



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, March 2, 2022
WELL WORK PERMIT
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit approval for CAVATICA UNIT 2H
47-103-03482-00-00

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

Operator's Well Number: CAVATICA UNIT 2H
Farm Name: MARGARET LANCASTER
U.S. WELL NUMBER: 47-103-03482-00-00
Horizontal 6A New Drill
Date Issued: 3/2/2022

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.

API Number: _____

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.

03/04/2022

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

1) Well Operator: Antero Resources Corporat 494507062 103-Wetzel Green Porter Falls 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Cavatica Unit 2H Well Pad Name: Red Lady Pad

3) Farm Name/Surface Owner: Margaret Lancaster Public Road Access: Wetzel Tyler Ridge Rd

4) Elevation, current ground: 1237' Elevation, proposed post-construction: ~1206'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No No

JCB 3/1/2022

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7300' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7300' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 11,800'

11) Proposed Horizontal Leg Length: 2622.1'

12) Approximate Fresh Water Strata Depths: 33', 283', 831'

13) Method to Determine Fresh Water Depths: 095-02177, 095-02104 Offset well records. Depths have been adjusted according to surface elevations.

14) Approximate Saltwater Depths: 1592'

15) Approximate Coal Seam Depths: 851'

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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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	79#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J/K-55	54.5#	881'	881'	CTS, 557 Cu. Ft.
Coal	9-5/8"	New	J-/K55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110CY	20#	11,800'	11,800'	CTS, 2051 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

JCB 3/1/2022

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"	0.375"	2250	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"	14,360	2500	Class G/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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Page 2 of 3

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

Drill a new horizontal shallow well into the 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

JCB 3/1/2022

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 51.15 acres

22) Area to be disturbed for well pad only, less access road (acres): 9.42 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

25) Proposed borehole conditioning procedures:

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*Note: Attach additional sheets as needed.

WW-9
(4/16)

API Number 47 - 103 -
Operator's Well No. Cavallica Unit 2H

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

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FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Artero Resources Corporation OP Code 494507062 WV Department of
Watershed (HUC 10) Fishing Creek Quadrangle Porter Falls 7.5' Environmental Protection

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
- Underground 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/ Northwestern Landfill Permit #SWF-1025/ WV0109410)
- Other (Explain Wetzel Co Landfill Permit #SWF-1021)

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) Wetzel Co Landfill (Permit #SWF-1021)

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 Director of Environmental & Regulatory Compliance

Subscribed and sworn before me this 3 day of February, 2022

Diane Blair

Notary Public **DIANE BLAIR**
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19994011871
MY COMMISSION EXPIRES 27-Apr-2024

My commission expires 27 Apr 2024

03/04/2022

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 51.15 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

Access Road (1.12 acres) + Well Pad Access Road (2.43 acres) + Water Offload Access (7.28 acres) + Well Pad (9.42 acres) + Ast Pad (10.17 acres) Topsoil/Stripping Pile (6.63 acres) + Old Staging Area (10.61 acres) + Staging Area (2.18 acres) + Spoil Pile (1.31 acres) = 51.15 Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue	30
See attached Table IV-3 for additional seed type (Red Lady Pad Design)		See attached Table IV-4A for additional seed type (Red Lady Pad Design)	
*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: *Jason Harris*

Comments: _____

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Title: Inspector Date: 2-10-22

Field Reviewed? () Yes (X) 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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47 10303482

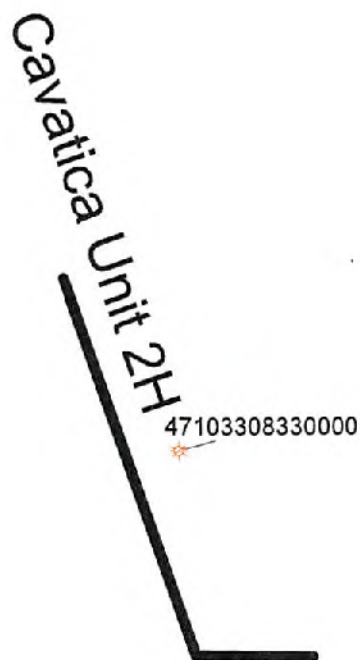
13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous
Inorganic Salt
18. D-D
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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Antero Resources Corporation

Cavatica Unit 2H - AOR



WELL SYMBOLS
Plugged Gas Well

December 28, 2021

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4710303482

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47103308330000	E M MCCORMICK	1311	HOPE NATURAL GAS	HOPE NATURAL GAS	2,943		Gordon	Well, Berea, Benson, Alexander

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911 Address
9737 Wetzel Tyler Rd.
Reader, WV 26167

Well Site Safety Plan

Antero Resources

Bryan Hani
2-20-22

Well Name: Red Lady Unit 5H, Baldy Unit 1H-3H and Cavatica Unit 1H & 2H

Pad Location: RED LADY PAD

Wetzel County/Green District

GPS Coordinates:

Entrance - Lat 39.25280"/Long -80.762570" (NAD83)

Pad Center - Lat 39.526248"/Long -80.7618" (NAD83)

