



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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202


Re: Permit Modification Approval for DOAK UNIT 1H
47-017-06766-00-00

Change point of entry, horizontal leg length, TMD, and TVD.

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

Operator's Well Number: DOAK UNIT 1H
Farm Name: ALVADORE MCCLOY JR ET UX
U.S. WELL NUMBER: 47-017-06766-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: 8/4/2017

Promoting a healthy environment.

08/04/2017



July 17, 2017

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. Wade Stansberry
601 57th Street
Charleston, WV 25304

Mr. Stansberry:

Antero Resources Corporation (Antero) would like to submit the following permit modification for one approved well on the Alvadore Pad. We are requesting to change the point of entry which will change the horizontal leg length, Total Measured Depth and Total Vertical Depth of the Doak Unit 1H (API# 47-017-06766).

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 lease we will be drilling into
- REVISED Mylar Plats, which shows the new wellbore path

If you have any questions please feel free to contact me at (303) 357-6759.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Samantha Klaas". The signature is fluid and cursive, with a large loop at the beginning of the first name.

Samantha Klaas
Permitting Agent
Antero Resources Corporation

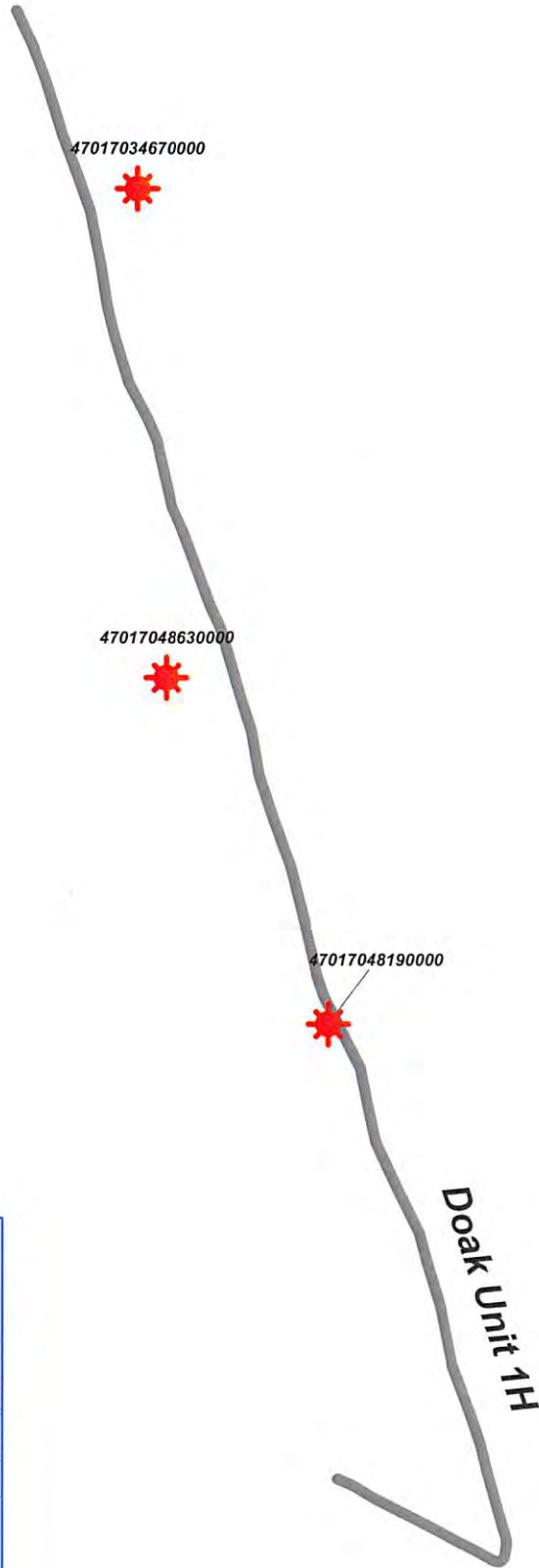
Enclosures

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Doak Unit 1H - AOR

Shallow Well Investigation



 WELL SYMBOLS
Gas Well

July 17, 2017

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08/04/2017

PERMIT MODIFICATION (API# 47-017-06766)

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD
47017034670000	RASEY ROBERT ET AL	JK-1185	ALLIANCE PETR CORP	J & J ENTERPRISES	5992
47017048630000	BOOTHE	2	KEY OIL COMPANY	KEY OIL COMPANY	5371
47017048190000	DOAK W E	1	KEY OIL COMPANY	KEY OIL COMPANY	5336

