



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, July 11, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for SHORT RUN UNIT 2H
47-085-10340-00-00

Lateral shift

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: SHORT RUN UNIT 2H
Farm Name: RADALL BOND ET AL
U.S. WELL NUMBER: 47-085-10340-00-00
Horizontal 6A New Drill
Date Modification Issued: July 11, 2018

Promoting a healthy environment.

07/13/2018

WW-6B
(04/15)

API NO. 47-085 - 10340
OPERATOR WELL NO. Short Run Unit 2H
Well Pad Name: Hichman Pad

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 Clay Pennsboro 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Short Run Unit 2H Well Pad Name: Hichman Pad

3) Farm Name/Surface Owner: Radall Bond et al Public Road Access: CR-74/4 (Bond Run)

4) Elevation, current ground: 1250' Elevation, proposed post-construction: _____

5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____
(b) If Gas Shallow Deep _____
Horizontal

6) Existing Pad: Yes or No 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#

8) Proposed Total Vertical Depth: 7000' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19300' MD

11) Proposed Horizontal Leg Length: 10566' *11831' original*

12) Approximate Fresh Water Strata Depths: 170', 238', 341'

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

14) Approximate Saltwater Depths: 2050', 2033', 1668'

15) Approximate Coal Seam Depths: 868', 1675'

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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WV Department of
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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#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	395' *see #19	395' *see #19	CTS, 549 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	19300'	19300'	4899 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"/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-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 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): 28.61 acres

22) Area to be disturbed for well pad only, less access road (acres): 7.43 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

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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.

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*Note: Attach additional sheets as needed.



47085080280000

47085077270000

Short Run Unit 2H

47095011890000

47095012320000

47095012160000

47095011120000

47017066680000
47017066670000

47095011100000

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Antero Resources Corporation

Short Run Unit 2H - AOR



WELL SYMBOLS
Gas Well

July 5, 2018

07/13/2018

API# 47-085-10340 PERMIT MODIFICATION

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD
47095011100000	COTTRILL VIRGINIA L	JK-1212	ENERGY CORP OF AMER	J & J ENTERPRISES	5991
47095011120000	ASH DALE JR HEIRS	JK-1210	ENERGY CORP OF AMER	J & J ENTERPRISES	5987
47085077220000	LANGON VERA	8	TRIAD HUNTER LLC	APPALACHIAN ENGY DEV	5908
47095012320000	GARNER CLAUDE	3	TRIAD HUNTER LLC	APPALACHIAN ENGY DEV	5717
47085077270000	LANGON VERA	7	TRIAD HUNTER LLC	APPALACHIAN ENGY DEV	5666
47095012160000	MERRIT MARY & NANCY	1	TRIAD HUNTER LLC	APPALACHIAN ENERGY	5555
47085053970000	LANGON VERA	2	TRIAD HUNTER LLC	APPCO OIL & GAS CORP	5418
47095017100000	HANES	1	KEY OIL COMPANY	KEY OIL COMPANY	5384
47085080280000	DOTSON CLIFFORD ETAL	1	TRIAD HUNTER LLC	APPALACHIAN ENERGY	5350

Approx Distance to well	ELEV_GR	TD (SSTVD)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Productible Formation(s) not perf'd
196	1149	-4842	4601-5302	Riley, Benson, Alexander	Big Injun, Weir, Warren
344	1064	-4923	4516-5220	Riley, Benson, Alexander	Big Injun, Weir, Gordon
396	1255	-4653	4731-5424	Riley, Benson, Alexander	Big Injun, Weir, Warren
100	1130	-4587	4595-5294	Riley, Benson, Alexander	Big Injun, Weir, Gordon
187	1265	-4401	4735-5439	Riley, Benson, Alexander	Big Injun, Weir, Warren
209	1084	-4471	4549-5252	Riley, Benson, Alexander	Big Injun, Weir, Warren
284	1068	-4350	4520-5226	Riley, Benson, Alexander	Big Injun, Weir, Gordon
400	1120	-4264	4526-5209	Riley, Benson, Alexander	Big Injun, Weir, Warren
341	983	-4367	4445-5149	Riley, Benson, Alexander	Big Injun, Weir, Gordon

