

04/19/2019



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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Thursday, April 18, 2019
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for CALLAHAN UNIT 2H
47-017-06874-00-00

Change Bottom Hole Location leading to a Horizontal Leg Length change from 9455' to 9474'

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: CALLAHAN UNIT 2H
Farm Name: MARY E. DEETS AND/OR PAUL A. SMITH
U.S. WELL NUMBER: 47-017-06874-00-00
Horizontal 6A New Drill
Date Modification Issued: 04/18/2019

Promoting a healthy environment.

WW-6B
(04/15)

Permit Modification (API# 47-017-06874)
 API NO. 47- 017 - 06874
 OPERATOR WELL NO. Callahan Unit 2H
 Well Pad Name: Deets Pad

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

1) Well Operator: Antero Resources Corporation 494507062 017 - Doddri West Uni Smithburg 7.5'
 Operator ID County District Quadrangle

2) Operator's Well Number: Callahan Unit 2H Well Pad Name: Deets Pad

3) Farm Name/Surface Owner: Mary E. Deets and/or Paul A. Smith Public Road Access: Old US-50

4) Elevation, current ground: ~1422' Elevation, proposed post-construction: 1376'

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: 7600' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 7600' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20400' MD

11) Proposed Horizontal Leg Length: 9474'

12) Approximate Fresh Water Strata Depths: 196', 221'

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

14) Approximate Saltwater Depths: 1381', 1843', 1966'

15) Approximate Coal Seam Depths: 583', 755', 891'

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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 Office of Oil and Gas
 MAR 29 2019
 WV Department of
 Environmental Protection

DAF
 3/28/19

WW-6B
(04/15)

Permit Modification (API# 47-017-06874)
 API NO. 47-017 - 06874
 OPERATOR WELL NO. Callahan Unit 2H
 Well Pad Name: Deets Pad

18)

CASING AND TUBING PROGRAM

TYPE	<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	H-40	94#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	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	20#	20400'	20400'	5202 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	<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"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	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"	0.361"	12,630	2500	Leak-H/POZ & TII - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

Kind:	N/A					RECEIVED Office of Oil and Gas
Sizes:	N/A					MAR 29 2019
Depths Set:	N/A					WV Department of Environmental Protection

DAC
3/22/19

WW-6B
(10/14)

Permit Modification (API# 47-017-06874)
API NO. 47- 017 - 06874
OPERATOR WELL NO. Callahan Unit 2H
Well Pad Name: Deets 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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 41.13 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.82 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: 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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Office of Oil and Gas
MAR 29 2019

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.

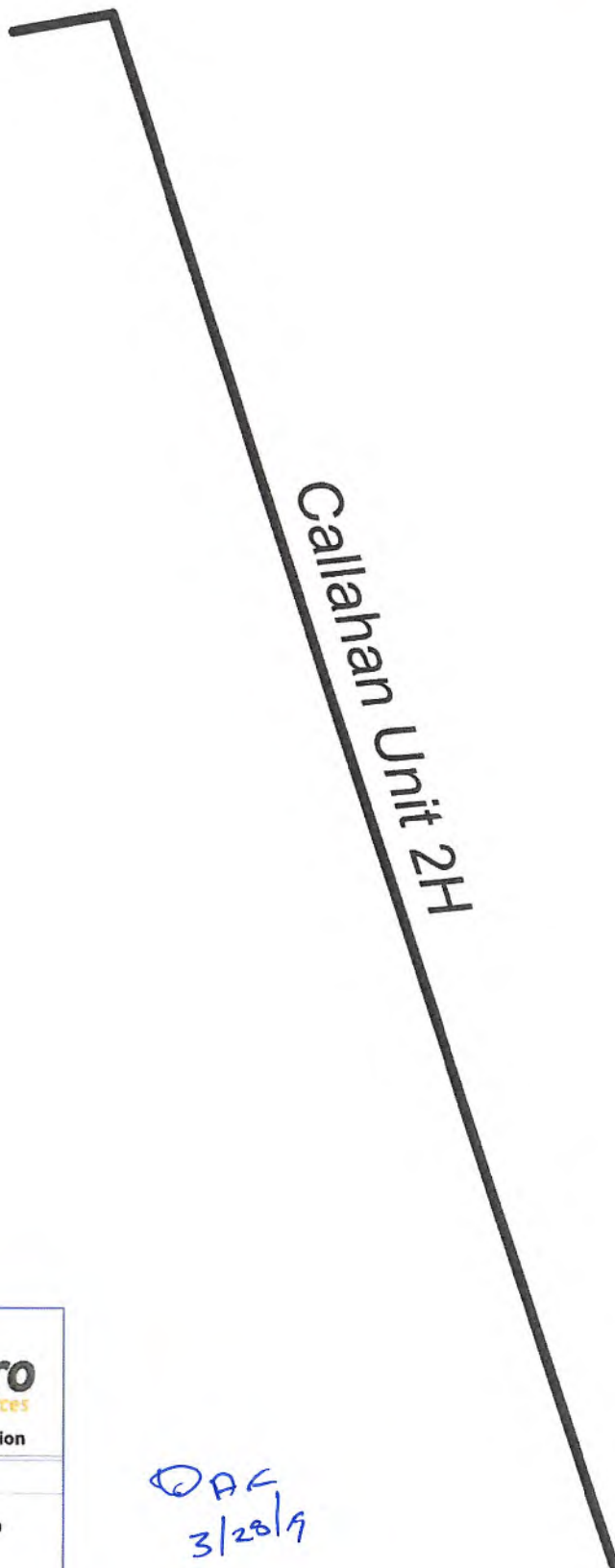
WV Department of
Environmental Protection

*Note: Attach additional sheets as needed.