ELEV_GR	TD (SSTVD)	Approx distance to well	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
1134	-4858	268	4584-5922	Riley, Benson, Alexander	Big Injun, Weir, Balltown, Bradford
1061	-4310	325	3374-5231	Warren, Alexander	Big Injun, Weir, Balltown, Bradford, Riley, Benson
1032	-4304	47	4476-5176	Riley, Alexander	Big Injun, Weir, Balltown, Bradford, Alexander

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17-06766 MOD

WW-6B
(04/15)

PERMIT MODIFICATION API# 47-017-06766

API NO. 47- 017 - _____

OPERATOR WELL NO. Doak Unit 1H

Well Pad Name: Existing Alvadore Pad

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 Central Pennsboro 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Doak Unit 1H Well Pad Name: Existing Alvadore Pad

3) Farm Name/Surface Owner: McCloy, Alvadore, Jr., et ux Public Road Access: CR 50/31

4) Elevation, current ground: 1057' Elevation, proposed post-construction: 1057'

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: 6700' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 6700' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 14799' MD

11) Proposed Horizontal Leg Length: 8040'

12) Approximate Fresh Water Strata Depths: 332'

13) Method to Determine Fresh Water Depths: Hudkins Unit 2H (API #47-017-06436) on same pad.

14) Approximate Saltwater Depths: 1571'

15) Approximate Coal Seam Depths: None Identified

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

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

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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WW-6B
(04/15)

API NO. 47- 017 -

OPERATOR WELL NO. Doak Unit 1H

Well Pad Name: Existing Alvadore Pad

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	54.5#	390' *see #19	390' *see #19	CTS, 542 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2475'	2475'	CTS, 1004 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	14799'	14799'	CTS, 3673 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"	2730	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"	0.415"	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				RECEIVED Office of Oil and Gas JUL 18 2017
Sizes:	N/A				
Depths Set:	N/A				

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WW-6B
(10/14)

PERMIT MODIFICATION API# 47-017-06766

API NO. 47- 017 - _____

OPERATOR WELL NO. Doak Unit 1H

Well Pad Name: Existing Alvadore 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): 33.17 Existing Acres (Shared with Dotson Holland Pad)

22) Area to be disturbed for well pad only, less access road (acres): 4.35 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 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

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

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*Note: Attach additional sheets as needed.

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08/04/2017
WV Department of
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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>Brenda J. Miller Lease</u>			
Brenda J. Miller	Antero Resources Appalachian Corporation	1/8	0277/0186
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Gail Mason Lease</u>			
Gail Mason	Antero Resources Appalachian Corporation	1/8+	0289/0410
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Robert Smith et al Lease</u>			
Robert Smith et al	Hope Natural Gas Company	Flat Rate	0030/0161
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	DB 0143/0345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583
Consolidated Gas Transmission Corporation	CNG Development Company	Assignment	0139/0041
CNG Development Company	CNG Producing Company	Merger	Exhibit 2
CNG Producing Company	Dominion Exploration & Production Company, Inc	Name Change	AOI 0058/0366
Dominion Exploration & Production Company, Inc	Consol Gas Company	Name Change	DB 0286/0144
Consol Gas Company	CNX Gas Company, LLC	Merger	DB 0292/0469
CNX Gas Company, LLC	Antero Resources Appalachian Corporation	Notice of Agreement	0300/0442
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>WVSRA Lease</u>			
West Virginia State Rail Authority	Antero Resources Appalachian Corporation	1/8+	0253/0409
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>William E. Doak Lease</u>			
Williams E. Doak , et al	C. E. Young	1/8	0069/0339
C.E. Young	W. Leslie Rogers	Assignment	0090/0135
W. Leslie Rogers	Mary Elizabeth Rich	Will	0127/0524
Mary Elizabeth Rich	D. Leslie Rich	Will	0178/0499
D. Leslie Rich	W. Kevin Snyder & Ritchie Petroleum Corp.	Assignment	0185/0661
W. Kevin Snyder & Ritchie Petroleum Corp.	Key Oil Company	Assignment	0187/0059
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment	0276/0526
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Waco Oil & Gas Company, Inc. Lease</u>			
Waco Oil & Gas Company, Inc.	Key Oil Company	1/8	0198/0556
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment	0276/0526
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Frederick D. Boothe et ux Lease</u>			
Frederick D. Boothe et ux	Key Oil Company	1/8	0195/0276
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	0276/0526
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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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.

