



west virginia department of environmental protection

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

March 31, 2016

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for API Number 1706477, Well #: REXAL UNIT 1H

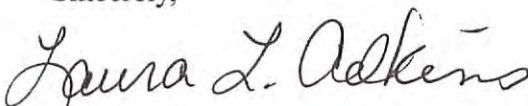
Modified Lateral

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,


for Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

04/01/2016

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 West Union 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Rexal Unit 1H Well Pad Name: Melody Pad

3) Farm Name/Surface Owner: Melody Brown Public Road Access: CR 24

4) Elevation, current ground: 1135' Elevation, proposed post-construction: 1135'

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: 16000' MD

11) Proposed Horizontal Leg Length: 8461'

12) Approximate Fresh Water Strata Depths: 46' *Previously top holed*

13) Method to Determine Fresh Water Depths: Deano Unit 1H (API# 47-017-06497) on same pad.

14) Approximate Saltwater Depths: 865', 1509'

15) Approximate Coal Seam Depths: 1821'

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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WV Department of
Environmental Protection

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#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	470'	470' *See #19	CTS, 653 Cu. Ft
Coal	9-5/8"	New	J-55	36#	2450'	2450'	CTS, 998 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16000'	16000'	4200 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	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-HPOZ & 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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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): 3.09 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 3.09 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.

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 10 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

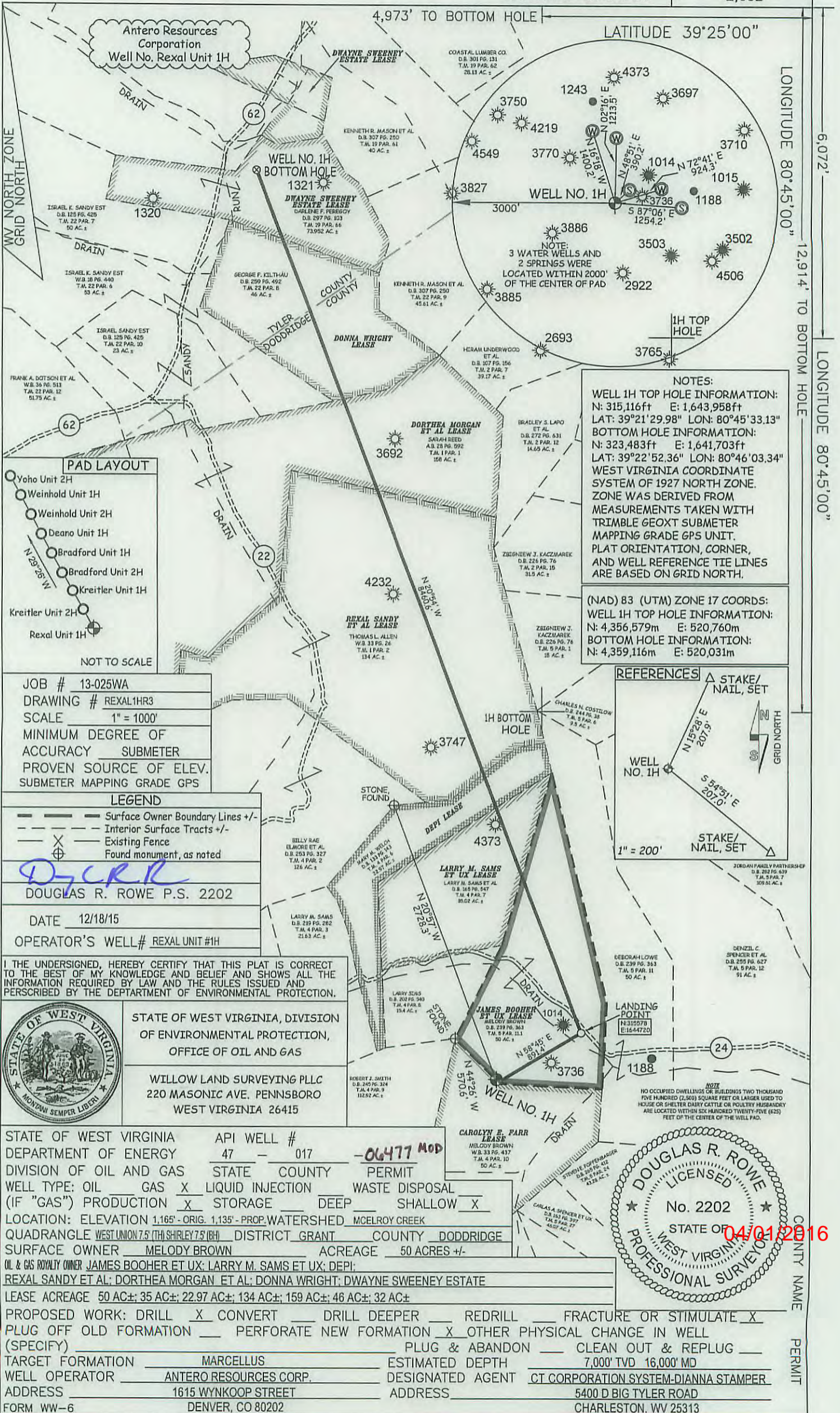
*Note: Attach additional sheets as needed.

