

### 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, December 18, 2024 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for FARLEY UNIT 2H

47-017-06971-00-00

Lateral Extension/ New Leases

### 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: FARLEY UNIT 2H

Farm Name: ANTERO RESOURCES CORPORATION

U.S. WELL NUMBER: 47-017-06971-00-00

Horizontal 6A New Drill

Date Modification Issued: 12/18/2024

Promoting a healthy environment.

API NO. 47-017	- 06971	
OPERATOR W	ELL NO.	Farley Unit 2H MOD
Well Pad Nan	ne: Locke	Pad

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

1) Well Operator: Antero Res	sources Corporal 4945	07062 017 - Do	oddri Southwei Oxford 7.5'
	Oper	ator ID County	District Quadrangle
2) Operator's Well Number: Fa	arley Unit 2H MOD	Well Pad Name: L	ocke Pad
3) Farm Name/Surface Owner:	Antero Resources Corporation	Public Road Access:	Taylor Drain Road
4) Elevation, current ground:	1100.5' - AS BUILT Elevation	, proposed post-cons	truction:
5) Well Type (a) Gas X Other		Underground S	
(b)If Gas Sha	allow X	Deep	
Ho	rizontal X		
6) Existing Pad: Yes or No Yes	S		
<ol> <li>Proposed Target Formation(s Marcellus Shale: 7000' TVD, A</li> </ol>	s), Depth(s), Anticipated Thickness- 55 for	Thickness and Expect eet, Associated Press	ted Pressure(s): ure- 2850#
8) Proposed Total Vertical Dept	h: 7000' TVD		
9) Formation at Total Vertical D	Depth: Marcellus		
10) Proposed Total Measured D	epth: 23300' MD		
11) Proposed Horizontal Leg Le	ength: 13271' *Open	to modification at a	later date
12) Approximate Fresh Water S	trata Depths: 236', 2	260', 320', 326'	
<ul><li>13) Method to Determine Fresh</li><li>14) Approximate Saltwater Dep</li></ul>	1	000, 47017000980000 Offset well rec	ords. Depths have been adjusted according to surface elevations.
15) Approximate Coal Seam De			
16) Approximate Depth to Possi		t, other): None Anti	cipated
17) Does Proposed well location directly overlying or adjacent to	an active mine?	es	No X
(a) If Yes, provide Mine Info:	Name:		RECEIVED Office of Oil and Gas
	Depth:		DEC 16 2024
CK# 4037217	Seam:		
\$7500.00	Owner:		WV Department of Environmental Protection
12/5/2024			

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5 him/cin/20/2024

API	NO.	47-	017	_	06971

OPERATOR WELL NO. Farley Unit 2H MOD
Well Pad Name: Locke 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	J-55	94#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	376'	376'	CTS, 392 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2750'	2750'	CTS, 1120 Cu. Ft.
Intermediate				3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.00		3 = 1
Production	5-1/2"	New	P110-ICY	23#	23300'	23300'	CTS, 4943 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

ТҮРЕ	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	RECEIVED Office of Oil and Gas
Depths Set:	N/A	DEC 16 2024

WV Department of Environmental Protection

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Show King 12-13-24 12/20/2024

API NO. 47-017 - 06971

OPERATOR WELL NO. Farley Unit 2H MOD Well Pad Name: Locke 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

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 27.54 acres
- 22) Area to be disturbed for well pad only, less access road (acres): 13.31 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 fo**ார்க்க**் மூர்க்கு இருப்பு விக்கு விக்க