DAF
3/26/19



CALLAHAN UNIT 2H (DEETS PAD) - AREA OF REVIEW 35-8-5.11



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MAR 29 2019

WV Department of
Environmental Protection



Antero Resources Corporation

Callahan Unit 2H - AOR



REMARKS
No Wells of Interest

September 19, 2018

QAC
3/29/19

WW-6A1
(5/13)

Operator's Well No. Callahan Unit 2H

**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:

MAR 15 2019
Office of Oil and Gas

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Doris L. Cleveland Lease				
	Doris L. Cleveland	Mountain Link Associates, Inc.	1/8	0200/0518
	Mountain Link Associates, Inc.	R&K Oil and Gas, Inc.	Assignment	0206/0656
	R&K Oil and Gas, Inc.	Bluestone Energy Partners	Assignment	0234/0050
	Bluestone Energy Partners	Antero Resources Bluestone LLC	Merged	0288/0001
	Antero Resources Bluestone, LLC	Antero Resources Corporation	Name Change	Exhibit 3

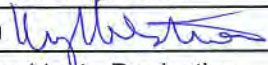
*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**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: Kevin Kilstrom 
 Its: Senior Vice President - Production

Operator's Well Number

Callahan Unit 2H

Permit Modification (API# 47-017-06874)

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Chapter 22, Article 6A, Section 5(a)(5)
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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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Johnson B. Smith et ux Lease</u>			
Johnson B. Smith, et ux	Eastern Oil Company	1/8	0022/0231
Eastern Oil Company	A.W. Stevens	Assignment	0042/0328
A.W. Stevens	Eastern Union Gas Company	Assignment	0042/0330
Eastern Union Gas Company	Pittsburgh & West Virginia Gas Company	Assignment	0085/0334
Pittsburgh & West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0257
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	EQT Capital Corporation	Name Change	Exhibit 2
EQT Capital Corporation	Antero Resources Corporation	Assignment	0325/0528
<u>P.B. McClain et ux Lease</u>			
P.B. McClain et ux	The West Union Gas Company	1/8	0014/0477
The West Union Gas Company	Eastern Oil Company	Assignment	Unrecorded
Eastern Oil Company	A.W. Stevenson	Assignment	0042/0328
A.W. Stevenson	Eastern Union Gas Company	Assignment	0042/0328
Eastern Union Gas Company	Pittsburgh & West Virginia Gas Company	Assignment	0085/0334
Pittsburgh & West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0303
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	Equitrans, L.P.	Name Change	0302/0123
Equitrans, L.P.	Equitable Production-Eastern States, Inc.	Assignment	0192/0019
Equitable Production-Eastern States, Inc.	Equitable Production Company	Merged	Exhibit 4
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Assignment	0325/0539
<u>T.G. Baker et al Lease</u>			
T.G. Baker et al	J.D. Foley	1/8	0044/0483
J.D. Foley	Delta Petroleum Company	Assignment	Unrecorded
Delta Petroleum Company	Petroleum Development Corporation	Assignment	Unrecorded
Petroleum Development Corporation	PDC Mountaineer, LLC	Assignment	0240/0118
PDC Mountaineer, LLC	Antero Resources Corporation	Assignment	0371/0253
<u>G.L. Swentzel, et ux Lease</u>			
G.L. Swentzel, et ux	West Union Gas Company	1/8	0023/0482
West Union Gas Company	Eastern Oil Company	Assignment	0024/0136
Eastern Oil Company	A.W. Stevenson	Assignment	0042/0328
A.W. Stevenson	Eastern Union Gas Company	Assignment	0042/0328
Eastern Union Gas Company	Pittsburgh and West Virginia Gas Company	Assignment	0085/0334
Pittsburgh and West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0257
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	Equitrans, L.P.	Assignment	0302/0123
Equitrans, L.P.	Equitable Production Eastern States, Inc.	Assignment	0192/0019
Equitable Production Eastern States, Inc.	Equitable Production Company	Merged	Exhibit 4
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Agreement	0316/0603

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**CONTINUED ON NEXT PAGE

Operator's Well Number

Callahan Unit 2H

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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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Pansy Heflin et al Lease</u>			
Pansy Heflin et al	Royal Resources Corporation	1/8	0098/0058
Royal Resources Corporation	MERT Development, Inc.	Assignment	0113/0488
MERT Development, Inc.	Continental Reserves Oil Company	Assignment	0159/0098
Continental Reserves Oil Company	ABARTA Oil & Gas Co., Inc.	Assignment	0171/0111
ABARTA Oil & Gas Co., Inc.	Antero Resources Appalachian Corporation	Assignment	0261/0463
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Olivia Jones Lease</u>			
Olivia Jones	E.D. Tate	1/8	0054/0362
E.D. Tate	P.D. Farr	Conveyance	0094/0128
P. D. Farr	Carolyn Farr	Conveyance	0015/0347
Carolyn Farr	The Carolyn Farr Trust	Conveyance	0220/0237
The Carolyn Farr Trust	Antero Resources Appalachian Corporation	Assignment	0271/0541
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

FORM WW-6A1
EXHIBIT 1

FILED

JUN 10 2013

Natalie E. Turnant,
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penney Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wv.gov
E-mail: business@wv.gov

FILE ONE ORIGINAL.
(We if you want a filed
statement copy returned to you)
FEE: \$25.00

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

Office Hours: Monday - Friday
8:30 a.m. - 5:00 p.m. ET

*** In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby ***
applies for an Amended Certificate of Authority and submits the following statement:

- 1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- 2. Date Certificate of Authority was issued in West Virginia: 6/25/2008
- 3. Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of Incorporation.)
- 4. Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- 5. Other amendments: _____
(attach additional pages if necessary)

6. Name and phone number of contact person. (This is optional; however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Allyn A. Schopp (304) 357-7310
Contact Name Phone Number

7. Signature information (See below **Important Legal Notice Regarding Signatures**)

Print Name of Signer: Allyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

Important Legal Notice Regarding Signatures For West Virginia Code: §31B-1-12b. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

FORM WW-6A1
EXHIBIT 1

FILED

JUN 10 2013

Metello H. Tennant,
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penney Berlin, Manager
Corporation Division
IN THE OFFICE OF
SECRETARY OF STATE
Tel: (304)538-8600
Fax: (304)538-4381
Website: www.wv.gov
E-mail: business@wv.gov

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

Office Hours: Monday - Friday
8:30 a.m. - 5:00 p.m. ET

FILE ONE ORIGINAL
(Two if you want a filed
stamped copy returned to you)
FEE: \$25.00

I, in accordance with the provisions of the West Virginia Code, the undersigned corporation hereby
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- 2. Date Certificate of Authority was issued in West Virginia: 6/25/2008
- 3. Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of Incorporation.)
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(due to home state name not being available)
- 5. Other amendments: _____
(attach additional pages if necessary)

6. Name and phone number of contact person. (This is optional; however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Allyn A. Schopp (304) 357-7210
Contact Name Phone Number