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LATITUDE 39°22'30"

2,602'

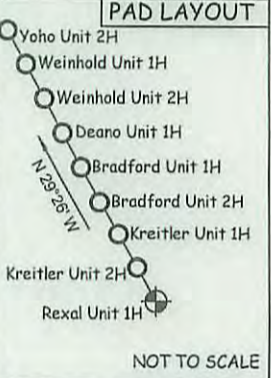
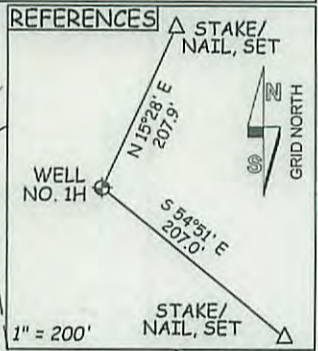


LONGITUDE 80°45'00"

LONGITUDE 80°45'00"

NOTES:
 WELL 1H TOP HOLE INFORMATION:
 N: 315,116ft E: 1,643,958ft
 LAT: 39°21'29.98" LON: 80°45'33.13"
 BOTTOM HOLE INFORMATION:
 N: 323,483ft E: 1,641,703ft
 LAT: 39°22'52.36" LON: 80°46'03.34"
 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 1H TOP HOLE INFORMATION:
 N: 4,356,579m E: 520,760m
 BOTTOM HOLE INFORMATION:
 N: 4,359,116m E: 520,031m



JOB # 13-025WA
 DRAWING # REXAL1HR3
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DOUGLAS R. ROWE P.S. 2202
 DATE 12/18/15
 OPERATOR'S WELL# REXAL UNIT #1H

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.

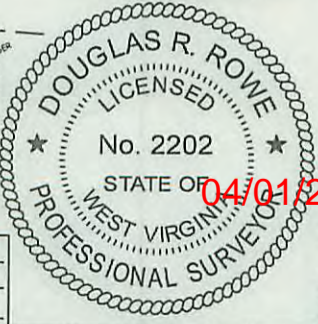


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

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

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY
 DIVISION OF OIL AND GAS
 WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1,165' - ORIG. 1,135' - PROP. WATERSHED MCELROY CREEK
 QUADRANGLE WEST UNION 7.5 (TH SHIRLEY 7.5 (BH)) DISTRICT GRANT COUNTY DODDRIDGE
 SURFACE OWNER MELODY BROWN ACREAGE 50 ACRES +/-
 OIL & GAS ROYALTY OWNER JAMES BOOHER ET UX; LARRY M. SAMS ET UX; DEPI; REXAL SANDY ET AL; DORTHEA MORGAN ET AL; DONNA WRIGHT; DWAYNE SWEENEY ESTATE
 LEASE ACREAGE 50 AC±; 35 AC±; 22.97 AC±; 134 AC±; 159 AC±; 46 AC±; 32 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 16,000' 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



