

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 JANUARY 10, 2022 PERMIT MODIFICATION APPROVAL New Drill / Modification Lateral Extension

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET DENVER, CO 80202

Re: Permit Modification Approval for MAXSON UNIT 2H

47-085-10413

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.

Operator's Well Number: MAXSON UNIT 2H

Farm Name: ANTERO RESOURCES CORPORATION

U.S. WELL NUMBER: 47-085-10413

New Drill Modification Lateral Extension

Date Modification Issued: 01/10/2022

Promoting a healthy environment.

API NO. 47-085 _ 10413 MOD

OPERATOR WELL NO. Maxson Unit 2H

Well Pad Name: Weekley West Pad

15000°4 15/21/21

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

1) Well Operator: Ant	ero Resources C	orpora	494507062	085-Ritchie	Union	Pullman/Oxford7
			Operator ID	County	District	Quadrangle
2) Operator's Well Nur	mber: Maxson U	nit 2H	Well Pad	Name: Week	ley West F	Pad
3) Farm Name/Surface	Owner: Antero Resou	irces Corpo	Public Road	d Access: Co	Rd 22/3	
4) Elevation, current gr	ound: 1,138'	Ele	evation, proposed p	oost-constructi	on: 1,125	5'
5) Well Type (a) Gas	X	Oil	Unde	rground Storag	ge	RECEIVED
Other	·					Office of Oil and Gas
(b)If G	as Shallow	Χ ,,	Deep			DEC 27 2021
	Horizontal	X				WV Department of
6) Existing Pad: Yes or	No No					Environmental Protecti
7) Proposed Target For Marcellus Shale, 7		/ /				O# JCB
8) Proposed Total Vert	ical Depth: 7,000	1				1160
9) Formation at Total V	ertical Depth: M	arcellu	IS			
10) Proposed Total Me	asured Depth: 22	2,500'				
11) Proposed Horizonta	al Leg Length: 13	3651'				
12) Approximate Fresh	Water Strata Dept	hs:	258', 330', 478	8'		
13) Method to Determi	ne Fresh Water De	pths: Re	ference wells 08508569, 085085	8, 08508582 Depths have	been adjusted accor	rding to surface elevations
14) Approximate Saltw	ater Depths: 1,01	5' (refe	rence well 08503	3139), 1,976'	(reference	well 08507618)
15) Approximate Coal	Seam Depths: 734	4' (refere	ence well 085076	618), 1,495' (ı	eference v	well 08503139)
16) Approximate Deptl	n to Possible Void	(coal mi	ne, karst, other):	None anticip	oated	
17) Does Proposed wel directly overlying or ad			ns Yes	No		
(a) If Yes, provide M	ine Info: Name:				•	Long land land
ens) 2017 ASSO	Depth:				/-	Mon lette
	Seam:				200	S ded dinoin
	Owner:				DUE	() Jan 19
					FILE	73 80 MAC

OPERATOR WELL NO. Maxson Unit 2H

Well Pad Name: Weekley West 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, 77 Cu. Ft.
Fresh Water	13-3/8	New	J/K-55	54.5#	528	528	CTS, 550 Cu. Ft.
Coal	9-5/8	New	J/K-55	36#	2500	2500	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2	New	PY-110	23#	22,500	22,500	CTS, 4742 Cu. Ft.
Tubing	2-3/8	New	N-80	4.7#			
Liners							



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"	0.380"	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	8-3/8"& 8-1/2"	0.415"	12,630	9300		
Tubing	2-3/8	4.778"	0.190"	11,200		Lead-H/POZ & Tail-H	H/POZ-1.44 & H-1.8
Liners							

PACKERS

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

API NO. 47- 085 - 10413 MOD

OPERATOR WELL NO. Maxson Unit 2H

Well Pad Name: Weekley West 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.

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 9/1/6/2022

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 58.63
- 22) Area to be disturbed for well pad only, less access road (acres): 8.23
- 23) Describe centralizer placement for each casing string:

Conductor: No centralizers.