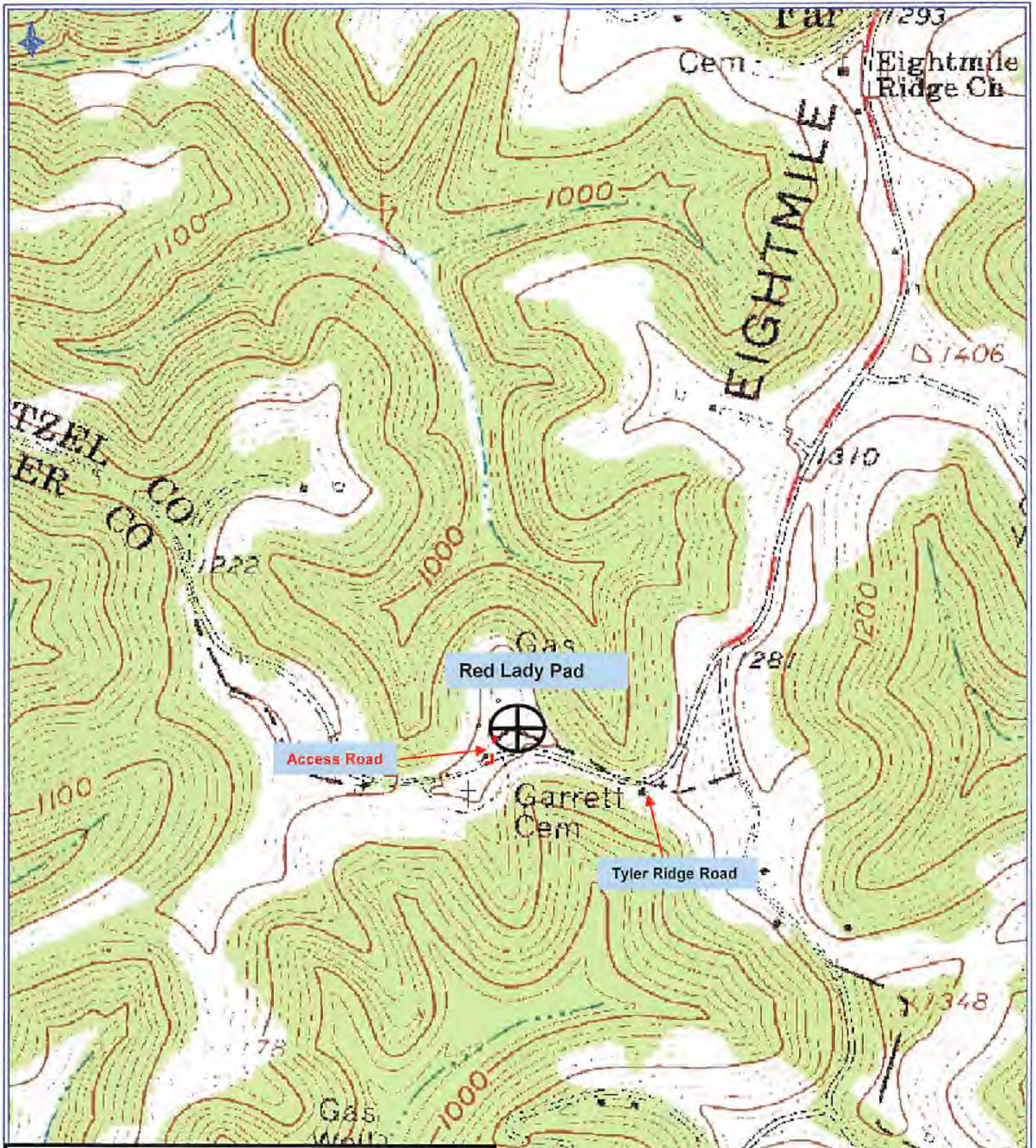
Driving Directions:

From Middlebourne: Head NE onto WV-18 N/Main St. toward Court St./Dodd St. for 3.8 miles. Turn right onto Church Dr. for 302 ft. Turn right onto Elk Fork Rd. for 9.6 miles. Turn left onto Wetzel Tyler Ridge Rd. for 0.6 miles. Turn left to stay on Wetzel Tyler Ridge Rd. for 0.3 miles. Access road will be on your right.

Alternate Route:

From Reader: Head NW onto Border Lane toward Old Mexico Rd. for 16 ft. Take a sharp left onto Rd 40/2 for 0.3 miles. Continue onto 8 Mile Rd. for 4.0 miles. Slight right onto Wetzel Tyler Ridge Rd. for 0.3 miles. Access road will be on your right.

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



Antero Resources Corporation

Appalachian Basin
Red Lady Pad
Wetzel County

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WV Department of Environmental Protection

Quadrangle: Porter Falls
Watershed: Outlet Middle Island Creek
District: Green
Date: 2-22-2021

03/04/2022

**Antero Resources
Well No. Cavatica 2H**

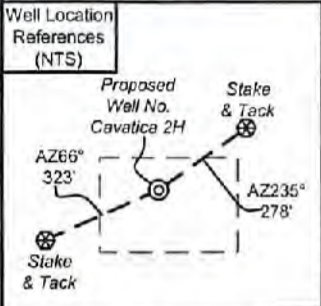
Antero Resources Corporation



ID	TMP/Par	Owner	Bk/Pg	Acres
1	19-31	Margaret Lancaster	333/440	39.00
2	12-27	Crystal A. Muzzy	W69/226	60.91
3	XX-XX	Garrett Cemetery	85/62	1.80
4	12-25	Cecil & Margaret Lancaster	170/48	78.17
5	19-52	Joshua Highley	464/208	8.01
6	19-30	Richard R. & Mary J. Scyoc	452/177	13.00
7	19-21	Joshua Highley	464/208	41.75
8	19-21.1	McCormick Cemetery	---	---
9	12-21	Mary Adaline Lewis, et al	AR 53/75	67.00
10	19-37	Joshua Highley	464/208	7.12
11	19-15	Joshua Highley	464/208	17.00
12	19-13	Joshua Highley	464/208	5.00
13	19-12	Joshua Highley	464/208	17.17
14	19-55	Olive M. Moore	392/158	13.99
15	19-54	Susan J. Fair	378/97	59.75