04/01/2016

COUNTY NAME PERMIT

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>Carolyn E. Farr Lease</u>			
Carolyn E. Farr	Clarence W. Mutschelknaus	1/8	0155/0456
Clarence W. Mutschelknaus	Stonewall Gas Company	Assignment	0157/0229
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 and DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>James Booher et ux Lease</u>			
James Booher, et ux	Jack E. Webber, et ux	1/8	0093/0298
Dorothea Webber as executrix for the estate of Jack E. Webber, et al	Aries Petroleum Corporation	Assignment	0122/0259
Aries Petroleum Corporation	Chesterfield Energy Corporation	Assignment	0134/0748
Chesterfield Energy Corporation	Dominion Appalachian Development, Inc.	Merger	Unrecorded Document
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 3
Dominion Appalachian Development, LLC, DEPI and DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Larry M. Sams et ux Lease</u>			
Larry M. Sams, et ux	Antero Resources Corporation	1/8+	0331/0102
<u>DEPI Lease</u>			
Dominion Exploration & Production, Inc.	Dominion Appalachian Development, LLC	1/8	0230/0389
Dominion Appalachian Development, LLC, DEPI and DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0231/0145
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Rexal Sandy et al Lease</u>			
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 and DTI, Inc.	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Dorthea Morgan, et al Lease</u>			
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
<u>Donna Wright Lease</u>			
Donna Wright	Antero Resources Corporation	1/8+	0502/0073

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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.

17-06477 MOD

WW-6A1
(5/13)

Operator's Well No. Rexal Unit 1H
API# 47-017-06477 PERMIT MODIFICATION

**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
Dwayne Sweeney Estate Lease	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

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

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 Department of Oil and Gas
 JAN 21 2015
 Department of Oil and Gas
 Page 1 of 1

04/01/2016

17-06477MOO

**FORM WW-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 Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvnet.com
E-mail: business@wvnet.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: 6/25/2008
- 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.)

<u>Alwyn A. Schopp</u>	<u>(303) 367-7310</u>
Contact Name	Phone Number

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

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

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

Important Legal Notice Regarding Signatures Per West Virginia Code §311-1-12b. 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 CP-4

Issued by the Office of the Secretary of State

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Office of Oil and Gas
Revised 4/13

WV/011 - 04/16/2013 WebSite Kanawha Online

JAN 21 2016

WV Department of
Environmental Protection 04/01/2016

17-06477
msd

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. *Dom*
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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Office of Oil and Gas

JAN 21 2016

Department of
Protection

04/01/2016

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

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

DOMINION APPALACHIAN
DEVELOPMENT, INC.,
a Virginia corporation

By: Thomas N. Cheek
Name: Thomas N. Cheek
Its: vice president

STONEWALL GAS COMPANY,
a Virginia corporation

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

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Office of Oil and Gas
JAN 21 2016

04/01/2016

FORM WW-6A1
EXHIBIT 3

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)



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

February 23, 2006

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Office of Oil and Gas
Betty Ireland
JAN 21 2016

