



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, September 27, 2023
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

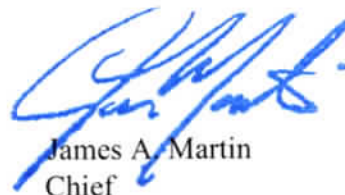
Re: Permit Modification Approval for MAKAR UNIT 2H
47-103-03588-00-00

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

Operator's Well Number: MAKAR UNIT 2H
Farm Name: ANTERO RESOURCES CORP
U.S. WELL NUMBER: 47-103-03588-00-00
Horizontal 6A New Drill
Date Modification Issued: 9/27/2023

Promoting a healthy environment.

09/29/2023

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

1) Well Operator: Antero Resources Corporation 494507062 103 - Wetzel Green Pine Grove 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Makar Unit 2H MOD Well Pad Name: Furbee Pad

3) Farm Name/Surface Owner: Antero Resources Corp. Public Road Access: CR 50

4) Elevation, current ground: As-built 1211' Elevation, proposed post-construction: _____

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7500' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7500' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 29500' MD

11) Proposed Horizontal Leg Length: 18053' *Open to modification at a later date

12) Approximate Fresh Water Strata Depths: 575'

13) Method to Determine Fresh Water Depths: 47103308970000 Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 2284'

15) Approximate Coal Seam Depths: 973'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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Environmental Protection

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	J-55	91.59#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	625'	625'	CTS, 651 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	3100'	3100'	CTS, 1262 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P110-ICY	23#	29500'	29500'	CTS, 6506 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
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			RECEIVED Office of Oil and Gas SEP 25 2023 WV Department of Environmental Protection
Sizes:	N/A			
Depths Set:	N/A			


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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): 33.19 acres

22) Area to be disturbed for well pad only, less access road (acres): 13.86 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

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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.

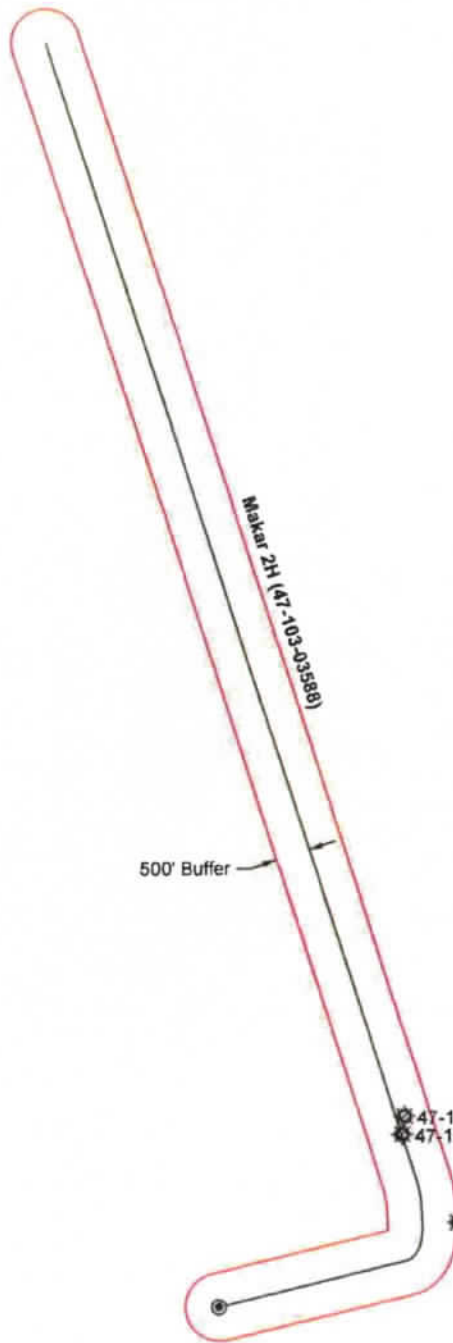
Handwritten signature and date: 9-29-23

LEGEND

- ⊙ Proposed gas well
- ⊛ Existing Well, as noted
- ⊛ Digitized Well, as noted



The orientation of this survey is Grid North, and its coordinate base is the West Virginia Coordinate System of 1927, North Zone



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Bridgeport Office Phone: (304) 848-5035 Fax: (304) 848-5037		172 Thompson Drive Bridgeport, WV 26330	
PARTY CHIEF: C. Lynch		DRAWN BY: J. Smith	
RESEARCH: J. Miller		PREPARED: August 24, 2023	
SURVEYED: Dec. 2016		PROJECT NO: 53-34-G-23	
FIELD CREW: C.L., K.M.	Sheet 1 of 1	DRAWING NO: Makar 2H EHL MOD ACR	



