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west virginia department of environmental protection

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Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

## PERMIT MODIFICATION APPROVAL

January 25, 2016

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET  
DENVER, CO 80202

Re: Permit Modification Approval for API Number 1706478, Well #: REXAL UNIT 2H

### Extend Lateral

Oil and Gas Operator:

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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Gene Smith" with "For" written below it.

Gene Smith  
Assistant Chief of Permitting  
Office of Oil and Gas

Promoting a healthy environment.

01/29/2016



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

December 22, 2015

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

Ms. Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modification for one approved well on the existing Misery Pad. We are requesting to extend the lateral length and associated Estimated Measured Depth for the Rexal Unit 2H (API# 47-017-06478).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the updated BHL and Measured Depth
- REVISED Mylar Plat, which shows the new Lateral Length and Estimated Measured Depth
- REVISED Form WW-6A1, which shows the new leases we will be drilling

If you have any questions please feel free to contact me at (303) 357-7323.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Ashlie Steele".

Ashlie Steele  
Permitting Supervisor  
Antero Resources Corporation

4701706400 MOD

Enclosures

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

1) Well Operator: Antero Resources Corporation 494488557 017 -Doddridge Grant Smithburg 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Rexal Unit 2H Well Pad Name: Misery Pad

3) Farm Name/Surface Owner: Denzil C. Spencer, et al Public Road Access: CR 24

4) Elevation, current ground: 1001' Elevation, proposed post-construction: 1001'

5) Well Type (a) Gas  Oil  Underground Storage

Other

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7000' TVD, Anticipated Thickness- 55 Feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 7000' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16700' MD

11) Proposed Horizontal Leg Length: 9033'

12) Approximate Fresh Water Strata Depths: 475'

13) Method to Determine Fresh Water Depths: Deano Unit 2H (API# 47-017-06498) on same pad.

14) Approximate Saltwater Depths: 1477', 1675'

15) Approximate Coal Seam Depths: None Identified

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

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

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_

Depth: \_\_\_\_\_

Seam: \_\_\_\_\_

Owner: \_\_\_\_\_

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18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<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#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	557'	557' *See #19	CTS, 774 Cu. Ft
Coal	9-5/8"	New	J-55	36#	2523'	2523'	CTS, 1027 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16700'	16700'	4178 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

<b>TYPE</b>	<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	30"	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							

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**PACKERS**

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

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale.

\*Antero will be air drilling the fresh water string which makes it difficult to determine when freshwater is encountered, therefore we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

Anticipated Max Pressure - 9300 lbs

Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.62 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 5.76 existing acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

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

Conductor: no additives, Class A cement.

Surface: Class A cement with 2-3% calcium chloride

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.

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\*Note: Attach additional sheets as needed.

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
<b><u>Wilmer G. Knight et al Lease</u></b>			
Wilmer G. Knight et ux	Allegheny Land & Mineral Company	1/8	0068/0183
Allegheny Land & Mineral Company	National Producers Inc	Assignment	0084/0074
National Producers Inc	Jack E. Webber et ux	Assignment	0089/0494
Jack E. Webber et ux	Jeffry Webber et ux	Assignment	0093/0388
Jeffry Webber et ux	Aries Petroleum Corp.	Assignment	0122/0250
Aries Petroleum Corp.	Chesterfield Energy Corp	Assignment	0134/0748
Chesterfield Energy Corp	John Clevenger	Assignment	0160/0038
John Clevenger	Dominion Appalachian and Development LLC	Assignment	0176/0095
Dominion Appalachian Development LLC	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Arthur Doak et ux Lease</u></b>			
Arthur R. Doak et ux	CNG Producing Company	1/8	0129/0626
CNG Producing Company	CNG Development Co.	Assignment	0132/0564
CNG Development Co.	CNX	Assignment	DB 0293/0252
CNX	Antero Resources Appalachian Corporation	Assignment	0260/0125
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Clay Wilcox Lease</u></b>			
Clay A. Wilcox, et ux	Stonewall Gas Company	1/8	0153/0087
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 2
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 3
Dominion Appalachian Development, LLC, DEPI & DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Dominion Transmission, Inc. Lease</u></b>			
Dominion Transmission, Inc.	Dominion Exploration & Production, Inc.	1/8	0230/0138
Dominion Exploration & Production, Inc	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0231/0145
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Rexal Sandy et al Lease</u></b>			
Rexal L. Sandy, et ux	Bojacque Inc.	1/8	0156/0699
Bojacque Inc.	Stonewall Gas Company	Assignment	0157/0297
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 2
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 3
Dominion Appalachian Development, LLC, DEPI & DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>