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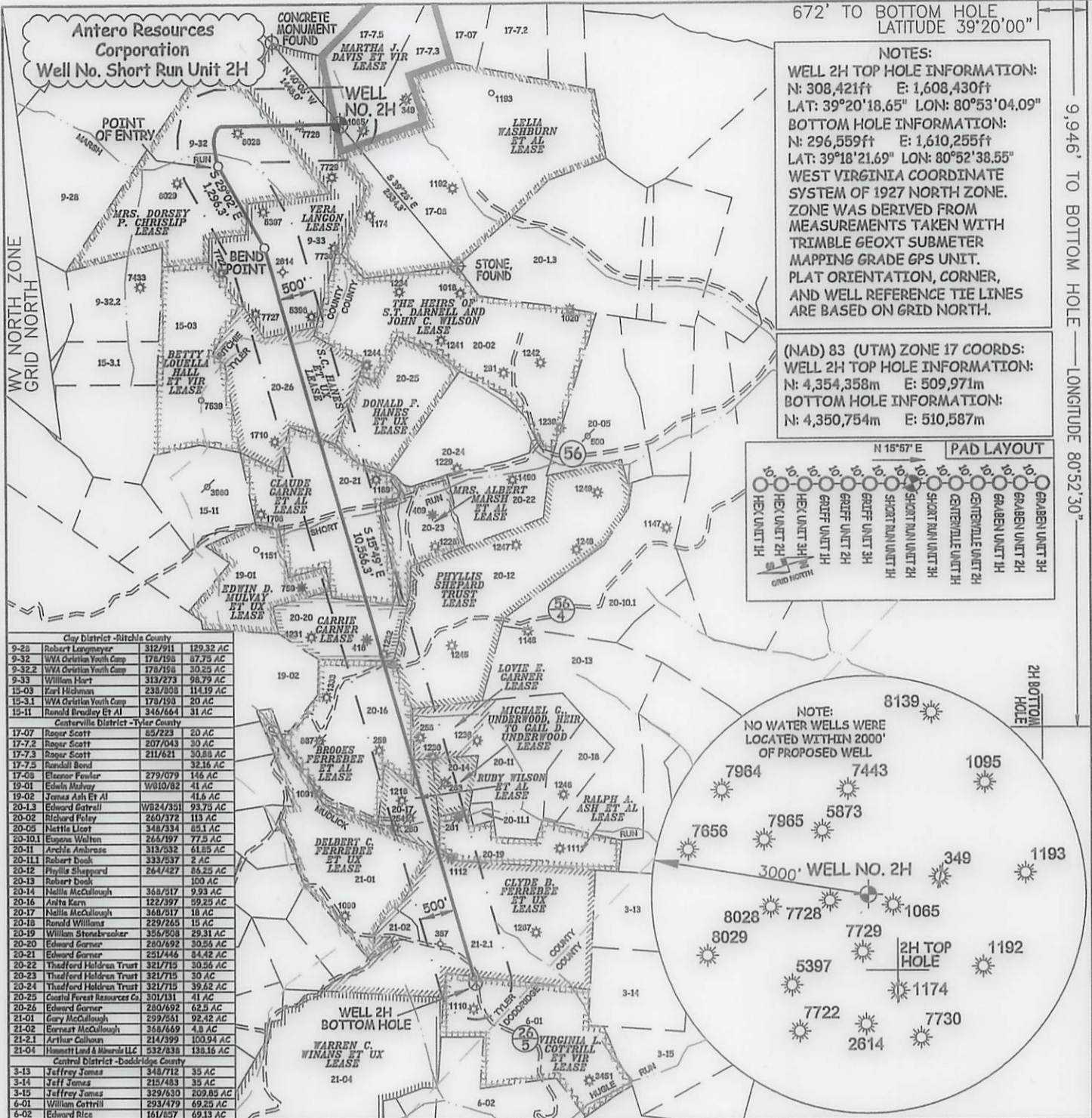
07/13/2018

