



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

Tuesday, June 7, 2022
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for CAVATICA UNIT 1H
47-103-03481-00-00

Extended lateral length

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.

A blue ink signature of James A. Martin, Chief. The signature is written in a cursive style and is positioned above the name and title.

James A. Martin
Chief

Operator's Well Number: CAVATICA UNIT 1H
Farm Name: MARGARET LANCASTER
U.S. WELL NUMBER: 47-103-03481-00-00
Horizontal 6A New Drill
Date Modification Issued: 6/7/2022

Promoting a healthy environment.

06/10/2022

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 Porter Falls 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Cavatica Unit 1H MOD Well Pad Name: Red Lady Pad

3) Farm Name/Surface Owner: Margaret Lancaster Public Road Access: Wetzel Tyler Ridge Rd

4) Elevation, current ground: 1237' Elevation, proposed post-construction: ~1206'

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7400' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7400' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 29,400'

11) Proposed Horizontal Leg Length: 18,756.5'

12) Approximate Fresh Water Strata Depths: 33', 283', 831'

13) Method to Determine Fresh Water Depths: 095-02177, 095-02104 Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 1592'

15) Approximate Coal Seam Depths: 851'

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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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	79#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J/K-55	54.5#	881'	881'	CTS, 557 Cu. Ft.
Coal	9-5/8"	New	J-/K55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110CY	20#	29,400'	29,400'	CTS, 6491 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"	0.375"	2250	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"	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			
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): 51.15 acres

22) Area to be disturbed for well pad only, less access road (acres): 9.42 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.

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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

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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.

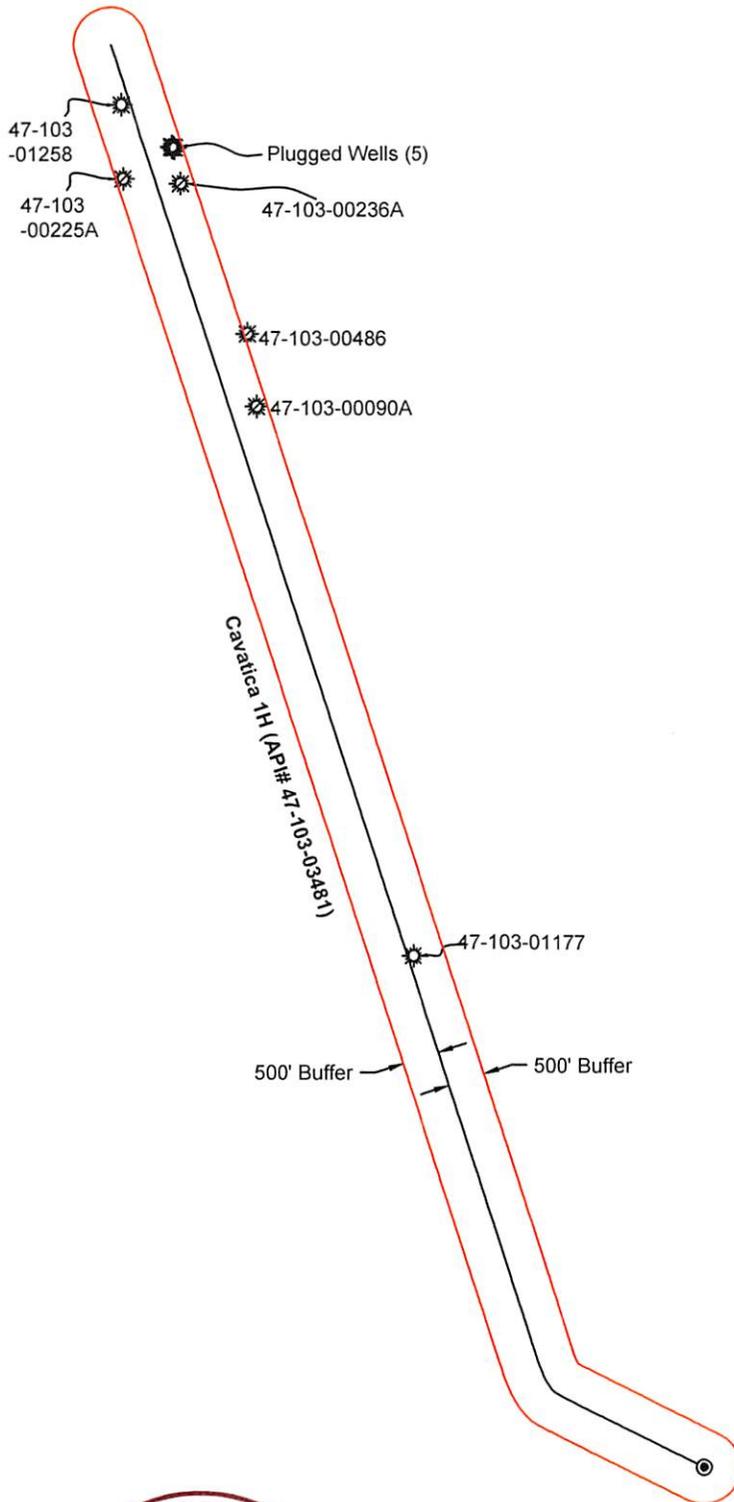
*Note: Attach additional sheets as needed.

