



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

Thursday, June 14, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for BARR UNIT 2H
47-085-10368-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

A blue ink signature of James A. Martin, written in a cursive style.

Operator's Well Number: BARR UNIT 2H
Farm Name: DENNIS J. SELLERS
U.S. WELL NUMBER: 47-085-10368-00-00
Horizontal 6A New Drill
Date Issued: 6/14/2018

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

WW-6B
(04/15)

API NO. 47-085
OPERATOR WELL NO. Barr Unit 2H
Well Pad Name: Pool 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: Barr Unit 2H Well Pad Name: Pool Pad

3) Farm Name/Surface Owner: Dennis J. Sellers Public Road Access: CR 50/26

4) Elevation, current ground: 1184' Elevation, proposed post-construction: 1184'

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

Michael Duff
3-1-18

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- 60 feet, Associated Pressure- 3000#

8) Proposed Total Vertical Depth: 6900' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 18700' MD

11) Proposed Horizontal Leg Length: 7691'

12) Approximate Fresh Water Strata Depths: 174', 239'

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

14) Approximate Saltwater Depths: 753', 1599', 1658'

15) Approximate Coal Seam Depths: 634', 1081', 1233'

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

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MAR 2 2018
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(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

WW-6B
(04/15)

API NO. 47-085

OPERATOR WELL NO. Barr Unit 2H

Well Pad Name: Pool 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#	300'	300'	CTS, 417 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#	18700'	18700'	4735 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

MAG
3-1-18

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"	0.415"	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							

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PACKERS

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

WW-6B
(10/14)

API NO. 47-085 -
OPERATOR WELL NO. Barr Unit 2H
Well Pad Name: Pool 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."

Anticipated Max Pressure - 9300 lbs
Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.86 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 12.26 existing acres

23) Describe centralizer placement for each casing string:

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

24) Describe all cement additives associated with each cement type:

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

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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.

MAG
3-1-18

WW-9
(4/16)

API Number 47 - 085 - _____
Operator's Well No. Barr Unit 2H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) North Fork Hughes River Quadrangle Pennsboro 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tanked and hauled off site.)

Will a synthetic liner be used in the pit? Yes No If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Undergound Injection (UIC Permit Number *UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/WV0109410)

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.
Surface - Air/Freshwater, Intermediate - Dust/Stiff Foam, Production - Water Based Mud

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings stored in tanks, removed offsite and taken to landfill.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Gretchen Kohler*
Company Official (Typed Name) Gretchen Kohler
Company Official Title Senior Environmental & Regulatory Manager

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FEB 15 2018
KARA QUACKENBUSH
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144028297
MY COMMISSION EXPIRES JULY 21, 2018
WV Department of Environmental Protection

Subscribed and sworn before me this 14 day of February, 20 18
Kara Quackenbush Notary Public

My commission expires July 21, 2018

Form WW-9

Operator's Well No. Barr Unit 2H

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 19.86 existing acres Prevegetation pH _____

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Main Access Road (4.06 acres) + Well Pad (12.26 acres) + Topsoil (1.84 acres) + Staging Area (1.70 acres) = 19.86 Existing Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	Ibs/acre	Seed Type	Ibs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue	30
See attached Table for additional seed type (Pool Pad Design Page 23)		See attached Table for additional seed type (Pool Pad Design Page 23)	
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael Hoff

Comments: _____

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Title: Oil & Gas Inspector Date: 3-1-18

Field Reviewed? Yes No

Form WW-9 Additives Attachment**SURFACE INTERVAL**

1. Fresh Water
2. Soap –Foamer AC
3. Air

INTERMEDIATE INTERVAL***STIFF FOAM RECIPE:***

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 (11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard (9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

PRODUCTION INTERVAL

1. Alpha 1655
Salt Inhibitor
2. Mil-Carb
Calcium Carbonate
3. Cottonseed Hulls
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime
Calcium Hydroxide – Lime
11. LD-9
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica
Hydro-Biotite Mica – LCM

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13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous
Inorganic Salt
18. D-D
Drilling Detergent – Surfactant
19. Terra-Rate
Organic Surfactant Blend
20. W.O. Defoam
Alcohol-Based Defoamer
21. Perma-Lose HT
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite
Natural Graphite – LCM
25. Mil Bar
Barite – Weighting Agent
26. X-Cide 102
Biocide
27. Soda Ash
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol
Amine Acid complex – Shale Stabilizer
29. Sulfatrol
Sulfonated Asphalt – Shale Control Additive
30. Xanvis
Viscosifier For Water-Based Muds
31. Milstarch
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube
Drilling Fluid Lubricant

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911 Address
1469 Sugar Run Rd.
Pennsboro, WV 26415

Well Site Safety Plan

Antero Resources

Well Name: Eugene Unit 1H, Barr Unit 1H-2H,
 Vernon Unit 1H-4H,

Michael Goff
 3-1-18

Pad Location: POOL PAD
 Ritchie County/Clay District

GPS Coordinates:

Entrance - Lat 39°17'40.65"/Long -80°54'19.73" (NAD83)

Pad Center - Lat 39°17'53.31"/Long -80°54'41.35" (NAD83)

Driving Directions:

From the intersection of I-79 and Hwy 50 near Clarksburg WV: Head west on Hwy 50 for ~ 35.6 miles. Turn RIGHT on Old U.S 50 E (Northwest Tpke), and follow for ~1.3 miles. Turn RIGHT on Sugar Run Rd and follow that for ~1.5 miles. Rig access road will be on the left.

Alternate Route:

From just south of the town of Pennsboro: Head southeast on E. Myles Ave/Old US 50 toward Broadwater Cir (2.7 mi). Continues into Northwest Turnpike (0.8 mi). Turn left onto Sugar Run Rd (1.5 mi). Pad Access road should be on left.

