



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

June 15, 2016

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for API Number 1706480, Well #: KREITLER 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,

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

06/17/2016



April 15, 2016

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: Mr. Taylor Brewer
601 57th Street
Charleston, WV 25304

Mr. Brewer:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for four approved wells on the existing Melody Pad. We are requesting to extend the lateral lengths and associated Estimated Measured Depths for the Bradford Unit 1H (API# 47-017-06534), Bradford Unit 2H (API# 47-017-06535), Kreitler Unit 1H (API# 47-017-06479) and **Kreitler Unit 2H (API# 47-017-06480)**.

Attached you will find the following documents:

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

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 black ink that reads "Ashlie Steele".

Ashlie Steele
Permitting Supervisor
Antero Resources Corporation

4701706480 MOD

Enclosures

RECEIVED
Office of Oil and Gas
APR 18 2016
WV Department of
Environmental Protection 06/17/2016

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: Kreitler Unit 2H Well Pad Name: Melody Pad

3) Farm Name/Surface Owner: Brown, Melody 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: 7200' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 7200' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

4701706480 MOD

10) Proposed Total Measured Depth: 15800' MD

11) Proposed Horizontal Leg Length: 8242'

12) Approximate Fresh Water Strata Depths: 46'

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: _____

RECEIVED
Office of Oil and Gas

APR 18 2016

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# | 40' | 40' | CTS, 38 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# | 2415' | 2415' | CTS, 998 Cu. Ft. |
| Intermediate | | | | | | | |
| Production | 5-1/2" | New | P-110 | 20# | 15800' | 15800' | 3952 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 | 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 | | | | | | | |

PACKERS

4701706480 MOD

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

RECEIVED
Office of Oil and Gas
APR 18 2016
WV Department of
Environmental Protection
Page 7 of 3
06/17/2016

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): 47.32 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.

4701706480 M07

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.

RECEIVED
Office of Oil and Gas
APR 18 2016

*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 |
|--|--|---|---------------------|
| <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. | Merged | 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>Mary Maxine Welch Lease</u> | | | |
| Mary Maxine Welch | Antero Resources Appalachian Corporation | 1/8+ | 0277/0322 |
| Antero Resources Appalachian Corporation | Antero Resources Corporation | Name Change | Exhibit 1 |
| <u>Homer Spencer et al 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>Bradford D. Reed et al Lease</u> | | | |
| Bradford D. Reed, et al | Bojacque Inc. | 1/8 | 0153/0203 |
| 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, 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 |

47-017-06480

RECEIVED
Office of Oil and Gas
APR 18 2016

*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.

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>Rexal L. 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> | | | |
| Dorothea 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., et al | Merger | Exhibit 2 |
| Dominion Appalachian Development, Inc. | Dominion Appalachian Development, LLC | Merger | Exhibit 3 |
| Dominion Appalachian Development, LLC, et al | Antero Resources Appalachian Corporation | Assignment | 0230/0113 |
| Antero Resources Appalachian Corporation | Antero Resources Corporation | Name Change | Exhibit 1 |
| <u>W.S. Wright, et al</u> | | | |
| W.S. Wright, et al | Equitable Gas Company | 1/8 | 0196/0078 |
| Equitable Gas Company | Equitrans, Inc. | Assignment | 0274/0471 |
| Equitrans, Inc. | Equitrans, L.P. | Merger | Recited in 0433/0777 |
| Equitrans, L.P. | Equitable Production-Eastern States, Inc. | Assignment | 0342/0024 |
| Equitable Production-Eastern States, Inc. | Equitable Production Company | Merger | Exhibit 4 |
| Equitable Production Company | EQT Production Company | Name Change | CI 0009/0086 |
| EQT Production Company | Antero Resources Corporation | Assignment | 0523/0601 |
| <u>Richard Sandy Lease</u> | | | |
| Richard Lee Sandy | Antero Resources Corporation | 1/8+ | 0506/0604 |

4701706480 MOD

RECEIVED
 Office of Oil and Gas

APR 18 2016

*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.