LEGEND

- Proposed gas well
- ☼ Existing Well, as noted
- ☼ Digitized Well, as noted



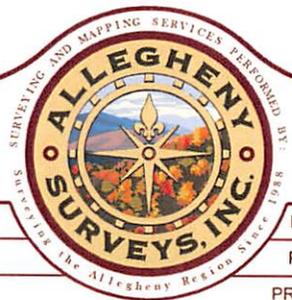
The orientation of this survey is Grid North, and its coordinate base is the West Virginia Coordinate System of 1927, North Zone



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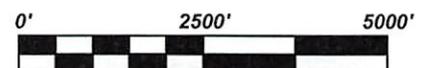


Bridgeport Office
Phone: (304) 848-5035
Fax: (304) 848-5037

172 Thompson Drive
Bridgeport, WV 26330

PARTY CHIEF: C. Lynch	DRAWN BY: J. Smith
RESEARCH: J. Miller	PREPARED: April 8, 2022
SURVEYED: Dec. 2016	PROJECT NO: 116-34-G-18
FIELD CREW: C.L., K.M.	DRAWING NO: Cavatica 1H Well Exhibit

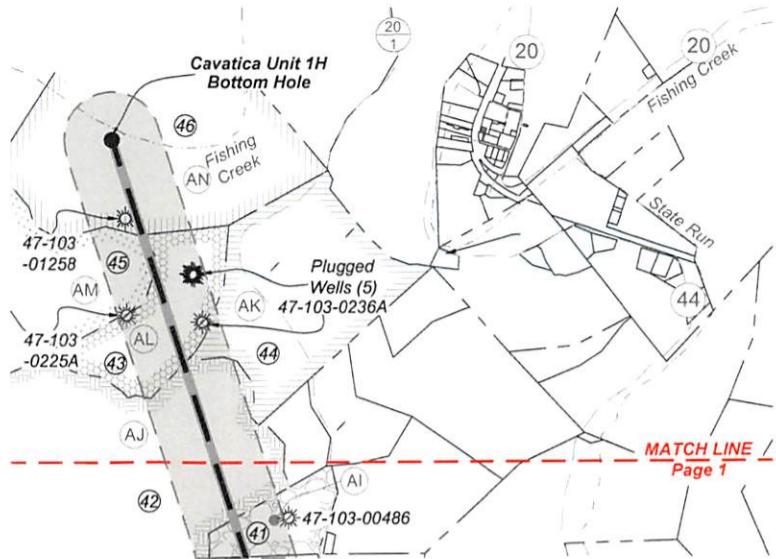
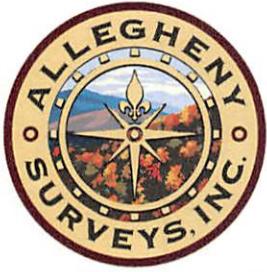
Sheet 1 of 1