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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.

**\*\*CONTINUED ON NEXT PAGE\*\***  
WV Department of Environmental Protection  
01/29/2016

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
<b><u>Dorthea Morgan, et al Lease</u></b>			
Dorthea I. Morgan, et vir	Bojacque, Inc.	1/8	0153/0223
Bojacque, Inc.	Stonewall Gas Company	Assignment	0155/0592
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 2
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 3
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Donna Wright Lease</u></b>			
Donna Wright	Antero Resources Corporation	1/8+	0502/0073
<b><u>Cecil Fluharty Lease</u></b>			
Cecil Fluharty	Roy D. Haddle	1/8	0272/0644
Roy D. Hadley	Stonewall Gas Company	Assignment	0282/0387
Stonewall Gas Company	Dominion Reserves, Inc.	Assignment	0292/0004
Dominion Reserves, Inc.	Consol Gas Reserves, Inc.	Name Change	COI 0009/0116
Consol Gas Reserves, Inc.	Consol Gas Company	Merger	COI 0009/0156
Consol Gas Company	CNX Gas Company, LLC	Name Change	0384/0191
CNX Gas Company, LLC	Antero Resources Corporation	Assignment	0425/0725
<b><u>Clifford Underwood, et ux Lease</u></b>			
Clifford Underwood, et al	Drilling Appalachian Corporation	1/8	0280/0588
Drilling Appalachian Corporation	Dominion Appalachian Development	Assignment	0322/0190
Dominion Appalachian Development, Inc.	CONSOL Gas Appalachian Development, LLC	Name Change	COI 0009/0124
CONSOL Gas Appalachian Development, LLC	Consol Gas Reserves, Inc.	Certificate of Merger	COI 0009/0144
Consol Gas Reserves, Inc.	Consol Gas Company	Certificate of Merger	COI 0009/0156
Consol Gas Company	CNX Gas Company, LLC	Affidavit of Merger	0384/0191
CNX Gas Company, LLC	Antero Resources Corporation	Assignment	0425/0725

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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.

\*\*CONTINUED ON NEXT PAGE\*\*

WV Depa 01/29/2016  
Environmental Protection

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

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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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Dwayne Sweeney Estate Lease</u>	Donald Sweeney Estate, Ralph T. Sweeney, AIF	Drilling Appalachian Corporation	1/8	0276/0314
	Drilling Appalachian Corporation	Dominion Appalachian Development, Inc.	Assignment	0322/0190
	Dominion Appalachian Development, Inc	CONSOL Gas Appalachian Development, LLC	Name Change	COI 0009/0124
	CONSOL Gas Appalachian Development, LLC	Consol Gas Reserves, Inc.	Certificate of Merger	COI 0009/0144
	Consol Gas Reserves, Inc.	Consol Gas Company	Certificate of Merger	COI 0009/0156
	Consol Gas Company	CNX Gas Company, LLC	Certificate of Merger	COI 0009/0206
	CNX Gas Company, LLC	Antero Resources Corporation	Assignment	0425/0725

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

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

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation  
 By: Kevin Kilstrom  
 Its: Vice President of Production Office of Oil and Gas

