

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 SCHRADER UNIT 2H
47-017-06879-00-00

Change Bottom Hole Location leading to a Horizontal Leg Length change from 9787' to 8683'.

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 handwritten signature in blue ink, appearing to read "James A. Martin".

James A. Martin
Chief

Operator's Well Number: SCHRADER UNIT 2H
Farm Name: MARY E. DEETS AND/OR PAUL A. SMITH
U.S. WELL NUMBER: 47-017-06879-00-00
Horizontal 6A New Drill
Date Modification Issued: 04/18/2019

Promoting a healthy environment.

WW-6B
(04/15)

Permit Modification (API# 47-017-06879)
API NO. 47-017 - 06879
OPERATOR WELL NO. Schrader 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: Schrader 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: 19400' MD

11) Proposed Horizontal Leg Length: 8683'

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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DAF
3/28/19

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(04/15)

Permit Modification (API# 47-017-06879)
 API NO. 47- 017 - 06879
 OPERATOR WELL NO. Schrader Unit 2H
 Well Pad Name: Deets Pad

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-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#	19400'	19400'	4927 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/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-HVPOZ & 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			

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WW-6B
(10/14)

Permit Modification (API# 47-017-06879)
API NO. 47- 017 - 06879
OPERATOR WELL NO. Schrader 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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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.

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*Note: Attach additional sheets as needed.

DAF
3/26/19



SCHRADER UNIT 2H (DEETS PAD)
- AREA OF REVIEW 35-8-5.11 PAGE 1

47017062200000

Schrader Unit 2H



Antero Resources Corporation

Schrader Unit 2H - AOR



WELL SYMBOLS
Gas Well

March 12, 2019

DAF
3/28/19

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

UWI (API Num)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47017062200000	COSTLOW UNIT	2H	ANTERO RESOURCES CORPORATION	ANTERO RESOURCES CORPORATION	16,860	7265 - 16773	Marcellus	

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PPF
3/28/18

WW-6A1
(5/13)

Permit Modification (API# 47-017-06879)
Operator's Well No. Schrader 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
<u>M.V. Underwood et ux Lease (TM 8 PCL p/o 11)</u>				
	M. V. Underwood, et ux	The Carter Oil Company	1/8	0024/0293
	The Carter Oil Company	Hope Natural Gas Company	Assignment	0042/0410
	Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	0143/0345
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Name Change	0051/0795
	CNG Transmission Corporation	Dominion Transmission, Inc	Name Change	0058/0362
	Dominion Transmission, Inc	CONSOL Energy Holdings, LLC	Assignment	0245/0001
	CONSOL Energy Holdings, LLC	CNX Gas Company, LLC	Merger	0293/0252
	CNX Gas Company, LLC	Antero Resources Appalachian Corporation	Assignment	0260/0125
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

*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.

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, 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.

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Well Operator: Antero Resources Corporation
By: Kevin Kilstrom 
Its: Senior Vice President, Production

WV Department of Environmental Protection

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Operator's Well Number

Schrader Unit 2H

Permit Modification (API# 47-017-06879)

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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>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 3
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Agreement	0316/0603
<u>Sarah Sayre Lease</u>			
Sarah Sayre	Antero Resource Appalachian Corp.	1/8+	0287/0090
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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CONTINUED ON NEXT PAGE

WW-6A1

Operator's Well Number Schrader Unit 2H
Permit Modification (API# 47-017-06879)

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>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	0023/0479
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 3
Equitable Production Company	EQT Production Company	Name Change	281/346
EQT Production Company	Antero Resources Corporation	Assignment	0325/0539
<u>Charles Schrader et al Lease</u>			
Charles Schrader et al	The Carter Oil Company	1/8	0024/0128
The Carter Oil Company	Hope Natural Gas Company	Assignment	0042/0410
Hope Natural Gas Company	Carl E. Smith, Inc.	Assignment	0068/0468
Carl E. Smith, Inc.	Carl E. Smith Petroleum, Inc.	Assignment	0096/0671
Carl E. Smith Petroleum, Inc.	G.B. Hefner & Associates, Inc.	Assignment	0186/0529
G.B. Hefner & Associates, Inc.	Antero Resources Appalachian Corporation	Partial Assignment	0284/0353
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Herman Cox Lease</u>			
Herman Cox	Antero Resources Corporation	1/8	0355/0403

