

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 2, 2021 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for PEELER UNIT 3H 47-103-03411-00-00

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.

mes A Martin Chief

Operator's Well Number:PEELER UNIT 3HFarm Name:WILLIAM L. & DELORES J. GADDU.S. WELL NUMBER:47-103-03411-00-00Horizontal 6ANew DrillDate Modification Issued:August 2, 2021

Promoting a healthy environment.

WW-6B (04/15)

CK# \$	231410 5000 ⁹⁹ 7/8/21
	7101

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

I) Well Operator: Antero Resour	rces Corporat	494507062	103-Wetzel	Green	Porters Falls 7.5'
		Operator ID	County	District	Quadrangle
2) Operator's Well Number: Peele	er Unit 3H MO	D Well Pad	Name: Gadd	Pad	
3) Farm Name/Surface Owner: Will	iam L. & Delores J	Gadd Public Road	d Access: Eig	ntmile Roa	d
4) Elevation, current ground: <u>12</u>	23.8' El	evation, proposed	post-constructi	on: <u>~1223</u>	.8
5) Well Type (a) Gas X	Oil	Unde	erground Storag	ge	
Other					
(b)If Gas Shallo	w <u>X</u>	Deep			
Horizo	ntal <u>X</u>				
6) Existing Pad: Yes or No Yes					
7) Proposed Target Formation(s), D	•	•	•	• • •	
Marcellus Shale: 7500' TVD, Antic	· · · · ·		ited Pressure- 2	.850#	
8) Proposed Total Vertical Depth:					
9) Formation at Total Vertical Dept	th: Marcellus	S			
10) Proposed Total Measured Dept	h: <u>20900'</u>				
11) Proposed Horizontal Leg Lengt	h: <u>11188'</u>			BECEMEN	
12) Approximate Fresh Water Strat	a Depths:	350'		RECEIVED fice of Oil and	
13) Method to Determine Fresh Wa	ter Depths: 2	17-095-02266		IUL 2920	21
14) Approximate Saltwater Depths	1887', 1917		W Envio	V Department	of
15) Approximate Coal Seam Depth	s: <u>656', 971'</u>				
16) Approximate Depth to Possible	Void (coal mi	ne, karst, other):	None Anticipat	ted	
17) Does Proposed well location co directly overlying or adjacent to an		ns Yes	No	X	
(a) If Yes, provide Mine Info: N	ame:				
D	epth:				
	eam:				
C	wner:				

API NO. 47-<u>103</u>-<u>03411</u> OPERATOR WELL NO. <u>Peeler Unit 3H MOD</u>

Well Pad Name: Gadd Pad

WW-6B (04/15)

18)

CASING AND TUBING PROGRAM

Conductor20"Fresh Water13-3/8"Coal9-5/8"	New New New	H-40 J-55 J-55	94# 54.5#	80 400 *see #19	80 400 *see #19	CTS, 86 Cu. Ft. CTS, 556 Cu. Ft.
Coal 9-5/8"					400 *see #19	CTS, 556 Cu. Ft.
	Now	155				
	INCW	J-55	36#	2500	2500	CTS, 1018 Cu. Ft.
Intermediate						
Production 5-1/2"	New	P-110	23#	20900	20900	5339 Cu. Ft
Tubing 2-3/8"	New	N-80	4.7#			
Liners						

Buyan Harin 7-28-21

ТҮРЕ	Size (in)	<u>Wellbore</u> <u>Diameter (in)</u>	<u>Wall</u> <u>Thickness</u> <u>(in)</u>	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	<u>Cement</u> <u>Type</u>	<u>Cement</u> <u>Yield</u> (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							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners					RECEIVE Office of Oil an) d Gass	

JUL 2 9 2021

WV Department of Environmental Protection

PACKERS

Kind:	N/A		
Sizes:	N/A		
Depths Set:	N/A		

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):	34.16 acres
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22) Area to be disturbed for well pad only, less access road (acres):	17.00 acres	Office of WED
23) Describe centralizer placement for each casing string:	J	UL 21 200
Conductor: no centralizers	Environ	Den
Conductor: no centralizers Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and o	ne every 4th joint spaced	wa the hole
to surface.		- Protection
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar a	nd one every 4th collar to	surface. Crion
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in in	ntermediate 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: Tail 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:

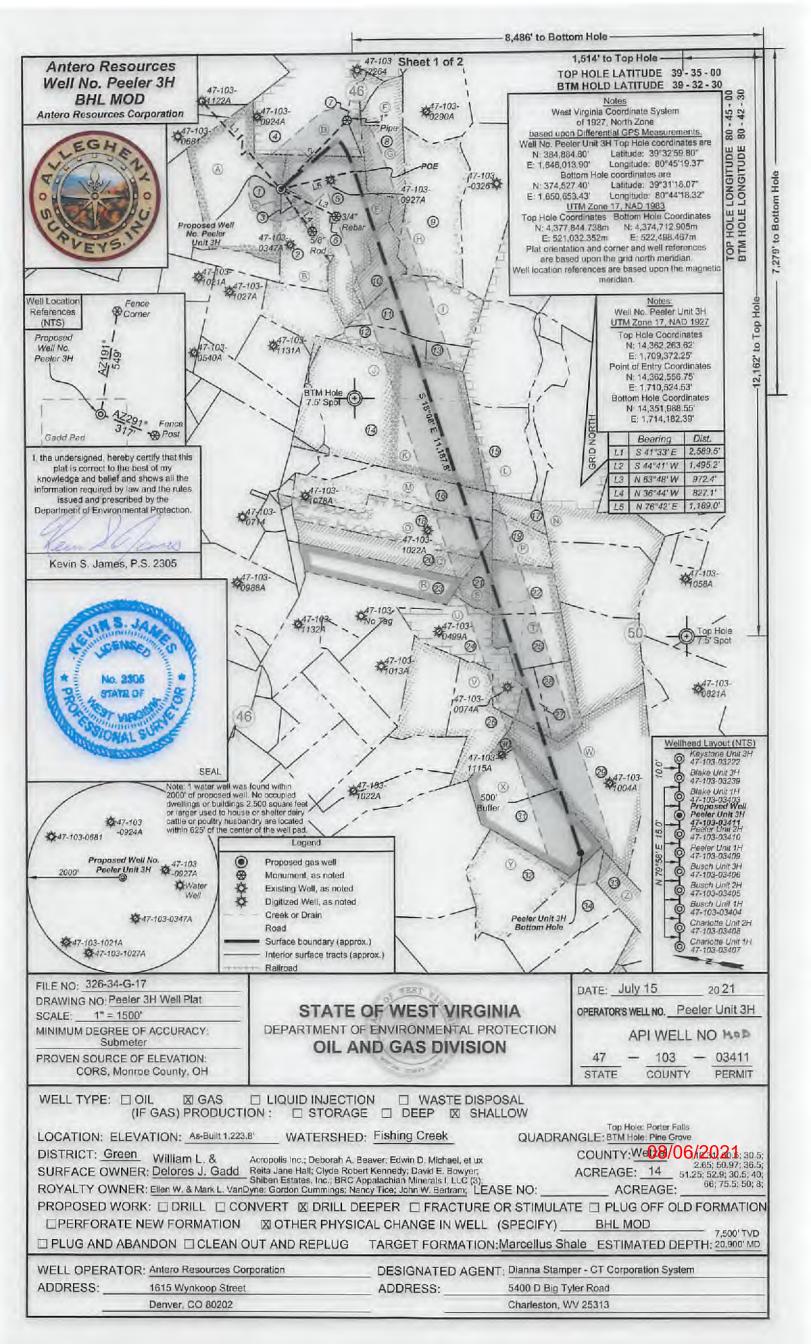
*Note: Attach additional sheets as needed.