Scale: 1 inch = 2500 feet 06/10/2022

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47103011770000	AMOS GLEN	1	NESLER CHARLES E	CARTER-JONES LUMBER	5,811	3059 - 3139	Gordon	Weir, Berea, Benson, Alexander
47103000900000								
47103004860000					2,348		Big Injun	Weir, Berea, Benson, Alexander
47103002360000			Manufacturers Light & Heat Co		3,198		Gordon	Weir, Berea, Benson, Alexander
47103002250000								
47103012580000	MORGAN S L HEIRS	4	BLUERIDGE GAS PRTRNS	COASTAL CORP THE	4,201	3526 - 4010	Gordon	Weir, Berea, Benson, Alexander

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2	12-27	Crystal A. Muzzy (Tyler Co.)	W69 / 226	60.91
3	-	Garrett Cemetery	85 / 62	1.80
4	12-25	Cecil & Margaret Lancaster	170 / 48	78.17
5	19-52	Joshua Highley	464 / 208	8.01
6	19-30	Richard R. & Mary J. Scyoc	452 / 177	13.00
7	19-21	Joshua Highley	464 / 208	41.75
8	12-21	Mary Adaline Lewis, et al	AR53 / 75	67.00
9	19-21.1	McCormick Cemetery	--- / ---	---
10	19-37	Joshua Highley	464 / 208	7.12
11	19-1	Joshua Highley	464/208	3.00
12	19-56	Frank & Deborah Van Schaik	378/104	26.68
13	19-12	Joshua Highley	464 / 208	17.17
14	19-55	Olive M. Moore	392/158	13.99
15	19-11	Hill Cemetery	62/149	0.50
16	19-54	Susan J. Fair	378 / 97	59.75
17	19-57	Frank & Deborah Van Schaik	378/104	27.20
18	16-75	Gregg John Weis	317 / 157	7.50
19	16-51	David Randolph Gifford	428/619	67.00
20	16-53	Edward D. & Heather M. Stewart	390 / 10	32.60
21	16-52	RBMA, LLC	431 / 526	43.25
22	16-43	RBMA, LLC	431 / 526	76.30
23	16-36.1	Kenneth E. Stewart	424/821	0.80
24	16-36	Kenneth E. Stewart Keystone Trust	424 / 821	53.00
25	16-35	Eugene D. Jr. & Diane Mason	405 / 291	26.00
26	16-35.1	Janet Carroll Jones	417/190	20.50
27	16-29	Kenneth E. Stewart Keystone Trust	424 / 821	53.50
28	16-19	Eugene D., Jr. & Diane Mason	405 / 291	64.70
29	16-18	Cathy A. & Ernest E. Stewart	355 / 280	28.50
30	16-17	Cathy A. & Ernest E. Stewart	355/280	3.00
31	16-7	Wilbur B. Dawson & Loretta P. Ueltschey	408 / 192	54.50
32	12-53	Robert E. Midcap	399 / 40	57.00
33	16-1	Richard Coleman Nolan	264 / 313	60.72
34	12-52	Linda Lou Jackson	399 / 34	50.00
35	12-45.1	Jess S. & Linda L. Jackson	255/474	1.00
36	12-45.2	Roger Dale & Martha M. Midcap	275/481	1.00
37	12-45	Roger Dale Midcap	399 / 37	46.00
38	12-47	Linda K. Ice	447 / 793	26.25
39	12-44	Jerome E. Staley II, et al	453 / 271	6.00
40	12-36	Jerome E. Staley II, et al	453 / 271	6.00
41	12-37	Roger D. & Tina S. Midcap	342 / 74	13.30
42	12-43	Coastal Forest Resources Co.	444 / 105	172.70
43	12-16	Charmaine A. & Heath C. Starkweather	427 / 930	36.00
44	12-17	Charmaine A. & Heath C. Starkweather	427 / 930	69.00
45	12-15	Coastal Forest Resources Co.	444/105	51.00
46	12-1	Bradley W. Ueltschey	476 / 310	78.13