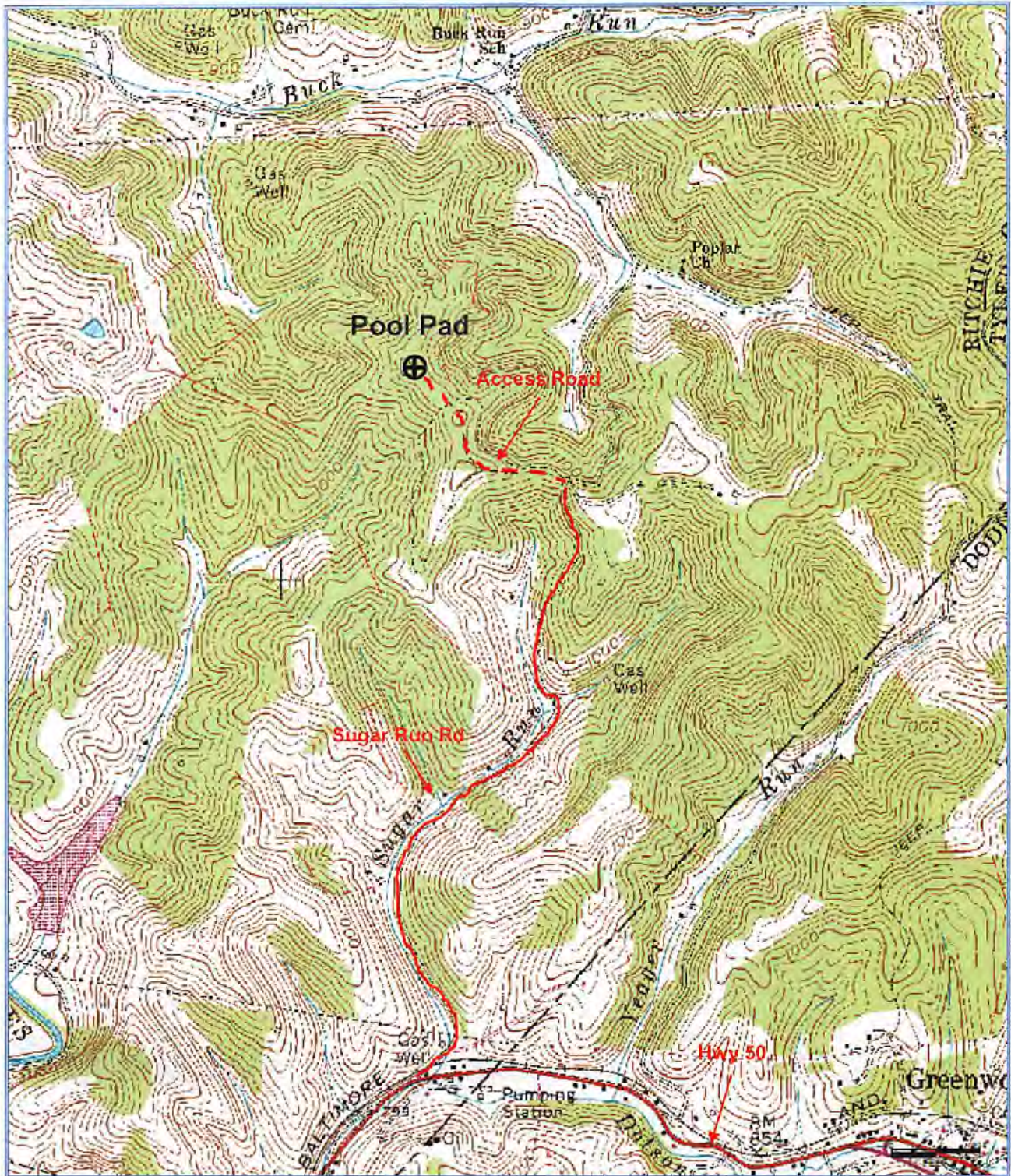
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EMERGENCY (24 HOUR) CONTACT 1-800-878-1373

85-010360



Antero Resources Corporation
Appalachian Basin
Barr Unit 2H
Ritchie County

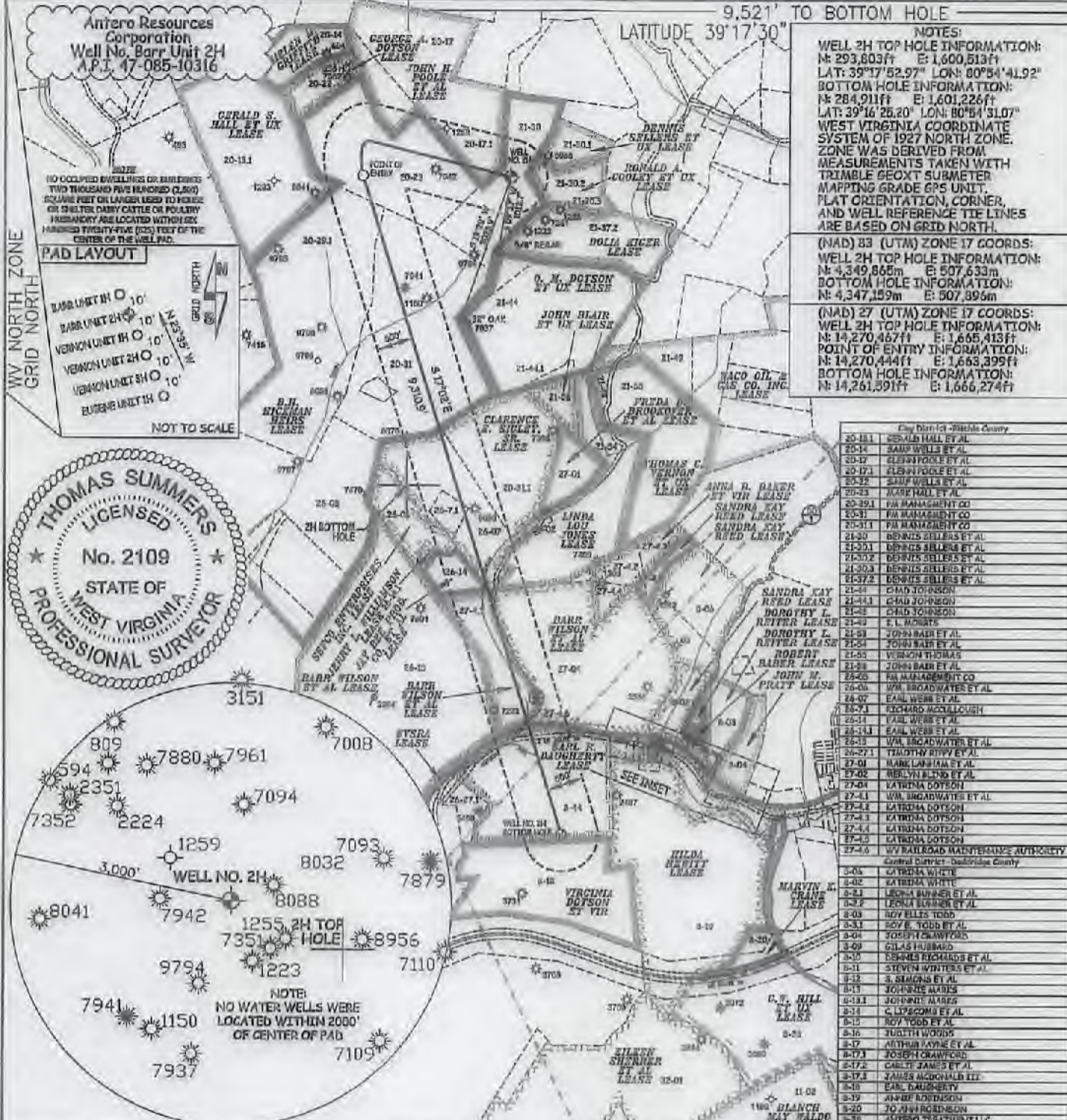
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Quadrangle: Pennsboro
Watershed: North Fork Hughes River
District: Clay
Date: 4-12-2016