Scale: 1 Inch = 2500 feet

09/29/2023

UWI (API#)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formations(s)	Produced Formation(s) not perf'd
4710330890000	C.A LONG	5442	HOPE NATURAL GAS	HOPE NATURAL GAS	2,805		Big Injun, Gordon Stray	Weir, Beres, Bertson, Alexander
4710330897000	JENKINS MILLER	5173	HOPE NATURAL GAS	HOPE NATURAL GAS	2,770		Big Injun, Gordon Stray	Weir, Beres, Bertson, Alexander
4710330837000	MATILDA LANITZ FARM 2	2339	MANUFACT LIGHT & HEAT	MANUFACT LIGHT & HEAT	1,904		Big Injun, Gordon Stray	Weir, Beres, Bertson, Alexander

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09/29/2023

9,076' to Bottom Hole

6,371' to Top Hole

TOP HOLE LATITUDE 39 - 35 - 00
BTM HOLE LATITUDE 39 - 37 - 30

LONGITUDE 80 - 42 - 30

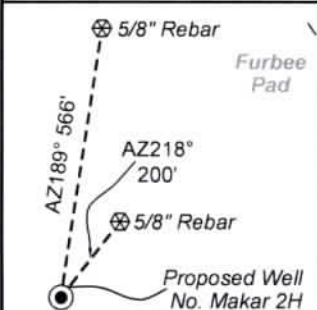
6,557' to Bottom Hole

Antero Resources Well No. Makar 2H

Antero Resources Corporation

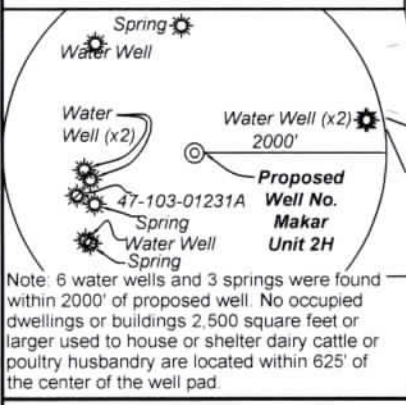
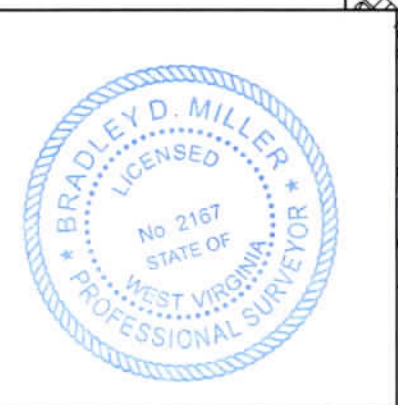


Well Location References (NTS)



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167



FILE NO: 53-34-G-23
DRAWING NO: Makar Unit 2H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION

DATE: September 6 2023
OPERATOR'S WELL NO. Makar Unit 2H
API WELL NO
47 - 103 - 03588
STATE COUNTY PERMIT

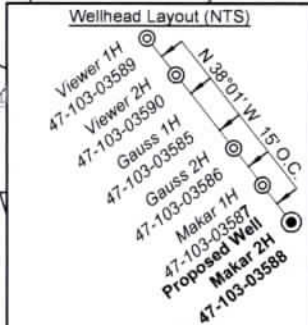
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: As-Built 1211' WATERSHED: Fishing Creek QUADRANGLE: Pine Grove
DISTRICT: Green COUNTY: Wayne
SURFACE OWNER: Antero Resources Corp. ACREAGE: 58.1
ROYALTY OWNER: James Allen Sell LEASE NO: ACREAGE: 58.1
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 7,500' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 29,500' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis
ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oaks Blvd.
Denver, CO 80202 Bridgeport, WV 26330

Notes
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Makar Unit 2H Top Hole coordinates are
N 387,167.58' Longitude: 80°43'51.35"
E 1,652,940.42'
Bottom Hole coordinates are
N 405,606.65' Longitude: 39°36'25.20"
E 1,650,483.55' Longitude: 80°44'25.96"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N 4,378,575.487m N 4,384,180.590m
E 523,131.011m E 522,288.933m
Plat orientation and corner and well references are based upon the grid north meridian
Well location references are based upon the magnetic meridian.