7. Signature Information (See below "Important Legal Notice Regarding Signatures")

Print Name of Signer: Allyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

"Important Legal Notice Regarding Signatures" For West Virginia Code: §11B-1-12b. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

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Office of Oil and Gas
MAR 29 2019
WV Department of
Environmental Protection

**FORM WW-6A1
EXHIBIT 2, Page 1**

BOOK 512 PAGE 781

**ARTICLES OF MERGER
OF
KENTUCKY WEST VIRGINIA GAS COMPANY**
a West Virginia Company

Into
EQT CAPITAL CORPORATION
a Delaware Company

**FILED
NOVEMBER 1995
IN THE OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA**

Pursuant to the provisions of Section 38, Article 1, Chapter 31 of the Code of West Virginia, 1931, as amended, the undersigned corporation adopts the following Articles of Merger for the purpose of merging a subsidiary corporation into the undersigned as the surviving corporation:

The undersigned foreign corporation is incorporated under the laws of Delaware and the laws of such jurisdiction permit such a merger.

The following Plan of Merger was adopted by the undersigned corporation in the manner prescribed by the laws of the jurisdiction under which it is organized.

This Plan of Merger dated as of November 20, 1995, is among EQT Capital Corporation ("EQT"), a Delaware corporation, Equitrans, Inc. ("Equitrans"), a Delaware corporation and Kentucky West Virginia Gas Company ("Kentucky West"), a West Virginia corporation. The terms of the merger shall be as follows:

1. Equitrans and Kentucky West shall merge into EQT. EQT shall be the surviving corporation with its corporate identity, existence, purposes, powers, franchises, rights and immunities unimpaired.
2. The issued and outstanding shares of common stock of Equitrans and Kentucky West, shall without further action on the part of Equitrans, Kentucky West or EQT, be cancelled and of no further effect as of the Effective Date of the merger (as defined below).
3. A Certificate of Merger shall be filed as required by law with the Secretary of State of the State of West Virginia and the Secretary of State of the State of Delaware. The Effective Date of the merger shall be the last date of filing with the respective secretaries of state (the "Effective Date"). On the Effective Date, Equitrans and Kentucky West will cease to exist as separate corporations and EQT will succeed to all of the assets, rights, privileges, immunities, powers, duties and liabilities of Equitrans and Kentucky West in accordance with the provisions of the West Virginia Corporation Act and of the Delaware General Corporation Law.
4. The current Certificate of Incorporation of EQT shall be its Certificate of Incorporation on and after the Effective Date of the merger.

FORM WW-6A1
EXHIBIT 2, Page 2

BOOK **512** PAGE **782**

5. This Plan of Merger shall be executed by the corporate officers of Kentucky West, Equitrans and EQT.

The number of outstanding shares of each class of the subsidiary corporation and the number of such shares of each class owned by the surviving corporation are as follows:

Name of Subsidiary	Number of Shares Outstanding	Designation of Class	Number of Shares Owned by Surviving Corporation
Kentucky West Virginia Gas	331,754	Common	331,754

A copy of the Plan of Merger set forth above was mailed on September 1, 1995 to each Shareholder of the subsidiary corporation.

The undersigned corporation hereby: (a) agrees that it may be served with process in the State of West Virginia in any proceeding for the enforcement of the rights of a dissenting shareholder of the above-mentioned subsidiary corporation against the surviving corporation; (b) irrevocably appoints the Secretary of State of the State of West Virginia as its agent to accept service of process in any such proceeding; and (c) agrees that it will promptly pay to the dissenting shareholders of such domestic corporation the amount, if any, to which they shall be entitled under Section 123, Article 1, Chapter 31 of the Code of West Virginia with respect to the rights of dissenting shareholders.

Dated November 20, 1995.

EQT CAPITAL CORPORATION

By *D. Mark Chumov*
Its President

and *Andrew C. Walker*
Its Corporate Secretary

9/20/2018

WV Secretary of State Business Entity Search

**FORM WV-6A1
EXHIBIT 3,
PAGE 1**

Business Entity Details

Main

Name: ANTERO RESOURCES BLUESTONE LLC		Organization Number: 283362		
Type: LLC	Sec Type:	City: DENVER	Class: P	Ch Type: F
Eff Date: 12/15/2010	File Date: 12/15/2010	Term Date: 3/28/2014	Term Reason: M	AWTerm: A
CH County:	Ch State: DE	Bus Purp:	Ex Acres:	Term Yrs:
Auth Shrs:	Cap Stck:	Status: Not Active	Par Val:	MGMT: MBR

Addresses

Principal Office Address:	Name:	Addr1: 1625 17TH STREET	Addr2: City: DENVER	State: CO	Zip: 80202
Designated Office Address:	Name:	Addr1: 981 E. WASHINGTON AVE	Addr2: City: ELLENBORO	State: WV	Zip: 26346
Notice of Process Address:	Name: C T CORPORATION SYSTEM	Addr1: 5400 D BIG TYLER ROAD	Addr2: City: CHARLESTON	State: WV	Zip: 26313
Mailing Address:	Name:	Addr1: 1625 17TH STREET	Addr2: City: DENVER	State: CO	Zip: 80202

Officers

Member: Name: ANTERO RESOURCES APPALACHIAN CORPORATION Addr1: 1625 17TH STREET Addr2: City: DENVER State: CO Zip: 80202

9/20/2018

WV Secretary of State Business Entity Search

**FORM WW-6A1
EXHIBIT 3,
PAGE 2**

No Records Found.

Names

No Records Found.

Mergers

No Records Found.

Subsidiaries

No Records Found.

Amendments

**Amendment Amendment
Date**

3/28/2014 MERGER: MERGING ANTERO RESOURCES BLUESTONE LLC, A QUALIFIED DE LIMITED LIABILITY COMPANY WITH AND INTO ANTERO RESOURCES CORPORATION, A QUALIFIED DE CORPORATION, THE SURVIVOR

Dissolutions

No Records Found.



Certificate

*I, Joe Manchin III, Secretary of State of the
State of West Virginia, hereby certify that*

by the provisions of Chapter 31 of the West Virginia Code, Articles of Merger were received and filed
MERGING EQUITABLE PRODUCTION - EASTERN STATES, INC., A QUALIFIED DE ORGANIZATION, WITH AND INTO
EQUITABLE PRODUCTION COMPANY, A QUALIFIED ORGANIZATION.

