



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

November 10, 2015

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for API Number 1706727, Well #: NOVA UNIT 2H

Extend Lateral Length

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,

A handwritten signature in black ink that reads "Gene Smith" followed by a large, stylized "F" or "S" mark.

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

11/13/2015



October 16, 2015

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. Melanie Hankins
601 57th Street
Charleston, WV 25304

Ms. Hankins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for two approved wells on the Cofor Pad. We are requesting to extend the horizontal lateral lengths which will change the bottom hole locations of the Nova Unit 1H (API# 47-017-06726) and Nova Unit 2H (API# 47-017-06727.)

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised lateral 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 bottom hole location

If you have any questions please feel free to contact me at (303) 357-7323.

Thank you in advance for your consideration.

Sincerely,

Ashlie Steele
Permitting Supervisor
Antero Resources Corporation

4701706727 MOP

RECEIVED
Office of Oil and Gas

OCT 19 2015

WV Department of
Environmental Protection

Enclosures

11/13/2015

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-Doddrid West Uni West Union 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Nova Unit 2H Well Pad Name: Cofor Pad

3) Farm Name/Surface Owner: Coastal Forest Resources Company Public Road Access: CR 11/8

4) Elevation, current ground: 1189' Elevation, proposed post-construction: 1189'

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: 7900' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 7900' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 21900' MD 4701706727 MSB

11) Proposed Horizontal Leg Length: 13382'

12) Approximate Fresh Water Strata Depths: 120'

13) Method to Determine Fresh Water Depths: Outback Unit 1H (API# 47-17-06518) on same pad.

14) Approximate Saltwater Depths: 764'

15) Approximate Coal Seam Depths: 853'

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
OCT 19 2015
WV Department of
Environmental Protection
Page 1 of 3
11/13/2015

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	300'	300'	CTS, 417 Cu. Ft
Coal	9-5/8"	New	J-55	36#	2440'	2440'	CTS, 993 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	21900'	21900'	5632 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	24"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	1000	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12,630	2500	Lead-HPOZ & Tail-H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

4701706727 MOD

PACKERS

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

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection
Page 2 of 3
11/13/2015

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): 50.15 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 3.70 existing acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers
Surface Casing: one centralizer 10' above the float shoe, one on the Insert float collar and one every 4th joint spaced up the hole to surface.
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

24) Describe all cement additives associated with each cement type

Conductor: no additives, Class A cement.
Surface: Class A cement with 2-3% calcium chloride
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

4701706727 Mod

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.

*Note: Attach additional sheets as needed.

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection
Page 3 of 3
11/13/2015

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>Alice Maxwell, et al Lease</u>			
Alice H. Maxwell, et al	Carl D. Perkins & William Paul McCutchan	1/8	0063/0111
Carl D. Perkins & William Paul McCutchan, et al	Justin L. Henderson	Assignment	0104/0689
Justin Henderson	P.D. Farr II	Assignment	0109/0385
P.D. Farr II	Antero Resources Appalachian Corporation	Assignment	0271/0546
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Gleneva Murray, et al Lease</u>			
Gleneva Murray, et al	Murvin Oil Company	1/8	0174/0112
Murvin Oil Company	Murvin & Meier Oil Company	Assignment	0179/0193
Murvin & Meier Oil Company	Tenmile Land, LLC	Assignment	0252/0609
Tenmile Land, LLC	Antero Resources Appalachian Corporation	Assignment	0261/0014
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Estella Goodfellow Lease</u>			
Estella Goodfellow	Antero Resources Corporation	1/8+	0380/0196
<u>Mary Maxine Welch Lease</u>			
Mary Maxine Welch	Antero Resources Appalachian Corporation	1/8+	0271/0060
Mary Maxine Welch	Antero Resources Appalachian Corporation	1/8+	0271/0066
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Richard Murray II Lease</u>			
Richard Patrick Murray, II	Antero Resources Appalachian Corporation	1/8+	0266/0585
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>J. Davis, et al Lease</u>			
Jonathan L. Davis, et al	Antero Resources Appalachian Corporation	1/8+	0283/0130
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Haught Family Trust Lease</u>			
Haught Family Trust (dated April 17, 1989)	Antero Resources Appalachian Corporation	1/8+	0263/0482
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

