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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, September 18, 2023  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for Key Unit 1H  
47-085-10500-00-00

**Lateral Extension**

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: Key Unit 1H  
Farm Name: Pierce, Elmer W.  
U.S. WELL NUMBER: 47-085-10500-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 09/18/2023

Promoting a healthy environment.

09/22/2023

CK# 4022859  
\$ 7500<sup>00</sup>

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

- 1) Well Operator: Antero Resources Corporation 494507062 085-Ritchie Union Oxford 7.5'  
Operator ID County District Quadrangle
- 2) Operator's Well Number: Key Unit 1H MOD Well Pad Name: Cashew Pad ✓
- 3) Farm Name/Surface Owner: Elmer W. Pierce Public Road Access: Sugar Run Road ✓
- 4) Elevation, current ground: \_\_\_\_\_ Elevation, proposed post-construction: 1019'
- 5) Well Type (a) Gas \_\_\_\_\_ Oil X \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow X \_\_\_\_\_ Deep \_\_\_\_\_  
Horizontal X \_\_\_\_\_
- 6) Existing Pad: Yes or No Yes
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 6900' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#
- 8) Proposed Total Vertical Depth: 6900' TVD
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 25100' MD
- 11) Proposed Horizontal Leg Length: 14753.4'
- 12) Approximate Fresh Water Strata Depths: 53', 236'
- 13) Method to Determine Fresh Water Depths: 47-085-07654 47-085-10419
- 14) Approximate Saltwater Depths: 1709', 1847'
- 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 X
- (a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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 09/15/2023

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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#	100	100 ✓	CTS, 96 Cu. Ft. ✓
Fresh Water	13-3/8"	New	J-55	54.5#	300	300 ✓	CTS, 313 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#	25100	25100 ✓	5397 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
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/L ✓	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A/L	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A/L	~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			
Sizes:	N/A			
Depths Set:	N/A			

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new vertical 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): 33.75 acres

22) Area to be disturbed for well pad only, less access road (acres): 14.29 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/L cement.

Surface: Class A/L cement with 2-3% calcium chloride and 1/4 lb of flake

Intermediate: Class A/L cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

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25) Proposed borehole conditioning procedures:

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

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

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

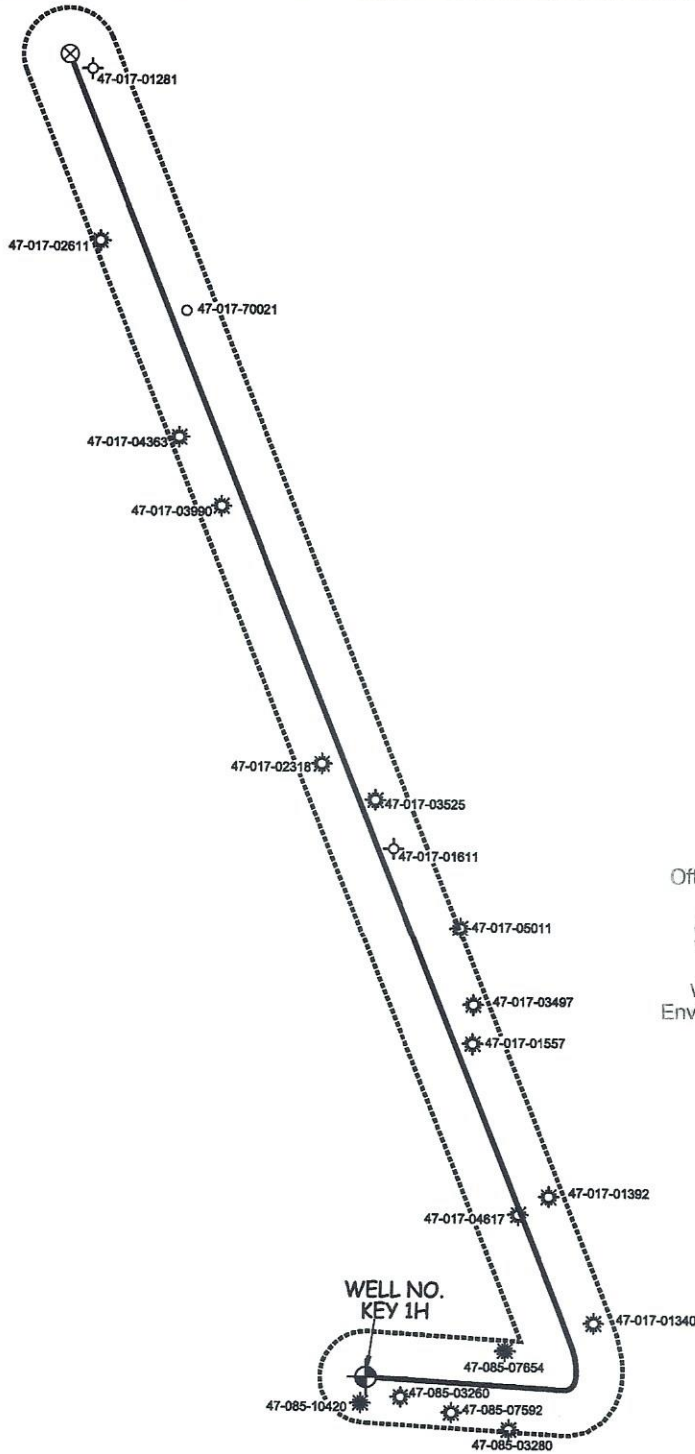
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls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