08/04/2017

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Harry D. Williamson et al Lease</u>			
Harry D. Williamson et al	C. E. Young & L.C. Young	1/8	0069/0347
C. E. Young	L.C. Young	Assignment	0070/0076
L.C. Young	W. Leslie Rogers	Assignment	0090/0135
W. Leslie Rogers	J & J Enterprises	Assignment	0139/0570
J & J Enterprises	Eastern American Energy Corp.	Assignment	0159/0139
Eastern American Energy Corp.	Energy Corporation of America	Assignment	0240/0498
Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	0272/0307
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Ora E. Doak et ux Lease</u>			
Ora E. Doak et ux	Eastern American Energy	1/8	0158/0085
Eastern American Energy	Energy Corporation of America	Assignment	0240/0498
Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	0272/0307
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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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.

08/04/2017

WW-6A1
(5/13)

Operator's Well No. Doak 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)**

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Sharon A. Drain Lease</u>	Sharon Drain	Antero Resources Corporation	1/8+	0278/0990

*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.

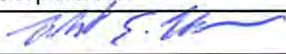
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**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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: Robert S. Tucker 
 Its: Vice President of Geology

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

- 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.)

Alwyn A. Schopp (303) 357-7310
 Contact Name Phone Number

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

Print Name of Signer: Alwyn 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 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.



CERTIFICATE

I, Ken Flechler, Secretary of State of the State of West Virginia, hereby certify that originals of a Notice of Intention to Withdraw with the application of

COG DEVELOPMENT COMPANY

for a Certificate of Withdrawal from West Virginia, signed and verified, as required by the provisions of Chapter 31, Article 1, Section 60 of the West Virginia Code are filed in my office and conform to law. Therefore, I issue this

CERTIFICATE OF WITHDRAWAL

and I attach to this certificate a duplicate original of the application.

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Office of Oil and Gas

JUL 18 2017

WV Department of
Environmental Protection

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



TENNI _____ day of
JULY 19 91

Ken Flechler

Secretary of State

FORM WW-6A1
EXHIBIT 2

17-06766 MOD

KEN HECHLER
FEE \$5.00



TO BE FILED IN DUPLICATE
ORIGINALS

FILED
JUL 10 1991
OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA

APPLICATION FOR
CERTIFICATE OF WITHDRAWAL
OF
CNG Development Company

In accordance with Chapter 31, Article 1, Section 60 of the Code of West Virginia, the undersigned corporation hereby applies for a certificate of withdrawal from West Virginia, and submits the following statement:

The name of the corporation is: CNG Development Company

It is incorporated under the laws of Delaware

IT IS NOT TRANSACTING BUSINESS IN WEST VIRGINIA.

It hereby surrenders its authority to transact business in West Virginia. It revokes the authority of its registered agent in West Virginia to accept service of process, and consents that service of process in any action, suit or proceeding based upon any course of action arising in West Virginia during the time the corporation was authorized to transact business in West Virginia may thereafter be made on the corporation by service thereof on the Secretary of State of West Virginia.

The post-office address to which the Secretary of State may mail a copy of any process against the corporation is: CNG Producing Company, CNG Tower, 1450 Poydras Street, New Orleans, LA 70112-6000 Attn: Corporate Secretary

The aggregate number of shares which it has authority to issue, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is:

NUMBER OF SHARES	CLASS	SERIES	PAR VALUE/NO PAR
1,400,000	Common		\$100

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The aggregate number of its issued shares, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is:

WV Department of
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NUMBER OF SHARES	CLASS	SERIES	PAR VALUE/NO PAR
1,168,410	Common		\$100

The amount of its state capital as of this date is \$38,800,000

08/04/2017

17-06766 MOD

CHG Development Company (Through CHG Producing Company)

Corporate name

President/Vice President

D. Malcolm Johns, Jr.
Secretary

State of Louisiana
Parish Orleans

I, James E. Wright, Jr. a Notary Public, do
hereby certify that D. Malcolm Johns, Jr. ~~XXXX~~x

the Secretary
office
of CHG Producing Company
corporate name
office

appeared before me and they signed the foregoing as the act and deed of the corporation.