LATITUDE 39°20'00"

10,371'

9,521' TO BOTTOM HOLE
LATITUDE 39°17'30"

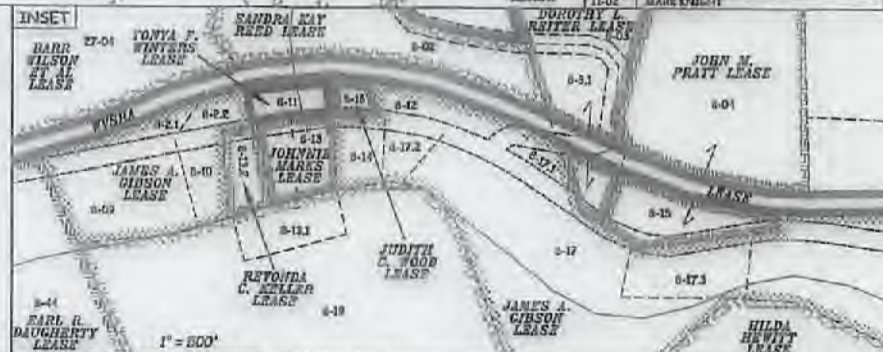
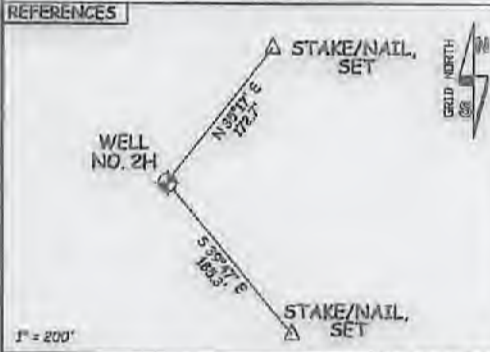
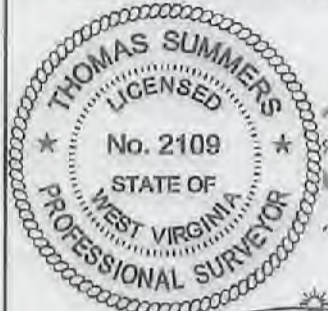
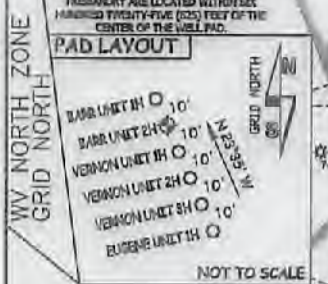


NOTES:
 WELL 2H TOP HOLE INFORMATION:
 N: 293,803ft E: 1,600,513ft
 LAT: 39°17'52.97" LON: 80°54'41.92"
 BOTTOM HOLE INFORMATION:
 N: 284,911ft E: 1,601,226ft
 LAT: 39°16'25.20" LON: 80°54'31.07"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE 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: 4,349,865m E: 507,633m
 BOTTOM HOLE INFORMATION:
 N: 4,347,159m E: 507,895m

(NAD 27 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 14,270,457ft E: 1,665,413ft
 POINT OF ENTRY INFORMATION:
 N: 14,270,444ft E: 1,663,399ft
 BOTTOM HOLE INFORMATION:
 N: 14,261,391ft E: 1,666,274ft

Lot No.	Owner Name
20-181	CECAL HALL ET AL
20-18	SAMP WELLS ET AL
20-17	ELLEN POOLE ET AL
20-171	ELLEN POOLE ET AL
20-32	SAMP WELLS ET AL
20-23	MARIE HALL ET AL
20-291	FM MANAGEMENT CO
20-31	FM MANAGEMENT CO
21-30	DENNIS SELLERS ET AL
21-301	DENNIS SELLERS ET AL
21-302	DENNIS SELLERS ET AL
21-303	DENNIS SELLERS ET AL
21-304	DENNIS SELLERS ET AL
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JOB # 16-058WA
 DRAWING # BARR2HRB
 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

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

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

THOMAS SUMMERS P.S. 2109
 DATE 03/29/18
 OPERATOR'S WELL# BARR UNIT 2H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION ___ STORAGE X DEEP ___ SHALLOW X
 LOCATION: ELEVATION 1,184' AS BUILT WATERSHED NORTH FORK HUGHES RIVER
 QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
 SURFACE OWNER DENNIS J. SELLERS ACREAGE 39.26 ACRES +/-
 OIL & GAS ROYALTY OWNER B.H. HICKMAN HEIRS; JOHN H. POOLE ET AL; CLARENCE E. SIGLEY, SR.; LEASE ACREAGE 400 AC±; 75 AC±; 110 AC±;
 JAY BEE PROD. CO. ET AL; BARR WILSON ET AL; BARR WILSON ET AL; WWSRA; 9.41 AC±; 23.5 AC±; 80 AC±; 6.68 AC±;
 EARL R. DAUGHERTY 62.13 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 8,900' TVD 18,700' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1815 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313

