



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

Tuesday, October 23, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for YOHO UNIT 1H
47-017-06543-00-00

Point of Entry Change and Horizontal Length Change

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 handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the typed name and title.

Operator's Well Number: YOHO UNIT 1H
Farm Name: FOSTER, YVONNE R.
U.S. WELL NUMBER: 47-017-06543-00-00
Horizontal 6A Horizontal 6A Well - 1
Date Modification Issued: 10/23/2018

Promoting a healthy environment.

WW-6B
(9/13)

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 West Union West Union 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Yoho Unit 1H Well Pad Name: Yvonne Pad

3) Farm Name/Surface Owner: Yvonne R. Foster Public Road Access: CR 24

4) Elevation, current ground: 1229' 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 Associated Pressure(s):
Marcellus Shale: 7046' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 7046' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 14840' MD

11) Proposed Horizontal Leg Length: 7335'

12) Approximate Fresh Water Strata Depths: 287', 378', 462'

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

14) Approximate Saltwater Depths: 872' 1491', 1155'

15) Approximate Coal Seam Depths: 872', 419', 875'

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: _____
Scam: _____
Owner: _____

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WW-6B
(9/13)

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS, 39 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	520'	520' *see #19	CTS, 722 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#	14840'	14840'	3689 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

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

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WW-6B
(9/13)

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."

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 36.09 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.90 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 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 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.

WW-6A1
(5/13)

Operator's Well No. Yoho Unit 1H

**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>Judy Kozoriz Lease</u>	Judy Kozoriz Antero Resources Appalachian Corporation	Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Name Change	0260/0080 Exhibit 1

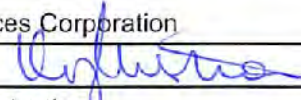
*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**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 - Production

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Freeman Paul Smith et al Lease</u>			
Freeman Paul Smith	Key Oil Company	1/8	0108/0423
Key Oil Company	J & J Enterprises, Inc.	Assignment and Security Agreement	0115/0558
J & J Enterprises	Eastern American Energy Corporation	Confirmatory Deed and Assignment of Leases	0159/0139
Eastern American Energy Corporation	Energy Corporation of America	Confirmatory Deed and Assignment of Leases	0240/0498
Energy Corporation of America	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0272/0307
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Blonda Smith et al Lease</u>			
Blonda Smith, et al	DAC	1/8	0163/0194
DAC	Dominion Appalachian Development Properties, LLC	Assignment	0181/0657
Dominion Appalachian Development Properties	Antero Resources Appalachian Corporation	Partial Assignment	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Clinton Jameson et al Lease</u>			
Clinton J. Jameson et al	HND Oil and Gas Company	1/8	0143/0488
HND Oil and Gas Company	Drilling Appalachian Corporation	Agreement	0161/0604
Drilling Appalachian Corporation	Dominion Appalachian Development Properties, LLC	Assignment and Conveyance	0181/0657
Dominion Appalachian Development Properties, LLC	Consol Gas Appalachian Development Properties, LLC	Certificate of Amendment to the Certificate of Authority	0286/0101
Consol Gas Appalachian Development Properties, LLC	Consol Gas Reserves, Inc.	Certificate of Merger	0286/0121
Consol Gas Reserves, Inc.	Consol Gas Company	Certificate of Merger	0286/0133
Consol Gas Company, et al	CNX Gas Company LLC	Notice of Name Changes and Mergers	0292/0469
CNX Gas Company LLC	Antero Resources Appalachian Corporation	Partial Term Assignment	0317/0379
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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