47103309270000 Peeler Unit 3H Office of Oll and Gas JUL 2 I 2021 Environmental Protection 资 47103300740000 Antero Antero Resources Corporation Peeler Unit 3H - AOR 1,000 C FEET WELL SYMBOLS Plugged Gas Well 08/06/2021 July 15, 2021

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47103303470000	D PITTMAN HRS	1152	HOPE NATURAL GAS	HOPE NATURAL GAS	2,961	Unknown	Gordon	Weir, Berea, Benson, Alexander
47103310130000	WM CONLEY 1	1336	MANUFACT LIGHT & HEAT	MANUFACT LIGHT & HEAT	3,077	Unknown	Gordon	Weir, Berea, Benson, Alexander





Antero Resources Well No. Peeler 3H BHL MOD Antero Resources Corporation

Sheet 2 of 2

Leases Shiben Estates, Inc. Ellen W. & Mark L. VanDyne

A Shiben Estates: Inc. B Ellen W. & Mark L. VanDyne C John W. Bertram D Gordon Cummings E BRC Appalachian Minerals I. LLC F James K. Eastham O Numer Time

E BRC Apparachian Minerais I, LLC F James K. Eastham G Nancy Tice H BRC Appalechian Minerals I, LLC I Reita Jane Hall J Acropolis, Inc. K Clyde Robert Kennedy

 K
 Clyde Robert Kennedy

 L
 William R. Stalnaker

 M
 BRC Appalachian Minerals I, LLC

 N
 BRC Appalachian Minerals I, LLC

 O
 David E. Bowyer

 P
 Sandra K. Slle

 Q
 Stone Hill Minerals Holdings, LLC

 R
 Edwin D. & Jane C. Michael

 S
 Edwin D. Michael, et ux

 T
 Acropolis Inc.

 Thomas J. Jacoboni

 T
 Acropolis Inc.