JAN 21 2016  
Page 1 of \_\_\_\_\_



**FORM WW-6A1  
EXHIBIT 1**

**FILED**

**JUN 10 2013**

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



**IN THE OFFICE OF  
SECRETARY OF STATE**

Penny Barker, Manager  
Corporations Division  
Tel: (304)558-8000  
Fax: (304)558-8381  
Website: [www.wvscot.com](http://www.wvscot.com)  
E-mail: [business@wvscot.com](mailto:business@wvscot.com)

**FILE ONE ORIGINAL.**  
(Two if you want a filed  
stamped copy returned to you)  
**FEE: \$35.00**

**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: 6/26/2008
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.)  
Alvyn A. Schopp (303) 367-7310  
Contact Name Phone Number
7. Signature Information (See below \*Important Lead Notice Regarding Signature\*):  
Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person  
Signature: [Handwritten Signature] Date: June 10, 2013

**\*Important Lead Notice Regarding Signature:** For West Virginia Code §31D-1-129. 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-1

Issued by the Office of the Secretary of State

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Office of Oil and Gas

WV01 - 04/6/2011 Update Kluwe Office

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WV Department of  
Environmental 01/29/2016

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

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION  
Clerk of the Commission  
P. O. Box 1197, 1300 East Main Street  
Richmond, VA 23209

**ARTICLES OF MERGER**  
**DOMINION APPALACHIAN DEVELOPMENT, INC.** *Dan*  
a Virginia corporation  
**STONEWALL GAS COMPANY**  
a Virginia corporation

The undersigned corporations, pursuant to Title 13.1, Chapter 9, Article 12 of the Code of Virginia, hereby execute the following Articles of Merger and set forth:

**ARTICLE I**

The Plan of Merger (the "Plan") made and entered into as of the 31st day of August, 1998 by and between the undersigned corporations and attached hereto as Exhibit A provides for the merger of Stonewall Gas Company into Dominion Appalachian Development, Inc. The Plan constitutes the "Plan of Merger" for the purposes of Article 12 of the Virginia State Corporation Act.

**ARTICLE II**

The Plan was adopted by the written consent of the sole shareholder of Stonewall Gas Company.

**ARTICLE III**

The Plan was adopted by the written consent of the sole shareholder of Dominion Appalachian Development, Inc.

**ARTICLE IV**

These Articles of Merger shall become effective on September 30, 1998.

U:\DOMRES\VA\ARTICLE.MRG

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IN WITNESS WHEREOF, Dominion Appalachian Development, Inc. and Stonewall Gas Company have caused these Articles of Merger to be executed as of the 21<sup>st</sup> day of August, 1998.

DOMINION APPALACHIAN  
DEVELOPMENT, INC.,  
a Virginia corporation

By: Thomas N. Channing  
Name: Thomas N. Channing  
Its: Vice President

STONEWALL GAS COMPANY,  
a Virginia corporation

By: G. E. Luke, Jr.  
Name: G. E. Luke, Jr.  
Its: Sr. Vice President

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AC

# State of West Virginia



## Certificate

I, Betty Ireland, Secretary of State of the State of West Virginia, hereby certify that

**DOMINION APPALACHIAN DEVELOPMENT, INC.**  
(a Virginia corporation)

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

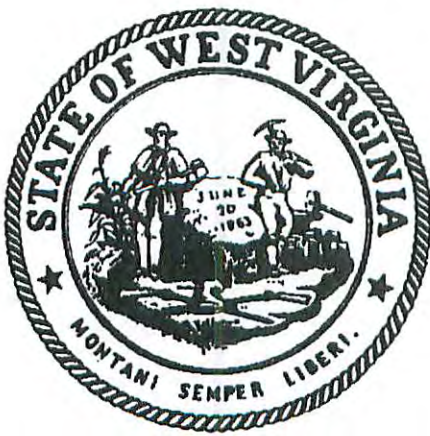
Therefore, I issue this

### CERTIFICATE OF CONVERSION

converting the corporation to

**DOMINION APPALACHIAN DEVELOPMENT, LLC**  
(a Virginia Limited Liability Company)

4701706478 Not



Given under my hand and the Great Seal of the State of West Virginia on  
February 23, 2006