WW-6A1
(5/13)

Operator's Well No. Kreitler 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>W.S. Wright, et al Lease</u> | W.S. Wright, et al Equitable Gas Company Equitrans, Inc. Equitrans, L.P. Equitable Production-Eastern States, Inc. Equitable Production Company EQT Production Company | Equitable Gas Company Equitrans, Inc. Equitrans, L.P. Equitable Production-Eastern States, Inc. Equitable Production Company EQT Production Company Antero Resources Corporation | 1/8 Assignment Merger Assignment Merger Name Change Assignment | 0196/0114 0274/0471 Recited in 0433/0777 0342/0024 Exhibit 4 CI 0009/0086 0523/0601 |

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

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

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

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

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

Well Operator: Antero Resources Corporation
 By: Kevin Kilstrom *[Signature]* **RECEIVED**
 Its: Senior Vice President of Production **Office of Oil and Gas**

4701706480 MOD
 APR 18 2016
 Page 1 of ____
 WV Department of
 Environmental Protection **06/17/2016**

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.wvsos.com
E-mail: business@wvsos.com

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

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

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

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

- 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: 6/26/2008
- 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, 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

- Signature information (See below **Important Legal Notice Regarding Signature**):

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

**Important Legal 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.

RECEIVED
Office of Oil and Gas

APR 18 2016

WV Department of
Environmental Protection 06/17/2016

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.

4701706480 MSW

RECEIVED
Office of Oil and Gas

APR 18 2016

WV Department of
Environmental **06/17/2016**

**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 21 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 Pres. dent

470 1706480 M00

RECEIVED
Office of Oil and Gas

APR 18 2016

WV Department of
Environmental Protection 06/17/2016

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)

4701706480 MSZ



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

February 23, 2006

RECEIVED

Office of Oil and Gas

Betty Ireland

APR 18 2016

WV Department of
Environmental Protection
06/17/2016

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

4701706480 MW



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

RECEIVED
Office of Oil and Gas
Joe Manchin III
APR 18 2016
Secretary of State

WV Department of Environmental Protection
06/17/2016

LATITUDE 39°22'30" 2,607'

LATITUDE 39°25'00"

LONGITUDE 80°45'00"

6,064'