Leases	
A	Shiben Estates, Inc.
B	Randy Bradley
C	BRC Appalachian Minerals I, LLC
D	Shiben Estates, Inc.
E	Richard R. & Mary J. Scyoc
F	Antero Minerals, LLC
G	Joshua Highley
H	Joshua Highley
I	Bounty Minerals II, Acquisitions, LLC
J	Allen Vincent Wilcox
K	Tribune Resources Minerals, LLC
L	Susan J. Fair
M	Olive M. Moore
N	Antero Minerals, LLC
O	Harold Ice, et ux
P	Deanna R. Cochran
Q	Edward D. & Heather M. Stewart
R	RBMA, LLC
S	Kenneth Stewart Keystone Trust
T	Kenneth Stewart Keystone Trust
U	Ernest & Cathy Stewart 2019 Irrevocable Trust
V	Janet Carroll Jones
W	Kenneth Stewart Keystone Trust
X	BRC Appalachian Minerals I, LLC
Y	Ernest & Cathy Stewart 2019 Irrevocable Trust
Z	Shiben Estates, Inc.
AA	John Ray Nolan
AB	Robert E. & Michael Mary Midcap
AC	Linda Lou Jackson & Jess Stephen Jackson
AD	Barbara Anne Amos King
AE	Linda Ice Long
AF	Barbara A. King
AG	Ridgetop Appalachia, LLC
AH	Jerome E. Staley, II, et ux
AI	Roger D. & Tina S. Midcap
AJ	Chesapeake Appalachia, LLC
AK	Charmaine A. Starkweather, et vir
AL	Charmaine A. Starkweather, et vir
AM	BRC Appalachia Minerals I, LLC
AN	Stone Hill Minerals Holdings, LLC

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FILE NO: 116-34-G-18
 DRAWING NO: Cavatica 1H Well Plat
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY:
 Submeter
 PROVEN SOURCE OF ELEVATION:
 CORS, Monroe County, OH

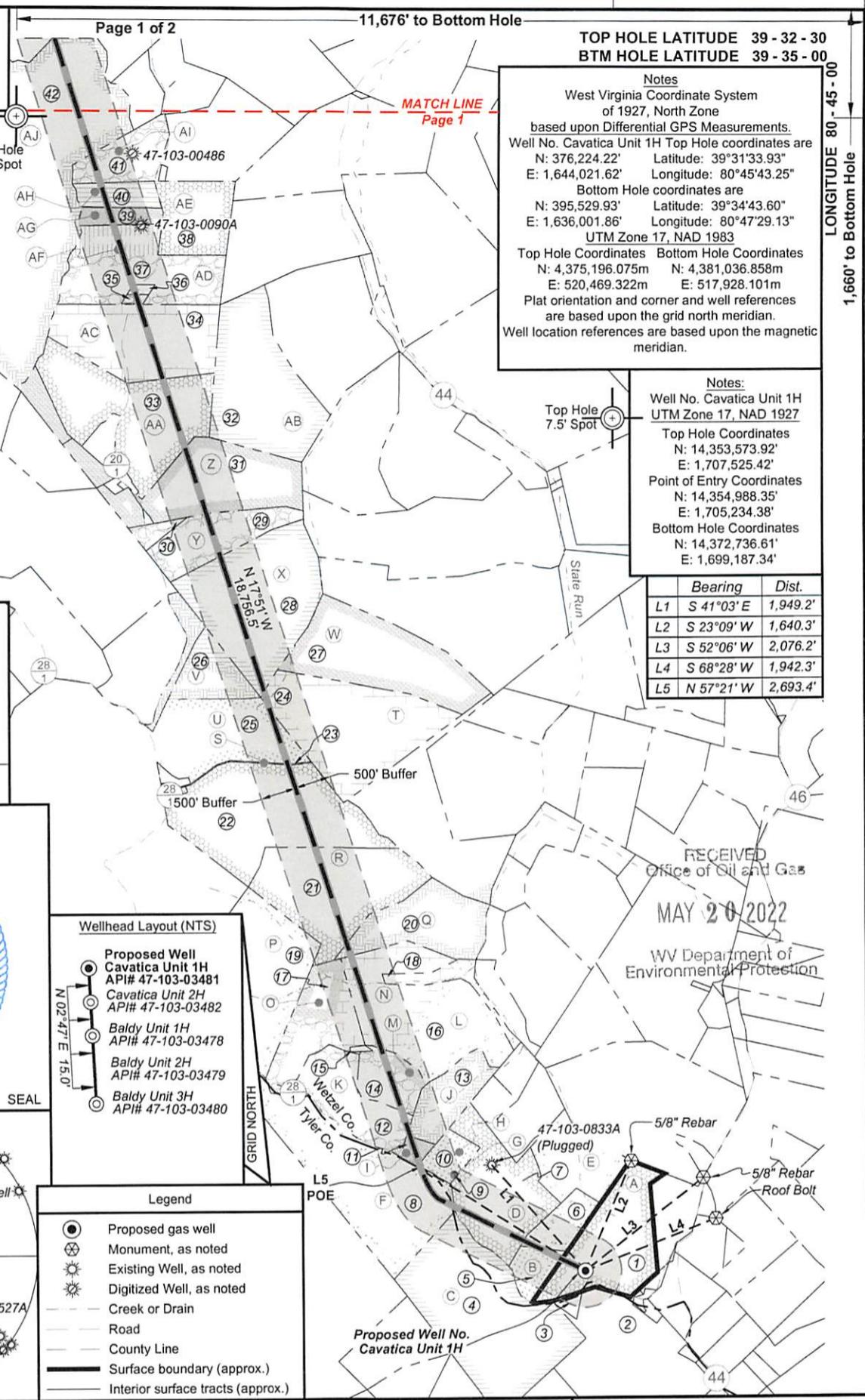
STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: April 8 2022
 OPERATOR'S WELL NO. Cavatica Unit 1H
 API WELL NO
 47 - 103 - 03481
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Existing 1,237' Proposed 1,206' WATERSHED: Fishing Creek QUADRANGLE: Porter Falls 0.8; 30;
 DISTRICT: Green Margaret SURFACE OWNER: Lancaster Joshua Highley, Allen Vincent Wilcox, John Ray Nolan, Tribune Resources Minerals, LLC; 17,175; 7,125; 261.75
 COUNTY: Wetzel 06/10/2022
 SURFACE OWNER: Lancaster Roger D. & Tina S. Midcap; Chesapeake Appalachia, LLC; Edward D. & Heather M. Stewart; RBMA, LLC; 40; 8; 01; 36.00; 3.25;
 ROYALTY OWNER: Shiben Estates, Inc. (3); Ernest & Cathy Stewart 2019 Irrevocable Trust (2); Antero Minerals, LLC (2); Barbara A. King; LEASE NO: ACREAGE: 39.00 51; 6; 6; 53; 8.01; 38; 3;
 BRC Appalachia Minerals I, LLC (2); Barbara Anne Amos King; Ridgetop Appalachia, LLC; Jerome E. Staley, II, et ux; 13.25; 32.56; 119.75;
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL_MOD 7,400' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 29,400' MD