CONTINUED ON NEXT PAGE

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INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>T.D. Swiger et ux Lease</u>			
T.D. Swiger, et ux	The Carter Oil Company	Flat Rate	0027/0144
The Carter Oil Company	Hope Construction & Refining Company	Assignment	0042/0438
Hope Construction & Refining Company	R.J. Braden, et al	Assignment	0053/0171
R.J. Braden, et al	S.M. Vockel	Assignment	0054/0445
S.M. Vockel, et al	Ralph E. Carder	Assignment	0136/0299
Ralph E. Carder	P.Douglas Farr as Trustee	Trust Deed	0050/0560
P.Douglas Farr as Trustee	West Union Bank	Deed	0154/0351
West Union Bank	W.H. Mossor	Assignment	0094/0707
W.H. Mossor, et al	Gene Conrad, Inc.	Assignment	0171/0061
Gene Conrad, Inc.	United Exploration	Assignment	0171/0167
United Exploration	Gerald W. Lauderman, et al	Assignment	0172/0149
Gerald W. Lauderman, et al	Michael E. Heitz	Assignment of Oil & Gas Lease	0140/0677
Michael E. Heitz	HND Oil & Gas Company	Assignment	0141/0379
HND Oil & Gas Company	Drilling Appalachian Corporation	Assignment	0161/0306
Drilling Appalachian Corporation	Antero Resources Appalachian Corporation	Assignment	0278/0307
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Flora Martin Lease</u>			
Flora E. Martin	W. H. Mossor	1/8	0090/0040
W. H. Mossor	Gene Conrad, Inc.	Assignment	DB 0171/0061
Gene Conrad, Inc.	Gerald W. Lauderman, DBA Lauderman Oil & Gas Drilling Company	Assignment	0100/0668
Gerald W. Lauderman, DBA Lauderman Oil & Gas Drilling Company	C. Brooks LeMasters	Assignment	0167/0298
C. Brooks LeMasters	Drilling Appalachian Corporation	Assignment	0167/0301
Drilling Appalachian Corporation	Dominion Appalachian Development Properties, LLC	Assignment and Conveyance	0181/0667
Dominion Appalachian Development Properties, LLC	Consol Gas Appalachian Development Properties, LLC	Certificate of Amendment to the Certificate of Authority	DB 0286/0101
Consol Gas Appalachian Development Properties, LLC	Consol Gas Reserves, Inc.	Certificate of Merger	DB 0286/0121
Consol Gas Reserves, Inc.	Consol Gas Company	Certificate of Merger	DB 0286/0133
Consol Gas Company, et al	CNX Gas Company LLC	Notice of Name Changes and Mergers	DB 0292/0469
CNX Gas Company LLC	Antero Resources Appalachian Corporation	Partial Term Assignment	0317/0379
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
RECEIVED Office of Oil and Gas			
JUL 12 2018			
Janice Cowan et al Lease			
Janice Cowan et al	Antero Resources Appalachian Corporation	1/8+	0263/0667
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
WV Department of Environmental Protection			

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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)558-8361
Website: www.wvscot.com
E-mail: business@wvscot.com