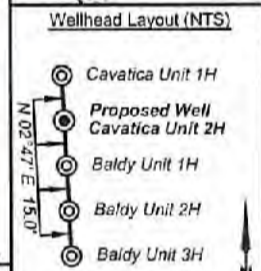
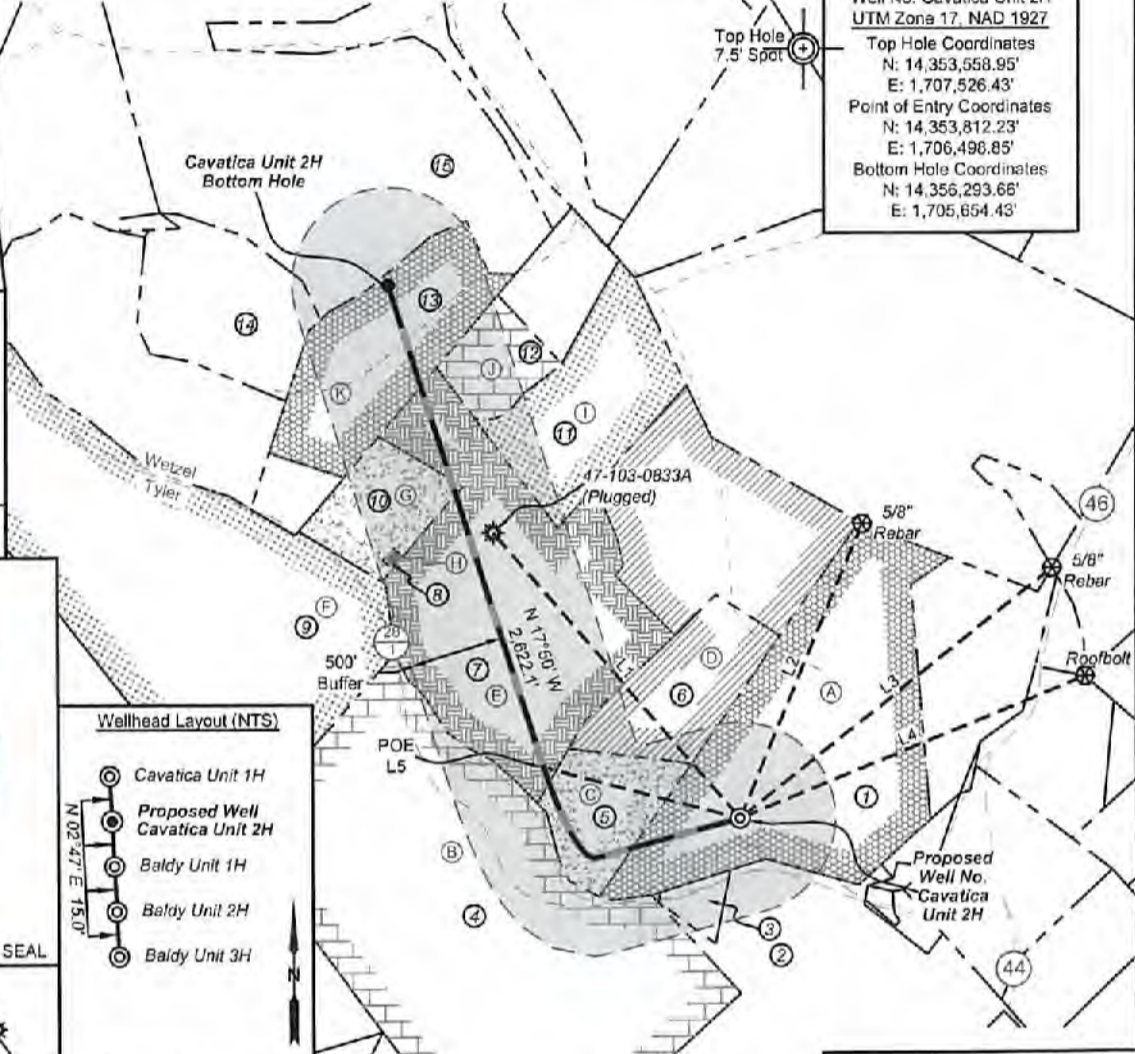
Notes
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Cavatica Unit 2H Top Hole coordinates are
N: 376,209.23' Latitude: 39°31'33.78"
E: 1,644,022.38' Longitude: 80°45'43.23"
Bottom Hole coordinates are
N: 378,975.74' Latitude: 39°32'00.87"
E: 1,642,195.67' Longitude: 80°46'07.04"
UTM Zone 17, NAD 1983
Top Hole Coordinates: Bottom Hole Coordinates
N: 4,375,191.512m N: 4,376,025.047m
E: 520,469.639m E: 519,899.086m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Notes:
Well No. Cavatica Unit 2H UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,353,558.95'
E: 1,707,526.43'
Point of Entry Coordinates
N: 14,353,812.23'
E: 1,706,496.85'
Bottom Hole Coordinates
N: 14,356,293.66'
E: 1,705,654.43'



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 prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167



Legend

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Road
- County Line
- Surface boundary (approx.)
- Interior surface tracts (approx.)

	Bearing	Dist.
L1	S 40°47' E	1,961.1'
L2	S 22°55' W	1,653.8'
L3	S 51°46' W	2,084.8'
L4	S 68°02' W	1,947.1'
L5	N 75°12' W	1,058.7'

Leases

A	Shiben Estates, Inc.
B	BRC Appalachian Minerals I, LLC
C	Randy Bradley
D	Richard R. & Mary J. Scyoc
E	Shiben Estates, Inc.
F	Aniero Minerals, LLC
G	Joshua Highley
H	OPEN
I	Shiben Estates, Inc.
J	Shiben Estates, Inc.
K	Allen Vincent Wilcox



FILE NO: 116-34-G-18
DRAWING NO: Cavatica 2H Well Plat
SCALE: 1" = 1000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: CORS, Monroe County, OH

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

DATE: January 7, 2022
OPERATOR'S WELL NO. Cavatica Unit 2H
API WELL NO
47 - 103 - 03482
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
Existing 1,237' Proposed 1,208' WATERSHED: Fishing Creek QUADRANGLE: Porter Falls
DISTRICT: Green Margaret COUNTY: Wayne
SURFACE OWNER: Lancaster ACREAGE: 39.00
ROYALTY OWNER: Shiben Estates, Inc. (2); Randy Bradley; Joshua Highley; Allen Vincent Wilcox; LEASE NO: 39; 8.01; ACREAGE: 41.75; 7.125; 17.1750
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) 7,300' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 11,800' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

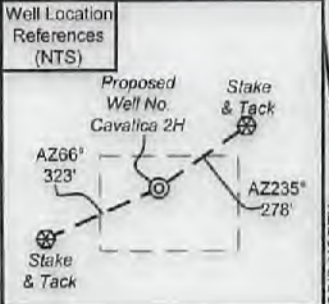
**Antero Resources
Well No. Cavatica 2H**

