



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

Wednesday, June 13, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for BILL UNIT 1H
47-085-10240-00-00

Lateral shifted and extended

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: BILL UNIT 1H
Farm Name: COSTILOW, DONALD L.
U.S. WELL NUMBER: 47-085-10240-00-00
Horizontal 6A Horizontal 6A Well - 1
Date Modification Issued: June 13, 2018

Promoting a healthy environment.

WW-6B
(04/15)

API NO. 47-085 - 10240 MOD
 OPERATOR WELL NO. Bill Unit 1H
 Well Pad Name: Bison Pad

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Corp. 494488557 085 - Ritchie Clay Pennsboro 7.5'
 Operator ID County District Quadrangle

2) Operator's Well Number: Bill Unit 1H Well Pad Name: Bison Pad

3) Farm Name/Surface Owner: Donald L. Costilow Public Road Access: CR 50/26

4) Elevation, current ground: 1221' Elevation, proposed post-construction: 1221'

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: 7000' TVD, Anticipated Thickness 75 feet, Associated Pressure 2800#

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Office of Oil and Gas
FEB 20 2018

8) Proposed Total Vertical Depth: 7000'

9) Formation at Total Vertical Depth: Marcellus Shale

WV Department of
Environmental Protection

10) Proposed Total Measured Depth: 15600'

11) Proposed Horizontal Leg Length: 6454'

12) Approximate Fresh Water Strata Depths: 119', 300', 446'

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

14) Approximate Saltwater Depths: 833', 1192', 1695', 1715'

15) Approximate Coal Seam Depths: 826'

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: _____

WW-6B
(04/15)

API NO. 47- 085 - 10240 *MOP*
OPERATOR WELL NO. Bill Unit 1H
Well Pad Name: Bison 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	54.5#	500' *see #19	500' *see #19	CTS, 695 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	15600'	15600'	3882 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	20"	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"	0.361"	12630	2500	Low-H/POZ & Tall - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200			
Liners							

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FEB 20 2018

PACKERS

WV Department of
Environmental Protection

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

WW-6B
(10/14)

API NO. 47-085 - 10240 *MOP*
OPERATOR WELL NO. Bill Unit 1H
Well Pad Name: Bison 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 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."

Max Pressure - 9300 lbs
Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.91 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 6.00 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.

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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 + 0.5% C51.

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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WV Department of
Environmental Protection

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.

LATITUDE 39°20'00"

7,520'

11,236' TO BOTTOM HOLE

LATITUDE 39°20'00"

NOTE
NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDREDS (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.