Notes:
Well No. Makar Unit 2H UTM Zone 17, NAD 1927
Top Hole Coordinates
N 14,364,660.89'
E 1,716,257.39'
Point of Entry Coordinates
N 14,365,938.92'
E 1,719,229.74'
Bottom Hole Coordinates
N 14,383,050.22'
E 1,713,493.98'

	Bearing	Dist.
L1	S 66°11' W	1,875.8'
L2	S 89°37' W	1,934.7'
L3	N 85°14' E	1,652.5'
L4	S 89°57' E	1,680.0'
L5	N 67°41' E	3,236.6'



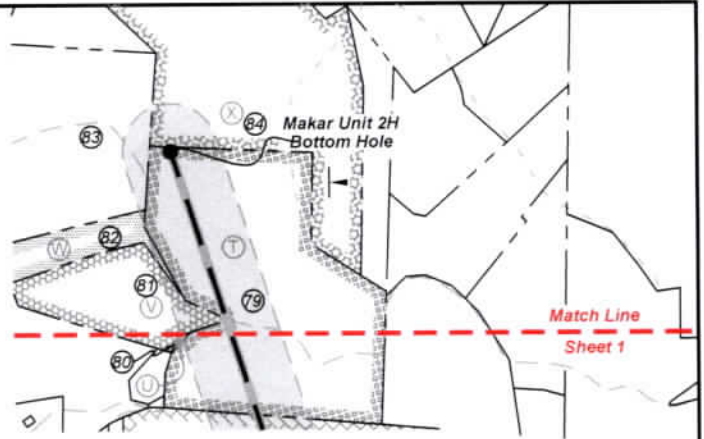
Legend

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Road
- Railroad
- Surface boundary (approx.)
- Interior surface tracts (approx.)

**Antero Resources
Well No. Makar 2H**

Antero Resources Corporation

Page 2 of 3



Leases	
A	James Allen Sell
B	William R. Stalnaker
C	Marilyn Halley Seeley
D	Tribune Resources Minerals, LLC
E	Tribune Resources Minerals, LLC
F	Marcella K. Harrison
G	Linda Darlene Straight
H	CSX Transportation, Inc.
I	WVDNR
J	Jenkins Miller
K	Antero Minerals, LLC
L	Antero Minerals, LLC

Leases	
M	Antero Minerals, LLC
N	Antero Minerals, LLC
O	Antero Minerals, LLC
P	Chesapeake Appalachia, LLC
Q	BRC Minerals, LP & BRC Appalachian Minerals, LLC
R	DWG Oil & Gas Acquisitions, LLC
S	Shiben Estates, Inc.
T	Chesapeake Appalachia, LLC
U	Elizabeth P. Orner
V	Donzel A. Hornbeck
W	Elizabeth P. Orner
X	Antero Minerals, LLC

ID	TM-Par	Owner	Bk/Pg	Acres
1	17-12	Antero Resources Corp.	483/888	58.10
2	17-1	Antero Resources Corp.	483/888	15.35
3	17-60	Ross Bucher	411/765	79.00
4	13-71	Charles R. & Kay L. Blair	387/577	63.11
5	17-2	Clarence L. & Carol J. Lancaster	287/357	0.50
6	17-3	Bradford Highley	386/607	17.00
7	17-14	Bradford Highley	386/607	18.53
8	17-14.2	Michael & Tammy Lemasters	384/10	2.18
9	13-71.1	Clarence L. & Carol J. Lancaster	387/266	19.19
10	17-3.1	Bradford D. Highley	386/607	1.00
11	13-72	Straight Cemetery	---/---	0.45
12	17-4	James Straight	223/193	10.8
13	17-5	Coastal Forest Resources	444/105	90.00
14	13-78	Sebastian, Jr. & Marcella Harrison	281/94	25.37
15	13-73	James Straight, et al	WB67/427	14.60
16	13-65.3	David Pigott	416/367	0.76
17	13-65.4	Raye Anne Lloyd	445/660	2.99
18	xx-xx	WV State Road Commission	162/497	0.90
19	13-65	Raye Anne Lloyd	445/660	18.01
20	30-55	James D. Glasscock II	377/180	0.81
21	13-64	Loraine Highley	WB81/258	5.64
22	13-54	Loraine Highley	WB81/258	20.17
23	30-51	Wayne Morrison	366/58	1.00
24	13-54.1	Michelle M. Thomas	428/641	1.05
25	13-54.3	Ethel L. Highley	WB81/258	0.38
26	30-50	Forrest L. & Anna Jane Tennant	228/278	0.22
27	30-49	Forrest L. & Anna Jane Tennant	218/4	0.45
28	30-48	Forrest L. & Anna Jane Tennant	238/203	0.22
29	13-53	Roma Adams	WB51/289	0.52
30	13-53	Roma Adams	WB51/289	0.52
31	13-53.3	Roma Adams	WB51/289	0.23
32	13-53.3	Roma J. Adams	364/61	0.46
33	13-54.2	Ronald M. & Pamela Ann Jackson	315/524	3.35
34	13-37	Debra Ann Hengee, et al	398/447	2.00
35	13-37.1	Jeffrey D. Brown	394/491	1.00
36	13-52	Johnny E. & Catherine Sue Efaw	428/475	0.92
37	13-50.1	Christopher & Alona Kocher	442/218	0.30
38	13-51.1	Christopher & Alona Kocher	442/218	0.18
39	30-29	Chad A. Pittman	397/351	1.01
40	13-51	Christopher M. Kocher	435/282	---
41	30-28	Flora L. Trader, et al	WB74/931	0.91
42	13-50	Jeremy S. & Sarah J. Kinczel	423/446	0.53