6,557' TO BOTTOM HOLE
12,852'
LONGITUDE 80°52'30"
LONGITUDE 80°52'30"

WW-6A1

Operator's Well Number Barr Unit 2H

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>B.H. Hickman Heirs Lease (TM 21 PCL 30)</u>			
B.H. Hickman Heirs	M.G. Zinn	1/8	29/447
M.G. Zinn	J.L. Newman	Assignment	126/415
J.L. Newman	Philadelphia Company of WV	Assignment	91/265
Philadelphia Company of WV	Pittsburgh and WV Gas Company	Assignment	55/359
Pittsburgh and WV Gas Company	Equitable Gas Company	Assignment	121/257
Equitable Gas Company	P.D. Farr II	Assignment	192/804
P.D. Farr II	Antero Resources Appalachian Corporation	Assignment	257/249
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>John H. Poole, et al Lease</u>			
John H. Poole, et al	Jack F. Merandi	1/8	92/5
Jack F. Merandi	J & J Enterprises, Inc.	Assignment	197/14
J & J Enterprises, Inc.	Eastern American Energy Corporation	Assignment	231/732
Eastern American Energy Corporation	Key Oil Company	Assignment	203/639
Key Oil Company	Antero Resources Appalachian Corporation	Assignment	258/509
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>B.H. Hickman Heirs Lease (TM 20 PCL 23)</u>			
B.H. Hickman Heirs	M.G. Zinn	1/8	29/447
M.G. Zinn	J.L. Newman	Assignment	126/415
J.L. Newman	Philadelphia Company of WV	Assignment	91/265
Philadelphia Company of WV	Pittsburgh and WV Gas Company	Assignment	55/359
Pittsburgh and WV Gas Company	Equitable Gas Company	Assignment	121/257
Equitable Gas Company	P.D. Farr II	Assignment	192/804
P.D. Farr II	Antero Resources Appalachian Corporation	Assignment	257/249
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Clarence E. Sigley, Sr. Lease</u>			
Clarence E. Sigley, Sr.	Antero Resources Corporation	1/8+	291/182
<u>Jay Bee Production Company, et al Lease</u>			
Jay Bee Production Company, et al	Antero Resources Corporation	1/8+	283/253
<u>Linda Lou Jones Lease</u>			
Linda Lou Jones	Antero Resources Corporation	1/8+	267/260

*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

WW-6A1

Operator's Well Number Barr Unit 2H

**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>Barr Wilson, et al Lease (TM 27 PCL 4.1)</u> Barr Wilson, et al	Antero Resources Corporation	1/8	172/559
<u>Barr Wilson, et al Lease (TM 27 PCL 04)</u> Barr Wilson, et al	J & J Enterprises, Inc.	1/8	231/732
J & J Enterprises, Inc.	Eastern American Energy Corporation	Merger	231/732
Eastern American Energy Corporation	Seneca-Upsher Petroleum, Inc	Assignment	243/839
Seneca-Upsher Petroleum, Inc	Seneca-Upshur Petroleum LLC	Assignment	311/863
Seneca-Upshur Petroleum LLC	Antero Resources Appalachian Corporation	Assignment	258/987
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>WVSRA Lease</u> WVSRA	Antero Resources Corporation	1/8+	314/258

RECEIVED
Office of Oil and Gas

APR 10 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.

**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
Earl R. Daugherty Lease	Earl R. Daugherty Antero Resources Appalachian Corporation	Antero Resources Appalachian Corporation Antero Resources Corporation	1/8+ Name Change	308/742 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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Office of Oil and Gas
APR 10 2018
WV Department of
Environmental Protection

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 - Production

**FORM WW-6A1
EXHIBIT 1**

FILED

JUN 10 2013



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

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

**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.)

<u>Alwyn A. Schopp</u>	<u>(303) 367-7310</u>
Contact Name	Phone Number
- Signature information (See below *Important Legal Notice Regarding Signature*):

Print Name of Signer: <u>Alwyn A. Schopp</u>	Title/Capacity: <u>Authorized Person</u>
Signature: <u><i>Alwyn A. Schopp</i></u>	Date: <u>June 10, 2013</u>

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Office of Oil and Gas

APR 10 2013

WV Department of
Environmental Protection

***Important Legal Notice Regarding Signature:** Per West Virginia Code §311D-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.

4708510368



February 14, 2018

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

West Virginia Department of Environmental Protection
Chief, Office of Oil and Gas
Attn: Mr. James Martin
601 57th Street SE
Charleston, WV 25304

RE: Barr Unit 1H (API #47-085-10315)
Quadrangle: Pennsboro 7.5'
Ritchie County/Clay District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Barr Unit 1H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Barr Unit 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas Kuhn", is written over a horizontal line. The signature is fluid and cursive, extending across the width of the line.

Thomas Kuhn
Senior Landman

RECEIVED
Office of Oil and Gas
FEB 15 2018
WV Department of
Environmental Protection

WW-PN
(11-18-2015)

**Horizontal Natural Gas Well Work Permit
Application Notice By Publication**

Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: The Pennsboro News

Public Notice Date: 11/15/2017 & 11/22/2017

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Antero Resources Corporation **Well Number:** Barr Unit 2H

Address: 1615 Wynkoop St. Denver, CO 80202

Business Conducted: Natural gas production.

Location –

State:	<u>West Virginia</u>	County:	<u>Ritchie</u>
District:	<u>Clay</u>	Quadrangle:	<u>Pennsboro 7.5'</u>
UTM Coordinate NAD83 Northing:	<u>507635m</u>		
UTM coordinate NAD83 Easting:	<u>4349862m</u>		
Watershed:	<u>North Fork Hughes River</u>		

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/llutm_conus.php

Electronic notification:

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

RECEIVED
Office of Oil and Gas
FEB 15 2018
WV Department of
Environmental Protection

Reviewing Applications:

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to DEP.comments@wv.gov.