Therefore, I hereby issue this

CERTIFICATE OF MERGER



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
June 28, 2001*


Secretary of State

LATITUDE 39°20'00"

4,830'

10,892' TO BOTTOM HOLE

LATITUDE 39°17'30"

LONGITUDE 80°42'30"

6,862'

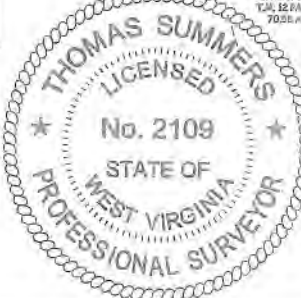
LONGITUDE 80°42'30"

Antero Resources Corporation Well No. Callahan Unit 2H

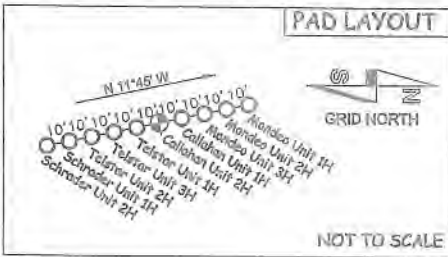
NOTES:
 WELL 2H TOP HOLE INFORMATION:
 N: 299,020ft E: 1,653,296ft
 LAT: 39°18'52.19" LON: 80°43'31.46"
 BOTTOM HOLE INFORMATION:
 N: 290,504ft E: 1,658,913ft
 LAT: 39°17'28.77" LON: 80°42'18.54"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE
 ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 4,351,723m E: 523,687m
 BOTTOM HOLE INFORMATION:
 N: 4,349,157m E: 525,442m

(NAD) 27 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 14,276,562ft E: 1,718,003ft
 POINT OF ENTRY INFORMATION:
 N: 14,277,116ft E: 1,720,807ft
 BOTTOM HOLE INFORMATION:
 N: 14,268,144ft E: 1,723,839ft



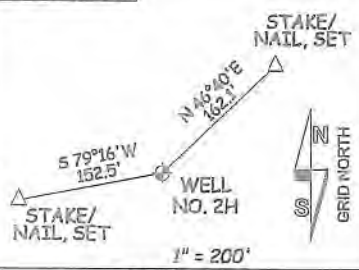
PAD LAYOUT



NOT TO SCALE



REFERENCES



JOB # 13-028WA
 DRAWING # CALLAHAN2HRS
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

LEGEND
 --- Surface Owner Boundary Lines +/-
 - - - Interior Surface Tracts +/-
 - - - Existing Fence
 ⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109
 DATE 03/08/19
 OPERATOR'S WELL# CALLAHAN UNIT #2H

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 LOCATION: ELEVATION 1,422' ORIGINAL 1,376' PROPOSED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SMITHEBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES±
 OIL & GAS ROYALTY OWNER JOHNSON B. SMITH ET UX; T.G. BAKER ET AL; LEASE ACREAGE 180 ACRES±; 53.46 ACRES±;
 G.L. SWENTZEL ET UX; PANSY HEFLIN ET AL; OLIVIA JONES; DORIS L. CLEVELAND 103 ACRES±; 222.5 ACRES±; 260 ACRES±; 58 ACRES±
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL FRACTURE OR STIMULATE X
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL
 (SPECIFY) MOD-POE PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,600' TVD 20,400' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPLER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME

PERMIT

LATITUDE 39°20'00"

4,830'

LATITUDE 39°17'30"

125' TO BOTTOM HOLE
LONGITUDE 80°42'30"

6,862'

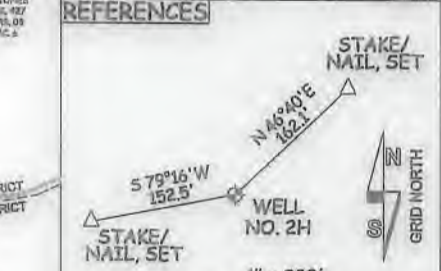
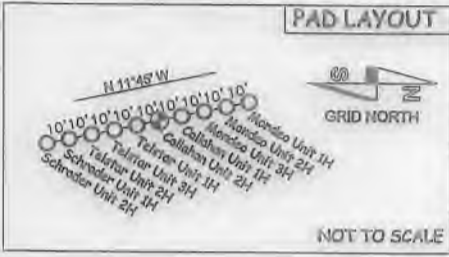
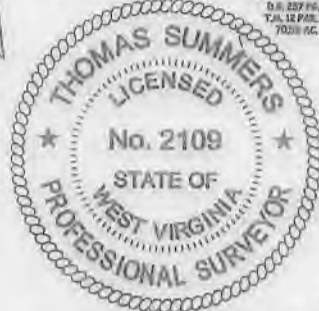
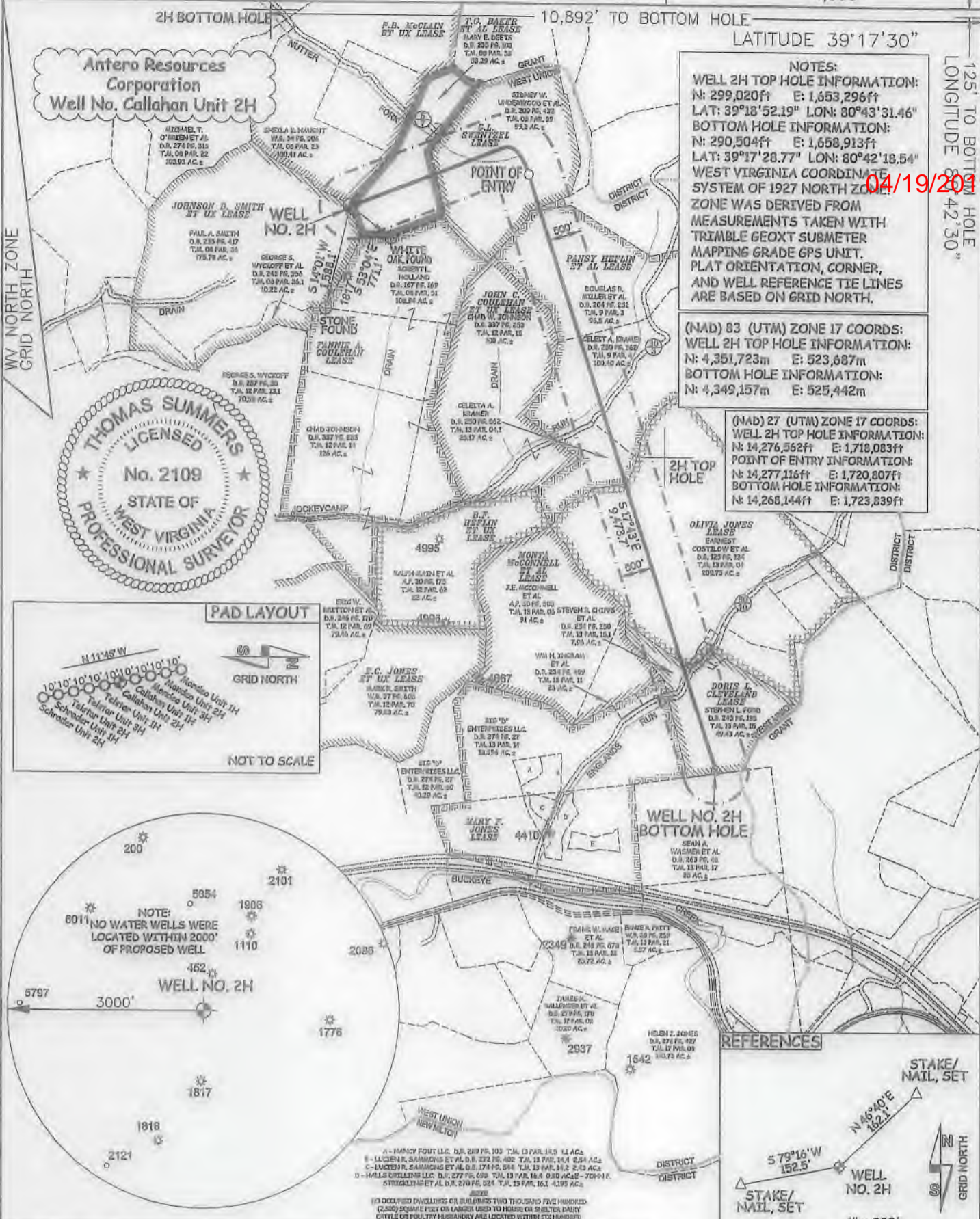
LONGITUDE 80°42'30"