4701706727 M6P
RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection

*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>S. L. Ford, et ux Lease</u>			
S.L. Ford, et x	J.L. Neuman	1/8	0021/0172
J.L. Neuman	The Philadelphia Company	Assignment	0106/0474
The Philadelphia Company	Pittsburgh and West Virginia Gas Company	Assignment	DB 0045/0102
Pittsburgh & West Virginia Gas Company	Equitable Gas Company	Assignment	0121/0257
Equitable Gas Company	Equitrans, Inc.	Assignment	0154/0475
Equitrans, Inc.	Equitrans, L.P.	Merger	Recited in 302/0123
Equitrans, L.P.	Equitable Production-Eastern States, Inc.	Assignment	0192/0019
Equitable Production – Eastern States, Inc.	Equitable Production Company	Merger	Exhibit 2
Equitable Production Company	EQT Production Company	Name Change	DB 0281/0346
EQT Production Company	Antero Resources Corporation	Assignment	0325/0539
<u>Nelda Lou King Lease</u>			
Nelda Lou King	Antero Resources Corporation	1/8+	0310/0559
<u>Eugene V. Chipps, II Lease</u>			
Eugene V. Chipps, et ux	Devonian Appalachian Co.	1/8	0161/0214
Devonian Appalachian Co.	New Freedom Energy, LLC	Assignment	0203/0346
New Freedom Energy, LLC	Antero Resources Corporation	*Partial Assignment of Oil & Gas Leases	0336/0127
<u>James Douglas White Lease</u>			
James Douglas White	Antero Resources Corporation	1/8+	0313/0688

4701706727 Mod

*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****

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection
11/13/2015

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
Lewis Maxwell, et al Lease			
Lewis Maxwell, et al	G.H. Trainer & J.E. Trainer	1/8	0030/0068
G.H. Trainer & J.E. Trainer	W.W. Hepburn	Assignment	0034/0244
W.W. Hepburn	Eastern Petroleum Company	Assignment	0034/0256
Eastern Petroleum Company	Clifton Oil & Gas Company	Assignment	DB 0081/0114
Clifton Oil & Gas Company	Quaker State Oil Refining Corporation	Deed & Deed of Assignment	0056/0165
Quaker State Oil Refining Corporation	QSE & P, INC.	*Partial Assignment of Oil & Gas Lease Agreement	0159/0595
QSE & P, INC.	Belden & Blake Corporation	Assignment, Conveyance and Bill of Sale	0175/0466
Belden & Blake Corporation	Peake Energy, INC.	Assignment, Conveyance and Bill of Sale	0181/0114
Peake Energy, Inc.	North Coast Energy Eastern, Inc.	Certificate of Amendment to the Certificate of Authority	DB 0249/0343
North Coast Energy Eastern, Inc.	EXCO-North Coast Energy Eastern, Inc.	Affidavit of Name Change	DB 0277/0068
EXCO-North Coast Energy Eastern, Inc.	EXCO Resources (WV), Inc.	Certificate of Amendment to the Certificate of Authority	Exhibit 3
EXCO Resources (WV), Inc.	EXCO Production Company (WV), LLC	Certificate of Merger	Exhibit 4
EXCO Production Company (WV), LLC	Antero Resources Appalachian Corporation	Assignment, Bill of Sale & Conveyance	0285/0084
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit1

4701706727 MOP

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of Environmental Protection

*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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Edwin Cain, et ux Lease				
Edwin Cain, et ux		The Carter Oil Company	1/8	0016/0085
The Carter Oil Company		Hope Natural Gas Company	Assignment	0042/0410
Hope Natural Gas Company		Consolidated Gas Supply Corp.	Confirmatory Deed	DB 0143/0345
Consolidated Gas Supply Corporation		Consolidated Gas Transmission Corp.	Confirmatory Deed	0135/0583
Consolidated Gas Transmission Corporation		CNG Transmission Corporation	Amended Certificate of Authority	AOI 0051/0795
CNG Transmission Corporation		Dominion Transmission, Inc.	Amended Certificate of Authority	AOI 0058/0362
Dominion Transmission, Inc.		CONSOL Energy Holdings, LLC XVI	Assignment	0245/0001
CONSOL Energy Holdings, LLC XVI		CNX Gas Company, LLC	Affidavit of Name Changes & Merger	DB 0292/0469
CNX Gas Company, LLC		Antero Resources Corporation	*Partial Term Assignment of Oil & Gas Leases	0317/0379

*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
As: VP of Production

4701706727

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection

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

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:** 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.