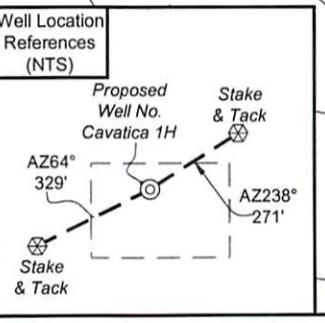
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313

Antero Resources
Well No. Cavatica 1H
BHL MOD
 Antero Resources Corporation



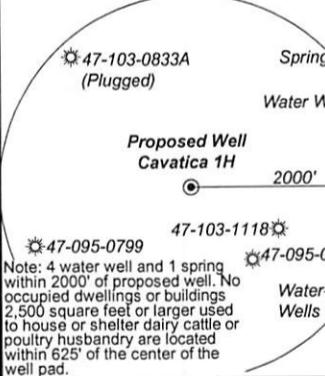
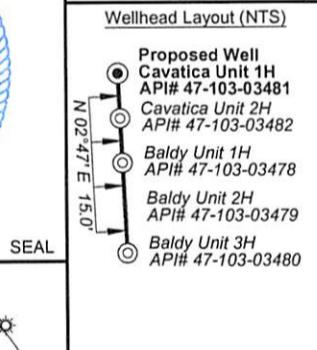
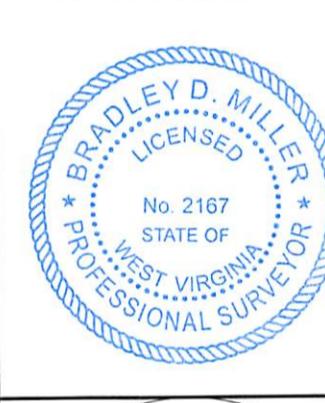
TOP HOLE LATITUDE 39 - 32 - 30
 BTM HOLE LATITUDE 39 - 35 - 00

Notes
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Cavatica Unit 1H Top Hole coordinates are
 N: 376,224.22' Latitude: 39°31'33.93"
 E: 1,644,021.62' Longitude: 80°45'43.25"
 Bottom Hole coordinates are
 N: 395,529.93' Latitude: 39°34'43.60"
 E: 1,636,001.86' Longitude: 80°47'29.13"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,375,196.075m N: 4,381,036.858m
 E: 520,469.322m E: 517,928.101m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.