Submitting Comments:

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx

81-10368

INVOICE AND AFFIDAVIT OF PUBLICATION



The Pennsboro News

103 North Spring Street, P.O. Box 241
Harrisville, WV 26362
Ph. 304.643.4947 • Fax 304.643.4717

WEST CENTRAL PUBLISHING
FEDERAL I.D. NO. 55-0670056
STATE OF WEST VIRGINIA
COUNTY OF RITCHIE, to wit:

I, James McGoldrick, being first duly sworn upon my oath, do depose and say:

- that I am Publisher of The Pennsboro News, a Democratic newspaper,
- that I have been duly authorized to execute this affidavit,
- that such newspaper is regularly published weekly for at least fifty weeks during the calendar year, in the municipality of Harrisville, Ritchie County, West Virginia.
- That such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Ritchie County
- that such newspaper averages in length four or more pages, exclusive of any cover, per issue;
- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events or a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Notice of Application - Barr Unit 1H

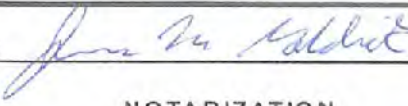
WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS:

TIMES	DATES
Two	May 16 and 23, 2018

PUBLICATION CHARGES \$104.62

CERTIF-BILL TO


Antero Resources
Attn: Karin Cox
1615 Wynkoop St.
Denver, CO 80202

(signed) 

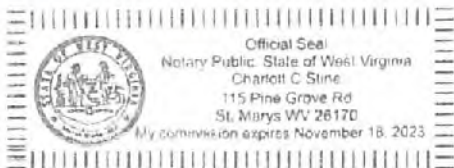
NOTARIZATION

Taken, sworn to and subscribed before me this 23rd

day of May, 20 18



Notary Public



PLEASE RETURN A COPY OF THIS INVOICE WITH YOUR PAYMENT TO:
P.O. BOX 241, Harrisville, WV 26362

PUBLIC NOTICE OF APPLICATION FOR NATURAL GAS HORIZONTAL WELL DRILLING PERMIT, pursuant to West Virginia Code Section 22-6A-10(a).

Antero Resources Corporation, 1615 Wynkoop Street, Denver, CO 80202, is applying for a permit for a natural gas horizontal well, Barr Unit 1H, located at approximately UTM NAD 83 Easting 507632m, UTM NAD 83 Northing 4349867m in North Fork Hughes River Watershed, Pennsboro 7.5' Quadrangle, Clay District, Ritchie County, WV which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period. To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/utm_conus.php. To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/inside/dep/Pages/DEPMailingLists.aspx> to sign up.

Any interested person may submit written comments or request a copy of the proposed permit application. Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Emailed or written comments must reference the county, well number, and operator and be received within 30 days of the date of the last publication. Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15.00, whether mailed or obtained at DEP headquarters.

For information related to horizontal drilling, and all horizontal well applications filed in this state, visit: www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx

Antero Resources Corporation

5-16,23 R

WW-6AC
(1/12)

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 02/13/2018

API No. 47- 085 - 10316

Operator's Well No. Vernon Unit 1H

Well Pad Name: Pool Pad

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>507635m</u>
County: <u>Ritchie</u>	UTM NAD 83 Northing: <u>4349662m</u>
District: <u>Clay</u>	Public Road Access: <u>CR 50/26</u>
Quadrangle: <u>Pennsboro 7.5'</u>	Generally used farm name: <u>Dennis J. Sellers</u>
Watershed: <u>North Fork Hughes River</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED

2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED

3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or

WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)

4. NOTICE OF PLANNED OPERATION

5. PUBLIC NOTICE

6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

RECEIVED/
NOT REQUIRED

RECEIVED

RECEIVED/
NOT REQUIRED

RECEIVED

RECEIVED

RECEIVED

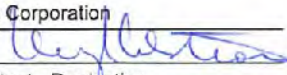
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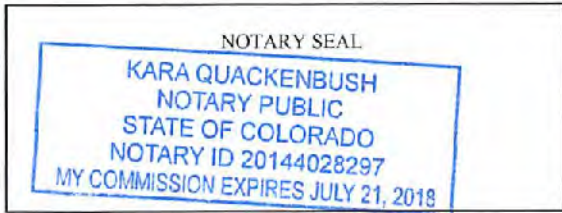
Required Attachments:

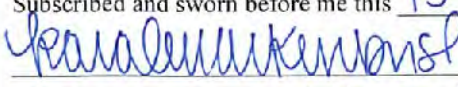
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Certification of Notice is hereby given:

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Antero Resources Corporation</u>	Address:	<u>1615 Wynkoop Street</u>
By:	<u>Kevin Kilstrom</u> 		<u>Denver, CO 80202</u>
Its:	<u>Senior Vice President - Production</u>	Facsimile:	<u>303-357-7315</u>
Telephone:	<u>303-357-7310</u>	Email:	<u>kquackenbush@anteroresources.com</u>



Subscribed and sworn before me this 13 day of February 2018
 Notary Public
 My Commission Expires July 21, 2018

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 2/14/2018 **Date Permit Application Filed:** 2/14/2018

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address: _____

COAL OPERATOR

Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address: _____

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE

Name: NONE IDENTIFIED WITHIN 1500'
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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API NO. 47-085 ¹⁰³¹⁰ 85-010369
OPERATOR WELL NO. Barr Unit 2H
Well Pad Name: Pool Pad

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A
(8-13)

API NO. 47-085 ^{... 55-10368} ~~10346~~
OPERATOR WELL NO. Barr Unit 2H
Well Pad Name: Pool Pad

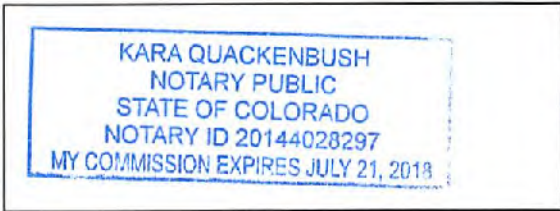
Notice is hereby given by:

Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310
Email: kquackenbush@anteroresources.com

Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7315

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 14 day of February 2018
Kara Quackenbush Notary Public
My Commission Expires July 21, 2018

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WW-6A Notice of Application Attachment (POOL PAD):**List of Surface Owner(s) with Proposed Disturbance associated with Pool Well Pad:**

WELL PAD – All owners were notified of all well work permit applications, and have executed signed Surface Use Agreements with Antero Resources Corporation.