Surface Casing: One centralizer 10' above the float shoe and one every 4th joint spaced up the hole to surface. Intermediate Casing: One centralizer above float joint, one centralizer 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 Casing: Class A cement with 2-3% calcium chloride and 1/4 lb of flake.

Intermediate Casing: Class A cement with 1/4 lb of flake, 5 gallons of clay treat.

Production Casing 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 Casing Tail Cement: Class H + 45 PPS Calcium Carbonate + 1.0% Flake + 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.

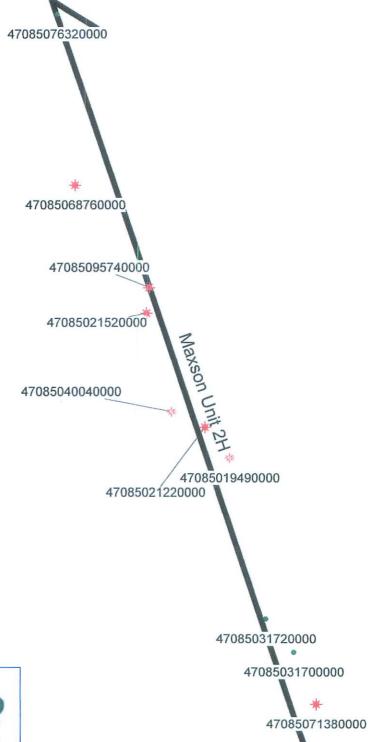
^{*}Note: Attach additional sheets as needed.