[Signature]
Notary Public

(notary seal)

My commission expires at death

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JUL 18 2017
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LATITUDE 39°17'30" 2,226'

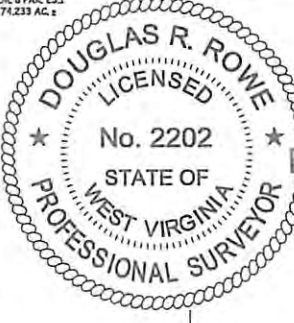
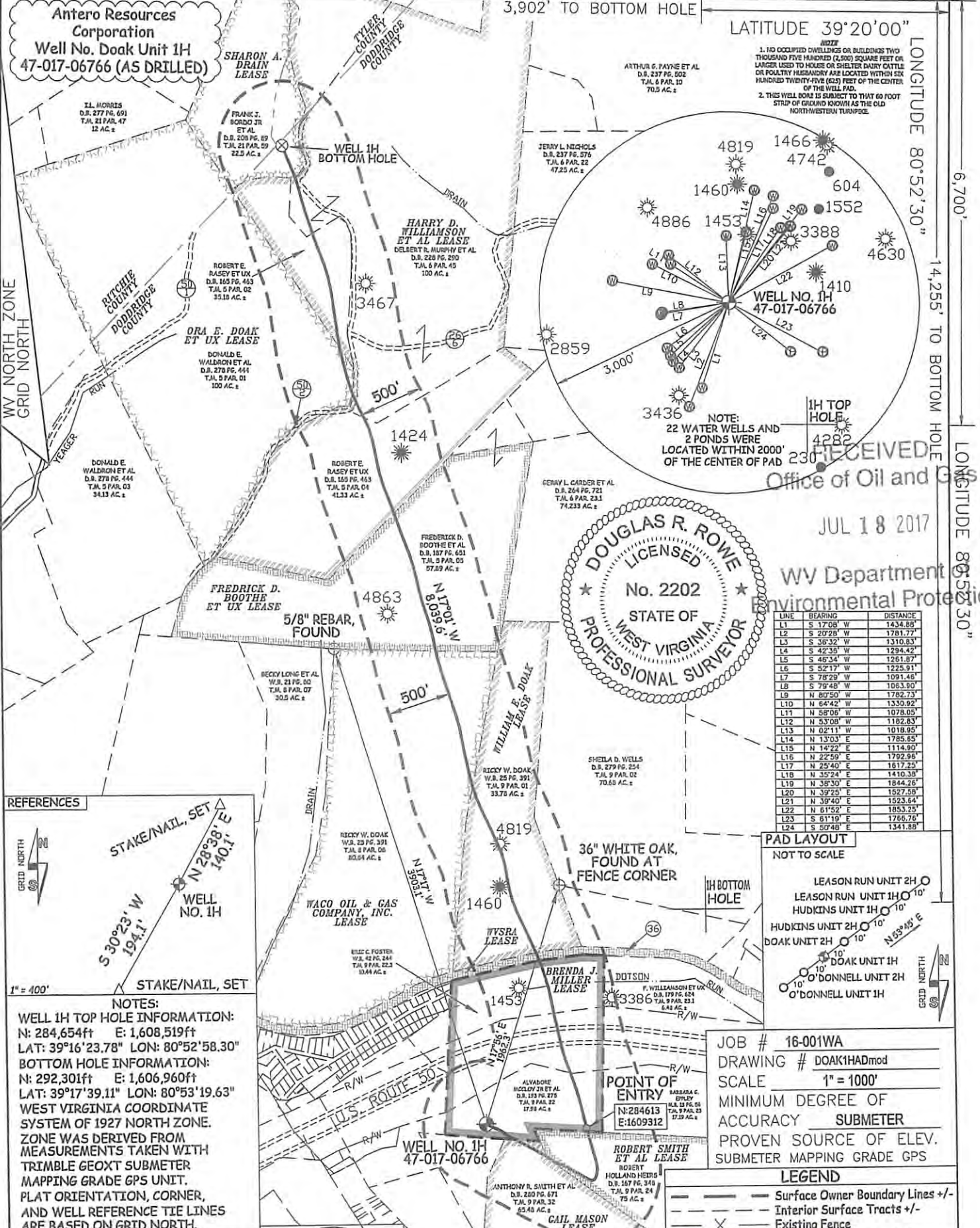
LATITUDE 39°20'00"

LONGITUDE 80°52'30"

6,700'

LONGITUDE 80°52'30"

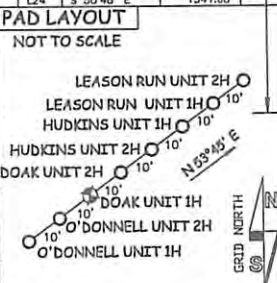
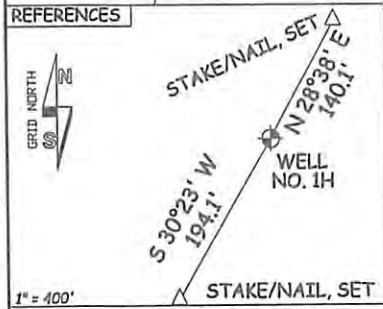
LONGITUDE 80°52'30"



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NOTES:
 WELL 1H TOP HOLE INFORMATION:
 N: 284,654ft E: 1,608,519ft
 LAT: 39°16'23.78" LON: 80°52'58.30"
 BOTTOM HOLE INFORMATION:
 N: 292,301ft E: 1,606,960ft
 LAT: 39°17'39.11" LON: 80°53'19.63"
 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.