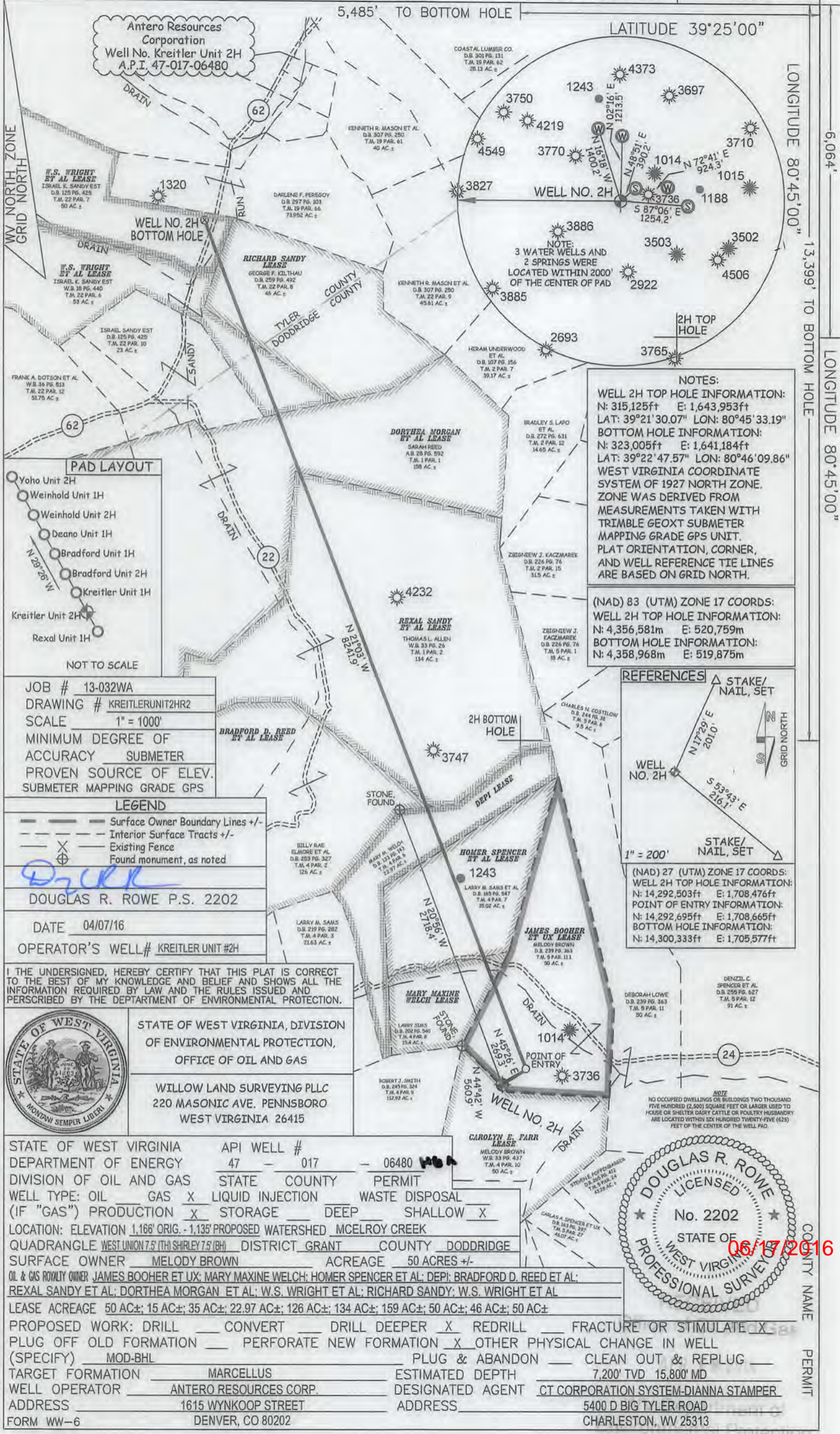
LONGITUDE 80°45'00"

COUNTY NAME

PERMIT

5,485' TO BOTTOM HOLE

Antero Resources Corporation
Well No. Kreitler Unit 2H
A.P.I. 47-017-06480



NOTES:
 WELL 2H TOP HOLE INFORMATION:
 N: 315,125ft E: 1,643,953ft
 LAT: 39°21'30.07" LON: 80°45'33.19"
 BOTTOM HOLE INFORMATION:
 N: 323,005ft E: 1,641,184ft
 LAT: 39°22'47.57" LON: 80°46'09.86"
 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: 4,356,581m E: 520,759m
 BOTTOM HOLE INFORMATION:
 N: 4,358,968m E: 519,875m

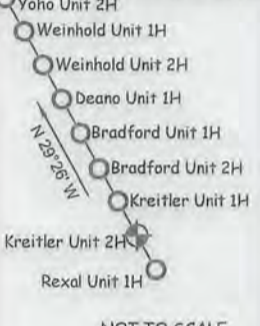
REFERENCES

STAKE/ NAIL, SET
 N 17°29' E 201.0'
 S 53°43' E 216.1'

1" = 200'

(NAD) 27 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 14,292,503ft E: 1,708,476ft
 POINT OF ENTRY INFORMATION:
 N: 14,292,695ft E: 1,708,665ft
 BOTTOM HOLE INFORMATION:
 N: 14,300,333ft E: 1,705,577ft