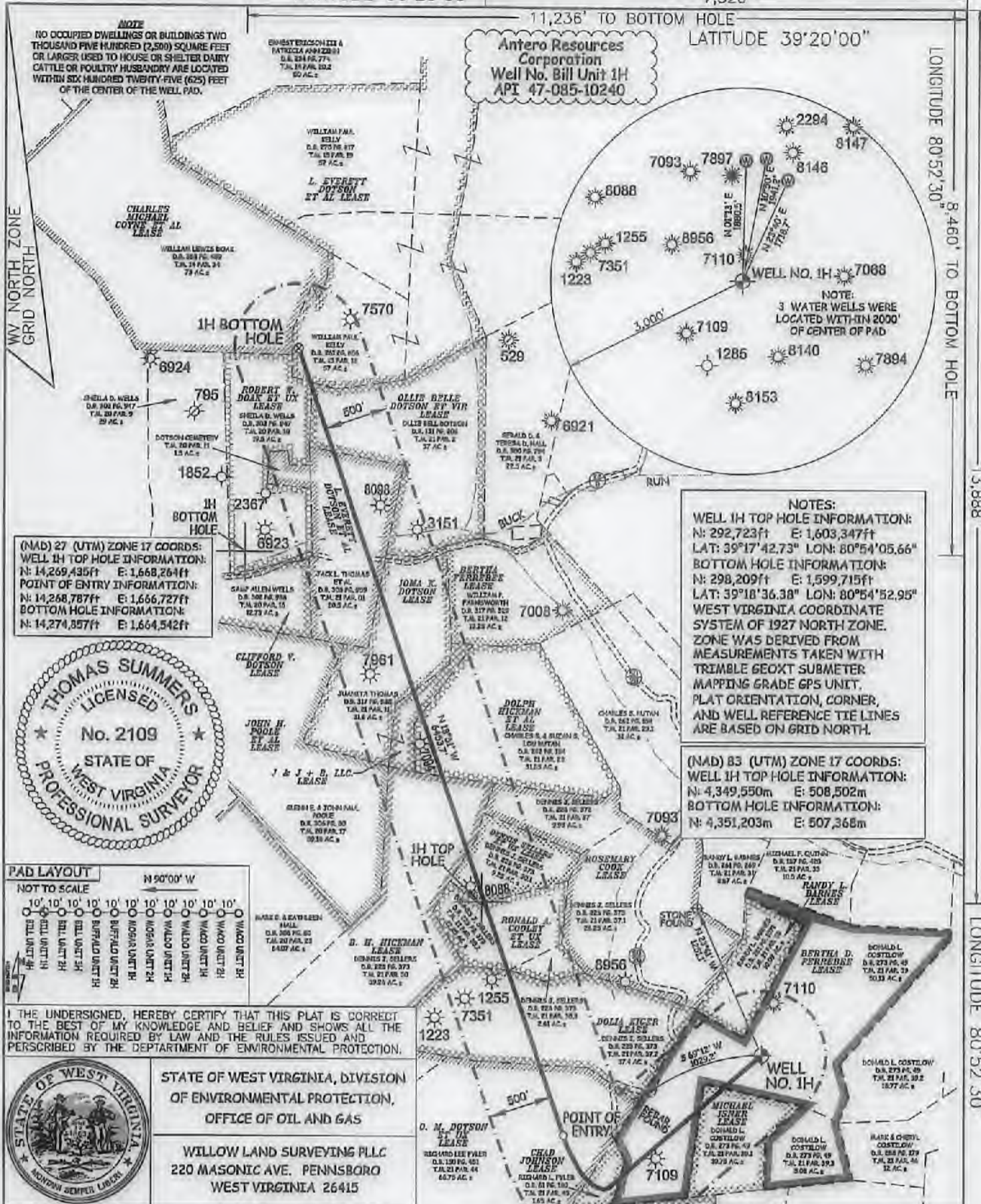
Antero Resources Corporation
Well No. Bill Unit 1H
API 47-085-10240

LONGITUDE 80°52'30"

8,460' TO BOTTOM HOLE

LONGITUDE 80°52'30"

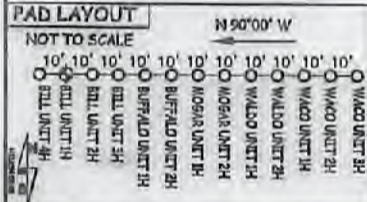
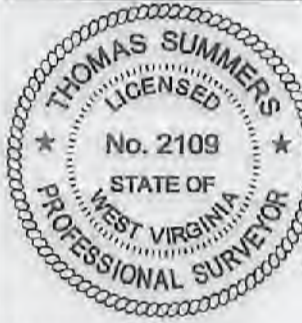
WV NORTH ZONE GRID NORTH



(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 14,269,435ft E: 1,668,264ft
POINT OF ENTRY INFORMATION:
N: 14,268,787ft E: 1,666,727ft
BOTTOM HOLE INFORMATION:
N: 14,274,857ft E: 1,664,542ft

NOTES:
WELL 1H TOP HOLE INFORMATION:
N: 292,723ft E: 1,603,347ft
LAT: 39°17'42.73" LON: 80°54'05.66"
BOTTOM HOLE INFORMATION:
N: 298,209ft E: 1,599,715ft
LAT: 39°18'36.38" LON: 80°54'52.95"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE 60XT 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: 4,349,550m E: 508,502m
BOTTOM HOLE INFORMATION:
N: 4,351,203m E: 507,365m



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

JOB # 15-029WA
DRAWING # BILL1HR2
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND
- - - - - Surface Owner Boundary Lines +/-
- - - - - Interior Surface Tracts +/-
- x - - - Existing Fence
⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109
DATE 02/12/18
OPERATOR'S WELL # BILL UNIT 1H