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

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

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

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

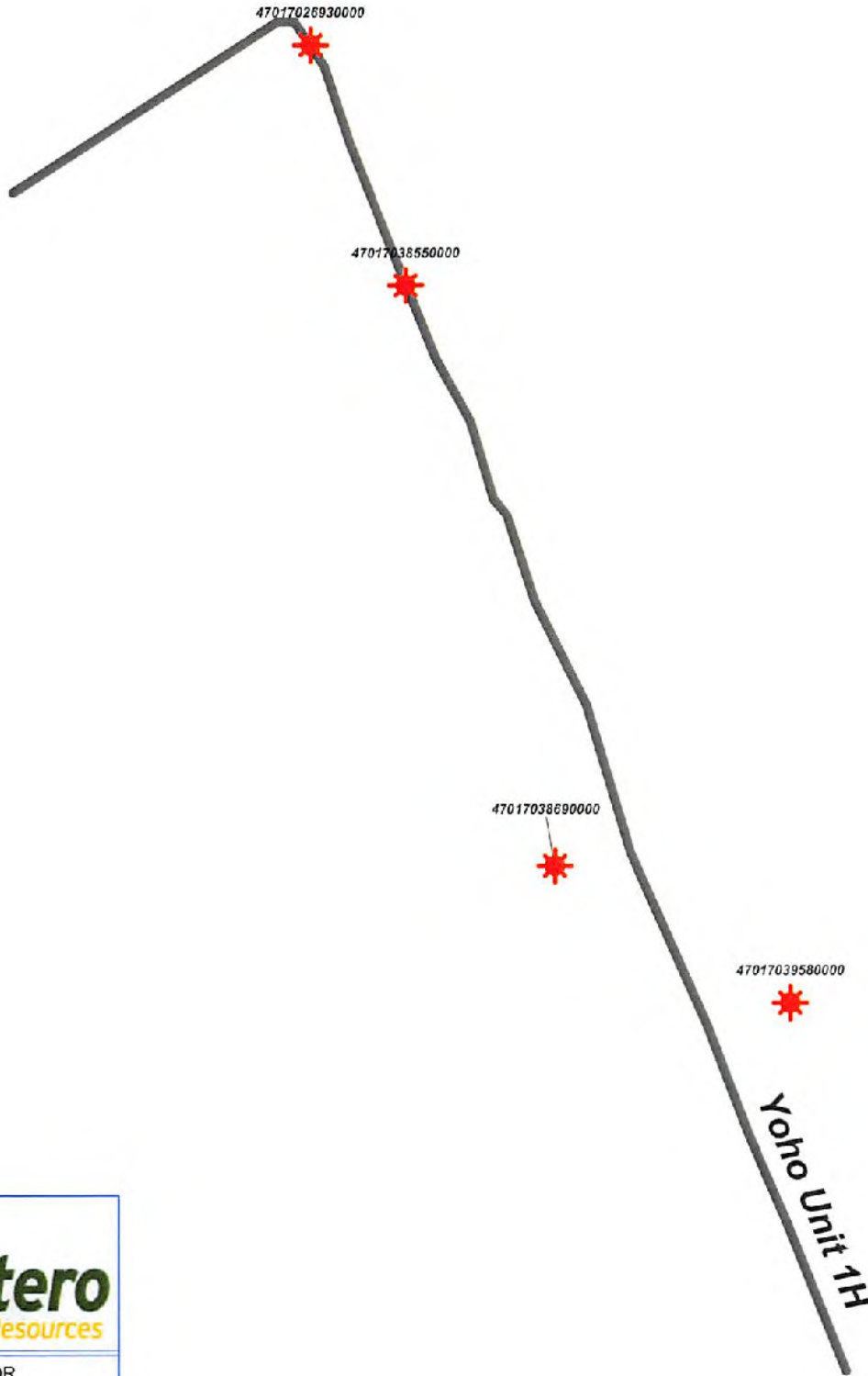
- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of Incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- Other amendments:
(attach additional pages if necessary)
- Name and phone number of contact person. (This is optional; however, if there is a problem with the filing, 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:** Per West Virginia Code §31D-1-129, Penalty for signing false documents. 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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Yoho Unit 1H - AOR

Shallow Well Investigation



 WELL SYMBOLS
Gas Well

August 18, 2017

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YOHO UNIT 1H (YVONNE PAD) - AREA OF REVIEW 35-8-5.11 PAGE 2

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper	TD
47017038550000	SMITH T J HEIRS ET AL	5	BRAXTON O&G CORP	EASTERN AMERICAN ENE	5522
47017026930000	WETZEL LOUIS N	J-125	ENERGY CORP OF AMER	J & J ENTERPRISES	5471
47017039580000	DOAK THOMAS HEIRS ETAL	2	CONSOL GAS COMPANY	DAC CORP	5218
47017038690000	JOSEPH CORATHERS	1	CONSOL GAS COMPANY	DAC CORP	5160

ELEV_GR	Approx distance to well	TD(SSVD)	Gross Perf Interval	Producing Formation(s)	Producible Formation(s) not perf d*
1300	23	-4222	4870-5320	Riley, Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley
1320	14	-4151	2578-5279	Weir, Berea, Gordon, Warren, Riley, Benson	Keener, Big Injun, Speechley
1037	489	-4181	5097-5101	Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Riley
995	420	-4165	5047-5051	Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Riley

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LATITUDE 39°22'30"

