



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

Monday, November 26, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for PIERSON UNIT 3H
47-095-02415-00-00

Lateral extension, and point of entry.

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.

James A. Martin
Chief

A blue ink signature of James A. Martin, written in a cursive style.

Operator's Well Number: PIERSON UNIT 3H
Farm Name: GARY D. DAWSON, ET UX
U.S. WELL NUMBER: 47-095-02415-00-00
Horizontal 6A New Drill
Date Modification Issued: November 26, 2018

Promoting a healthy environment.

WW-6B
(04/15)

PERMIT MODIFICATION (API# 47-095-02415)

API NO. 47- 095 - 02415
OPERATOR WELL NO. Pierson Unit 3H
Well Pad Name: Dawson 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 | 095 - Tyler | Centerville | Shirley 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Pierson Unit 3H Well Pad Name: Dawson Pad

3) Farm Name/Surface Owner: Gary D. Dawson, et ux Public Road Access: State Route 18

4) Elevation, current ground: 1009' Elevation, proposed post-construction: _____

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: 6451' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 6451' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16169' MD

11) Proposed Horizontal Leg Length: 9147'

12) Approximate Fresh Water Strata Depths: 115', 320', 455'

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

14) Approximate Saltwater Depths: 652', 1583', 1830

15) Approximate Coal Seam Depths: 275', 424', 975

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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WW-6B
(04/15)

API NO. 47- 095 - 02415
OPERATOR WELL NO. Pierson Unit 3H
Well Pad Name: Dawson 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#	505' *see #19	505' *see #19	CTS, 702 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#	16400'	16400'	4102 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-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			

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WW-6B
(10/14)

API NO. 47- 095 - 02415

OPERATOR WELL NO. Pierson Unit 3H

Well Pad Name: Dawson 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.
*Antero will be air drilling the fresh water string which makes it difficult to determine when fresh water 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): Existing 28.65 acres

22) Area to be disturbed for well pad only, less access road (acres): Existing 9.14 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.

WV Department of
Environmental Protection

*Note: Attach additional sheets as needed.

WW-6A1

Operator's Well Number Pierson Unit 3H

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>Gary D. Dawson, et ux Lease</u> Gary D. Dawson, et ux	Antero Resources Corporation	1/8+	0459/0133
<u>Coastal Forest Resources Company Lease</u> Coastal Forest Resources Company Noble Energy Inc CNX Gas Co. LLC	Noble Energy Inc CNX Gas Co. LLC Antero Resources Corporation	1/8 Assignment Assignment	0534/0250 0549/0523 0564/0704
<u>Gary D. Dawson, et ux Lease</u> Gary D. Dawson, et ux	Antero Resources Corporation	1/8+	0459/0133
<u>Carl W. Ash, et ux Lease</u> Carl W. Ash, et ux Chesapeake Appalachia LLC SWN Production	Chesapeake Appalachia LLC SWN Production Company, LLC Antero Resources Corporation	1/8 Assignment Assignment	0368/0631 0465/0463 0538/0578
<u>Karla R. Spencer Lease</u> Karla R. Spencer Sancho Oil & Gas Corporation Chesapeake Appalachia LLC SWN Production Company LLC	Sancho Oil & Gas Corporation Chesapeake Appalachia LLC SWN Production Company LLC Antero Resources Corporation	1/8 Assignment Assignment Assignment	0362/0259 0370/0154 0465/0463 0544/0242
<u>Wilma J. Howard Lease</u> Wilma J. Howard Coastal Corporation Pardee Exploration Company Paul E. Pierson Adeline T. Pierson William P. Pierson Sancho Oil & Gas Company	Coastal Corporation Pardee Exploration Company Paul E. Pierson Adeline T. Pierson William P. Pierson Sancho Oil & Gas Company Antero Resources Corporation	1/8+ Assignment Assignment Assignment Assignment Assignment Assignment	0281/0317 0282/0458 0328/0052 0031/0064 0363/0452 0375/0239 0377/0235

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WW-6A1
(5/13)

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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>Carl W. Ash Lease</u>	Carl W. Ash & Judith A. Ash	Chesapeake Appalachian, LLC	1/8	0368/0631
	Chesapeake Appalachian, LLC	SWN Production Co., LLC	Assignment	0465/0463
	SWN Production Co. LLC	Antero Resources Corporation	Assignment	0538/0578