Form CF-4

Issued by the Office of the Secretary of State

RECEIVED
Office of Oil and Gas
OCT 19 2015
WV Department of
Environmental Protection
11/13/2015

State of West Virginia



Certificate

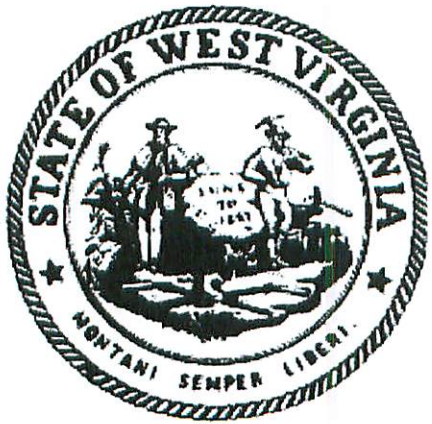
I, Joe Manchin III, Secretary of State of the State of West Virginia, hereby certify that

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

4701706727 MOD



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
OCT 19 2015
Secretary of State
WV Department of Environmental Protection
11/13/2015



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

an Amended Certificate of Authority of

EXCO - NORTH COAST ENERGY EASTERN, INC.

was filed 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 AMENDMENT TO THE
CERTIFICATE OF AUTHORITY**

changing the name of the corporation to

EXCO RESOURCES (WV) , INC.

4701706727 MOD



Given under my hand and the Great Seal of the State of West Virginia on this day of December 2, 2009

RECEIVED
Office of Oil and Gas
Natalie E. Tennant

Secretary of State
WV Department of Environmental Protection
11/13/2015

2011

RECEIVED
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

11/13/2015

State of West Virginia



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

EXCO RESOURCES (WV), INC.
(A Delaware Corporation)

filed Articles of Conversion in my office as required by the provisions of the West Virginia Code and was found to conform to law.

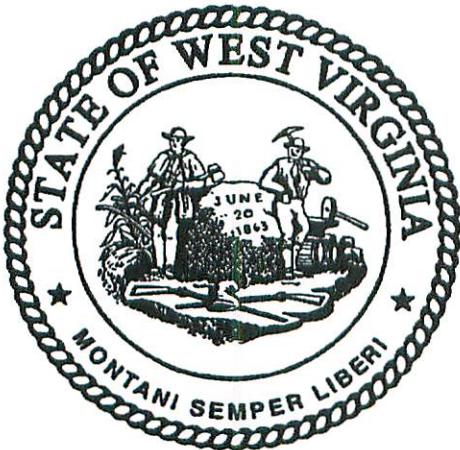
Therefore, I issue this

CERTIFICATE OF CONVERSION

Converting the corporation to:

EXCO RESOURCES (WV) LLC
(A Delaware Limited Liability Company)

1701706727 MTD



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

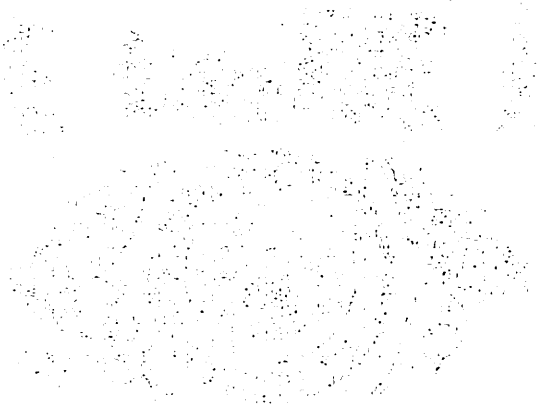
July 7, 2015

RECEIVED
Office of Oil and Gas

Natalie E. Tennant

Secretary of State
WV Department of Environmental Protection

11/13/2015



UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION

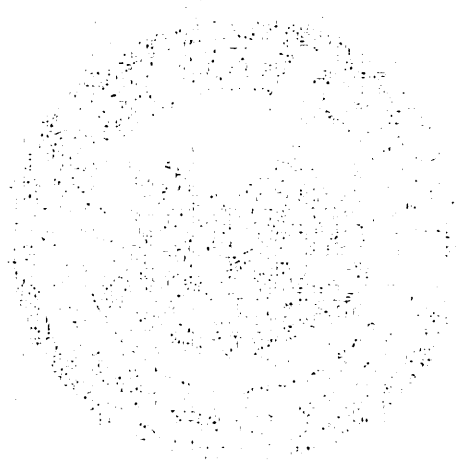
MEMORANDUM FOR THE DIRECTOR, FBI

RE: [Illegible]

DATE: [Illegible]