TM 20 PCL 17.1

Owner: Glenn Poole
Address: 6117 38th Avenue West
 Bradenton, FL 34209

Owner: John Paul Poole
Address: 2625 Meadland Road
 Bridgeport, WV 26330

TM 21 PCL 30 & 30.2

Owner: Dennis & Delsa Sellers
Address: 531 Park Drive
 Pennsboro, WV 26415

ROAD AND/OR OTHER DISTURBANCE – All owners have executed signed Surface Use and/or Road Agreements with Antero Resources Corporation. However, they were only notified if their tracts were overlying the oil and gas leasehold being developed by the proposed well work.

TM 21 PCL 30 & 37.2

Owner: Dennis & Delsa Sellers
Address: 531 Park Drive
 Pennsboro, WV 26415

TM 21 PCL 44

Owner: Richard Lee Flyer
Address: 1010 York Road
 Dillsburg, PA 17019

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 07/31/2017 **Date Permit Application Filed:** 02/14/2018

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

- HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>507632.4225m (Approx. Pad Center)</u>
County:	<u>Ritchie</u>		Northing:	<u>4349866.2296m (Approx. Pad Center)</u>
District:	<u>Clay</u>	Public Road Access:		<u>CR 50/26</u>
Quadrangle:	<u>Pennsboro 7.5'</u>	Generally used farm name:		<u>Sellers, Dennis J. & Delsa R.</u>
Watershed:	<u>North Fork Hughes River</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Antero Resources Corporation
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7323
Email: kquackenbush@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Kara Quackenbush
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7323
Email: kquackenbush@anteroresources.com
Facsimile: 303-357-7315

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Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WV Department of
Environmental Protection

WW-6A4 Notice of Intent to Drill Attachment:**Surface Owners:**Tax Parcel ID: 20-17.1

Owner: Glenn Poole
Address: 6117 38th Ave.
Bradenton, FL 34209

Owner: John Paul Poole
Address: 2625 Meadland Rd.
Bridgeport, WV 26330

Surface Owners:Tax Parcel ID: 20-30, 30.2

Owner: Dennis & Delsa Sellers
Address: 531 Park Dr.
Pennsboro, WV 26415

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 02/14/2018 **Date Permit Application Filed:** 02/14/2018

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: <u>Glenn Poole</u>	<u>John Paul Poole</u>	Name: <u>Dennis & Delsa Sellers</u>
Address: <u>8117 38th Avenue West</u>	<u>2625 Meadland Road</u>	Address: <u>531 Park Drive</u>
<u>Bradenton, FL 34209</u>	<u>Bridgeport, WV 26330</u>	<u>Pennsboro, WV 26415</u>

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>507635m</u>
County: <u>Ritchie</u>	Northing: <u>4349862m</u>
District: <u>Clay</u>	Public Road Access: <u>CR 50/26</u>
Quadrangle: <u>Pennsboro 7.5'</u>	Generally used farm name: <u>Dennis J. Sellers</u>
Watershed: <u>North Fork Hughes River</u>	

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: <u>Antero Resources Corporation</u>	Address: <u>1615 Wynkoop Street</u>
Telephone: <u>(303) 357-7310</u>	<u>Denver, CO 80202</u>
Email: <u>kquackenbush@anteroresources.com</u>	Facsimile: <u>303-357-7315</u>

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business and Gas needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

RECEIVED
Office of Oil and Gas
FEB 15 2018
WV Department of
Environmental Protection



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
 Charleston, West Virginia 25305-0430 • (304) 558-3505

Jim Justice
 Governor

Thomas J. Smith, P. E.
 Secretary of Transportation/
 Commissioner of Highways

November 16, 2017

James A. Martin, Chief
 Office of Oil and Gas
 Department of Environmental Protection
 601 57th Street, SE
 Charleston, WV 25304

Subject: DOH Permit for the Pool Pad, Ritchie County
Barr Unit 2H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #03-2015-0402 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off County Route 50/26 in Ritchie County.

This operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.
 Regional Maintenance Engineer
 Central Office O&G Coordinator

Cc: Kara Quackenbush
 Antero Resources Corporation
 CH, OM, D-3
 File

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 Office of Oil and Gas
 FEB 15 2018
 WV Department of
 Environmental Protection

List of Anticipated Additives Used for Fracturing or Stimulating Well

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Silica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

RECEIVED
Office of Oil and Gas
FEB 15 2018
WV Department of
Environmental Protection

**WVDEP OOG
ACCEPTED AS-BUILT**

WJL 10/5/2017

POOL WELL PAD AS-BUILT PLANS ANTERO RESOURCES CORPORATION

LAT/LONG: N 39° 17' 50.56" W 80° 54' 37.54"
(APPROXIMATE CENTER OF PROJECT)

WEST VIRGINIA #1 ONE CALL WAS PERFORMED IN DECEMBER, 2015.
THE FOLLOWING UTILITY COMPANIES MAY BE PRESENT IN THE PROJECT AREA:

- FRONTIER COMMUNICATIONS (FORMERLY VERIZON)
- ALLIANCE PETROLEUM CORPORATION
- CONSUMERS GAS UTILITY COMPANY
- ENERGY CORPORATION OF AMERICA
- EDT MIDSTREAM
- PLUMB ENERGY CORP.



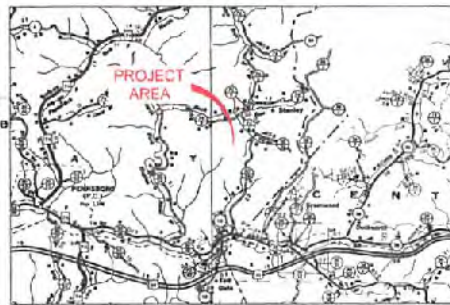
WEST VIRGINIA STATE LAW REQUIRES THAT YOU CALL TWO BUSINESS DAYS BEFORE YOU DIG IN THE STATE OF WEST VIRGINIA. IT'S THE LAW!

PROJECT OWNER/APPRAISER	WVDCM
ANTERO RESOURCES CORPORATION	DISTRICT THREE
535 WHITE OAK BLVD	PH (304) 424-4999
BRIDGEPORT, WV 26330	CONTACT: DISTRICT ENGINEER
PH: (304) 642-4100	JAMES G. NOTEN, JR.
CONTACT: ROBERT WARKS	
SOIL ENGINEER	WELL LOG LINE
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.	WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP)
400 MARKETPLACE AVE - SUITE 200	PH (800) 542-5074
BRIDGEPORT, WV 26330	NATIONAL RESPONSE CENTER
PH: (304) 633-3116	PH (800) 424-8802
CONTACT: JOSEPH D. ROBINSON, P.E.	