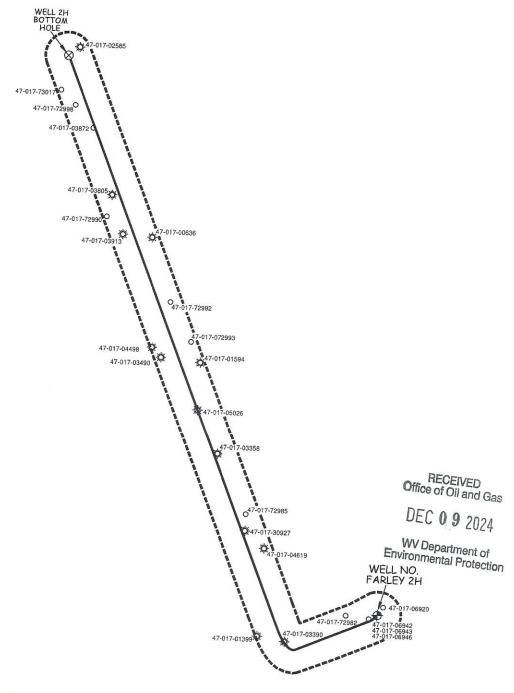
\*Note: Attach additional sheets as needed

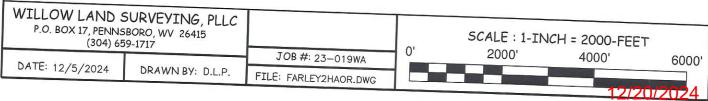
DEC 16 2024

WV Department of **Environmental Protection**  Page 3 of 3

Shem Kij 12-1312420/2024

# LOCKE PAD ANTERO RESOURCES CORPORATION





UWI (APINum) Well Name 47017069200000 LOCKE UNIT	Well Number	Operator					
47017069420000 JENKINS UNIT	5V	ANTERO RESOURCES CORP	Historical Operator	TD	Perforated Interval (shallowest, deepest)		
77017069420000 JENKINS UNIT	1H	ANTERO RESOURCES CORP	ANTERO RESOURCES CORP	THE PLANT OF THE PARTY OF	( accepts)	Perforated Formation(s)	Producible Formation(s) not perf
47017069430000 JENKINS UNIT	2H	ANTERO RESOURCES CORP	ANTERO RESOURCES CORP		6937 - 16227	Mr. an	roducible Politiation(s) not perf
47017069460000 SHOTTER UNIT	2H	ANTERO RESOURCES CORP	ANTERO RESOURCES CORP	16,754	7122 - 16620	Marcellus	
47017729820000 E W OSBORNE	1	UNKNOWN	ANTERO RESOURCES CORP	16,978	6926 - 16847	Marcellus	
47017033900000 OSBURN E W	J-807	GREYLOCK CONVENTIONAL LLC	UNKNOWN		2004	Marcellus	
47017013990000 E W OSBORNE	2	TRIO OIL & GAS	J & J ENTERPRISES	5,988	4273 - 4969		
47017046190000 WHITEHAIR	6	KEY OIL	TRIO PETROLEUM INC	2,035	1275 4505	Riley, Alexander	Weir, Benson
17017309270000 A E LEGGETT	1	UNKNOWN	KEY OIL	5,263	3240 - 5102	Big Injun	
7017729850000 DAVID BALL	4815	PHILADELPHIA OIL	UNKNOWN	1,945	3240 - 3102	Warren, Riley, Alexander	Weir, Benson, Alexander
7017033580000 GRAY M B ET AL		DIVERSIFIED PRODUCTION LLC	PHILADELPHIA OIL				Weir, Benson
7017050260000 GRAY M B ET AL	14260	DIVERSIFIED PRODUCTION LLC	CNG DEVELOPMENT CO	5,341	5111 - 5160		
7017034900000 GRAY M B HEIRS	2290	DIVERSIFIED PRODUCTION LLC	DOMINION EXPL&PROD	2,513	1913 - 2173	Alexander	Wei n
7017044980000 SCOTT	2	KEY OIL	CNG DEVELOPMENT CO	5,405	5158 - 5206	Penn System, Big Injun, Weir	Weir, Benson
7017015940000 GRAY M B	11285	DIVERSIFIED PRODUCTION LLC	KEY OIL	5,376		Alexander	Benson, Alexander
7017729930000 M B GRAY		UNKNOWN	CONSOL GAS SUPLY CRP	2,061		Warren, Speechley, Balltown, Riley, Benson, Elk, Alexander	Weir, Benson
7017729920000 D P SCOTT		UNKNOWN	UNKNOWN	-/	1913 - 1952	Big Injun	Weir
7017039130000 STANSBERRY GEORGE J ETAL			UNKNOWN				Weir, Benson, Alexander
7017006360000 S D & ROSCOE SCOTT HRS	2	HARPER CROSBY HOLDINGS LLC	FLUHARTY ENTERPRISES	5,454			
7017729900000 SARAH D & R SCOTT		TARGA DEV INC	MURPHY OIL PENN	1,910	4204 - 5122	Riley, Benson, Alexander	
7017038050000 BLAUSER/MAXWELL W B		UNKNOWN	UNKNOWN	1,510		Big Injun	Weir
017038720000 JUDY STINE		GREYLOCK OPCO LLC	EASTERN AMERICAN ENE	5,378			Weir, Benson, Alexander
017729980000 ANGELINE MICHAELS		G OIL & GAS INC	NESLER CHARLES E	3,376	4394 - 5109	Riley, Benson, Alexander	
017730170000 ANGELINE MICHAELS		JNKNOWN	UNKNOWN				Weir
017025850000 BROADWATER LEONA		PHILADELPHIA OIL	PHILADELPHIA OIL				
	1	DIVERSIFIED PRODUCTION LLC	PETROLEUM DEV CORP	5,269			
			227 COM	3,209	4074 - 5185	Balltown, Benson, Alexander	
						, and a second	Weir