04/19/2019

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BOTTOM HOLE INFORMATION:
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JOB # 13-028WA
 DRAWING # CALLAHAN2HR5
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 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

LEGEND
 - - - - - Surface Owner Boundary Lines +/-
 - - - - - Interior Surface Tracts +/-
 - - - - - Existing Fence
 ⊕ Found monument, as noted
 THOMAS SUMMERS P.S. 2109

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: ELEVATION 1,422'-ORIGINAL 1,376'-PROPOSED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES±
 OIL & GAS ROYALTY OWNER JOHNSON B. SMITH ET UX; T.G. BAKER ET AL; LEASE ACREAGE 100 ACRES±; 53.46 ACRES±;
 G.L. SWENTZEL ET UX; PANSY HEFLIN ET AL; OLIVIA JONES; DORIS L. CLEVELAND 103 ACRES±; 222.5 ACRES±; 260 ACRES±; 58 ACRES±
 PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER X REDRILL ___ FRACTURE OR STIMULATE X
 PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL ___
 (SPECIFY) MOD-POE PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,600' TVD 20,400' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPLER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

VOID

Section

04/19/2019



March 14, 2019

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

West Virginia Department of Environmental Protection
Office of Oil and Gas
Attn: Ms. Laura Adkins
601 57th Street
Charleston, WV 25304

Ms. Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for seven approved wells on the Deets Pad. We are requesting to change the bottom hole locations of the Telstar Unit 2H (API# 47-017-06881), Telstar Unit 3H (API# 47-017-06831), Schrader Unit 1H (API# 47-017-06877), Schrader Unit 2H (API# 47-017-06879), Callahan Unit 1H (API# 47-017-06873), Callahan Unit 2H (API# 47-017-06874), Mondeo Unit 3H (API# 47-017-06878).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised lateral length, measured depth, and Production Casing/Cement program
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plats, which shows the new bottom hole location

We would also like to request the following three wells be **cancelled**, Mondeo Unit 1H (API# 47-017-06875), Mondeo Unit 2H (API# 47-017-06876), Telstar Unit 1H (API# 47-017-06880).

If you have any questions please feel free to contact me at (303) 357-6820.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karin Cox", is written over a light blue circular stamp.

Karin Cox
Permitting Agent
Antero Resources Corporation

Enclosures

RECEIVED
Office of Oil and Gas

MAR 29 2019

WV Department of
Environmental Protection

WW-6B
(04/15)

Permit Modification (API# 47-017-06874)
API NO. 47-017 - 06874 **04/19/2019**
OPERATOR WELL NO. Callahan Unit 2H
Well Pad Name: Deets Pad

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

1) Well Operator: Antero Resources Corporation 494507062 017 - Doddri West Uni Smithburg 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Callahan Unit 2H Well Pad Name: Deets Pad

3) Farm Name/Surface Owner: Mary E. Deets and/or Paul A. Smith Public Road Access: Old US-50

4) Elevation, current ground: ~1422' Elevation, proposed post-construction: 1376'

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: 7600' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 7600' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20400' MD

11) Proposed Horizontal Leg Length: 9474'

12) Approximate Fresh Water Strata Depths: 196', 221'

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

14) Approximate Saltwater Depths: 1381', 1843', 1966'

15) Approximate Coal Seam Depths: 583', 755', 891

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: _____

VOID

WW-6B
(04/15)

Permit Modification (API# 47-017-06874)
 API NO. 47- 017 - 06874 **04/19/2019**
 OPERATOR WELL NO. Callahan Unit 2H
 Well Pad Name: Deets Pad

18)

CASING AND TUBING PROGRAM

TYPE	<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	H-40	94#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	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	20#	20400'	20400'	5202 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	<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"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	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"	0.361"	12,630	2500	Lead-HIPOZ & Tail - H	H/POZ-1.44 & 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			

VOID

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 41.13 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.82 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.