500

RECEIVED
FBI
NOV 13 2015

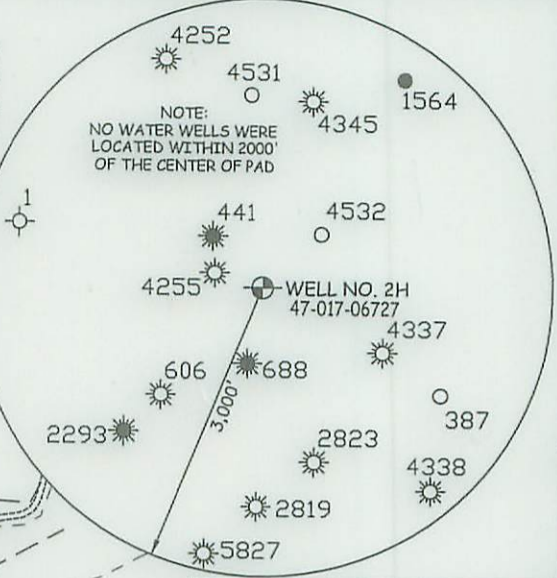


LATITUDE 39°22'30" 8,578' TO BOTTOM HOLE

LATITUDE 39°20'00" 2,434'

Antero Resources Corporation
Well No. Nova Unit 2H
API 47-017-06727

NOTE
NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POLETRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-SEVEN (627) FEET OF THE CENTER OF THE WELL PAD.



NOTES:
WELL 2H TOP HOLE INFORMATION:
N: 293,794ft E: 1,632,036ft
LAT: 39°17'57.58" LON: 80°48'00.96"
BOTTOM HOLE INFORMATION:
N: 306,784ft E: 1,626,079ft
LAT: 39°20'05.10" LON: 80°49'19.17"
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: 4,350,022m E: 517,237m
BOTTOM HOLE INFORMATION:
N: 4,353,949m E: 515,355m

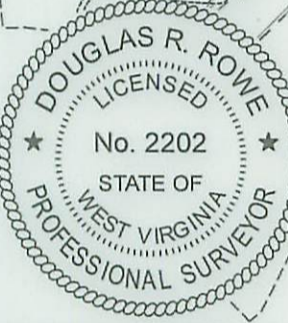
WV NORTH ZONE GRID NORTH

14,661' TO BOTTOM HOLE

12,386'

LONGITUDE 80°47'30"

LONGITUDE 80°47'30"



JOB # 15-002WA
DRAWING # NOVA2HR2
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

DOUGLAS R. ROWE P.S. 2202

DATE 10/02/15

OPERATOR'S WELL# NOVA UNIT 2H

API WELL # 47 - 017 - 06727

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 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 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: ORIGINAL GROUND ELEVATION 1,220' PAD ELEVATION 1,189'

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Monument (if any) as Specified

WATERSHED HEADWATERS MIDDLE ISLAND CREEK QUADRANGLE WEST UNION 7.5' DISTRICT WEST UNION COUNTY

SURFACE OWNER COASTAL FOREST RESOURCES COMPANY ACREAGE 102 ACRES +/-

OIL & GAS ROYALTY OWNER ALICE MAXWELL ET AL; GLENEVA MURRAY ET AL; MARY MAXINE WELCH; RICHARD MURRAY II; J. DAVIS ET AL; HAUGHT FAMILY TRUST; S.L. FORD ET UX; NELDA LOU KING JAMES DOUGLAS WHITE; LEWIS MAXWELL ET AL; EDWIN CAIN ET UX

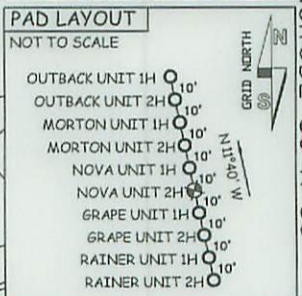
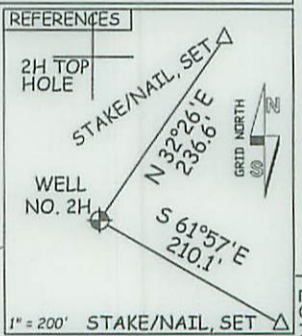
LEASE ACREAGE 420 AC±; 125 AC±; 202.28 AC±; 14.5 AC±; 12.8 AC±; 45 AC±; 180 AC±; 10 AC±; 150 AC±; 120 AC±; 97 AC±

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

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,900' TVD 21,000'