LATITUDE 39°22'30" 2,678'

9,946' TO BOTTOM HOLE — LONGITUDE 80°52'30"

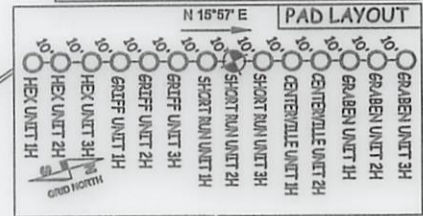
1,3,290'

LONGITUDE 80°52'30"



NOTES:
 WELL 2H TOP HOLE INFORMATION:
 N: 308,421ft E: 1,608,430ft
 LAT: 39°20'18.65" LON: 80°53'04.09"
 BOTTOM HOLE INFORMATION:
 N: 296,559ft E: 1,610,255ft
 LAT: 39°18'21.69" LON: 80°52'38.55"
 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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 N: 4,354,358m E: 509,971m
 BOTTOM HOLE INFORMATION:
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Clay District - Ritchie County		
9-26	Robert Langmeyer	312/911 129.32 AC
9-32	WVA Orion Youth Camp	178/198 87.75 AC
9-32	WVA Orion Youth Camp	178/198 30.25 AC
9-33	William Hart	313/273 98.79 AC
15-03	Karl Hickman	238/808 114.19 AC
15-31	WVA Orion Youth Camp	178/198 20 AC
15-11	Ronald Bradley Et Al	346/664 31 AC
Centerville District - Tyler County		
17-07	Roger Scott	85/223 20 AC
17-72	Roger Scott	207/043 30 AC
17-73	Roger Scott	211/621 32.16 AC
17-75	Randall Bond	313/273 98.79 AC
17-08	Eleanor Fowler	279/079 146 AC
19-01	Edwin Mulvey	WB10/82 41 AC
19-02	James Ash Et Al	41.6 AC
20-13	Edward Gatrell	WB24/351 93.79 AC
20-02	Richard Foley	260/372 113 AC
20-05	Nattie Liont	348/334 85.1 AC
20-10	Esopie Wilton	255/197 77.5 AC
20-11	Archie Ambrose	313/632 61.85 AC
20-11	Robert Bond	333/537 2 AC
20-12	Phyllis Sheppard	264/427 84.25 AC
20-13	Robert Bond	100 AC
20-14	Nellie McCullough	368/917 9.93 AC
20-16	Anita Kern	122/397 59.25 AC
20-17	Nellie McCullough	368/917 18 AC
20-18	Randall Williams	239/263 15 AC
20-19	William Stonebreaker	355/808 29.31 AC
20-20	Edward Garner	280/692 30.56 AC
20-21	Edward Garner	251/446 84.42 AC
20-22	Thadford Holdren Trust	321/715 30.56 AC
20-23	Thadford Holdren Trust	321/715 30 AC
20-24	Thadford Holdren Trust	321/715 39.82 AC
20-25	Coastal Forest Resources Co	301/311 41 AC
20-25	Edward Garner	329/633 62.5 AC
21-01	Gary McCullough	599/551 92.42 AC
21-02	Earnest McCullough	368/669 4.8 AC
21-21	Arthur Colson	214/399 100.94 AC
21-04	Hannett Land & Minerals LLC	532/838 138.16 AC
Central District - Doddridge County		
3-13	Jeffrey James	348/712 35 AC
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6-01	William Cottrill	293/479 69.25 AC
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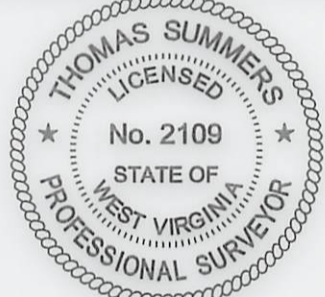
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

(NAD) 27 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 14,285,209ft E: 1,673,082ft
 POINT OF ENTRY INFORMATION:
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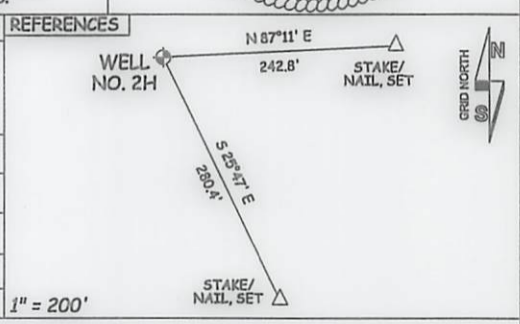
NOTE
 NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.