ID	TM-Par	Owner	Bk/Pg	Acres
43	30-25	Edward E. Martin Jr. & Violet Lorraine Martin	428/427	0.69
44	30-24	Edward E. Martin Jr. & Violet Lorraine Martin	428/427	0.23
45	13-48	Wetzel County PSD #1	373/484	0.23
46	13-48.1	Wetzel County PSD #1	373/486	0.34
47	13-49	Johnny E. & Catherine Sue Efaw	428/475	0.20
48	30-46	David L. & Freda V. Cunningham	283/252	0.34
49	30-47	David L. Cunningham	WB42/436	0.75
50	13-33.7	Michael A. McDiffitt	388/298	0.44
51	13-33.9	Ida Racqueal Ring	420/906	0.45
52	13-33.10	Timothy L. & Tammy L. McDiffitt	369/577	0.64
53	13-33.5	Terrell K. Haught	370/320	0.72
54	13-33.4	Francis Lee & Mary F. Arnolds	379/187	1.29
55	13-33.2	Richard D. & Jacqueline M. Bucher	329/595	0.20
56	13-33.11	Richard D. & Jacqueline M. Bucher	372/601	2.00
57	30-6.2	James C. & Corinna L. Tennant	373/178	1.18
58	30-5.1	Travis C. Ice & Mandy Barker	391/275	0.25
59	30-5.3	Michael D. Lloyd	431/490	0.45
60	30-4.1	Michael D. Lloyd	431/490	0.43
61	30-4.5	Travis C. & Amanda J. Ice	395/346	0.32
62	30-3.1	Phyllis L. Willey	WB41/389	0.83
63	30-2	Wallace E. & Daisy M. Kendall	289/476	1.75
64	30-1	Robert C. & Heidi M. Brown	428/14	1.75
65	13-32.3	Board of Education	282/414	12.39
66	13-32.4	James F. & Gearldine Haught	282/436	0.13
67	13-26.4	James F. & Gearldine Haught	226/69	0.30
68	13-26.5	Stanley & Mary Jo Pittman	284/657	14.72
69	13-26.3	Chad Andrew Pittman & Andrea Danielle Highly	395/636	0.68
70	13-25.1	Dennis & Diane K. Howell	289/271	2.37
71	13-25	Wayne & Brenda Balwanz	440/693	12.15
72	13-25.2	Diane K. Howell	416/682	10.20
73	13-14.6	Ronald S. Anderson	393/630	23.90
74	13-14	Ronald S. Anderson	399/387	32.80
75	13-7	WSD Properties LLC	441/793	162.00
76	8-41	Nancy Hatfield	267/370	60.00
77	9-41	WSD Properties	441/793	48.00
78	8-28	Nancy B. Hatfield	474/48/1	449.48
79	3-37	Carlton J. Hornbeck	250/263	118.00
80	8-7	Carlton J. Hornbeck	259/335	0.25
81	3-36	Donzel A. Hornbeck	459/560	35.00
82	3-35	Richard Hornbeck, et al	483/191	19.50
83	3-27	Ronald E. Wade	433/785	100.00
84	3-28	Richard D. Hornbeck	483/191	120.00