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



Legend

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

Notes:
 Well No. Cavatica Unit 1H UTM Zone 17, NAD 1927

Top Hole Coordinates
 N: 14,353,573.92'
 E: 1,707,525.42'

Point of Entry Coordinates
 N: 14,354,988.35'
 E: 1,705,234.38'

Bottom Hole Coordinates
 N: 14,372,736.61'
 E: 1,699,187.34'

	Bearing	Dist.
L1	S 41°03' E	1,949.2'
L2	S 23°09' W	1,640.3'
L3	S 52°06' W	2,076.2'
L4	S 68°28' W	1,942.3'
L5	N 57°21' W	2,693.4'

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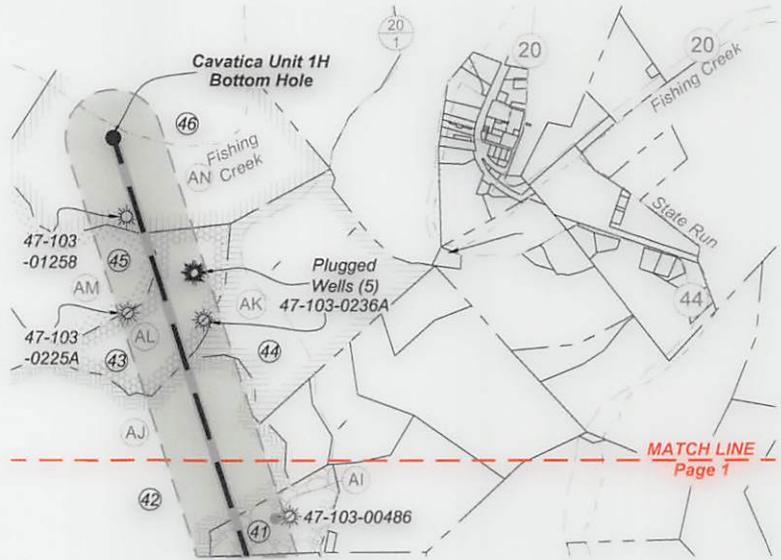
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38	12-47	Linda K. Ice	447 / 793	26.25
39	12-44	Jerome E. Staley II, et al	453 / 271	6.00
40	12-36	Jerome E. Staley II, et al	453 / 271	6.00
41	12-37	Roger D. & Tina S. Midcap	342 / 74	13.30
42	12-43	Coastal Forest Resources Co.	444 / 105	172.70
43	12-16	Charmaine A. & Heath C. Starkweather	427 / 930	36.00
44	12-17	Charmaine A. & Heath C. Starkweather	427 / 930	69.00
45	12-15	Coastal Forest Resources Co.	444/105	51.00
46	12-1	Bradley W. Ueltschey	476 / 310	78.13

Leases	
A	Shiben Estates, Inc.
B	Randy Bradley
C	BRC Appalachian Minerals I, LLC
D	Shiben Estates, Inc.
E	Richard R. & Mary J. Scyoc
F	Antero Minerals, LLC
G	Joshua Highley
H	Joshua Highley
I	Bounty Minerals II, Acquisitions, LLC
J	Allen Vincent Wilcox
K	Tribune Resources Minerals, LLC
L	Susan J. Fair
M	Olive M. Moore
N	Antero Minerals, LLC
O	Harold Ice, et ux
P	Deanna R. Cochran
Q	Edward D. & Heather M. Stewart
R	RBMA, LLC
S	Kenneth Stewart Keystone Trust
T	Kenneth Stewart Keystone Trust
U	Ernest & Cathy Stewart 2019 Irrevocable Trust
V	Janet Carroll Jones
W	Kenneth Stewart Keystone Trust
X	BRC Appalachian Minerals I, LLC
Y	Ernest & Cathy Stewart 2019 Irrevocable Trust
Z	Shiben Estates, Inc.
AA	John Ray Nolan
AB	Robert E. & Michaelmary Midcap
AC	Linda Lou Jackson & Jess Stephen Jackson
AD	Barbara Anne Amos King
AE	Linda Ice Long
AF	Barbara A. King
AG	Ridgetop Appalachia, LLC
AH	Jerome E. Staley, II, et ux
AI	Roger D. & Tina S. Midcap
AJ	Chesapeake Appalachia, LLC
AK	Charmaine A. Starkweather, et vir
AL	Charmaine A. Starkweather, et vir
AM	BRC Appalachia Minerals I, LLC
AN	Stone Hill Minerals Holdings, LLC