JOB # 17-008WA
 DRAWING # SHORTRUN2HR2
 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 +/-
 - - - Interior Surface Tracts +/-
 X Existing Fence
 ⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109
 DATE 07/05/18
 OPERATOR'S WELL # SHORT RUN UNIT #2H



WELL TYPE: OIL GAS LIQUID INJECTION _____ WASTE DISPOSAL _____ 47 - 085 - 10340
 (IF "GAS") PRODUCTION STORAGE _____ DEEP _____ SHALLOW STATE COUNTY PERMIT
 LOCATION: ELEVATION 1,250' AS BUILT WATERSHED NORTH FORK HUGHES RIVER
 QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
 SURFACE OWNER RADALL BOND ET AL ACREAGE 32.16 ACRES +/-
 OIL & GAS ROYALTY OWNER MARTHA J. DAVIS ET VIR; VERA LANGON; MRS. DORSEY P. CHRISLIP; LEASE ACREAGE 70 AC±; 98.79 AC±; 87.75 AC±;
 S.C. HANES ET UX; CLAUDE GARNER ET AL; CARRIE GARNER; BROOKS FERREBEE ET AL; 64 AC±; 85 AC±; 30 AC±; 59.25 AC±;
 RUBY WILSON ET AL; CLYDE B. FERREBEE ET UX; VIRGINIA L. COTTRILL ET VIR 18 AC±; 105 AC±; 70 AC±
 PROPOSED WORK: DRILL _____ CONVERT _____ DRILL DEEPER REDRILL _____ FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION _____ PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL _____
 (SPECIFY) MOD-BHL _____ PLUG & ABANDON _____ CLEAN OUT & REPLUG _____
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,000' TVD 19,300' 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 CHARLESTON, WV 25313