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Betty Ireland  
Secretary of State

JAN 21 2016  
Secretary of State

LATITUDE 39°22'30"

11,518'

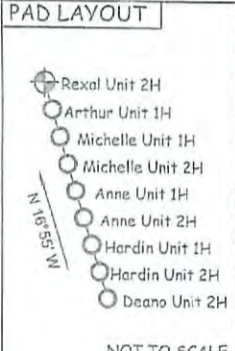
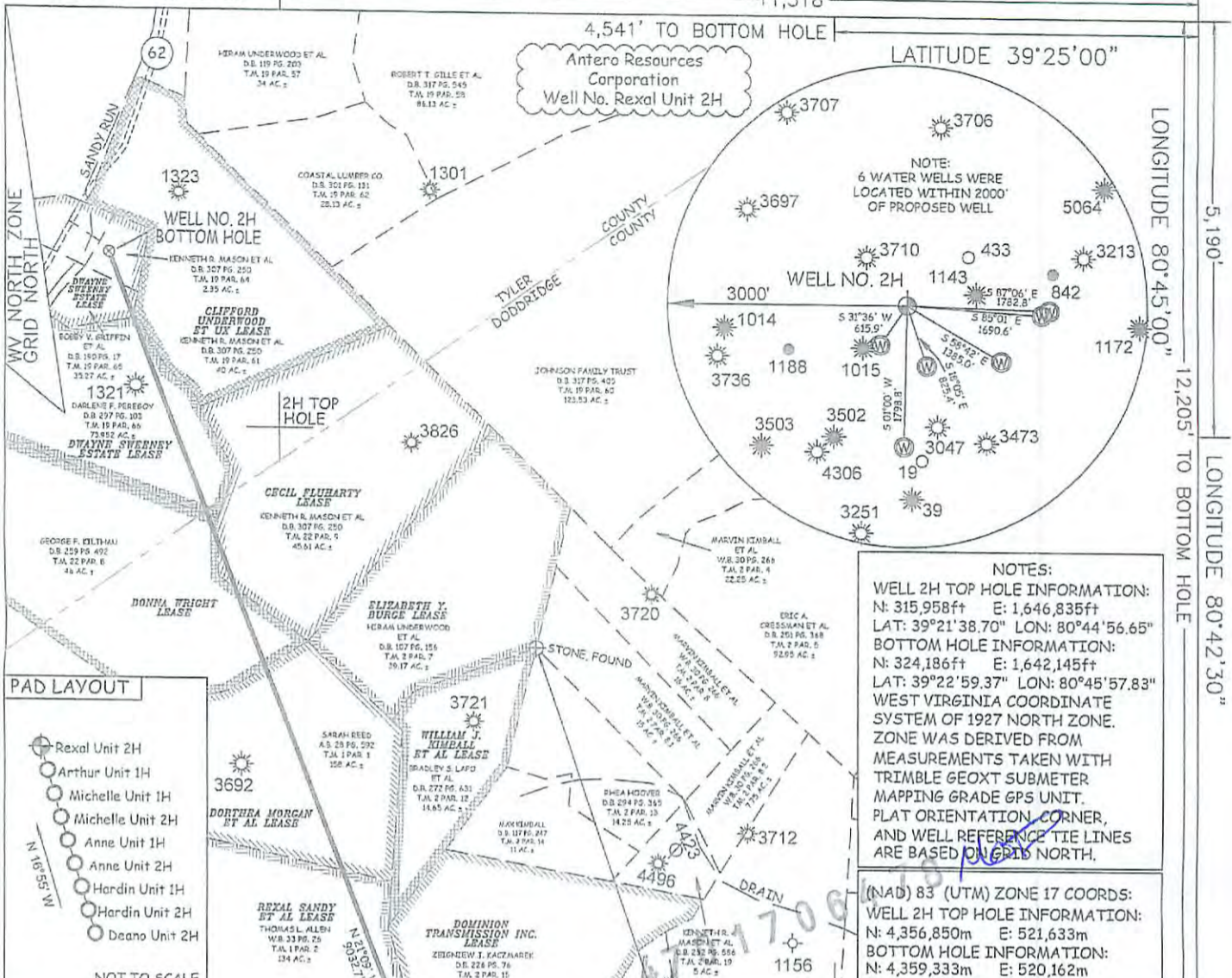
4,541' TO BOTTOM HOLE

