

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, March 15, 2021 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re:

Permit Modification Approval for TAPEATS UNIT 1H

47-095-02713-00-00

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.

James A. Martin

Chief Z

Operator's Well Number: TAPEATS UNIT 1H

Farm Name: KENNETH TOMBLIN ET AL

U.S. WELL NUMBER: 47-095-02713-00-00

Horizontal 6A New Drill

Date Modification Issued: 3/15/2021

Promoting a healthy environment.

WW-6B (04/15) API NO. 47-095 02713
OPERATOR WELL NO. Tapeets Unit 1H
Well Pad Name: Grand Pad

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

							AND THE RESIDENCE OF THE PROPERTY OF THE PROPE
1) Well Operator	: Antero	Resources	Corpora		095-Tyler		Porter Falls 7.5'
-		december of the second		Operator ID	County	District	Quadrangle
2) Operator's We	ell Numbe	r: Tapeats U	nit 1H	Well P	ad Name: Gran	nd Pad	ана (помещения может до 18 год в 18 год година (п. 18 год на поменую путь на поменую на поменую под поменую по
3) Farm Name/S	urface Ow	ner: Kennet	n Tomblir	et al Public Ro	ad Access: Go	rrells Run F	Road
4) Elevation, cur	rent groun	d: 1268'	El	evation, propose	d post-construct	ion: ~1243	
, ,,	a) Gas Other	X	Oil	Un	derground Stora	ige	
(b)If Gas	Shallow	X	Deep			
		Horizontal	X				DMIT
6) Existing Pad:	Yes or No	Yes					3-10-21
, ,				ipated Thickness ess- 55 feet, Assoc	•		,
8) Proposed Total	l Vertical	Depth: 7300	סעד יכ				
9) Formation at T			Marcellus				
10) Proposed Tot	tal Measur	ed Depth:	25600' M	D			
11) Proposed Ho	rizontal Le	eg Length:	6116'	ant sorring an executable entire 15 for the residence of the charge and the charge of		noveles and the second	
12) Approximate	Fresh Wa	iter Strata Dej	oths:	25'		angan ang kanggang pingganan an ang kanggang ang kanggang ang kanggang ang kanggang ang kanggang ang kanggang	
(3) Method to De	etermine F	resh Water D	epths:	17-095-02267			
14) Approximate	Saltwater	Depths: 23	05'				
15) Approximate	Coal Sear	n Depths: 43	31'				
(6) Approximate	Depth to	Possible Void	l (coal mi	ne, karst, other):	None Anticipa	ited	
7) Does Propose lirectly overlying				ns Yes	No	, <u>X</u>	
(a) If Yes, provi	ide Mine I	nfo: Name:	# DEC TO A STATE OF THE STATE O				
		Depth:					
		Seam:					
		Owner				portiguation share a construction and the second of the se	

WW-6B (04/15) API NO. 47- 095 - 02713

OPERATOR WELL NO. Tapeats Unit 1H

Well Pad Name: Grand 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	H-40	94#	80	80	CTS, 218 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300	300	CTS, 417 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#	25600	25600	6631 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners			***************************************			and year ground the control of the c	

DMH 3-10-21

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	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate	Anna Core Core Principles of September (California September (Cali		ugidati cata yalikiya sibilya suwa ncikito ya makeca midanak kumuniki wa famili	A PRINCE AND REAL PROPERTY AND	BY ALL STATEMENT CONTINUES CONTINUES CONTINUES AND ALL STATEMENT CONTINUES CONT		
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-H/POZ & Tall - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners				*			ungappyalan ninga berawa kerawa kerinta dan mengalah dan mengalah dan mengalah dan mengalah dan mengalah dan m

PACKERS

Kind:	N/A	
Sizes:	N/A	
Depths Set:	N/A	accept and school for the control of the first of the analysis of the control of

WW-6B (10/14)

API NO. 47- 095 - 02713

OPERATOR WELL NO. Tapeats Unit 1H

Well Pad Name: Grand Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale.