\*Note: Attach additional sheets as needed.

OS 09/15/2023

09/22/2023

# CASHEW PAD ANTERO RESOURCES CORPORATION



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WILLOW LAND SURVEYING, PLLC  
P.O. BOX 17, PENNSBORO, WV 26415  
(304) 659-1717

JOB #: 23-007WA

SCALE : 1-INCH = 2000-FEET



DATE: 08/24/23

DRAWN BY: T.B.S.

FILE: KEY1HAOR.DWG

09/22/2023

UWI (API/Num)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producing Formation(s) not perf'd
47085075920000	JETT MYRTLE ET AL	1	CHARITY GAS INC	STALMAKER GENE INC	5,231	3800 - 5200	Riley, Benson, Alexander, Huron, Angolia	Weir, Berea
47085032600000	R L KEISTER	3	R & R OIL & GAS LLC	OIL STATES SALES	2,013		Big Injun	Weir, Berea, Benson, Alexander
47085032800000	S JETT	1	R & R OIL & GAS LLC	FRIESTAD FRANCIS	1,954		Big Injun	Weir, Berea, Benson, Alexander
47085076540000	JETT MYRTLE	3	CHARITY GAS INC	HALL HENRY Y	5,217		Speecheley, Balltown, Benson, Alexander	Weir, Berea
47085104200000	ELKLUCK UNIT	2H	ANTERO RESOURCES CORP	ANTERO RESOURCES CORP	20,905	6974 - 20778	Marcellus	Weir, Berea
47017046170000	WHITEHAIR	4	KEY OIL CO	KEY OIL CO	5,374	3336 - 5162	Balltown, Riley, Benson, Alexander	Weir, Berea
47017023180000	LLOYD W GRAY	A-791	MINERAL RESOURCES MANAGEMENT LLC	ALLEGHENY LAND&MNRL	2,415	2202 - 2296	Weir	Benson, Alexander
47017039900000	GRAY D W	1	GREYLOCK OFCO LLC	EASTERN AMERICAN ENE	5,337	4370 - 5094	Riley, Benson, Alexander	Weir, Berea
47017043630000	PRUNTY LEE HEIRS	3	KEY OIL CO	KEY OIL CO	5,149	3126 - 4972	Warren, Speecheley, Balltown, Riley, Benson, Alexander	Weir
47017026110000	LEGGETT ROY	1	OWS ACQUISITION CO LLC	CHASE PETROLEUM CO	5,467	4315 - 5106	Weir, Warren, Balltown, Riley, Benson, Alexander	Berea
47017012810000	L R C GRAY HEIRS	1	DEEM J FRANK	DEEM J FRANK	2,059		Big Lime, Big Injun	Benson, Alexander
47017700210000	BROADWATER C P	1	CARTER OIL CO	CARTER OIL CO			Mahoning	Weir
47017035250000	GRAY D W	2744	DIVERSIFIED PRODUCTION LLC	CNG DEVELOPMENT CO	5,276	5045 - 5094	Big Injun, Bradford, Benson, Alexander	Weir
47017016110000	GRAY C C	A-423	ALLEGHENY LAND&MNRL	ALLEGHENY LAND&MNRL	2,202		Salt Sands	Benson, Alexander
47017050110000	GRAY JOHN M HEIRS ET AL	14261	DIVERSIFIED PRODUCTION LLC	DOMINION EXPL&PROD	2,354	1470 - 2298	3rd Salt, Big Injun, Weir	Benson, Alexander
47017034970000	GRAY M B HEIRS	2286	DIVERSIFIED PRODUCTION LLC	CNG DEVELOPMENT CO	5,372	4816 - 5192	Benson, Alexander	Weir, Berea
47017015570000	M B GRAY	11168	DIVERSIFIED PRODUCTION LLC	CONSOL GAS SUPPLY GRP	3,028		Salt Sands, Big Lime, Big Injun	Weir, Berea
47017013920000	GUY WHITEHAIR	1	R & R OIL & GAS LLC	FRIESTAD FRANCIS	2,060		Maxton, Big Lime, Big Injun	Weir, Berea
47017013400000	DAVID BALL	1	HARCON OIL & GAS CO	FERRILL WILLARD E	1,862		Little Lime, Big Injun	Weir, Berea