LATITUDE 39°25'00"

LONGITUDE 80°45'00"

5,190'

LONGITUDE 80°42'30"



JOB # 13-025WA  
DRAWING # REXALUNIT2HR3  
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

DOUGLAS R. ROWE P.S. 2202  
DATE 12/18/15  
OPERATOR'S WELL# REXAL 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 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

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

API WELL # 47 - 017

STATE COUNTY PERMIT

WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL

(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1,016 - ORIG. 1,001' - PROP. WATERSHED MCELROY CREEK

QUADRANGLE SMITHBURG 7.5 (TH) SHIRLEY 7.5 (BH) DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER DENZIL C. SPENCER ET AL ACREAGE 91 ACRES +/-

OIL & GAS ROYALTY OWNER ARTHUR DOAK ET UX; CLAY WILCOX; DOMINION TRANSMISSION INC.; REXAL SANDY ET AL; DORTHEA MORGAN ET AL; DONNA WRIGHT; CECIL FLUHARTY; DWAYNE SWEENEY ESTATE; CLIFFORD UNDER WOOD ET UX; DWAYNE SWEENEY ESTATE

LEASE ACREAGE 141 AC±; 18 AC±; 49.5 AC±; 134 AC±; 159 AC±; 46 AC±; 45.61 AC±; 32 AC±; 40 AC±; 19 ac±

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL

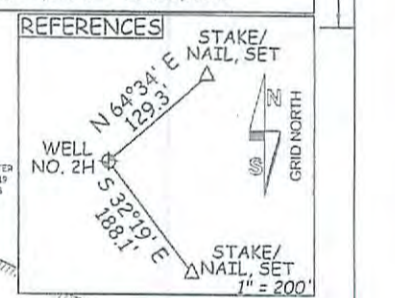
(SPECIFY) PLUG & ABANDON  CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 16,700' MD