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CONTINUED ON NEXT PAGE

WW-6A1

Operator's Well Number Schrader Unit 2H
Permit Modification (API# 47-017-06879)

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>M.V. Underwood et ux Lease</u>			
M. V. Underwood et ux	G. H. Trainer	1/8	0024/0195
G. H. Trainer	J. E. Trainer	Assignment	0026/0486
J. E. Trainer	W. W. Hepburn	Assignment	0034/0244
W. W. Hepburn	Eastern Petroleum Company	Assignment	0034/0256
Eastern Petroleum Company	Clifton Oil & Gas Company	Assignment	0081/0114
Clifton Oil & Gas Company	Quaker State Oil Refining Corporation	Assignment	0056/0165
Quaker State Oil Refining Corporation	Quaker State Corporation et al	Name Change	Exhibit 4
Quaker State Corporation et al	Belden & Blake Corporation	Assignment	0175/0466
Belden & Blake Corporation	Peak Energy, Inc.	Assignment	0181/0114
Peak Energy, Inc.	North Coast Energy Eastern, Inc.	Merger	0249/0343
North Coast Energy Eastern, Inc.	EXCO-North Coast Energy Eastern, Inc.	Merger	0277/0068
EXCO-North Coast Energy Eastern, Inc.	EXCO Resources, Inc.	Name Change	Exhibit 5
EXCO Resources, Inc.	EXCO Resources, LLC	Name Change	Exhibit 6
EXCO Resources, LLC	Antero Resources Appalachian Corporation	Assignment Bill of Sale and Conveyance	0285/084
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Bill Sweeney Lease</u>			
Bill Sweeney	Antero Resources Corporation	1/8+	0446/0330

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FORM WW-6A1
EXHIBIT 1

FILED

JUN 10 2013

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



Peony Baker, Manager
Corporations Division
Tel: (304)358-8000
Fax: (304)359-4381
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: \$30.00

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:

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of Incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- Other amendments: (attach additional pages if necessary)
- Name and phone number of contact person. (This is optional; however, if there is a problem with the filing, having a contact person and phone number may avoid having to return or reject the document.)
Ahyn A. Schopp (304) 357-7310
Contact Name Phone Number
- Signatures information (See below "Important Legal Notice Regarding Signatures"):
Print Name of Signer: Ahyn 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 CF-4

Issued by the Office of the Secretary of State

Revised 4/08

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MAR 29 2019

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FORM WV-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.

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**FORM WV-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 *[Signature]*
Its President

and *[Signature]*
Its Corporate Secretary

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FORM WV-6A1
EXHIBIT 3

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 ^{RECEIVED} June 28, 2001, Oil and Gas
MAR 29 2019


WV Department of Environmental Protection
Secretary of State

FORM WW-6A1
EXHIBIT 4



I, Ken Heckler, Secretary of State of the State of West Virginia, hereby certify that originals of an application by

QUAKER STATE OIL REFINING CORPORATION

for an amended certificate of authority to transact business in West Virginia are filed in my office, as required by the provisions of Chapter 81, Article 1, Sections 57 and 59 of the West Virginia Code and conform to law. Therefore, I issue this

AMENDED CERTIFICATE OF AUTHORITY

to transact business in West Virginia under the name of

QUAKER STATE CORPORATION

and I attach to this certificate a duplicate original of the application.

Given under my hand and the Great Seal of the State of West Virginia, on this

TWENTIETH day of

JULY 19 87



Ken Heckler
Secretary of State.

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WV Department of
Environmental Protection

FORM WW-6A1
EXHIBIT 5

State of West Virginia



Certificate

*I, Natalie E. Tennant, Secretary of State of the
State of West Virginia, hereby certify that*

an Amended Certificate of Authority of

EXCO - NORTH COAST ENERGY EASTERN, INC.

was filed in my office as required by the provisions of the West Virginia Code and was found
to conform to law.

Therefore I issue this

CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY

changing the name of the corporation to

EXCO RESOURCES (WV), INC.

RECEIVED
Office of Oil and Gas

MAR 29 2019

WV Department of
Environmental Protection



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
December 2, 2009*

Natalie E. Tennant

Secretary of State

FORM WV-6A1
EXHIBIT 6

State of West Virginia



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

EXCO RESOURCES (WV), INC.
(A Delaware Corporation)

filed Articles of Conversion in my office as required by the provisions of the West Virginia Code and was found to conform to law.