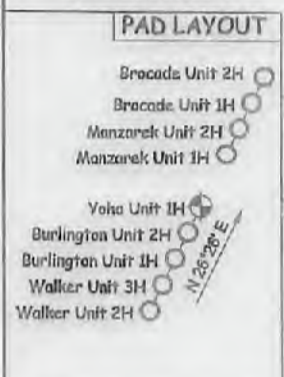
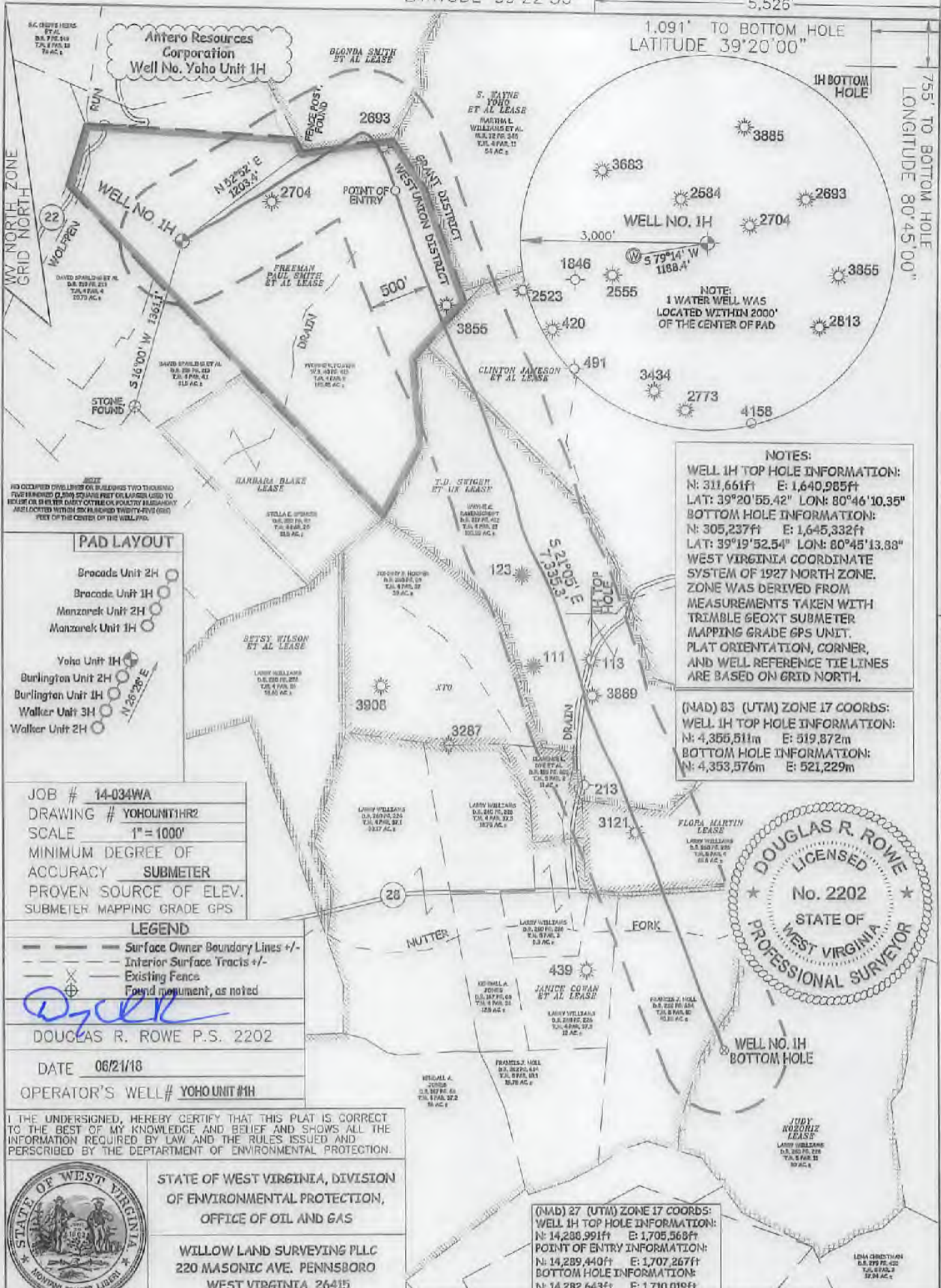
5,526'

1,091' TO BOTTOM HOLE
LATITUDE 39°20'00"

755' TO BOTTOM HOLE
LONGITUDE 80°45'00"