Antero Resources Corporation



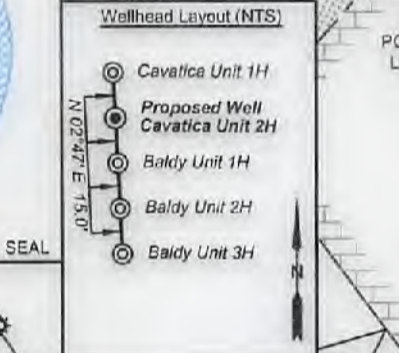
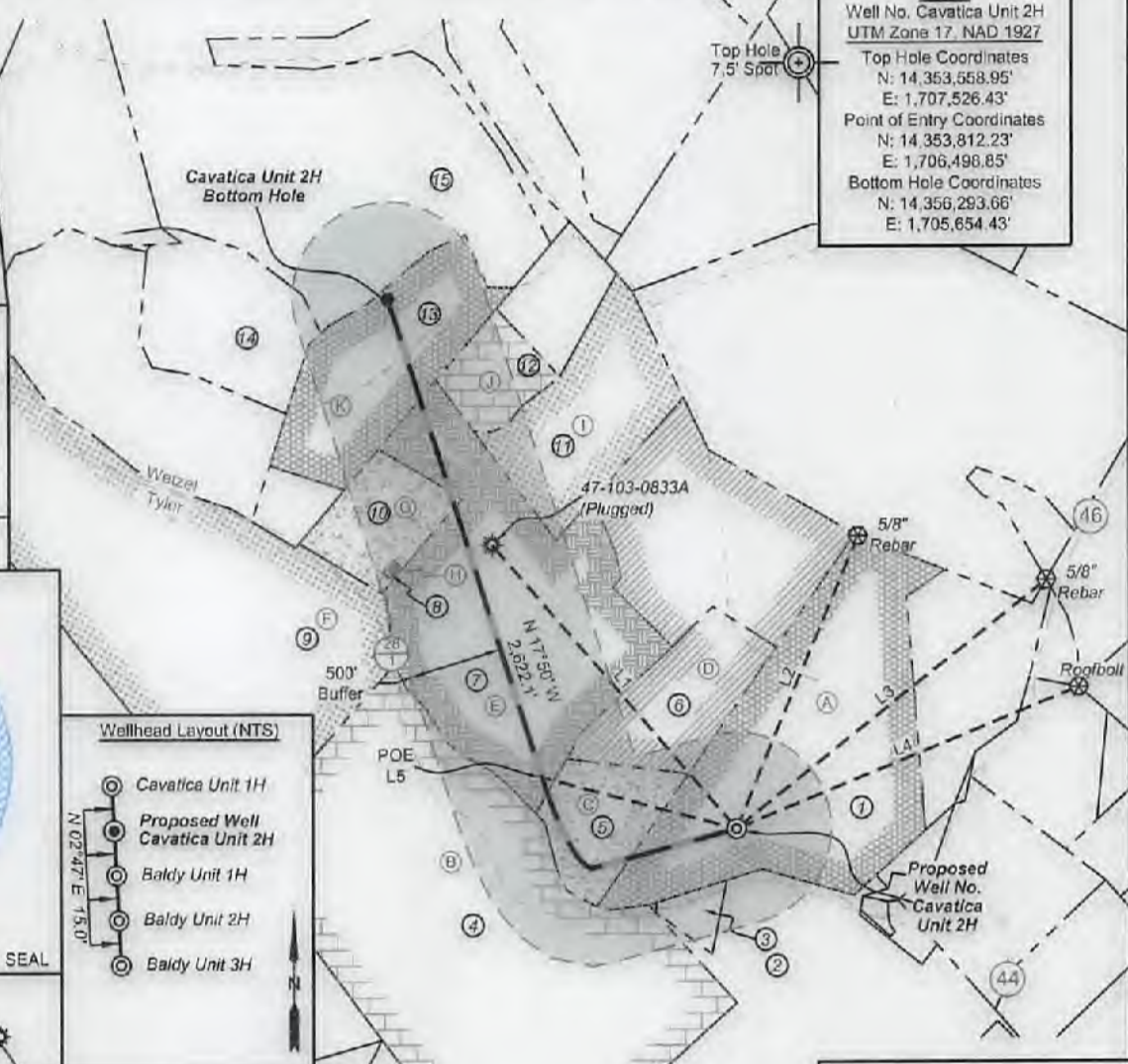
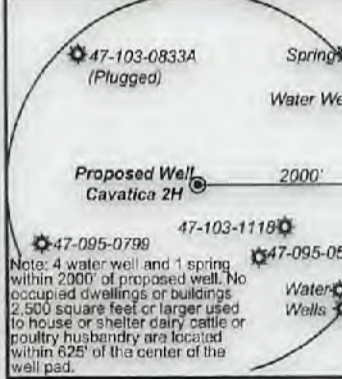
ID	TM/Par	Owner	Bk/Pg	Acres
1	19-31	Margaret Lancaster	333/440	39.00
2	12-27	Crystal A. Muzzy	W69/226	60.91
3	xx-xx	Garrett Cemetery	85/62	1.80
4	12-25	Cecil & Margaret Lancaster	170/48	78.17
5	19-52	Joshua Highley	464/208	8.01
6	19-30	Richard R. & Mary J. Scyoc	452/177	13.00
7	19-21	Joshua Highley	464/208	41.75
8	19-21.1	McCormick Cemetery	—/—	—
9	12-21	Mary Adalino Lewis, et al	AR 53/75	67.00
10	19-37	Joshua Highley	464/208	7.12
11	19-15	Joshua Highley	464/208	17.00
12	19-13	Joshua Highley	464/208	5.00
13	19-12	Joshua Highley	464/208	17.17
14	19-55	Olive M. Moore	392/158	13.99
15	19-54	Susan J. Fair	378/97	59.75

3,388' to Top Hole
5,253' to Bottom Hole
LATITUDE 39 - 32 - 30
LONGITUDE 80 - 45 - 00
Notes:
West Virginia Coordinate System of 1927, North Zone
based upon Differential GPS Measurements.
Well No. Cavatica Unit 2H Top Hole coordinates are
N: 376,209.23' Latitude: 39°31'33.78"
E: 1,644,022.36' Longitude: 80°45'43.23"
Bottom Hole coordinates are
N: 378,975.74' Latitude: 39°32'00.87"
E: 1,642,195.67' Longitude: 80°46'07.04"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,375,191.512m N: 4,376,025.047m
E: 520,469.639m E: 519,899.086m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.



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 prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167



Legend

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Road
- County Line
- Surface boundary (approx.)
- Interior surface tracts (approx.)

Bearing	Dist.
L1 S 40°47' E	1,961.1'
L2 S 22°55' W	1,653.8'
L3 S 51°46' W	2,084.8'
L4 S 68°02' W	1,947.1'
L5 N 75°12' W	1,058.7'

Notes:
Well No. Cavatica Unit 2H UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,353,558.95'
E: 1,707,526.43'
Point of Entry Coordinates
N: 14,353,812.23'
E: 1,706,496.85'
Bottom Hole Coordinates
N: 14,356,293.66'
E: 1,705,654.43'

Leases

Lease	Owner
A	Shiben Estates, Inc.
B	BRC Appalachian Minerals I, LLC
C	Randy Bradley
D	Richard R. & Mary J. Scyoc
E	Shiben Estates, Inc.
F	Antero Minerals, LLC
G	Joshua Highley
H	OPEN
I	Shiben Estates, Inc.
J	Shiben Estates, Inc.
K	Allen Vincent Wilcox

FILE NO: 116-34-G-18
DRAWING NO: Cavatica 2H Well Plat
SCALE: 1" = 1000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: CORS, Monroe County, OH