Therefore, I issue this

CERTIFICATE OF CONVERSION

Converting the corporation to:

EXCO RESOURCES (WV), LLC
(A Delaware Limited Liability Company)

RECEIVED
Office of Oil and Gas

MAR 29 2019

WV Department of
Environmental Protection

Given under my hand and the Great Seal of the State of West Virginia on
July 7, 2010



Natalie E. Tennant

Secretary of State

LATITUDE 39°20'00"

4,820'

4,892' TO BOTTOM HOLE

LATITUDE 39°22'30"

LONGITUDE 80°42'30"

13,138' TO BOTTOM HOLE

LONGITUDE 80°42'30"

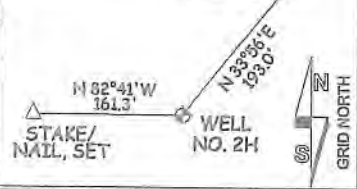
Antero Resources Corporation Well No. Schrader Unit 2H

NOTES:
WELL 2H TOP HOLE INFORMATION:
 N: 298,972ft E: 1,653,306ft
 LAT: 39°18'51.70" LON: 80°43'31.32"
BOTTOM HOLE INFORMATION:
 N: 307,920ft E: 1,653,354ft
 LAT: 39°20'20.15" LON: 80°43'32.26"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH 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: 4,351,708m E: 523,690m
BOTTOM HOLE INFORMATION:
 N: 4,354,434m E: 523,660m

REFERENCES

1" = 200'

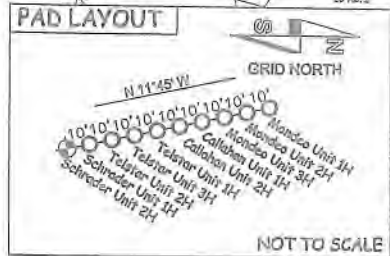
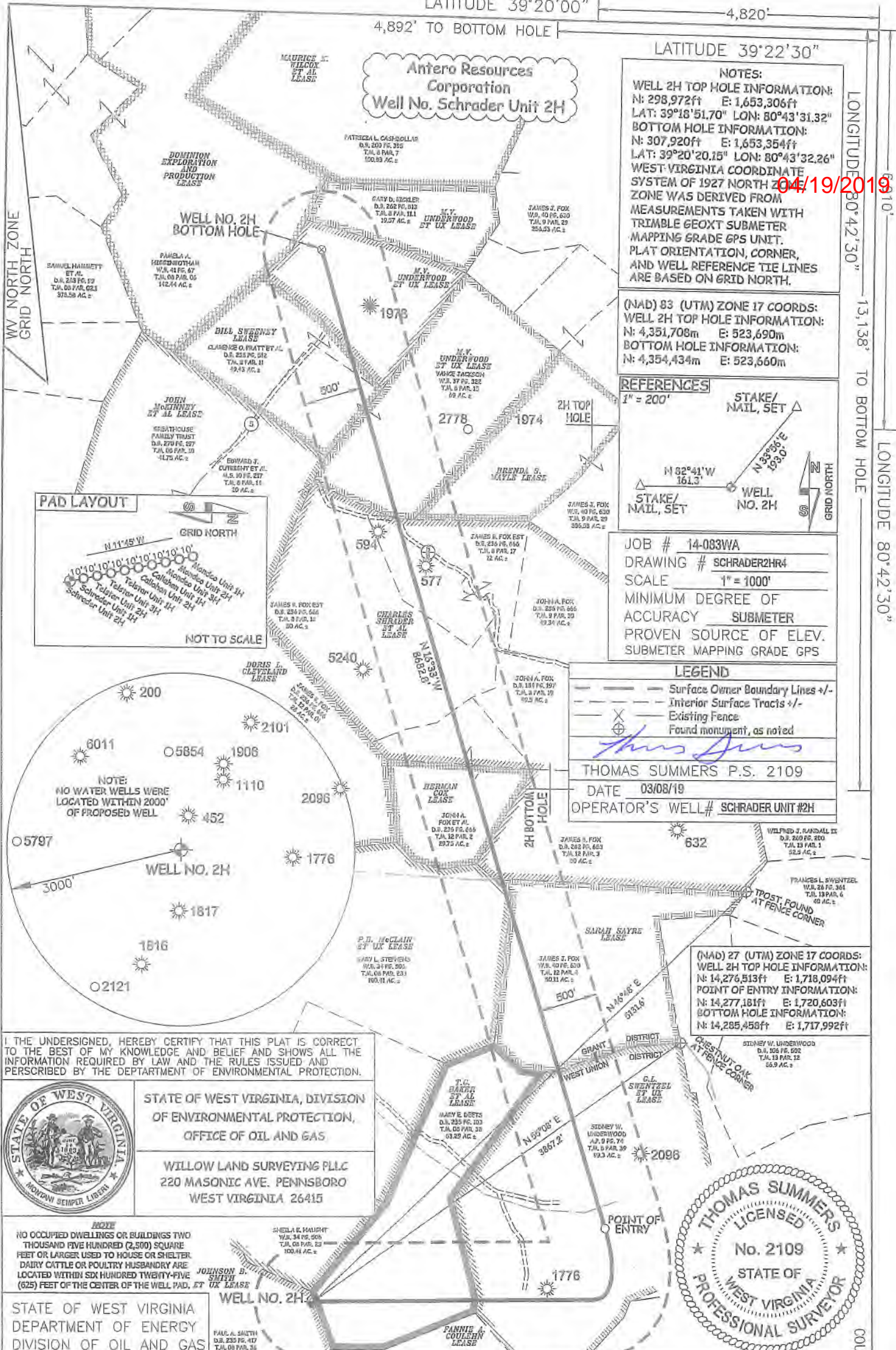