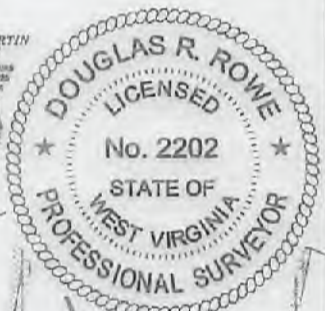
9,569'

LONGITUDE 80°45'00"



NOTES:
WELL 1H TOP HOLE INFORMATION:
 N: 311,661ft E: 1,640,985ft
 LAT: 39°20'55.42" LON: 80°46'10.35"
BOTTOM HOLE INFORMATION:
 N: 305,237ft E: 1,645,332ft
 LAT: 39°19'52.54" LON: 80°45'13.88"
 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: 4,355,511m E: 519,872m
BOTTOM HOLE INFORMATION:
 N: 4,353,576m E: 521,229m



JOB # 14-034WA
 DRAWING # YOHOUNIT1HR2
 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 06/21/18
 OPERATOR'S WELL # YOHOUNIT #1H

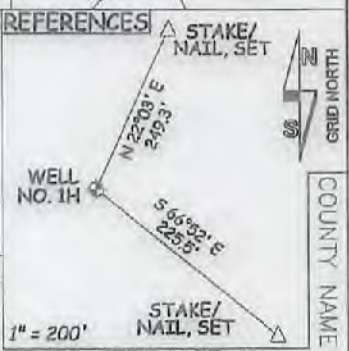
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

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 1,229' AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE WEST UNION 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER YVONNE R. FOSTER ACREAGE 125.48 ACRES +/-
 OIL & GAS RENTAL OWNER FREEMAN PAUL SMITH ET AL; BLONDA SMITH ET AL; CLINTON JAMESON ET AL; T.D. SWIGER ET UX;
 FLORA MARTIN; JANICE COWAN ET AL; JUDY KOZORIZ

LEASE ACREAGE 125 AC±; 114 AC±; 99 AC±; 100 AC±; 72.25 AC±; 428.5 AC±; 80 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 7,046' TVD 14,840' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313





July 11, 2018

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

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

Ms. Laura Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for one approved well on the existing Yvonne Pad. We are requesting change the point of entry which will change the horizontal leg length, Total Measured Depth, and Total Vertical Depth for the Yoho Unit 1H (API# 47-017-06543).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised Horizontal Leg Length, Measured Depth, and Production Casing/Cement Program
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plat, which shows the new wellbore path.

If you have any questions please feel free to contact me at (303) 357-6820.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Karin Cox".

Karin Cox
Permitting Agent
Antero Resources Corporation

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Office of Oil and Gas

JUL 12 2018

WV Department of
Environmental Protection

Enclosures

LATITUDE 39°22'30"