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

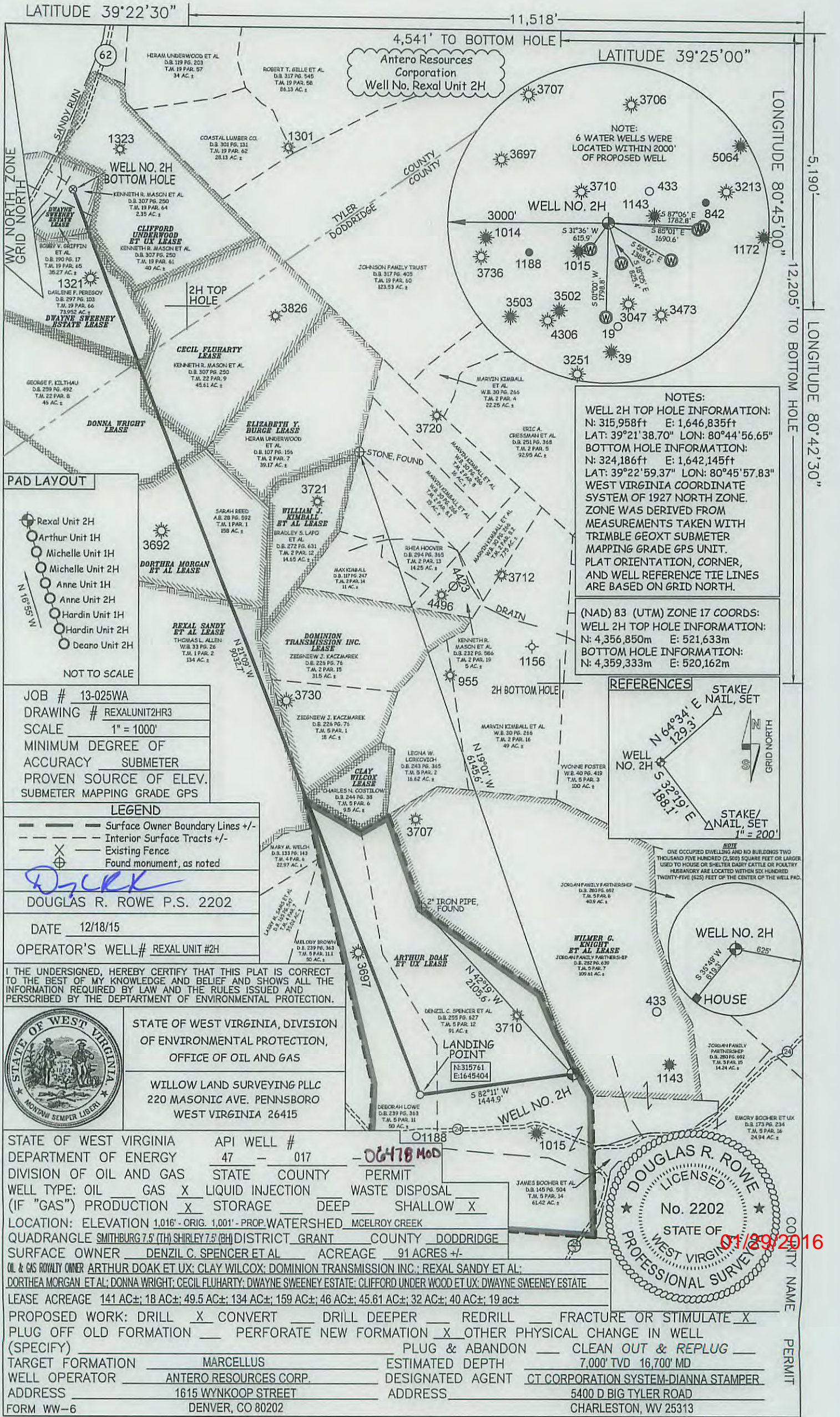
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD

FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 26313



DOUGLAS R. ROWE  
LICENSED  
No. 2202  
STATE OF WEST VIRGINIA  
PROFESSIONAL SURVEYOR

01/29/2016

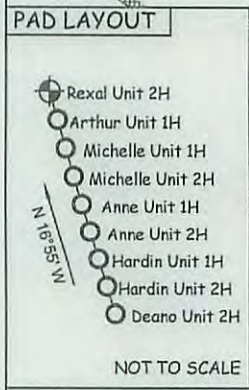
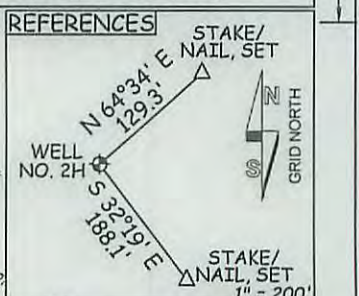