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LATITUDE 39°12'30" ← 6,876'

LATITUDE 39°15'00" ← 10,419' TO BOTTOM HOLE

Antero Resources Corporation  
Well No. Key 1H

Union District - Ritchie County	
9-9.1	Naomi Cunningham
9-14	John Louke
9-15	Marvin Osborne
9-15.1	Marvin Osborne
9-16	Marvin Osborne
9-18	Jack Guthrie Trust
9-19	Twila Everts
9-20	Twila Everts
9-20.1	Mark Morrison
9-20.2	Brian Bonner
9-21	Stephanie Knight
9-22	Stephanie Knight
9-23	Marvin Osborne
14-3.3	Mary Harms
14-4	Stephanie Knight
14-4.1	Stephanie Knight
14-11	Nathaniel Hendricks
14-11.6	Nathaniel Hendricks
14-11.7	Nathaniel Hendricks
14-11.8	Nathaniel Hendricks
14-17	Ralph Thacker
14-20	David Weekley
15-1	Timothy Alexander
15-1.1	Ralph Thacker
15-2	Ralph Thacker
15-3	Larry Gander
15-4	Stout Valley Trust
15-5	Larry Gander
15-6	Ralph Thacker
15-7	Stephanie Knight
15-8	Stephanie Knight
21-1	Ralph Thacker
21-2	Briar Fork Trust
21-3	Dallas Smith Et Al
21-4	Larry Gander
21-4.1	Joseph Bianchini
21-4.2	Marie Bianchini
21-4.3	Joseph Bianchini
21-5	James Beck Et Al
21-6	WF Smith
21-6.1	Lois Gander
21-7	Elmer Pierce
21-7.1	Larry Gander
21-7.2	Larry Gander
21-8.4	Brian Vansant
21-10	James Beck
21-10.1	Harvey Shepler
21-10.2	James Beck