FILE NO: 116-34-G-18
 DRAWING NO: Cavatica 1H Well Plat
 SCALE: 1" = 2000'
 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: April 8 2022
 OPERATOR'S WELL NO. Cavatica Unit 1H
 API WELL NO
 47 - 103 - 03481
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: Existing 1,237' Proposed 1,206' WATERSHED: Fishing Creek QUADRANGLE: Porter Falls 0.8; 30; 17,175; 7,125; 261.75; 17,175; 9,229.5; 40; 8; 67; 36.75; 64.5; 51; 6; 6; 53; 8.01; 38; 3; 13.25; 32.56; 119.75; 60.72; 50; 36; 71.61

DISTRICT: Green Margaret SURFACE OWNER: Lancaster ROYALTY OWNER: Shiben Estates, Inc. (3); Ernest & Cathy Stewart 2019 Irrevocable Trust (2); Antero Minerals, LLC (2); Barbara A. King. LEASE NO: ACREAGE: 39.00

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL_MOD TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,400' TVD 29,400' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313

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: Shiben Estates LLC Lease</u> Shiben Estates LLC	Antero Resources Corporation	1/8+	255A/0681
<u>B: Randy Bradley Lease</u> Randy Bradley Lease Antero Resources Appalachian Corporation	Antero Resources Appalachian Corporation Antero Resources Corporation	1/8+ Name Change	136A/0758 0121/0008
<u>E: Richard R. & Mary J. Scyoc Lease</u> Richard R. Scyoc and Mary J. Scyoc	Antero Resources Corporation	1/8+	179A/0613
<u>D: Shiben Estates LLC Lease</u> Shiben Estates LLC	Antero Resources Corporation	1/8+	265A/0235
<u>F: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	0067/0362
<u>H: Joshua Highley Lease</u> Joshua Highley	Antero Resources Corporation	1/8+	213A/0610
<u>I: Bounty Minerals II, Acquisition's, LLC Lease</u> Bounty Minerals II Acquisitions, LLC	Antero Resources Corporation	1/8+	182A/0928
<u>J: Allen Vincent Wilcox Lease</u> Allen Vincent Wilcox a married man dealing in his sole and separate property	Antero Resources Corporation	1/8+	163A/0918
<u>K: Tribune Resources Minerals, LLC Lease</u> Tribune Resources Minerals, LLC	Antero Resources Corporation	1/8+	248A/0630
<u>M: Olive M. Moore Lease</u> Olive M. Moore	Antero Resources Corporation	1/8+	233A/0717
<u>N: Antero Minerals, LLC Lease</u> Antero Minerals, LLC	Antero Resources Corporation	1/8+	250A/0735
<u>Q: Edward D. & Heather M. Stewart Lease</u> Edward D. Stewart and Heather M. Stewart	Antero Resources Corporation	1/8+	229A/0884
<u>R: RBMA, LLC Lease</u> RBMA, LLC	Antero Resources Corporation	1/8+	236A/0606
<u>S: Kenneth Stewart Keystone Trust Lease</u> Kenneth E. Stewart Keystone Trust Agreement dated 3/7/11	Antero Resources Corporation	1/8+	135A/0042

RECEIVED
Office of Oil and Gas
MAY 20 2022
WV Department of
Environmental Protection