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

ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313



RECEIVED
Office of Oil and Gas
11/13/2015

WV Department of Environmental Protection

FORM MM-9 DENVER CO 80203 ADDRESS CHARLESTON, WY 82113
 1818 WILKINSON STREET 2400 D BIG LUGER ROAD
 METT OPERATOR AINTEKO RESOURCES CORP DESIGNATED AGENT DIANNA STAMBER FLUOROPOLYMER SYSTEM
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 1,800, TAD 31,800
 (SPECIFY) MOD-BHT BUNG & AVOIDION STEAM ONLY KEYS
 BUNG OFF OLD FORMATION BEREORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN FORMATION
 PROPOSED WORK: DRILL CONDUIT DRILL DEEPER X BEDRILL FRACTURE OF STIMULATE
 ST FORD EL PX: MEGDA GON KING JAMES DOLGAS WHITE: GEMIS MAXWELL EL AG: EDWIN SWIN EL PX 180 AC-F: 10 AC-F: 120 AC-F: 150 AC-F: 81 AC-F
 MAY MAXINE MEGCH: BICHARD MURRAY II: J DALIS EL AG: HAUGHT FAMILY TRUST: 305.38 AC-F: 14.2 AC-F: 15.8 AC-F: 12 AC-F:
 OIG & GAS BOULGTY OMIEB AFICE MAXWELL EL AG: GENEVA MURRAY EL AG: LEASE ACRES 1430 AC-F: 152 AC-F:
 SURFACE OMIEB COASTAL FOREST RESOURCES COMPANY ACRES 105 ACRES +/-
 WATERSHED HEADWATERS MIDDLE GRAND CREEK QUADRANGLE WEST UNION, DISTRICT WEST UNION COUNTY
 LOCATION: ORIGINAL SURFID ELEVATION 1,350, BAD ELEVATION 1,188
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 METT TYPE: OIG GAS X FLUID INJECTION WASTE DISPOSAL
 STATE OF WEST VIRGINIA DEPT. OF ENERGY DIVISION OF OIL AND GAS

PERMIT COUNTY

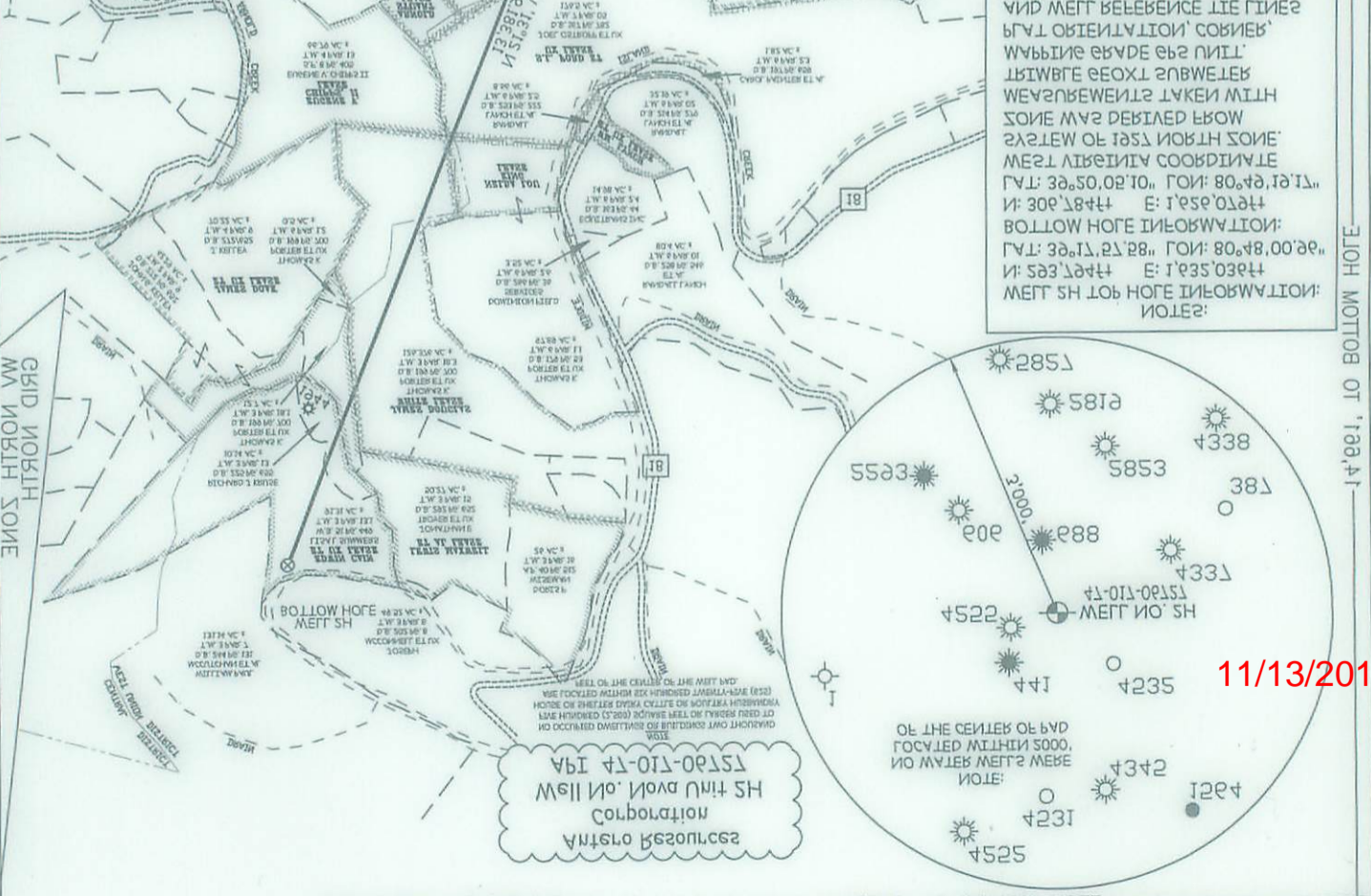
Office of Oil and Gas
 RECEIVED
 November 11, 2015