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

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

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

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

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

Well Operator: Antero Resources Corporation
 By: Kevin Kilstrom
 Its: Senior VP of Production

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**FORM WV-6A1
EXHIBIT 1**

FILED

JUN 10 2013

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



**IN THE OFFICE OF
SECRETARY OF STATE**

Fenney Barber, 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: \$25.00

**APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY**

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

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

1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appraisal 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 Legal Notice Regarding Signatures**):
Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

Important Legal Notice Regarding Signatures For West Virginia Code §21D-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.

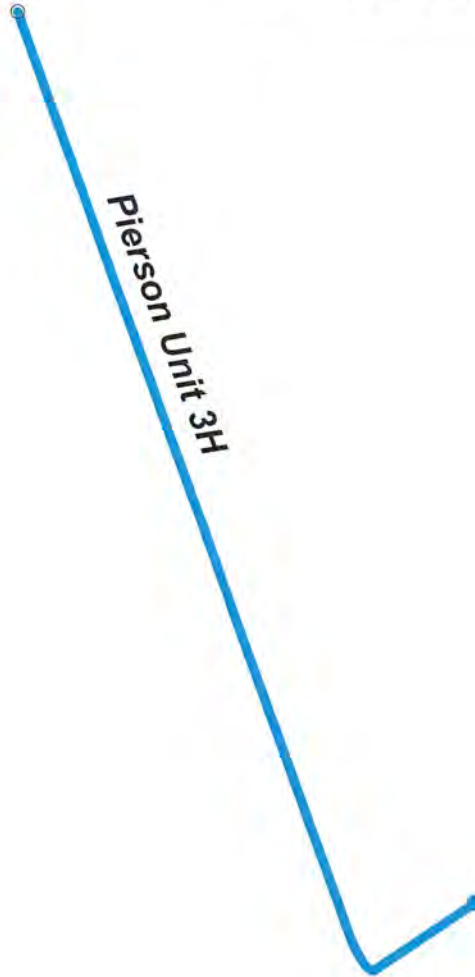
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No wells exist within a 500' radius of the wellbore that are reasonably expected to penetrate a depth that could be within the range of fracture propagation; therefore no additional details (perforated formation, producing zones etc.) are required as outlined in 35CSR8-5.11



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LATITUDE 39°25'00"

11,473'

4,001' TO BOTTOM HOLE

LATITUDE 39°25'00"

LONGITUDE 80°52'30"

4,760' TO BOTTOM HOLE

13,074'

LONGITUDE 80°50'00"