JOB # 14-083WA
DRAWING # SCHRADER2HR4
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

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

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



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 PERSIBERED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

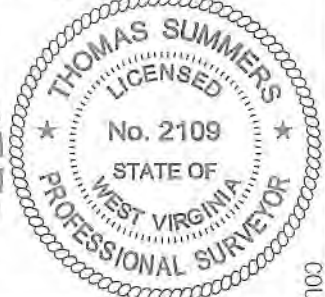


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

NOTE
 NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD, ET

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

JOHNSON B. SMITH ET AL. LEASE
 PAUL A. SMITH D.B. 230 PG. 117 T.J. 08 PAR. 35 175.78 AC.±



WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ (IF "GAS") PRODUCTION ___ 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 AL.; T.G. BAKER ET AL.; G.L. SWENTZEL ET AL.; SARAH SAYRE; LEASE ACREAGE 180 AC.±; 54 AC.±; 1033 AC.±; 50 AC.±;
 P.B. McCLAIN ET AL.; HERMAN COX; CHARLES SHRADER ET AL.; M.V. UNDERWOOD ET AL.; BILL J. SWEENEY; 150 AC.±; 15 AC.±; 230 AC.±; 50 AC.±; 44.45 AC.±;
 M.V. UNDERWOOD ET AL. 50 AC.±
 PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER X REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
 PERFORME NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-POE PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,800' TVD 19,400' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

API WELL # **HO**
 47 - 017 - 08979
 STATE COUNTY PERMIT

LATITUDE 39°20'00"

4,820'

4,892' TO BOTTOM HOLE

LATITUDE 39°22'30"

LONGITUDE 80°42'30"

13.138'

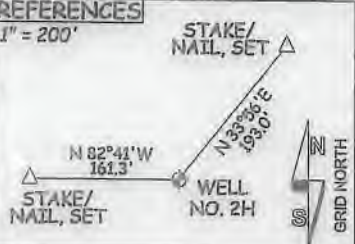
TO BOTTOM HOLE

LONGITUDE 80°42'30"