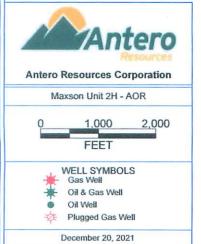


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Office of Oil and Gas

DEC 27 2021

WV Department of Environmental Protection



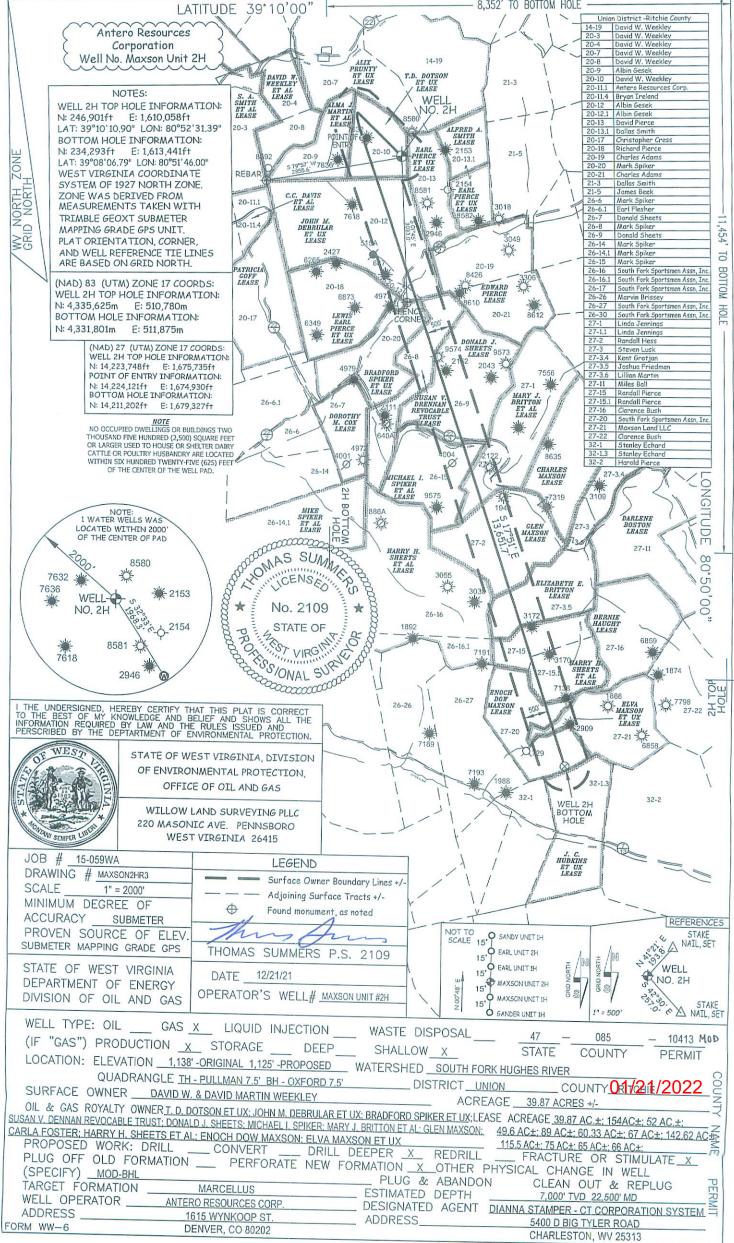


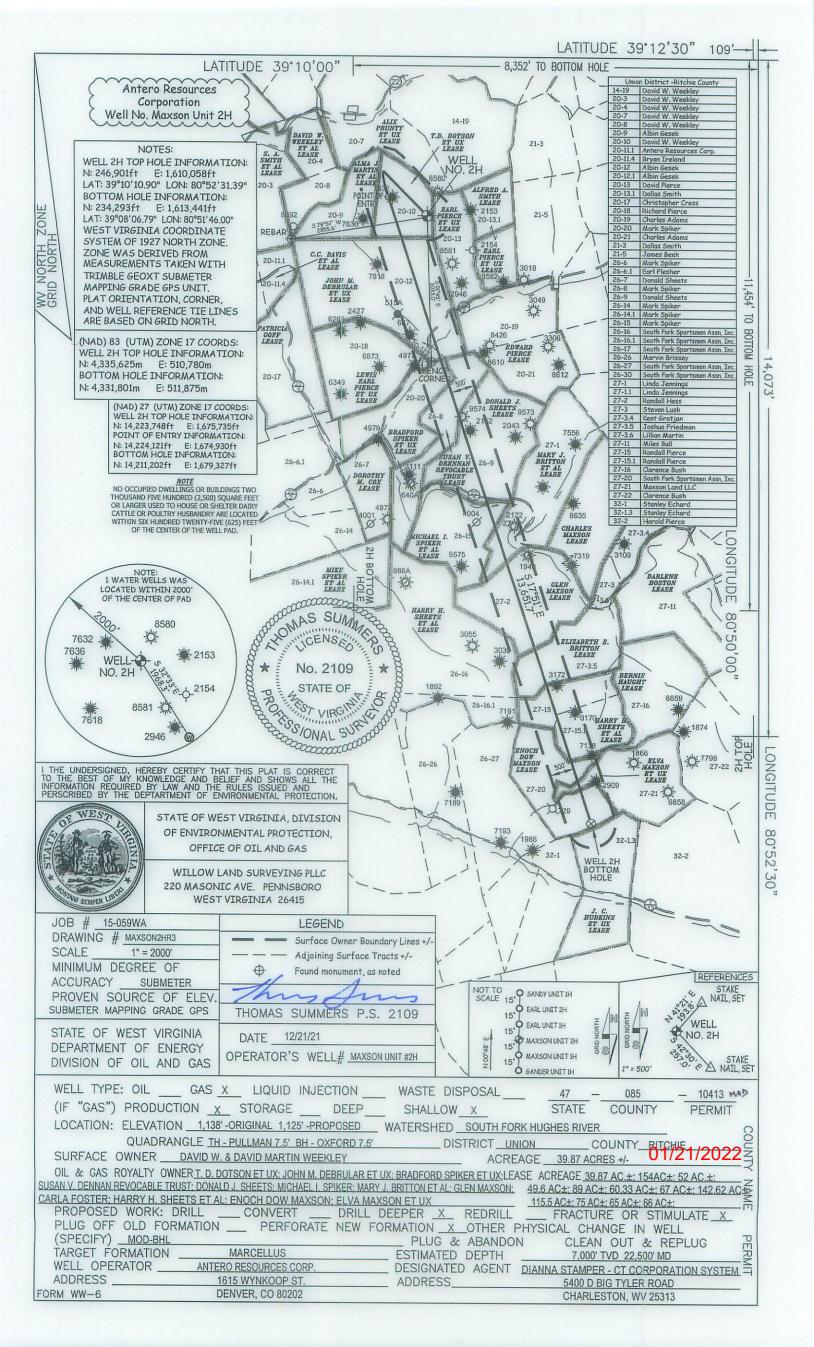
47085029090000

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47085071380000	MAXSON ELVA HEIRS	A-1364	AMERICAN ENR HOLDING	ALAMCO INC	5,226	3196 - 5189	Lower Huron, Alexander, Angola	Warren, Speechly, Balltown, Riley, Benson
47085019490000	GLENN MAXSON	1	MOSSOR OIL & GAS	MOSSOR OIL & GAS	1,820		Big Injun	Alexander, Gordon, Berea
47085021220000	MARY BRITTON	2	HAUGHT ENERGY CORP	MILL LOT OIL & GAS	1,650		Maxton, Weir	Alexander, Gordon, Berea
47085021520000	M B ZINN	2	ZICKEFOOSE W F & R L	SCANDOLA FRED	1,843		Big Injun	Alexander, Gordon, Berea
47085029090000	JENNIE MAXSON HEIRS	1	DEEM J F O & G LLC	DEEM J FRANK	2,045		Little Lime	Alexander, Gordon, Berea
47085031700000	SHEETS H ETAL	1	DEEM J F O & G LLC	RAINBOW VALLEY	2,015		Big Injun	Alexander, Gordon, Berea
47085031720000	H SHEETS ET AL	2	DEEM I F O & G LLC	RAINBOW VALLEY	2,075	2067 - 2067	Big Injun	Gordon, Berea
47085040040000	M B ZINN	4943	EQUITABLE GAS CO	EQUITABLE GAS CO	1,941		Big Injun	Alexander, Gordon, Berea
47085068760000	PIERCE FLORENCE R ET	D1	BOWYER DAVID	FOX DRILLING	5,085	3218 - 5033	Lower Huron, Angola	Alexander, Gordon, Berea
47085095740000	SHEETS DONALD	2	KEY OIL CO	KEY OIL CO	5,280	3357 - 5158	Alexander	Berea
47085076320000	DOTSON T D	3	RITCHIE PET CORP	HOPE CONSTR & REFG	2,062	2017 - 2023	Big Injun	Alexander, Gordon, Berea