Antero Resources Corporation  
Well No. Rexal Unit 2H

NOTE:  
6 WATER WELLS WERE  
LOCATED WITHIN 2000'  
OF PROPOSED WELL

NOTES:  
WELL 2H TOP HOLE INFORMATION:  
N: 315,958ft E: 1,646,835ft  
LAT: 39°21'38.70" LON: 80°44'56.65"  
BOTTOM HOLE INFORMATION:  
N: 324,186ft E: 1,642,145ft  
LAT: 39°22'59.37" LON: 80°45'57.83"  
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: 4,356,850m E: 521,633m  
BOTTOM HOLE INFORMATION:  
N: 4,359,333m E: 520,162m



JOB # 13-025WA  
DRAWING # REXALUNIT2HR3  
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

DOUGLAS R. ROWE P.S. 2202  
DATE 12/18/15  
OPERATOR'S WELL# REXAL 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 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

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

API WELL # 47 - 017 - 06478 MOD

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

LOCATION: ELEVATION 1,016' - ORIG. 1,001' - PROP. WATERSHED MCELROY CREEK

QUADRANGLE SMITHBURG 7.5 (TH) SHIRLEY 7.5 (BH) DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER DENZIL C. SPENCER ET AL ACREAGE 91 ACRES +/-

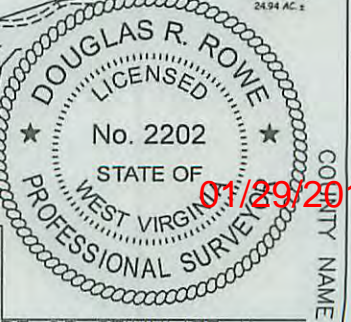
OIL & GAS ROYALTY OWNER ARTHUR DOAK ET UX; CLAY WILCOX; DOMINION TRANSMISSION INC.; REXAL SANDY ET AL;  
DORTHEA MORGAN ET AL; DONNA WRIGHT; CECIL FLUHARTY; DWAYNE SWEENEY ESTATE; CLIFFORD UNDER WOOD ET UX; DWAYNE SWEENEY ESTATE

LEASE ACREAGE 141 AC±; 18 AC±; 49.5 AC±; 134 AC±; 159 AC±; 46 AC±; 45.61 AC±; 32 AC±; 40 AC±; 19 ac±

PROPOSED WORK: DRILL  CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 16,700' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313