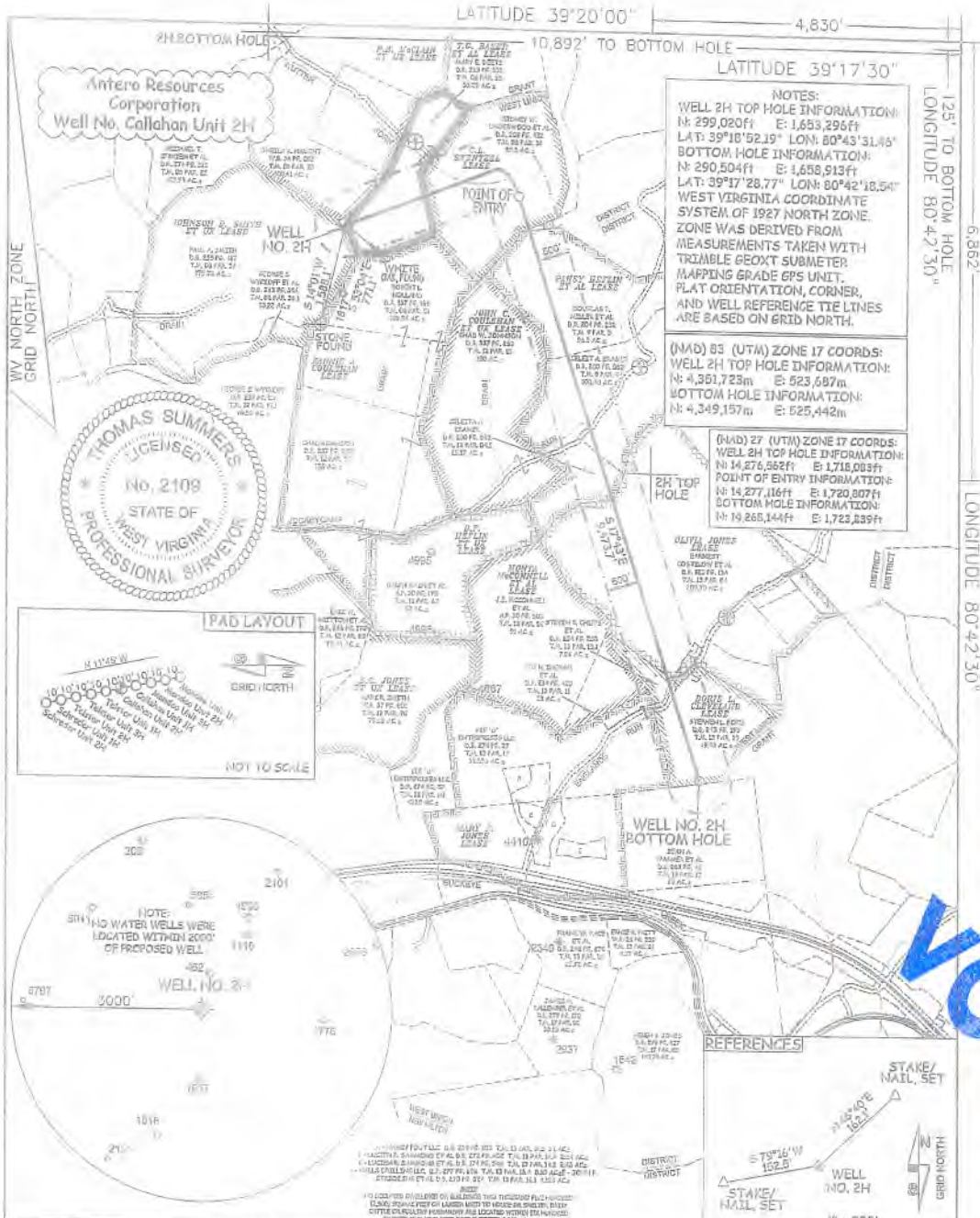
24) Describe all cement additives associated with each cement type:

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: 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:

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.



JOB # 13-028WA
 DRAWING # CALLAHAN2HRS
 SCALE 1" = 200'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 WILLLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26418

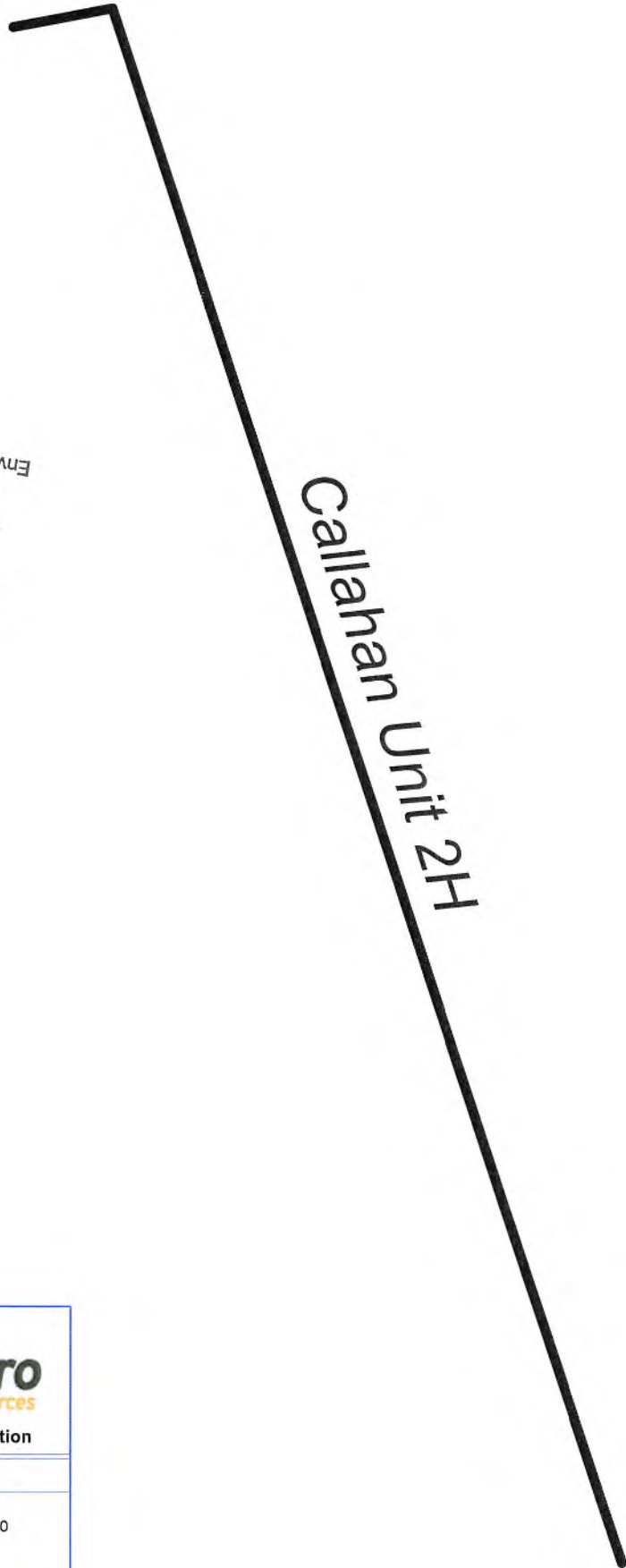
LEGEND
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 - - - Interior Surface Tracts +/-
 - - - Existing Fence
 - - - Found monument, as noted