WEST VIRGINIA STATE
 550 WASHINGTON AVE. BIRMINGHAM
 MORGAN LAND SUBLEASING B/LC
 OFFICE OF OIL AND GAS
 OF ENVIRONMENTAL PROTECTION
 STATE OF WEST VIRGINIA DIVISION

DESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION
 INFORMATION DESCRIBED BY LAW AND THE RULES ISSUED AND
 TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE
 I THE UNDERSIGNED HEREBY CERTIFY THAT THIS PLAN IS CORRECT

STATE COUNTY PERMIT
 WY - T13 - 00121
 API METT #
 OPERATOR'S METT # 100400175H
 DATE 10/01/15
 DOLGAS B' BOME B'S 2305
 SUBMETER MAPPING GRADE CBS
 BROKEN SOURCE OF ELEV.
 ACCURACY SUBMETER
 MINIMUM DEGREE OF
 SCALE 1" = 1000'
 DRAWING # 100400175H
 JOB # AMW00-21



BASED ON GRID NORTH
 AND METT REFERENCE THE LINES
 THAT ORIENTATION CORRIER
 MAPS THE GRADE CBS METT
 LITWITE EOCIT SUBMETER
 MEASUREMENTS TAKEN WITH
 SOME WAS DELETED FROM
 SYSTEM OF 1951 NORTH ZONE
 WEST VIRGINIA COORDINATE
 GALT: 30,50.00 TO, GOM: 80,48,12,12
 N: 30,50.00 E: 1,02,02,00
 BOLLOW HOGE INFORMATION:
 GALT: 30,11,27,28, GOM: 80,48,00,00
 N: 30,11,27,28 E: 1,02,02,00
 METT SH TOP HOGE INFORMATION:
 NOTES:

ANTERO RESOURCES CORPORATION
 HS 25 TITL 10-10-14
 12700-110-14 API

11/13/2015

LATITUDE 38.55,30, TO BOTTOM HOGE 8,238, TO BOTTOM HOGE
 LATITUDE 38.50,00, 4,434, TO BOTTOM HOGE

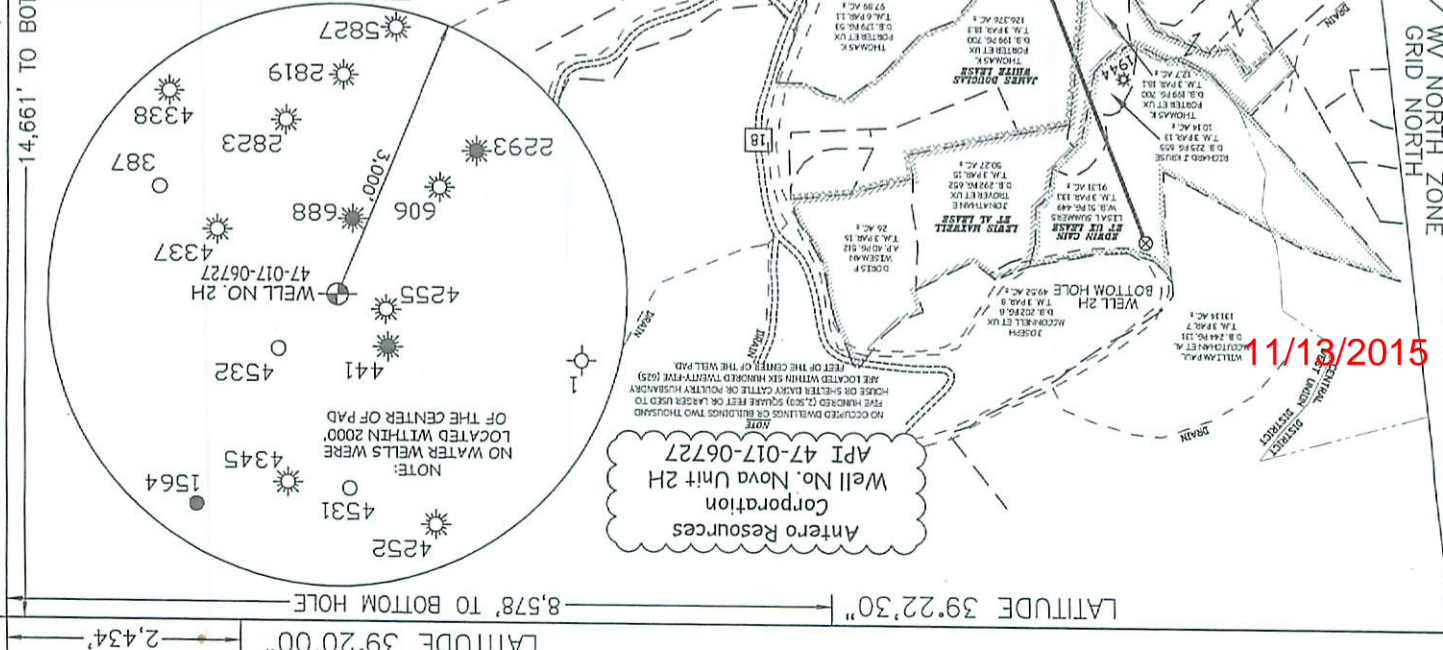
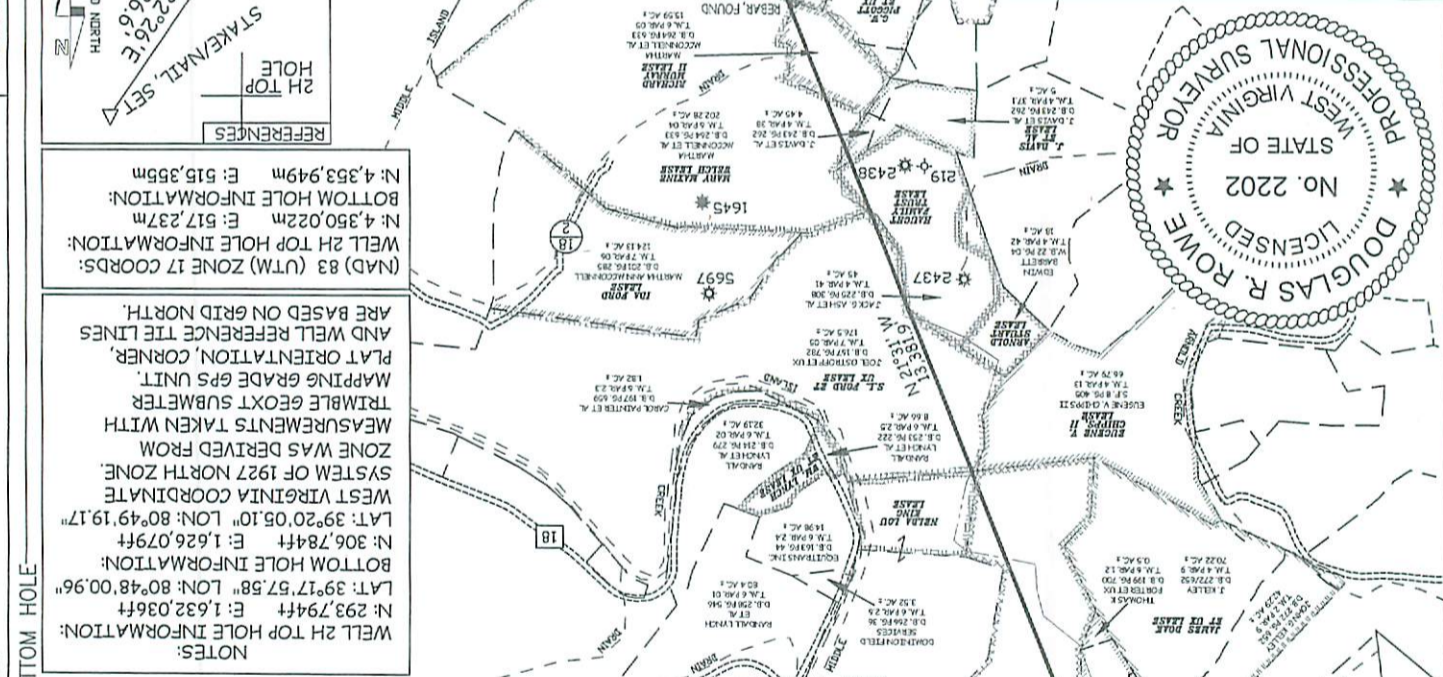
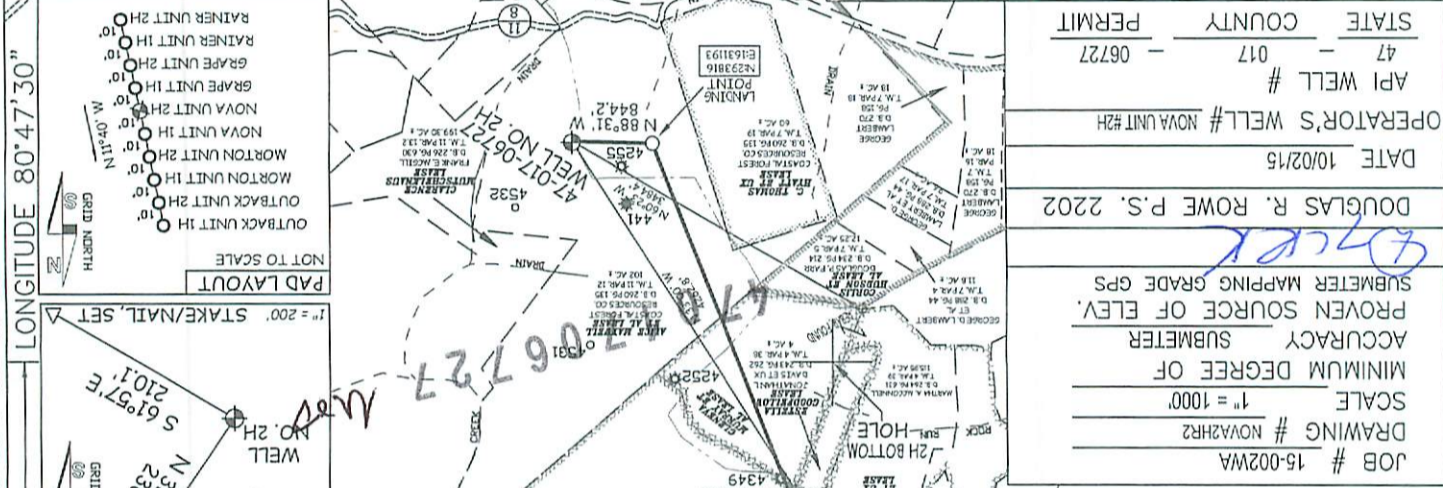