Antero Resources Corporation Well No. Schrader Unit 2H

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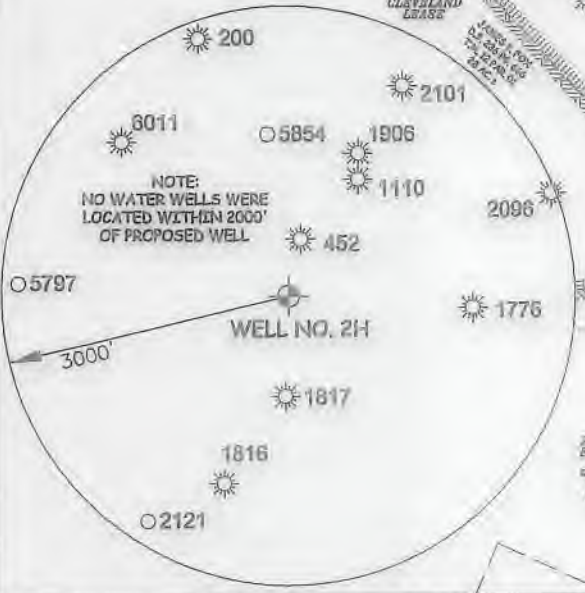
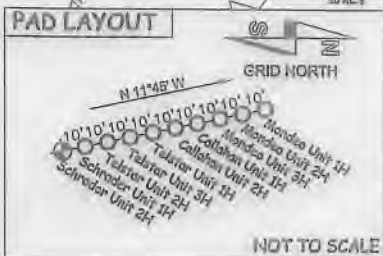
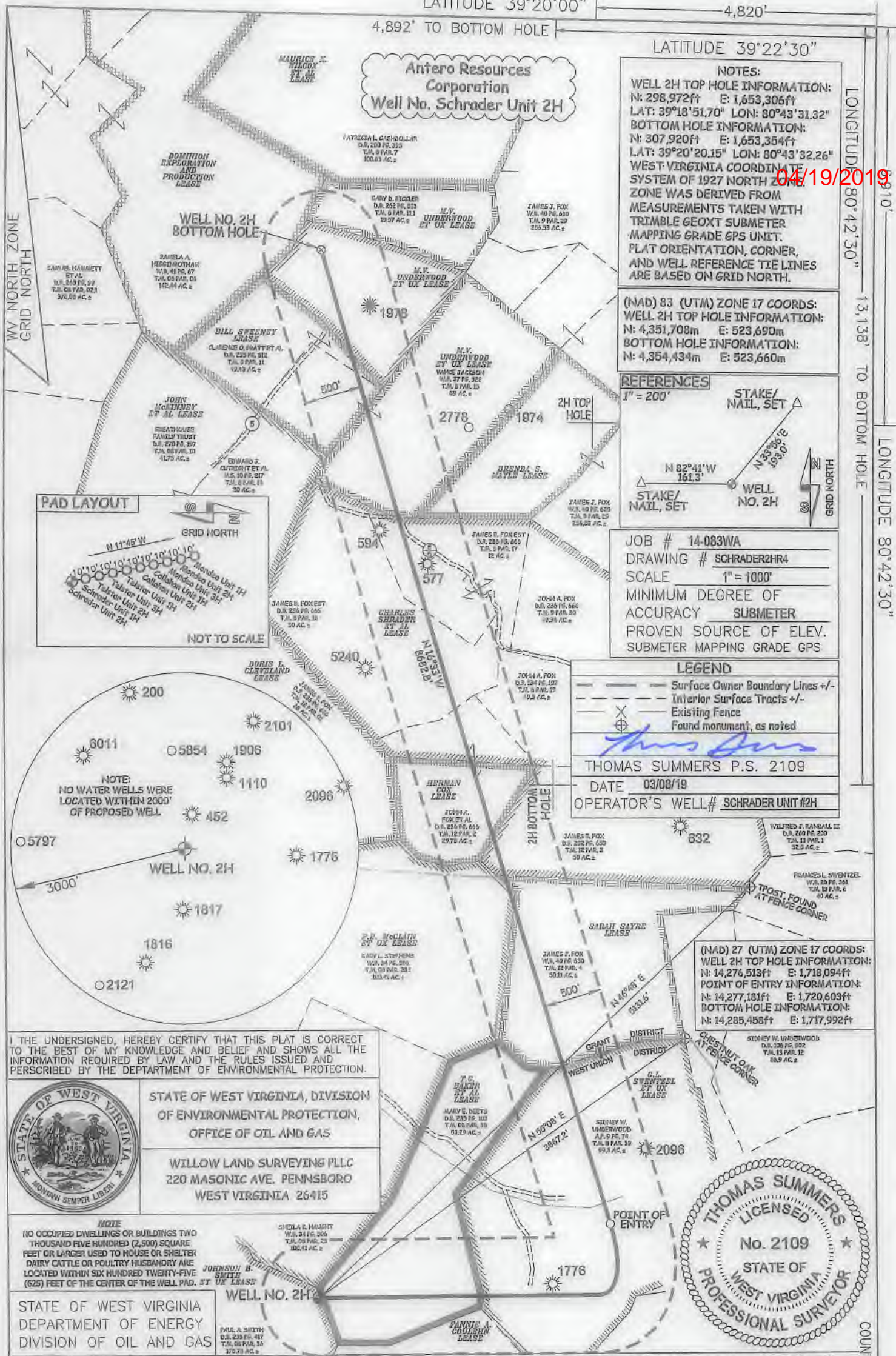
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JOB # 14-083WA
 DRAWING # SCHRADER2HR4
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LEGEND
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 - - - Interior Surface Tracts +/-
 X Existing Fence
 ⊕ Found monument, as noted