WV Department of Environmental Protection

Office of Oil and Gas
DEC 0.9 2024

DESIGNATED AGENT

ADDRESS.

**KEVIN ELLIS** 

535 WHITE OAKS BLVD

BRIDGEPORT, WV 26330

WELL OPERATOR \_

ADDRESS

FORM WW-6

ANTERO RESOURCES CORP.

1615 WYNKOOP ST.

**DENVER, CO 80202** 

Farley Unit 2H

# 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:

	or g	as are as follows:	( ) 3
Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	D 1 /D
N: E.W. Osbourne Et Al Lease E.W. Osbourne Et Al Hope Natural Gas Trio Oil and Gas Company Charter D. Stinespring, Paul B. Davis & G.W. Hill J & J Enterprises, Inc. Eastern American Energy Corporation Energy Corporation of America Antero Resources Appalachian Corporation	Hope Natural Gas Trio Oil and Gas Company Charter D. Stinespring, Paul B. Davis & G.W. Hill J & J Enterprises, Inc. Eastern American Energy Corporation Energy Corporation of America Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Assignment Assignment Assignment Merger Assignment Name Change	0057/0132 0072/0496 0131/0687 0131/0762 0159/0139 0006/0450 0272/0307
M: Mary Zinn Lease Mary Zinn Key Oil Company Antero Resources Appalachian Corporation K: M.B. Gray Et Al Lease	Key Oil Company Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Name Change	0188/0107 0276/0526 0046/0523
M.B. Gray and Mary Gray, Et Al Hope Natural Gas Company Consolidated gas Supply Corporation Consolidated Gas Transmission Corporation CNG Development Dominion Exploration and Production Inc. Dominion Transmission Inc. Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company	Hope Natural Gas Company Consolidated gas Supply Corporation Consolidated Gas Transmission Corporation CNG Development Dominion Exploration and Production Inc. Dominion Transmission Inc. Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company Antero Resources Corporation	1/8 Assignment Assignment Assignment Merger Assignment Assignment Merger Merger Merger Assignment	0057/0372 0143/0345 0135/0583 0139/0041 WVSOS 0244/0528 0245/0001 0293/0352 0293/0352 0332/0303

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WV Department of Environmental Protection

