Proposed Ho	orizontal Leg Le	ength: 19727'	*Open to modifica	ation at a later	date	
12) Approximat	e Fresh Water S	Strata Depths:	45', 130'			
13) Method to D	Determine Fresh	Water Depths:	47103025550000 Offset well	records. Depths have	been adjusted a	according to surface elevations.
14) Approximat	e Saltwater Dep	oths: 1961'				
15) Approximat	e Coal Seam De	epths: N/A				
16) Approximat	e Depth to Poss	ible Void (coal	mine, karst, other): _	None Anticipat	ed	
17) Does Propos directly overlyin				No	<u>x</u>	
(a) If Yes, prov	vide Mine Info:	Name:				
		Depth:				
		Seam:				
	RECEIVED Office of Oil &	Gæwner:				
	Office of Offi	125				
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	W Departm Environmental	Protection				
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OPERATOR WELL NO. Springer Unit 1H MOD

Well Pad Name: Galmish Pad

18)

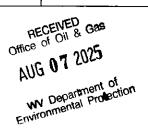
CASING AND TUBING PROGRAM

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			ļ -		-		
Production	5-1/2"	New	P110-ICY	23#	29500'	29500'	CTS, 6506 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#	/-1/-1/		
Liners				**************************************			

ТҮРЕ	Size (in)	Wellbore Diameter (in)	<u>Wall</u> <u>Thickness</u> <u>(in)</u>	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			'				10°-14.
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		ï



OPERATOR WELL NO. Springer 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
Office of Oil & Gas

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- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 64.40 acres www 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		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	
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		The same			
47103305910000	CEGRIM 1	5235	UNKNOWN	UNKNOWN	2,896		Big Injun, Gordon	Weir, Benson, Alexander
47103725900000	SARAH M ROBINSON	5136	UNKNOWN	UNKNOWN				
47103006630000	ISAAC RICHMOND 2	380	DIVERSIFIED PRODUCTION LLC	HOPE NATURAL GAS	2,747	PROPERTY OF THE PROPERTY OF TH	Big Injun	Weir, Benson, Alexander

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WV Department of Environmental Protection

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
AF: Robert Barry Myers, Jr. Lease Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	300A/0634
AB: Freeda Marie Brown Lease Freeda Marie Brown	Antero Resources Corporation	1/8+	308A/0508
AE: Clarice Ann Brown LeMasters Lease Clarice Ann Brown LeMasters	Antero Resources Corporation	1/8+	308A/0488
AF: Robert Barry Myers, Jr. Lease Robert Barry Myers, Jr.	Antero Resources Corporation	1/8+	300A/0634
AC: Chesapeake Appalachia, LLC Lease Chesapeake Appalachia, LLC SWN Production, LLC Antero Exchange Properties, LLC	SWN Production, LLC Antero Exchange Properties, LLC Antero Resources Corporation	RECEIVED 1/8 Assignment Office of Merger	157A/0640 177A/0533 0013/0311
AA: Bounty Minerals, LLC Lease Bounty Minerals, LLC	Antero Resources Corporation	AUG 2 1 7025	293A/0008
W: Shiben Estates, Inc. Lease Shiben Estates, Inc. EQT Production Company	EQT Production Company Antero Resources Corporation	WV Protection 1/8 Environmental Protection 1/8 Assignment	277A/0551 385A/0323
<u>V: Jeffrey L. Mason Lease</u> Jeffrey L. Mason	Antero Resources Corporation	1/8+	277A/0001
X: Mary B. Mason Lease Mary B. Mason	Antero Resources Corporation	1/8+	298A/0493
<u>U: Karen B. Mason Lease</u> Karen B. Mason	Antero Resources Corporation	1/8+	277A/0007
S: Meghan A. Kalinowski Lease Meghan A. Kalinowski	Antero Resources Corporation	1/8+	294A/0026
T: Bounty Minerals, LLC Lease Bounty Minerals, LLC	Antero Resources Corporation	1/8+	296A/0329
P: John Phillip Springer and Eva J. Springer Lease John Phillip Springer and Eva J. Springer	Antero Resources Corporation	1/8+	301A/0638
Q: The Donely O. Springer Rev. Living Trust Lease The Donely O. Springer Rev. Living Trust	Antero Resources Corporation	1/8+	302A/0286
P: John Phillip Springer and Eva J. Springer Lease John Phillip Springer and Eva J. Springer	Antero Resources Corporation	1/8+	301A/0638
N: The 5 K's Future, LLC Lease The 5 K's Future, LLC	Antero Resources Corporation	1/8+	08/29/20250141

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
M: 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 418A/0195
K: Redstone Resources, LLC Lease Redstone Resources, LLC	Antero Resources Corporation	1/8+	219A/0455
J: Lea Marie Vigil, JTWROS, With Sheri Margaret Fortune Lease Lea Marie Vigil, JTWROS, With Sheri Margaret Fortune	Antero Resources Corporation	1/8+	317A/0663
G: BRC Appalachian Minerals I, LLC Lease 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 0013/0311
F: Jessie A. Thompson Lease Jessie A. Thompson	Antero Resources Corporation	1/8+	294A/0394
H: John Osborne Furbee Lease John Osborne Furbee	Antero Resources Corporation RECEIVED Office of Oil and Gas	1/8+	357A/0767
A: James A. Greathouse and Donna L. Greathouse Lease James A. Greathouse and Donna L. Greathouse Stone Energy Corporation EQT Corporation Company	Stone Energy Corporation EQT Corporation Company Antero Resources Corporation WV Department of Environmental Protect	1/8 Assignment	159A/0408 183A/0305 230A/0801
C: Stone Hill Minerals Holdings, LLC Lease Stone Minerals Holdings, LLC Th Exploration, LLC	TH Exploration, LLC Antero Resources Corporation	1/8 Assignment	289A/0450 318A/0035

**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.

^{*}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.

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
A: James A. Greathouse and Donna L. Greathouse Lease				
	James A. Greathouse and Donna L. Greathouse Stone Energy Corporation	Stone Energy Corporation EQT Production Company	1/8 Assignment	159A/0408 183A/0305
	EQT Production Company	Antero Resources Corporation	Assignment	230A/0801

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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

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.

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RECEIVED Gas
MIG OT LUCS
WV Department of Profestion
Environing

Well Operator:	Antero Reso	Antero Resources Corporation		
By:	Tim Rady	(m) leder		
Its:	Senior Vice President of Land			

^{*}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

4043921 8/5/25 \$7,500.00