LOCAL EMERGENCY SERVICES		
NAME	PHONE NO.	TELEPHONE NO.
AMBULANCE	911	
HOSPITAL EMERGENCY ROOM	UNITED HOSPITAL CENTER	(801) 349-1002
FIRE DEPARTMENT	911	
POLICE DEPARTMENT	911	
FOREIGN CONTROL CENTER	WEST VIRGINIA FOREIGN CENTER	(800) 422-1222



LOCATION MAP
PENNINSULAR USGS 7.5 QUAD
SCALE IN FEET
1 INCH = 1250 FEET



VICINITY MAP
HITCHCOCK AND JOODORIDGE COUNTY ROAD MAPS
SCALE IN FEET
1 INCH = 1 MILE

WELL RESTRICTIONS CHECKLIST	
HORIZONTAL SA WELL	
AT LEAST 100 FEET FROM PAD AND LCO INCLUDING ANY EAS CONTROL FEATURES TO ANY PERENNIAL STREAM LAKE POND RESERVOIR OR WETLAND	YES
AT LEAST 300 FEET FROM PAD AND LCO INCLUDING ANY EAS CONTROL FEATURES TO ANY NATURALLY OCCURRING TROUT STREAM	YES
AT LEAST 1000 FEET PAD AND LCO INCLUDING ANY EAS CONTROL FEATURES TO ANY GROUNDWATER IN THE OIL AND GAS WATER SYSTEM	YES
AT LEAST 400 FEET FROM AN EXISTING WATER WELL OR DEEP DRYING WELLS TO WELL BOREHOLE	YES
AT LEAST 80 FEET FROM AN OCCUPIED DWELLING EXCEPT TO THE CENTER OF PAD	YES
AT LEAST 225 FEET FROM AGRICULTURAL BUILDINGS LARGER THAN 2000 SQUARE FEET TO THE CENTER OF THE PAD	YES

SITE LOCATION	WEST VIRGINIA NORTH ZONE			
	NAD 83 NORTH	UTM-X	UTM-Y	UTM-Z
BEGINNING OF MAIN ACCESS ROAD	8620458	45446480	4544760000	500120.0179
CENTROID OF PAD	86268141	450811405	4544805000	507532.4235
CENTROID OF STAGING AREA	86290702	450828911	4544761500	507995.1133
CENTROID OF WATER TANK	86292772	450810084	4544769100	507726.1294

FLOOD PLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO
AREAS AFFECTED FROM LOCAL FLOODPLAIN COOPERATION	NO
AREAS STUDY COMPLETED	N/A
FLOODPLAIN SHOWN ON DRAWINGS	N/A
FORM MAP NUMBER(S) FOR SITE	5408021050
AGE/DATE OF CONSTRUCTION IN FLOODPLAIN	N/A

WELL HEAD	NAD83	UTM-X	UTM-Y	WV NORTH - NAD07	WV NORTH - NAD83
	LATITUDE	LONGITUDE	NORTHING	EASTING	NORTHING
EUGENE 2H	39.298152	-80.911489	4349867.4258	507632.0567	393812.4572
VERNON 2H	39.298127	-80.911474	4349864.8351	507618.9232	393808.2974
VERNON 2H	39.293302	-80.911460	4349863.8834	507634.5872	393823.4275
VERNON 3H	39.298072	-80.911445	4349859.1117	507635.9531	393824.9628
VERNON 4H	39.298052	-80.911430	4349856.5409	507632.1187	393775.7983

WELL HEAD	API NUMBER
EUGENE 2H	447.005.1028.00
VERNON 2H	N/A
VERNON 3H	N/A
VERNON 4H	447.005.1028.00

Limits of Disturbance Parcel Break Ups - Pool Well Pad					
Ritchie County, West Virginia					
Owner	TIM Parcel	Deed Page	Total Acres	Type of Disturbance	Acres
Glenn Pool & John Paul	20-12-1	270-512	11.11	Well Pad	0.57
				Total	0.57
				Well Pad	11.52
Dennis & Delta Sellers	21-30	228-873	39.26	TOPSOIL	1.84
				STAGING AREA	0.4
				Total	13.56
				Well Pad	0.37
Dennis & Delta Sellers	21-30-1	228-878	12.75	Total	0.47
				MAJOR ACCESS ROAD	2.88
Dennis & Delta Sellers	21-32-1	228-878	37.80	STAGING AREA	1.3
				Total	4.18
				MAJOR ACCESS ROAD	1.18
Richard Lee Fyler	21-44	150-451	64.75	Total	3.18
Total Disturbance					19.85

L.O.D. AREAS	
DESCRIPTION	ACRES
MAJOR ACCESS ROAD	4.08
WELL PAD	12.26
TOPSOIL	7.84
STAGING AREA	3.70
TOTAL	28.86
WOODED	12.51

PLAN REPRODUCTION WARNING
THE PLANS HAVE BEEN CREATED ON A85 (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.
WARNING INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

SHEET INDEX	
SHEET 1	TITLE SHEET
SHEET 2	PLAN SHEET INDEX
SHEET 3	PLAN SHEETS
SHEET 5	PROFILES AND CROSS SECTIONS

- REFERENCE**
- TOPOGRAPHIC INFORMATION OBTAINED BY CEC WITHIN THE LIMITS OF DISTURBANCE ON 1/14/2017 AND 1/17/2017. BLUE MODIFIED AERIAL IMAGING DATED 6/1/2013 IS SHOWN FOR THE AREA OUTSIDE OF THE LIMITS OF DISTURBANCE.
 - DELMARATIONS PERFORMED BY CEC CONSULTANTS, INC. DATED 11/7/15.
 - SUBSURFACE INVESTIGATION PERFORMED BY KLENFELDER, INC IN MAY 2015. CEC REVIEWED THE SUBSURFACE DATA AND PROVIDED DESIGN AND CONSTRUCTION RECOMMENDATIONS FOR THE POOL WELL PAD ON 12/16/2015.
 - SUBSURFACE AS-BUILT SURVEY DATA PROVIDED BY WILSON'S EXCAVATING LLC.