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



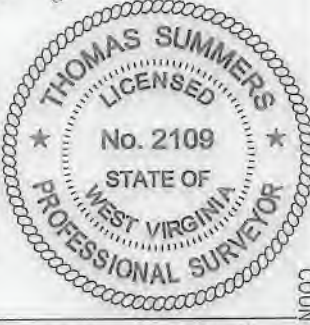
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STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS



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SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES +/-

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TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,600' TVD 19,400' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1815 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD

FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

API WELL # 47 - 017 - 08879 Mod
 STATE COUNTY PERMIT

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

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

Enclosures

VOID
Section

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: Schrader 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: 19400' MD

11) Proposed Horizontal Leg Length: 8683'

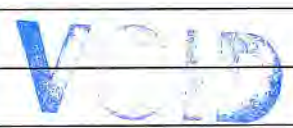
12) Approximate Fresh Water Strata Depths: 196', 221'

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: _____

WW-6B
(04/15)

Permit Modification (API# 47-017-06879)
 API NO. 47- 017 - 06879 **04/19/2019**
 OPERATOR WELL NO. Schrader 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#	19400'	19400'	4927 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-H/POZ & 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			

WW-6B
(10/14)

Permit Modification (API# 47-017-06879)
API NO. 47- 017 - 06879 04/19/2019
OPERATOR WELL NO. Schrader 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.

VOID

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.



47017062200000

Schrader Unit 2H

VOID



Antero Resources Corporation

Schrader Unit 2H - AOR



WELL SYMBOLS
Gas Well

March 12, 2019

WW-6A1
(5/13)

Operator's Well No. Schrader 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
<u>M.V. Underwood et ux Lease (TM 8 PCL p/o 11)</u>				
	M. V. Underwood, et ux	The Carter Oil Company	1/8	0024/0293
	The Carter Oil Company	Hope Natural Gas Company	Assignment	0042/0410
	Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	0143/0345
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Name Change	0051/0795
	CNG Transmission Corporation	Dominion Transmission, Inc	Name Change	0058/0362
	Dominion Transmission, Inc	CONSOL Energy Holdings, LLC	Assignment	0245/0001
	CONSOL Energy Holdings, LLC	CNX Gas Company, LLC	Merger	0293/0252
	CNX Gas Company, LLC	Antero Resources Appalachian Corporation	Assignment	0260/0125
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

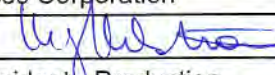
*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

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

Schrader Unit 2H

Permit Modification (API# 47-017-06879)

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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>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 3
Equitable Production Company	EQT Production Company	Name Change	0281/0346
EQT Production Company	Antero Resources Corporation	Agreement	0316/0603
<u>Sarah Sayre Lease</u>			
Sarah Sayre	Antero Resource Appalachian Corp.	1/8+	0287/0090
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

VOID

*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

Operator's Well Number

Schrader Unit 2H

Permit Modification (API# 47-017-06879)

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.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	0023/0479
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 3
Equitable Production Company	EQT Production Company	Name Change	281/346
EQT Production Company	Antero Resources Corporation	Assignment	0325/0539
<u>Charles Schrader et al Lease</u>			
Charles Schrader et al	The Carter Oil Company	1/8	0024/0128
The Carter Oil Company	Hope Natural Gas Company	Assignment	0042/0410
Hope Natural Gas Company	Carl E. Smith, Inc.	Assignment	0068/0468
Carl E. Smith, Inc.	Carl E. Smith Petroleum, Inc.	Assignment	0096/0671
Carl E. Smith Petroleum, Inc.	G.B. Hefner & Associates, Inc.	Assignment	0186/0529
G.B. Hefner & Associates, Inc.	Antero Resources Appalachian Corporation	Partial Assignment	0284/0353
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Herman Cox Lease</u>			
Herman Cox	Antero Resources Corporation	1/8	0355/0403