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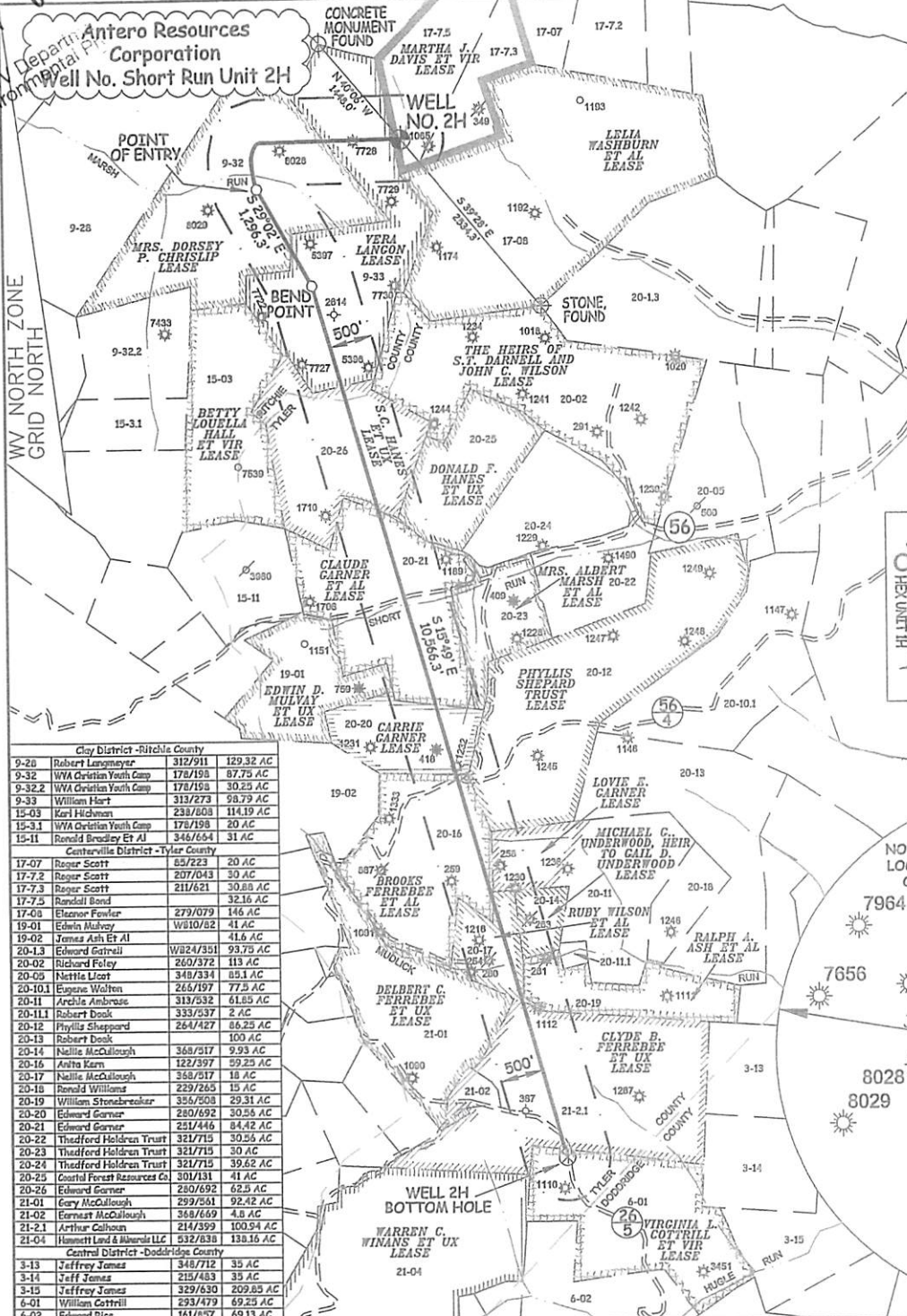
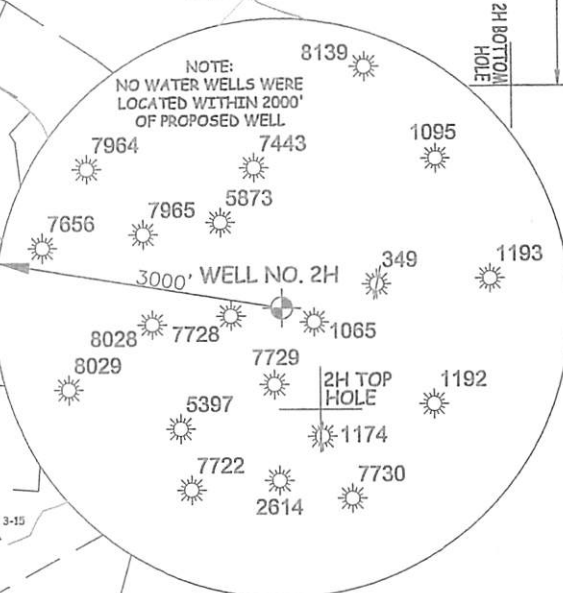
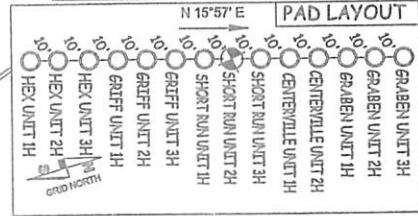
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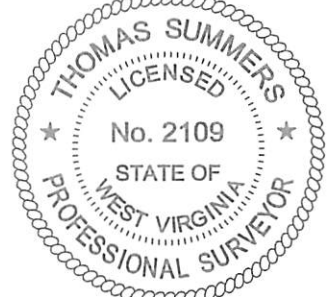
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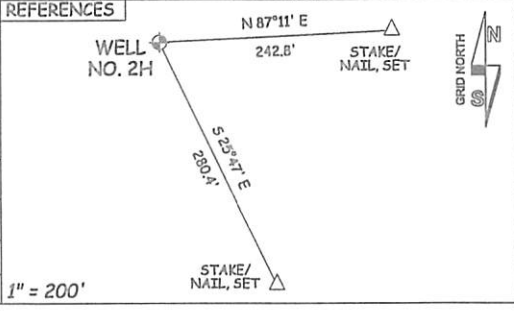
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220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