Antero Resources Corporation
Well No. Pierson Unit 3H

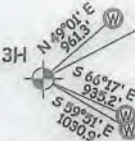
WELL 3H
BOTTOM HOLE

CARL W. ASH LEASE

JOSEPH McCRAY
D.B. 352 PG. 440
T.M. 12 PAR. 31
240.81 AC.±

3 WATER WELLS WERE
LOCATED WITHIN 2000'
OF CENTER OF PAD

WELL NO. 3H



3H BOTTOM
HOLE

WV NORTH ZONE
GRID NORTH

JOSEPH McCRAY
D.B. 352 PG. 440
T.M. 11 PAR. 111
61.79 AC.±

MOUNTAINEER LD
& TIMBER CO.
D.B. 353 PG. 273
T.M. 11 PAR. 11
65 AC.±

BRYAN KUNGLE
D.B. 308 PG. 435
T.M. 11 PAR. 17.2
10 AC.±

BRYAN KUNGLE
D.B. 308 PG. 435
T.M. 11 PAR. 17.1
11.11 AC.±

MOUNTAINEER LD
& TIMBER CO.
D.B. 353 PG. 273
T.M. 12 PAR. 27
28 AC.±

BRYAN KUNGLE
D.B. 308 PG. 435
T.M. 11 PAR. 17
65.81 AC.±

GARY DAWSON
D.B. 274 PG. 114
T.M. 12 PAR. 25
59 AC.±

DAVID BOWYER
D.B. 342 PG. 411
T.M. 12 PAR. 9
137.59 AC.±

DAVID E. BOWYER
LEASE

KARLA R. SPENCER LEASE

KARLA SPENCER
D.B. 316 PG. 496
T.M. 12 PAR. 9.1
61.89 AC.±

KARLA R. SPENCER LEASE

KARLA SPENCER
D.B. 316 PG. 496
T.M. 12 PAR. 9.3
23.31 AC.±

CARL ASH LEASE

KARLA SPENCER
D.B. 316 PG. 496
T.M. 12 PAR. 9.3
37 AC.±

KARLA R. SPENCER LEASE

KARLA SPENCER
D.B. 316 PG. 496
T.M. 12 PAR. 9.1
6.88 AC.±

MARTHA E. GOODEN LEASE

GARY DAWSON
D.B. 351 PG. 506
T.M. 12 PAR. 28
59.45 AC.±

GARY D. DAWSON
ET UX
LEASE

GARY DAWSON
D.B. 307 PG. 268
T.M. 13 PAR. 01
104.27 AC.±

WARREN SUKER JR.
D.B. 284 PG. 330
T.M. 12 PAR. 14
50.7 AC.±

ROBERT C. DEAN
LEASE

MARTHA E. GOODEN LEASE

GARY DAWSON
D.B. 351 PG. 506
T.M. 15 PAR. 27
39 AC.±

COASTAL FOREST
RESOURCES CO.
D.B. 324 PG. 55
T.M. 15 PAR. 28
108 AC.±

COASTAL FOREST
RESOURCES CO.

WELL NO. 3H

S 62°45' E
959.2'

N 45°30' W

REBAR, FOUND

PAD LAYOUT

NOT TO SCALE

WV NORTH ZONE
GRID NORTH

PIERSON UNIT 3H

PIERSON UNIT 3H

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NOTES:
WELL 3H TOP HOLE INFORMATION:
N: 323,764ft E: 1,611,648ft
LAT: 39°22'50.78" LON: 80°52'26.12"
BOTTOM HOLE INFORMATION:
N: 332,144ft E: 1,607,470ft
LAT: 39°24'12.96" LON: 80°53'20.97"
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 3H TOP HOLE INFORMATION:
N: 4,359,049m E: 510,873m
BOTTOM HOLE INFORMATION:
N: 4,361,581m E: 509,558m

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.

REFERENCES



JOB # 16-043WA
DRAWING # PIERSON3HMOD
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
- Monument, Found As Specified

DOUGLAS R. ROWE P.S. 2202

DATE 08/29/2018

OPERATOR'S WELL# PIERSON UNIT 3H

API WELL # 47-095-2415 MOD
STATE COUNTY PERMIT

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 REGULATIONS 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 DEPT. OF ENERGY DIVISION OF OIL AND GAS
WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,009' - AS BUILT ___ WATERSHED ___ HEADWATERS MIDDLE ISLAND CREEK
QUADRANGLE SHIRLEY 7.5' (TH) MIDDLEBOURNE 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER
SURFACE OWNER GARY D. DAWSON ET UX ACREAGE 104.27 ACRES +/-
OIL & GAS ROYALTY OWNER GARY D. DAWSON ET UX; COASTAL FOREST RESOURCES CO.; LEASE ACREAGE 104.27 AC.±; 108 AC.±;
MARTHA E. GOODEN; KARLA R. SPENCER; WILMA J. HOWARD ET AL; CARL W. ASH 184.95 AC.±; 85.2 AC.±; 239 AC.±; 362.8 AC.±
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) MOD POE PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,451' TVD 16,169' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

LATITUDE 39°25'00"

11,473'