Dnit 7-10-01

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): Existing 44.34 acres
- 22) Area to be disturbed for well pad only, less access road (acres): Existing 13.72 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 cement.

Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake Intermediate: Class A 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: Tall 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.

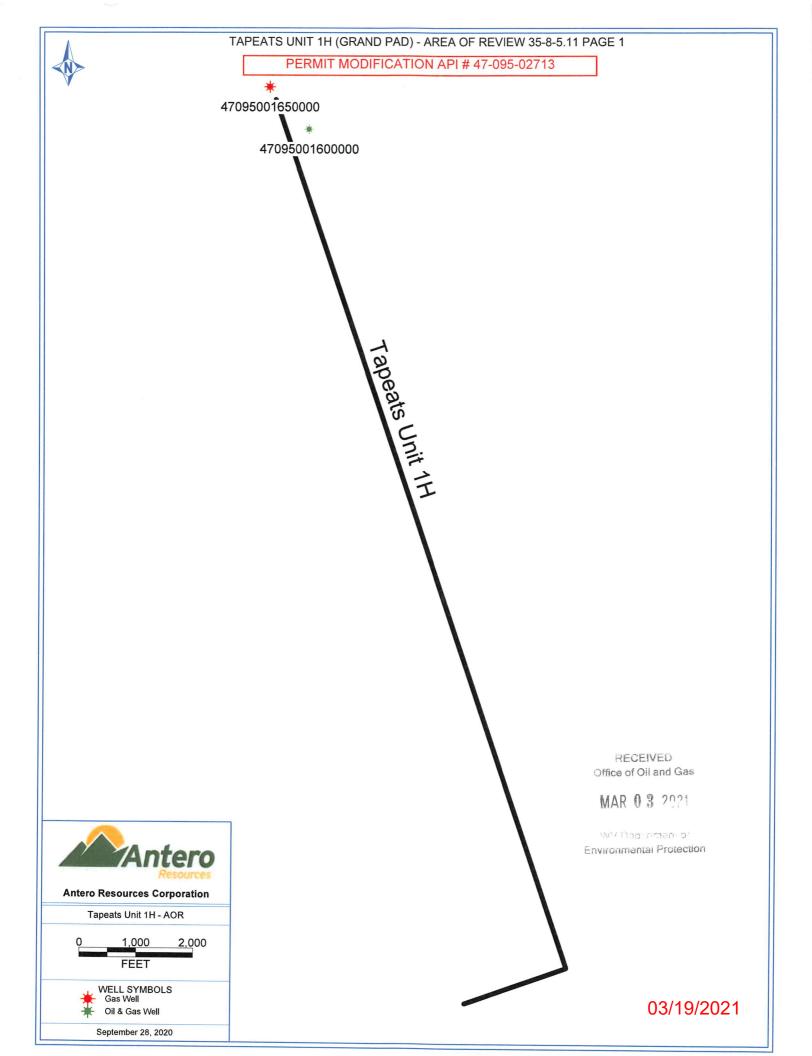
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbis 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.