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

DATE: January 7 2022
OPERATOR'S WELL NO. Cavatica Unit 2H
API WELL NO
47 - 103 - 03482
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
Existing 1,237' Proposed 1,206'
LOCATION: ELEVATION: Proposed 1,206' WATERSHED: Fishing Creek QUADRANGLE: Porter Falls
DISTRICT: Green Margaret COUNTY: Wayne
SURFACE OWNER: Lancaster ACREAGE: 39.00
ROYALTY OWNER: Shiben Estates, Inc. (2); Randy Bradley; Joshua Highley; Allen Vincent Wilcox LEASE NO: ACREAGE: 41.75; 7.125; 17.1750
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) 7,300' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 11,800' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>A</u> <u>Shiben Estates LLC Lease</u> Shiben Estates LLC	Antero Resources Corporation	1/8+	255A/0681
<u>C</u> <u>Randy Bradley Lease</u> Randy Bradley Lease Antero Resources Appalachian Corporation	Antero Resources Appalachian Corporation Antero Resources Corporation	1/8+ Name Change	136A/0758 0121/0008
<u>E</u> <u>Shiben Estates LLC Lease</u> Shiben Estates LLC	Antero Resources Corporation	1/8+	265A/0235
<u>G</u> <u>Joshua Highley Lease</u> Joshua Highley	Antero Resources Corporation	1/8+	213A/0610
<u>E</u> <u>Shiben Estates LLC Lease</u> Shiben Estates LLC	Antero Resources Corporation	1/8+	265A/0235

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

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 Environmental Protection
 03/04/2022

WW-6A1
(5/13)

Operator's Well No. Cavatica 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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
K <u>Allen Vincent Wilcox Lease</u>	Allen Vincent Wilcox a married man dealing in his sole and separate property	Antero Resources Corporation	1/8+	163A/0918

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

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation
By: Tim Rady
Its: VP of Land

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WV Department of
Environmental Protection

47 10 303482



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: Baldy Unit 1H, 2H & 3H and Cavatica Unit 1H & 2H Wells
Quadrangle: Porter Falls 7.5'
Wetzel County/Green District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following applications for new well work permits for the Baldy Unit 1H, 2H & 3H and Cavatica Unit 1H & 2H horizontal shallow wells. 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 Baldy Unit 1H, 2H & 3H and Cavatica Unit 1H & 2H wells 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 that reads "Kelsey Silipo".

Kelsey Silipo, CPL
Senior Landman

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Office of Oil & Gas

FEB 14 2022

WV Department of
Environmental Protection

03/04/2022

47 10303482

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

Date of Notice Certification: 01/25/2022

API No. 47- 103 - _____

Operator's Well No. Cavatica Unit 2H

Well Pad Name: Red Lady 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>520469.64m</u>
County:	<u>Wetzel</u>		Northing:	<u>4375191.51m</u>
District:	<u>Green</u>	Public Road Access:	<u>Wetzel Tyler Ridge Rd</u>	
Quadrangle:	<u>Porter Falls 7.5'</u>	Generally used farm name:	<u>Margaret Lancaster</u>	
Watershed:	<u>Fishing Creek</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.

<p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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JAN 27 2022

WV Department of
Environmental Protection

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.

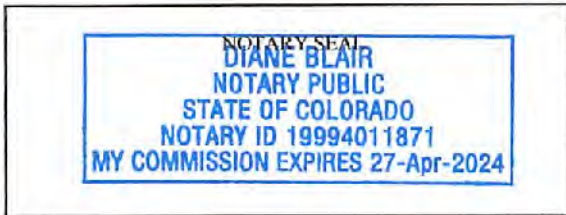
03/04/2022

47 10 303482

Certification of Notice is hereby given:

THEREFORE, I Diana Hoff, 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>Diana Hoff <i>Diana O. Hoff</i></u>		<u>Denver, CO 80202</u>
Its:	<u>Senior VP of Operations</u>	Facsimile:	<u>303-357-7315</u>
Telephone:	<u>303-357-7310</u>	Email:	<u>mstanton@anteroresources.com</u>



Subscribed and sworn before me this 25 day of Jan 2022.

Diane Blair Notary Public

My Commission Expires 27 Apr 2024

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 deprivacyofficer@wv.gov.

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JAN 27 2022
WV Department of
Environmental Protection

03/04/2022

WW-6A
(9-13)

47 10303482
API NO. 47- 103 -
OPERATOR WELL NO. Cavalica Unit 2H
Well Pad Name: Red Lady Pad

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: 1/26/2022 Date Permit Application Filed: 1/26/2022

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: Margaret Lancaster

Address: PO Box 19

Reader, WV 26167-0019

Name: _____

Address: _____

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

Name: Margaret Lancaster

Address: PO Box

Reader, WV 26167-0019

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: NO WELLS WITHIN 1500'

Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____

Address: _____

*Please attach additional forms if necessary

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JAN 27 2022
WV Department of
Environmental Protection

03/04/2022

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 gas well work or for a certificate of approval for the construction of an impoundment or pit.

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Permit for Gas
JAN 27 2022
WV Department of
Environmental Protection

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/oil-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

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.**

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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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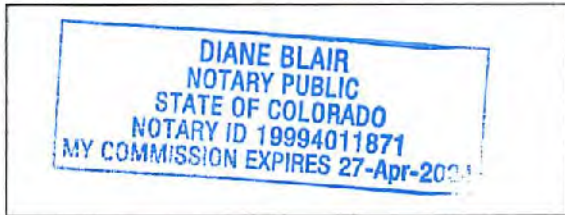
Notice is hereby given by:

Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310 *Diana O. Hoff*
Email: mstanton@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.