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THOMAS SUMMERS P.S. 2109
DATE 07/05/18
OPERATOR'S WELL# SHORT RUN UNIT #2H



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(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT
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OIL & GAS ROYALTY OWNER MARTHA J. DAVIS ET VIR; VERA LANGON; MRS. DORSEY P. CHRISLIP; LEASE ACREAGE 70 AC±; 98.79 AC±; 87.75 AC±;
S.C. HANES ET UX; CLAUDE GARNER ET AL; CARRIE GARNER; BROOKS FERREBEE ET AL; 64 AC±; 85 AC±; 30 AC±; 59.25 AC±;
RUBY WILSON ET AL; CLYDE B. FERREBEE ET UX; VIRGINIA L. COTTRILL ET VIR 18 AC±; 105 AC±; 70 AC±
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 7,000' TVD 19,300' 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 CHARLESTON, WV 25313

07/13/2018

WW-6A1
(5/13)

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Virginia L. Cottrill, et vir Lease</u>				
	Virginia L. Cottrill, et vir	J & J Enterprises, Inc.	1/8	0141/0216
	J & J Enterprises, Inc.	Eastern American Energy Corporation	Assignment	0211/0137
	Eastern American Energy Corporation	Energy Corporation of America	Certificate of Merger	0371/0528
	Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	0398/0416
	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.

**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: Diana Hoff
Its: VP - Operations

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Martha J. Davis, et vir Lease</u>			
Martha J. Davis, et vir	Exxon Corporation	1/8	0209/0272
Exxon Corporation	XTO Energy, Inc.	Assignment	0359/0150
XTO Energy, Inc.	Antero Resources Corporation	Assignment	0423/0613
<u>Vera Langon Lease</u>			
Vera Langon	Appco Oil & Gas Corporation	1/8	0138/0430
Appco Oil & Gas Corporation	Appalachian Energy Reserves, Inc.	Assignment	0197/0734
Appalachian Energy Reserves, Inc.	Appalachian Energy Development, Inc.	Assignment	0229/0100
Appalachian Energy Development, Inc.	Triad Energy Corp of WV	Assignment	0229/0108
Triad Energy Corp of WV	Triad Hunter, LLC	Assignment	0250/0196
Triad Hunter, LLC	Antero Resources Corporation	Assignment	0270/0270
<u>Mrs. Dorsey P. Chrislip Lease</u>			
Mrs. Dorsey P. Chrislip	Appalachian Energy Reserves, Inc.	1/8	0210/0063
Appalachian Energy Reserves, Inc.	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	Assignment	0270/0270
<u>S.C. Hanes et ux Lease</u>			
S.C. Hanes et ux	J.L. Newman	1/8	0069/0086
J.L. Newman	The Philadelphia Company	Assignment	0455/0390
The Philadelphia Company	Pittsburg and West Virginia Gas Company	Assignment	0101/0036
Pittsburg and West Virginia Gas Company	Equitable Gas Company	Assignment	0132/0445
Equitable Gas Company	Equitrans, Inc.	Assignment	0274/0471
Equitrans, Inc.	Equitable Production – Eastern States, Inc	Assignment	0342/0024
Equitable Production – Eastern States, Inc	EQT Production Company	Name Change	0009/0086
EQT Production Company	Antero Resources Corporation	Assignment	0458/0018