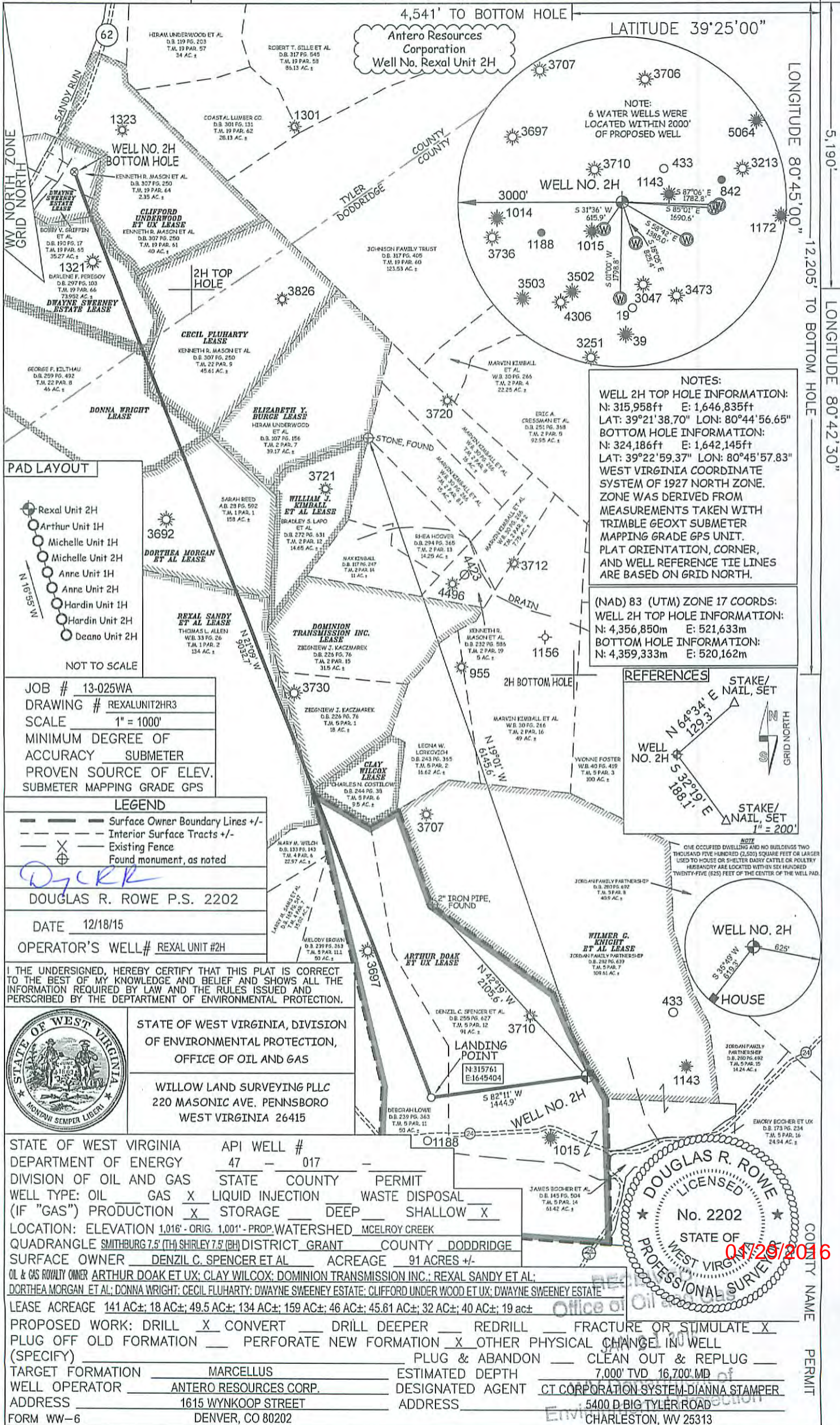
01/29/2016

LATITUDE 39°22'30"

11,518'

Antero Resources Corporation  
Well No. Rexal Unit 2H

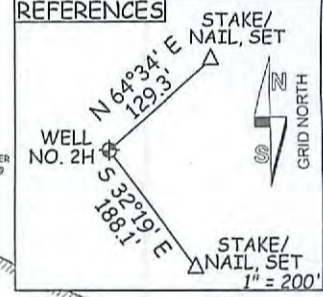
LATITUDE 39°25'00"



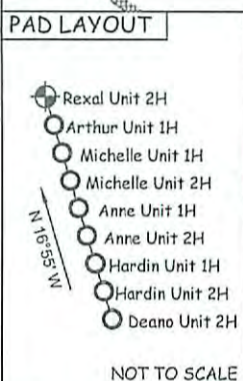
LONGITUDE 80°45'00"  
12,205' TO BOTTOM HOLE  
LONGITUDE 80°42'30"

**NOTES:**  
WELL 2H TOP HOLE INFORMATION:  
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LAT: 39°21'38.70" LON: 80°44'56.65"  
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WELL 2H TOP HOLE INFORMATION:  
N: 4,356,850m E: 521,633m  
BOTTOM HOLE INFORMATION:  
N: 4,359,333m E: 520,162m



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



JOB # 13-025WA  
DRAWING # REXALUNIT2HR3  
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  
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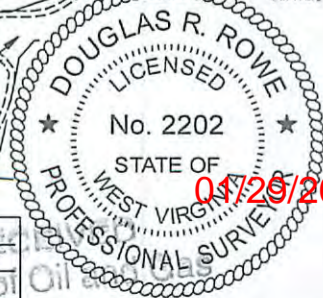
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WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY  
DIVISION OF OIL AND GAS  
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01/26/2016