Page 3 of 3

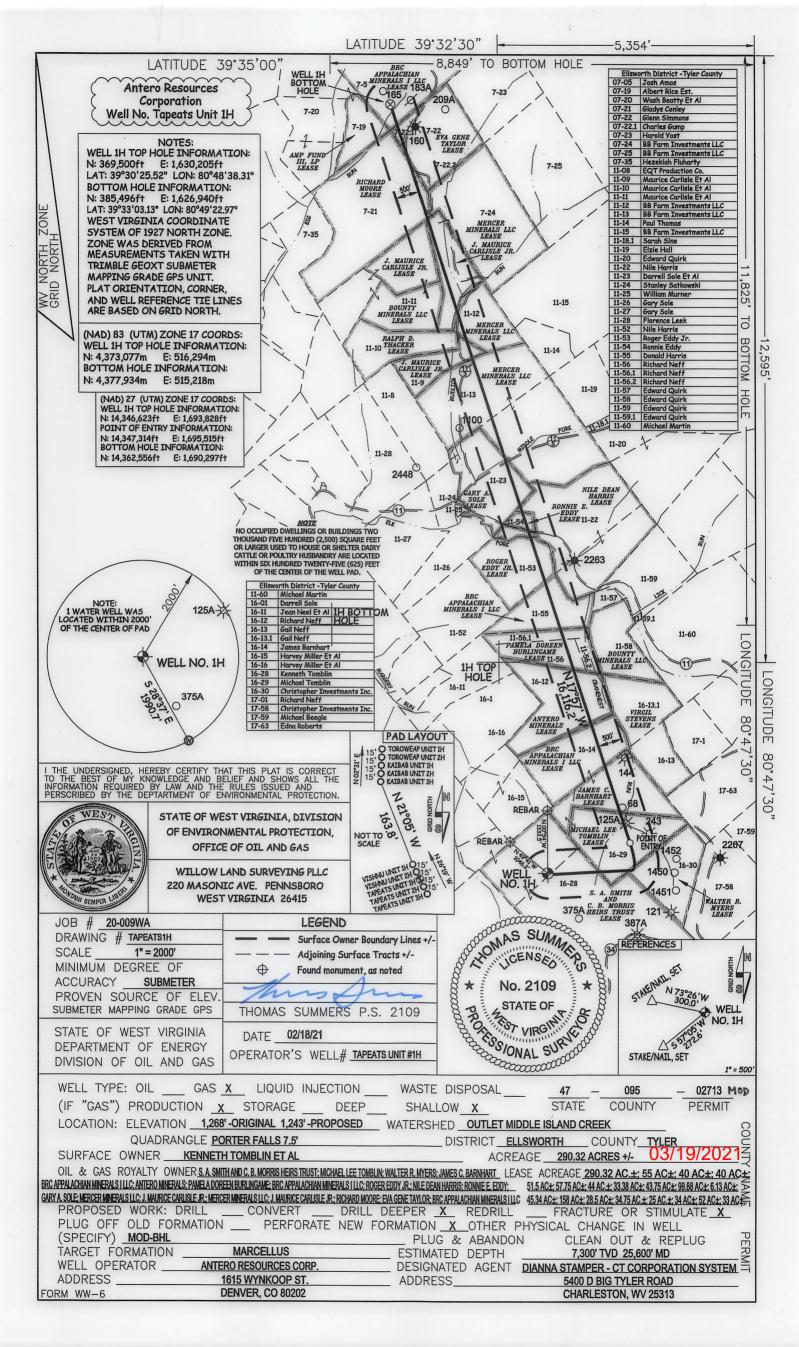


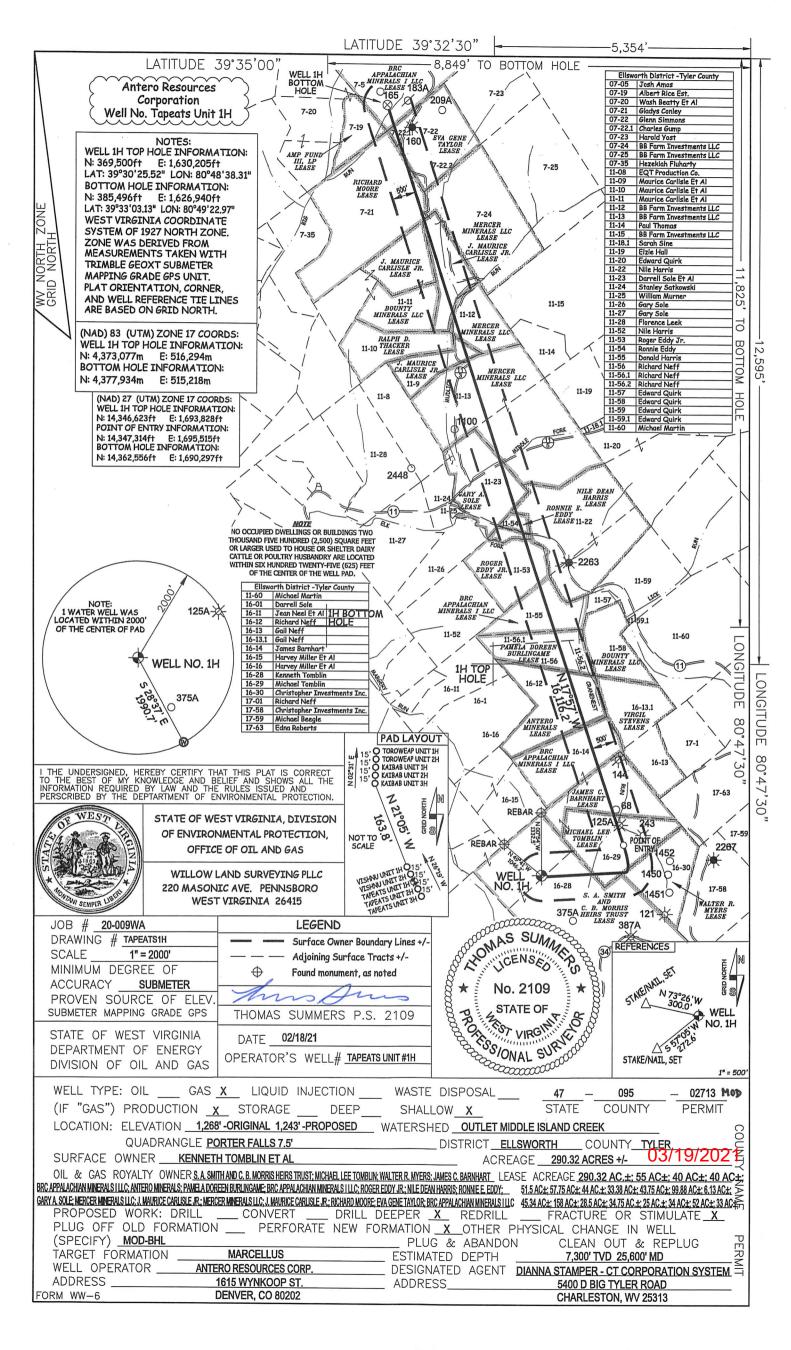
UWI (APINum)	Well Name	Well Number	Operator Operator	Hist Oper	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
	WILEY MIDCAP	1	METZ OIL CO	METZ OIL CO	2,070	N/A	Salt Sands	Weir, Alexander, Benson
47095001600000	G MIDCAP/WHARTON/DOAK	1	METZ OIL CO	METZ OIL CO	2,047	N/A	Big Lime, Keener	Weir, Alexander, Benson

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Office of Oil and Cos

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WV Department of
Environmental Protection





Operator's Well Number

Tapeats Unit 1H

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
S.A. Smith & C. B. Morris Heirs Trust Lease			
S.A. Smith & C. B. Morris Trust Heirs	Antero Resources Corporation	1/8+	0022/0268
Michael Lee Tomblin Lease			
Michael Lee Tomblin	Antero Resources Corporation	1/8	0420/0497
Walter P. Misers Leave			
Walter R. Myers Lease	Datas des Ferre III 0		
Walter R. Myers	Petroedge Energy LLC	1/8+	0411/0351
Petroedge Energy LLC	Statoil USA Onshore Properties	Assignment	0436/0001
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
Michael Lee Tomblin Lease			
Michael Lee Tomblin	Antero Resources Corporation	1/8	0420/0497