Secretary of State
West Virginia Department of

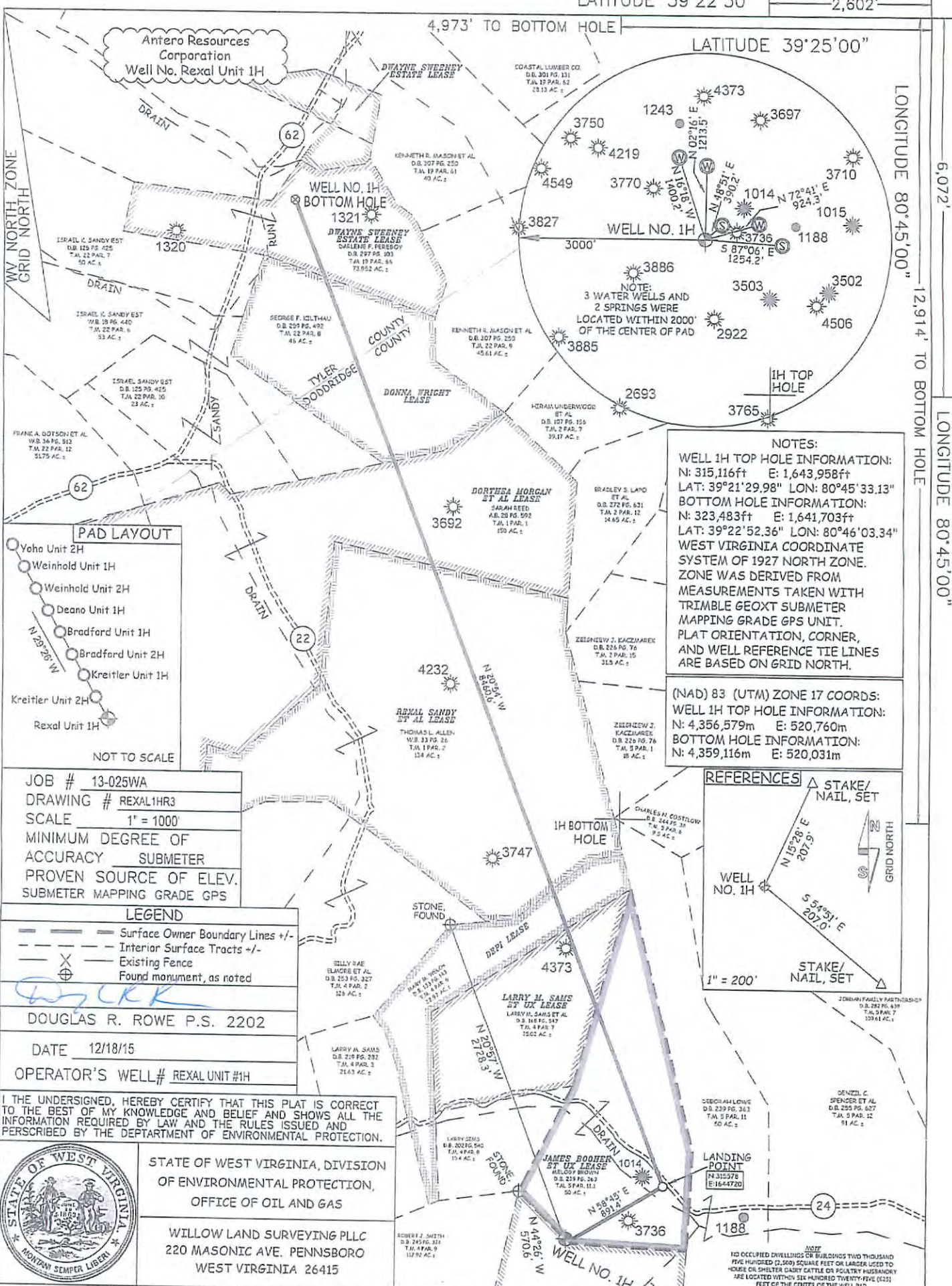
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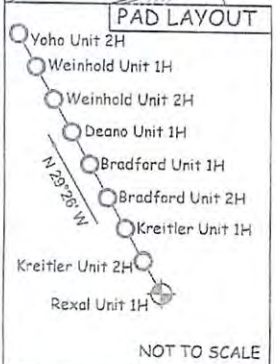
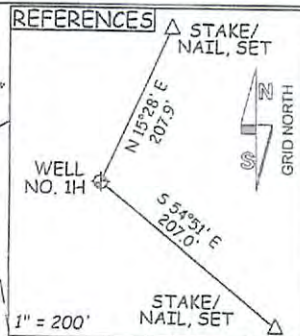
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LONGITUDE 80°45'00"