WELL TYPE: OIL	<input type="checkbox"/>	GAS	<input checked="" type="checkbox"/>	LIQUID INJECTION	<input type="checkbox"/>	WASTE DISPOSAL	<input type="checkbox"/>	47	-	085	-	10240	MOD
(IF "GAS") PRODUCTION	<input checked="" type="checkbox"/>	STORAGE	<input type="checkbox"/>	DEEP	<input type="checkbox"/>	SHALLOW	<input checked="" type="checkbox"/>	STATE	COUNTY	PERMIT			
LOCATION: ELEVATION	1,221' - AS BUILT		WATERSHED		NORTH FORK HUGHES RIVER								
QUADRANGLE	PENNSBORO 7.5			DISTRICT	CLAY			COUNTY			RITCHIE		
SURFACE OWNER	DONALD L. COSTILOW			ACREAGE	50.13 ACRES +/-								
OIL & GAS ROYALTY OWNER:	BERTHA D. FERREREE; MICHAEL ISNER; CHAD JOHNSON; O. M. DOTSON ET UX;			LEASE	ACREAGE			87 AC +/-; 10.75 AC +/-; 13.99 AC +/-; 1.65 AC +/-;					
	DOLIA KIGER; RONALD A. COOLEY ET UX; DENNIS SELLERS ET UX; B. H. HICKMAN; DOLPH HICKMAN ET AL; J & J + B, LLC;				ACREAGE			40 AC +/-; 13.99 AC +/-; 9.75 AC +/-; 100 AC +/-; 28.62 AC +/-; 4.68 AC +/-;					
	ICMA K. DOTSON; L. EVERETT DOTSON ET AL; OLLIE BELLE DOTSON ET VIR; ROBERT W. DOAK ET UX; L. EVERETT DOTSON ET AL				ACREAGE			27 AC +/-; 21 AC +/-; 37 AC +/-; 19.5 AC +/-; 75 AC +/-					
PROPOSED WORK: DRILL	<input checked="" type="checkbox"/>	CONVERT	<input type="checkbox"/>	DRILL DEEPER	<input type="checkbox"/>	REDRILL	<input type="checkbox"/>	FRACTURE OR STIMULATE	<input checked="" type="checkbox"/>				
PLUG OFF OLD FORMATION	<input type="checkbox"/>	PERFORATE NEW FORMATION	<input type="checkbox"/>	OTHER PHYSICAL CHANGE IN WELL									
(SPECIFY)	MOD-BHL			PLUG & ABANDON	CLEAN OUT & REPLUG								
TARGET FORMATION	MARCELLUS			ESTIMATED DEPTH	7,000' TVD 15,600' MD								
WELL OPERATOR	ANTERO RESOURCES CORP.			DESIGNATED AGENT	DIANNA STAMPER - CT CORPORATION SYSTEM								
ADDRESS	1615 WYNKOOP ST.			ADDRESS	5400 D BIG TYLER ROAD								
FORM WW-6	DENVER, CO 80202			ADDRESS	CHARLESTON, WV 25313								

COUNTY NAME PERMIT

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7,520'