James C. Barnhart Lease			
James C. Barnhart	Petroedge Energy LLC	1/8+	0400/0184
Petroedge Energy LLC	Statoil USA Onshore Properties	50 - 1000/1	•
Statoil USA Onshore Properties	EQT Production Company	Assignment	0436/0001
EQT Production Company	· · · · · · · · · · · · · · · · · · ·	Assignment	0539/0239
24. Froduction company	Antero Resources Corporation	Assignment	0663/0001
BRC Appalachian Minerals I LLC Lease TM 16 PCL			
14) BRC Appalachian Minerals I LLC	Chatalluca O. I		
	Statoil USA Onshore Properties	1/8	0369/0300
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
Antero Minerals Lease		RECEIVED	
Pamela Doreen Burlingame Lease		Office of Oil and Ga	as .
Pamela Doreen Burlingame	Dates and as Francis II C	1112 0 0	
Petroedge Energy LLC	Petroedge Energy LLC	1/8+ MAR 0 3 1621	0408/0817
Statoil USA Onshore Properties	Statoil USA Onshore Properties	Assignment	0436/0001
	EQT Production Company	Assignment of WV Department of	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment Environmental Protect	tion 0663/0001
BRC Appalachian Minerals I LLC Lease(TM11 PCL			
<u>55)</u>			
BRC Appalachian Minerals I LLC	Statoil USA Onshore Properties	1/8	0369/0300
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001