THOMAS SUMMERS P.S. 2109
 DATE 03/08/19
 OPERATOR'S WELL # CALLAHAN UNIT 2H
 API WELL # 47-017-05574
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 LOCATION ELEVATION 1,422 ORIGINAL 1,378 PROPOSED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SMITHBURG 7.5 DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES +/-
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 ADDRESS 1615 WYMKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

VOID

RECEIVED
 Office of Oil and Gas
 MAR 29 2019
 WV Department of Environmental Protection



Callahan Unit 2H

RECEIVED
Office of Oil and Gas
MAR 15 2019
WV Department of
Environmental Protection



Antero Resources Corporation

Callahan Unit 2H - AOR



REMARKS

No Wells of Interest

September 19, 2018

WW-6A1
(5/13)

Permit Modification (API# 47-017-06874)

Operator's Well No. Callahan Unit 2H

**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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Doris L. Cleveland Lease				
	Doris L. Cleveland	Mountain Link Associates, Inc.	1/8	0200/0518
	Mountain Link Associates, Inc.	R&K Oil and Gas, Inc.	Assignment	0206/0656
	R&K Oil and Gas, Inc.	Bluestone Energy Partners	Assignment	0234/0050
	Bluestone Energy Partners	Antero Resources Bluestone LLC	Merged	0288/0001
	Antero Resources Bluestone, LLC	Antero Resources Corporation	Name Change	Exhibit 3

*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: Kevin Kilstrom *[Signature]*
 Its: Senior Vice President - Production



WW-6A1

Operator's Well Number

Callahan Unit 2H

Permit Modification (API# 47-017-06874)

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Johnson B. Smith et ux Lease</u>			
Johnson B. Smith, et ux	Eastern Oil Company	1/8	0022/0231
Eastern Oil Company	A.W. Stevens	Assignment	0042/0328
A.W. Stevens	Eastern Union Gas Company	Assignment	0042/0330
Eastern Union Gas Company	Pittsburgh & West Virginia Gas Company	Assignment	0085/0334
Pittsburgh & West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0257
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	EQT Capital Corporation	Name Change	Exhibit 2
EQT Capital Corporation	Antero Resources Corporation	Assignment	0325/0528
<u>P.B. McClain et ux Lease</u>			
P.B. McClain et ux	The West Union Gas Company	1/8	0014/0477
The West Union Gas Company	Eastern Oil Company	Assignment	Unrecorded
Eastern Oil Company	A.W. Stevenson	Assignment	0042/0328
A.W. Stevenson	Eastern Union Gas Company	Assignment	0042/0328
Eastern Union Gas Company	Pittsburgh & West Virginia Gas Company	Assignment	0085/0334
Pittsburgh & West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0303
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	Equitrans, L.P.	Name Change	0302/0123
Equitrans, L.P.	Equitable Production-Eastern States, Inc.	Assignment	0192/0019
Equitable Production-Eastern States, Inc.	Equitable Production Company	Merged	Exhibit 4
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Assignment	0325/0539
<u>T.G. Baker et al Lease</u>			
T.G. Baker et al	J.D. Foley	1/8	0044/0483
J.D. Foley	Delta Petroleum Company	Assignment	Unrecorded
Delta Petroleum Company	Petroleum Development Corporation	Assignment	Unrecorded
Petroleum Development Corporation	PDC Mountaineer, LLC	Assignment	0240/0118
PDC Mountaineer, LLC	Antero Resources Corporation	Assignment	0371/0253
<u>G.L. Swentzel, et ux Lease</u>			
G.L. Swentzel, et ux	West Union Gas Company	1/8	0023/0482
West Union Gas Company	Eastern Oil Company	Assignment	0024/0136
Eastern Oil Company	A.W. Stevenson	Assignment	0042/0328
A.W. Stevenson	Eastern Union Gas Company	Assignment	0042/0328
Eastern Union Gas Company	Pittsburgh and West Virginia Gas Company	Assignment	0085/0334
Pittsburgh and West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0257
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	Equitrans, L.P.	Assignment	0302/0123
Equitrans, L.P.	Equitable Production Eastern States, Inc.	Assignment	0192/0019
Equitable Production Eastern States, Inc.	Equitable Production Company	Merged	Exhibit 4
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Agreement	0316/0603

*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.

**CONTINUED ON NEXT PAGE



WW-6A1

Operator's Well Number

Callahan Unit 2H

Permit Modification (API# 47-017-06874)

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>Pansy Heflin et al Lease</u>			
Pansy Heflin et al	Royal Resources Corporation	1/8	0098/0058
Royal Resources Corporation	MERT Development, Inc.	Assignment	0113/0488
MERT Development, Inc.	Continental Reserves Oil Company	Assignment	0159/0098
Continental Reserves Oil Company	ABARTA Oil & Gas Co., Inc.	Assignment	0171/0111
ABARTA Oil & Gas Co., Inc.	Antero Resources Appalachian Corporation	Assignment	0261/0463
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Olivia Jones Lease</u>			
Olivia Jones	E.D. Tate	1/8	0054/0362
E.D. Tate	P.D. Farr	Conveyance	0094/0128
P. D. Farr	Carolyn Farr	Conveyance	0015/0347
Carolyn Farr	The Carolyn Farr Trust	Conveyance	0220/0237
The Carolyn Farr Trust	Antero Resources Appalachian Corporation	Assignment	0271/0541
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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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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EXHIBIT 2, Page 1

BOOK 512 PAGE 781

ARTICLES OF MERGER
OF
KENTUCKY WEST VIRGINIA GAS COMPANY

a West Virginia Company

and

EQT CAPITAL CORPORATION

a Delaware Company

FILED
NOVEMBER 1995
IN THE OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA

Pursuant to the provisions of Section 38, Article 1, Chapter 31 of the Code of West Virginia, 1931, as amended, the undersigned corporation adopts the following Articles of Merger for the purpose of merging a subsidiary corporation into the undersigned as the surviving corporation:

The undersigned foreign corporation is incorporated under the laws of Delaware and the laws of such jurisdiction permit such a merger.