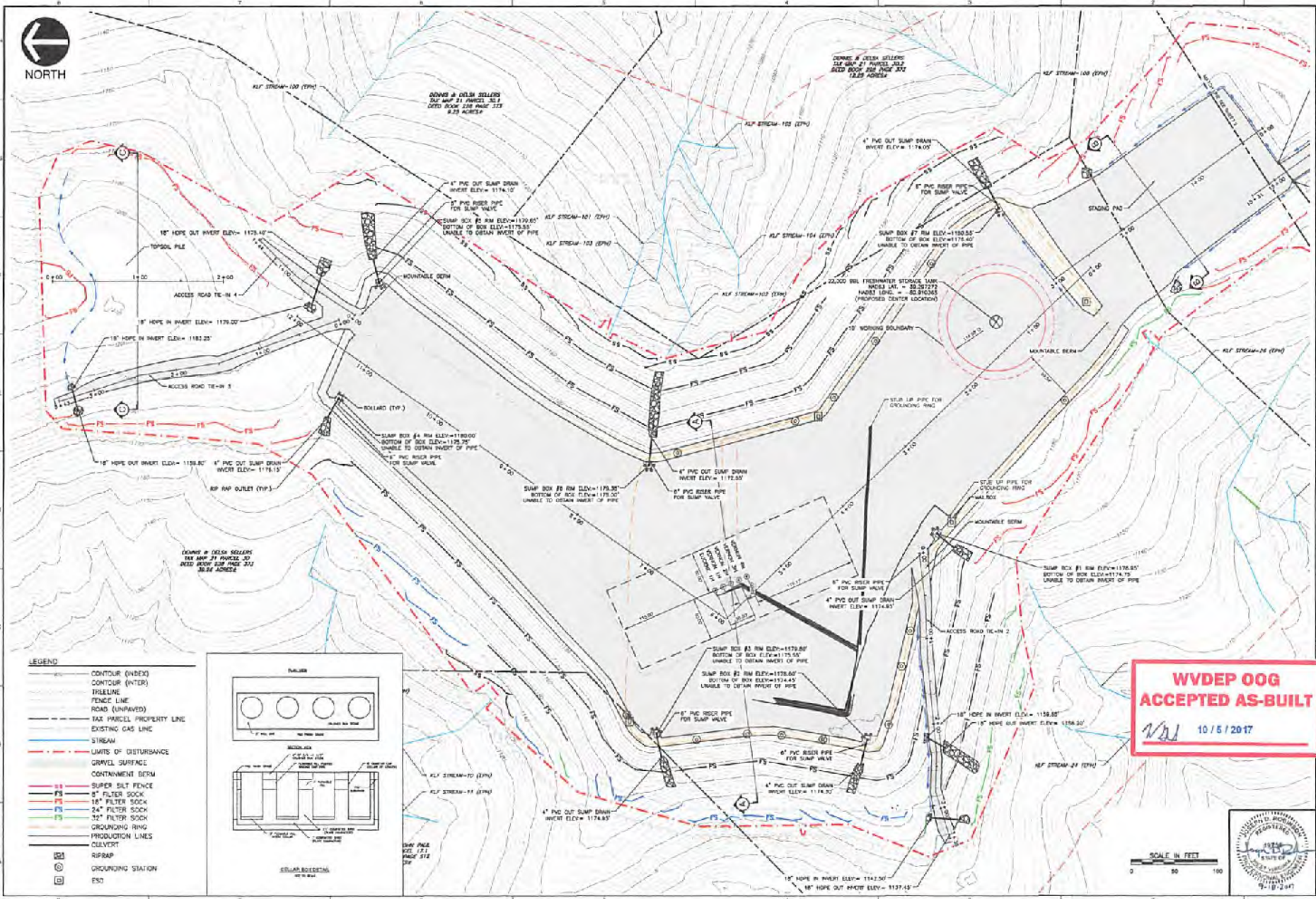


REVISION RECORD	
NO.	DATE
1	10/5/2017

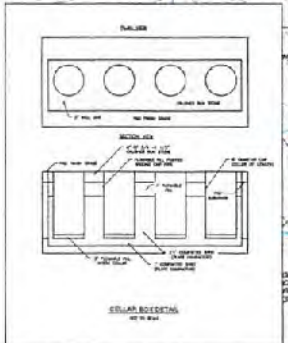
CEC
Civil & Environmental Consultants, Inc.
609 Marketplace Ave - Suite 200 - Bridgeport, WV 26330
PH: 304.633.3110 FAX: 304.633.3227

ANTERO RESOURCES CORPORATION
POOL WELL PAD
CLAY DISTRICT
RITCHIE COUNTY, WEST VIRGINIA

COVER SHEET	
DATE	BY
JAN 2017	JANUARY 2017
	AS SHOWN ON DRAWINGS
	PREPARED BY
	DATE
	152-482
	1
	OF 6



- LEGEND**
- CONTOUR (INDEX)
 - CONTOUR (INTER)
 - TREE LINE
 - FENCE LINE
 - ROAD (UNPAVED)
 - TAX PARCEL PROPERTY LINE
 - EXISTING GAS LINE
 - STREAM
 - LIMITS OF DISTURBANCE
 - GRAVEL SURFACE
 - CONTAINMENT BERM
 - SUPER SILT FENCE
 - 8" FILTER SOCK
 - 16" FILTER SOCK
 - 24" FILTER SOCK
 - 32" FILTER SOCK
 - PRODUCTION RING
 - GROUNDING LINES
 - GROUNDING STATION
 - ESO



**WVDEP OOG
ACCEPTED AS-BUILT**

WJL 10 / 5 / 2017



SCALE IN FEET
0 50 100

REVISION RECORD	
NO.	DATE
ANTERO RESOURCES CORPORATION	
POOL WELL PAD	
CLAY DISTRICT	
RITCHIE COUNTY, WEST VIRGINIA	
AS-BUILT SITE PLAN	
DATE	10/12/17
DRAWN BY	AS SHOWN
PROJECT NO.	132-002
APPROVED BY	
4	
OF 8	

CEE

Civil & Environmental Consultants, Inc.
600 Marketplace Ave. Suite 200 - Bridgeport, WV 26300
Ph: 304.833.1119 • Fax: 304.833.3327
www.ceeinc.com