 U
 Thomas J. Jacoboni Revocable Trust Agreement

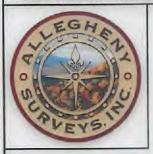
 V
 Faye Ann Skinner, et al

 W
 BRC Appalachian Minerals I, LLC

 X
 Deborah A. Beaver

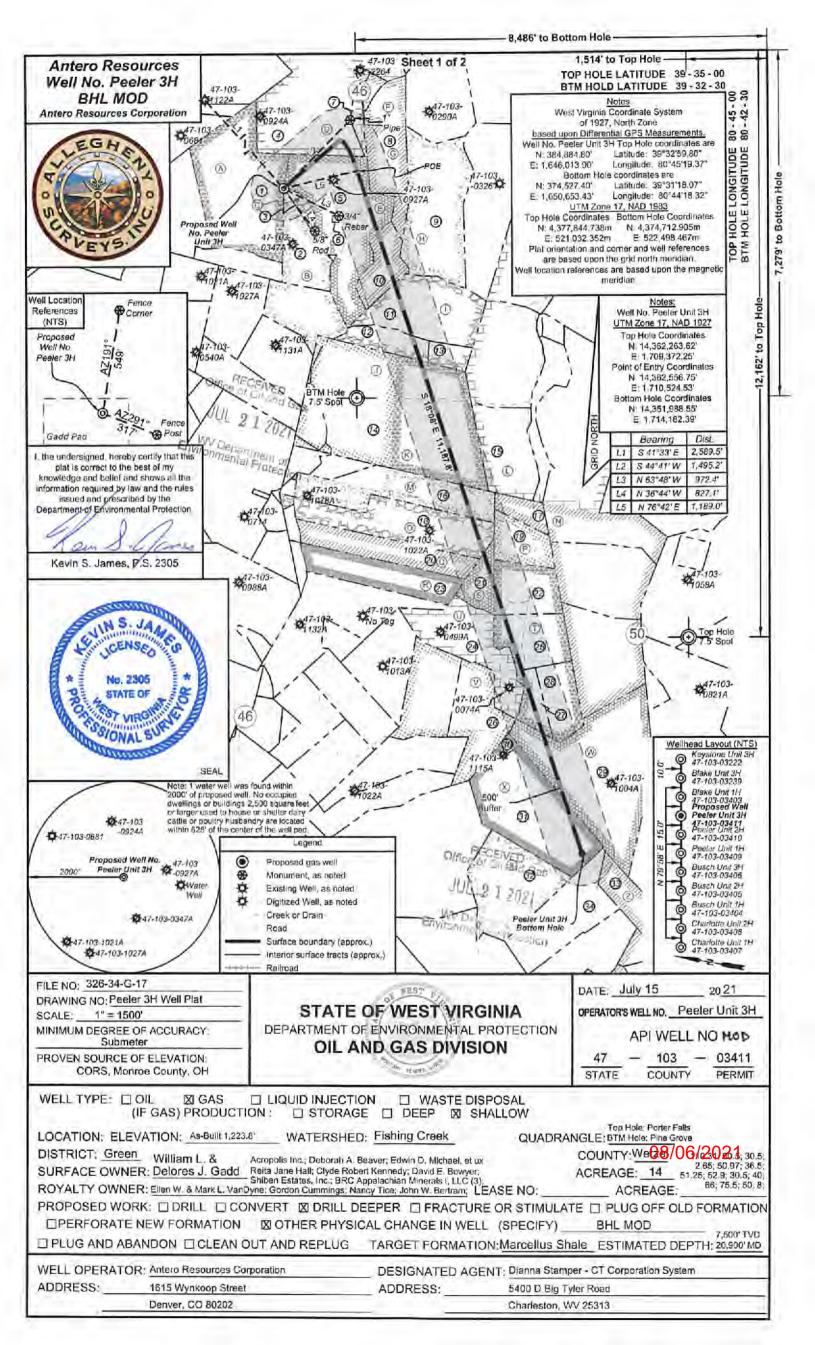
 Y
 BRC Appalchian Minerals I, LLC

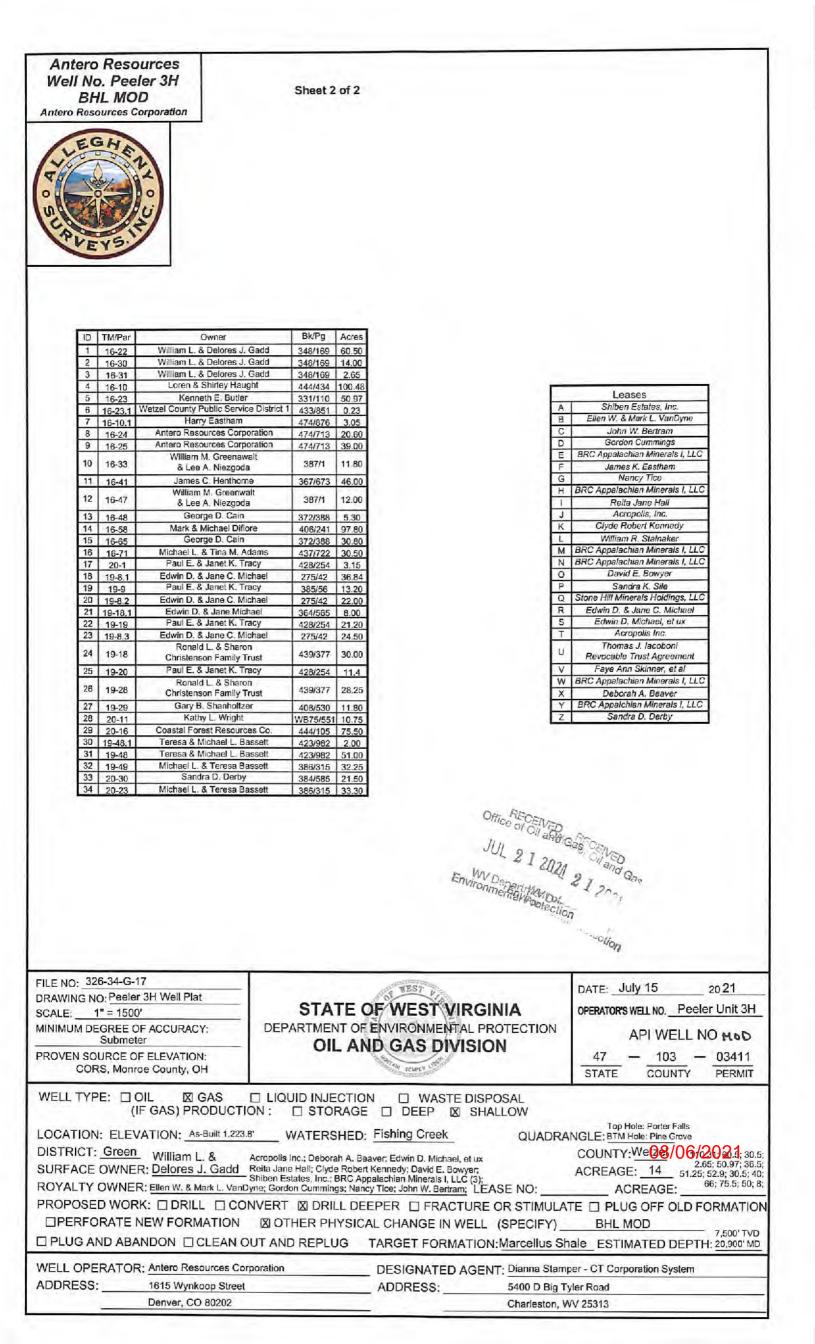
 Z
 Sandra D. Derby



ID	TM/Par	Owner	Bk/Pg	Acres
1	16-22	William L. & Delores J. Gadd	348/169	60.50
2	16-30	William L. & Delores J. Gadd	348/169	14.00
3	16-31	William L. & Delores J. Gadd	348/169	2.65
4	16-10	Loren & Shirley Haught	444/434	100.48
5	16-23	Kenneth E. Butler	331/110	50.97
6	16-23.1	Wetzel County Public Service District 1	433/851	0.23
7	16-10.1	Harry Eastham	474/876	3.05
8	16-24	Antero Resources Corporation	474/713	20.60
9	16-25	Antero Resources Corporation	474/713	39.00
10	16-33	William M. Greenawalt & Lee A. Niezgoda	387/1	11.80
11	16-41	James C. Henthorne	367/673	46.00
12	16-47	William M. Greenwalt & Lee A. Niezgoda	387/1	12.00
13	16-48	George D. Cain	372/388	5.30
14	16-58	Mark & Michael Diffiore	406/241	97.80
15	16-65	George D. Cain	372/388	30.80
16	16-71	Michael L. & Tina M. Adams	437/722	30.50
17	20-1	Paul E. & Janet K. Tracy	428/254	3.15
18	19-8.1	Edwin D. & Jane C. Michael	275/42	36.84
19	19-9	Paul E. & Janet K. Tracy	385/56	13.20
20	19-8.2	Edwin D. & Jane C. Michael	275/42	22.00