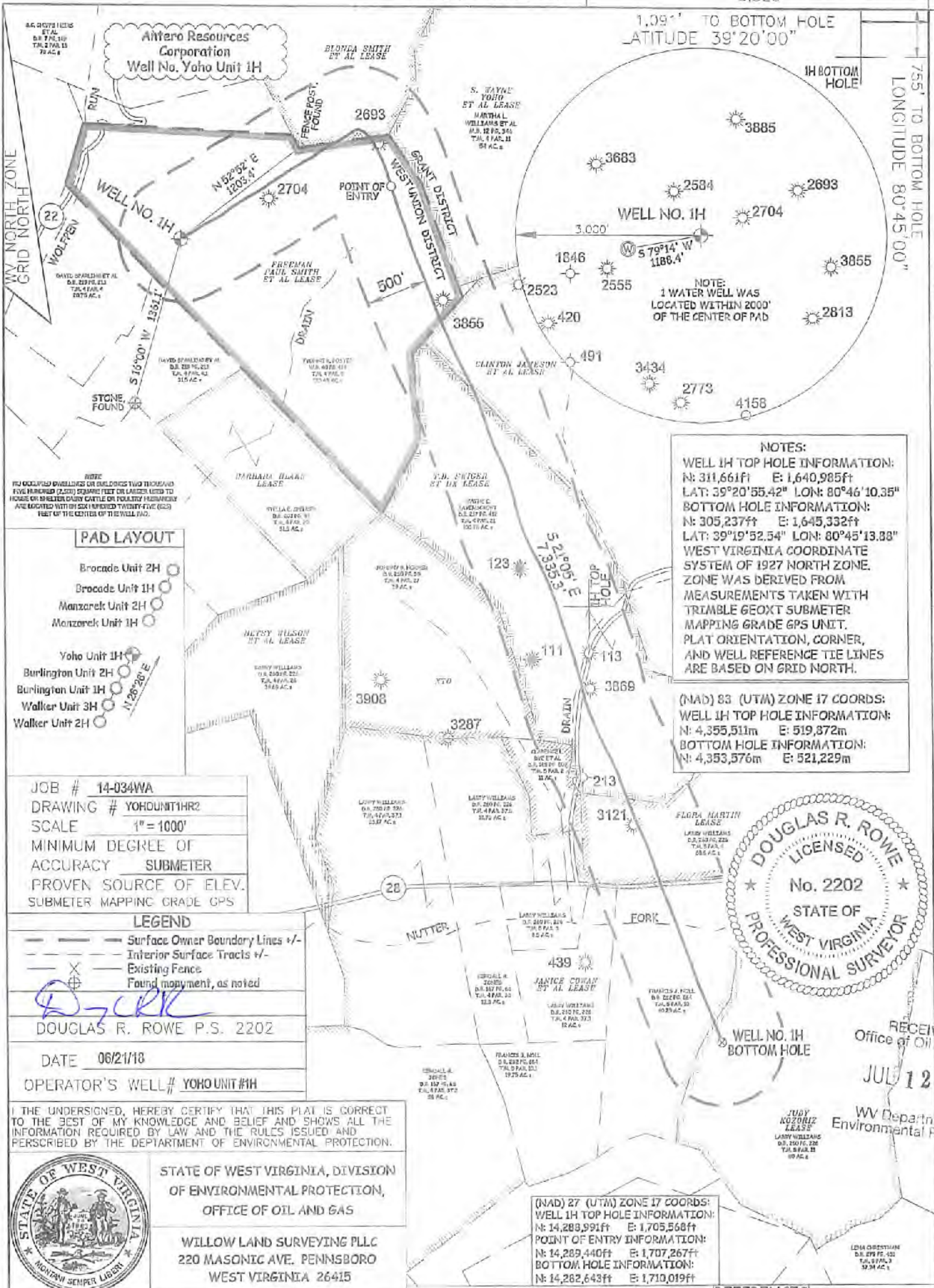
5,526'

1,091' TO BOTTOM HOLE
LATITUDE 39°20'00"

755' TO BOTTOM HOLE
LONGITUDE 80°45'00"

9,569'

LONGITUDE 80°45'00"



NOTES:
WELL 1H TOP HOLE INFORMATION:
 N: 311,661ft E: 1,640,985ft
 LAT: 39°20'55.42" LON: 80°46'10.35"
BOTTOM HOLE INFORMATION:
 N: 305,237ft E: 1,645,332ft
 LAT: 39°19'52.54" LON: 80°45'13.88"
 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: 4,355,511m E: 519,872m
BOTTOM HOLE INFORMATION:
 N: 4,353,576m E: 521,229m



RECEIVED
 Office of Oil and Gas
 JUL 12 2018
 WV Department of Environmental Protection



JOB # 14-034WA
 DRAWING # YOHOUNIT1HR2
 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 06/21/18
 OPERATOR'S WELL # YOHO 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 1,229' AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE WEST UNION 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
 SURFACE OWNER YVONNE R. FOSTER ACREAGE 125.48 ACRES +/-
 OIL & GAS ROYALTY OWNER FREEMAN PAUL SMITH ET AL; BLONDA SMITH ET AL; CLINTON JAMESON ET AL; T.D. SWIGER ET UX; FLORA MARTIN; JANICE COWAN ET AL; JUDY KOZORIZ

LEASE ACREAGE 125 AC±; 114 AC±; 99 AC±; 100 AC±; 72.25 AC±; 428.5 AC±; 80 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 7,048' TVD 14,840' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