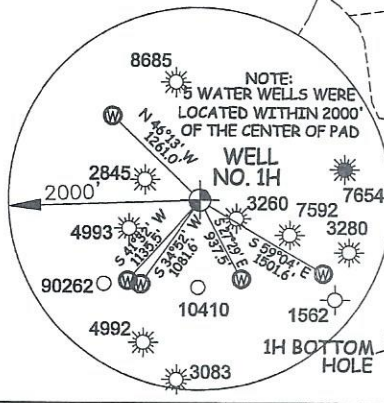
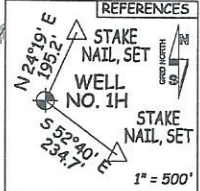
Southwest District - Doddridge County	
1-1	Jeffrey Polan
4-2	Cevasco Family Trust
4-10	James Webb
4-11	Juanita Leggett
4-14	Juanita Leggett
4-16	James Webb
4-18	James Webb
4-19.3	CNG Transmission Corp.
4-19.4	CNG Transmission Corp.
4-19.5	Dana Hurst
4-19.7	James Webb
4-19.8	James Webb
4-19.9	James Webb
4-21	Anthony Ayers
4-22	Reed Zinn
4-24	F L Morris
4-25	Tina Osborne
4-25.1	Stanley Chipps
4-28.3	Alfred Farley
4-31	Vicki Moore
4-31.2	Bradley Davis
4-34	Carl Ravin
8-1	Richard Brown
8-3	Randall Russell
8-4	John Gray Hrs
8-5	Larry Gander
12-1	David Ball

NOTES:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 247,769ft E: 1,615,118ft  
 LAT: 39°10'20.23" LON: 80°51'27.31"  
 BOTTOM HOLE INFORMATION:  
 N: 262,110ft E: 1,611,788ft  
 LAT: 39°12'41.7" LON: 80°52'12.37"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 4,335,915m E: 512,317m  
 BOTTOM HOLE INFORMATION:  
 N: 4,340,267m E: 511,229m

(NAD) 27 (UTM) ZONE 17 COORDS:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 14,224,699ft E: 1,680,778ft  
 POINT OF ENTRY INFORMATION:  
 N: 14,225,193ft E: 1,682,961ft  
 BOTTOM HOLE INFORMATION:  
 N: 14,238,978ft E: 1,677,211ft

NOTE  
 NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.



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.

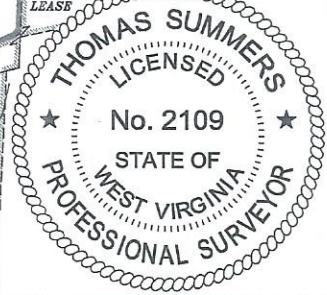
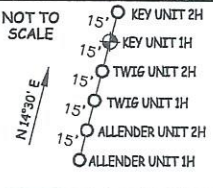


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
 WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

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 WV Department of Environmental Protection

JOB # 23-007WA  
 DRAWING # KEY1H  
 SCALE 1" = 2000'  
 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 +/-  
 - - - Adjoining Surface Tracts +/-  
 ⊕ Found monument, as noted  
 THOMAS SUMMERS P.S. 2109  
 DATE 08/25/23  
 OPERATOR'S WELL# KEY 1H



WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ 47 - 085 - 10500  
 (IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X STATE COUNTY PERMIT  
 LOCATION: ELEVATION 1,019' -AS-BUILT WATERSHED SOUTH FORK HUGHES RIVER  
 QUADRANGLE OXFORD 7.5' DISTRICT UNION COUNTY RITCHIE  
 SURFACE OWNER LARRY GANDER ET UX ACREAGE 17 ACRES +/- LEASE ACREAGE 50 AC.±  
 OIL & GAS ROYALTY OWNER B. GUY WHITEHAIR ET UX LEASE DATE 09/22/2023

PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER X REDRILL \_\_\_ FRACTURE OR STIMULATE X  
 PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD-BHL PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,900' TVD 25,100' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT KEVIN ELLIS  
 ADDRESS 1615 WYNKOOP ST. ADDRESS 535 WHITE OAK BLVD.  
 DENVER, CO 80202 BRIDGEPORT, WV 26330

14,016' TO BOTTOM HOLE  
13,129'  
LONGITUDE 80°50'00"