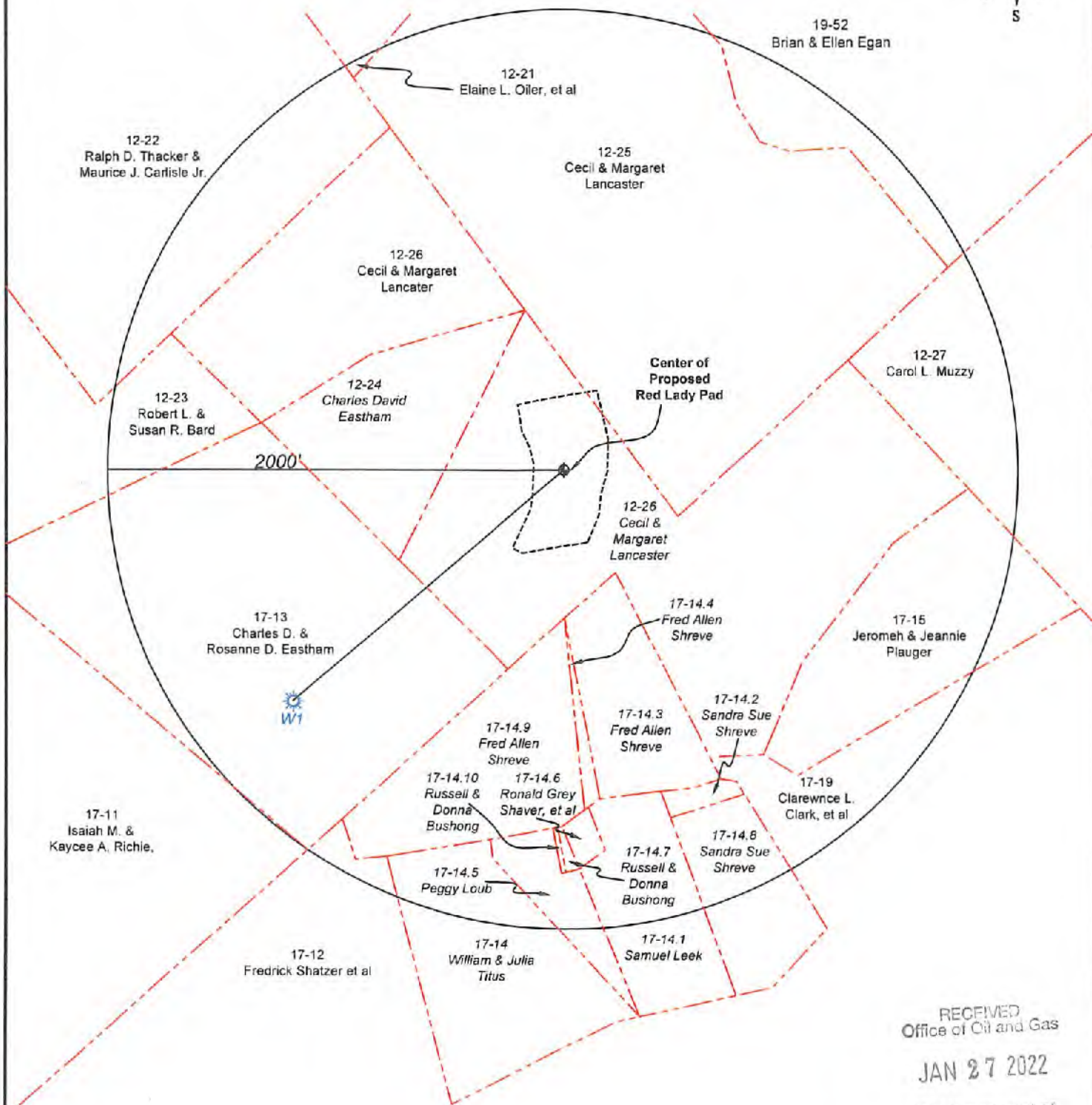
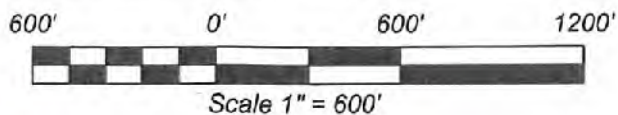
Subscribed and sworn before me this 26 day of Jan, 2022 .

Diane Blair Notary Public

My Commission Expires 27 Apr 2024

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**Red Lady Drill Pad
Water Well & Spring Map**



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Owners

W1. Charles D. & Rosanne D. Eastham, 505 Keich Hill Road, Middlebourne, WV 26149-9750

Tag	Azimuth	Dist.	Latitude	Longitude
W1	Az229°45'	1554.2'	39°31'05.68"	80°46'19.65"

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: 12/17/2021 **Date Permit Application Filed:** 01/26/2022

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: Margaret Lancaster
Address: PO Box 19
Reader, WV 26167

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: West Virginia UTM NAD 83 Easting: 520489.64m
County: Wetzel Northing: 4375191.51m
District: Green Public Road Access: Wetzel Tyler Ridge Rd
Quadrangle: Porters Falls 7.5' Generally used farm name: Margaret Lancaster
Watershed: Fishing Creek

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 Appalachian Corporation
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7310
Email: mstanton@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Mallory Stanton
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7310
Email: mstanton@anteroresources.com
Facsimile: 303-357-7315

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WV Department of
Environmental Protection

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.

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: 01/26/2022 **Date Permit Application Filed:** 01/26/2022

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>Margaret Lancaster</u> Address: <u>PO Box 19</u> <u>Reader, WV 26167-0019</u>	Name: _____ Address: _____
--	-------------------------------

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>520469.64m</u>	
County: <u>Wetzel</u>		Northing: <u>4375191.51m</u>	
District: <u>Green</u>	Public Road Access: <u>Wetzel Tyler Ridge Rd</u>		
Quadrangle: <u>Porter Falls 7.5'</u>	Generally used farm name: <u>Margaret Lancaster</u>		
Watershed: <u>Fishing Creek</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>mstanton@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 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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WW-6AW
(1-12)

API NO. 47- 103 -
OPERATOR WELL NO. Cavalica Unit 2H
Well Pad Name: Red Lady Pad

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, _____, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>520469.64m</u>
County:	<u>Wetzel</u>		Northing:	<u>4375191.51m</u>
District:	<u>Green</u>	Public Road Access:	<u>Wetzel Tyler Ridge Rd</u>	
Quadrangle:	<u>Porter Falls 7.5'</u>	Generally used farm name:	<u>Margaret Lancaster</u>	
Watershed:	<u>Fishing Creek</u>			

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

- *Please check the box that applies
- SURFACE OWNER
 - SURFACE OWNER (Road and/or Other Disturbance)
 - SURFACE OWNER (Impoundments/Pits)
 - COAL OWNER OR LESSEE
 - COAL OPERATOR
 - WATER PURVEYOR
 - OPERATOR OF ANY NATURAL GAS STORAGE FIELD

FOR EXECUTION BY A NATURAL PERSON	
<small>Office of Oil and Gas</small>	
Signature: _____	JAN 27 2022
Print Name: _____	
Date: _____	
FOR EXECUTION BY A CORPORATION, ETC.	
<small>WV Department of Environmental Protection</small>	
Company: _____	
By: _____	
Its: _____	
Signature: _____	
Date: _____	

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.

03/04/2022



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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

D. Alan Reed, P.E.
State Highway Engineer

Jimmy Wriston, P. E.
Secretary of Transportation
Commissioner of Highways

October 29, 2021

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 Red Lady Pad, Tyler County
Cavatica Unit 2H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2021-0085 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off Tyler County Route 28/1 SLS MP 0.80.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

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

Cc: Mallory Stanton
Antero Resources Corporation
CH, OM, D-6
File

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Subdivision 3.3.e A listing of the anticipated additives that may be used in the water used for fracturing or stimulating the well. (A listing of the additives that were actually used in the fracturing or stimulating of the well shall be submitted as part of the completion report required by W. Va. Code 22-6-22.)