RECEIVED Office of Oil and Gas

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
✓ T.D. Dotson, et ux Lease			
T.D. Dotson, et ux	J.T. Carter	1/8	0011/0297
J.T. Carter	The Carter Oil Company	Assignment	0011/0528
The Carter Oil Company	Hope Construction and Refining Company	Assignment	0052/0194
Hope Construction and Refining Company	Hope Natural Gas Company	Merger	0111/0520
Hope Natural Gas Company	Consolidation Gas Supply Corporation	Conveyance	0151/0436
Consolidation Gas Supply Corporation	Consolidation Gas Transmission Corporation	Assignment	0169/0756
Consolidation Gas Transmission Corporation	CNG Development Company	Assignment	0176/0601
CNG Development Company	CNG Producing Company	Name Change	wvsos
CNG Producing Company	Dominion Exploration & Production, Inc.	Name Change	0058/0366
Dominion Exploration & Production, Inc.	Dominion Transmission, Inc.	Assignment	0251/0621
Dominion Transmission, Inc.	CONSOL Energy Holdings, LLC	Assignment	0251/0648
CONSOL Energy Holdings, LLC	Consol Gas Company	Merger	0006/0576
Consol Gas Company	CNX Gas Company, LLC	Merger	0006/0634
CNX Gas Company, LLC	Antero Resources Corporation	Assignment	0269/0429
John M. Debrular et al Lease			
John M. Debrular and Susan J. Debrular his wife	W.W. Water	1/8	0011 (0221
W.W. Water	M.G. Zinn	•	0011/0321
M.G. Zinn	The Carter Oil Company	Assignment	0012/0370
The Carter Oil Company	Hope Construction and Refining Company	Assignment	0012/0373
Hope Construction and Refining Company	Hope Natural Gas Company	Assignment	0052/0194
Hope Natural Gas Company	Consolidation Gas Supply Corporation	Assignment	0111/0520
Consolidation Gas Supply Corporation	Consolidation Gas Supply Corporation Consolidation Gas Transmission Corporation	Conveyance	0151/0436
Consolidation Gas Transmission Corporation	•	Conveyance	0169/0756
CNG Development Company	CNG Producing Company	Assignment	0176/0601
• • •	CNG Producing Company	Assignment	0058/0366
CNG Producing Company	Dominion Exploration & Production, Inc.	Name Change	0058/0366
Dominion Exploration & Production, Inc.	Dominion Transmission, Inc.	Assignment	0251/0621
Dominion Transmission, Inc.	Consol Energy Holdings, LLC XVI	Assignment	0251/0648
Consol Energy Holdings, LLC XVI Consol Gas Company	Consol Gas Company	Merger	0006/0576
CNX Gas Company, LLC	CNX Gas Company, LLC Antero Resources Corporation	Name Change Assignment	0006/0634 0269/0429
Bradford Spiker et ux Lease	·		333,31.23
Bradford Spiker et ux Lease Bradford Spiker et ux	Alton Skinner	1/8	122/202
Alton Skinner	Alton L Skinner II	Assignment	132/392 216/391
Alton L Skinner II	DC Petroleum Inc	Assignment	247/245
DC Petroleum Inc	Antero Resources Appalachian Corporation	Assignment	254/789
Antero Resources Appalachian Corporation	Antero Resources Corporation	Merger	15/705
Susan V Drennan Revocable Trust Lease			
Susan V Drennan Revocable Trust	Antero Resources Corporation	1/8+	329/71

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Pag
Donald J Sheets Lease			
Donald J Sheets	Key Oil Company	1/8	244/246
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	253/747
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	15/705
Michael I Spiker et al Lease			
Michael I Spiker et al	Key Oil Company	1/8	240/222
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	258/509
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	15/705
Mary J Britton et al Lease			
Mary J Britton et al	W.H Mosser	1/8	88/291
W.H Mossor	BDL a Partnership	Will	16/154
BDL a Partnership	Term Energy Corporation	Assignment	256/391
Term Energy Corporation	Kiedash & Summers Enterprises LLC	Assignment	263/827
Kiedash & Summers Enterprises LLC	Antero Resources Appalachian Corporation	Assignment	263/1060
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	15/705
Glen Maxson Lease			
Glen Maxson	Appalachian Well Services & Minerals Inc	1/8	178/581
Appalachian Well Services & Minerals Inc	Roger Gragg	Assignment	284/355
Roger Gragg	Antero Resources Corporations	Conveyed	284/532
Elizabeth E Britton Lease			
Elizabeth E Britton	Pittsburgh & West Virginia Gas Co	1/8	51/501
Pittsburgh & West Virginia Gas Co	Equitable Gas Company	Assignment	126/473
Equitable Has Company	Equitrans Inc	Assignment	201/253
Equitrans Inc	Equitable Production Eastern State Inc	Assignment	234/830
Equitable Production Eastern State Inc	Equitable Production Company	Assignment	WVSOS
Equitable Production Company	EQT Production Company	Assignment	6/443
EQT Production Company	Antero Resources Corporation	Assignment	282/175
Harry H.Charaka at al. I assay			
Harry H Sheets et al Lease	Willand C Carrell	1/0	0.01
Harry H Sheets et al	Willard E Farrell	1/8	86/115
Willard E Farrell	Collen F Selsor et al	Will	42/15
Collen F Selsor et al I Frank Deem	J Frank Deem	Assignment	205/192
	CHK Louisiana LLC	Assignment	247/624
CHK Louisiana LLC Chesapeake Appalachia LLC	Chesapeake Appalachia LLC	Assignment	247/933
SWN Production Company	SWN Production Company	Assignment	280/707
Antero Exchange Properties	Antero Exchange Properties Antero Resources Corporation	Assignment	301/114
Antero Exchange Properties	Antero resources corporation	Merger	14/598