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 ⊕ Found monument, as noted

DOUGLAS R. ROWE P.S. 2202
 DATE 12/18/15
 OPERATOR'S WELL # REXAL UNIT #1H

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 1,165' - ORIG. 1,135' - PROP. WATERSHED MCELROY CREEK

QUADRANGLE WEST UNION 7.5' (TH) SHIRLEY 7.5' (BH) DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER MELODY BROWN ACREAGE 50 ACRES +/-

OIL & GAS ROYALTY OWNER JAMES BOOHER ET UX; LARRY M. SAMS ET UX; DEPI; REXAL SANDY ET AL; DORTHEA MORGAN ET AL; DONNA WRIGHT; DWAYNE SWEENEY ESTATE

LEASE ACREAGE 50 AC±; 35 AC±; 22.97 AC±; 134 AC±; 159 AC±; 46 AC±; 32 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE

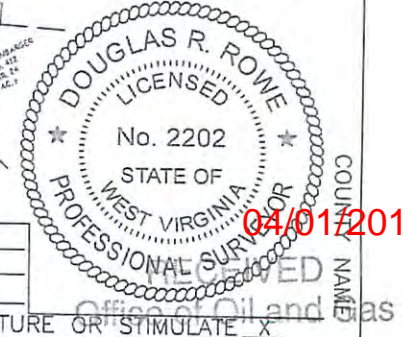
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