FRACTURING/STIMULATING INTERVAL

Additive	Chemical Abstract Service Number (CAS #)
1. Fresh Water	7732-18-5
2. 2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
3. Ammonium Persulfate	7727-54-0
4. Anionic copolymer	Proprietary
5. Anionic polymer	Proprietary
6. BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
7. Cellulase enzyme	(Proprietary)
8. Demulsifier Base	(Proprietary)
9. Ethoxylated alcohol blend	Mixture
10. Ethoxylated Nonylphenol	68412-54-4
11. Ethoxylated oleylamine	26635-93-8
12. Ethylene Glycol	107-21-1
13. Glycol Ethers	111-76-2
14. Guar gum	9000-30-0
15. Hydrogen Chloride	7647-01-0
16. Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
17. Isopropyl alcohol	67-63-0
18. Liquid, 2,2-dibromo-3- nitrilopropionamide	10222-01-2
19. Microparticle	Proprietary
20. Petroleum Distillates (BTEX Below Detect)	64742-47-8
21. Polyacrylamide	57-55-6
22. Propargyl Alcohol	107-19-7
23. Propylene Glycol	57-55-6
24. Quartz	14808-60-7
25. Sillica crystalline quartz	7631-86-9
26. Sodium Chloride	7647-14-5
27. Sodium Hydroxide	1310-73-2
28. Sugar	57-50-1
29. Surfactant	68439-51-0
30. Suspending agent (solid)	14808-60-7
31. Tar bases, quinolone derivs, benzyl chloride-quarternized	72480-70-7
32. Solvent Naptha, petroleum, heavy aliph	64742-96-7
33. Soybean Oil, Me ester	67784-80-9
34. Copolymer of Maleic and Acrylic Acid	52255-49-9
35. DETA Phosphonate	15827-60-8
36. Hexamethylene Triamine Penta	34690-00-1
37. Phosphino Carboxylic acid polymer	71050-62-9
38. Hexamethylene diamine penta	23605-74-5
39. 2-Propenoic acid, polymer with 2 propenamide	9003-06-9
40. Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
41. Diethylene Glycol	111-46-6
42. Methenamine	100-97-0
43. Polyethylene polyamine	68603-67-8
44. Coco amine	61791-14-8
45. 2-Propyn-1-olcompound with methyloxirane	38172-91-7

RED LADY WELL PAD WELL PAD SITE PLAN ANTERO RESOURCES

LAT./LONG: N 39.521063° W -80.767761°
(APPROXIMATE CENTER OF PROJECT)

LOCATION COORDINATES				
WV93 NAD (NORTH ZONE) UTMED-17				
SITE LOCATIONS	EASTING	NORTHING	EASTING	NORTHING
WATER OFFLOAD ACCESS ROAD ENTRANCE	39.532127	48.764559	43754.22.81.7839	515915.721407
AST ACCESS ROAD ENTRANCE	39.531893	48.764539	43756.09.09.0219	5159231.494699
WELL PAD ACCESS ROAD ENTRANCE	39.532970	48.764570	437509.3799147	515906.842795
CENTROID OF TANK PAD	39.532853	48.767216	4374938.514390	515909.681397
CENTROID OF WELL PAD	39.532628	48.764858	427508.450218	5159467.543847

GENERAL DESCRIPTION:
THE ACCESS ROAD, TANK PAD AND WELL PAD ARE BEING CONSTRUCTED TO ASSIST IN THE DEVELOPMENT OF INDIVIDUAL MANDELLS IN THE AREA.

FLOODPLAIN NOTES:
THE PROPOSED SITE LOCATION IS NOT WITHIN ANY IDENTIFIED FLOOD ZONES PER FEMA MAP NUMBER #1980000000.

MISS UTILITY STATEMENT:
ANTERO RESOURCES CORPORATION WILL NOTIFY MISS UTILITY OF ANY WORKS FOR THE LOCATION OF UTILITIES PRIOR TO THIS PROJECT DESIGN. CONTACT #3941648000 & #3941648000. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

ENTRANCE PERMIT:
CIVIL AND ENVIRONMENTAL CONSULTANTS AND ANTERO RESOURCES WILL OBTAIN AN ENCROACHMENT PERMIT FROM MARIETTA FOR THE MOST APPROPRIATE DEPARTMENT OF TRANSPORTATION DIVISION OF MARIETTA PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES:
STREAM AND WELL DELINEATIONS WERE PERFORMED IN NOVEMBER 17, 2020 BY ALLSTAR ECOLOGY TO REVIEW THE SITE FOR STREAMS AND WELLS THAT ARE MOST LIKELY TO BE AFFECTED BY THE PROPOSED PROJECT. THE STREAM AND WELL DELINEATION MAP WAS PREPARED BY ALLSTAR ECOLOGY AND SUBMITTED TO THE LANDOWNERS. THE RESULTS OF THE FIELD DELINEATION MAP SHOWED THAT THE PROPOSED PROJECT IS NOT LIKELY TO AFFECT ANY OF THE IDENTIFIED STREAMS OR WELLS. THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROCEEDINGS TO WATER OF THE WELLS, INCLUDING WELLS AND FILLING STREAMS, SHOULD BE OBTAINED PRIOR TO CONSTRUCTION.

GEOTECHNICAL NOTES:
THE PROPOSED SITE PLAN SHALL BE FIELD VERIFIED BY A CERTIFIED GEOTECHNICAL ENGINEER TO ENSURE THE PROPOSED SLOPE ARE AS SHOWN. ACCESS ROAD CONSTRUCTION SHALL BE MONITORED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OR PROJECT DESIGN ENGINEER DURING CONSTRUCTION.

PROJECT CONTACTS:

OPERATOR:
ANTERO RESOURCES CORPORATION
600 NORTH DAVIS BLVD
MARIETTA, WV 26009
PHONE: 304.840.4100
FAX: 304.840.4102

ENGINEER/SURVEYOR:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
JEROME FODORSKA, P.E., PROJECT MANAGER/REGISTERED
OFFICE: 304.151.0110 FAX: 304.151.0111 CELL: 304.909.2000

ENVIRONMENTAL:
ALLSTAR ECOLOGY, LLC
DREW BROWN, P.E., SENIOR PROJECT MANAGER / REGISTERED
OFFICE: 304.151.0110 FAX: 304.151.0111 CELL: 304.909.2000

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SCOTT HORTER - UTILITY SUPERVISOR:
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LOCATION MAP
PORTER FALLS USGS 7.5' QUAD
SCALE IN FEET
1 INCH = 1000 FEET



VICINITY MAP
SCALE IN FEET
1 INCH = 1 MILE

PLAN REPRODUCTION WARNING
THIS PLAN HAS BEEN REPRODUCED FOR FULL COLOR PRINTING. ANY SET OF THESE PLANS THAT IS NOT A FULL COLOR PRINTING SHALL NOT BE CONSIDERED AS VALID FOR CONSTRUCTION PURPOSES.
**REPRODUCTION INFORMATION MAY BE LOST IN COPYING AND/OR SCALE PLOTTING.