Farley Unit 2H

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Applicant claims the right to	extract, produce or market the oil or ga	s are as follows:	by which the
Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	5
J: Sarah D. Scott and Roscoe Scott Lease Sarah D. and Roscoe Scott E.E. Zinn, W.C. Broadwater, & E.M. Nutter	E.E. Zinn, W.C. Broadwater, & E.M. Nutter E.E. Zinn, Juna Broadwater, E.M. Nutter, L.R. Boyce, F. Zinn, P.M. Broadwater Rowena S Black, B.W. Foley, J.W. Dotson, Zana Nutter, N.H. Leggett, Charles Bee, O.P. Broadwater, F.B. Zinn, Reed A Zinn, O.O. Wise, Lee Prunty, Wllis Calhoun, Eli Nutter, Ocal Gray, R.J. Broadwater, E.O. Wilson, & Gary Zinn	1/8 Assignment	9040/0245 0001/0048
E.E. Zinn, Juna Broadwater, E.M. Nutter, L.R. Boyce, F. Zinn, P.M. Broadwater Rowena S Black, B.W. Foley, J.W. Dotson, Zana Nutter, N.H. Leggett, Charles Bee, O.P. Broadwater, F.B. Zinn, Reed A Zinn, O.O. Wise, Lee Prunty, Wllis Calhoun, Eli Nutter, Ocal Gray, R.J. Broadwater, E.O. Wilson, & Gary Zinn  E.E. Zinn & E.M. Nutter, as true and lawful Attorneys in Fact Murphy Oil Company Dilmur Oil Company Targa Development Inc Antero Resources Appalachian Corporation	E.E. Zinn & E.M. Nutter, as true and lawful Attorneys in Fact  Murphy Oil Company Dilmur Oil Company Targa Development Inc Antero Resources Appalachian Corporation Antero Resources Corporation	Assignment Assignment Assignment Assignment Assignment Assignment	001/0048 0047/0469 0091/0734 0165/0436
l: Owen T. Wise Et Ux Lease Owen T. Wise, Et Ux Mountaineer Enterprises Dolphin Petroleum, Inc. Tri-County Oil & Gas May Gas, Inc. Hayhurst Company Piney Holdings, Inc.  F: Brent Maxwell Et Ux Lease	Mountaineer Enterprises Dolphin Petroleum, Inc. Tri-County Oil & Gas May Gas, Inc. Hayhurst Company Piney Holdings, Inc. Antero Resources Corporation	1/8 Assignment Assignment Assignment Assignment Assignment Assignment Assignment	0257/0362 0046/0523 0162/0210 0162/0337 0209/0448 0219/0013 0229/0467 0253/0146 0362/0589
Brent Maxwell, Et Ux Pittsburgh & West Virginia Gas Company Equitable Gas Company Equitrans, Inc. Equitrans, LP Equitable Production - Eastern States Inc. Equitable Production Company EQT Production Company  E: Sharon Wick Lease Sharon Wick	Pittsburgh & West Virginia Gas Company Equitable Gas Company Equitrans, Inc. Equitrans, LP Equitrans Production - Eastern States Inc. Equitable Production Company EQT Production Company Antero Resources Corporation  Antero Resources Corporation	1/8 Assignment Assignment Merger Office of Oil and Gas Assignment Merger DEC 0 9 2024 Assignment WV Department of Environmental Protection 1/8	0037/0048 0121/0303 0154/0475 0329/0645 0192/0019 0281/0346 0281/0346 0371/0276

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Loogo Na		8	o follows.	
Lease Name or Number  C: Mildred Riddle Et Vir Lease	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
	Mildred Riddle Et Vir Clarence W. Mutschelknaus J. Robert Hornor Petroleum Development PDC Mountaineer LLC Antero Resources Appalachian Corporation	Clarence W. Mutschelknaus J. Robert Hornor Petroleum Development PDC Mountaineer LLC Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Assignment Assignment Assignment Assignment Name Change	0102/0618 0105/0277 0112/0664 0240/0118 0278/0607 <b>0046/0523</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.

### 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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Office of Oil and Gas

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The applicant further acknowledges that any Office of Oil and Gas permit in no way by Department of 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 (ed)
	Senior Vice President of Land

<sup>\*</sup>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.

<sup>\*\*</sup>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.