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



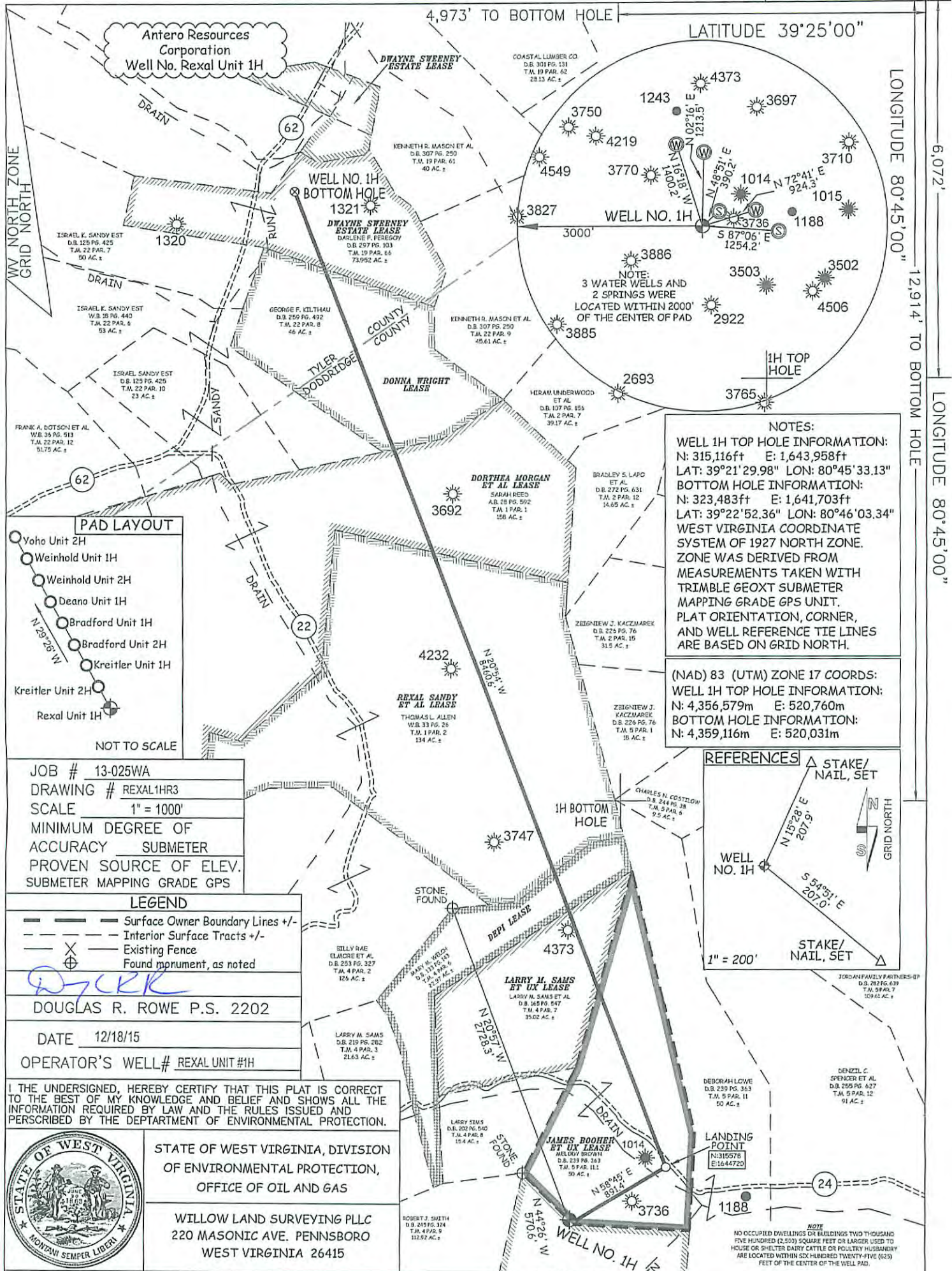
COUNTY NAME
 PERMIT

LATITUDE 39°22'30" 2,602'

LATITUDE 39°25'00"

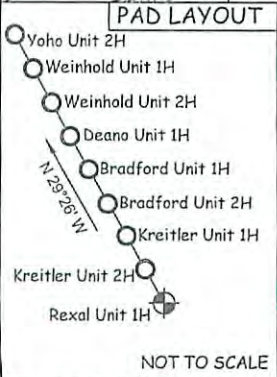
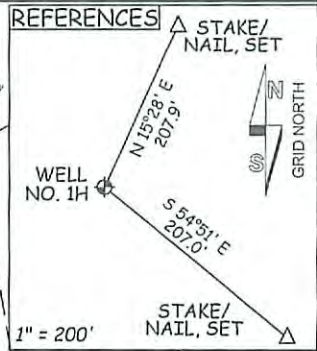
LONGITUDE 80°45'00" 12,914' TO BOTTOM HOLE

LONGITUDE 80°45'00" 6,072'



NOTES:
WELL 1H TOP HOLE INFORMATION:
 N: 315,116ft E: 1,643,958ft
 LAT: 39°21'29.98" LON: 80°45'33.13"
BOTTOM HOLE INFORMATION:
 N: 323,483ft E: 1,641,703ft
 LAT: 39°22'52.36" LON: 80°46'03.34"
 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 1H TOP HOLE INFORMATION:
 N: 4,356,579m E: 520,760m
BOTTOM HOLE INFORMATION:
 N: 4,359,116m E: 520,031m



JOB # 13-025WA
 DRAWING # REXAL1HR3
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DOUGLAS R. ROWE P.S. 2202
 DATE 12/18/15
 OPERATOR'S WELL# REXAL UNIT #1H

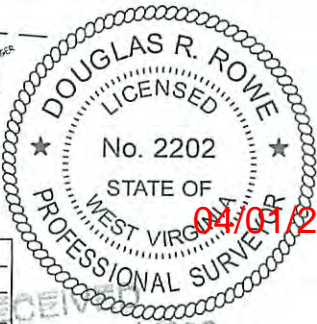
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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
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 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
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Environmental Protection