11,236' TO BOTTOM HOLE

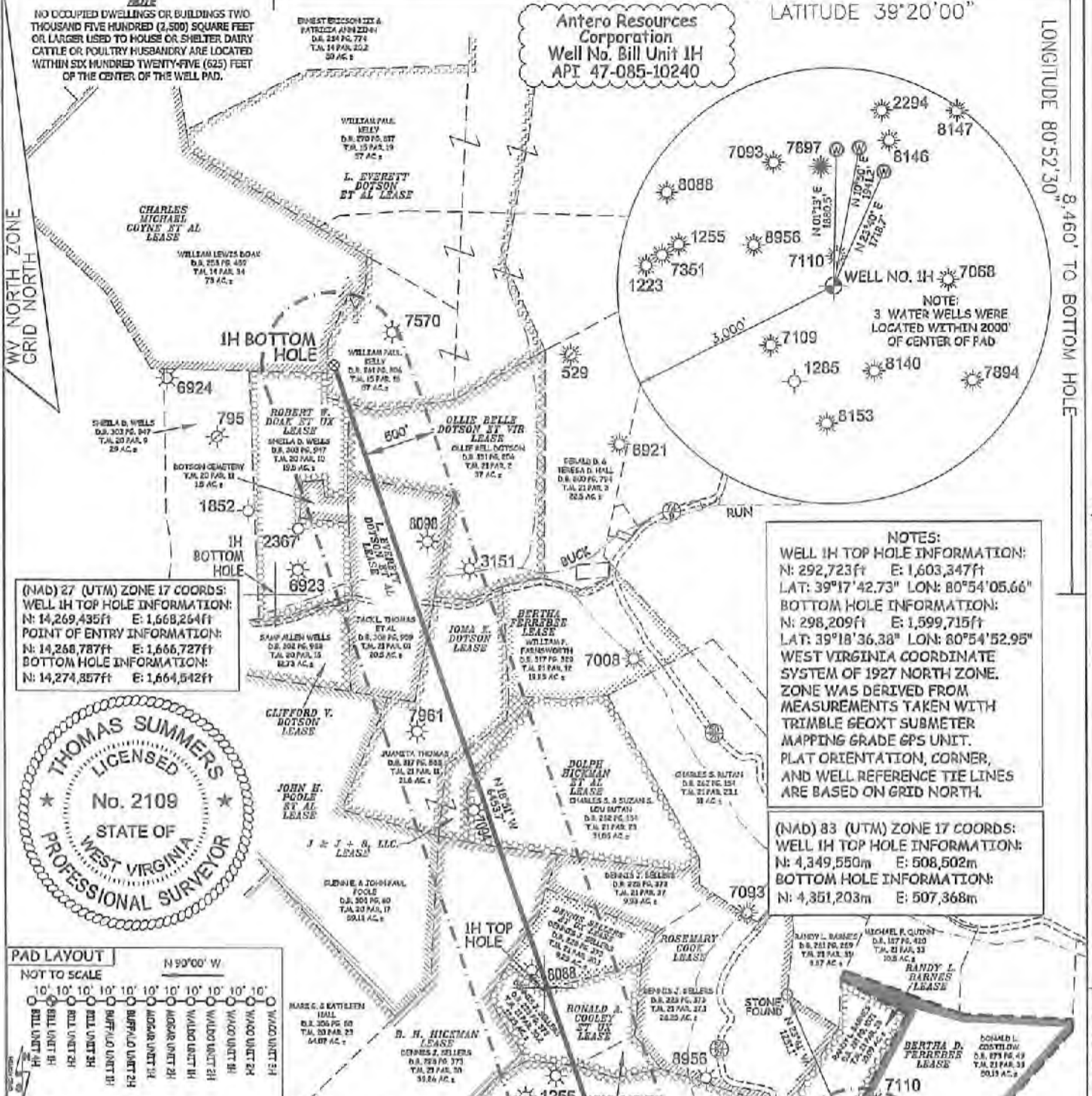
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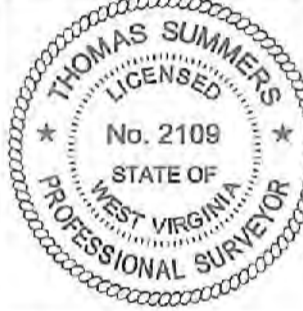
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Antero Resources Corporation
Well No. Bill Unit 1H
API 47-085-10240



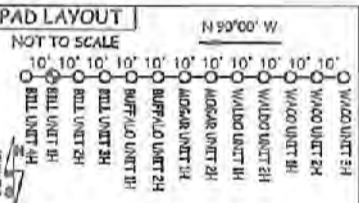
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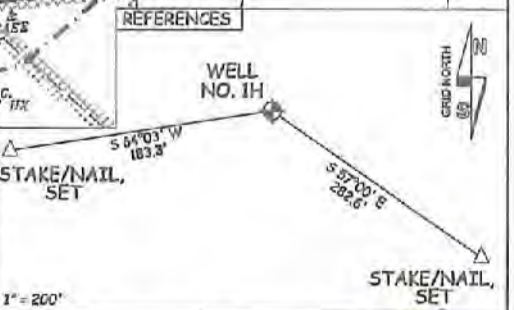


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 15-029WA
DRAWING # BILL1HR2
SCALE 1" = 1000'
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PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND
--- Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
- x - x - Existing Fence
⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109
DATE 02/12/18
OPERATOR'S WELL # BILLUNIT1H