21	19-18.1	Edwin D. & Jane Michael	364/565	8.00
22	19-19	Paul E. & Janet K. Tracy	428/254	21.20
23	19-8.3	Edwin D. & Jane C. Michael	275/42	24.50
24	19-18	Ronald L. & Sharon Christenson Family Trust	439/377	30.00
25	19-20	Paul E. & Janet K. Tracy	428/254	11.4
26	19-28	Ronald L. & Sharon Christenson Family Trust	439/377	28.2
27	19-29	Gary B. Shanholtzer	408/530	11.80
28	20-11	Kathy L. Wright	WB75/551	10.75
29	20-16	Coastal Forest Resources Co.	444/105	75.50
30	19-48.1	Teresa & Michael L. Bassett	423/982	2.00
31	19-48	Teresa & Michael L. Bassett	423/982	51.00
32	19-49	Michael L. & Teresa Bassett	386/315	32.2
33	20-30	Sandra D. Derby	384/585	21.5
34	20-23	Michael L. & Teresa Bassett	386/315	33.3

FILE NO: 326-34-G-17 DRAWING NO: Peeler 3H Well Plat SCALE: 1" = 1500' MINIMUM DEGREE OF ACCURACY: Submeter PROVEN SOURCE OF ELEVATION: CORS, Monroe County, OH	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION	DATE: July 15 20.21 OPERATOR'S WELL NO. Peeler Unit 3H API WELL NO MOD $\frac{47}{\text{STATE}} = \frac{103}{\text{COUNTY}} = \frac{03411}{\text{PERMIT}}$
WELL TYPE: OIL GAS (IF GAS) PRODUC		
DISTRICT: Green William L. & SURFACE OWNER: Delores J. Gado ROYALTY OWNER: Ellen W. & Mark L. V/2 PROPOSED WORK: DRILL 0 PERFORATE NEW FORMATION	23.8' WATERSHED: Fishing Creek QUADR	ATE D PLUG OFF OLD FORMATIO