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
<b>B. Guy Whitehair, et ux Lease:</b>			
B. Guy Whitehair, et ux	L.E Mossor and Harry	1/8	107/346
L.E Mossor and Harry	Francis Friestad	Assignment	89/497
Francis Friestad	W.H. Thomson	Assignment	152/213
W.H. Thomson	BET-RO INC	Assignment	177/11
BET-RO INC	Jesam Energy	Assignment	204/134
Jesam Energy	Roberts Energy	Assignment	204/705
Roberts Energy	Key Oil Company	Assignment	258/619
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	263/629
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	46/523
<b>R. F. Kiester et al Lease:</b>			
R. F. Kiester, et al	G.L. Yaste	1/8	105/504
G. L. Yaste	D. L. Y., Inc	Assignment	112/302
D. L. Y., Inc	Betty Jean Stalnaker & Rosalee Roberts	Assignment	132/565
Betty Jean Stalnaker & Rosalee Roberts	R & S Gas Company	Assignment	147/548
R & S Gas Company	BET-RO Inc	Assignment	147/554
BET-RO Inc	Roberts Energy Corporation	Assignment	240/36
Roberts Energy Corporation	Antero Resources Corporation	Assignment	329/138
<b>Ralph Jett et ux Lease:</b>			
Ralph Jett, et ux	W.R. Development Co. Inc.	1/8	191/378
W.R. Development Co. Inc.	Whittle Corporation	Assignment	254/910
Whittle Corporation	Antero Resources Appalachian Corporation	Assignment	255/526
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	15/705
<b>David Dale Ball Jr. Lease:</b>			
David Dale Ball, Jr.	Antero Resources Corporation	1/8+	417/123
<b>B. Guy Whitehair, et ux Lease:</b>			
B. Guy Whitehair, et ux	L.E Mossor and Harry	1/8	107/346
L.E Mossor and Harry	Francis Friestad	Assignment	89/497
Francis Friestad	W.H. Thomson	Assignment	152/213
W.H. Thomson	BET-RO INC	Assignment	177/11
BET-RO INC	Jesam Energy	Assignment	204/134
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Key Oil Company	Antero Resources Appalachian Corporation	Assignment	263/629
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	46/523

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 Environmental Protection

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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 –

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- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
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Jesam Energy	Roberts Energy	Assignment	204/705
Roberts Energy	Key Oil Company	Assignment	258/619
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	263/629
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>46/523</b>
<b>M. B. Gray, et al Lease:</b>			
M. B. Gray and Mary Gray, et al	Hope Natural Gas Company	1/8	57/372
Hope Natural Gas Company	Consolidated gas Supply Corporation	Assignment	143/345
Consolidated gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	135/583
Consolidated Gas Transmission Corporation	CNG Development	Assignment	139/41
CNG Development	Dominion Exploration and Production INC	Merger	WVSOS
Dominion Exploration and Production INC	Dominion Transmission INC	Assignment	244/528
Dominion Transmission INC	Consol Energy Holdings LLC XVI	Assignment	245/1
Consol Energy Holdings LLC XVI	Consol Gas Company	Merger	293/352
Consol Gas Company	CNX Gas Company and Noble Energy	Merger	293/352
<b>CNX Gas Company and Noble Energy</b>	<b>Antero Resources Corporation</b>	<b>Assignment</b>	<b>332/303</b>
<b>D.W. Gray and M. E. Gray Lease:</b>			
D.W. and M.E. Gray	M.G. Taylor	1/8	30/148
M.G. Taylor	Tri State Gas Company	Assignment	26/39
Tri State Gas Company	Hope Natural Gas Company	Assignment	26/93
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	143/345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	135/583
Consolidated Gas Transmission Corporation	CNG Development	Assignment	139/41
CNG Development	Dominion Exploration and Production INC	Merger	WVSOS
Dominion Exploration and Production INC	Dominion Transmission INC	Assignment	244/528
Dominion Transmission INC	Consol Energy Holdings LLC XVI	Assignment	245/1
Consol Energy Holdings LLC XVI	Consol Gas Company	Merger	292/469
Consol Gas Company	CNX	Merger	292/469
CNX	Noble Energy	Assignment	339/642
<b>Noble Energy</b>	<b>Antero Resources Corporation</b>	<b>Assignment</b>	<b>323/303</b>