WELL TYPE: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/>	47	085	10240
(IF "GAS") PRODUCTION <input checked="" type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	STATE	COUNTY	PERMIT
LOCATION: ELEVATION 1,221' - AS BUILT	WATERSHED NORTH FORK HUGHES RIVER		
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SURFACE OWNER DONALD L. COSTILOW	ACREAGE 50.13 ACRES +/-	LEASE ACREAGE 87 AC +/-	10.75 AC +/-
OIL & GAS ROYALTY OWNER BERTHA D. FERREBEE; MICHAEL ISNER; CHAD JOHNSON; O. M. DOTSON ET UX;	40 AC +/-		
DOLIA KIGER; RONALD A. COOLEY ET UX; DENNIS SELLERS ET UX; B. H. HICKMAN; DOLPH HICKMAN ET AL; J & J + B, LLC;	27 AC +/-		
IOMA K. DOTSON; L. EVERETT DOTSON ET AL; OLLIE BELLE DOTSON ET VIR; ROBERT W. DOAK ET UX; L. EVERETT DOTSON ET AL	21 AC +/-		
PROPOSED WORK: DRILL <input checked="" type="checkbox"/> CONVERT <input type="checkbox"/> DRILL DEEPER <input checked="" type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/>	PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/> OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL		
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ADDRESS 1615 WYNKOOP ST.	ADDRESS 5400 D BIG TYLER ROAD		
FORM WW-6 DENVER, CO 80202	CHARLESTON, WV 25313		

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>Bertha D. Ferrebee Lease</u>			
Bertha D. Ferrebee	J & J Enterprises, Inc.	1/8	0170/0080
J & J Enterprises, Inc.	Eastern American Energy Corporation	Confirmatory Deed and Assignment of Leases	DB 0231/0732
Eastern American Energy Corporation	Energy Corporation of America	Certificate of Merger	COI 0006/0450
Energy Corporation of America	Antero Resources Appalachian Corporation	Memorandum of Agreement	0257/0397
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Michael Isner Lease</u>			
Michael Isner	Antero Resources Appalachian Corporation	1/8+	0264/0944
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Chad Johnson Lease</u>			
Chad Johnson	Tenmile Land, LLC	1/8+	0284/0600
Tenmile Land, LLC	Antero Resources Corporation	Assignment	0285/0162
<div style="text-align: right;"> RECEIVED Office of Oil and Gas FEB 20 2018 WV Department of Environmental Protection </div>			
<u>O.M. Dotson, et ux Lease</u>			
O.M. Dotson and M.A. Dotson, his wife	M.G. Zinn	1/8	0031/0195
M.G. Zinn	J.L. Newman	Assignment	0126/0415
J.L. Newman	The Philadelphia Company of West Virginia	Assignment	0091/0265
The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company	Assignment	0055/0362
Pittsburgh and West Virginia Gas Company	Equitable Gas Company	Assignment	DB 0126/0473
Equitable Gas Company	Equitrans, Inc.	Assignment	0201/0253
Equitrans, Inc.	Equitable Production – Eastern States, Inc.	Assignment	0234/0830
Equitable Production – Eastern States, Inc.	Equitable Production Company	Merger	Exhibit 2
Equitable Production Company	EQT Production Company	Name Change	CR 0006/0443
EQT Production Company	Antero Resources Corporation	*Partial Assignment	0277/0836
<u>Dolia Kiger Lease</u>			
Dolia Kiger	J & J Enterprises, Inc.	1/8	0177/0404
J & J Enterprises, Inc.	Eastern American Energy Corporation	Confirmatory Deed and Assignment of Leases	DB 0231/0732
Eastern American Energy Corporation	Energy Corporation of America	Certificate of Merger	CR 0006/0450
Energy Corporation of America	Antero Resources Appalachian Corporation	Memorandum of Agreement	0257/0397
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Ronald A. Cooley, et ux Lease</u>			
Ronald A. Cooley, et ux	Antero Resources Appalachian Corporation	1/8+	0262/0324
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.