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Claude Garner et al Lease</u>			
Claude Garner et al	J&J Enterprises, Inc.	1/8	0263/0503
J&J Enterprises, Inc.	Eastern American Energy Corporation	Assignment	0231/0732
Eastern American Energy Corporation	Energy Corporation of America	Assignment	0006/0450
Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	0398/0416
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Carrie Garner Lease</u>			
Carrie Garner	Lyle K Baker and Marcine Baker, his wife DBA Baker Development Company Co., Lyle Baker Agent	1/8	0174/0146
Lyle K Baker and Marcine Baker, his wife DBA Baker Development Company Co., Lyle Baker Agent	Carole of Canada INC, Fluharty Enterprises INC, Vernon G Frame, PA	Assignment	0228/0449
Carole of Canada INC, Fluharty Enterprises INC, Vernon G Frame, PA	F.C. & F. Partnership, Limited, by Fluharty Enterprises Inc	Assignment	0232/0053
F.C. & F. Partnership, Limited, by Fluharty Enterprises Inc	Appalachian Energy Reserves, Inc	Assignment	0271/0487
Appalachian Energy Reserves, Inc	Appalachian Energy Development, Inc.	Assignment	0329/0519
Appalachian Energy Development, Inc.	Triad Energy Corporation of West Virginia	Assignment	0329/0538
Triad Energy Corporation of West Virginia	Viking International Resources Co	Assignment	0333/0230
Viking International Resources Co	Triad Energy Corporation	Assignment	0338/0164
Triad Energy Corporation	Triad Hunter LLC	Assignment	0371/0605
Triad Hunter LLC	Antero Resources Corporation	Assignment	0573/0001
<u>Brooks Ferrebee et al Lease</u>			
Brooks Ferrebee et al	Petroleum Service	1/8	0226/0323
Petroleum Services	Magnum Oil	Assignment	0228/0180
Magnum Oil	Perkins Production Company	Assignment	0537/0373
Perkins Production Company	Antero Resources Corporation	Assignment	0537/0378
<u>Ruby Wilson et al Lease</u>			
Ruby Wilson et al	Excelco, Inc.	1/8	0269/0643
Excelco, Inc.	Appalachian Energy Development, Inc	Assignment	0270/0045
Appalachian Energy Development, Inc.	Triad Energy Corporation of West Virginia	Assignment	0333/0230
Triad Energy Corporation of West Virginia	Viking International Resources Co	Assignment	0338/0164
Viking International Resources Co	Triad Energy Corporation	Assignment	0338/0164
Triad Energy Corporation	Triad Hunter LLC	Assignment	0371/0605
Triad Hunter LLC	Antero Resources Corporation	Assignment	0573/0012

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Clyde B. Ferrebee et ux Lease</u>			
Clyde B. Ferrebee et ux	Sefco Enterprises Inc	1/8	0271/0541
Sefco Enterprises Inc	Robert P. Davis	Assignment	0274/0462
Robert P. Davis	Key Oil Co.	Assignment	0274/0468
Key Oil Co.	Antero Resources Appalachian Corporation	Assignment	0383/0342
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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FILED

JUN 10 2013

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penney Barker, Manager
Corporations Division
IN THE OFFICE OF
SECRETARY OF STATE
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvsos.com
E-mail: business@wvsos.com

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

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

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

**** 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) 357-7310
Contact Name Phone Number
- Signature information (See below *Important Legal Notice Regarding Signature):
Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

***Important Legal Notice Regarding Signature:** Per West Virginia Code §31D-1-129. Penalty for signing false 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.

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Environmental Protection



July 5, 2018

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

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

Ms. Laura Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit updates for Graben Unit 1H. We shifted the lateral well bore and need to modify the permit. Please see the table below for other wells on the Hichman pad that will need the following modifications. All wells are currently at Intermediate casing.

Wells Modifying	Wells dropping to be plugged	Wells moving less than 50' no modification needed.
Short Run Unit 2H	Graben Unit 2H	Centerville Unit 2H
Griff Unit 2H	Centerville Unit 1H	Short Run Unit 1H
Hex Unit 1H	Hex Unit 2H	Hex Unit 3H
Graben Unit 1H	Griff Unit 1H	Griff Unit 3H

Attached you will find the following:

- REVISED Mylar Plat
- REVISED WW-6B
- REVISED WW 6A1

If you have any questions please feel free to contact me at (303) 357-7182.

Thank you in advance for your consideration.

Sincerely,

Mallory Stanton
Permitting Supervisor
Antero Resources Corporation
Enclosures

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