Operator's Well Number

Peeler Unit 3H MOD

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
A Shiben Estates Inc. Lease			
A Shiben Estates Inc.	Antero Resources Corporation	1/8+	0176/0467
Ellen W. & Mark L. Vandyne Lease Ellen W. & Mark L. VanDyne	Antero Resources Corporation	1/8+	184A/660
		-1	
John W. Bertram Lease John W. Bertram	Antero Resources Corporation	1/8+	191A/288
BRC Appalachian Minerals LLC Lease			
BRC Appalachian Minerals LLC	SWN Production Company	1/8	0157/0540
SWN Production Company	Antero Exchange Properties LLC	Assignment	0177/0533
Antero Exchange Properties LLC	Antero Resources Corporation	Merger	0013/0311
Gordon Cummings Lease		0	
Gordon Cummings	Antero Resources Corporation	1/8+	0193/0001
 Nancy Tice Lease 			
y Nancy Tice	Antero Resources Corporation	1/8+	0203/0891
Reita Jane Hall Lease		1.1.2.	111111
Reita Jane Hall	Antero Resources Corporation	1/8+	0111/0123
Clyde Robert Kennedy Lease	Chesapeake Appalachia LLC	1/8	119A/412
Clyde Robert Kennedy Chesapeake Appalachia LLC	SWN Production Company	Assignment	157A/540
SWN Production Company	Antero Exchange Properties LLC	Assignment	177A/533
Antero Exchange Properties LLC	Antero Resources Corporation	Merger	13/311
BBC Appalachian Minorals LLC Losso			
BRC Appalachian Minerals LLC Lease BRC Appalachian Minerals LLC	SWN Production Company	1/8	0157/0540
SWN Production Company	Antero Exchange Properties LLC	Assignment	0177/0533
Antero Exchange Properties LLC	Antero Resources Corporation	Merger	0013/0311
6 David E. Bowyer Lease	A day Barrows Barrows	10.	177A/105
David E. Bowyer	Antero Resources Corporation	1/8+	1/74/105
	HE: Office of	CEIVED of Oil and Gas	

JUL 2 1 2021

WV Department of Environmental Protection

08/06/2021

Operator's Well Number Peeler Unit 3H MOD

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	Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
5	<u>Edwin D. Michael Lease</u> Edwin D. Michael	Antero Resources Corporation	1/8+	207A/910
1	<u>Acropolis Inc Lease</u> Acropolis Inc	Antero Resources Corporation	1/8+	179A/367
J	<u>Thomas J. Lacoboni Revocable Trust Agreement</u> <u>Lease</u> Thomas J. Lacoboni Revocable Trust Agreement	Antero Resources Corporation	1/8+	262A/947
ω	BRC Appalachian Minerals LLC Lease BRC Appalachian Minerals LLC SWN Production Company Antero Exchange Properties LLC	SWN Production Company Antero Exchange Properties LLC Antero Resources Corporation	1/8 Assignment Merger	0157/0540 0177/0533 0013/0311

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JUL 21 2021

WV Department of Environmental Protection 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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- (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
×	Deborah A. Beaver Lease	Deborah A. Beaver	Antero Resources Corporation	1/8+	173A/106

*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

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	(m Vedy	
Its:	VP of Land		

ddition w -Office of Oil and Gas JUL 21 2021 WV Department of Environmental Protection

Page 1 of 1 08/06/2021



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Expedited Modification H6A Horizontal Well Work Permit (API: 47-103-03411)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov> To: Mallory Stanton <mstanton@anteroresources.com>, Dani DeVito <ddevito@shalepro.com>

Tue, Aug 3, 2021 at 8:02 AM

Cc: "Harris, Bryan O" <bryan.o.harris@wv.gov>, Scott Lemley <slemley@wvassessor.com>

I have attached a copy of the newly issued well permit number "PEELER UNIT 3H", API (47-103-03411). This will serve as your copy.

If you have any questions, then please contact us here at the Office of Oil and Gas.

Thank you,

Wade A. Stansberry

Environmental Resource Specialist 3

West Virginia Department of Environmental Protection

Office of Oil & Gas

601 57th St. SE

Charleston, WV 25304

(304) 926-0499 ext. 41115

(304) 926-0452 fax

Wade.A.Stansberry@wv.gov

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