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>Dennis Sellers, et ux Lease</u>			
Dennis Sellers, et ux	Key Oil Company	1/8	0211/0141
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment of Oil and Gas Leases	0258/0509
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>B.H. Hickman Lease</u>			
B.H. Hickman	M.G. Zinn	1/8	0029/0447
M.G. Zinn	J.L. Newman	Assignment	0126/0415
J.L. Newman	The Philadelphia Company of West Virginia	Assignment	0091/0265
The Philadelphia Company of West Virginia	The Pittsburgh and West Virginia Gas Company	Assignment	0055/0359
The Pittsburgh and West Virginia Gas Company	Equitable Gas Company	Dissolution	DB 0126/0473
Equitable Gas Company	P.D. Farr, II	Assignment	0192/0804
P.D. Farr, II	Antero Resources Appalachian Corporation	Assignment	0257/0249
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Dolph Hickman, et al Lease</u>			
Dolph Hickman, et al	J & J Enterprises, Inc.	1/8	0167/0299
J & J Enterprises, Inc.	Eastern American Energy Corporation	Confirmatory Deed and Assignment of Leases	DB 0231/0732
Eastern American Energy Corporation	Energy Corporation of America	Certificate of Merger	0006/0450
Energy Corporation of America	Antero Resources Appalachian Corporation	Memorandum of Agreement	0257/0397
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>J & J + 8, LLC Lease</u>			
J&J+8, LLC	Antero Resources Corporation	1/8+	0285/0016
<u>Ioma K. Dotson Lease</u>			
Ioma K. Dotson aka Ioma Clark	Antero Resources Corporation	1/8+	0277/0992
<u>L. Everett Dotson, et al Lease (TM 21-1)</u>			
L. Everett Dotson, et al	Gregory A. Smith	1/8	0212/0699
Gregory A. Smith	Appalachian Energy Reserves	Assignment	0213/0759
Appalachian Energy Reserves	Appalachian Energy Development, Inc.	Assignment	0229/0100
Appalachian Energy Development, Inc.	Triad Energy Corporation	Assignment	0229/0108
Triad Energy Corporation	Triad Hunter, LLC	Assignment	0250/0196
Triad Hunter, LLC	Antero Resources Corporation	*Partial Term Assignment	0270/0270

*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

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>Ollie Belle Dotson, et vir Lease</u>			
Ollie Belle Dotson, et vir	Carl D. Perkins	1/8	0108/0497
Carl D. Perkins	Perkins Oil and Gas, Inc.	Assignment	0131/0680
Perkins Oil and Gas, Inc.	Antero Resources Corporation	*Partial Assignment	0264/1045
<u>Robert W. Doak, et ux Lease</u>			
Robert W. Doak, et ux	J & J Enterprises, Inc.	1/8	0168/0636
J & J Enterprises, Inc.	Eastern American Energy Corporation	Assignment	0231/0732
Eastern American Energy Corporation	Energy Corporation of America	Certificate of Merger	0006/0450
Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	0257/0397
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

RECEIVED
 Office of Oil and Gas
 FEB 20 2018
 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.

WW-6A1
(5/13)

Operator's Well No. Bill Unit 1H

**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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>L. Everett Dotson, et al Lease (TM 15-18)</u>	L. Everett Dotson, et al J & J Enterprises, Inc.	J & J Enterprises, Inc. Eastern American Energy Corporation	1/8 Confirmatory Deed & Assignment of Leases	0191/0400 0231/0732
	Eastern American Energy Corporation Energy Corporation of America Antero Resources Appalachian Corp.	Energy Corporation of America Antero Resources Appalachian Corp. Antero Resources Corporation	Certificate of Merger Assignment Name Change	0006/0450 0257/0377 Exhibit 1

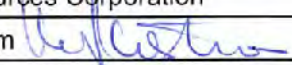
*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**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 Vice President of Production

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.wvsoa.com
E-mail: business@wvsoa.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 §311-1-129. 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.



February 16, 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. Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for five approved wells on the existing Bison Pad. We are requesting to slightly shift the horizontal lateral to accommodate 1000' spacing between wells. Additionally, we are requesting to extend the lateral lengths and associated Estimated Measured Depths for the following wells:

- Bill Unit 1H – API #47-085-10240 ~~→~~
- Bill Unit 2H – API #47-085-10241
- Bill Unit 3H – API #47-085-10257
- Buffalo Unit 1H – API #47-085-10249 ← *Not received*
- Buffalo Unit 2H – API #47-085-10243

RECEIVED
Office of Oil and Gas
FEB 20 2018
WV Department of
Environmental Protection

Attached you will find the following documents:

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

If you have any questions please feel free to contact me at (303) 357-7233.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Kara Quackenbush". The signature is fluid and cursive, written in a professional style.

Kara Quackenbush
Permitting Agent
Antero Resources Corporation

Enclosures