JOB # 16-001WA
 DRAWING # DOAK1HADmod
 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



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

DATE 06/26/17
 OPERATOR'S WELL# DOAK UNIT #1H
 API WELL # 47 - 017 - 06766

(NAD) 83 (UTM) ZONE 17 COORDS:
 WELL 1H TOP HOLE INFORMATION:
 N: 4,347,118m E: 510,119m
 BOTTOM HOLE INFORMATION:
 N: 4,349,440m E: 509,605m

STATE OF WEST VIRGINIA DEPARTMENT 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 1,057' AS BUILT WATERSHED NORTH FORK HUGHES RIVER
 QUADRANGLE PENNSBORO 7.5' DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER ALVADORE MCCLOY JR ET UX ACREAGE 17.98 ACRES +/-
 OIL & GAS ROYALTY OWNER BRENDA J. MILLER; GAIL MASON; ROBERT SMITH ET AL; WVSRA; WILLIAM E. DOAK; LEASE ACREAGE 30.15 AC±; 140.793 AC±; 75 AC±; 301.19 AC±; 35 AC±;
 WACO OIL & GAS CO. INC.; FREDRICK D. BOOTHE ET UX; HARRY D. WILLIAMSON ET AL; ORA E. DOAK ET UX; SHARON A. DRAIN 83 ACRES±; 62 ACRES±; 176 ACRES±; 100 ACRES±; 22.5 ACRES±

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
 PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL
 (SPECIFY) POE MOD PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,452' TVD 14,799' 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

DATE 06/26/17
 OPERATOR'S WELL# DOAK UNIT #1H
 API WELL # 47 - 017 - 06766
 STATE COUNTY PERMIT
 WATERSHED NORTH FORK HUGHES RIVER
 DISTRICT CENTRAL COUNTY DODDRIDGE

DATE 06/04/2017

LATITUDE 39°17'30" 2,226'

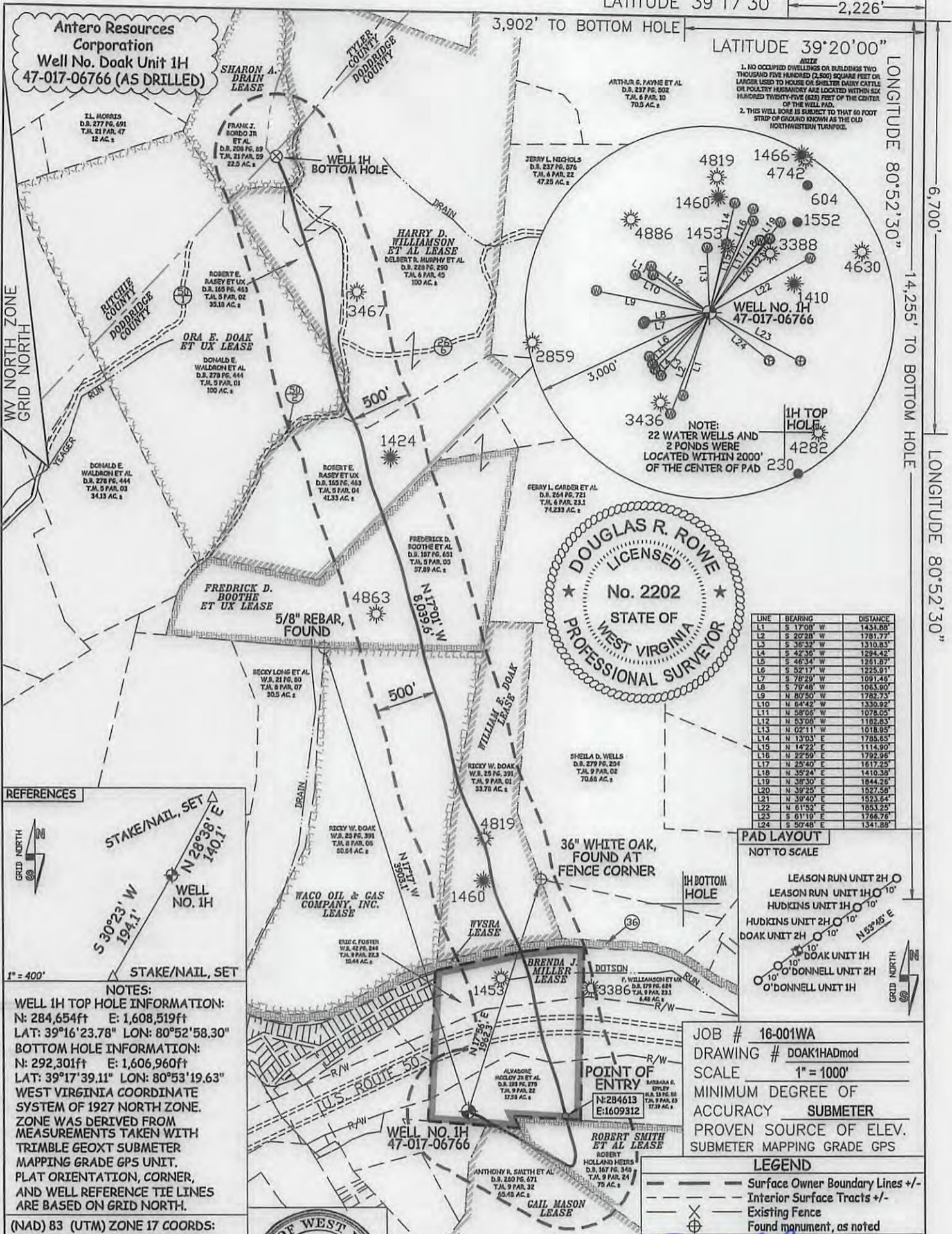
LATITUDE 39°20'00"