4,001' TO BOTTOM HOLE

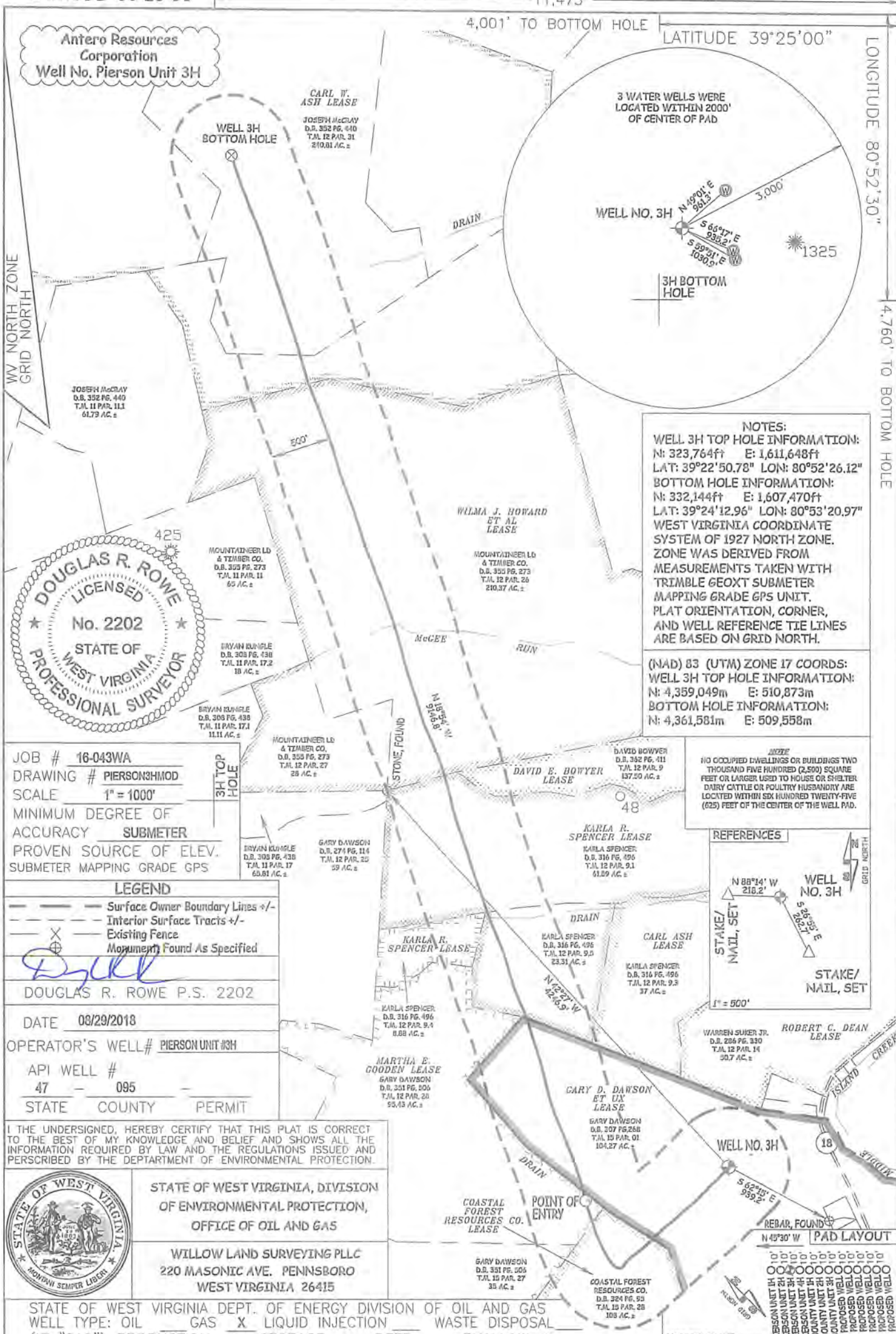
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13,074'

LONGITUDE 80°50'00"



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 - - - Interior Surface Tracts +/-
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 Monument Found As Specified

DOUGLAS R. ROWE P.S. 2202

DATE 08/29/2018

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API WELL # 47 - 095

STATE COUNTY PERMIT

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

STATE OF WEST VIRGINIA DEPT. OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1,009' - AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SHIRLEY 7.5' (TH) MIDDLEBOURNE 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER

SURFACE OWNER GARY D. DAWSON ET UX ACREAGE 104.27 ACRES +/-
 OIL & GAS ROYALTY OWNER GARY D. DAWSON ET UX; COASTAL FOREST RESOURCES CO.; MARTHA E. GOODEN; KARLA R. SPENCER; WILMA J. HOWARD ET AL; CARL W. ASH LEASE ACREAGE 104.27 AC±; 108 AC±; 184.95 AC±; 85.2 AC±; 239 AC±; 362.8 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD POE PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,451' TVD 16,169' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313