VOID

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CONTINUED ON NEXT PAGE

Operator's Well Number

Schrader Unit 2H

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>M.V. Underwood et ux Lease</u>			
M. V. Underwood et ux	G. H. Trainer	1/8	0024/0195
G. H. Trainer	J. E. Trainer	Assignment	0026/0486
J. E. Trainer	W. W. Hepburn	Assignment	0034/0244
W. W. Hepburn	Eastern Petroleum Company	Assignment	0034/0256
Eastern Petroleum Company	Clifton Oil & Gas Company	Assignment	0081/0114
Clifton Oil & Gas Company	Quaker State Oil Refining Corporation	Assignment	0056/0165
Quaker State Oil Refining Corporation	Quaker State Corporation et al	Name Change	Exhibit 4
Quaker State Corporation et al	Belden & Blake Corporation	Assignment	0175/0466
Belden & Blake Corporation	Peak Energy, Inc.	Assignment	0181/0114
Peak Energy, Inc.	North Coast Energy Eastern, Inc.	Merger	0249/0343
North Coast Energy Eastern, Inc.	EXCO-North Coast Energy Eastern, Inc.	Merger	0277/0068
EXCO-North Coast Energy Eastern, Inc.	EXCO Resources, Inc.	Name Change	Exhibit 5
EXCO Resources, Inc.	EXCO Resources, LLC	Name Change	Exhibit 6
EXCO Resources, LLC	Antero Resources Appalachian Corporation	Assignment Bill of Sale and Conveyance	0285/084
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Bill Sweeney Lease</u>			
Bill Sweeney	Antero Resources Corporation	1/8+	0446/0330

VOID

FORM WV-6A1
EXHIBIT 1

FILED

JUN 10 2013

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



Penney Baker, Manager
Corporations Division
Tel: (304) 558-8000
Fax: (304) 559-8381
Website: www.wvmd.com
E-mail: business@wvmd.com

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 30-day
stamped copy returned to you)
FEE: \$28.00

*** 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.)

Alvin A. Schopp (304) 367-7310
Contact Name Phone Number

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

Print Name of Signer: Alvin A. Schopp Title/Capacity: Authorized Person

Signature: *Alvin A. Schopp* Date: June 10, 2013

Important Legal Notice Regarding Signatures For West Virginia Code §31D-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.

VOID

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.

VOID

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:

<u>Name of Subsidiary</u>	<u>Number of Shares Outstanding</u>	<u>Designation of Class</u>	<u>Number of Shares Owned by Surviving Corporation</u>
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 *A. Mark Blanton*
Its President

and *Richard C. Walker*
Its Corporate Secretary

VOID

FORM WW-6A1
EXHIBIT 3



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
VOID

FORM WV-6A1
EXHIBIT 4



*J. Ken Heckler, Secretary of State of the
State of West Virginia, hereby certify that
originals of an application by*

QUAKER STATE OIL REFINING CORPORATION

for an amended certificate of authority to transact business in West Virginia are
filed in my office, as required by the provisions of Chapter 91, Article 1, Sections
57 and 59 of the West Virginia Code and conform to law. Therefore, I issue this

AMENDED CERTIFICATE OF AUTHORITY

to transact business in West Virginia under the name of

QUAKER STATE CORPORATION

and I attach to this certificate a duplicate original of the application.

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

 TWENTIETH day of
 JULY 19 87



Ken Heckler

Secretary of State.

VOID

FORM WW-6A1
EXHIBIT 5



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

an Amended Certificate of Authority of

EXCO - NORTH COAST ENERGY EASTERN, INC.

was filed in my office as required by the provisions of the West Virginia Code and was found to conform to law.

Therefore I issue this

CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY

changing the name of the corporation to

EXCO RESOURCES (WV), INC.



Given under my hand and the Great Seal of the State of West Virginia on this day of December 2, 2009

Natalie E. Tennant

Secretary of State

VOID

FORM WV-6A1
EXHIBIT 6



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

EXCO RESOURCES (WV), INC.
(A Delaware Corporation)

filed Articles of Conversion in my office as required by the provisions of the West Virginia Code and was found to conform to law.