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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)

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- (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
<b><u>D.W. Gray and M. E. Gray Lease:</u></b>			
D.W. and M.E. Gray	M.G. Taylor	1/8	30/148
M.G. Taylor	Tri State Gas Company	Assignment	26/39
Tri State Gas Company	Hope Natural Gas Company	Assignment	26/93
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	143/345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	135/583
Consolidated Gas Transmission Corporation	CNG Development	Assignment	139/41
CNG Development	Dominion Exploration and Production INC	Merger	WVSQS
Dominion Exploration and Production INC	Dominion Transmission INC	Assignment	244/528
Dominion Transmission INC	Consol Energy Holdings LLC XVI	Assignment	245/1
Consol Energy Holdings LLC XVI	Consol Gas Company	Merger	292/469
Consol Gas Company	CNX	Merger	292/469
CNX	Noble Energy	Assignment	339/642
Noble Energy	Antero Resources Corporation	Assignment	323/303
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D.W. and M.E. Gray	M.G. Taylor	1/8	30/148
M.G. Taylor	Tri State Gas Company	Assignment	26/39
Tri State Gas Company	Hope Natural Gas Company	Assignment	26/93
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	143/345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	135/583
Consolidated Gas Transmission Corporation	CNG Development	Assignment	139/41
CNG Development	Dominion Exploration and Production INC	Merger	WVSQS
Dominion Exploration and Production INC	Dominion Transmission INC	Assignment	244/528
Dominion Transmission INC	Consol Energy Holdings LLC XVI	Assignment	245/1
Consol Energy Holdings LLC XVI	Consol Gas Company	Merger	292/469
Consol Gas Company	CNX	Merger	292/469
CNX	Noble Energy	Assignment	339/642
Noble Energy	Antero Resources Corporation	Assignment	323/303
<b><u>William F. Prunty, et al Lease</u></b>			
William F. Prunty, et al	Farr Enterprises	1/8	180/549
Farr Enterprises	Key Oil	Assignment	224/545
Key Oil	Antero Resources Appalachian Corporation	Assignment	256/488
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	15/705
<b><u>Anthony C. Ayers, et ux Lease:</u></b>			
Anthony C. Ayers, et ux	Antero Resources Corporation	1/8+	502/313
<b><u>Mildred Riddle, et vir Lease:</u></b>			
Mildred Riddle, et vir	Clarence W Mutschelknaus	1/8	102/618
Clarence W Mutschelknaus	J. Robert Hornor	Assignment	105/277
J. Robert Hornor	Petroleum Development	Assignment	112/664
Petroleum Development	PDC Mountaineer LLC	Assignment	240/118
PDC Mountaineer LLC	Antero Resources Appalachian Corporation	Assignment	278/607
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	46/523

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>Roy Leggett, et ux Lease</u></b>			
Roy Leggett, et ux	Donald Michels	1/8	113/496
Donald Michels	Alton Skinner	Assignment	113/635
Alton Skinner	Alton L. Skinner, II, Crystal G. Skinner and Desari S. Garrett	Will	222/266
Alton L. Skinner, II, Crystal G. Skinner and Desari S. Garrett	DC Petroleum	Assignment	170/583
DC Petroleum	Antero Resources Corporation	Assignment	522/214

\*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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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Russell H. Gray, et al Lease</u>				
	Russell H. Gray, et al	Alton Skinner	1/8	121/123
	Alton Skinner	Alton L. Skinner, II, Crystal G. Skinner and Desari S. Garrett	Will	222/266
	Alton L. Skinner, II, Crystal G. Skinner and Desari S. Garrett	DC Petroleum		
	DC Petroleum	Antero Resources Appalachian Corporation	Assignment	257/62
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	46/523

**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

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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: Tim Rady  
Its: Senior Vice President of Land