STATE OF WEST VIRGINIA, DIVISION
 OF ENVIRONMENTAL PROTECTION,
 OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO
 WEST VIRGINIA 26415

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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 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: ORIGINAL GROUND ELEVATION 1,220' PAD ELEVATION 1,189'
 WATERSHED HEADWATERS MIDDLE ISLAND CREEK QUADRANGLE WEST UNION 7, DISTRICT WEST UNION
 COUNTY DODDRIDGE ACREAGE 102 ACRES +/-
 OIL & GAS ROYALTY OWNER ALICE MAXWELL ET AL; GLENEVA MURRAY ET AL;
 420 AC.; 125 AC.;
 MARY MAXINE WELCH; RICHARD MURRAY II; J. DAVIS ET AL; HAUGHT FAMILY TRUST;
 202.28 AC.; 14.5 AC.; 12.6 AC.; 45 AC.;
 S.T. FORD ET UX; NELDA LOU KING JAMES DOUGLAS WHITE; LEWIS MAXWELL ET AL; EDWIN GAIN ET UX
 180 AC.; 10 AC.; 150 AC.; 120 AC.; 97 AC.
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER X REDRILL
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL
 (SPECIFY) MOD-BHL PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS
 WELL OPERATOR ANTERO RESOURCES CORP.
 DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNNKOP STREET DENVER, CO 80202
 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

STATE COUNTY PERMIT
 47 017 - 06727
 API WELL #
 OPERATOR'S WELL # NOVA UNIT #2H
 DATE 10/02/15
 DOUGLAS R. ROWE P.S. 2202
 SUBMITTER MAPPING GRADE GPS
 PROVEN SOURCE OF ELEV.
 ACCURACY SUBMETER
 MINIMUM DEGREE OF SCALE 1" = 1000'
 DRAWING # NOV42R2
 JOB # 15-002WA



LATITUDE 39°20'00" LONGITUDE 80°47'30"
 2,434' 14,661' TO BOTTOM HOLE 12,386' 8,578' TO BOTTOM HOLE



Antero Resources Corporation
 Well No. Nova Unit 2H
 API 47-017-06727

11/13/2015