PAD LAYOUT



NOT TO SCALE

JOB # 13-032WA
 DRAWING # KREITLERUNIT2HR2
 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 04/07/16
 OPERATOR'S WELL# KREITLER 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 - 06480

STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,166' ORIG. - 1,135' PROPOSED 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 ROVINY OWNER JAMES BOOHER ET UX; MARY MAXINE WELCH; HOMER SPENCER ET AL; DEPI; BRADFORD D. REED ET AL; REXAL SANDY ET AL; DORTHEA MORGAN ET AL; W.S. WRIGHT ET AL; RICHARD SANDY; W.S. WRIGHT ET AL

LEASE ACREAGE 50 AC±; 15 AC±; 35 AC±; 22.97 AC±; 126 AC±; 134 AC±; 159 AC±; 50 AC±; 46 AC±; 50 AC±

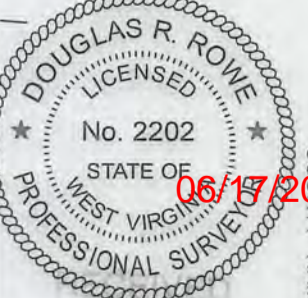
PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL FRACTURE OR STIMULATE X
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,200' TVD 15,800' MD

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

ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

FORM WW-6 DENVER, CO 80202



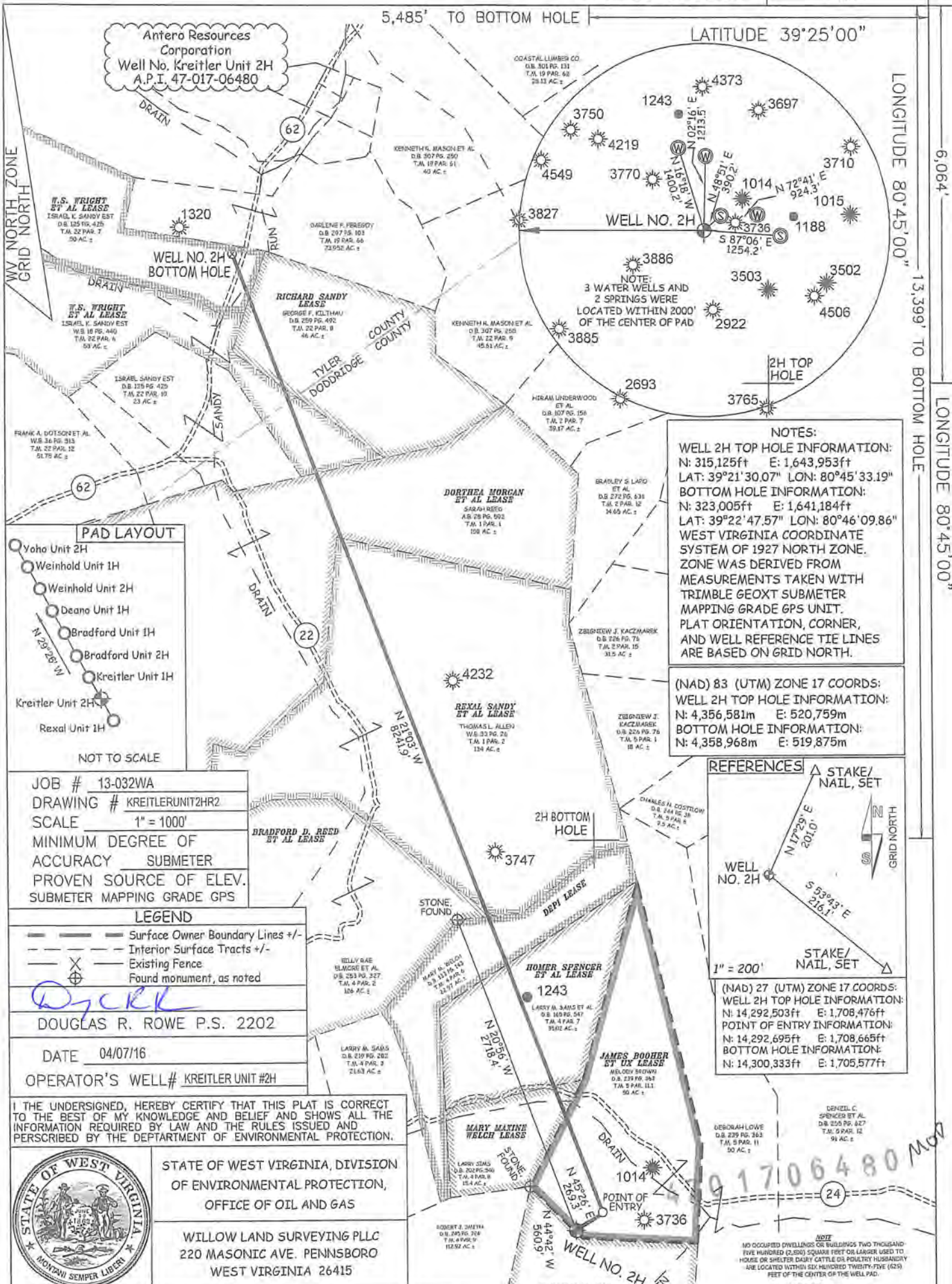
06/17/2016

LATITUDE 39°22'30" 2,607'

LATITUDE 39°25'00"

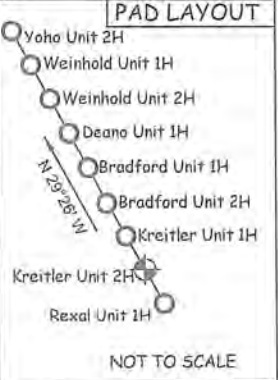
LONGITUDE 80°45'00" 13,399' TO BOTTOM HOLE

LONGITUDE 80°45'00" 6,064'