The following Plan of Merger was adopted by the undersigned corporation in the manner prescribed by the laws of the jurisdiction under which it is organized.

This Plan of Merger dated as of November 20, 1995, is among EQT Capital Corporation ("EQT"), a Delaware corporation, Equitrans, Inc. ("Equitrans"), a Delaware corporation and Kentucky West Virginia Gas Company ("Kentucky West"), a West Virginia corporation. The terms of the merger shall be as follows:

1. Equitrans and Kentucky West shall merge into EQT. EQT shall be the surviving corporation with its corporate identity, existence, purpose, powers, franchises, rights and immunities unimpaired.
2. The issued and outstanding shares of common stock of Equitrans and Kentucky West, shall without further action on the part of Equitrans, Kentucky West or EQT, be cancelled and of no further effect as of the Effective Date of the merger (as defined below).
3. A Certificate of Merger shall be filed as required by law with the Secretary of State of the State of West Virginia and the Secretary of State of the State of Delaware. The Effective Date of the merger shall be the last date of filing with the respective secretaries of state (the "Effective Date"). On the Effective Date, Equitrans and Kentucky West will cease to exist as separate corporations and EQT will succeed to all of the assets, rights, privileges, immunities, powers, duties and liabilities of Equitrans and Kentucky West in accordance with the provisions of the West Virginia Corporation Act and of the Delaware General Corporation Law.
4. The current Certificate of Incorporation of EQT shall be its Certificate of Incorporation on and after the Effective Date of the merger.

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BOOK 512 PAGE 782

5. This Plan of Merger shall be executed by the corporate officers of Kentucky West, Equitrans and EQT.

The number of outstanding shares of each class of the subsidiary corporation and the number of such shares of such class owned by the surviving corporation are as follows:

Name of Subsidiary	Number of Shares Outstanding	Designation of Class	Number of Shares Owned by Surviving Corporation
Kentucky West Virginia Gas	331,754	Common	331,754

A copy of the Plan of Merger set forth above was mailed on September 1, 1995 to each shareholder of the subsidiary corporation.

The undersigned corporation hereby: (a) agrees that it may be served with process in the State of West Virginia in any proceeding for the enforcement of the rights of a dissenting shareholder of the above-mentioned subsidiary corporation against the surviving corporation; (b) irrevocably appoints the Secretary of State of the State of West Virginia as its agent to accept service of process in any such proceeding; and (c) agrees that it will promptly pay to the dissenting shareholders of such domestic corporation the amount, if any, to which they shall be entitled under Section 123, Article 1, Chapter 31 of the Code of West Virginia with respect to the rights of dissenting shareholders.

Dated November 20, 1995.

BQT CAPITAL CORPORATION

By *[Signature]*
Its President

and *[Signature]*
Its Corporate Secretary

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WV Secretary of State Business Entity Search

**FORM WW-6A1
EXHIBIT 3,
PAGE 1**

Business Entity Details

Main

Name: ANTERO RESOURCES BLUESTONE LLC		Organization Number: 293362	
Type: LLC	Sec Type:	City: DENVER	Class: P Ch Type: F
Eff Date: 12/16/2010	File Date: 12/16/2010	Term Date: 3/28/2014	Term Reason: M AW/Term: A
CH County:	Ch State: DE	Bus Purp:	Ex Acres: Term Yrs:
Auth Shrs:	Cap Stck:	Status: Not Active	Par Val: MGMT: MBR

Addresses

Principal Office Address:	Name:	Addr1: 1625 17TH STREET	Addr2: City: DENVER	State: CO	Zip: 80202
Designated Office Address:	Name:	Addr1: 981 E. WASHINGTON AVE	Addr2: City: ELLENBORO	State: WV	Zip: 26346
Notice of Process Address:	Name: C T CORPORATION SYSTEM	Addr1: 5400 D BIG TYLER ROAD	Addr2: City: CHARLESTON	State: WV	Zip: 25313
Mailing Address:	Name:	Addr1: 1625 17TH STREET	Addr2: City: DENVER	State: CO	Zip: 80202

Officers

Member: **Name:** ANTERO RESOURCES APPALACHIAN CORPORATION **Addr1:** 1625 17TH STREET **Addr2:** City: DENVER **State:** CO **Zip:** 80202

<https://aapps.wv.gov/SOS/BusinessEntitySearch/Details.aspx?Id=N2MEoQhmrfkncB67Q/bTqw=&Search=Hbe2qjCl:gznlM:ba89C:tmY8oEdUIKwQBz2ZYxzQb1xy3=&Page=0>

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WV Secretary of State Business Entity Search

**FORM WW-6A1
EXHIBIT 3,
PAGE 2**

No Records Found.

Names

No Records Found.

Mergers

No Records Found.

Subsidiaries

No Records Found.

Amendments

**Amendment Amendment
Date**

3/28/2014 MERGER: MERGING ANTERO RESOURCES BLUESTONE LLC, A QUALIFIED DE LIMITED LIABILITY COMPANY WITH AND INTO ANTERO RESOURCES CORPORATION, A QUALIFIED DE CORPORATION, THE SURVIVOR

Dissolutions

No Records Found.

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EXHIBIT 4

State of West Virginia



Certificate

*I, Joe Manchin III, Secretary of State of the
State of West Virginia, hereby certify that*

by the provisions of Chapter 31 of the West Virginia Code, Articles of Merger were received and filed
MERGING EQUITABLE PRODUCTION - EASTERN STATES, INC., A QUALIFIED DE ORGANIZATION, WITH AND INTO
EQUITABLE PRODUCTION COMPANY, A QUALIFIED ORGANIZATION.

Therefore, I hereby issue this

CERTIFICATE OF MERGER



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
June 28, 2001*



Secretary of State