^{*}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.

Operator's Well Number

Tapeats Unit 1H

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
Roger Eddy Jr. Lease			
Roger Eddy Jr.	Stone Energy Company	1/8+	0400/0257
Stone Energy Company	EQT Production Company	Assignment	0556/0132
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
- C. C. Canada Company	Antero Resources corporation	Assignment	0003/0001
Ronnie E. Eddy Lease			
Ronnie E. Eddy	Petroedge Energy LLC	1/8+	0409/0102
Petroedge Energy LLC	Statoil USA Onshore Properties	Assignment	0436/0001
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
	Times nessures corporation	Assignment	0003/0001
Nile Dean Harris Lease			
Nile Dean Harris	Statoil USA Onshore Properties	1/8+	0440/0454
Statoil USA Onshore Properties	EQT Production Company	300 * 100	0449/0154
EQT Production Company		Assignment	0539/0239
EQ. Froduction company	Antero Resources Corporation	Assignment	0663/0001
Gary A. Sole Lease			
Gary A. Sole Lease	Antono Docomono Como antico	4.60	
daily A. Sole	Antero Resources Corporation	1/8+	0607/0214
Mercer Minerals LLC Lease (TM 11 PCL 13)			
Mercer Minerals LLC	Anton Boron Control		2-2-22-2-22
Wercer Wilherals LLC	Antero Resources Corporation	1/8+	0547/0640
I Mouries Carlisla Iv. Lance (The 44 DCL O)			
J. Maurice Carlisle Jr. Lease (TM 11 PCL 9)			
J. Maurice Carlisle Jr.	Antero Resources Corporation	1/8+	0032/0437
Mercer Minerals LLC Lease (TM 11 PCL 12)			
Mercer Minerals LLC	Antero Resources Corporation	1/8+	0547/0640
J. Maurice Carlisle Jr. Lease (TM 11 PCL 11)			
J. Maurice Carlisle Jr.	Antero Resources Corporation	1/8+	0032/0437
		RECEIVED	
Richard Moore Lease		Office of Oil and Glass	
Richard Moore	Antero Resources Corporation	1/8+	0617/0114
		MAR 0 3 2021	•
Eva Gene Taylor Lease			
Eva Gene Taylor	Antero Resources Corporation	1/8+ WV Department of	0575/0413
		Environmental Protection	
		. 0.000(0)	

^{*}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.

03/19/2021

WW-6A1 (5/13)

Operator's V	Vell No.	Tapeats Unit 1H
Operator's v	veli No.	rapeats offit iff

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L	case	IN	an	ıc	OI

Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
BRC Appalachian Minerals I LLC	Lease			
	BRC Appalachian Minerals I LLC	Statoil USA Onshore Properties	1/8	0378/0764
	Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
	EQT Production Company	Antero Resources Corporation	Assignment	0663/0001

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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:

Office of Oil and Gas

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

MAR 0 3 2021

WV Department of Environmental Protection

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

VP of Land

"Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act

Page 1 of 1