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

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RESTRICTIONS NOTES:

- THERE ARE NO LINES OR RECEIVERS WITHIN 100 FEET OF THE WELL PAD AND LOD. THERE ARE SPECIALIZED STREAM IMPACTS THAT WILL NEED TO BE PERMITTED BY THE APPROPRIATE AGENCIES. THERE ARE NO UTILITIES THAT WILL BE DISTURBED.
- THERE ARE NO UNAPPROVED PROPOSED STREAMS WITHIN 100 FEET OF THE WELL PAD AND LOD.
- THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 100 FEET OF THE WELL PAD AND LOD.
- THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 100 FEET OF THE WELLS BEING DRILLED.
- THERE ARE NO EXISTING BUILDINGS OR STRUCTURES WITHIN 100 FEET OF THE CENTER OF THE WELL PAD.
- THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,000 SQUARE FEET WITHIN 100 FEET OF THE CENTER OF THE WELL PAD.

GRADING VOLUMES - OVERALL SITE

DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
AST ACCESS ROAD	380	19187	-18807
WELL PAD ACCESS ROAD	380	2720	-2340
WATER OFFLOAD ACCESS	71670	8784	62886
WELL PAD	62863	41530	21333
AST PAD	52989	81129	-28140
STAGING AREA 1	2017	10828	-8811
SPOK PILE 1	0	0	0
TOTAL	199,479	109,167	90,312
EMPOUR / STRIPPING WITH 20% SWELL [126,019 C.Y.]			
TOTAL EXCAVATION	211,477	109,167	102,310

L.O.B. AREAS

DESCRIPTION	ACRES
AST ACCESS ROAD	1.17
WELL PAD ACCESS ROAD	2.43
WATER OFFLOAD ACCESS	7.38
WELL PAD	5.42
AST PAD	38.17
EMPOUR/STRIPPING PILE 1	6.63
OLD STAGING / SPOK AREA	108.61
STAGING AREA 1	2.18
SPOK PILE 1	1.31
TOTAL	93.15
WOODS PREVIOUSLY CLEARED	22.94
ADDITIONAL CLEARING	34.77

AQUATIC IMPACT TABLE

STREAM ID	TYPE OF STREAM	LF WITHIN LOD	(IMPACTS E/F) WITHIN CURVE/TEL BOUNDARY	COMMENTS
SWCA_STREAM15_MOD	EPHEMERAL	3	0	NO IMPACT
SWCA_STREAM33_MOD	EPHEMERAL	29	0	TIMBER MAT - NO FILL
SWCA_STREAM43_MOD	EPHEMERAL	17	0	NO IMPACT
SWCA_STREAM24_MOD	EPHEMERAL	36	0	NO IMPACT

WELL LEGEND

WELL HEAD	WV NORTH NAD 27	WV NORTH NAD 83	UTM M	NAD 83
RED LADY SH	N: 376340.157 E: 1643987.583	N: 376375.860 E: 1612546.731	N: 8375231.223 E: 570458.150	LAT: 39.528488 LONG: -80.769364

APPROVED WVDEP OOG
4/13/2021



REVISION RECORD

NO.	DATE	DESCRIPTION
1		ISSUED FOR PERMITTING
2		ISSUED FOR PERMITTING
3		ISSUED FOR PERMITTING
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50		ISSUED FOR PERMITTING

Civil & Environmental Consultants, Inc.
600 Marietta Ave - Suite 200 - Marietta, WV 26009
PH: 304.840.4000 - Fax: 304.840.4000
www.civilandenv.com

ANTERO RESOURCES
RED LADY WELL PAD
ELLSWORTH & GREEN DISTRICTS
TYLER & WETZEL COUNTY, WV

COVER SHEET

DATE: FEBRUARY 2021
SCALE: AS SHOWN
PROJECT NO: 2020-001
SHEET NO: 1 OF 1

C000



APPROVED
WVDEP OOG
4/13/2021

DEVIATION
STUDY AREA

PROPOSED SWARTWICE HO (TYP.)

LANCASTER COOL. &
LANCASTER MARGARET
TM 18 PAR 31
DN 282 PG 440
30 AC &

EXISTING 4" STEEL PIPE
D&T LINE 50-1220

EXISTING WELL 47-103-71545

EST GAS LINE

ROCK FILTER OUTLET

SINK_STREAM_LAND

SINK_STREAM_LAND

SINK_STREAM_LAND

EXISTING FENCE LINE

PROPOSED SWARTWICE HO (TYP.)

PROPOSED WATERLINE
(BY ANTERO WEST/PAV)

STABILIZED CONSTRUCTION
DRAINAGE (TO BE PAVED)

EXISTING 4" WOODY LINE
TRUCK BODY RESOURCES TO
A DESIGN DOWN AND
ANIMAL IS NOW ABSENT

WETZEL COUNTY
DEER CREEK

WILL PAD ACCESS
ROAD ENTRANCE
MARKS L&J 30 SEVENTH
MARKS LONG - 80 FEET

COUNTRY
TM 12
WB 30 PG 654
DN 282 PG 276
2 AC & 7098

WIZZY CAROL L.
TM 12
WB 30 PG 654
DN 282 PG 276
2 AC & 7098
CEMETERY RESERVATION

EXISTING GAS WELL

EXISTING 8" PLASTIC
WATER LINE

EXISTING WELLY POLE
(DOWN AND EOL)

EXISTING WATERLINE
DOWN-OF-ART

EXISTING 24" CULVERT

EXISTING 6" S&W COIL

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SCALE IN FEET



NO.	DATE	DESCRIPTION

CEL
Civil & Environmental Consultants, Inc.
600 Marketplace Ave. Suite 200 - Sheepsport, WV 26030
PH: 304.853.3118 - FAX: 304.853.3034 - PER: 304.853.3337

ANTERO RESOURCES
RED LADY WELL PAD
ELLSWORTH & GREEN DISTRICTS
TYLER & WETZEL COUNTY, WV

DATE	DESCRIPTION	BY	CHKD BY
FEBRUARY 2021	DESIGN	AS SHOWN	CSH

C304