NOTES:
WELL 2H TOP HOLE INFORMATION:
 N: 315,125ft E: 1,643,953ft
 LAT: 39°21'30.07" LON: 80°45'33.19"
BOTTOM HOLE INFORMATION:
 N: 323,005ft E: 1,641,184ft
 LAT: 39°22'47.57" LON: 80°46'09.86"
 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: 4,356,581m E: 520,759m
BOTTOM HOLE INFORMATION:
 N: 4,358,968m E: 519,875m



JOB # 13-032WA
 DRAWING # KREITLERUNIT2HR2
 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

Dyck

DOUGLAS R. ROWE P.S. 2202

DATE 04/07/16

OPERATOR'S WELL # KREITLER 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 - 06480

STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,168' ORIG. - 1,135' PROPOSED 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; MARY MAXINE WELCH; HOMER SPENCER ET AL; DEPI; BRADFORD D. REED ET AL; REXAL SANDY ET AL; DORTHEA MORGAN ET AL; W.S. WRIGHT ET AL; RICHARD SANDY; W.S. WRIGHT ET AL

LEASE ACREAGE 50 AC±; 15 AC±; 35 AC±; 22.97 AC±; 126 AC±; 134 AC±; 159 AC±; 50 AC±; 46 AC±; 50 AC±

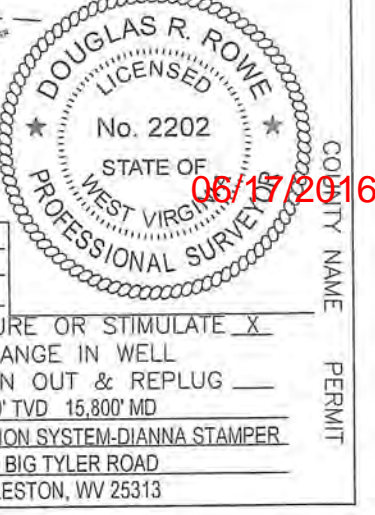
PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL FRACTURE OR STIMULATE X
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,200' TVD 15,800' 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