Maxson Unit 2H 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)

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
Elva Maxson et al Lease	Hone Natural Car Company	1/8	74/385
Hope Natural Gas Company	Hope Natural Gas Company Allegheny Land and Mineral	Assignment	74/385 84/597
Allegheny Land and Mineral	Plymouth Oil Company	Assignment	86/39
Plymouth Oil Company	Allegheny Land and Mineral	Assignment	87/183
Allegheny Land and Mineral	Alamo Inc	Name Change	4/452
Alamo Inc	Columbia Natural Resources LLC	Merger	269/668
Columbia Natural Resources LLC	Chesapeake Appalachia LLC	Merger	8/296
Chesapeake Appalachia LLC	SWN Production Company	Assignment	280/707
SWN Production Company LLC	Antero Exchange Properties LLC	Assignment	301/114
Antero Exchange Properties LLC	Antero Resources Corporation	Merger	14/598
Enoch Dow Maxson Lease			
Enoch Dow Macson	J.F Deem	1/8	100/371
J.F Deem	J.F Deem Oil and Gas LLC	Merger	228/230
J.F Deem Oil and Gas LLC	Chesapeake Appalachia LLC	Assignment	247/891
Chesapeake Appalachia LLC	SWN Production Company	Assignment	280/707
SWN Production Company LLC	Antero Exchange Properties LLC	Assignment	301/114
Antero Exchange Properties LLC	Antero Resources Corporation	Merger	14/598

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Lease Name or Enoch Dow Maxson Lease

Enoch Dow Maxson	J.F Deem	1/8	100/371
J.F Deem	J.F Deem Oil and Gas LLC	Merger	228/230
J.F Deem Oil and Gas LLC	Chesapeake Appalachia LLC	Assignment	247/891
Chesapeake Appalachia LLC	SWN Production Company LLC	Assignment	80/707
SWN Production Company LLC	Antero Exchange Properties LLC	Assignment	301/114
Antero Exchange Properties LLC	Antero Resources Corporation	Assignment	14/598

*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 To Kell	
Its:	VP of Land	

Page 1 of 1



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

Expedited Horizontal H6A Well Work Permits Weekely West Pad

1 message

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

Tue, Jan 18, 2022 at 2:15 PM

To: Mallory Stanton <mstanton@anteroresources.com>, Dani DeVito <ddevito@shalepro.com>, mhamsher@anteroresources.com, Douglas Newlon <douglas.c.newlon@wv.gov>, Arlene Mossor <amossor@wvassessor.com>

I have attached a copy of the newly issued well permit number. This will serve as your copy.

47-085-10412 - MAXSON UNIT 1H 47-085-10413 - MAXSON UNIT 2H 47-085-10416 - GANDER UNIT 1H

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

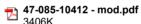
Charleston, WV 25304

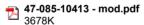
(304) 926-0499 ext. 41115

(304) 926-0452 fax

Wade.A.Stansberry@wv.gov

3 attachments





7 47-085-10416 - mod.pdf 3580K