FILE NO: 53-34-G-23
DRAWING NO: Makar Unit 2H Well Plat
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:
Submeter
PROVEN SOURCE OF ELEVATION:
WVDOT, Harrisville, WV

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: September 6 2023
OPERATOR'S WELL NO. Makar Unit 2H
API WELL NO
47 - 103 - 03588
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1211' WATERSHED: Fishing Creek QUADRANGLE: Pine Grove
DISTRICT: Green COUNTY: Wayne
SURFACE OWNER: Antero Resources Corp ACREAGE: 58.1

ROYALTY OWNER: James Allen Sell LEASE NO: ACREAGE: 58.1
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 7,500' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 29,500' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis
ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oaks Blvd
Denver, CO 80202 Bridgeport, WV 26330

**Antero Resources
Well No. Makar 2H**

Antero Resources Corporation



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WVDOT, Harrisville, WV

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 ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oaks Blvd.
Denver, CO 80202 Bridgeport, WV 26330

09/29/2023

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
<u>A: James Allen Sell Lease</u> James Allen Sell	Antero Resources Corporation	1/8+	258A/0467
<u>C: Marilyn Halley Seeley Lease</u> Marilyn Halley Seeley EQT Production Company	EQT Production Company Antero Resources Corporation	1/8 Assignment	148A/0831 230A/0801
<u>D: Tribune Resources Minerals, LLC Lease</u> Tribune Resources Minerals, LLC	Antero Resources Corporation	1/8+	218A/0791
<u>E: Tribune Resources Minerals, LLC Lease</u> Tribune Resources Minerals, LLC	Antero Resources Corporation	1/8+	248A/0634
<u>F: Marcella K. Harrison Lease</u> Marcella K. Harrison	Antero Resources Corporation	1/8+	274A/0761
<u>G: Linda Darlene Straight Lease</u> Linda Darlene Straight	Antero Resources Corporation	1/8+	179A/0897
<u>H: CSX Transportation, Inc. Lease</u> CSX Transportation, Inc.	Antero Resources Corporation	1/8+	275A/0895
<u>I: WVDNR Lease</u> WVDNR	Antero Resources Corporation	1/8+	323A/0541
<u>J: Jenkins Miller Lease</u> Jenkins Miller Hope Natural Gas Company Consolidated Gas Supply Company CNG Transmission Corporation Eastern States Oil & Gas Inc. Equitable Production – Eastern States Inc. Equitable Production Company EQT Production Company	Hope Natural Gas Company Consolidated Gas Supply Company CNG Transmission Corporation Eastern States Oil & Gas Inc. Equitable Production – Eastern States Inc. Equitable Production Company EQT Production Company Antero Resources Corporation	1/8 Assignment Name Change Assignment Name Change Merge Name Change Assignment	0107/0056 0233/0387 0013/0151 076A/0232 0013/0014 0013/0014 0013/0014 230A/0801
<u>K: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0847
<u>L: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0847
<u>M: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0847
<u>N: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0847
<u>O: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0847

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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
<u>P: Chesapeake Appalachia, LLC Lease</u>			
Chesapeake Appalachia, LLC	SWN Production Company	1/8	157A/0640
SWN Production Company	Antero Exchange Properties LLC	Assignment	177A/0533
Antero Exchange Properties LLC	Antero Resources Corporation	Merge	0013/0311
<u>S: Shiben Estates, Inc. Lease</u>			
SHiben Estates, Inc.	Antero Resources Corporation	1/8+	312A/0021
<u>T: Chesapeake Appalachia, LLC Lease</u>			
Chesapeake Appalachia, LLC	SWN Production Company	1/8	157A/0640
SWN Production Company	Antero Exchange Properties LLC	Assignment	177A/0533
Antero Exchange Properties LLC	Antero Resources Corporation	Merge	0013/0311
<u>V: Donzel A. Hornbeck Lease</u>			
Donzel A. Hornbeck	Antero Resources Corporation	1/8+	221A/0742

*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 – 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

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 Environmental Protection

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
T: Chesapeake Appalachia, LLC Lease				
	Chesapeake Appalachia, LLC SWN Production Company Antero Exchange Properties LLC	SWN Production Company Antero Exchange Properties LLC Antero Resources Corporation	1/8 Assignment Merge	157A/0640 177A/0533 0013/0311

*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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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

Its: Senior Vice President of Land