06/10/2022

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>U: Ernest & Cathy Stewart 2019 Irrevocable Trust Lease</u>			
Ernest E. Stewart and Cathy A. Stewart trustees of the Ernest and Cathy Stewart 2019 Irrevocable trust	Antero Resources Corporation	1/8+	238A/0606
<u>T: Kenneth Stewart Keystone Trust Lease</u>			
Kenneth E. Stewart Keystone Trust Agreement dated 3/7/11	Antero Resources Corporation	1/8+	135A/0042
<u>X: BRC Appalachian Minerals I, LLC Lease</u>			
BRC Appalachian Minerals I, LLC	BRC Working Interest Company LLC	1/8+	0369/0300
BRC Working Interest Company LLC	Chesapeake Appalachia, LLC	Assignment	0369/0784
Chesapeake Appalachia, LLC	Statoil USA Onshore Properties Inc	Assignment	0378/0764
Statoil USA Onshore Properties Inc	SWN Exchange Titleholder LLC	Assignment	0470/0668
SWN Exchange Titleholder LLC	SWN Production Company LLC	Merger	0009/0404
SWN Production Company LLC	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0525/0315
<u>Y: Ernest & Cathy Stewart 2019 Irrevocable Trust Lease</u>			
Ernest E. Stewart and Cathy A. Stewart trustees of the Ernest and Cathy Stewart 2019 Irrevocable trust	Antero Resources Corporation	1/8+	238A/0606
<u>Z: Shiben Estates, Inc. Lease</u>			
Shiben Estates, Inc.	Antero Resources Corporation	1/8+	265A/0279
<u>AA: John Ray Nolan Lease</u>			
John Ra Nolan	Antero Resources Corporation	1/8+	239A/0439
<u>AC: Linda Lou Jackson & Jess Stephen Jackson Lease</u>			
Linda Lou Jackson and Jess Stephen Jackson	Antero Resources Corporation	1/8+	239A/0412
<u>AD: Barbara Anne Amos King Lease</u>			
Barbara Anne Amos King	Antero Resources Corporation	1/8+	176A/0520
<u>AF: Barbara A. King Lease</u>			
Barbara A. King	Antero Resources Corporation	1/8+	248A/0503
<u>AG: Ridgetop Appalachia, LLC Lease</u>			
Ridgetop Appalachia, LLC	Antero Resources Corporation	1/8+	278A/0724
<u>AH: Jerome E. Staley, II, et ux Lease</u>			
Jerome E. Staley, et ux	Antero Resources Corporation	1/8+	283A/0663

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 WV Department of
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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>AI: Roger D. & Tina S. Midcap Lease</u>			
Roger D. and Tina S. Midcap	Antero Resources Corporation	1/8+	283A/0070
<u>AJ: 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	Name Change	0013/0311
<u>AK: Charmaine A. Starkweather, et vir Lease</u>			
Charmaine A. Starkweather and Heath C. Starkweather	Stone Energy Corporation	1/8+	135A/0013
Stone Energy Corporation	EQT Production Company	Assignment	183A/0305
EQT Production Company	Antero Resources Corporation	Assignment	230A/0801
<u>AL: Charmaine A. Starkweather, et vir Lease</u>			
Charmaine A. Starkweather and Heath C. Starkweather	Stone Energy Corporation	1/8+	135A/0013
Stone Energy Corporation	EQT Production Company	Assignment	183A/0305
EQT Production Company	Antero Resources Corporation	Assignment	230A/0801
<u>AM: BRC Appalachian Minerals I, LLC Lease</u>			
BRC Appalachian Minerals I, LLC	BRC Working Interest Company LLC	1/8+	0369/0300
BRC Working Interest Company LLC	Chesapeake Appalachia, LLC	Assignment	0369/0784
Chesapeake Appalachia, LLC	Statoil USA Onshore Properties Inc	Assignment	0378/0764
Statoil USA Onshore Properties Inc	SWN Exchange Titleholder LLC	Assignment	0470/0668
SWN Exchange Titleholder LLC	SWN Production Company LLC	Merger	0009/0404
SWN Production Company LLC	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0525/0315

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*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.

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
AN: <u>Stone Hill Minerals Holdings, LLC Lease</u>	Stone Hill Minerals Holdings, LLC	Antero Resources Corporation	1/8+	259A/0769

*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.

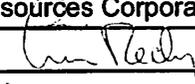
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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: VP of Land