LONGITUDE 80°52'30"

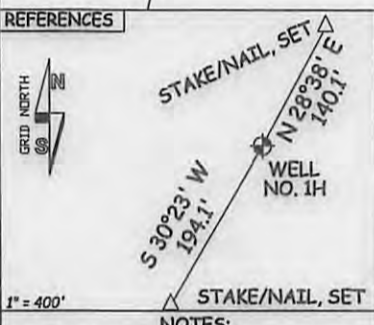
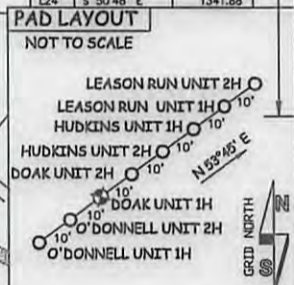
6,700'

14,255' TO BOTTOM HOLE

LONGITUDE 80°52'30"



LINE	BEARING	DISTANCE
L1	S 17°09' W	1434.08'
L2	S 20°28' W	1781.77'
L3	S 35°32' W	1310.83'
L4	S 42°30' W	1294.42'
L5	S 46°34' W	1261.87'
L6	S 52°17' W	1225.91'
L7	S 78°29' W	1091.48'
L8	S 79°48' W	1063.90'
L9	N 80°50' W	1782.23'
L10	N 84°42' W	1330.92'
L11	N 58°06' W	1078.05'
L12	N 53°06' W	1182.63'
L13	N 02°11' W	1018.93'
L14	N 13°03' E	1785.63'
L15	N 14°22' E	1114.90'
L16	N 22°59' E	1792.95'
L17	N 25°40' E	1617.25'
L18	N 35°24' E	1410.38'
L19	N 38°30' E	1844.28'
L20	N 39°25' E	1527.58'
L21	N 39°40' E	1523.64'
L22	N 61°52' E	1853.25'
L23	S 61°19' E	1766.78'
L24	S 50°48' E	1341.88'



NOTES:
 WELL 1H TOP HOLE INFORMATION:
 N: 284,654ft E: 1,608,519ft
 LAT: 39°16'23.78" LON: 80°52'58.30"
 BOTTOM HOLE INFORMATION:
 N: 292,301ft E: 1,606,960ft
 LAT: 39°17'39.11" LON: 80°53'19.63"
 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:
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JOB # 16-001WA
 DRAWING # DOAK1HADmod
 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 06/26/17
 OPERATOR'S WELL# DOAKUNIT#1H
 API WELL # 47-017 Mod - 06766
 STATE COUNTY PERMIT

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08/04/2017