Therefore, I issue this

CERTIFICATE OF CONVERSION

Converting the corporation to:

EXCO RESOURCES (WV), LLC
(A Delaware Limited Liability Company)



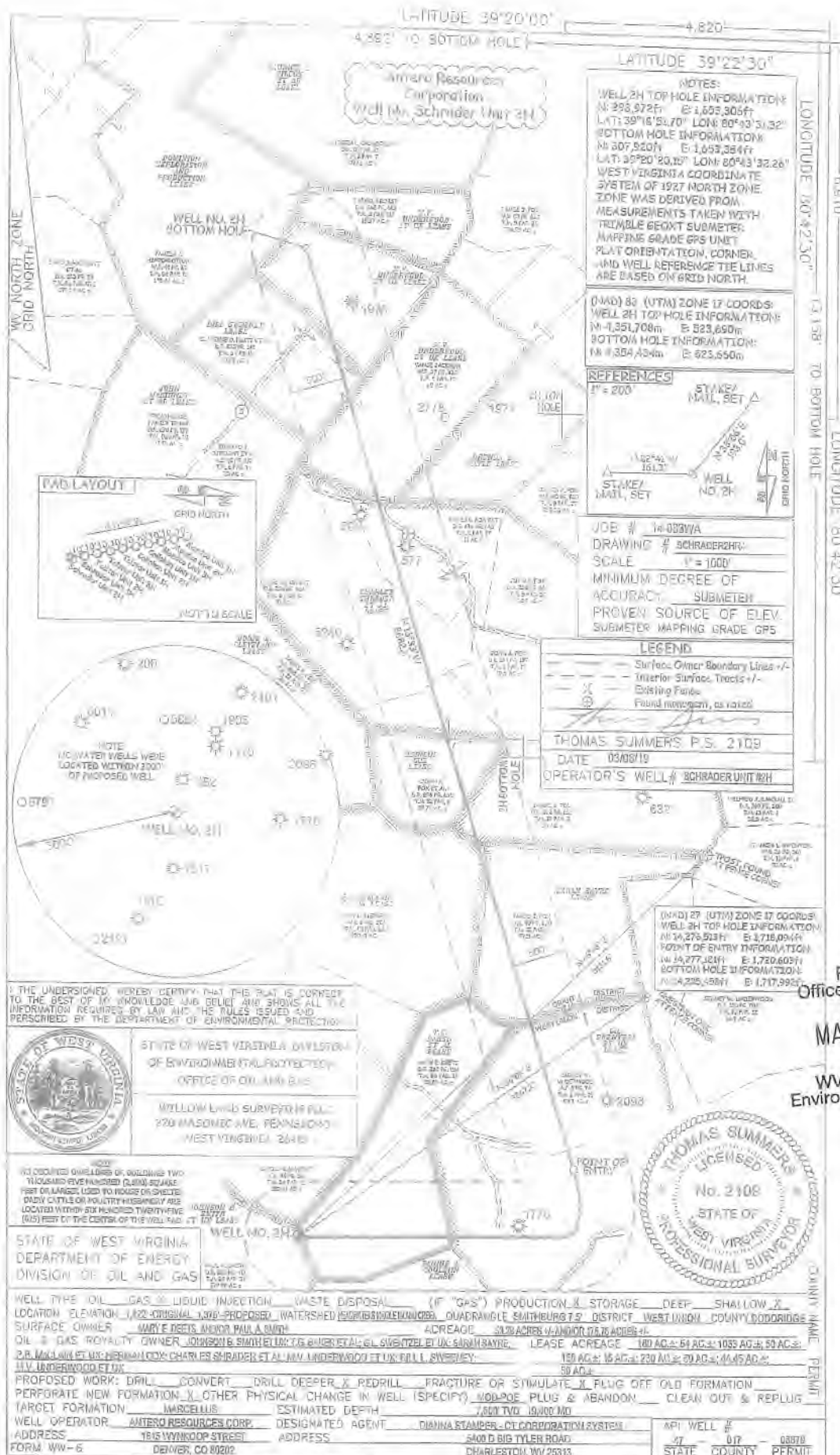
Given under my hand and the Great Seal of the State of West Virginia on
July 7, 2010

Natalie E. Tennant

Secretary of State

VOID

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47017062200000	COSTLOW UNIT	2H	ANTERO RESOURCES CORPORATION	ANTERO RESOURCES CORPORATION	16,860	7265 - 16773	Marcellus	



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